

ENVIRONMENTAL PROTECTION AGENCY**40 CFR Part 63****[EPA-HQ-OAR-2020-0430; FRL-7522-02-OAR]****RIN 2060-AU63****National Emission Standards for Hazardous Air Pollutants: Primary Copper Smelting Residual Risk and Technology Review and Primary Copper Smelting Area Source Technology Review****AGENCY:** Environmental Protection Agency (EPA).**ACTION:** Final rule.

SUMMARY: This action finalizes the residual risk and technology review (RTR) conducted for the Primary Copper Smelting major source category regulated under national emission standards for hazardous air pollutants (NESHAP). This action also finalizes the technology review for the Primary Copper Smelting area source NESHAP. The final amendments for the major source NESHAP include particulate matter (PM) emission standards as a surrogate for metal hazardous air pollutants (HAP) other than mercury (primarily lead and arsenic) for anode refining point sources, process fugitive emissions from roofline vents, Hoboken converter process fugitive capture systems where they combine with anode refining point sources, and new converters. We are also finalizing emission standards for previously unregulated HAP including mercury, benzene, toluene, hydrogen chloride (HCl), chlorine, polycyclic aromatic hydrocarbons (PAH), and dioxins and furans (D/F). In addition, we are taking final action in the major source NESHAP to establish work practice standards for bypass stacks, and add a new emissions limit for lead and emissions control design standards to minimize process fugitive emissions at facilities with flash furnaces and Peirce-Smith converters. Final amendments for both the major source NESHAP and the area source NESHAP include removing exemptions and associated provisions for periods of startup, shutdown, and malfunction (SSM), specifying that the emission standards apply at all times, and requiring electronic reporting of performance test results and notification of compliance reports.

DATES: This final rule is effective May 13, 2024, except for amendatory instruction 3, which is effective July 15, 2024. The incorporation by reference (IBR) of certain publications listed in

the rule is approved by the Director of the Federal Register as of May 13, 2024.

ADDRESSES: The U.S. Environmental Protection Agency (EPA) has established a docket for this action under Docket ID No. EPA-HQ-OAR-2020-0430. 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 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 either electronically through <https://www.regulations.gov/>, or in hard copy at the EPA Docket Center, WJC West Building, Room Number 3334, 1301 Constitution Ave. NW, Washington, DC. The Public Reading Room hours of operation are 8:30 a.m. to 4:30 p.m. Eastern Standard Time (EST), Monday through Friday. The telephone number for the Public Reading Room is (202) 566-1744, and the telephone number for the EPA Docket Center is (202) 566-1742.

FOR FURTHER INFORMATION CONTACT: For questions about this final action, contact U.S. EPA, Attn: Amanda Hansen, Mail Drop: D243-04, 109 T.W. Alexander Drive, P.O. Box 12055, RTP, North Carolina 27711; telephone number: (919) 541-3165; email address: hansen.amanda@epa.gov. For specific information regarding the risk modeling methodology, contact U.S. EPA, Attn: James Hirtz, Mail Drop: C539-02, 109 T.W. Alexander Drive, P.O. Box 12055, RTP, North Carolina 27711; telephone number: (919) 541-0881; email address: hirtz.james@epa.gov.

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

ACI activated carbon injection
ADEQ Arizona Department of Environmental Quality
ANSI American National Standards Institute
BTF beyond-the-floor
CAA Clean Air Act
CEDRI Compliance and Emissions Data Reporting Interface
CEMS continuous emissions monitoring system
CFR Code of Federal Regulations
CRA Congressional Review Act
CMS continuous monitoring systems
DCOT digital camera opacity technique

D/F dioxins and furans
DSI dry sorbent injection
EAF electric arc furnaces
EJ Environmental Justice
EPA Environmental Protection Agency
ERT Electronic Reporting Tool
FEM Federal equivalent method
FR Federal Register
FRM Federal reference method
GACT generally available control technology
gr/dscf grains per dry standard cubic feet
HAP hazardous air pollutants
HCl hydrogen chloride
HEM-4 Human Exposure Model, Version 1.5.5
HI hazard index
HQ hazard quotient
ICR information collection request
lbs pounds
lb/hr pounds per hour
LEAN Louisiana Environmental Action Network
MACT maximum achievable control technology
mg/dscm milligrams per dry standard cubic meter
MIR maximum individual risk
MTG Measurement Technology Group
NAAQS National Ambient Air Quality Standards
NAICS North American Industry Classification System
NESHAP National Emission Standards for Hazardous Air Pollutants
NTTAA National Technology Transfer and Advancement Act
OAR Office of Air and Radiation
OMB Office of Management and Budget
PAH polycyclic aromatic hydrocarbons
Pb lead
PDF portable document format
PM particulate matter
PRA Paperwork Reduction Act
RATA Relative Accuracy Test Audit
REL reference exposure level
RFA Regulatory Flexibility Act
RIN Regulatory Information Number
RTR risk and technology review
SIP state implementation plan
SO₂ sulfur dioxide
SSM startup, shutdown, and malfunction
TEQ toxic equivalency quotient
TOSHI target organ-specific hazard index
tpy ton per year
ug/m³ micrograms per cubic meter
UMRA Unfunded Mandates Reform Act
UPL upper prediction limit
VCS voluntary consensus standards
WESP wet electrostatic precipitator

Background information. On January 11, 2022 (87 FR 1616), and July 24, 2023 (88 FR 47415), the EPA proposed revisions to the Primary Copper Smelting major source NESHAP based on our RTR. In this action, we are finalizing decisions and revisions for the major source rule. On January 11, 2022 (87 FR 1616), the EPA also proposed revisions to the Primary Copper Smelting area source NESHAP based on our technology review. In this action, we are also finalizing decisions and revisions for the area source rule.

We summarize some of the more significant comments we timely received regarding the proposed rules and provide our responses in this preamble. A summary of all other public comments on the proposals and the EPA's responses to those comments is available in *National Emission Standards for Hazardous Air Pollutant Emissions: Primary Copper Smelting Residual Risk and Technology Review and Primary Copper Smelting Area Source Technology Review: Summary of Public Comments and Responses*, Docket ID No. EPA-HQ-OAR-2020-0430. "Track changes" versions of the regulatory language that incorporate the changes to the two rules in this action are available in the docket.

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I. General Information

A. Executive Summary

This action presents the results of the U.S. Environmental Protection Agency (EPA or the Agency) residual risk and technology review (RTR) for the National Emission Standards for Hazardous Air Pollutants (NESHAP) for major source Primary Copper Smelters as required under the Clean Air Act (CAA). Pursuant to the CAA, this action also presents the results of the technology review for the Primary Copper Smelting area source NESHAP.

Based on the results of the risk review, the EPA is finalizing a determination that risks from emissions of air toxics from this major source category are currently unacceptable. This unacceptable risk determination considers all health information, including the EPA's analysis of health risks associated with emissions of lead and arsenic from these facilities. The modeled exceedance of the lead National Ambient Air Quality Standard (NAAQS) of 0.15 ug/m³ at Freeport represents an important health metric in EPA's unacceptability determination for

the Primary Copper source category. The EPA estimated that the highest modeled rolling 3-month concentration of lead at a residential location is 0.17 ug/m³ based on 2019 actual emissions and 0.24 ug/m³ based on allowable emissions, at the Freeport facility, refer to appendix 1; section 9 of the *Residual Risk Assessment for the Primary Copper Smelting Source Category in Support of the 2021 Risk and Technology Review Proposed Rule* for additional details of the monitor to model comparison for this rule. The NAAQS off-site lead (Pb) monitor (at Miami Golf Course) recorded Pb levels for 2019 were below the NAAQS with a maximum 3-month Pb concentration at the monitor of 0.038 ug/m³, while the modeled Pb concentration based upon actual emissions for this site was 0.045 ug/m³. This close alignment of the monitor with model results for the Miami Golf Course site provides us with additional confidence in our maximum off-site model concentration of 0.17 ug/m³ at a residential location. The EPA also found that the maximum individual risk (MIR) of cancer was estimated to be 70-in-1 million based on actual emissions and 90-in-1 million based on allowable emissions (driven by arsenic emissions), which is approaching the presumptive level of unacceptability of 100-in-1 million. In addition, the EPA found that the maximum acute hazard quotient (HQ) was 7 (also driven by arsenic emissions). Considering all of the health risk information and factors discussed above, along with the risk information and uncertainties discussed in the 2022 proposed rule preamble (87 FR 1616), the EPA has determined that the current risks for this source category are unacceptable.

To reduce risks to an acceptable level, the EPA is finalizing a new emission limit for particulate matter (PM) as a surrogate for particulate hazardous air pollutant (HAP) metals (such as lead and arsenic) in the major source NESHAP for a combination of process fugitive roofline emissions from the anode refining department, copper converter departments, slag cleaning vessels and smelting vessels (also known as smelting furnaces). This standard will achieve significant reductions of lead and arsenic emissions and their associated health risks (as described in section IV.A. of this preamble).

Pursuant to the *LEAN* decision (which is described further in section II.A. of this preamble), the EPA is also finalizing new emissions standards based on maximum achievable control technology (MACT) for the major source NESHAP to address currently

unregulated emissions of HAP, as follows: PM, as a surrogate for particulate HAP metals, for (1) anode refining furnace point source emissions; (2) new converters; and (3) the combination of process fugitive roofline emissions from the anode refining department, copper converter departments, slag cleaning vessels and smelting vessels (also known as smelting furnaces). The EPA is also finalizing new pollutant-specific emissions limits based on MACT for the following HAP: mercury, lead, benzene, toluene, hydrogen chloride (HCl), chlorine, polycyclic aromatic hydrocarbons (PAH), naphthalene and dioxins and furans (D/F). Furthermore, in this final action, after reviewing and considering public comments, the EPA is finalizing work practice standards according to CAA 112(h) for bypass stacks which were previously an unregulated emissions source.

Pursuant to the CAA mandated technology review, we are finalizing a PM limit (as a surrogate for nonmercury metal HAP) for the combined emissions from the Hoboken converter process fugitive capture systems where they combine with anode refining point source emissions. This standard will achieve significant reductions of lead and arsenic emissions (as described in sections III.B. and IV.B. of this preamble). Furthermore, we are finalizing emissions control design standards to minimize process fugitive HAP metals emissions from roof vents at facilities with flash furnaces and Peirce-Smith converters. In addition, under the technology review the EPA is finalizing work practice standards to minimize fugitive dust emissions which will achieve further emissions reductions beyond the reductions that will be achieved from the rooflines under the risk review for major sources (described above).

With regard to primary copper smelting area sources, the Agency did not identify any developments in practices, processes, or control technologies. Therefore, the EPA is not finalizing any new or revised standards pursuant to the CAA technology review for the area source NESHAP.

In addition to the new and revised standards described in the previous paragraphs, consistent with *Sierra Club v. EPA* (which is described further in section III.D. of this preamble), the EPA is also finalizing rule changes to remove exemptions and associated provisions for periods of startup, shutdown, and malfunction (SSM) and to specify that the emission standards apply at all times. The EPA is also finalizing rule changes to require electronic reporting

of performance test results and notification of compliance reports for both area and major sources. Implementation of the rules is expected to reduce HAP metal emissions from primary copper smelters, improve human health, and reduce environmental impacts associated with those emissions. This final action will also result in improved monitoring, compliance, and implementation of the existing standards.

During development of these proposed and final rules, the EPA also completed a demographic analysis which indicates that cancer risks associated with emissions from the major source category disproportionately affect communities with environmental justice concerns, including low-income residents, American Indians, and Hispanics living near these facilities. Once the new and revised standards (described in this preamble) are implemented, risks in nearby communities due to HAP emissions will be reduced to acceptable levels and the NESHAP will provide an ample margin of safety to protect public health.

B. Does this action apply to me?

The source categories that are the subject of this action are Primary Copper Smelting Major Sources regulated under 40 CFR part 63, subpart QQQ, and Primary Copper Smelting Area Sources, regulated under 40 CFR part 63, subpart EEEEE. The North American Industry Classification System (NAICS) code for the primary copper smelting industry is 331410. This list of categories and NAICS codes is not intended to be exhaustive, but rather provides a guide for readers regarding the entities that this final action is likely to affect. The final standards will be directly applicable to the affected sources. State, local, and Tribal governments would not be directly affected by this final action. As defined in the *Initial List of Categories of Sources Under Section 112(c)(1) of the Clean Air Act Amendments of 1990* (see 57 FR 31576, July 16, 1992) and *Documentation for Developing the Initial Source Category List, Final Report* (see EPA-450/3-91-030, July 1992), the Primary Copper Smelting major source category addresses any major source facility engaged in the pyrometallurgical process used for the extraction of copper from sulfur oxides, native ore concentrates, or other copper bearing minerals. As originally defined, the category includes, but is not limited to, the following smelting process units: roasters, smelting furnaces, and converters. Affected sources under the

current major source NESHAP are concentrate dryers, smelting furnaces, slag cleaning vessels, converters, and fugitive emission sources. The area source category was added to the source category list in 2002 (67 FR 70427, 70428). Affected sources under the area source NESHAP are concentrate dryers, smelting vessels (e.g., furnaces), converting vessels, matte drying and grinding plants, secondary gas systems, and anode refining operations.

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

In addition to being available in the docket, an electronic copy of this final action will also be available on the internet. Following signature by the EPA Administrator, the EPA will post a copy of this final action at <https://www.epa.gov/stationary-sources-air-pollution/primary-copper-smelting-national-emissions-standards-hazardous-air> and at <https://www.epa.gov/stationary-sources-air-pollution/primary-copper-smelting-area-sources-national-emissions-standards>. Following publication in the **Federal Register**, the EPA will post the **Federal Register** version and key technical documents at this same website.

Additional information is available on the RTR website at <https://www.epa.gov/stationary-sources-air-pollution/risk-and-technology-review-national-emissions-standards-hazardous>. This information includes an overview of the RTR program and links to project websites for the RTR source categories.

D. Judicial Review and Administrative Reconsideration

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 (the Court) by July 12, 2024. 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 only 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 reconsider the rule if the person raising an objection can demonstrate to the Administrator 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 should submit a Petition for Reconsideration to the Office of the Administrator, U.S. EPA, Room 3000, WJC South 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. EPA, 1200 Pennsylvania Ave. NW, Washington, DC 20460.

II. Background

A. What is the statutory authority for this action?

Section 112 of the CAA establishes a two-stage regulatory process to address emissions of HAP from stationary sources. In the first stage, we must identify categories of sources emitting one or more of the HAP listed in CAA section 112(b) and then promulgate technology-based NESHAP for those sources. “Major sources” are those that emit, or have the potential to emit, any single HAP at a rate of 10 tons per year (tpy) or more, or 25 tpy or more of any combination of HAP. For major sources, these standards are commonly referred to as MACT standards and must reflect the maximum degree of emission reductions of HAP achievable (after considering cost, energy requirements, and non-air quality health and environmental impacts). In developing MACT standards, CAA section 112(d)(2) directs the EPA to consider the application of measures, processes, methods, systems, or techniques, including, but not limited to, those that reduce the volume of or eliminate HAP emissions through process changes, substitution of materials, or other modifications; enclose systems or processes to eliminate emissions; collect, capture, or treat HAP when released from a process, stack, storage, or fugitive emissions point; are design, equipment, work practice, or operational standards; or any combination of the above.

For these MACT standards, the statute specifies certain minimum stringency requirements, which are referred to as MACT floor requirements, and which may not be based on cost considerations. See CAA section 112(d)(3). For new sources, the MACT

floor cannot be less stringent than the emission control achieved in practice by the best-controlled similar source. The MACT standards for existing sources can be less stringent than floors for new sources, but they cannot be less stringent than the average emission limitation achieved by the best-performing 12 percent of existing sources in the category or subcategory (or the best-performing five sources for categories or subcategories with fewer than 30 sources). In developing MACT standards, we must also consider control options that are more stringent than the floor under CAA section 112(d)(2). We may establish standards more stringent than the floor, based on the consideration of the cost of achieving the emissions reductions, any non-air quality health and environmental impacts, and energy requirements. Standards more stringent than the floor are commonly referred to as beyond-the-floor (BTF) standards. In certain instances, as provided in CAA section 112(h), the EPA may set work practice standards in lieu of numerical emission standards. For area sources, CAA section 112(d)(5) gives the EPA discretion to set standards based on generally available control technologies or management practices (Generally Available Control Technology (GACT) standards) in lieu of MACT standards.

In the second stage of the regulatory process, the CAA requires the EPA to undertake two different analyses, which we refer to as the technology review and the residual risk review. Under the technology review, we must review the technology-based standards and revise them “as necessary (taking into account developments in practices, processes, and control technologies)” no less frequently than every 8 years, pursuant to CAA section 112(d)(6). In conducting this review, the EPA is not required to recalculate the MACT floors that were established in earlier rulemakings.

Natural Resources Defense Council (NRDC) v. EPA, 529 F.3d 1077, 1084 (D.C. Cir. 2008). *Association of Battery Recyclers, Inc. v. EPA*, 716 F.3d 667 (D.C. Cir. 2013). The EPA may consider cost in deciding whether to revise the standards pursuant to CAA section 112(d)(6). The EPA is required to address regulatory gaps, such as missing standards for listed air toxics known to be emitted from the source category, and any new MACT standards must be established under CAA sections 112(d)(2) and (3), or, in specific circumstances, CAA sections 112(d)(4) or (h). *Louisiana Environmental Action Network (LEAN) v. EPA*, 955 F.3d 1088 (D.C. Cir. 2020). Under the residual risk

review, we must evaluate the risk to public health remaining after application of the technology-based standards and revise the standards, if necessary, to provide an ample margin of safety to protect public health or to prevent, taking into consideration costs, energy, safety, and other relevant factors, an adverse environmental effect. The residual risk review is required within 8 years after promulgation of the technology-based standards, pursuant to CAA section 112(f). In conducting the residual risk review, if the EPA determines that the current standards provide an ample margin of safety to protect public health, it is not necessary to revise the MACT standards pursuant to CAA section 112(f).¹ Section 112(d)(5) of the CAA provides that this residual risk review is not required for categories of area sources subject to GACT standards. For more information on the statutory authority for this rule, see 87 FR 1616 and 88 FR 47415.

B. What is the Primary Copper Smelting source category and how does the NESHAP regulate HAP emissions from the source category?

The primary copper smelting source category includes any facility that uses a pyrometallurgical process to produce anode copper from copper ore concentrates. Primary copper smelting begins with copper mines supplying the ore concentrate (typically 30 percent copper). In most cases, the moisture is reduced from the ore concentrate in dryers, and then the ore concentrate is fed through a smelting furnace where it is melted and reacts to produce copper matte. One existing smelter is able to feed its copper concentrate directly to the smelting furnace without prior drying. Copper matte is a molten solution of copper sulfide mixed with iron sulfide and is about 60 percent copper. The solution is further refined using converters to make blister copper, which is approximately 98 percent copper. Converters use oxidation to remove sulfide as sulfur dioxide (SO₂) gas and the iron as a ferrous oxide slag. The majority of the SO₂ gases are sent to a sulfuric acid plant. The slag is removed, cooled, and often processed again to remove any residual copper. The blister copper is reduced in the anode furnace to remove impurities and oxygen, typically by injecting natural gas and steam, to produce a high purity

¹ The Court has affirmed this approach of implementing CAA section 112(f)(2)(A): *NRDC v. EPA*, 529 F.3d 1077, 1083 (D.C. Cir. 2008) (“If EPA determines that the existing technology-based standards provide an ‘ample margin of safety,’ then the Agency is free to readopt those standards during the residual risk rulemaking.”).

copper. The molten copper from the anode refining furnace is poured into molds and cooled to produce solid copper ingots called anodes. This process is known as casting. The anodes are sent to a copper refinery, either on-site or at an off-site location, for further purification using an electrolytic process to obtain high purity copper that is sold as a product.

The processing units of interest at primary copper smelters, because of their potential to generate HAP emissions, are the following: dryers, smelting furnaces, copper converters, anode refining furnaces, and, if present, copper holding vessels, slag cleaning vessels, and matte drying and grinding plants. In addition, fugitive emissions are sources of HAP at primary copper smelters. The transfer of matte, converter slag, and blister copper is the primary source of fugitive emissions.

There are three primary copper smelting facilities in the U.S. that are subject to the NESHAPs in this review. Two of the facilities, Asarco and Freeport (also referred to as FMMI), are both located in Arizona and are major sources of HAP emissions that are subject to subpart QQQ, the major source NESHAP. The third facility, Kennecott, is located in Utah and is an area source subject to subpart EEEEE, the area source NESHAP.

Two of the facilities (Asarco and Kennecott) use flash smelting furnaces (the INCO smelting furnace and the Outotec®, respectively). Flash smelting furnaces consist of blowing fine, dried copper sulfide concentrate and silica flux with air, oxygen-enriched air or oxygen into a hot hearth-type furnace. The sulfide minerals in the concentrate react with oxygen resulting in oxidation of the iron and sulfur, which produces heat and therefore melting of the solids. The molten matte and slag are removed separately from the furnace as they accumulate, and at the facility using the INCO furnace, the matte is transferred via ladles to the copper converters. The Freeport facility uses an ISASMELT furnace. The ISASMELT process involves dropping wet feed through a feed port, such that dryers are not needed. A mixture of air, oxygen, and natural gas is blown through a vertical lance in the center of the furnace, generating heat and melting the feed. The molten metal is then tapped from the bottom and sent to an electric furnace to separate the matte from slag. The slag is removed from the electric furnace through tapholes and is transferred to slag pots via ladles. The matte is also removed from the electric furnace through tapholes and transferred to the converter via ladles.

At the area source primary copper smelter, molten copper matte tapped from the Outotec® smelting furnace is not transferred as molten material directly to the converting vessel as is performed at the two major source smelters. Instead, the matte is first quenched with water to form solid granules of copper matte. These matte granules are then ground to a finer texture and fed to the flash converting furnace for the continuous converting of copper. The continuous copper converter differs significantly in design and operation from the cylindrical batch converters operated at the other U.S. smelters. Because there are no transfers of molten material between the smelting furnace and the continuous copper converter, this technology has inherently lower potential HAP emissions than a smelter using batch copper converting technology.

In either a facility using batch copper converting or a facility using continuous copper converting, and as discussed above in this section, molten blister copper is next transferred from the converting vessel to an anode furnace for refining to further remove residual impurities and oxygen, and then poured into molds to produce solid copper ingots called anodes. The anode copper is sent to a copper refinery, either on-site or at another location, where it is further purified using an electrolytic process to obtain the high purity copper that is sold as a product. The copper refinery is not part of the primary copper smelting source category.

The current NESHAP for major sources (40 CFR part 63, subpart QQQ) was proposed on April 20, 1998 (63 FR 19582), with a supplement to the proposed rule published on June 26, 2000 (65 FR 39326). The final rule, promulgated on June 12, 2002 (67 FR 40478), established PM standards as a surrogate for HAP metals for copper concentrate dryers, smelting furnaces, slag cleaning vessels, and existing converters. The major source NESHAP applies to major sources that use batch copper converters. Regarding new sources, the NESHAP prohibits batch converters for new sources, which indirectly means that any new source would need to have continuous converters, similar to the area source (Kennecott), or another technology. The converter building is subject to an opacity limit that only applies during performance testing. A fugitive dust plan is required to minimize fugitive dust emissions. Subpart QQQ also establishes requirements to demonstrate initial and continuous compliance with all applicable emission limitations, work practice standards, and operation

and maintenance requirements. Annual performance testing is required to demonstrate compliance.

The NESHAP for area sources (40 CFR part 63, subpart EEEEE) establishes GACT standards for primary copper smelting area sources and was proposed on October 6, 2006 (71 FR 59302) and finalized on January 23, 2007 (72 FR 2930). Technical corrections were then published on July 3, 2007, via direct final rule (72 FR 36363). The affected sources (*i.e.*, copper concentrate dryers, smelting vessels, converting vessels, matte drying and grinding plants, secondary gas systems and anode refining departments) are subject to PM limits as a surrogate for HAP metals. Compliance is demonstrated by either continuously measuring PM, conducting a performance test every 2.5 years, or operating a PM continuous emission monitoring system (CEMS).

C. What changes did we propose for the Primary Copper Smelting source category in our January 11, 2022, proposal and in our July 24, 2023, supplemental proposal?

On January 11, 2022, the EPA published a proposed rule in the **Federal Register** (87 FR 1616) for the NESHAP for Primary Copper Smelting, 40 CFR part 63, subpart QQQ, that took into consideration the RTR analyses and for the NESHAP for Primary Copper Smelting Area Sources, 40 CFR part 63, subpart EEEEE, that took into consideration the technology review. In the 2022 proposed rule, we proposed:

- PM limits based on the MACT floor for anode refining point sources at new and existing major sources;
- PM limits based on the MACT floor for process fugitive emissions from roofline vents of smelting furnaces at new and existing major sources;
- PM limits based on the MACT floor for process fugitive emissions from roofline vents of converters at new and existing major sources;
- PM limits based on beyond-the-floor (BTF) for process fugitive emissions from roofline vents at anode refining operations at new and existing major sources;
- PM limits based on the MACT floor for new converters at major sources;
- Facility-wide mercury limit based on BTF for any combination of stacks or other vents from the copper concentrate dryers, copper converter department, the anode refining department, and the smelting vessels at existing major sources;
- Facility-wide mercury limit based on the MACT floor for new major sources;

- Revisions to the existing fugitive dust control work practice standards to make them more robust than what is currently required by the major source NESHAP;

- Removal of SSM exemptions and associated provisions and specify that emissions standards apply at all times for both area sources and major sources; and

- Requirements for electronic reporting of performance test reports and notification of compliance reports for both area sources and major sources.

During the comment period for the 2022 proposal, the EPA received public comments from industry, Tribal nations, environmental groups, Arizona Department of Environmental Quality (ADEQ), and private citizens. After reviewing the comments, and after consideration of additional data and information received since the 2022 proposal, the EPA determined it was appropriate to gather additional data, revise some of the analyses associated with that proposal, and to publish a supplemental proposal for the major source NESHAP.

In support of the supplemental proposal, the EPA sent a section 114 information request to the Freeport facility only, as the Asarco facility has been idled since October 2019. The section 114 information request was delivered to the Freeport facility on August 31, 2022. In response to this section 114 information request, the EPA received performance test results for the Freeport facility containing emission rates of benzene, 1,4-dichlorobenzene, chlorine, formaldehyde, hexane, hydrogen fluoride, hydrogen chloride, toluene, total hydrocarbons, PAH including naphthalene, and dioxins and furans. The section 114 information request response from Freeport also provided data regarding costs and feasibility of installing additional controls for the aisle scrubber including a wet electrostatic precipitator (WESP) and a baghouse to control emissions from the Hoboken converter process fugitive capture system. Finally, the section 114 information request response from Freeport provided detailed information for input materials, emission sources, and process information.

In addition to the information collected through the section 114 information request, the EPA also received information during and after the public comment period of the 2022 proposed RTR. This additional information included cost estimates for the control devices which we expect would be needed to comply with the emission limits proposed in the 2022

proposal (*e.g.*, for mercury, lead and arsenic). It also included additional performance testing results for the roofline vents, vent fume stack, aisle scrubber, and acid plant stack. Finally, Freeport also voluntarily performed an additional performance test for mercury in 2022 and submitted those results to the EPA.

Based on evaluation of all the data, we proposed several revised and new MACT standards in a supplemental proposal published in the **Federal Register** (88 FR 47415) on July 24, 2023, pursuant to CAA sections 112(d)(2), (d)(3), (d)(6), and (f). For the supplemental proposal, which addressed only the major source NESHAP, we proposed:

- Benzene, toluene, HCl, chlorine, PAH, naphthalene and D/F limits based on the MACT floor for any new and existing combination of stacks or other vents from the copper concentrate dryers, copper converter department, the anode refining department, and the smelting vessels at major sources based on test data submitted by the only operating major source;

- Revisions to the proposed PM limits for process fugitive emissions from roofline vents of smelting vessels, converters, and anode refining operations at new and existing sources to provide a combined emission limit for all roofline vents based on additional test data and comments submitted by affected facilities;

- Revisions to the proposed mercury limits for any new and existing combination of stacks or other vents from the copper concentrate dryers, converting department, the anode refining department, and the smelting vessels to provide a limit based on the MACT floor after considering additional test data and comments submitted by affected facilities; and

- Prohibition of the use of bypass stacks for major sources.

We also co-proposed two options for further controlling HAP metals at the aisle scrubber source at Freeport as follows:

- Option 1—PM limits based on the addition of a WESP downstream of the aisle scrubber to provide additional control of the combined emissions stream from the secondary capture system for the converter department² and the anode refining department (*i.e.*, the same option evaluated by the EPA

² Based on comments on the supplemental proposal, this system should be referred to as a process fugitive capture system for the Hoboken converters; we are clarifying this terminology in the final rule.

in the ample margin of safety analysis included in the January 2022 proposal);

- Option 2—PM limits based on the addition of a baghouse upstream of the aisle scrubber to provide additional control of the secondary capture system for the converter department.

III. What is included in this final rule?

This action finalizes the EPA's determinations pursuant to the RTR provisions of CAA section 112 for the Primary Copper Smelting major source category and amends the Primary Copper Smelting major source NESHAP, 40 CFR part 63, subpart QQQ, based on those determinations. The changes being finalized for the major sources in this action include promulgation of MACT floor-based PM limits for the anode refining department point source emissions; BTF PM limits to address process fugitive emissions from the smelting vessels, copper converter department, and anode refining roofline vents combined; MACT floor-based PM limits for new copper converter departments; MACT floor-based emission standards for previously unregulated HAP (*e.g.*, mercury, benzene, toluene, HCl, chlorine, PAH, naphthalene and D/F); and PM limits for the combined anode refining department and Hoboken converter process fugitive capture systems. This action also finalizes design standards to limit HAP metals and a BTF lead emissions limit to minimize process fugitive emissions from roofline vents for certain processes. In addition, this action finalizes work practice standards for the use of bypass stacks and revisions to the fugitive dust control plan requirements. This action also finalizes other changes to the major source NESHAP including electronic reporting requirements and the removal of SSM exemptions. This final action includes several changes to the proposed requirements in the 2022 proposal and 2023 supplemental proposal based on consideration of comments and information received during the public comment periods as described in section IV. of this preamble.

This action also finalizes the EPA's determination pursuant to the technology review provisions of CAA section 112 for the Primary Copper Smelting area source category. We determined that there are no developments in practices, processes, and control technologies that warrant revisions to the NESHAP for Primary Copper Smelting Area Sources, 40 CFR part 63, subpart EEEEE, pursuant to CAA section 112(d)(6). However, this action finalizes amendments to the area

source NESHAP to remove SSM exemptions and associated provisions and provide electronic reporting requirements.

A. What are the final rule amendments based on the risk review for the Primary Copper Smelting source category?

This section introduces the final amendments to the Primary Copper Smelting NESHAP, 40 CFR part 63, subpart QQQ, being promulgated pursuant to CAA section 112(f). The EPA is promulgating a PM emission limit (as a surrogate for HAP metals other than mercury) of 6.3 pounds per hour (lb/hour) for process fugitive emissions from roofline vents of the smelting vessels, copper converter departments, slag cleaning vessels and anode refining departments combined, at new and existing sources. This emission limit is the same as proposed in the 2023 supplemental proposal. This combined PM emission limit for process fugitive emissions from roofline vents is also being promulgated under CAA section 112(d)(2) and (d)(3) as described in section III.C. of this preamble.

B. What are the final rule amendments based on the technology review for the Primary Copper Smelting source category?

We determined that there are developments in practices, processes, and control technologies that warrant revisions to the MACT standards for this source category. Therefore, to satisfy the requirements of CAA section 112(d)(6), we are revising the MACT standards to include a combined emission standard for the anode refining department point source emissions and Hoboken converter process fugitive capture system of 4.1 milligrams per dry standard cubic meter (mg/dscm). The promulgated standard was co-proposed in the 2023 supplemental proposal as one of the two options expected to require additional controls of the combined emission streams. The promulgated standard is expected to require the installation of PM controls (such as a baghouse) to control the

emissions from the Hoboken converter process fugitive capture system before this emission stream combines with the anode refining department point source exhaust in the aisle scrubber.

We are also promulgating, as proposed in the 2022 proposal, amendments to the existing requirements for facilities to develop and implement a fugitive dust control plan pursuant to CAA section 112(d)(6) as part of technology review.

In addition, the EPA is promulgating a lead emission limit of 0.326 lb/hour under CAA section 112(d)(2) and (3) and design standards under CAA section 112(d)(6) for minimizing process fugitive emissions from any combination of roofline vents associated with the Peirce-Smith copper converter department, Inco flash furnace and the anode refining department, at new and existing sources. The design standards are being promulgated for the flash furnace area capture system, fuming ladle capture system, and the anode furnace secondary hood capture and control system to further reduce process fugitive HAP metals at facilities with a combination of the Peirce-Smith copper converter department, Inco flash furnace and the anode refining department. We note that the combined lead emission limit for reducing process fugitive emissions from roofline vents is being promulgated under CAA section 112(d)(2) and (d)(3) as described in section III.C. of this preamble. However, the design standards are being promulgated under CAA section 112(d)(6).

As part of the technology review for the major source NESHAP, we also identified regulatory gaps (previously unregulated processes or pollutants) and are establishing new standards to fill those gaps as described in section III.C. of this preamble.

C. What are the final rule amendments pursuant to CAA sections 112(d)(2) and (3) for the Primary Copper Smelting source category?

Pursuant to CAA sections 112(d)(2) and (3), we are promulgating MACT

floor limits for emissions of PM (as a surrogate for HAP metals other than mercury) from new and existing anode refining departments and new copper converter departments, which were previously unregulated sources of HAP metals. We are also promulgating, pursuant to CAA sections 112(d)(2) and (3), a BTF limit for emissions of PM (as a surrogate for HAP metals other than mercury) from new and existing sources of process fugitive emissions from the roofline vents from the smelting vessels, slag cleaning vessels, the copper converter department, and the anode refining department combined, which were previously unregulated sources of HAP metals. As described in section III.A. of this preamble, the emissions standard for new and existing sources of process fugitive gases from the roofline vents from the smelting vessels, slag cleaning vessels, the converter department, and the anode refining department is also being finalized pursuant to CAA section 112(f)(2) to address the source category unacceptable risk determination. In addition, we are also promulgating, pursuant to CAA sections 112(d)(2) and (3), a BTF lead emission limit to minimize process fugitive emissions from any combination of roofline vents associated with the Peirce-Smith copper converter department, Inco flash furnace and the anode refining department. Lastly, we are promulgating, pursuant to CAA sections 112(d)(2) and (3), MACT emission limits for mercury, benzene, toluene, HCl, chlorine, PAH excluding naphthalene, naphthalene, and D/F, all of which were previously unregulated HAP. A summary of the MACT standards promulgated pursuant to CAA sections 112(d)(2) and (3) is provided in table 1 below. For more information on these standards, including their rationale, see section IV.C. of this preamble.

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Table 1. Summary of Final MACT Standards Pursuant to CAA Sections 112(d)(2) and (3)

HAP	Source	Promulgated Standard ¹
PM	New and existing Anode Refining Department	5.8 mg/dscm
PM	New Copper Converter Department	0.031 lb/ton copper concentrate feed charged to the smelting vessel
PM	New and existing process fugitive gases from the roofline vents from the smelting vessels, slag cleaning vessels, the copper converter department, and the anode refining department	6.3 lb/hr ²
Lead	Existing process fugitive emissions from any combination of roofline vents associated with the Peirce-Smith copper converter department, Inco flash furnace and the anode refining department	0.326 lb/hr ²
Mercury	New combination of stacks or other vents from the copper concentrate dryers, copper converter department, the anode refining department, slag cleaning vessels and the smelting vessels	0.00097 lb/hr
Mercury	Existing combination of stacks or other vents from the copper concentrate dryers, copper converter department, the anode refining department, slag cleaning vessels and the smelting vessels	0.033 lb/hr
Benzene	New and existing combination of stacks or other vents from the copper concentrate dryers, copper converter department, the anode refining department, slag cleaning vessels and the smelting vessels	1.7E-03 lb/ton copper concentrate feed charged to the smelting vessel
Toluene	New and existing combination of stacks or other vents from the copper concentrate dryers, copper converter department, the anode refining department, slag cleaning vessels and the smelting vessels	8.4E-04 lb/ton copper concentrate feed charged to the smelting vessel
HCl	New and existing combination of stacks or other vents from the copper concentrate dryers, copper converter department, the anode refining department, slag cleaning vessels and the smelting vessels	1.5E-03 lb/ton copper concentrate feed charged to the smelting vessel
Chlorine	New and existing combination of stacks or other vents from the copper concentrate dryers, copper converter department, the anode refining department, slag cleaning vessels and the smelting vessels	5.4E-03 lb/ton copper concentrate feed charged to the smelting vessel
PAH (excluding Naphthalene)	New and existing combination of stacks or other vents from the copper concentrate dryers, copper converter department, the anode refining department, slag cleaning vessels and the smelting vessels	1.0E-04 lb/ton copper concentrate feed charged to the smelting vessel

Naphthalene	New and existing combination of stacks or other vents from the copper concentrate dryers, copper converter department, the anode refining department, slag cleaning vessels and the smelting vessels	2.8E-04 lb/ton copper concentrate feed charged to the smelting vessel
D/F	New and existing combination of stacks or other vents from the copper concentrate dryers, converter department, the anode refining department, slag cleaning vessels and the smelting vessels	60 ng TEQ/Mg copper concentrate feed charged to the smelting vessel

¹ We are also finalizing an additional PM emission limit pursuant to CAA section 112(d)(6) technology review; see section III.B. for details.

² Denotes BTF emission standard.

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D. What are the final rule amendments addressing emissions during periods of startup, shutdown, and malfunction?

We are finalizing the elimination of SSM exemptions and associated provisions in the Primary Copper Smelting NESHAPs (40 CFR part 63, subparts QQQ and EEEEE) as proposed in the 2022 proposal, other than clarifications and other non-substantive updates in SSM exemption removal explanation and provisions. In its 2008 decision in *Sierra Club v. EPA*, 551 F.3d 1019 (D.C. Cir. 2008), the court vacated portions of two provisions in the EPA’s CAA section 112 regulations governing the emissions of HAP during periods of SSM. Specifically, the court vacated the SSM exemption contained in 40 CFR 63.6(f)(1) and (h)(1), holding that under section 302(k) of the CAA, emissions standards or limitations must be continuous in nature and that the SSM exemption violates the CAA’s requirement that some section 112 standards apply continuously. Consistent with *Sierra Club v. EPA*, the EPA is establishing standards in these rules that apply at all times. We have revised table 1 (the General Provisions Applicability Table) in both rules in several respects related to SSM. For example, we have eliminated the incorporation of the General Provisions requirement that the sources develop an SSM plan, changed several references related to requirements that apply during periods of SSM, and eliminated or revised certain recordkeeping and reporting requirements related to the eliminated SSM exemption. The EPA also made changes to the rules to remove or modify inappropriate, unnecessary, or redundant language in the absence of the SSM exemption. See the 2022 proposed rule for additional information on removal of SSM exemptions. In addition, for 40 CFR part

63, subpart QQQ, we are finalizing a work practice standard allowing the venting of process gases through a bypass stack during planned maintenance events under limited conditions as described in section IV.D.

E. What other changes have been made to the NESHAP?

1. Electronic Reporting

To increase the ease and efficiency of data submittal and data accessibility, the EPA is finalizing, as proposed in the 2022 proposal, a requirement that owners and operators of sources subject to the Primary Copper Smelting NESHAP for major sources (subpart QQQ) submit electronic copies of required performance test reports and performance evaluations of continuous monitoring systems (CMS) measuring relative accuracy test audit (RATA) pollutants (being finalized at 40 CFR 63.1455) through the EPA’s Central Data Exchange (CDX) using the Compliance and Emissions Data Reporting Interface (CEDRI). A description of the electronic data submission process is provided in the memorandum Electronic Reporting Requirements for New Source Performance Standards (NSPS) and National Emission Standards for Hazardous Air Pollutants (NESHAP) Rules, available in the docket for this action (Docket ID No. EPA-HQ-OAR-2020-0430-0031). The final rule requires that performance test results or performance evaluation of CMS measuring RATA pollutants collected using test methods that are supported by the EPA’s Electronic Reporting Tool (ERT) as listed on the ERT website³ at the time of the test be submitted in the format generated through the use of the ERT; or alternatively, owners or operators may submit an electronic file

³ <https://www.epa.gov/electronic-reporting-air-emissions/electronic-reporting-tool-ert>.

consistent with the extensible markup language (XML) schema listed on the EPA’s ERT website. Other performance tests or performance evaluations of CMS measuring RATA pollutants 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 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. The final rule also requires that notification of compliance reports be submitted as a portable document format (PDF) upload in CEDRI.

We are finalizing the electronic reporting requirements for the Primary Copper Smelting NESHAP for area sources (40 CFR part 63, subpart EEEEE) as proposed in the 2022 proposal. The electronic reporting requirements are in 40 CFR 63.11147, 63.11148, and 63.11149 of the rule, and include electronic reporting requirements for monthly emissions reports, emergency notifications, notifications of a deviation, semi-annual monitoring reports; and performance tests, where applicable.

2. Other Changes

The EPA is finalizing, as proposed in the 2022 proposal, the revision to the applicability description under § 63.1441 to clarify that the NESHAP applies to major source smelting facilities that use any type of converter, not just batch converters because the current definition limits applicability to only major sources that use batch converters. The major source NESHAP should apply to any Primary Copper major source regardless of what type of converter they use. Therefore, we are finalizing this change.

Regarding revisions to testing requirements, the Agency is finalizing, as proposed in the 2022 proposal,

revisions to the wording in § 63.1450 clarifying that facilities must test for filterable particulate, not total particulate. The test methods in § 63.1450(a) have not changed for PM from the existing regulation. The methods in the existing regulation (Methods 5, 5D, and 17) are methods for filterable PM. Total PM includes filterable PM and condensable PM. The condensable PM test method (Method 202) is not included in the existing regulation for the emission standards set in 2002. In conjunction with clarifying that facilities must test for filterable particulate, not total particulate, we are changing all instances of the wording “total particulate matter” in the current rule to “filterable particulate matter.”

The Agency is finalizing, as proposed in the 2022 proposal and 2023 supplemental proposal, the addition of appropriate test methods for PM₁₀, fugitive PM, mercury, benzene, toluene, chlorine, hydrogen chloride, PAH excluding naphthalene, naphthalene, and dioxins/furans, as well as updating test methods that are incorporated by reference because the affected facilities will need to know what test methods they need to use to demonstrate compliance with the new standards.

Finally, the EPA is finalizing, as proposed in the 2022 proposal, to revise the definitions under § 63.1459 by changing the term “smelting furnace” to “smelting vessel” to be consistent with the definition in the area source rule, 40 CFR part 63, subpart EEEEE, because we find it is appropriate that both rules include the broader definition of smelting vessel, which is already in the area source rule. The specific definition is as follows: Smelting vessel means a furnace, reactor, or other type of vessel in which copper ore concentrate and fluxes are smelted to form a molten mass of material containing copper matte and slag. Other copper-bearing materials may also be charged to the smelting vessel.

F. What are the effective and compliance dates of the standards?

For the additional MACT floor emission limits (mercury, HCl, chlorine, D/F, benzene, toluene, PAHs excluding naphthalene, and naphthalene) in 40 CFR part 63, subpart QQQ, the EPA is finalizing, as proposed in the 2023 supplemental proposal, the requirement that existing facilities must comply with these limits within 1 year after promulgation because we estimated both facilities can meet these MACT floor limits without having to install new controls. Similarly, for the new PM emission standard for anode refining point sources where the anode

emissions are not combined with Hoboken converter process fugitive capture system emissions in an aisle scrubber, the Agency is finalizing, as proposed in the 2022 proposal, the proposed requirement that existing facilities must comply within 1 year after promulgation of the final rule as major source facilities that do not combine their anode point source emissions are expected to meet the limit without additional controls. For anode refining point sources that combine their anode emissions with Hoboken converter process fugitive capture system emissions in an aisle scrubber, compliance with the anode refining point source limit will be demonstrated through compliance with the combined PM limit at the aisle scrubber outlet and its associated compliance date.

For the combined PM limit at the aisle scrubber outlet, which treats combined emissions from the Hoboken converter process fugitive capture system and anode refining point source, the EPA is finalizing that facilities must comply with this limit within 3 years after promulgation of the final rule. We are allowing up to 3 years to meet this limit as we expect facilities will need up to 3 years to design, construct and operate the necessary capture and control equipment to meet the limit.

For the combined process fugitive PM roofline emissions limit for copper converter departments, anode refining departments, slag cleaning vessels and smelting vessel roofline vents, the EPA is finalizing, as proposed in the 2023 supplemental proposal, the requirement that existing facilities comply with this limit within 2 years after promulgation of the final rule. We are allowing up to two years to meet this limit as we expect facilities will need up to 2 years to design, construct and operate the necessary capture and control equipment to meet the limit.

For the combined process fugitive lead roofline emissions limit for Peirce-Smith copper converter department, Inco flash furnace and the anode refining department roofline vents, the EPA is finalizing that facilities must comply with this limit within 3 years after promulgation of the final rule. We are allowing up to 3 years to meet this limit as we expect facilities will need up to 3 years to design, construct and operate the necessary capture and control equipment to meet the limit.

For all other changes in this action we are finalizing, as proposed, that existing facilities must comply within 180 days after promulgation of the final rule.

New sources must comply with all of the standards immediately upon the effective date of the standard, May 13,

2024, or upon startup, whichever is later.

We are also finalizing amendments to §§ 63.1442 and 63.1443 and adding a new table (table 4 to 40 CFR part 63, subpart QQQ) which provides the applicability dates for previously unregulated affected sources (*e.g.*, anode refining department, bypass stack), as well as the effective dates and compliance dates for the emission standards proposed in the 2022 proposal and 2023 supplemental proposal which are being promulgated in this final action.

IV. What is the rationale for our final decisions and amendments for the Primary Copper Smelting source category?

For each issue, this section provides a description of what we proposed and what we are finalizing for the issue, the EPA's rationale for the final decisions and amendments, and a summary of key comments and responses. For all comments not discussed in this preamble, comment summaries and the EPA's responses can be found in the National Emission Standards for Hazardous Air Pollutant Emissions: Primary Copper Smelting Residual Risk and Technology Review and Primary Copper Smelting Area Source Technology Review: Summary of Public Comments and Responses document, available in the docket for this action (Docket ID No. EPA-HQ-OAR-2020-0430).

A. Residual Risk Review for the Primary Copper Smelting Source Category

1. What did we propose pursuant to CAA section 112(f) for the Primary Copper Smelting source category?

Pursuant to CAA section 112(f), the EPA conducted a residual risk review and presented the results of this review, along with the proposed decisions regarding risk acceptability and ample margin of safety, in the January 11, 2022, proposed rule (87 FR 1616). In the 2022 proposed rule, the EPA determined that risks from the primary copper smelting source category were unacceptable due to HAP metal (primarily lead and arsenic) emissions. Based on new information and data received after the 2022 proposal through the comment period and issuance of a 2022 CAA section 114 information request from the Freeport facility, the EPA updated the baseline risk assessment, updated control Option 1, and added a new control Option 2 that affected the Freeport facility only. The Asarco facility has been idle since October 2019, and therefore, a section

114 information request was not issued to them. The risk results for the Asarco facility did not change in the 2023 supplemental proposal because we did not receive any new data or information after the 2022 proposal was published and before the supplemental proposal was published.

The results of the risk assessment for the 2022 proposal are described in more

detail in the Residual Risk Assessment for the Primary Copper Smelting Major Source Category in Support of the 2021 Risk and Technology Review Proposed Rule document, which is available in the docket (Docket ID No. EPA-HQ-OAR-2020-0430-0051). The results of the baseline risk assessment for the 2023 supplemental proposal are presented in table 2 and in more detail in the

residual risk document, Revised Residual Risk Assessment for the Freeport Smelter (Miami, AZ) in Support of the 2023 Supplemental Proposal for the Primary Copper Smelting Source Category, which is available in the Docket for this action (Docket ID No. EPA-HQ-OAR-2020-0430-0187).

Table 2. Primary Copper Smelting Major Source Category Inhalation Risk Assessment Results Supporting the Supplemental Proposal

Number of Facilities ¹	Maximum Individual Cancer Risk (in 1 ² million)		Estimated Population at Increased Risk of Cancer ≥ 1-in-1 Million		Estimated Annual Cancer Incidence (cases per year)		Maximum Noncancer HI and 3-month Lead Concentration (ug/m ³) ³		Maximum Screening Acute Noncancer HQ ⁴
	Actual Emissions	Allowable Emissions	Actual Emissions	Allowable Emissions	Actual Emissions	Allowable Emissions	Actual Emissions	Allowable Emissions	Actual Emissions
1	70	90	22,900	29,001	0.002	0.003	HI =1 (arsenic) developmental Pb Conc: 0.17	HI =1 (arsenic) developmental Pb Conc: 0.24	HQ (REL) = 7 (Arsenic)

¹ The Freeport facility was the only facility evaluated in this updated risk analysis.

² Maximum individual excess lifetime cancer and noncancer risk due to arsenic emissions from the source category, 71 percent from the anode refining roofline at Freeport and 23 percent from anode furnaces and converters point source emissions from the Aisle Scrubber at Freeport.

³ The modeled max 3-month off-site lead concentration is compared to the lead (Pb) National Ambient Air Quality Standards (NAAQS) standard of 0.15 ug/m³ based upon actual and allowable emissions from the source category. The Pb NAAQS standard was developed to address all exposure pathways (inhalation and ingestion).

⁴ The maximum estimated off-site acute exposure concentration was divided by available short-term dose-response values to develop an array of hazard quotient (HQ) values. The HQ value shown here is based on the lowest available acute dose-response value, which is the reference exposure level (REL). There are no other acute health benchmarks for arsenic other than the 1-hour REL.

A refined modeling analysis for the 2022 proposal was conducted at the facility with the highest annual concentration of lead, Freeport, to characterize ambient concentrations of lead for 3-month intervals. The maximum 3-month concentration was predicted for each off-site receptor. The concentrations were then compared to the Pb NAAQS of 0.15 micrograms per cubic meter (ug/m3). The maximum 3-month off-site modeled concentration was 0.17 ug/m3 for actual emissions and 0.24 ug/m3 for allowable emissions, and these results occurred near the Freeport facility. These results did not change in the 2023 supplemental proposal.

The inhalation risk assessment in the 2023 supplemental proposal estimated that the baseline cancer maximum individual risk (MIR) was 70-in-1 million for the source category based on actual emissions. The total estimated cancer incidence from the source category was 0.002 excess cancer cases per year, or one excess case every 500 years, with arsenic compounds contributing 97 percent of the cancer incidence for the source category in the 2023 supplemental proposal. Approximately 22,900 people of the 46,460 people within 50 km of the facility were estimated to have cancer risks above 1-in-1 million from HAP emitted from the source category. The

HEM-4 model predicted the maximum chronic noncancer hazard index (HI) value for the source category was 1 (developmental), with an acute non-cancer HQ value equal to 7 driven by emissions of arsenic from the anode refining roofline at Freeport and, to a lesser degree, the anode furnace point source and Hoboken converter process fugitive capture system emissions emitted through the aisle scrubber at Freeport.

The inhalation risk assessment based on MACT-allowable emissions did not change from the 2022 proposal and indicated that the cancer MIR was 90-in-1 million. The total estimated cancer incidence from the source category was

0.003 excess cancer cases per year, or one excess case every 333 years, with arsenic contributing 90 percent and cadmium contributing 8 percent of the cancer incidence for the source category. Approximately 29,001 people were estimated to have cancer risks above 1-in-1 million from exposure to HAP emissions if HAP were emitted at the levels allowed under the NESHAP as it existed prior to finalization of this regulatory action. The chronic non-cancer risks remained the same as actuals, with acute non-cancer hazards not being modeled due to the uncertainty of estimating acute impacts based upon hourly allowable emission estimates.

Regarding multipathway risk, we concluded in the 2022 proposal that there was no significant potential for multipathway health effects based upon EPA's Tier 3 screening analysis. Due to the conservative nature of the screens and the level of additional refinements that would go into a site-specific multipathway assessment, were one to be conducted, we are confident that the

HQ for ingestion exposure, specifically cadmium and mercury through fish ingestion, is less than 1. For arsenic, maximum cancer risk posed by fish ingestion would also be reduced to levels below 1-in-1 million, and maximum cancer risk under the rural gardener scenario would decrease to 20-in-1 million or less. The estimated risks for the garden scenario seem unlikely due to the arid climate of the area and the hypothetical nature of the scenario. Further details on the Tier 3 screening assessment can be found in Appendix 10–11 of *Residual Risk Assessment for the Primary Copper Smelting Major Source Category in Support of the Risk and Technology Review 2021 Proposed Rule*.

In the 2023 supplemental proposal, we estimated that the multipathway and inhalation risk results would be reduced further due to baseline arsenic emissions at proposal (2022) being lowered based upon additional data being received. We also estimated in the 2023 supplemental proposal that, although the mercury emissions increased from the 2022 proposal baseline, the mercury HQ would still be less than 1 (0.2) for the fisher scenario.

For the 2023 supplemental proposal, the Agency weighed all the health risk factors in the risk acceptability determination and proposed that the risks from the Primary Copper Smelting source category are unacceptable at baseline. To address the unacceptable risks, in the supplemental proposal, we proposed a combined PM emission limit for process fugitive emissions from

roofline vents of smelting furnaces, converters, and anode refining operations, which would significantly reduce risks. We estimated in the supplemental proposal that this combined PM limit would reduce emissions of HAP metal (primarily lead and arsenic) by 4.59 tpy. To be able to comply with the limit, we estimated that the Freeport facility would need to install controls (e.g., improved capture system, including hoods, ductwork, and fans, and one additional baghouse) to reduce process fugitive roofline emissions from the anode refining source, the main risk driver. As described in the supplemental proposal, we estimated that these controls would reduce the MIR at Freeport from 70-in-1 million to an estimated 20-in-1 million and that the acute noncancer HQ (for arsenic) would be reduced from 7 to 2 (based on actual emissions). In addition, the modeled lead concentrations would be reduced below the NAAQS. We estimated that the MIR for Asarco would remain at 60-in-1 million and would be the source category MIR after the proposed controls are applied at Freeport. In the supplemental proposal, we concluded that these risks, after implementation of proposed controls, were acceptable. We also proposed that existing facilities would need to comply within two years after promulgation of the final rule and new facilities must comply with all requirements in the final rule upon start up. We proposed that compliance would be demonstrated through an initial performance test followed by a compliance test once per year.

We then considered whether the Primary Copper Smelting NESHAP provides an ample margin of safety to protect public health and whether more stringent standards are necessary to prevent an adverse environmental effect, taking into consideration costs, energy, safety, and other relevant factors. In considering whether the standards should be tightened to provide an ample margin of safety to protect public health, we considered the same risk factors that we considered for our acceptability determination and also considered the costs, technological feasibility, and other relevant factors related to emissions control options that might reduce risks associated with emissions from the source category.

As discussed in the 2023 supplemental proposal, pursuant to CAA section 112(d)(6) and to provide an ample margin of safety to protect public health pursuant to CAA section 112(f)(2), the EPA co-proposed two regulatory options for additional control of either the secondary capture system

for the converter department⁴ or additional control of the combined emissions stream of the secondary capture system for the converter department and the point source emissions from the anode refining department. For Option 1, a WESP would be located downstream of the aisle scrubber and therefore further control the combined emissions stream of the secondary capture system for the converter department and the point source emissions from the anode refining department. Under Option 2, a baghouse would be installed upstream of the aisle scrubber to provide additional control of the secondary capture system for the converter department. The EPA proposed that these control options would result in more stringent emission standards for these emission sources than were currently required in 40 CFR part 63, subpart QQQ.

In the 2022 proposal, the EPA evaluated additional work practices to reduce fugitive dust emissions, and the Agency found that the implementation of a more robust fugitive dust plan would result in an unquantified reduction of HAP, and we therefore proposed this requirement in the 2022 proposal. In the 2022 proposal, the EPA proposed that the combination of the standards for anode refining roof vents, fugitive dust plan and all other current standards in the NESHAP would ensure the NESHAP provides an ample margin of safety to protect public health.

2. How did the risk review change for the Primary Copper Smelting source category?

While reviewing the information provided during the 2023 supplemental proposal public comment period and reviewing the data provided during the section 114 process, a correction was made to the spreadsheet used to calculate the average emissions from the aisle scrubber based on stack tests provided by Freeport. The correction resulted in a slightly lower average arsenic emission rate for this source (from 0.626 tpy in the supplemental proposal to 0.563 tpy in the final rule), and therefore we re-modeled the baseline and roofline vent control scenarios as well as the two control options for the aisle scrubber. In addition to the corrected emission rate for the aisle scrubber, the EPA re-evaluated the estimated control efficiencies of the control options co-

⁴ Based on comments on the supplement proposal, this system should be referred to as a roofline capture system for the Hoboken converters; we are clarifying this terminology in the final rule.

proposed for the aisle scrubber source at Freeport based on the comments and information received on the supplemental proposal. These comments and our responses are discussed further in section IV.A.3. of this preamble.

As discussed in the memorandum *Cost Estimates for Additional Controls of Freeport's Aisle Scrubber—REVISED*, which is available in the docket for this action, and as further discussed in section IV.B. of this preamble, we updated the control efficiency estimates for the aisle scrubber control options. In the 2023 supplemental proposal, we estimated that under Option 1, installing a WESP downstream of the aisle scrubber would achieve 95 percent control efficiency, and we estimated 6.3 tpy metal HAP reductions. Based on the comments received from Freeport regarding the technical feasibility of controlling the high-volume aisle scrubber exhaust stream using a WESP and our evaluation of those comments, we updated the estimated control efficiency for the WESP option to 73 percent, and we now estimate 4.9 tpy metal HAP reduced. In the 2023 supplemental proposal, we estimated that under Option 2 (Baghouse option), installing a baghouse upstream of the aisle scrubber to control the Hoboken converter process fugitive capture

system gas stream for the copper converter department would reduce metal HAP emissions by 4.5 tpy. Note that in the supplemental proposal, we referred to the process fugitive capture system as a “secondary” capture system. However, Freeport commented that the capture system is better characterized as a tertiary capture system. Therefore, for the remainder of this preamble, we refer to this capture system as the Hoboken converter process fugitive capture system. Furthermore, based on comments received from Freeport in response to the 2023 supplemental proposal regarding the technical feasibility of controlling the high-volume Hoboken converter process fugitive capture system using a baghouse and our evaluation of those comments, we now estimate the baghouse will achieve 61 percent control efficiency of the Hoboken converter process fugitive capture system gas stream, and using the same assumption that this gas stream contributes 75 percent to the aisle scrubber, we estimate that HAP metals will be reduced under this option by 3.0 tpy (which represents an overall control efficiency of 46 percent for the aisle scrubber). Therefore, the modeling conducted in support of the final rule was updated to reflect these new control efficiencies. The results of the updated

modeling for the aisle scrubber control options, in addition to our consideration of public comment on this issue, resulted in a change to what we proposed for ample margin of safety. The details of what we are finalizing for the ample margin of safety analysis are in section IV.A.3. of this preamble. The details of what we are promulgating for the aisle scrubber source are in section IV.B.3.

With the exception of the revised emissions described above, the risk assessment supporting the final rule was conducted in the same manner, using the same models and methods, as that conducted for the supplemental proposal. The documentation for the final rule risk assessment can be found in the memorandum titled *Freeport Baseline and Control Options Re-model Risk Analysis Memo*, which is available in the docket for this rulemaking.

Inhalation Risk Assessment Results.

Table 3 presents the updated summary of the inhalation risk assessment results based on the updated modeling supporting the final rule. The results are very similar to those of the 2023 supplemental proposal. The only changes are to the number of people at increased risk of cancer greater than or equal to 1-in-1 million.

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Table 3. Comparison of the Primary Copper Smelting Baseline Inhalation Risk Assessment Results for Freeport with Post-Control Risk Estimates for the Final Rule Control Options

Estimated Risks Based on Actual Emissions							
Risk Assessment Scenario ¹	Maximum Individual Cancer Risk (in-1 million)	Population at Increased Risk of Cancer \geq 1-in-1 million	Annual Cancer Incidence (cases per year)	Maximum Chronic Noncancer TOSHI ²	Maximum Residential Annual Pb Conc. (ug/m ³) ³	Max Predicted 3month Modeled Pb Conc. (ug/m ³) ⁴	Acute HQ (REL) ⁵
Final Rule (revised baseline)	70 (As)	21,875	0.002	1 (As)	0.12	0.17 (Pb)	7 (As)
Final Rule Post-Control for Anode Roofline	20 (As)	16,962	0.001	0.3 (As)	0.041	0.06 (Pb)	2 (As)
Final Rule Post-Control Option 1 for Aisle Scrubber ⁶	20 (As)	15,648	0.0007	0.3 (As)	0.0295	0.04 (Pb)	1 (As)
Final Rule Post-Control Option 2 for Aisle Scrubber ⁷	20 (As)	16,035	0.0008	0.3 (As)	0.0329	0.05 (Pb)	1 (As)

¹ All values provided in this table are based upon only arsenic and lead emissions from Freeport (Miami, AZ). ² Target organ-specific hazard index (TOSHI) value for developmental effects does not include contribution from lead. A TOSHI could not be calculated due to differences in exposure duration for the arsenic and lead benchmarks.

³ The maximum annual concentration for lead is based upon the MIR location which is also the maximum off-site exposure location for Freeport.

⁴ The maximum predicted 3-month Pb (lead) conc based on actual emissions at the time of proposal was based on AERMOD modeling with LEAD_POST, while the maximum predicted 3-month Pb conc for the supplemental proposal are based upon extrapolations of the HEM-4 annual Pb concentrations using the annual and 3-month modeled results from proposal. These values are compared to the lead NAAQS (0.15 ug/m³) to determine whether there are risk concerns for lead.

⁵ The HQ values are based upon the lowest 1-hour acute health benchmark, the REL for arsenic. Arsenic also has an AEGL-2 value (irreversible or escape-impairing effects) which resulted in a maximum HQ value of 0.0006 based upon actual emissions estimated in this supplemental proposal.

⁶ Option 1 represents controls on anode roofline (described in section IV.A. of this preamble) +WESP on aisle scrubber (described in section IV.A. of this preamble).

⁷ Option 2 represents controls on anode roofline (described in section IV.A of this preamble) + baghouse upstream of aisle scrubber (described in section IV.A. of this preamble).

3. What key comments did we receive on the risk review, and what are our responses?

We received comments regarding the risk assessment for the Primary Copper Smelting source category. The following is a summary of some of the more significant comments and our responses to those comments. Other comments received and our responses to those comments can be found in the

document titled *National Emission Standards for Hazardous Air Pollutant Emissions: Primary Copper Smelting Residual Risk and Technology Review and Primary Copper Smelting Area Source Technology Review: Summary of Public Comments and Responses*, available in the docket for this action (Docket ID No. EPA-HQ-OAR-2020-0430).

Comment: In response to the EPA's request for comment on our ample

margin of safety analysis in the 2022 proposal, in which we discussed and sought comment on but decided not to propose additional controls for the aisle scrubber, specifically a WESP, one commenter stated that they agreed with our decision. The commenter suggested that the aisle scrubber should be subject to a concentration-based filterable particulate matter (fPM) limit of 23 mg/dscm similar to other vents processing emissions from the vessels managing

molten material, and that the existing MACT floor emissions from the aisle scrubber do not significantly contribute to the estimated risks from metal HAP. Other commenters supported our consideration of additional controls for the aisle scrubber. In the 2023 supplemental proposal, we discussed another ample margin of safety analysis in which we co-proposed two possible control options for the aisle scrubber, a WESP downstream of the aisle scrubber or a baghouse upstream of the aisle scrubber. One commenter expressed support for the additional controls on the aisle scrubber and for the associated reduction to risk. Several commenters stated the proposed options do not meet the requirements for ample margin of safety, which according to the commenters must be cost effective, feasible, and provide meaningful improvement in risk to public health. One of the commenters explained that the two metrics for evaluating risk reduction are based on the MIR cancer risk and the noncancer HQ. Concerning these control options, the commenters asserted the MIR is unchanged when reducing to significant digits and that it remains at 20-in-1 million after accounting for the associated reductions. One commenter noted that these MIR values consider expected reductions from other risk-based standards in the 2022 proposal and 2023 supplemental proposal (e.g., the process fugitive roofline vent standard). One of the commenters took issue with the standard being applied only to the Freeport facility. The commenter contended that the roofline controls to achieve acceptable risk leave the MIR for the other major source copper smelter (Asarco) “untouched” at 60-in-1 million, asserting that this is “unfair, arbitrary and capricious, and unsupported by the record.” While the EPA estimated the HQ would drop from 2 to 1 for both options in the 2023 proposed rule, the commenter argued that the acute arsenic HQ value is based on a poorly documented and outdated study, and that more recent studies have failed to demonstrate the developmental impact which is at the foundation of the EPA’s HQ assessment. The commenters added that the EPA has accepted much higher HQ values for arsenic in other rules (e.g., Integrated Iron and Steel Manufacturing NESHAP 85 FR 42074, 42083; Primary Aluminum Reduction Plants NESHAP 80 FR 62390, 62398). The commenters also noted that emission reductions were overestimated by the EPA and resulted in overstated reductions to risk.

Response: The finding of unacceptable risks is not based on any one risk metric (e.g., acute hazard quotients), but rather considering all health information available and the degree of uncertainty associated with that information. In the 2015 final rule for Primary Aluminum (Docket ID No. EPA–HQ–OAR–2011–0797), EPA weighed all health risk factors and uncertainties in the risk acceptability determination for the Prebake ovens subcategory. The current acute methodology, while similar between the two rules, is still considered a screening assessment. While the chronic cancer risks for both source categories were comparable, the acute screening methodologies differ and must be weighted in regard to the accuracy and uncertainty of each piece of information in a weight-of-evidence approach for each decision. This relevant body of information is growing fast (and will likely continue to grow even faster), necessitating a flexible weight-of-evidence approach that acknowledges both complexity and uncertainty in the simplest and most transparent way possible. The acute screening risks posed by arsenic are based upon the most up to date review of the REL by EPA and considered the best available benchmark for assessing current risks posed by this pollutant. The application of the acute benchmarks when paired with our acute methodology to assess “reasonable worst-case one-hour concentrations (i.e., 99th percentile)” for off-site locations where people maybe present provides a realistic estimate or screen for short-term exposures while we consider EPA’s chronic assessment for this source category to be a refined site-specific assessment.

Based on comments and information provided during the comment period, we have updated the estimated control efficiency for both options co-proposed in the 2023 supplemental proposal, and therefore the final rule expected emission reductions are less than those proposed in the 2023 supplemental proposal. We have taken this and all comments into consideration and determined that it is necessary to promulgate a PM emission limit for the combined emissions from the anode refining point source and the Hoboken converter process fugitive capture system pursuant to CAA section 112(d)(6) but not pursuant to CAA section 112(f)(2) because after further consideration and comparison to other source categories, in this specific case, we agree with the commenter that the risk reductions are minimal and that

these controls are not necessary to ensure the NESHAP provides an ample margin of safety pursuant to CAA section 112(f). Given the space and infrastructure issues and challenges and effort needed to construct and operate such a new control system at Freeport, we conclude that the facility will likely need up to 3 years to demonstrate compliance with the new standards, which are described in more detail in section IV.B. of this preamble. Given the factors described above, we are finalizing Option 2, with a revised PM emission standard of 4.1 mg/dscm, under the CAA section 112(d)(6) technology review because we conclude that this option represents a development in technologies, processes or practices pursuant to section 112(d)(6). As described in more detail in section IV.B. of this preamble, the baghouse technology to reduce metal HAP emissions at the aisle scrubber identified in the 2023 supplemental proposal is feasible, readily available and already in use at primary copper smelting facilities (including Freeport) as well as in use at facilities in other source categories. We are allowing up to 3 years to comply with this standard because we conclude the facility will need up to 3 years to plan, design, install and operate new controls to reduce emissions from the aisle scrubber. The rationale for our decision to promulgate a standard under CAA 112(d)(6) is described further in section IV.B. of this preamble.

4. What is the rationale for our final approach and final decisions for the risk review?

The EPA sets standards under CAA section 112(f)(2) using “a two-step standard-setting approach, with an analytical first step to determine an ‘acceptable risk’ that considers all health information, including risk estimation uncertainty and includes a presumptive limit on MIR of approximately 1-in-10 thousand.⁵ If risks are unacceptable, the EPA must determine the emissions standards necessary to reduce risk to an acceptable level without considering costs. A second step follows in which the actual standard is set at a level that provides ‘an ample margin of safety’ in consideration of all health information, including the number of persons at risk levels higher than approximately 1-in-1 million, as well as other relevant factors including costs and economic impacts, technological feasibility, and other

⁵ 1-in-10 thousand is equivalent to 100-in-1 million. The EPA currently describes cancer risks as ‘n-in-1 million.’

factors relevant to each particular decision.” As discussed in more detail in the 2022 proposal and in the Benzene NESHAP, there is flexibility regarding factors the EPA may consider in making determinations and how the EPA may weigh those factors for each source category. The EPA conducts a risk assessment that provides estimates of the MIR posed by emissions of HAP that are carcinogens from each source in the source category, the HI for chronic exposures to HAP with the potential to cause noncancer health effects, the HQ for acute exposures to HAP with the potential to cause noncancer health effects,⁶ and to assess risks for lead, the EPA compares ambient air concentrations with the lead NAAQS, which is 0.15 µg/m³ based on 3-month rolling averages. The assessment also provides estimates of the distribution of cancer risk within the exposed populations, cancer incidence, and an evaluation of the potential for an adverse environmental effect. (54 FR 38045, September 14, 1989) As discussed in the 2022 proposed rule, the scope of the EPA’s risk analysis is consistent with the explanation in EPA’s response to comments on our policy under the Benzene NESHAP (54 FR 38057) summarized hereafter: In summary, the EPA’s policy permits consideration of multiple measures of health risk including, but not limited to, the MIR, the presence of non-cancer health effects, and the uncertainties of the risk estimates such that these factors can then be weighed in each individual case. The EPA’s policy, as discussed in the Benzene NESHAP response to comments, also complies with the Congressional intent behind the CAA.

Thus, the level of the MIR is only one factor to be weighed in determining acceptability of risk. The Benzene NESHAP explained that “an MIR of approximately one in 10 thousand should ordinarily be the upper end of the range of acceptability. As risks increase above this benchmark, they become presumptively less acceptable under CAA section 112, and would be weighed with the other health risk measures and information in making an overall judgment on acceptability. Or, the Agency may find, in a particular case, that a risk that includes an MIR less than the presumptively acceptable level is unacceptable in the light of other health risk factors.” Id. at 38045.

⁶ The MIR is defined as the cancer risk associated with a lifetime of exposure at the highest concentration of HAP where people are likely to live. The HQ is the ratio of the potential HAP exposure concentration to the noncancer dose-response value; the HI is the sum of HQs for HAP that affect the same target organ or organ system.

In other words, risks that include an MIR above 100-in-1 million may be determined to be acceptable, and risks with an MIR below that level may be determined to be unacceptable, depending on all of the available health information.

a. Acceptability Determination

In this final rule, as in the 2023 supplemental proposal and in the 2022 proposal, the EPA concludes that the baseline risks are unacceptable. This determination, as described in the 2022 proposal and the 2023 supplemental proposal, is largely based on the estimated exceedance of the lead NAAQS, along with the maximum acute HQ of 7 for arsenic, which indicate there are significant risks of acute noncancer health effects—especially for children, infants, and developing fetuses, all of whom are particularly vulnerable to chemical exposures as they undergo key developmental processes. Also contributing to this determination, although to a lesser extent, are the inhalation cancer MIRs due to arsenic, with an estimated MIR of 70-in-1 million for actual emissions and 90-in-1 million for allowable emissions, which are approaching the presumptive level of unacceptability of 100-in-1 million.

b. What is EPA requiring in the final rule to address the unacceptable risk?

To address the unacceptable risk, the Agency is promulgating a combined PM emission limit (as a surrogate for HAP metals other than mercury) for process fugitive emissions from roofline vents of a combination of smelting vessels, copper converter departments, slag cleaning vessels and anode refining departments at new and existing sources as proposed in the 2023 supplemental proposal. We are also finalizing the PM emission standard pursuant to CAA section 112(d)(2) and (d)(3) as discussed further in section IV.C. of this preamble. We are also finalizing, as proposed, that compliance would be demonstrated through an initial performance test followed by a compliance test once per year.

c. Remaining Risks After Implementation of the Requirements To Address Unacceptable Risk

To determine the remaining risks after implementation of the new combined PM emission limit to control process fugitive emissions from the roofline vents, we conducted a post-control risk assessment. As described in section IV.A.2., the baseline emissions for the aisle scrubber source at Freeport were corrected and the baseline modeling

was conducted again for the final rule along with the roofline vents control option. The revised baseline modeling results, as discussed in section IV.A.2., did not result in any change to the acceptability determination or to the main risk driver under section 112(f) of the CAA. More details on the modeling for the final rule are in the memorandum *Freeport Baseline and Control Options Re-model Risk Analysis Memo*, found in the docket for this action. More details on the modeling analysis for the 2023 supplemental proposal are described in the document *Revised Residual Risk Assessment for the Freeport Smelter (Miami, AZ) in Support of the 2023 Supplemental Proposal for the Primary Copper Smelting Source Category*, available in the docket for this action (Docket ID No. EPA-HQ-OAR-2020-0430-0187).

The post-control modeled risks were updated as described in the memorandum *Freeport Baseline and Control Options Re-model Risk Analysis Memo*, available in the docket for this rule (Docket ID No. EPA-HQ-OAR-2020-0430). The risk assessment after implementing the PM limit for process fugitive emission from roof vents as discussed in this section of this preamble indicates that the modeled lead concentrations would be reduced to 0.06 µg/m³, which is below the NAAQS of 0.15 µg/m³. The MIR at Freeport is reduced from 70-in-1 million to 20-in-1 million and the population with cancer risks greater than or equal to 1-in-1 million is reduced from 21,875 to 16,035. We estimate that at Freeport the maximum chronic noncancer inhalation TOSHI will be reduced from 1 to less than 1 (0.3), and the acute HQ will be reduced from a value of 7 to 2. We estimate that the source category MIR after implementation of the PM limit for process fugitive emissions from roofline vents will be 60-in-1 million, which is the maximum baseline cancer risk near the Asarco facility. We expect that Asarco can comply with the PM standard for process fugitive emissions from roofline vents without additional controls, and therefore it will not achieve emission reductions at Asarco as a result of this PM limit. However, as described in sections III.B. and III.C., and IV.B. and IV.C. of this preamble, we are finalizing a lead limit under CAA sections 112(d)(2) and (3) and design standards under our CAA section 112(d)(6) technology review, respectively, that will achieve reductions of HAP metal emissions at Asarco. We note that the facility already has plans to implement improvements (consistent with the design standards in

this final rule) that will reduce their process fugitive emissions of metal HAP as well as SO₂ emissions. In fact, these improvements have been adopted into their most recent state operating permit (finalized in October 2023). As mentioned elsewhere in this preamble, Asarco is currently not operating. However, we expect that these improvement projects will likely reduce the MIR when Asarco returns to operating status.

Based on the post-control risk assessment, we conclude that, after the requirements described in this preamble to address unacceptable risk are implemented, the risks to public health will be reduced to an acceptable level.

d. Ample Margin of Safety Analysis

Under the ample margin of safety analysis, we again considered all of the health factors evaluated in the acceptability determination and evaluated the cost and feasibility of available control technologies and other measures (including the controls, measures, and costs reviewed under the technology review) that could be applied to further reduce the risks due to emission of HAP identified in our risk assessment.

While the additional controls for the combined gas stream from the anode refining department and the Hoboken converter process fugitive capture system identified under the technology review will provide some additional risk reduction, in this case the additional risk reduction is minimal (for example, no change in the cancer MIR of 20-in-1 million), and therefore we are not finalizing this emission standard to provide an ample margin of safety. We conclude that the standards we are finalizing to achieve acceptable risk will also provide an ample margin of safety to protect public health and that, as proposed, a more stringent standard is not necessary to prevent an adverse environmental effect in accordance with CAA section 112(f)(2).

B. Technology Review for the Primary Copper Smelting Source Category

1. What did we propose pursuant to CAA section 112(d)(6) for the Primary Copper Smelting source category?

In the 2022 proposal, as part of our ample margin of safety analysis and technology review, we considered additional controls for the Freeport aisle scrubber which was the second highest contributor to the baseline risks, estimated to represent 23 percent of the MIR. We estimated emission reductions and costs for controlling the combined emissions stream of the anode refining

department and Hoboken converter process fugitive capture system (i.e., the aisle scrubber) with a WESP. We also estimated the impacts on risk reductions of these additional controls. The Agency sought comment on this control option but did not propose it in the 2022 proposal. We received comments on the control option for the aisle scrubber as well as additional information from the Freeport facility in response to the EPA's 2022 section 114 information request.

Subsequently, in the 2023 supplemental proposal, based on the comments on the 2022 proposal and the new information from the section 114 information request, the EPA co-proposed regulatory options for additional control of either the Hoboken converter process fugitive capture system or additional control of the combined emissions stream of the Hoboken converter process fugitive capture system and the anode refining department (i.e., aisle scrubber). These standards were proposed as technology developments pursuant to CAA section 112(d)(6) and to provide an ample margin of safety to protect public health pursuant to CAA section 112(f)(2). As described in the 2023 supplemental proposal, the first option (hereafter referred to as Option 1) was the addition of a WESP downstream of the aisle scrubber providing additional control of the combined emissions stream from the Hoboken converter process fugitive capture system and the anode refining department point source (i.e., the same option evaluated by the EPA in our ample margin of safety analysis included in the 2022 proposal). The second option (hereafter referred to as Option 2) was the addition of a baghouse upstream of the aisle scrubber providing additional control of the Hoboken converter process fugitive capture system. As noted in the 2023 supplemental proposal, using performance test data from Freeport we estimated the baseline emissions for the aisle scrubber to be 6.63 tpy metal HAP. We also used these test data as the basis to establish an emissions limit along with an estimate of the expected reductions that would be achieved with the additional controls (i.e., a new baghouse up-stream of current Aisle scrubber or a WESP after the Aisle scrubber). To do this, we first used the data to develop the 99 percent upper prediction limit (UPL). The 99 percent UPL for the combined emissions stream from the anode refining department and the Hoboken converter process fugitive capture system is 7.48 mg/dscm. This UPL served as the baseline for the

development of the potential emission standards for each option. Secondly, the UPL value was adjusted (decreased) based on the expected percent reduction that would be achieved by each option. Finally, we estimated costs and risk reductions for each control option. A summary of the options as presented in the 2023 supplemental proposal is included here for reference. Because we proposed these standards under both the technology review authority of CAA section 112(d)(6) and the risk review authority of CAA section 112(f)(2), we estimated risk reductions associated with each of the options consistent with a CAA section 112(f)(2) ample margin of safety analysis and our summary that follows includes those results even though the risk results would not typically be part of the analysis to support a CAA section 112(d)(6) technology review. The summary of the risk reductions presented are the incremental changes attributed to the control option after considering the effects of the implementation of the other risk-based standards in this rulemaking (i.e., the process fugitive roofline vent standards).

For Option 1, we estimated that the control technology could achieve 95 percent emissions reduction which was estimated to be 6.3 tpy metal HAP. The emission limit for this option was 0.374 mg/dscm. The estimated costs were \$98.5 million capital costs, \$25.2 million total annualized costs, and a cost effectiveness of \$4.0 million/ton metal HAP. Risks would be reduced below 1-in-1 million for an additional 1,900 people (the number of people with risk greater than 1-in-1 million would be reduced from 17,400 to 15,500). The maximum acute HQ due to arsenic emissions would be reduced from 2 to 1. The MIR at Freeport (20-in-1 million) and for the source category (60-in-1 million) would be unchanged by this control option.

For Option 2, we estimated that the control technology could achieve 90 percent reduction of the Hoboken converter process fugitive capture system emissions (or 68 percent reduction of the aisle scrubber emissions overall) which was estimated to be 4.5 tpy metal HAP. The emission limit for this option was 2.43 mg/dscm. The estimated costs were \$37 million capital costs, \$6.2 million total annualized costs, and a cost effectiveness of \$1.38 million/ton metal HAP. Risks would be reduced below 1-in-1 million for an additional 700 people (the number of people with risk greater than 1-in-1 million would be reduced from 17,400 to 16,700). The maximum acute HQ due to arsenic

emissions would be reduced from 2 to 1. The MIR at Freeport (20-in-1 million) and for the source category (60-in-1 million) would be unchanged by this control option.

The Agency also proposed, in the 2022 proposal, additional work practices to reduce fugitive dust emissions and development of a fugitive dust control plan that must be reviewed, updated (if necessary), and approved by the Administrator or delegated permitting authority. We proposed these requirements in order to provide an ample margin of safety under CAA section 112(f)(2) and as a development in practices pursuant to CAA section 112(d)(6).

With regard to the emission sources at the area source primary copper smelting facility, including sources of fugitive dust emissions, the Agency did not identify any developments in practices, processes, or control technologies. For more details, refer to the document *Technology Review for the Primary Copper Smelting Source Category*, which is available in Docket ID No. EPA-HQ-OAR-2020-0430.

2. How did the technology review change for the Primary Copper Smelting major source category?

Based on comments received during the comment period for the 2023 supplemental proposal, as discussed in more detail in section IV.B.3. of this preamble, we revised our expected emission reductions and control costs for the aisle scrubber control options. A detailed description of the emission reduction estimates and cost estimates associated with these options is provided in the memorandum *Cost Estimates for Additional Controls of Freeport's Aisle Scrubber—REVISED*, which is available in the docket for this rulemaking.

Specifically, for Option 1, we now estimate the control efficiency as 73 percent and estimate emissions reductions of 4.9 tpy metal HAP. We did not amend our cost estimates for this option from those presented in the 2023 supplemental proposal. So, combining our revision to the estimated emission reductions with the costs presented in the 2023 supplemental proposal yields a revised cost effectiveness value of \$5.2 million/ton HAP metal. We received additional information from Freeport regarding the costs for site preparation well after the close of the public comment period in a letter dated January 29, 2024, which is available in the docket. In this letter, Freeport estimated costs to demolish and relocate part of the aisle scrubber motor control center (MCC) room, a parking and

storage area, and part of the converter maintenance building in order to install a WESP. They estimated these site preparation costs to be \$9.2M in capital. As noted above, we received this information about four months after the close of the comment period. Furthermore, the letter did not provide sufficient details to determine the validity of the estimate. Therefore we have not included it in our cost estimates. However, we note that if we did include these costs, the total capital costs would be \$108M, the annualized costs would be \$26M, and the cost effectiveness would be slightly higher at \$5.4M/ton of HAP metal reduced.

For Option 2, we now estimate the baghouse will achieve 61 percent control efficiency of the Hoboken converter process fugitive capture system gas stream and estimate emissions reductions of 3.0 tpy metal HAP (which represents an overall control efficiency of 46 percent for the aisle scrubber). We also revised our cost estimates for Option 2. The revised cost estimates provide a total capital investment of \$59.5 million, total annualized costs of \$10.8 million and a cost effectiveness of \$3.6 million/ton HAP metal. As noted above under Option 1, we received additional information from Freeport, well after the close of the comment period, regarding costs for site preparation in the area where a baghouse would be installed. They estimated it would cost \$5.2M to demolish and relocate the anode baghouse MCC room, storage bunkers, and demolition and rerouting of the aisle scrubber piping that is currently located in the area where they estimate the baghouse would be installed. As stated under Option 1, we have not included this cost in our estimates because we received this information well after the close of the comment period and we have insufficient details to evaluate its validity. However, we note that if we did include their estimate for site preparation, the total capital investment would increase to \$64.8M, with total annualized costs of \$11.5M and a slightly higher cost effectiveness of \$3.8M/ton HAP metal reduced.

In addition, we received new information regarding the Asarco facility since publication of the 2023 supplemental proposal. Asarco is located in the Hayden area of Gila and Pinal Counties in Arizona and is the primary source of lead emissions in this area. As discussed in the 2022 proposed rule, the Hayden area is currently designated as nonattainment for the 2010, 1-hour primary SO₂ NAAQS and 2008 lead NAAQS. There have been

various regulatory actions to reduce emissions in this area and at the Asarco facility including, but not limited to, a consent decree between EPA and Asarco to bring the facility into compliance with the NESHAP by December 2018 and revisions to the state implementation plan (SIP) to help achieve attainment of the lead NAAQS by October 2019. However, effective March 2, 2022, the EPA determined that the Hayden lead nonattainment area failed to attain the 2008 lead primary and secondary lead NAAQS and the 2010 1-hour primary SO₂ NAAQS (87 FR 4805, January 31, 2022) by the applicable date of October 3, 2019. As a result, the State of Arizona is required to submit revisions of the SIP to EPA. As part of this process, EPA Region 9 staff informed the EPA Office of Air Quality Planning and Standards staff in October 2023 of several projects that Asarco has planned as part of the most recent SIP revisions and that ADEQ has adopted into Appendix A of Asarco's operating permit (October 3, 2023), which is available in the docket for this action. The projects include engineering controls and work practices which Asarco estimates will reduce fugitive metal HAP emissions at the facility. The projects that are in Asarco's operating permit include the following:

- *Flash Furnace Control System:* This project involves installing and ventilating a partial enclosure around the Inco flash furnace uptake shaft to improve the capture of process fugitives.
- *Fuming Ladle Capture System:* This project involves the construction of a hood and retaining walls to improve capture of process fugitives from fuming ladles.
- *Anode Furnace Secondary Hood Capture and Control System:* This project involves the construction of secondary hoods to improve capture and then ducts the emissions to a planned new anode secondary hood baghouse.

These projects will help ensure that process fugitive metal HAP roofline emissions would be reduced and will ensure that the roofline emissions at Asarco can meet a lead limit of 0.326 lb/hour, which is based on modeling demonstration submitted by the facility to the state in support of a revision to the lead SIP. We expect no additional costs to comply with the lead limit other than compliance testing costs. The lead limit is further discussed in section IV.C.2.

3. What key comments did we receive on the technology review, and what are our responses?

Comment: Commenters objected to the EPA's change in position in the supplemental proposal about using a WESP to control aisle scrubber emissions. The commenters stated that the EPA rejected the technology in the 2022 proposal yet co-proposed it as an option in the 2023 supplemental proposal. Commenters stated that in the 2022 proposal, the EPA concluded with regards to using a WESP to control aisle scrubber emissions that "[g]iven the relatively high estimated capital costs, uncertainties, and moderate risk reductions . . . the Agency is not proposing these additional controls" under the ample margin of safety analysis. Yet in the supplemental proposal the EPA stated the "cost impacts" of \$4.0 million/ton metal HAP for a WESP are "reasonable." The commenters point out the new cost effectiveness in the supplemental is more than 2 times the cost effectiveness that the EPA considered excessive for a WESP in the 2022 proposal, and that it far exceeds the precedent set in the recent Coke Oven proposed NESHAP revisions, where the agency found that \$1.3 million/ton is the reasonable upper threshold of cost effectiveness for nonmercury metal HAP.

In addition to objecting to the EPA's change of position on using a WESP, another commenter stated that the EPA overestimated the achievable removal efficiency for a WESP in the dilute, high volume gas stream at the aisle scrubber. The commenter asserted that the actual removal efficiency would be 60 percent, rather than the 95 percent estimated by the EPA. The commenter performed their own estimate of emission reductions and cost and estimated a cost effectiveness of \$6.3 million/ton HAP metal. Other commenters expressed support for using a WESP to control aisle scrubber emissions as it would reduce metal emissions from the converter department and the anode refining department. The commenter stated that while the EPA does not express a preference for either the WESP or baghouse option, the WESP-based limit is consistent with the Clean Air Act, while the baghouse-based limit is not. Clean Air Act section 112(d)(2) expressly provides that the EPA's air toxics standards must require the "maximum" reduction that is "achievable" considering cost and other statutory factors. As such, both proposed limits are achievable considering cost and other statutory factors, however, the "maximum"

degree of reduction that is achievable is the one provided by the WESP-based limit. The commenter also noted the WESP-based limit would yield substantially greater reductions in metal HAP emissions (6.3 tpy as opposed to 4.5 tpy from the baghouse-based limit) and would reduce cancer risk below 1-in-1 million for 1,900 people, whereas the baghouse-based limit would reduce cancer risk below 1-in-1 million for only 700 people. Another commenter added that emissions from smelters are virtually certain to increase in the future as the demand for copper increases, which means that the difference in reductions in using a WESP versus a baghouse will also increase. The commenter stated that the cost effectiveness "of the WESP option will increase relative to the baghouse option, therefore, the EPA should issue a strong limit based on the reductions that are achievable with a WESP." Several commenters stated that the San Carlos Apache Tribe is directly impacted by both major source smelters, and emissions of lead and arsenic are of particular concern due to their persistent and bioaccumulative nature. The same commenters stated their support for the WESP option to achieve maximum emission reductions. These commenters also claimed that EPA underestimated the emissions of lead and other pollutants from the copper smelters based on a comparison to Toxics Release Inventory (TRI) data. One commenter provided TRI estimates for lead from the Freeport smelter, stating "In 2020, for example, the Freeport smelter alone reported emitting more than 14 tons of lead. In 2019, it reported emitting 21 tons of lead and, in 2018, it reported emitting more than 29 tons of lead . . .".

Response: In the 2022 proposal, we stated that we were not proposing the WESP control option at that time, however we solicited comments regarding our analysis and whether we should establish more stringent standards to reduce HAP metal emissions from the aisle scrubber. We also subsequently requested in a 2022 section 114 information request that the Freeport facility perform feasibility analyses for additional control of the aisle scrubber. In response to the 2022 proposal, we received comment that we should establish more stringent standards to reduce HAP metal from the aisle scrubber. Therefore, we used the new information collected during the comment period and from Freeport's response to the CAA section 114 information request to develop the

WESP and baghouse options presented in the 2023 supplemental proposal.

Based on comments we received on the 2023 supplemental proposal, we also revised our emission reductions estimates for the WESP. As described in the 2023 supplemental proposal, the expected control efficiency for the WESP was 95 percent, however, we acknowledge that a number of factors can affect control efficiency, including the particulate concentration of the inlet stream to the control device. The aisle scrubber handles a high volume of gas (flowrate of approximately 1 million actual cubic feet per minute) and low particulate loading relative to the flowrate. We agree with commenters that the low concentration of particulate in the exhaust stream of the aisle scrubber, which would be the inlet to the WESP, may present technical feasibility issues in achieving a 95 percent reduction. Therefore, we updated our estimates of emission reductions. As detailed in the technical memorandum *Cost Estimates for Additional Controls of Freeport's Aisle Scrubber—REVISED*, which is available in the docket for this rulemaking, we back-calculated the control efficiency of the WESP by assuming the aisle scrubber exhaust particulate would be reduced to 1 milligram per cubic meter (mg/m³) by the WESP, which is an assumed minimum outlet concentration for this control technology. Based on this back-calculation, the resulting control efficiency of the WESP is 73 percent. Applying this revised control efficiency to the baseline emissions for the aisle scrubber (6.63 tpy metal HAP) yields an estimated reduction of 4.9 tpy metal HAP. We did not receive information during the 2023 supplemental proposal comment period on our total annualized costs for the WESP option. Therefore, when we combine the revised emission reductions (4.9 tpy metal HAP) with the total annualized costs (\$25.2 million) presented in the 2023 supplemental proposal for the WESP option, the cost effectiveness is \$5.2 million/ton HAP metal.

As described in this final rule preamble, we have concluded that, after taking public comment into consideration and making the appropriate revisions to our estimates, the costs for Option 1 are not reasonable. For this reason and others discussed in this preamble, we are not promulgating the WESP option.

In regard to comments on Tribal impacts and their concerns about lead and arsenic, the EPA recognizes the concerns of Tribal commenters and their representatives and we have taken their

comments into consideration in this action. With regard to impacts, although the EPA determined that risks due to HAP emissions are unacceptable at baseline for populations living close to the Freeport facility, the EPA's risk assessment completed for this source category indicates that health risks due to HAP emissions from primary copper smelting sources on Tribal lands, which are further away (about 10 miles from the facility) are well within acceptability at baseline. After the amendments in this final rule are implemented, the NESHAP will provide an ample margin of safety for all populations, including the San Carlos Apache Tribe. More information regarding the estimated health risks due to lead and arsenic emissions to humans at baseline (due to current emissions) and post-control (due to emissions after the amendments in this action are implemented) are described in sections III.A. and IV.A. of this preamble, and the estimated impacts to various demographic groups are described in section V.F. of this preamble. More details of the risk assessment are available in the document titled *Residual Risk Assessment for the Primary Copper Smelting Major Source Category in Support of the 2021 Risk and Technology Review Proposed Rule*, which is available in the docket.

Regarding the comments supporting the addition of WESP to control HAP metal emissions, for the reasons described elsewhere in this preamble, we are not promulgating the WESP option and are promulgating the baghouse option for the aisle scrubber. We estimate that the amendments in the final rule will reduce total metal HAP emissions (primarily lead and arsenic) by 8 tpy for the major source category.

Regarding the TRI emissions estimates provided by the commenter compared to our estimates, we estimate that the two major source facilities currently emit a total of 16.7 tpy of metal HAP (the majority of these emissions are from Freeport). We estimated these emissions primarily using test data provided by the facility for the sources subject to the Primary Copper Smelting major source NESHAP. The TRI is a "whole facility" inventory, which means that it includes estimates of stack and fugitive air emissions for all HAPs that are emitted at the facility which also include emissions from non-source category processes. Our emission estimates include those applicable to the primary copper smelting source category only. However, as noted in previous paragraph, this final rule will achieve an estimated reduction of 8 tpy of HAP metals, therefore after these

amendments to the NESHAP are implemented, total estimated emissions will be about 8.7 tpy for the major source category.

Comment: Commenters stated that the EPA erroneously describes their facility's converters as having "primary and secondary capture systems and controls, but no tertiary controls." According to the commenter, Hoboken converters use a side-flue intake capture system, and the roofline canopy system (installed in 2017 as part of facility-wide improvements to ensure the Miami area's compliance with revised standards for SO₂) is properly described as a tertiary capture system. Therefore, the commenter noted that the proposed standards would not appropriately apply to the converters at their facility as they do not have "secondary capture systems."

Response: We have corrected the characterization of the capture and control systems for converters at the Freeport facility in the preamble and regulatory text associated with the final rule.

Comment: Several commenters asserted that the aisle scrubber standards are not justified pursuant to section 112(d)(6). The commenters argued that the EPA has not identified any "developments in practice, processes or control technologies" since the original publication of the Primary Copper Smelting NESHAP that would justify additional controls on the aisle scrubber. Commenters noted that the EPA cites section 112(d)(6) to claim that "developments" warrant the imposition of new controls, but the EPA fails to recognize that section 112(d)(6) only authorizes revisions that are "necessary." The commenter asserted the word "necessary" cannot be ignored, and that it clearly requires some showing of necessity beyond the identification of "developments" because the mere existence of a development does not make it "necessary." According to commenters, the fact that the term "developments" is found only in a parenthetical confirms it is merely one component of the analysis that ultimately must conclude a revision to a standard is "necessary," a showing that the EPA has not made here.

Response: We disagree that, in this case, additional controls to reduce emissions at the aisle scrubber are not necessary. The aisle scrubber stack was identified in the 2022 proposal as one of the largest sources of metal HAP emissions at Freeport. We currently estimate it emits 6.63 tpy of HAP metals (primarily lead and arsenic). The aisle scrubber is a control device that is

mainly used to control SO₂ emissions. This device controls emissions from the anode refining point source and emissions from the Hoboken converter process fugitive capture system. The anode refining point source gas stream passes through a PM control device (*i.e.*, a baghouse) before entering the aisle scrubber for SO₂ control, but the converter process fugitive capture system is ducted directly to the aisle scrubber without PM control prior to the aisle scrubber. We identified and proposed in the 2023 supplemental proposal 2 options to reduce metal HAP emissions from the aisle scrubber stack at Freeport. Our analysis shows that the technologies to reduce metal HAP emissions at the aisle scrubber identified in the 2023 supplemental proposal are readily available and already in use at primary copper smelting facilities (including Freeport) as well as in use at facilities in other source categories. This is especially true for baghouses. Regarding the WESP, although this technology has been applied at some emissions points at these facilities and other metals sectors (*e.g.*, Secondary Lead Smelters), we are not aware of the WESP being successfully applied to emissions sources similar to the aisle scrubber. Specifically, the aisle scrubber has a very high flow rate and low concentration of PM compared to other point source emissions sources where the WESP has been applied.

Another factor we considered in our decision is that the Asarco facility has a secondary hood capture system to collect secondary emissions from their Peirce-Smith converters and that secondary hood capture system is vented to a baghouse for PM control (which also controls metal HAP emissions). We find these PM controls are especially important for lead and arsenic because these two pollutants are persistent, bioaccumulative and highly toxic HAPs.

Given all of this information, we conclude that additional PM controls are necessary to further reduce metal HAP at the aisle scrubber source, and that the baghouse technology that we proposed in the 2023 supplemental proposal (*i.e.*, Option 2 in the supplemental proposed rule) represents a development that will further reduce metal HAP emissions at Freeport. The baghouse is a common, well demonstrated technology used to control PM emissions from various industrial emissions sources.

Comment: One commenter was supportive of the baghouse option despite expressing a preference for the WESP option.

Other commenters were opposed to the baghouse option. These commenters noted that the cost effectiveness of this option exceeds the threshold for cost effectiveness for nonmercury metal HAP despite being underestimated. Commenters stated that the EPA overstated emission reductions and underestimated costs by about a factor of 2.

Commenters asserted that the EPA overstated the emission reductions from this option. One commenter explained that due to the high volume of the exhaust stream and the low particulate concentration in the exhaust stream (estimated to be on the order of 0.001 gr/ft³), control efficiency is expected to be closer to 50 percent, rather than the 90 percent used by the EPA. The commenter explained this is because they are not aware of any vendor guarantee of a minimum exhaust concentration of 0.0001 gr/ft³ which would be required to achieve 90 percent control.

Commenters provided their own estimate of the baghouse costs of \$70–88 million and noted that the discrepancy between their estimate and the EPA's estimate in the supplemental proposal (which differed by about a factor of 2) can be attributed to: under sizing and, thus, underestimating costs for ductwork; using a shaker instead of more modern pulse jet style baghouse; using too small of a scaling factor to size the baghouse; underestimating the cost of the lime injection system; omitting indirect costs (e.g., freight, spare parts, engineering procurement and construction management services, equipment rental); and omitting contingency which the commenter included at a value of 25 percent. Using their own emission reduction estimates of 2.5 tpy HAP metal and total annualized cost estimates ranging from \$12.7M to \$14.5M (with 25 percent contingency included), commenters estimated the cost effectiveness value for this option as being between \$4.8 to \$5.8 million/ton HAP.

Response: As described in the previous comment response, we conclude that additional PM controls are necessary to further reduce metal HAP at the aisle scrubber source, and that the baghouse technology represents a development that will further reduce metal HAP emissions at Freeport. To inform our decision under the technology review, we evaluated the types of technology used in the industry and other source categories. We found that baghouse technology is readily available, feasible, well demonstrated and is being used to control a similar source at the other major source primary

copper smelter in this source category. However, we have revised our emission reductions estimates and our cost estimates for this option after considering the comments.

As described in the 2023 supplemental proposal, for a baghouse we generally expect achievable control efficiencies to be at least 90 percent. We acknowledge that a number of factors can affect the control efficiency, including the particulate concentration of the inlet stream to the control device. Based on the engineering evaluation provided by Freeport in their 2022 section 114 information collection request response, the Hoboken converter process fugitive capture system has a high flowrate and low particulate loading relative to the flowrate. We agree with commenters that the expected concentration of particulate in the inlet stream may present technical feasibility issues achieving a 90 percent reduction. Therefore, we updated our estimates of emission reductions.

First, we note that through CAA section 114 information requests for other EPA rules (e.g., electric arc furnaces (EAF), foundries), we have collected data demonstrating that baghouses achieve average particulate outlet concentrations below 0.001 grains per dry standard cubic feet (gr/dscf). We found that baghouses with similar flowrates to those expected for the Hoboken process fugitive capture system in the EAF source category achieve, on average, outlet concentrations of filterable particulate of 0.0006 gr/dscf with a range of 0.0001 to 0.0017 gr/dscf. For foundries, there were 2 facilities that were used to set the new source standard which had average PM emissions of 0.0002 gr/dscf and a high value of 0.0004 gr/dscf. The other had an average of 0.0008 gr/dscf and a high value of 0.00086 gr/dscf. Considering this information and the information provided in Freeport's engineering evaluation for the Hoboken converter process fugitive capture system, we back-calculated the control efficiency of the baghouse assuming that the Hoboken converter process fugitive capture system particulate would be reduced to 0.0005 gr/dscf which is an assumed achievable outlet concentration for this control option when estimating the control efficiency. The expected baghouse flowrate was taken from the Freeport engineering analysis, and the particulate loading was assumed to be 75 percent of the aisle scrubber outlet. The resulting control efficiency is 61 percent. Applying this revised control efficiency to the baseline emissions for the Hoboken converter process fugitive

capture system (assumed to be 75 percent of the aisle scrubber or 4.97 tpy metal HAP) yields an estimated reduction of 3.0 tpy metal HAP. The expected reduction is 46 percent of the aisle scrubber emissions overall, after the Hoboken converter process fugitive capture system baghouse stream combines with the controlled anode refining department stream in the aisle scrubber.

Next, concerning costs, we have updated our cost estimates after considering the comments. We revised the estimated costs for total capital investment to include those costs provided by the commenter for equipment supply. We utilized the EPA cost control manual to estimate all indirect costs including contingency in accordance with section 6, Chapter 1—Baghouses and Filters. The revised cost estimates provide a total capital investment of \$59.5 million and total annualized costs of \$10.8 million. Using our emission reduction estimate and the total annualized cost estimate, the cost effectiveness is \$3.6 million/ton metal HAP reduced.

While this cost effectiveness is higher than we have accepted in the past for reducing metal HAP in some standards, there are other relevant factors that EPA can consider, and has considered. The highest cost effectiveness accepted in the past was \$1.5M/ton of metal HAP in 2009 dollars (which is about \$2M/ton of metal HAP in 2022 dollars) in the Secondary Lead Smelting NESHAP (77 FR 556, January 5, 2012). However, it is important to note that EPA considers other factors besides cost-effectiveness when considering requirements under the technology reviews, such as feasibility of controls, how well certain controls have been demonstrated, and overall economic impacts. In this case, as described previously in this section, we determined that baghouse technology is readily available, feasible, well demonstrated and is being used to control a similar source at the other major source primary copper smelter in this source category. Furthermore, in this specific case, we have collectively considered the significant emission reductions of persistent, bioaccumulative, and toxic (PBT) HAPs (primarily lead and arsenic, which are both PBT HAPs), non-air environmental impacts, feasibility concerns, and the costs of each of the options. We note that lead and arsenic are known developmental toxicants that can cause particular harm to infants, children, and the developing fetus. Furthermore, arsenic is classified as a human carcinogen by the EPA and the World Health Organization. In addition, we do

not expect that the overall economic impacts of this rule will lead to significant changes in domestic copper production; the market price for commercial grade copper or any products comprised of copper inputs; or employment, as described in section V.D. of this preamble. This rationale and these considerations are discussed in more detail in section IV.B.4. of this preamble.

The details of our emission reduction estimates and cost estimates have been provided in the technical memorandum *Cost Estimates for Additional Controls of Freeport's Aisle Scrubber—REVISED*, which is available in the docket for this rulemaking.

4. What is the rationale for our final approach for the technology review?

As noted in section IV.A. of this preamble, we updated our risk modeling based on the revisions to the expected emission reductions for each of the options proposed in the 2023 supplemental proposal. We conclude that, in this case, the risk reductions achieved are not sufficient to promulgate this standard (*i.e.*, the PM limit for the Aisle scrubber described previously in this section) pursuant to CAA section 112(f); however, we continue to maintain that baghouses are proven technologies for achieving high degrees of particulate control. We also find that additional controls on similar exhaust streams are used in the source category. As discussed in section IV.B.3. of this preamble, the aisle scrubber stack is one of the largest sources of metal HAP emissions at Freeport. We estimate it emits 6.63 tpy of HAP metals (primarily lead and arsenic). The aisle scrubber is a control device that is mainly used to control SO₂ emissions from the anode refining point source and from the Hoboken converter process fugitive capture system. While the anode refining point source gases are vented to a PM control device before entering the aisle scrubber, the gas stream from the Hoboken converter process fugitive capture system vents directly to the aisle scrubber without prior PM control. We conclude that further reduction of metal HAP emissions from the aisle scrubber are necessary and that there are developments in practices, processes, or control technologies that will achieve further reductions of metal HAP emissions at Freeport. The PM controls on this source are especially important for reducing lead and arsenic because these two pollutants are PBT HAPs.

To inform our decision under the technology review, we evaluated the types of technology used in the industry

and in other source categories to control PM emissions. As discussed in this preamble, we proposed two options in the 2023 supplemental proposal: Option 1 evaluated a tighter PM limit based on the application of a WESP downstream of the aisle scrubber and Option 2 evaluated a tighter PM limit based on using baghouse technology upstream of the aisle scrubber. We next analyzed the technical feasibility, estimated costs, and non-air environmental impacts for each option. As described in section IV.B.3. of this preamble, we are not aware of a WESP (Option 1) being successfully applied to emissions sources similar to the aisle scrubber, which has a very high flow rate and low concentration of PM compared to other point source emissions sources where the WESP has been applied. As described previously in this preamble, we determined that baghouse technology (Option 2) is readily available, feasible, and is being used to control a similar source at the other major source copper smelter in this source category.

With regard to feasibility, the Freeport facility property does not extend far beyond its core manufacturing operations and is bordered on one side by a railroad track; therefore, space to install large equipment such as that required in either option is limited. In their feasibility analysis for these control options, Freeport explained that Option 1 requires a larger footprint than Option 2. We also considered the secondary impacts of the two control options and found that Option 1 would require the use of significant amounts of water, which is of particular concern because the facility is located in an arid climate where water resources are limited.

As is permitted under CAA section 112(d)(6), we also considered the costs of each option. The cost estimates for the WESP option include a total capital investment of \$98.5M and total annualized costs of \$25.2M. With an estimated reduction of 4.9 tpy of total metal HAP emissions, we estimate the cost effectiveness of installing a WESP is \$5.2M/ton of HAP metal reduced. We have updated our cost and emission reduction estimates for the baghouse option after considering the comments as described in section IV.B.3. The revised cost estimates include a total capital investment of \$59.5 million and total annualized costs of \$10.8 million. Using our emission reduction estimate of 3.0 tpy and the total annualized cost estimate, the cost effectiveness is \$3.6 million/ton metal HAP reduced for the baghouse option (Option 2).

In collectively considering the emission reductions, secondary impacts, feasibility concerns, and the costs of each of the options, we find that Option 2 provides sizeable reductions of HAP metals, including two highly toxic persistent bioaccumulative HAPs (*i.e.*, lead and arsenic) at reasonable costs while minimizing secondary impacts and feasibility concerns. Therefore, taking into consideration the comments and other information and data as well as the other factors discussed in this preamble, we are promulgating a PM standard of 4.1 mg/dscm for the combined emissions stream from the Hoboken converter process fugitive capture system and the anode refining department (*i.e.*, the aisle scrubber) pursuant to CAA section 112(d)(6). We estimate this will reduce HAP metal emissions by 3.0 tpy.

A detailed description on the development of this emission standard is provided in the memorandum *Final Emission Standard Development* for the Aisle Scrubber, which is available in the docket for this rulemaking.

In the 2022 proposal, additional work practice standards to minimize fugitive dust and development of a fugitive dust control plan that must be reviewed, updated (if necessary), and approved by the Administrator or delegated permitting authority were proposed. These standards were proposed in order to provide an ample margin of safety to protect public health and pursuant to CAA section 112(d)(6). In this specific case, for the Primary Copper Smelting source category, we have decided to promulgate the additional work practices to minimize fugitive dust and the development of a fugitive dust control plan under only the technology review. The work practices and dust plan requirements are the same as proposed in the 2022 proposal. The fugitive dust plan and work practices are appropriate under CAA section 112(d)(6) because they are practices that will ensure emissions will be minimized. It is our understanding that the facilities are already doing these types of practices so, although these measures are anticipated to further address fugitive emissions and advance the goal of minimizing HAP metal emissions, we are unable to quantify and assure significant enough reductions in actual emissions that would significantly reduce health risk; therefore, we are not promulgating under CAA 112(f) in this particular case. We expect that since facilities are already implementing most of the additional work practices as part of requirements in the facility's operating permit or to comply with consent

decree, there will be minimal additional costs to comply with the final rule work practices and fugitive dust plan requirements. The only additional costs would be a slight increase related to recordkeeping and reporting requirements. For details on the work practices see the 2022 proposal preamble (87 FR 1616).

As noted in section IV.A.3., one of the commenters took issue with the aisle scrubber standard being applied only to the Freeport facility when their post-roofline control MIR is 20-in-1 million. They stated that roofline controls to achieve acceptable risk leave the MIR for the other major source copper smelter (Asarco) “untouched” at 60-in-1 million, asserting this is “unfair, arbitrary and capricious, and unsupported by the record.” After considering this comment, our prior proposals, and the information in the record, we evaluated options under CAA section 112(d)(6) and 112(d)(2) and (3) to reduce process fugitive emissions from Asarco. In the 2022 proposal, we solicited comment on a BTF limit to control process fugitives from the flash furnace roofline vent to reduce risk at Asarco. We estimated that to comply with a BTF limit, the facility would need to install improved capture and control of the flash furnaces as well as the large ladle containing hot liquid matte from the flash furnace tapping/pouring operations, called the fuming ladle. In our cost estimates, we assumed a new baghouse would be needed as well as a roofline ventilation capture system. We did not receive comments on this specific BTF standard or our cost estimation. However, as noted above in this paragraph, we did receive the general comment that said our proposal would do nothing to reduce the MIR of 60-in-1 million at Asarco.

Nevertheless, as described in section IV.B.2., we received new information regarding developments in technology (3 projects to reduce process fugitive emissions from roof vents) currently planned for the Asarco facility (and have been incorporated into their state permit and draft SIP), which are estimated to achieve a 30 percent reduction in process fugitive metal HAP emissions from the roofline vents. We have reviewed this information and agree that these developments will reduce fugitive metal HAP emissions. We estimate, based on the roofline vent metal HAP emissions estimates we had for the 2022 proposal and applying a 30 percent reduction, that the total process fugitive metal HAP emissions (including lead and arsenic, which are persistent, bioaccumulative HAPs) from the roofline will be reduced by 0.39 tpy.

These estimates are available in the docket for this action (see memorandum *Cost Estimates for Enhanced Capture and Control of Process Fugitive Emissions at Asarco*). We expect that the reductions in process fugitive metal HAP emissions will also reduce risk; however, we have not yet quantified this risk reduction because the facility is not currently operating and their future operational emission profile may be different than what we have modeled in support of the 2022 proposed rule. Furthermore, we received this information regarding the three projects well after the end of the comment period and therefore we did not have sufficient time to remodel and calculate the risk reductions that will be achieved.

With regard to cost impacts, we estimate that for the facility to comply with these design standards (and comply with the lead limit, promulgated under CAA section 112(d)(2) and (3), which is discussed in section IV.C.2. of this preamble), the facility will need to install improved capture and control consistent with what is expected under the state permit and SIP. As mentioned in section IV.B. of this preamble, the improvements needed to comply with the design standards and emissions limit are already adopted into the facility’s operating permit and therefore costs impacts are already expected regardless of the requirements we are including in this final rule. However, since the facility has not yet begun construction for these improvements, we estimated costs for these projects as part of this action. We estimate that the total costs for complying with the design standards and lead emission limit are \$15.4M in capital costs and \$3.9M in annualized costs. Asarco provided estimated costs for these projects in a letter provided on February 26, 2024, which is available in the docket for this action. They estimate total capital costs of \$22.4M and \$5.8M in annualized costs for all three projects. Given the late submittal and the court-ordered promulgation deadline of May 2, 2024, we did not have sufficient time to review these estimates and determine their validity. However, we note again that the projects are already requirements in their operating permit and the facility is already expecting to incur these costs unrelated to the NESHAP. More details on the estimated costs are found in the memorandum *Cost Estimates for Enhanced Capture and Control of Process Fugitive Emissions at Asarco*, which is available in the docket for this action. To achieve reduction of HAP metals at Asarco, we

are finalizing design standards consistent with their 2023 operating permit which include improved capture and control of the Peirce-Smith flash furnaces, fuming ladles, and anode furnaces.

C. CAA Sections 112(d)(2) and (3) Revisions for the Primary Copper Smelting Source Category

1. Anode Refining Point Source Emissions

a. What did we propose for the anode refining point source pursuant to CAA section 112(d)(2) and (d)(3)?

We proposed a MACT floor PM limit as a surrogate for metal HAP in 40 CFR 63.1444(i) (finalized at 40 CFR 63.1444(f) for new and existing anode refining departments in the 2022 proposal. The MACT floor emissions standard for new and existing sources, 5.78 mg/dscm, was developed based on the 99 percent UPL for PM emissions from the available emissions data (which was from Asarco) and represents the MACT floor level of control. We considered beyond-the-floor options for the standard, but we did not identify any feasible, cost-effective beyond-the-floor options. It should be noted that at the Freeport facility, the anode refining department gas stream and the Hoboken converter process fugitive capture system exhaust stream are both routed to and combined in the aisle scrubber from which they are emitted to the atmosphere. The facility conducts performance tests after the anode refining department stream is combined with the Hoboken converter process fugitive capture system exhaust stream (*i.e.*, at the aisle scrubber outlet). Therefore, the EPA also proposed amendments to the existing alternative emission limit in 40 CFR 63.1446 to include the anode refining department stream, as we expected Freeport would be able to use this option to demonstrate compliance with the anode refining department emission limit at the aisle scrubber outlet. Lastly, we proposed in 40 CFR 63.1451(a) and 63.1453(a), respectively, that compliance with the PM emissions limit for the anode refining department will be demonstrated through an initial performance test followed by a compliance test at least once per year.

b. How did the anode refining point source revisions made pursuant to CAA section 112(d)(2) and (3) change since proposal?

There are no changes to the emission standard for the anode refining point source since the proposals, except that we rounded the 5.78 mg/dscm to 2

significant figures (*i.e.*, 5.8 mg/dscm). We are promulgating the MACT floor-based PM emission standard of 5.8 mg/dscm for the anode refining department point source emissions (*i.e.*, emissions exiting the anode baghouse) and related compliance requirements, as proposed in the 2022 proposal. However, because Freeport combines their anode refining point source emissions with the fugitive capture system from the Hoboken converters, we are also finalizing, as proposed, to include the anode refining department point source emissions as an emission source to be included in the alternative emission limit calculation for the combined stream.

Additionally, in the final rule based on comments, we are also providing that facilities that combine the anode refining department and Hoboken converter process fugitive capture system streams must comply with the combined stream PM limit of 4.1 mg/dscm and related compliance requirements to demonstrate compliance with the anode refining department emission standard and related compliance requirements. As discussed in section IV.B. of this preamble and pursuant to CAA section 112 (d)(6), we are finalizing a PM emission standard of 4.1 mg/dscm for the combined stream of the anode refining department and Hoboken converter process fugitive capture system and an annual compliance testing requirement.

c. What key comments did we receive on the proposed anode refining point source revisions made pursuant to CAA section 112(d)(2) and (3) and what are our responses?

Comment: One commenter stated that the EPA should set the PM MACT floor based on a concentration limit of 23 mg/dscm, which is an existing technology-based limit for similar emission points in the current NESHAP rather than the 99 percent UPL emission standard developed using only data from Asarco. The commenter explained that this limit should be applied at their aisle scrubber stack, which is the emission point for emissions from their Hoboken converter process fugitive capture system and their anode refining department, thus each affected source would be subject to the same 23 mg/dscm limit. The commenter added that the EPA does not have sufficient data to set a mass rate for the anode refining department MACT floor since the only data used to set the limit are from Asarco, which does not reflect the operating performance of their anode refining department and does not reflect the best 5 sources as is required by the EPA's procedure for

source categories with less than 30 sources. The commenter explained that they cannot provide performance tests of their anode refining department emissions using EPA methods because of the duct configuration of the baghouse controlling these emissions. However, in their comment letter they submitted an engineering evaluation which characterized the flowrate and particulate emissions for the anode refining department's baghouse. The engineering evaluation was not conducted following EPA methods. The commenter used the data from the engineering evaluation with the data the EPA used in the development of the 99 percent UPL (*i.e.*, Asarco's data) to estimate a revised MACT standard, 7.3 mg/dscm. The commenter stated that the purpose of the recalculation of the MACT standard was to demonstrate their argument that more data collection is necessary to support the development of a representative MACT standard for the anode refining department.

Response: First, as described in the preamble of the 2022 proposal, the emission standard for the anode refining point source was proposed pursuant to CAA section 112(d)(2) and (3). This standard is not being proposed pursuant to CAA section 112(d)(6). The 1998 proposal for primary copper smelting identified the anode refining department in the definition of primary copper smelters; however, the EPA did not have sufficient data at the time to set a standard for this emission source. In contrast, in the 2007 area source NESHAP for primary copper smelting, data were available to set an emissions standard for the anode refining department. With the recently acquired Asarco data, we now have sufficient data to develop a MACT floor emission standard for the anode refining point source at major sources. The Asarco data includes 9 data points, which exceeds the minimum sample size of 3 data points necessary to develop a MACT floor. Therefore, we disagree that we have insufficient data to develop the emission standard. We also do not find the data included in Freeport's engineering evaluation appropriate to include in the MACT floor dataset since these data were not collected following EPA methods. In regard to the comment that the MACT floor limit does not reflect the best 5 sources, there are only two major sources in this category, and as stated, only one of these major sources had valid data from an anode refining department. We used all available valid data from the best performing sources for which the EPA could reasonably obtain emissions

information in the category, which is in accordance with CAA section 112 (d)(3)(B).

Comment: One commenter explained that the configuration of their anode refining department baghouse makes the proposed test methods infeasible. The commenter stated that the anode refining department exhaust at their facility is controlled by a baghouse, which is ducted to the aisle scrubber where it combines with exhaust from the facility's Hoboken converter process fugitive capture system. The point of emission for their anode refining department exhaust is the outlet of the aisle scrubber. The commenter stated implementing the alternative emission limit option to comply with the anode refining limit (as proposed by the EPA) is not feasible due to the inability to measure flowrate using EPA Method 1 in the duct between the baghouse outlet and aisle scrubber inlet. The commenter explained the ductwork does not have enough straight passes to measure flowrate according to EPA Method 1.

Response: Based on reviewing information submitted by the commenter and observations made by the EPA during a November 7, 2023, site visit to the facility, the EPA agrees that there is currently no viable testing location for flowrates using EPA Method 1 from the anode refining department baghouse to the aisle scrubber. In light of this new information, we agree that the use of the alternative emission limit is not an option for demonstrating compliance with the anode refining department for this facility. However, this alternative emission limit procedure may be appropriate at a new facility; thus, we are finalizing the proposed amendment to add the anode refining department to the list of emission sources which could be included in the emission alternative limit calculation option. However, as discussed elsewhere, we are promulgating a limit for the combined stream of the anode refining department and Hoboken converter process fugitive capture system (*i.e.*, the Freeport aisle scrubber). Based on the data provided by the Freeport facility in their section 114 information request response, an estimated 75 percent of the particulate emissions emitted from the aisle scrubber are from the Hoboken converter process fugitive capture system while the remaining 25 percent are from the anode refining baghouse. The emission standard for the combined stream of the anode refining department and Hoboken converter process fugitive capture system based on 61 percent control of the emissions by a baghouse controlling the emissions from the

Hoboken converter process fugitive capture system is 4.1 mg/dscm. The emission standard for the combined stream of the anode refining department and Hoboken converter process fugitive capture system is more stringent than the anode refining department emission standard alone (5.8 mg/dscm).

Therefore, we are finalizing that compliance with the emission standard for the combined stream of the anode refining department and Hoboken converter process fugitive capture system demonstrates compliance with the anode refining department emission standard.

Comment: One commenter stated that in the 2022 proposal the EPA proposed a new MACT floor limit for the anode refining department. The commenter requested clarification if the PM limits for the aisle scrubber in the 2023 supplemental proposal replace the anode refining department limit in the 2022 proposal (because their anode refining department baghouse vents to the aisle scrubber), or if the EPA intends to retain the separate anode baghouse requirement.

Response: As described in section IV.B. of this preamble, we are promulgating a particulate emission limit for the combined stream of the anode refining department and the Hoboken converter process fugitive capture system (*i.e.*, aisle scrubber) as proposed in the 2023 supplemental proposal, as well as an independent anode refining department emission limit as proposed in the 2022 proposal. Compliance with the anode refining department emission limit will be demonstrated by complying with the appropriate limit, *i.e.*, if there is a combined emission stream then the affected source will comply with the combined emission standard, or if the anode refining department is independent (*i.e.*, not combined with other emission streams), then the affected source will comply with the independent limit for anode refining department.

d. What is the rationale for our final approach and final decisions for the anode refining point source revisions made pursuant to CAA section 112(d)(2) and (3)?

As discussed in the 2022 proposal preamble, the 1998 proposal for primary copper smelting major sources identified anode refining in the definition of primary copper smelters. However, at that time, the EPA did not have sufficient data to set an emission limit for anode refining, and therefore did not propose specific emission standards for anode refining operations

in the major source NESHAP. The 2007 area source NESHAP includes emission standards for anode refining operations at area sources. Therefore, in the 2022 proposal, we concluded that anode refining is part of the source category and emits HAP emissions. In the 2022 proposal, we considered a BTF option, but did not consider going BTF in this case due to cost effectiveness. Pursuant to section 112(d)(2) and (3), we are finalizing, as proposed in the 2022 proposal, a MACT floor PM limit of 5.8 mg/dscm as a surrogate for metal HAP for new and existing anode refining departments. We are finalizing, as proposed, that compliance with the PM emissions limit for the anode refining department will be demonstrated through an initial performance test followed by a compliance test at least once per year. We are also finalizing to include the anode refining department as an emission source to be included in the alternative emission limit calculation for new facilities.

Based on the comments received on the 2022 proposal and the 2023 supplemental proposal and on information collected during a November 7, 2023, site visit to the Freeport facility, we are promulgating that compliance with the combined emission standard of 4.1 mg/dscm, for the combination of anode refining department emissions and Hoboken converter process fugitive capture system emissions (being promulgated under CAA section 112(d)(6) as described in section IV.B. of this preamble) will demonstrate compliance with the anode refining MACT floor PM limit. Under section 112(d)(6), we are finalizing initial and continuous compliance requirements for the combined emission standard including initial and subsequent annual performance testing. The combined standard and associated compliance requirements will ensure that affected sources can demonstrate compliance with the rule requirements.

2. Process Fugitive Emissions From Roofline Vents

a. What did we propose for process fugitive emissions from roofline vents pursuant to CAA section 112(d)(2) and (d)(3)?

As noted previously in the preamble for this final rule, the standards and associated compliance requirements for the process fugitive emissions from roofline vents source are being finalized pursuant CAA section 112(f)(2) to address unacceptable risk for the source category as well as pursuant to CAA section 112(d)(2) and (3). As proposed

in the 2022 proposal and the 2023 supplemental proposal, we are promulgating the same emission standard to reduce risk to a level that would be considered acceptable and to satisfy the requirements of CAA section 112(d)(2) and (3). As discussed in the context of risk in section IV.A. of the preamble for this final rule, we proposed emission standards for the process fugitive emissions from roofline vents. In the 2022 proposal, we proposed separate standards for each roofline vent (*i.e.*, smelting vessels, copper converter department, and anode refining department) based on emissions data received from the Freeport facility. We performed a BTF analysis for additional controls of each roofline vent and concluded in the 2022 proposal that a BTF standard was appropriate for the anode refining process fugitive roofline vent while MACT floor standards were appropriate for the smelting and copper converter roofline vents.

During the comment period for the 2022 proposal, we received additional test data of the roofline vents from the Freeport facility. We received comments from both facilities in the major source category requesting that the roofline vent be a combined limit because there is comingling of emissions in the building where the processes are located. We received significant comment regarding the proposed test methods for demonstrating compliance with the roofline vent emission standards. We also received comments on our cost estimates for the BTF control option of the anode refining roofline vent.

In the 2023 supplemental proposal, we proposed a combined limit. The combined limit was calculated using the 99 percent UPL methodology. Specifically, for calculating the combined emission limit, we first determined the 99 percent UPL of the combined emission rates based on all test data now available for filterable PM. We then determined the average fraction of emissions which are attributable to the anode refining roof vent (72 percent). Then we adjusted the anode refining roof vent's portion of the 99 percent UPL by reducing that portion of the value by 90 percent. We also adjusted our costs in response to public comments on the proposed option to reflect the design requirements at the Freeport facility primarily by increasing the baghouse flowrate, lowering the air to cloth ratio and adding a lime injection system. The revised capital costs were \$10.2 million and annualized costs were \$2.14 million. The baghouse is expected to achieve 4.59 tpy reduction of lead and arsenic with a cost

effectiveness of \$467,000/ton metal HAP.

In addition, in the 2022 proposal we solicited comment on a lead limit for the roofline vents in addition to, or instead of, the PM limit for the anode refining roof vents. The agency considered a possible lead limit of 0.26 lb/hr as a potential BTF MACT limit for anode refining process fugitive emissions.

b. How did the requirements for process fugitive emissions from roofline vents proposed pursuant to CAA section 112(d)(2) and (3) change since proposal?

As discussed in this preamble, we are promulgating the combined BTF PM limit of 6.3 lb/hour for the roofline vents as proposed in the 2023 supplemental proposal. The BTF control cost estimates were updated to incorporate the most current bank prime interest rate resulting in a small increase in total annualized costs which are now estimated as \$2.30 million with a resulting cost effectiveness of \$500,000/ton metal HAP with 4.6 tpy (rounded from 4.59 tpy) reduction of lead and arsenic. The revised cost estimates are documented in the memorandum *Cost Estimates for Enhanced Capture and Control of Process Fugitive Emissions from the Anode Refining Operations at Freeport—REVISED*, which is available in the docket for this rulemaking. The cost estimates were otherwise unchanged and the adjustments do not change our conclusions about the necessity of promulgating the BTF standard. However, we received significant comment on the proposed compliance test methods. To address some of the concerns raised by the commenters, we are promulgating revised methods and allowing the use of Federal reference method (FRM) and Federal equivalent method (FEM) monitors as discussed in section IV.C.2.c.

We are promulgating a lead emission limit of 0.326 lb/hour for minimizing process fugitive emissions from any combination of roofline vents associated with the Peirce-Smith copper converter department, Inco flash furnace and the anode refining department, at existing sources. This emissions limit reflects the estimated reductions that will be achieved by the design standards described in section IV.B. We are also finalizing that facilities must demonstrate compliance with this emission limit once per year. We note that Peirce-Smith converters are batch converters and the NESHAP prohibits the use of batch converters for new sources. Therefore, this lead limit is not relevant for new sources.

c. What key comments did we receive on the proposed requirements for process fugitive emissions from roofline vents pursuant to CAA section 112(d)(2) and (3) and what are our responses?

Comment: Numerous comments were received on the proposed test methods for measuring PM at roof vents, which include EPA Test Methods 1, 2/2F/2G, 3/3A/3B, 4, 5D and Oregon Method 8. Most comments were that the proposed test methods are not suited for testing PM from roof vents; that MiniVol portable samplers should be used for sampling PM at the roof vents instead of the proposed test methods; and that the proposed test methods are unsafe to conduct at rooflines.

Commenters discussed the lack of isokinetic conditions at the roofline, which they stated inhibits the use of Method 1. For example, a commenter explained that Method 1 provides two alternative procedures: a “simplified procedure,” and an “alternative procedure.” Citing section 1.2 of the method, the commenter stated the simplified procedure “cannot be used when the measurement site is less than 2 stack or duct diameters or less than a half diameter upstream from a flow disturbance.” The commenter stated that neither stack diameters nor duct diameters can be defined for the smelter facilities’ roofline vents, within the meaning and purposes of section 1.2. With regards to the alternative procedure, the commenter stated this procedure depends on the ability to develop representative pitch and yaw angles of the gas flow to be sampled, based on directional flow-sensing probe measurements of pitch and yaw angles at forty or more traverse points within the flow. The commenter stated this procedure is not possible to perform at the smelter facilities’ roofline vents because fugitive emissions at the vents occur at a variety of angles that are constantly changing due to ambient winds.

Another commenter discussed the lack of isokinetic conditions at the roofline and referenced a feasibility study (EPA-HQ-OAR-2020-0430-0062) that concluded that the roofline vents at the Miami smelter cannot meet the minimum methods of Method 1, including either the simplified procedure or alternative procedure. The commenter stated that if Method 1 cannot be utilized effectively at the 2 facilities subject to the major source rule, the rule is not practical to implement or enforce.

A commenter discussed in depth the limitations of Method 5D, stating that, unlike a positive pressure baghouse for

which Method 5D was designed, the roofline vent air flow is induced by natural buoyance of the warmer gas inside the smelter building and by outside air wind pressures—not by use of a forced air blower like those used in a baghouse. The commenter referenced an illustration in a technical analysis of the proposed vent test methods, which shows that the flow rate varies significantly over short periods of time and occasionally is negative (*i.e.*, air flows into the vent). Another commenter stated, “FMMI identified the incompatibility of Method 5D to the roofline vent configurations as part of its original comments on April 26, 2022 . . . Nevertheless, the EPA left the issue unaddressed in the supplemental rule proposal, and the agency has not provided any guidance or technical analysis explaining how Method 5D could be adapted to the distinctly different conditions presented by the roofline vents.” A commenter stated because EPA Method 5D is not compatible with the low, variable air velocities and physical configuration of the roofline vents, FMMI has utilized a sampling methodology and test protocol negotiated with the ADEQ (the “ADEQ test method”).

Commenters advocated using MiniVol portable air samplers as an alternative to the proposed test methods for measuring PM from roof vents. They stated that using MiniVol portable air samplers is the most representative sampling method for the roofline emissions application, and while not a FRM sampler, they provide results that closely approximate data from FRM samplers to obtain representative concentrations of PM without the need for isokinetic sampling. The commenter noted that the portable air samplers can be run concurrently at several locations along the roofline, which the commenter notes offers several benefits: (1) fluctuations in flows and emissions along the roofline are better managed, (2) sampling is not dependent on linear air flow, so constant adjustments are not required, and (3) sampling can occur for longer periods of time, which provides a more representative sample of the process operations occurring in the smelter buildings. The commenter noted use of this sampling protocol will require the collection of velocity and temperature measurements using the existing roofline monitoring system equipment. As an added benefit, the portable air samplers also are capable of speciating samples of PM, PM₁₀, and PM_{2.5}.

A commenter noted that Asarco’s 2015 consent decree with ADEQ, which governs the operation of their Hayden

smelter, requires process fugitive emissions studies (FES) pursuant to a protocol ("FES Protocol" or "Protocol") approved by the EPA on May 24, 2017. Within the FES Protocol is a determination that process fugitive PM emissions at the roofline shall be quantified via a sampling methodology that centers on the use of MiniVol portable air samplers at the roofline vents. The commenter stated that the EPA's approval of the Protocol constitutes a determination by the EPA that this sampling method is appropriate for determining the rate of fugitive PM emissions at the roofline. The MiniVol sampler, in particular, is a low-flow sampler, which is well-suited to low, variable air flows at the roofline—unlike the iso-kinetic sampling methods specified in paragraph (e)(1) of proposed 40 CFR 63.1450. The commenter attached copies of the Protocol and the EPA's approval of the Protocol to their comment letters submitted on the 2022 proposed RTR and on the 2023 supplemental proposal (Docket ID Nos. EPA-HQ-OAR-2020-0430-0135 and EPA-HQ-OAR-2020-0430-0204, respectively).

A commenter stated the final rulemaking should include a provision that explicitly authorizes the use of MiniVol portable air samplers, together with appropriate temperature and flow sensors to determine PM emissions at the roofline. The commenter advocated the use of a fugitive emissions monitoring protocol specific to the relevant smelter and approved by the EPA's Office of Air Quality Planning and Standards, Measurement Technology Group (MTG) or other reviewing body such as ADEQ and believes (a) 6 months after the date of the final rulemaking's publication in the **Federal Register** would be an appropriate deadline for submittal of the protocol for agency approval; and (b) 2 years after agency approval of the protocol would be an appropriate deadline for commencing measurements of the rate of fugitive PM emissions at the roofline to determine whether they exceed the fugitive PM emissions-rate limit. Correspondingly, the commenter noted the final rulemaking should provide that, during the pendency of the protocol's implementation, only the work practice standards and operation and maintenance requirements of the revised subpart QQQ rules shall apply to the process fugitive PM emissions. This would be consistent with 42 U.S.C. 7412(h)(1)–(2)(B) and the approach the EPA took in the Mercury and Air Toxics

Standards (MATS) and Industrial Boilers rulemakings.

The commenter stated that the ADEQ test method was utilized to collect all of the emission data that the EPA relied on for the UPL calculation that is the sole basis for the combined roofline PM emission limit in the supplemental proposed rule. According to the commenter, it is not appropriate for the EPA to set emission limits based upon the ADEQ test method and then prohibit the use of that very same method to demonstrate compliance. If the ADEQ test method was good enough to set enforceable emission limits, it should also be good enough to demonstrate compliance. The commenter stated that if the ADEQ test method (or some reasonable modification of that method) does not meet the EPA's requirements, then no limit should be established at this time because that approach necessarily means that a valid data basis for a limit does not yet exist. If that is indeed the EPA's position FMMI and the EPA can work together to develop an acceptable test method, FMMI can collect the necessary data to support the calculation of a UPL based on that agreed method, and the agency can set emission limits based on that data set.

In a related point, a commenter stated that they are concerned that the proposed roofline lead limit is based on data collected using samplers that are not designated as an FRM. Use of non-FRM sampler data could create a standard that is not achievable if tested using an FRM. It is unclear from the EPA's proposed rule how to address a potential discrepancy between a standard based on non-FRM and testing using an FRM. The commenter goes on to say that the EPA's proposed PM limit was established using data that were collected using a method other than EPA Method 5. Another commenter has similar concerns with the EPA's rule in regard to the proposed limit being based on data collected using samplers that are not designated as an FRM: First, they state it is not clear from the EPA's rule that a Method 5 test conducted at the same time would have produced the same result as the alternative method used to obtain the data the rule is based on. Second, they state it is unknown whether this standard is achievable, as determined by the proposed test methodology.

Lastly, commenters had concerns about the safety of the personnel conducting testing at the roofline. The commenter stated it would be unsafe, due to the elevated temperature environment and other conditions at the roofline, for humans to perform roofline activities required by paragraph (e) of

proposed 40 CFR 63.1450. Many areas of the roofline are currently only accessible by narrow catwalks that do not currently have approved tie-off points or sufficient space to accommodate the personnel and the required sampling equipment. Some roofline areas require respirators or other personal protective equipment, and the EPA's proposed testing methods would require continuous presence of multiple personnel working directly in the pathway of exiting fumes for 3, 12-hour test runs. The commenter stated the Method 5 sampling protocol requires adequate sample locations to account for variations in the flows along the roofline, which then necessitates a large number of sampling staff to be located in a dangerous, high temperature environment for extended periods of 12 hours or more. The commenter noted the temperatures at the roofline can reach 140 degrees Fahrenheit and pose a significant safety concern for the testing personnel.

Response: In reviewing the comments and as a result of a site visit, the EPA is revising the methods for the roof-vent testing. For sample location determination, if EPA method 1 is inappropriate, the facilities need to use method 5D, section 8.1.3, Roof Monitor or Monovent, and also use section 8.2 to determine how many traverse points should be sampled or have proposed sampling locations approved by EPA Office of Air and Radiation (OAR), Office of Air Quality Planning and Standards, MTG or the delegated authority. Due to the variability in the flow rates, an anemometer may be used to determine the flow. For the PM concentration measurements, a constant sample flow rate and mass volume is required due to the highly variable process flow rate. EPA method 17 may be used for this constant flow rate sampling. EPA Method 17 particulate matter samples will be collected at the roofline vent temperatures to maintain the same temperature basis as the samples used in setting the standard. EPA Methods 5 and 5D have been removed since these methods require heating the filter to 248 ± 25 Fahrenheit, which would not be representative of the roofline temperatures. It is understood that isokinetics may not be met with this sampling and this calculation is waived for this sampling.

The MiniVol samplers are not EPA-approved samplers. There is a concern because these are battery operated and may not provide a constant rate of sampling. As an alternative, an approved FRM or FEM ambient PM monitor may be used, which will also address the commenter's safety

concerns. A list of designated reference and equivalent methods is provided here: <https://www.epa.gov/amtic/air-monitoring-methods-criteria-pollutants>. However, tapered oscillating microbalances are not appropriate for this sampling. The FRM or FEM ambient PM monitor must be able to tolerate temperatures up to 150 degrees Fahrenheit.

The commenter has raised concerns on the use of the MiniVol sampler to set the standard while different methods are used for determining compliance. The EPA has mitigated these issues through the adaptations to the methodology finalized, the use of calibrated anemometer for low and variable process flow rates, fixed rate sampling and the allowance for in stack filter methodology (EPA Method 17). The primary sampling difference between the methods now is the more stable operation of the EPA Method 17 sampling system or an FRM/FEM, ensuring that the sampled flow rate is consistent.

The EPA alternative methods approval is conducted by the Measurement Technology Group (MTG). The MiniVol roof-vent sampling protocols/sampling methods have not been submitted or approved by MTG. The Asarco protocol included FRM sampling side-by-side with the MiniVol sampling. This side-by-side sampling could use Method 301 to validate the MiniVol samplers, but the proposed sampling has not yet occurred. This Method 301 validation could still occur, and the data could be used to support an alternative method approval from MTG. If these revised methods are not appropriate or the tester/facility wants to use alternative methods, the tester/facility can apply for an alternative test method approval through MTG. A Method 301 study should be conducted to verify that the selected monitors used provide equivalent data to the EPA methods.

Comment: A commenter agreed with the EPA's reasoning and determination not to propose a BTF lead emissions limit in addition to, or instead of, the fugitive PM emissions limit in proposed 40 CFR 63.1444(i)(3). Similarly, another commenter stated that, in response to EPA's request for comments, an additional lead limit on the roofline vents is not necessary. They explained that they agreed with the EPA's conclusion that PM is the most appropriate surrogate for metal HAPs.

Response: While we agree that PM is an appropriate surrogate for metal HAP, we are also finalizing a process fugitive lead limit for facilities using flash furnaces and associated with the Peirce-

Smith converters of 0.326 lb/hr for a combination of roof vents associated with Peirce-Smith copper converter department, Inco flash furnace and the anode refining department. We estimate that this final standard will reduce lead emissions by 0.39 tpy.

Comment: Commenters requested that the EPA establish direct lead limits, either in addition to or instead of the PM limit because it is one of the risk drivers for this source category and would be appropriate to control for it directly.

Response: We have determined that filterable particulate is an adequate surrogate for lead and other HAP metals for this source category. The use of PM as a surrogate for particulate metal HAP is consistent with the approach used to limit particulate metal HAP emissions from other copper smelting processes in the current NESHAP and for many other source categories (i.e., Ferroalloys Production, Integrated Iron and Steel Manufacturing, and Integrated Iron and Steel Foundries). Therefore, providing PM emission standards which require reductions as a surrogate for metal HAPs is expected to result in commensurate reductions of metal HAP. We are also finalizing a process fugitive lead limit for facilities using Inco flash furnaces and Peirce-Smith converters of 0.326 lb/hr for a combination of roof vents associated with the Peirce-Smith copper converter department, Inco flash furnace and the anode refining department which we estimate will reduce lead emissions by 0.39 tpy.

d. What is the rationale for our final approach and final decisions for the process fugitive emissions from roofline vents revisions made pursuant to CAA section 112(d)(2) and (3)?

As described in the 2022 proposal and in the 2023 supplemental proposal, the 2002 major source NESHAP does not include standards for process fugitive emissions from the rooflines of smelting vessels, converters, or anode refining operations, except for an opacity limit for converter roof vents that applies during testing. Therefore, we are finalizing, as proposed in the 2023 supplemental proposal, a BTF combined PM limit of 6.3 lb/hr as a surrogate for metal HAP for new and existing process fugitive emissions from roofline vents pursuant to CAA section 112(d)(2) and (3). As described in section IV.A., we are also finalizing this combined roofline PM limit under CAA section 112(f) to reduce emissions of HAP metals (especially lead and arsenic, which are two persistent, bioaccumulative and highly toxic HAPs), and their associated risks, to

achieve acceptable risks levels. We are finalizing, as proposed, that compliance with the PM emissions limit for the process fugitive emissions from roofline vents will be demonstrated through an initial performance test followed by a compliance test at least once per year. Based on comments we received on the 2022 proposal and the 2023 supplemental proposal, we are finalizing adaptations to the test methods by which compliance with this limit can be demonstrated including the use of fixed rate sampling and the allowance for in stack filter methodology (EPA Method 17). The costs for Freeport to comply with this combined PM limit are described in section IV.C.2.b., and we estimate that Asarco can already comply with this limit and therefore will not incur costs to comply with the combine PM roofline limit except testing costs. We estimate that both facilities will incur testing costs of \$107,000 per year to comply with the performance test requirements.

In addition, we are finalizing a lead emission limit of 0.326 lb/hour to minimize process fugitive lead emissions from any combination of roofline vents associated with Peirce-Smith copper converter departments, Inco flash furnaces and the anode refining departments, at existing sources. This limit will only apply to the Asarco facility (since they are the only existing major source with Peirce-Smith copper converter departments and Inco flash furnaces), and we estimate this will reduce metal HAP by 0.39 tpy and ensure that future violations of the lead NAAQS will not occur. As mentioned in section IV.B.2. of this preamble, Asarco has been a major contributor to the Hayden Arizona lead NAAQS non-attainment status. This limit is consistent with the modeling demonstration submitted by the facility to the state in support of a revision to the lead SIP. This document is available in the docket for this action (Docket ID No. EPA-HQ-OAQ-2020-0430). As discussed in section IV.B., we are also promulgating design standards under CAA section 112 (d)(6) that will ensure this limit is met. As discussed in section IV.B., the costs to comply with the design standards are already expected to be incurred by the facility. We are finalizing, that compliance with the lead emissions limit for the process fugitive emissions from roofline vents will be demonstrated through an initial performance test followed by a compliance test at least once per year. The facility can test for lead at the same time as the performance test for PM; however, they will have some

additional costs for the laboratory analysis that we estimate to be \$18,000 per year.

3. Mercury

a. What did we propose for mercury emissions pursuant to CAA section 112(d)(2) and (3)?

In the 2022 proposal, the EPA proposed a BTF mercury limit of 0.0043 lb/hr for existing sources, based on emissions data from Freeport and Asarco, and a MACT floor mercury limit of 0.00097 lb/hr for new sources, based on emissions data from Asarco. As noted in the preamble of the 2022 proposal, in order to comply with the proposed emission limit for existing sources, the EPA expected that the Freeport facility would have to install and operate an activated carbon injection (ACI) system and a polishing baghouse on the stack emissions release point, the acid plant. The EPA expected the installation of these additional controls would result in a 90 percent reduction of mercury emissions from the acid plant source and that the cost-effectiveness of mercury control would be \$27,500 per pound (in 2019 dollars).

During and after public comment period of the 2022 proposal, the EPA received a number of comments and additional data concerning the BTF limit for existing sources including:

- Mercury testing results obtained in 2018–2021 by the Freeport facility which did not fully follow EPA Method 29;
- Additional mercury testing results collected at the Freeport facility in 2022 which fully followed EPA Method 29; and
- Comments regarding the technical infeasibility of adding mercury controls (e.g., polishing baghouse with ACI) at the acid plant, including explanations that the conditions of the acid plant exhaust streams are unsuited for the control option since the stream has a high moisture content, low mercury concentrations, and high concentrations of SO₂/SO₃ which inhibit mercury removal.

As discussed in the 2023 supplemental proposal, the EPA evaluated the emissions data from all of Freeport's performance tests (*i.e.*, 2018–2022) and concluded that only the test conducted in 2022 which fully followed Method 29 should be used in the MACT floor emission limit development. The EPA also agreed that characteristics of the exhaust stream from the acid plant stack and equipment configuration at the acid plant may inhibit mercury control (e.g., moisture content, acid gas content, mercury concentration) which

could result in diminished emission reductions. Therefore, we evaluated controlling mercury from the aisle scrubber stack and the vent fume stack and determined the latter was best suited for mercury control (see discussion in the 2023 supplemental proposal). Based on a new stack location and a new emissions data set, which includes the original Asarco data and data from Freeport's 2022 test, the revised mercury limit for existing sources in the 2023 supplemental proposal, as determined using the 99 percent UPL approach, is a MACT floor limit of 0.033 lb/hr for combined facility wide emissions. We also evaluated BTF control options in the 2023 supplemental proposal and concluded that the costs were unreasonable, and we proposed the MACT floor emission standard. We proposed that compliance with the mercury emissions limit for new and existing sources would be demonstrated through an initial compliance test for each of the affected sources (e.g., furnaces, converters, anode refining) followed by a compliance test at least once every year.

b. How did the mercury emissions standard made pursuant to CAA section 112(d)(2) and (3) change since proposal?

The mercury emission standard for new sources, 0.00097 lb/hr, is being promulgated as proposed in 2022. In the 2023 supplemental proposal, we proposed a revised mercury emission standard of 0.033 lb/hr for existing sources and are finalizing that standard as proposed. Both emission standards are based on the MACT floor.

c. What key comments did we receive on the mercury revisions made pursuant to CAA section 112(d)(2) and (3) and what are our responses?

Comment: Commenters contend that the EPA does not have sufficient data to develop a MACT floor for mercury. They stated that they do not believe the single 3-run test results are sufficient to establish the proposed MACT floor emission standard for existing sources. The commenter noted there was significant run-to-run variability which the commenter stated can be attributed to the profile of the process feed and the nature of a batch process. Commenters noted that additional performance testing of mercury will be conducted at the Freeport facility in the fourth quarter of 2023, and first quarter of 2024 using EPA Method 29, and they asked that the EPA allow for submittal and consideration of these data (which they say they will be able to provide at least several weeks prior to the May 2, 2024, deadline for final rule publication)

when establishing limits in the final rule. In the absence of additional data, commenters believe that a representative MACT floor cannot be established, and any regulatory action should be postponed or limited to workplace standards. They rationalized this comment by citing the NESHAP for Secondary Lead Smelting (77 FR 570) where the EPA did not promulgate standards because of incomplete testing and lack of testing data for furnaces that burn varying types of fuel.

Response: As described in the 2023 supplemental proposal, the EPA revised its calculations by only using the stack test data that followed EPA Method 29. The proposed mercury standard was developed based on the 99 percent UPL of the available emissions data for this source category, which included data collected from Freeport through the 2022 section 114 information request from Freeport as well as test data from Asarco, yielding a sample size of 5 data points. The test report associated with Freeport's section 114 information request response was conducted using EPA test Method 29 and was reviewed by EPA measurement experts upon submission. A dataset of more than 3 data points meets the sample size necessary to use the 99 percent UPL approach to develop a MACT standard. We acknowledge that a sample size of 5 is considered a limited dataset; however, we have followed our documented approach for MACT floor development for limited datasets included in Appendix B of the aforementioned memorandum (Docket ID No. EPA-HQ-OAR-2020-0430-0153). Therefore, we disagree that we have insufficient data to develop a numerical emission standard based on the MACT floor.

We note that we received two additional test reports from Freeport; one on January 29, 2024 (non-metal HAPs) and one on February 16, 2024 (mercury), well after close of the public comment period (*i.e.*, September 22, 2023) and have been notified that Freeport plans to send a third test report in mid-April 2024. Based on a preliminary review of the new test data, we determined that some tests were not valid due to deviation from the EPA method and that incorporation of the valid tests would not result in significant changes to the proposed emission limits. We did not incorporate these late-submitted data for two timing related reasons. First, other stakeholders would not have an opportunity to review and comment on these new data; and second, given the court-ordered promulgation deadline of May 2, 2024, we had insufficient time to complete the

necessary quality control and assurance of the data, and to perform new calculations and analyses to establish revised limits before the May 2, 2024, deadline. Thus, we are promulgating the existing source MACT floor emission standards for mercury, as well as for the other non-metal HAP, as proposed in the 2023 supplemental proposal and as discussed in sections IV.C.3. and IV.C.4. of this preamble.

Comment: Some commenters expressed support for the decision in the 2023 supplemental proposal not to move forward with a BTF standard for mercury, while other commenters suggested that the EPA adopt the BTF standard for mercury. Commenters stated that indirect costs including engineering, procurement, and construction management, as well as startup costs had not been included in our estimates. Specifically concerning costs for baghouses, commenters stated that most modern baghouses are of the pulse jet, rather than shaker style, configuration.

Response: As described in the 2023 supplemental proposal, the EPA re-proposed a MACT floor standard for mercury after considering the technical feasibility and costs of BTF control options. In consideration of the comments regarding costs, we performed a holistic review of the cost estimates for controls included in this rulemaking. As described in the 2023 supplemental proposal, we estimated costs for controlling mercury at the vent fume stack using a polishing baghouse with ACI. We found that our BTF cost estimates for mercury controls omitted indirect costs and assumed costs for a shaker style baghouse. In response to the comments received on the 2023 supplemental proposal, we have revised our BTF cost estimates for mercury control of the vent fume stack at the Freeport facility to include indirect costs and to more appropriately assume a pulse jet configuration baghouse. The details of these revisions can be found in the memorandum *Estimated Cost for Beyond-the-floor Controls for Mercury Emissions from Primary Copper Smelting Facilities—REVISED*, available in the docket for this rulemaking. Our revised estimates of the cost of BTF mercury are capital costs of \$10.7 million and total annualized costs of \$3.0 million. We did not receive additional test data or other information that would result in revisions to the expected emission reductions we presented in the 2023 supplemental proposal. Using the expected reductions, 40.5 lb/yr, the resulting cost effectiveness is \$73,300/lb mercury. We continue to maintain, as proposed in the

2023 supplemental proposal, that the cost effectiveness for the BTF control of mercury is unreasonable and are promulgating the MACT floor emission standard for existing sources.

d. What is the rationale for our final approach and final decisions for the mercury revisions made pursuant to CAA section 112(d)(2) and (3)?

As described in the 2022 proposal and the 2023 supplemental proposal, the 2002 major source NESHAP does not include standards for mercury. We are finalizing, as proposed in the 2022 proposal, the new source MACT floor mercury limit of 0.00097 lb/hr mercury. As stated in the 2022 proposal, the new source MACT floor mercury limit was calculated based on emissions data from the best performing facility, which is Asarco in this case. We are finalizing, as proposed in the 2023 supplemental proposal, the existing source MACT floor mercury limit of 0.033 lb/hr mercury. As discussed in section IV.C.3.c. of this preamble, we made some revisions to the cost of mercury controls that were included in the 2023 supplemental proposal. These revisions improved the completeness of our estimates but did not change our conclusion that the costs of the BTF option for controlling mercury with a polishing baghouse and ACI at the vent fume stack are unreasonable (\$73,000/lb mercury reduced). We also considered other BTF options, but all other options were less cost-effective than additional controls of the vent fume stack using the baghouse/ACI option. We note the BTF options we considered are higher than historic acceptable cost effectiveness values for mercury. The highest historic acceptable cost-effective values in the 2011 final MATS rule were up to \$22,400 per pound of mercury reduced in 2007 dollars (which equates to about \$32,000 per pound in current dollars). We are finalizing, as proposed, that compliance with the mercury emissions limit for new and existing sources will be demonstrated through an initial compliance test for each of the affected sources (e.g., furnaces, converters, anode refining) followed by a compliance test at least once every year.

4. Other Unregulated HAP

a. What did we propose for the unregulated HAP pursuant to CAA section 112(d)(2) and (d)(3)?

During the public comment period of the 2022 proposal, the EPA received comments claiming there were additional unregulated HAP from the source category beyond those we addressed in the 2022 proposal. In

response to these public comments, the EPA issued a CAA section 114 information request to collect further information. The information request was sent to the Freeport facility only, as the Asarco facility has been idled since October 2019. The collected data indicated the following additional unregulated pollutants are emitted from the source category: benzene, D/F, HCl, chlorine, PAH (including naphthalene), and toluene. These pollutants are mainly emitted due to the combustion of natural gas and coke. Based on this new information, the EPA proposed the following MACT floor emission limits for these pollutants in the 2023 supplemental proposal:

- 1.7E–03 lbs benzene/ton concentrated ore fed for new and existing sources;
- 8.4E–04 lbs toluene/ton concentrated ore fed for new and existing sources;
- 1.5E–03 lb/ton concentrated ore fed for HCl for new and existing sources;
- 5.4E–03 lbs chlorine/ton concentrated ore fed for new and existing sources;
- 1.0E–04 lbs PAH excluding naphthalene/ton concentrated ore fed for new and existing sources;
- 2.8E–04 lbs naphthalene/ton concentrated ore fed for new and existing sources; and
- 60 ng D/F TEQ/Mg concentrated ore fed for new and existing sources.

We also proposed that compliance with the unregulated HAP emissions limits for each affected source will be demonstrated through an initial performance test followed by a compliance test at least once every 5 years.

b. How did the unregulated HAP revisions made pursuant to CAA section 112(d)(2) and (3) change since proposal?

As described in section IV.C.4.a., we proposed MACT floor emission limits for benzene, D/F, HCl, chlorine, PAH (including naphthalene), and toluene. The decision not to propose BTF emission limits was based on the results of our BTF analysis. The BTF analysis assumed ACI or DSI would be installed with an existing scrubber to achieve the expected emission reductions. However, based on comments received on this analysis as discussed in section IV.C.4.c. of this preamble and the promulgation of additional controls for the Hoboken converter process fugitive capture system, we made revisions to our BTF analysis. Specifically, we revised the BTF control options to be the addition of ACI or DSI to the baghouse control device we expect will be installed upstream of the aisle scrubber to control

the Hoboken converter process fugitive capture system, rather than a scrubber. We revised the expected emission reductions for each unregulated HAP (i.e., benzene, D/F, HCl, chlorine, PAH (including naphthalene), and toluene) to reflect the assumption that the baghouse will receive about 75 percent of the loading to the aisle scrubber. The performance test results that were used to quantify emission reductions of the unregulated HAP were conducted at the outlet of the aisle scrubber. Therefore, we are revising the emission reduction estimates provided in the 2023 supplemental proposal to be based on the expected loading to the baghouse. We did not identify any BTF options for HCl because the MACT floor emission standard was set at 3 times the representative detection limit (3xRDL) and it is infeasible to measure lower levels of this pollutant. For Cl, we adjusted our expected emission reductions from the addition of DSI based on an expected control efficiency of 98 percent to 20 percent. This control efficiency adjustment was in response to a comment we received from Freeport. Freeport commented that the stack test data was taken from the aisle scrubber outlet; because the aisle scrubber is a caustic scrubber additional reduction of acid gases would be expected to be far lower than our proposed 98 percent. They estimated it should be 0 to 20 percent. We agree and thus updated the expected control efficiency to 20 percent. Finally, as noted previously in this preamble, during the comment period for the 2023 supplemental proposal, we received comments on control costs and performed a holistic review of all control cost estimates for this rulemaking. These comments stated that installation costs and indirect costs including engineering, procurement, and construction management, as well as startup costs and contingency had not been included in our estimates. We also received comments regarding the sizing of a DSI system for the baghouse for the Hoboken converter process fugitive capture system as discussed in section IV.B. The costs for ACI and DSI were updated to include installation and indirect costs including contingency for completeness and were updated in response to comments regarding the sizing of such systems for the baghouse expected to be required for controlling the Hoboken converter process fugitive capture system. Based on these revisions, the quantity of expected emission reductions from the addition of DSI or ACI was reduced, and the overall cost effectiveness increased for unregulated HAP. This did not change

our proposal to base numerical emission standards for these pollutants on the MACT floor. The detailed emission reductions and cost estimates for the revised BTF options for this final rule are provided in a memorandum entitled *Estimated Cost for Beyond-the-floor Controls for Unregulated HAP Emissions from Primary Copper Smelting Facilities—REVISED*, which is available in the docket for this action. Units of unregulated HAP were also revised from pounds (or nanograms) per ton (or Mg) concentrated ore fed, as applicable, to pounds (or nanograms) per ton (or Mg) of copper concentrate feed charged to the smelting vessel.

c. What key comments did we receive on the unregulated HAP revisions made pursuant to CAA section 112(d)(2) and (3) and what are our responses?

Comment: Commenters appreciated that the EPA proposed MACT standards for the unregulated pollutants, but they also encouraged the EPA to reconsider the BTF options for control of these pollutants and require the additional control requirements. Commenters questioned the approach used to evaluate the BTF cost of controls for the nonregulated pollutants. By taking a pollutant-by-pollutant approach to assessing the cost per ton of pollution, the EPA's approach makes the cost assessment very high. For example, the BTF control options for benzene, PAH, naphthalene, and D/F were all estimated with the addition of ACI to the existing control device. So, the capital outlay and operational cost should include the tons per year (tpy) reduction of all pollutants instead of looking at the cost per ton for each one individually. Similarly, the BTF control for HCl and Cl is DSI, so one control will address both pollutants.

Response: We conclude that even by evaluating the combination of pollutants noted by the commenter, we would still consider the costs of complying with the BTF standards for these HAP not reasonable in this case. Generally, we find that the annualized emissions of these unregulated HAP are quite low, and our BTF analysis which informed the 2023 supplemental proposal concluded that the costs and cost-effectiveness associated with the BTF options were not reasonable. For more details on the BTF analysis, see the memorandum entitled *Estimated Cost for Beyond-the-floor Controls for HAP Emissions from Primary Copper Smelting Facilities—REVISED*, which is available in the docket for this action.

Comment: Commenters stated the proposed MACT standards for the unregulated HAP are inappropriate

because they would apply to both the Freeport facility and the Asarco facility when they are based on emissions data and information collected exclusively from the Freeport facility, and unique to Freeport's use of fuels and other raw materials which are precursors to such HAP emissions from the Freeport facility. Commenters stated that promulgation of the MACT standards would, therefore, violate 42 U.S.C. 7412(d)(3)(B) for failing to be based empirically or predictively on HAP emissions data and information pertaining also to the Asarco facility. Commenters stated the EPA should engage with Asarco to determine whether the facility has relevant HAP emissions data for consideration in the rulemaking, or not set standards for HCl, Cl or D/F because: (1) the overall emissions profiles of these HAP would be particularly sensitive to variations in feed to the smelter, including changes in quantities and qualities of fuel and additives, such as coke, flux and scrap; and (2) the individual stack emissions profiles of these HAP—including distributions and emissions rates—would vary greatly between the point sources at the Freeport facility and the point sources at the Asarco facility, due to the substantial differences between the process flows and gas flows (including capture) at the Freeport facility and the process flows and gas flows (including capture) at the Asarco facility. Commenters also contended that the MACT standards for unregulated HAP are based on a single testing campaign; therefore, a representative MACT floor cannot be established. Commenters noted that additional performance testing of the unregulated HAP will be conducted at the Freeport facility in the fourth quarter of 2023 and first quarter of 2024, and they asked that the EPA allow for submittal and consideration of these data (which they said they will be able to provide at least several weeks prior to the May 4, 2024, deadline for final rule publication) when establishing limits in the final rule. In the absence of additional data, commenters believe that a representative MACT floor cannot be established, and any regulatory action should be postponed or limited to workplace standards.

Response: The proposed unregulated HAP standards were developed based on the 99 percent UPL of the available emissions data for this source category, which included data collected through the 2022 section 114 information request to Freeport. The testing associated with Freeport's section 114 information request response was

conducted using the EPA prescribed test methods, and the results were reviewed by EPA measurement experts upon submission. We did not find equivalent data from Asarco in the administrative record. Nevertheless, the EPA is allowed to and required to establish MACT standards for a source category based on sources for which we have emissions data; thus, the data for Freeport must be used for the source category in the absence of data from Asarco. The 3 data points we used to set the floor are the minimum sample size necessary to use the 99 percent UPL approach to develop a MACT standard. While we acknowledge this is a limited dataset, we followed the EPA protocol for developing MACT from limited datasets which was described in Appendix B of the *Proposed Maximum Achievable Control Technology (MACT) Floor Analysis for Unregulated HAP for the Primary Copper Smelting Major Source Category* memorandum (Docket ID No. EPA-HQ-OAR-2020-0430-0153); therefore, we disagree that we have insufficient data to develop numerical emission standards based on the MACT floor.

As described in section IV.C.3.c. of this preamble, we note that we received an additional test report for these non-metal HAPs on January 29, 2024, well after close of the public comment period (i.e., September 22, 2023). However, for the reasons described in section IV.C.3.c., we did not incorporate these new data in our analyses to establish revised standards for the final rule. Therefore, we are promulgating the MACT floor emission standards for these unregulated HAP, as proposed.

Comment: Commenters agreed with the EPA's conclusion that the BTF options for controlling unregulated HAP are not cost effective. They also noted these control options, which include the use of ACI and DSI in combination with the aisle scrubber, are not technically feasible. Commenters noted that the aisle scrubber is a wet scrubber designed for acid gas control, and the use of either ACI or DSI would require a high-efficiency particulate control device such as a baghouse to collect the injected material. The commenter stated that the addition of a baghouse would significantly increase control costs for the pollutants, making the cost effectiveness of their control poorer. With regards to HCl and Cl, commenters stated the EPA's estimated emissions reductions of 98 percent for these pollutants using DSI injection is not practical given their already efficient removal by the aisle scrubber and thus already very low stack concentrations. DSI could not be expected to reduce

emissions of these pollutants by more than 20 percent and could potentially result in 0 percent emission reduction.

Response: As described elsewhere in this preamble, we are promulgating a combined emission standard for the combination of exhaust streams from the anode refining department and the Hoboken converter process fugitive capture system. At the Freeport facility, the anode refining department and the Hoboken converter process fugitive capture system exhaust streams combine in the aisle scrubber from which they are emitted to the atmosphere. The Freeport facility controls the anode refining department emissions with a baghouse prior to routing the exhaust to the aisle scrubber. We expect that the combined standard we are promulgating in this action will require the installation of a baghouse to control the emissions stream from the Hoboken converter process fugitive capture system. Therefore, the costs for a primary particulate control device of the emission streams which combine in the aisle scrubber will be incurred to comply with the combined emission standard. As discussed in section IV.C.4.b., in response to comments for this rulemaking we are amending our cost estimates included in the 2023 supplemental proposal for controlling these unregulated HAP to include installation and indirect costs including contingency as well as to address comments regarding the sizing of these injection systems. We continue to expect that DSI/ACI systems would be required to provide control for these pollutants, and, thus, our revised estimates continue to represent the incremental costs of adding these systems to an existing control device, which will now be the baghouse required for compliance with other requirements in this final rulemaking. As noted in our previous discussion of the baghouse for the Hoboken converter process fugitive capture system, the baghouse receives about 75 percent of the loading to the aisle scrubber. The performance test results which were used to inform the emission standards and to quantify emission reductions of the unregulated HAP (i.e., benzene, D/F, HCl, chlorine, PAH (including naphthalene), and toluene) were conducted at the outlet of the aisle scrubber. Therefore, we are revising our emission reduction estimates provided in the 2023 supplemental proposal to be based on the expected loading to the baghouse (i.e., 75 percent of the emission rates from the aisle scrubber outlet). Concerning the control efficiency applied to HCl and Cl

emissions, we note that the measurements of emission rates were taken at the outlet of the aisle scrubber. The aisle scrubber is designed to reduce acid gases including HCl and Cl; therefore, we agree with commenters that assuming an additional 98 percent reduction of the emission rates at the aisle scrubber in our BTF evaluation is likely technically infeasible. In reviewing the data for HCl, we note that the 99 percent UPL was less than 3 times the representative detection limit (3xRDL), thus the emission standard was set at 3xRDL consistent with EPA emission standard development procedures. Therefore, it is infeasible to measure lower levels of HCl and we are no longer considering BTF options for this pollutant. However, we have revised our estimated emission reductions for Cl to assume a 20 percent reduction. The revisions to the expected quantity of emission reductions and our cost estimates result in increased cost effectiveness for these unregulated HAP. For chlorine, benzene, toluene, and PAH, the cost effectiveness ranges from \$8.1 million/ton HAP reduced to \$120 million/ton of HAP reduced. For D/F, the cost effectiveness is \$107 million/gram of HAP reduced. These revisions do not change our conclusion that the BTF costs for controlling these pollutants are unreasonable, and we are therefore promulgating the MACT floor standards. The details of our BTF analysis can be found in *Estimated Cost for Beyond-the-floor Controls for HAP Emissions from Primary Copper Smelting Facilities—REVISED*, which is available in the docket for this rulemaking.

Comment: Commenters noted that the proposed standards for unregulated HAP are a function of concentrated ore fed, i.e., the emission limits are pounds per ton concentrated ore fed. Commenters stated that some of these compounds are not correlated with ore composition, but instead with natural gas consumption or impurities from third party copper scrap recycling. The commenters noted that additional performance testing should be conducted to inform whether other operating parameters influence emissions.

Response: We used production-based thresholds to provide equitable emission standards for other facilities in the source category. No data was provided by FMMI indicating whether copper scrap was part of the feed during the performance tests which informed the emission standards. However, in light of the possibility that copper scrap was part of the feed during the tests conducted in response to the 2022

section 114 information request, we are changing the denominator from a concentrated ore feed basis to a copper concentrate feed charged to the smelting vessel basis, where “copper concentrate feed” is defined in 40 CFR 63.1459.

d. What is the rationale for our final approach and final decisions for the unregulated HAP revisions made pursuant to CAA section 112(d)(2) and (3)?

As discussed in the 2023 supplemental proposal, the EPA identified benzene, toluene, HCl, Cl, PAHs, and D/F in the major source category for which the 2002 major source NESHAP did not include standards. Except for HCl, the standards we are promulgating for unregulated HAP are MACT floor limits based on the 99 percent UPL. For HCl, the 99 percent UPL was less than 3xRDL for HCl, therefore, consistent with EPA guidelines, the latter was used to set the MACT floor limit. As discussed in the 2023 supplemental proposal, the EPA evaluated BTF limits for each pollutant but did not propose them due to unreasonable costs. Therefore, consistent with the 2023 supplemental proposal, we are promulgating numerical emission standards for each unregulated HAP (*i.e.*, benzene, D/F, HCl, chlorine, PAH excluding naphthalene, naphthalene, and toluene). We are also promulgating, as proposed, that compliance with these standards will be demonstrated by an initial performance test and subsequent performance testing at least once every 5 years.

5. New Copper Converter Departments

a. What did we propose for the new copper converter departments pursuant to CAA section 112(d)(2) and (d)(3)?

The EPA proposed in the 2022 proposal a MACT floor limit for new copper converters of 0.031 lbs of PM₁₀ per ton of copper concentrate feed charged to the smelting vessel. We also proposed that compliance with the PM₁₀ emissions limit for new copper converter departments will be demonstrated through an initial performance test followed by compliance test at least once per year.

b. How did the new copper converter departments revisions made pursuant to CAA section 112(d)(2) and (3) change since proposal?

The proposed limit and compliance requirements were not changed.

c. What key comments did we receive on the proposed new copper converter departments revisions made pursuant to CAA section 112(d)(2) and (3) and what are our responses?

The EPA did not receive notable comments on the proposed limit or proposed compliance requirements.

d. What is the rationale for our final approach and final decisions for the new copper converter departments revisions made pursuant to CAA section 112(d)(2) and (3)?

As discussed in the 2022 proposal, the 2002 major source NESHAP current requirement for new converters is that the use of new batch copper converters is prohibited. Any new copper converters covered by the major source NESHAP would need to be continuous converters or some other currently unknown non-batch converter technology. However, the 2002 major NESHAP did not include an emissions standard for new converters. Therefore, pursuant to CAA section 112(d)(2) and (3), the EPA is finalizing, as proposed in the 2022 proposal, the MACT floor limit for new copper converters of 0.031 lbs of PM₁₀ per ton of copper concentrate feed charged to the smelting vessel and related compliance requirements. As discussed in the 2022 proposal, there are currently no existing continuous converters in the major source category, and therefore, we did not propose and are not finalizing an emission standard for existing continuous copper converters. Also as discussed in the 2022 proposal, since there are no existing continuous copper converters in the major source category, the PM₁₀ limit is based on the performance of the best similar source, which is the Kennecott primary copper smelting facility. We did not identify any cost-effective BTF options.

D. Final Rule Amendments Addressing Bypass Stack Emissions

1. What revisions did we propose for bypass stack emissions?

We proposed in the 2023 supplemental proposal prohibiting the use of a bypass stack. We also proposed in the 2023 supplemental proposal a definition of “bypass stack” in 40 CFR 63.1459 and proposed that use of a bypass stack will result in a violation of the numerical emission standards contained in the Primary Copper Smelting NESHAP in 40 CFR 63.1444. We proposed that the use of a bypass stack during a performance test will invalidate the test.

2. How did the bypass stack revisions change since proposal?

Based on consideration of comments, the EPA is not prohibiting the use of a by-pass stack. Instead, EPA is promulgating a work practice standard pursuant to CAA section 112(h) to minimize HAP emissions vented through a bypass stack during planned maintenance events. We are promulgating work practices instead of an emissions limit because we determined it is not economically or technically feasible to complete valid PM compliance tests during these events. When it is infeasible to reliably conduct valid compliance tests, such as in this case, the CAA section 112(h) allows EPA to establish work practice standards instead of a numerical emissions limit.

When the bypass stack is used, the process concentrate feed will be ceased, but pollution controls will remain operating until no copper is being processed by the converters. During these periods, a charge remains in the electric furnace to ensure the material remains molten, any additional emissions from the smelting process are nominal because the smelting furnace and converters are not operating, and a crust will form on the slag surface of the electric furnace minimizing flow rate and emissions. Only once the crust is formed, the bypass is then opened to vent residual gases prior to conducting maintenance. A CEMS for flow and SO₂ or a PM detector at the duct for the bypass stack may be used, and data from the CEMS confirms the emissions during these planned maintenance activities are minimal. We are revising the definition of a bypass stack to reflect this approved purpose.

3. What key comments did we receive on the proposed bypass stack revisions and what are our responses?

Comment: Several commenters supported the EPA’s proposal to prohibit the use of bypass stacks, noting that a bypass stack is a negligent mechanism that promotes a reactive rather than a proactive approach to a facility’s pollution. One user of bypass stacks disagreed with the proposal to eliminate their use, noting it is overly broad and ignores essential work practices designed to ensure the safe maintenance of process and pollution control equipment. The commenter noted that the bypass is used during maintenance and in particular prior to entering process vessels or confined spaces. In these instances, the commenter explained that the concentrate feed is ceased, but pollution

controls remain operating until no more copper is being processed by the converters. During these periods, a charge remains in the electric furnace to ensure the material remains molten, any additional emissions from the smelting process are nominal because the smelting furnace and converters are not operating, and a crust will form on the slag surface of the electric furnace minimizing emissions. The commenter further explained that the bypass is then opened to vent residual gases prior to conducting maintenance. The commenter noted that they operate a CEMS for flow and SO₂ at the duct for the bypass stack, and data from this CEMS confirms the SO₂ emissions during these maintenance activities are minimal. The commenter does not believe it is appropriate for the use of the bypass to be considered a violation of the numerical emission standards of the NESHAP or a bypass of the associated air pollution control devices (APCDs). In the maintenance periods when the bypass is used, emissions are expected to be small and below applicable limits, and air pollution control equipment is either not possible or unnecessary. The commenter recommended that the EPA promulgate work practice standards to regulate the use of the bypass. An additional comment was submitted after the comment period ended which also explained in more detail the challenges of testing the bypass stack siting zero or near zero velocities and volumetric flow rates at the stack.

Response: The EPA has reviewed the information provided and we are establishing a work practice standard for use of the bypass stack to allow planned maintenance of the control devices and processes to be conducted safely. When the bypass stack is used, the work practice must be followed, and the smelting furnaces and converters must not be operating. The control devices will remain operational until a crust is formed on the slag and emissions are minimal. The HAP emission limits are on a concentrate feed basis and during the work practice standards the feed concentrate ceases so the HAP limit is not applicable. Since the bypass stack is only used in planned maintenance, flow rate and SO₂ will be minimal but need to be monitored and emissions are expected to be minimal due to the low or lack of flow rate and when the work practice standards are implemented. We are finalizing the definition “bypass stack” in 40 CFR 63.1459. We are also finalizing that the use of a bypass stack during a performance test will invalidate the test. These conditions are

consistent with the EPA’s interpretation of the application of the court’s decision in *Sierra Club v. EPA*, 551 F. 3d 1019 (D.C. Cir. 2008).

4. What is the rationale for our final approach and final decisions for bypass stack emissions?

The EPA’s rationale for allowing the use of a bypass stack is to ensure safety during essential planned maintenance events, and the approach being finalized ensures that applicable emission limits continue to be met. For this reason, we are promulgating the following work practice standard for the use of bypass stacks at Primary Copper Smelters:

In the case of planned maintenance, feed to the IsaSmelt® Furnace must cease; power to the electric furnace must be lowered and a crust must be allowed to form on the surface of the slag; the operation of the converters must cease and the converters rolled out; and the operation of the anode vessels must cease. Once the main process units are shut down, residual process gases may be re-directed from the acid plant. If the fan to the anode refining point source baghouse is functioning, then the residual process gases must be redirected to the control device. If there is a shutdown or emergency shutdown event, the control devices should continue to run until process emissions cease. If the control devices are shut down before the process emissions cease and the bypass stack is used to vent to the process gas to the atmosphere, there will be a violation of the work practice standards. In addition to this work practice standard, we finalize, as proposed, that the use of a bypass stack is not permitted during compliance performance tests of the processes. We estimate that Freeport will not incur costs to comply with the final work practices because they are already implementing them at their facility.

E. Final Rule Amendments Addressing Compliance Dates

1. What compliance dates did we propose?

In the 2022 proposal, the EPA proposed that existing facilities must comply with the anode refining point source limit within one year. In the supplemental proposal, we proposed a combined roofline PM emission limit with a compliance timeframe of 2 years following promulgation, and a 1-year compliance timeframe following promulgation for emission limits for mercury, HCl, chlorine, D/F, benzene, toluene, PAHs excluding naphthalene, and naphthalene. We also proposed in

the supplemental proposal a compliance timeframe of 2 years following promulgation for the co-proposed options for the aisle scrubber at Freeport.

2. How did the compliance dates change since proposal?

We are promulgating option 2 for the aisle scrubber at Freeport, which we expect will require the installation of PM controls (such as a baghouse) to control emissions from the Hoboken converter process fugitive capture system in order to comply with the emission standard (a combined PM limit at the aisle scrubber outlet). Option 2 is being promulgated pursuant to section 112(d)(6); therefore, we are revising its compliance date to 3 years following promulgation. We are also revising the compliance time for anode refining point sources. As discussed in section III.F., for anode refining point sources where the anode emissions are not combined with Hoboken converter process fugitive capture system emissions in an aisle scrubber, we are finalizing the proposed requirement that existing facilities must comply within 1 year after promulgation. For anode refining point sources that combine their anode emissions with Hoboken converter process fugitive capture system emissions in an aisle scrubber, compliance with the anode refining point source limit will be demonstrated through compliance with the combined PM limit at the aisle scrubber outlet and its associated compliance date.

3. What key comments did we receive on the proposed compliance dates and what are our responses?

Comment: Commenters stated that the EPA should allow 3 years for compliance with the combined roofline PM emission limit. The commenters stated there are also significant practical reasons for a 3-year compliance period including the complex design and engineering of the most cost efficient and reliable combination of control options to achieve the targeted emission reductions. According to the commenters, the design and engineering involves multiple time-consuming steps to (i) assess the emission sources, (ii) evaluate the potential control options for effectiveness, reliability and cost, (iii) design engineering of the final scope, (iv) procurement in a current environment where supply issues are common, (v) construction, and finally (vi) startup, which will be challenging to accomplish in 3 years, much less 2.

Response: We acknowledge the complex nature of the engineering involved to evaluate the best controls to

use to comply with the final combine roofline PM standard, as well as the potential supply issues; however, the combined roofline PM emission limit is being promulgated pursuant to CAA section 112(f)(2), to address unacceptable risk. Section 112(f)(2) of the CAA allows up to two years after the effective date of a standard to comply if the Administrator finds it is necessary for the installation of controls.

4. What is the rationale for our final approach and final decisions for compliance dates?

We are promulgating compliance times for the standards in the rule based on time frames allowed in CAA, which includes up to 2 years for section 112(f)(2), and up to 3 years for sections 112(d)(2) and (3), and 112(d)(6), along with our judgement of when the standards can be met. The final compliance dates are as follows:

- Three years within promulgation for meeting the combined PM limit for the anode point source emissions that are combined with Hoboken converter process fugitive capture system emissions;
- Three years within promulgation for meeting the anode refining point source standard for anode point source emissions that are combined with Hoboken converter process fugitive capture system emissions;
- One year within promulgation for meeting the anode refining point source standard for anode point source emissions that are not combined with Hoboken converter process fugitive capture system emissions; and
- Two years within promulgation for meeting the combined roofline PM emission limit;
- Three years within promulgation for meeting the combined roofline lead emission limit and design standards;
- One year within promulgation or meeting standards for mercury, HCl, chlorine, D/F, benzene, toluene, PAHs excluding naphthalene, and naphthalene; and
- 180 days within promulgation for all other revisions including compliance with SSM revisions and bypass stack revisions.

For new sources, all standards in the rule are effective immediately upon the effective date of the standard, or upon startup, whichever is later. We are finalizing a new table, table 4, in the 40 CFR part 63, subpart QQQ, to provide the applicability and compliance dates for the new standards to assist facilities with determining these timeframes.

F. Other Major Comments

Comment: A commenter stated that they understood the EPA's assertion that fenceline monitoring is not appropriate for this source category given roof top emissions would not be measured at the fenceline. The Commenter stated that HAP metals tend to deposit within a few miles of the facility and therefore suggested that EPA consider community monitoring similar to those proposed in the Ethylene Oxide Sterilizer Rule.

Another commenter noted that the EPA's assertion that fenceline monitoring is not appropriate for this source category is refuted by EPA's air toxics standards for integrated iron and steel mills ("Steel Mills"), in which the agency finds that fugitive emissions come from heights of 100 feet or more and proposed fenceline monitoring. Alternatively to fenceline monitoring, the EPA could provide for monitors placed higher up, either on existing structures or structures built for the purpose but does not even discuss this possibility.

Response: As stated in the 2023 supplemental proposal, we considered the possibility of a fenceline monitoring requirement and determined that it is not appropriate for this source category. When considering whether fenceline monitoring was appropriate for this source category, we examined the potential for fugitive HAP emissions to be significant, particularly at or near ground level, and whether there are measurement capabilities for the expected pollutants to be monitored, in this case lead and/or arsenic. For this source category, we did not identify any significant sources of ground level emissions. Other considerations included whether there are similar sources located at facilities in other source categories where fenceline monitoring is already being conducted. For example, we recognize that one similarity between integrated iron and steel facilities and primary copper facilities is that both source categories have fugitive metal HAP emissions from roof vents, and as mentioned by the commenter, EPA is requiring fenceline monitoring of chromium at the II&S facilities. However, there are also important differences. First, we are promulgating process fugitive numeric emission limits for the roofline vents at major source primary copper smelters and requirements for annual compliance testing of the roofline vents at these sources. In contrast, the integrated iron and steel final rule (89 FR 23294, April 3, 2024) did not include numeric emission limits for the roofline vents and does not require any emissions

testing from the roof vents (other than opacity readings). Instead, in the Integrated Iron and Steel NESHAP, the EPA finalized the following: (1) work practice standards for the basic oxygen process furnaces (BOPFs), Bell Leaks (charging operation) and beaching; and (2) opacity limits for slag processing and planned bleeder valve openings. Secondly, we note that some of the sources of fugitive emissions at integrated iron and steel are at ground level such as slag processing and beaching. We have not identified any significant sources of ground level fugitive emissions at the primary copper smelters. Furthermore, regarding fugitive emissions from the roof vents, unlike Primary Copper facilities (for which we have test data and will obtain future test data through emissions testing requirements), we have no emissions test data from roof vents at integrated iron and steel (II&S) facilities. Therefore, in the integrated iron and steel rulemaking, fenceline monitoring for chromium was proposed and finalized to ensure that the work practices and opacity limits for these unmeasured fugitive and particulate emissions sources at integrated iron and steel facilities are achieving the anticipated reductions.

In addition, we disagree with the commenter's suggestion to place monitors at an elevated height. Fenceline ambient air monitors are typically used to monitor the potential exposure of nearby communities to ground level pollutant emissions; therefore, placing monitors at a height higher than the standard 1.5 meters (the breathing zone) would not be appropriate.

Furthermore, there are lead monitors and arsenic monitors already in the surrounding community nearby the major source facilities, and, as stated in the 2022 proposal, Utah Division of Air Quality (UDAQ), conducted lead ambient monitoring near the area source facility (Kennecott) from January 2010 through June 2017. With EPA's concurrence, this lead monitor was shutdown after UDAQ was able to demonstrate that the likelihood of violating the NAAQS for lead was so low that it was no longer necessary to monitor.

We maintain in the final rule, as stated in the 2023 supplemental proposal, that these characteristics suggest that fenceline monitoring—which is typically used to detect emissions that can be difficult to control or measure at the points where they are emitted, and to identify the need for follow-up investigation and corrective action—would have relatively limited

value in the context of this primary copper smelting source category.

We also note that while the EPA's EtO Sterilizers proposal requested comment on the appropriateness of community monitoring, EPA did not propose or finalize fenceline or ambient air monitoring requirements in the EtO Sterilizers rule (88 FR 22790, April 13, 2023; 89 FR 24090, April 5, 2024).

Comment: A commenter stated that process fugitive emissions captured and ducted to a baghouse, emissions from the secondary capture system for the converter department and the anode refining department or the alternative proposed baghouse-based emissions from the converter department should be monitored by PM CEMS to ensure compliance.

Response: The EPA has included PM CEMS as an option for continued compliance in the final rule. Either an operating parameter established during the performance test or PM CEMS will be utilized to demonstrate continued compliance.

V. Summary of Cost, Environmental, and Economic Impacts and Additional Analyses Conducted

A. What are the affected facilities?

The Primary Copper Smelting source category includes any facility that uses a pyrometallurgical process to extract copper from copper sulfur ore concentrates, native ore concentrates, or other copper bearing minerals. There are currently 3 copper smelting facilities: 2 are major sources and 1 is an area source. No new copper smelting facilities are currently being constructed or are planned in the near future.

1. 40 CFR Part 63, Subpart QQQ

The affected sources subject to 40 CFR part 63, subpart QQQ, the major source NESHAP, are copper concentrate dryers, smelting furnaces, slag cleaning vessels, copper converter departments, and fugitive emission sources.

2. 40 CFR Part 63, Subpart EEEEEEE

Under 40 CFR part 63, subpart EEEEEEE, the area source NESHAP, the affected sources are copper concentrate dryers, smelting vessels, converting vessels, matte drying and grinding plant, secondary gas systems, anode refining furnaces, and anode shaft furnaces.

B. What are the air quality impacts?

The final amendments in this action would achieve about 8.0 tpy (7.99 tpy rounded) reduction of HAP metals emissions (primarily lead, arsenic, cadmium) from process fugitives associated with roofline vents and

emissions from the aisle scrubber (combined primary emissions from anode refining department and emissions from the Hoboken converter process fugitive capture system). In this action, we are also finalizing additional work practices that we estimate will achieve some additional unquantified HAP emissions reductions. These final amendments will also reduce risks to public health and the environment, as described above in this preamble.

Furthermore, we are finalizing new standards for mercury, benzene, toluene, HCl, chlorine, PAH, and dioxins/furans. We do not expect to achieve reductions in emissions with these new standards. However, these standards will ensure that the emissions remain controlled and minimized moving forward. The final amendments also include removal of the SSM exemptions.

C. What are the cost impacts?

As described above, the PM standard for the combined emissions from roofline vents would require additional controls to be installed at the Freeport facility. We estimate capital costs of \$10.2 million and total annual costs of \$2.3 million (includes annual testing costs) for Freeport (2022 dollars). Total annual costs include annualized capital costs, annual operating and maintenance costs, and annual testing costs. Additionally, we estimate that the Freeport facility will need to install additional controls to comply with the emission limit for the combined gas stream including the anode refining point source and the Hoboken converter process fugitive capture system. We estimate capital costs of \$59.5 million and total annual costs of \$10.8 million will be incurred by Freeport. The Asarco facility will need to install additional controls to comply with the design standards and lead emission limit in this final rule. We estimate capital costs of \$15.4 million and total annual costs (including testing) of \$3.9 million will be incurred by Asarco.

We expect that both Asarco and Freeport will incur additional costs for compliance testing. The estimated annual costs for performance testing of the previously unregulated HAP are \$87,980 for the Freeport facility and \$113,340 for the Asarco facility. The estimated annual costs for compliance testing for the anode refining point source and roofline PM emissions standards for the Asarco facility is \$138,157.

The total annual costs of all the final requirements (*i.e.*, annualized capital, annual operating and maintenance, and annual emissions testing costs) are

estimated to be about \$17.3 million. The total capital costs of the final rule are estimated to be about \$85.1 million.

D. What are the economic impacts?

The economic impacts associated with this final rule were estimated over an 8-year time frame from 2024 to 2031 using 3 percent and 7 percent discount rates. The present value (PV) of the estimated costs of this final rule, discounted at a 7 percent rate over the 2024 to 2031 period, is \$139 million in 2022 dollars. The equivalent annual value (EAV) of the estimated costs is \$23 million at a 7 percent discount rate. At a 3 percent discount rate, the PV and EAV of the cost impacts are estimated to be \$146 million and \$21 million, respectively. This final rule does not impact any small entities.

This final rule is not expected to have significant impacts on domestic copper production; the market price for commercial grade copper or any products comprised of copper inputs; or employment, for several reasons. First, the estimated annual costs of this final rule are expected to be small compared to the potential annual revenues of the U.S. primary copper smelting industry. For example, the U.S. Geological Survey (USGS) estimates 2020 primary copper smelter production was 315,000 mt.⁷ Applying an export price for unmanufactured anodes and blister of \$5,400 per mt that year, industry revenues in 2020 would have been an estimated \$1.7 billion.⁸ The estimated annual costs of the final rule (\$18 million) represent about one percent of this 2020 annual revenue estimate. Additionally, the affected companies are accustomed to spending large sums on annual maintenance. The 2022 annual report for Freeport-McMoran noted that they spent \$87 million on annual maintenance in 2021 at the Miami smelter.⁹ The estimated annual costs of this final rule for this Freeport facility are \$13 million, which is much lower than those maintenance expenditures. In addition, Freeport benefits from integrating its mining operations with its smelter. By being vertically integrated, Freeport is able to insulate itself from volatility in the cost of

⁷ See U.S. Geological Survey. Copper Statistics and Information. National Minerals Information Center. Annual Publication for 2020. Available at: <https://www.usgs.gov/centers/national-minerals-information-center/copper-statistics-and-information>. Note that 2020, which was a year of relatively low production compared to previous years is the most recent year for which USGS has this information available.

⁸ Ibid.

⁹ Freeport-McMoran. 2022 Annual Report. Available at: https://s22.q4cdn.com/529358580/files/doc_financials/annual/AR_2022.pdf.

smelting relative to a scenario where it outsources the smelting process. For this reason, the EPA expects that Freeport's incentive to maintain its smelting operation may extend beyond the margins earned solely on the smelting process. The EPA expects that Freeport can comply with this rule while continuing to operate its smelter at a similar capacity as it would under baseline conditions. Finally, due to trade exposure and the commodified nature of copper products (*i.e.*, the interchangeability of copper products manufactured by different producers), the EPA expects that the affected companies are price takers, and thus we would not expect price impacts due to this final rule. The complete economic analysis can be found in the memorandum *Economic Impact Analysis for the Final Residual Risk and Technology Review of the National Emission Standards for Hazardous Air Pollutants for Primary Copper Smelting Sources*, available in the docket.

E. What are the benefits?

1. 40 CFR Part 63, Subpart QQQ

As described above, the final amendments would result in significant reductions in emissions of HAP metals, especially lead and arsenic. Both lead and arsenic are persistent bioaccumulative toxic (PBT) HAPs and developmental toxicants, with particular impacts on infants, children and the developing fetus. The final amendments will reduce risk from the source category to acceptable levels and ensure the NESHAP provides an ample margin of safety to protect public health. The benefits associated with the emission reductions were not able to be monetized but include reductions in both cancer and noncancer (*e.g.*, developmental) endpoints. Some unquantified benefits of these amendments will accrue to Tribal nations living in proximity to these

facilities; the reduction in cancer and non-cancer risks due to emissions of PBT HAP metals will benefit Tribal and other communities overburdened by air pollution. The final amendments also revise the standards such that they apply at all times, which includes SSM periods. Furthermore, the final requirements to submit reports and test results electronically will improve monitoring, compliance, and implementation of the rule.

2. 40 CFR Part 63, Subpart EEEEEEE

The final amendments under 40 CFR part 63, subpart EEEEEEE, revise the standards such that they apply at all times, which includes SSM periods. Furthermore, the final requirements to submit reports and test results electronically will improve monitoring, compliance, and implementation of the rule.

F. What analysis of environmental justice did we conduct?

For purposes of analyzing regulatory impacts, the EPA relies upon its June 2016 Technical Guidance for Assessing Environmental Justice in Regulatory Analysis, 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 environmental justice (EJ) concerns if it could: (1) create new disproportionate impacts on communities with EJ concerns; (2) exacerbate existing disproportionate impacts on communities with EJ concerns; or (3) present opportunities to address existing disproportionate impacts on communities with EJ concerns through this action under development.

The EPA's EJ technical guidance states that "[t]he analysis of potential EJ

concerns for regulatory actions should address three questions: (A) Are there potential EJ concerns associated with environmental stressors affected by the regulatory action for population groups of concern in the baseline? (B) Are there potential EJ concerns associated with environmental stressors affected by the regulatory action for population groups of concern for the regulatory option(s) under consideration? (C) For the regulatory option(s) under consideration, are potential EJ concerns created or mitigated compared to the baseline?"¹⁰

The environmental justice analysis is presented for the purpose of providing the public with as full as possible an understanding of the potential impacts of this final action. The EPA notes that analysis of such impacts is distinct from the determinations finalized in this action under CAA section 112, which are based solely on the statutory factors the EPA is required to consider under that section.

To examine the potential for Environmental Justice concerns, the EPA conducted a baseline proximity analysis, baseline risk-based analysis (*i.e.*, before implementation of any controls proposed by this action), and post-control risk-based analysis (*i.e.*, after implementation of the controls proposed by this action) for the Freeport facility (tables 4 and 5). The total population, population percentages, and population count for each demographic group for the entire U.S. population are shown in the column titled "Nationwide Average" in tables 4 and 5 of this preamble. These national data are provided as a frame of reference.

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¹⁰ Technical Guidance for Assessing Environmental Justice in Regulatory Analysis, U.S. EPA, June 2016. Quote is from section 3—Key Analytic Considerations, page 11.

Linguistically Isolated	5 percent [17M]	4 percent [300]	4 percent [300]	4 percent [300]	9 percent [100]	11percent [<100]
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Notes:

- The nationwide population and all demographic percentages are based on the Census' 2016-2020 American Community Survey 5-year block group averages and include Puerto Rico. The total population count is based on the 2020 Decennial Census block population.
- To avoid double counting, the "Hispanic or Latino" category is treated as a distinct demographic category for these analyses. A person who identifies as Hispanic or Latino is counted as Hispanic/Latino, regardless of what race this person may have also identified as in the Census.

Table 5. Comparison of Baseline and Post-Control Demographics of the Population with Cancer Risk Greater than or Equal to 1-in-1 Million and 10-in-1 million Living Within 50 km of the Freeport Primary Copper Smelting Facility

Demographic Group	Nationwide Average	Total Population Living Within 50km	Cancer Risk \geq 1-in-1 million		Cancer Risk \geq 10-in-1 million	
			Baseline	Post-Control	Baseline	Post-Control
Total Population	330M	32,300	21,900	16,000	4,600	150
Race and Ethnicity by Percent [number of people]						
White	59 percent [195M]	38 percent [12,400]	36 percent [7,900]	49 percent [7,800]	45 percent [2,100]	45 percent [<100]
Black	12 percent [40M]	0.7 percent [200]	1 percent [200]	1 percent [200]	3 percent [100]	8 percent [<100]
American Indian or Alaska Native	0.6 percent [2M]	24 percent [7,800]	24 percent [5,700]	4 percent [640]	1 percent [<100]	0 percent [0]
Hispanic or Latino (includes white and nonwhite)	19 percent [63M]	33 percent [10,700]	33 percent [7,200]	42 percent [6,700]	44 percent [2,000]	36 percent [<100]
Other and Multiracial	9 percent [30M]	4 percent [1,300]	4 percent [900]	4 percent [600]	7 percent [300]	11 percent [<100]
Income by Percent [Number of People]						
Below Poverty Level	13 percent [43M]	23 percent [7,400]	24 percent [5,300]	16 percent [2,600]	14 percent [600]	27 percent [<100]
Above Poverty Level	87 percent [287M]	77 percent [24,900]	76 percent [16,600]	84 percent [13,400]	86percent [4,000]	73 percent [100]

Education by Percent [Number of People]						
> 25 w/o a HS Diploma	12 percent [40M]	17 percent [5,500]	18 percent [3,900]	16 percent [2,600]	14 percent [600]	21 percent [<100]
> 25 w/ HS Diploma	88 percent [290M]	83 percent [26,800]	82 percent [18,000]	84 percent [13,400]	86 percent [4,000]	79 percent [100]
Linguistically Isolated by Percent [Number of People]						
Linguistically Isolated	5 percent [17M]	3 percent [1,000]	3 percent [700]	2 percent [300]	4 percent [200]	11 percent [<100]

Notes:

- The nationwide population and all demographic percentages are based on the Census' 2016-2020 American Community Survey 5-year block group averages and include Puerto Rico. The total population count is based on the 2020 Decennial Census block population.
- To avoid double counting, the "Hispanic or Latino" category is treated as a distinct demographic category for these analyses. A person who identifies as Hispanic or Latino is counted as Hispanic/Latino, regardless of what race this person may have also identified as in the Census.

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The baseline proximity demographic analysis is an assessment of individual demographic groups in the total population living within 5 km (~3.1 miles) and 50 km (~31 miles) of the facility. Approximately 32,300 and 6,600 people live within 50km and 5 km, respectively of the Freeport facility. The results of the proximity demographic analysis indicate that the percent of the population that is Hispanic or Latino and that is American Indian or Alaska Native is higher than the corresponding national averages. This is particularly true for the population within 50km, which is 24 percent American Indian or Alaska Native, which is significantly above the 0.6 percent national average. The percent of people living below the poverty level and percent of people over the age of 25 without a high school diploma are also higher than the national averages.

The risk-based demographic analysis focused on the populations living within 5 km (~3.1 miles) and 50 km of the Freeport facility with estimated cancer risks greater than or equal to 1-in-1 million and greater than or equal to 10-in-1 million resulting from Primary Copper Smelting source category emissions. The baseline risk analysis indicated that emissions from the source category, prior to controls in this action, expose 6,600 people living within 5 km and 21,900 people living within 50 km to a cancer risk greater than or equal to 1-in-1 million, and 1,500 people living within 5 km and 4,600 people living within 50 km to a cancer risk greater than or equal to 10-in-1 million. The post-control risk-based demographic

analysis, which is an assessment of risks to individual demographic groups in the population living within 5 km and 50 km of the facilities after implementation of the controls in this action ("post-control"), indicated that post-control emissions from the source category expose 6,600 people living within 5 km and 16,000 people living within 50 km to a cancer risk greater than or equal to 1-in-1 million and 150 people living within 5 km and 150 people living within 50 km to a cancer risk greater than or equal to 10-in-1 million.

The demographics of the population living within 5 km with baseline cancer risks greater than or equal to 1-in-1 million is the same as the total population living within 5 km (i.e., all individuals living within 5 km have a baseline cancer risk greater than or equal to 1-in-1 million). Also, since the controls do not reduce the number of individuals living within 5km with risks greater than or equal to 1-in-1 million, the post-control demographics are also the same as the baseline. The demographics of the population living within 5 km with baseline and post-control cancer risks greater than or equal to 10-in-1 million indicates that the percentage of the population that is Hispanic or Latino, living below the poverty level, over 25 without a high school diploma and in linguistic isolation are significantly above the corresponding national averages. However, the number of individuals exposed to post-control risks greater than or equal to 10-in-1 million is reduced by a factor of 10 for each demographic.

The demographics of the population living within 50 km with baseline cancer risks greater than or equal to 1-in-1 million indicates that the percentage of the population that is American Indian or Alaska Native, Hispanic or Latino, living below the poverty level, over 25 without a high school diploma and in linguistic isolation are significantly above the corresponding national averages. The demographics of the population living within 50 km with post-control cancer risks greater than or equal to 1-in-1 million indicates that the percentage of the population that is Hispanic or Latino, living below the poverty level, over 25 without a high school diploma and in linguistic isolation are significantly above the corresponding national averages. The percentage of the population that is American Indian or Alaska Native with post-control cancer risks greater than or equal to 1-in-1 million dropped significantly from 24 percent to 4 percent, with the number of American Indian or Alaska Native individuals at this risk level dropping from 5,700 in the baseline to 640 post-control.

The demographics of the population living within 50 km with baseline cancer risks greater than or equal to 10-in-1 million indicates that the percentage of the population that is Hispanic or Latino is significantly above the national average. The percentage of the population that is living below the poverty level or over 25 without a high school diploma are closer to the national averages. The number of individuals living within 50 km exposed to post-control risks greater

than or equal to 10-in-1 million is reduced by about a factor of 30 for each demographic.

The EPA provided meaningful participation opportunities for communities with environmental justice concerns. The EPA proposed the Primary Copper Smelting NESHAP in January 2022, and received comments, and published a supplemental proposal in July of 2023, and received additional comments. Communities with environmental justice concerns had the opportunity to comment and request public hearings in response to both proposals. The EPA received a combined comment from the San Carlos Apache Tribe, Sierra Club, and Earthjustice; comment from The National Tribal Air Association; a combined comment from several non-governmental organizations including but not limited to the Allergy and Asthma Network and the Children's Environmental Health Network. Section IV. of this preamble provides a summary of key comments and responses. For all comments not discussed in this preamble, comment summaries and the EPA's responses can be found in the *National Emission Standards for Hazardous Air Pollutant Emissions: Primary Copper Smelting Residual Risk and Technology Review and Primary Copper Smelting Area Source Technology Review: Summary of Public Comments and Responses* document, available in the docket for this action (Docket ID No. EPA-HQ-OAR-2020-0430). In addition to the response to comments, the EPA conducted outreach with potentially affected communities by participating in the National Tribal Air Association calls and conducted Tribal consultations during this rule making process. We believe this final action will reduce adverse human health or environmental effects on communities with environmental justice concerns and that the EPA provided meaningful participation opportunities for these communities to participate in the development of this action.

VI. Statutory and Executive Order Reviews

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

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

This action is a "significant regulatory action" as defined in Executive Order 12866, as amended by Executive Order 14094. Accordingly, the EPA submitted

this action to the Office of Management and Budget (OMB) for Executive Order 12866 review. Documentation of any changes made in response to the Executive Order 12866 review is available in the docket. The EPA prepared an economic analysis of the potential impacts associated with this action. This analysis, *Economic Impact Analysis for the Final Residual Risk and Technology Review of the National Emission Standards for Hazardous Air Pollutants for Primary Copper Smelting Sources*, is also available in the docket.

B. Paperwork Reduction Act (PRA)

1. 40 CFR Part 63, Subpart QQQ

The information collection activities in this final rule have been submitted for approval to OMB under the PRA. The ICR document that the EPA prepared has been assigned OMB Control Number 2060-0476 and EPA ICR number 1850.10. You can find a copy of the ICR in the docket for this action, and it is briefly summarized here. The information collection requirements are not enforceable until OMB approves them.

In this action, we are finalizing amendments that require electronic reporting of results of performance tests and CEMS performance evaluations, fugitive dust plans and notification of compliance reports, remove the requirement to submit certain information related to the malfunction exemption, and impose other rule revisions that affect reporting and recordkeeping requirements for primary copper smelting facilities, such as requirements to submit new performance test reports and to maintain new operating parameter records to demonstrate compliance with new standards. This information will be collected to assure compliance with 40 CFR part 63, subpart QQQ.

Respondents/affected entities: Owners or operators of primary copper smelting facilities. Respondent's obligation to respond: Mandatory (40 CFR part 63, subpart QQQ).

Estimated number of respondents: Two (total). Frequency of response: Initial, semiannual, and annual.

Total estimated burden: The annual recordkeeping and reporting burden for facilities to comply with all of the requirements in the NESHAP is estimated to be 6,500 hours (per year). Burden is defined at 5 CFR 1320.3(b).

Total estimated cost: The annual recordkeeping and reporting burden for facilities to comply with all of the requirements in the NESHAP is estimated to be \$860,000 (per year), of which \$150,000 is for this rule, and

\$710,000 is for the other costs related to continued compliance with the NESHAP.

There are no annualized capital costs. There are an estimated \$302,000 in operation & maintenance costs associated with periodic performance testing.

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.

2. 40 CFR Part 63, Subpart EEEEE

The information collection activities in this final rule have been submitted for approval to OMB under the PRA. The ICR document that the EPA prepared has been assigned EPA ICR number 2240.09. You can find a copy of the ICR in the docket for this action, and it is briefly summarized here. The information collection requirements are not enforceable until OMB approves them.

In this action, we are finalizing amendments that require electronic reporting of results of performance tests and CEMS performance evaluations and notification of compliance reports, remove the malfunction exemption, and impose other revisions that affect reporting and recordkeeping for primary copper smelting facilities. This information will be collected to assure compliance with 40 CFR part 63, subpart EEEEE.

Respondents/affected entities: Owners or operators of primary copper smelting facilities. Respondent's obligation to respond: Mandatory (40 CFR part 63, subpart EEEEE).

Estimated number of respondents: One (total).

Frequency of response: Initial, semiannual, and quarterly.

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

Total estimated cost: The annual recordkeeping and reporting burden for facilities to comply with all of the requirements in the NESHAP is estimated to be \$1,973 (per year).

There are no annualized capital or operation and maintenance costs.

An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. The OMB control numbers for the EPA's regulations in 40 CFR are listed in 40 CFR part 9. 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 small entities. Based on the Small Business Administration size category for this source category, no small entities are subject to this action.

D. Unfunded Mandates Reform Act (UMRA)

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

E. Executive Order 13132: Federalism

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

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

This action does not have Tribal implications as specified in Executive Order 13175. The Executive order defines Tribal implications as “actions that have substantial direct effects on one or more Indian tribes, 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”. Based on all of our analyses, we conclude that the amendments in this action will not have a substantial direct effect on one or more Tribes, change the relationship between the Federal Government and Tribes, or affect the distribution of power and responsibilities between the Federal Government and Indian Tribes.

Thus, Executive Order 13175 does not apply to this action.

Although this action does not have Tribal implications as defined by Executive Order 13175, consistent with the EPA policy on coordination and consultation with Indian Tribes, the EPA offered government-to-government consultation with Tribes during the rulemaking process. The EPA held a consultation with the San Carlos Apache Tribe on June 7, 2022, to discuss the 2022 proposal (Docket ID No. EPA–HQ–OAR–2020–0430–0185) and ensure that the views of the San Carlos Apache Tribe were taken into consideration in the rulemaking process in accordance with the *EPA Policy on Consultation with Indian Tribes* (December 2023). The *EPA Policy on Consultation with Indian Tribes* is available in the docket for this action. The topics discussed during the consultation are described in the consultation request letter, dated April 4, 2022 (Docket ID No. EPA–HQ–OAR–2020–0430–0139). In addition, the EPA also received letters from representatives of the San Carlos Apache Tribe expressing their concerns due to emissions of lead and arsenic from the primary copper smelting facilities, which are available in the docket for this action. In the letter, dated September 21, 2023 (which is available in the docket for this action), the Tribe requested consultation. We reached out to the Tribe on several occasions to schedule consultation but did not receive a response.

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

This action is not subject to Executive Order 13045 because it is not a significant regulatory action under section 3(f)(1) of Executive Order 12866, and because the EPA does not believe the environmental health or safety risks addressed by this action present a disproportionate risk to children. This action's health and risk assessments are contained in sections III. and IV. of this preamble and further documented in the document titled *Freeport Baseline and Control Options Re-model Risk Analysis Memo*, which is available in the docket for this rule (Docket ID No. EPA–HQ–OAR–2020–0430).

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

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

We have concluded that this action is not likely to have any adverse energy effects because it contains no regulatory requirements that will have an adverse impact on productivity, competition, or prices in the energy sector.

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

This rulemaking involves technical standards. Therefore, the EPA conducted searches for the 2022 proposal and 2023 supplemental proposal through the Enhanced NSSN Database managed by the American National Standards Institute (ANSI). The Agency also contacted VCS organizations and accessed and searched their databases. Searches were conducted for the EPA Methods 1, 1A, 2, 2A, 2C, 2D, 2F, 2G, 3, 3A, 3B, 4, 5, 5B, 5D, 9, 17, 18, 22, 23, 26A, 29, 30A, and 30B of 40 CFR part 60, appendix A, and EPA Method 201A of 40 CFR part 51, appendix M. No applicable VCS were identified for EPA Method 1A, 2A, 2D, 2F, 2G, 5B, 5D, 22, 30A, 30B, or 201A. During the searches, 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 considered it as a potential equivalent method. All potential standards were reviewed to determine the practicality of the VCS for this rule. This review requires significant method validation data which meets the requirements of the EPA Method 301 for accepting alternative methods or scientific, engineering and policy equivalence to procedures in the EPA reference methods. The EPA may reconsider determinations of impracticality when additional information is available for particular VCS. Four VCS were identified as an acceptable alternative to the EPA test methods for the purposes of this rule.

The VCS ANSI/ASME PTC 19.10–1981 Part 10, Flue and Exhaust Gas Analyses, is an acceptable alternative to the EPA Method 3B manual portion only and not the instrumental portion. The ANSI/ASME PTC 19.10–1981 Part 10 method incorporates both manual and instrumental methodologies for the determination of O₂ content. The manual method segment of the O₂ determination is performed through the absorption of O₂. This VCS may be obtained from <https://webstore.ansi.org/> or from the ANSI Headquarters at 1899 L Street NW, 11th Floor, Washington, DC 20036.

The VCS ASTM D7520–16, *Standard Test Method for Determining the Opacity of a Plume in the Outdoor*

Ambient Atmosphere, 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 ASTM D7520–16 is an acceptable alternative to the EPA Method 9 with the following conditions:

1. During the digital camera opacity technique (DCOT) certification procedure outlined in section 9.2 of ASTM D7520–16, you 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. You 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.

3. You must follow the record keeping procedures outlined in 40 CFR 63.10(b)(1) for the DCOT certification, compliance report, data sheets, and all raw unaltered Joint Photographic Experts Group (JPEG) files used for opacity and certification determination.

4. You or the DCOT vendor must have a minimum of four (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 anyone reading and the average error must not exceed 7.5 percent opacity.

5. 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 and/or training of the DCOT camera, software and operator in accordance with ASTM D7520–16 and this letter is on the facility, DCOT operator, and DCOT vendor.

The voluntary consensus standard ASTM D6420–99 (Reapproved 2010), *Test Method for Determination of Gaseous Organic Compounds by Direct Interface Gas Chromatography/Mass Spectrometry*, employs a direct interface

gas chromatograph/mass spectrometer (GCMS) to identify and quantify the 36 volatile organic compounds (or sub-set of these compounds). This ASTM procedure has been approved by the EPA as an alternative to EPA Method 18 only when the target compounds are all known and the target compounds are all listed in ASTM D6420 as measurable.

The VCS ASTM D6784–16, *Standard Test Method for Elemental, Oxidized, Particle-Bound and Total Mercury Gas Generated from Coal-Fired Stationary Sources (Ontario Hydro Method)*, is an acceptable alternative to the EPA Methods 101A and 29 (portion for mercury only) as a method for measuring mercury. This method applies to concentrations approximately 0.5–100 µg/Nm³. This test method describes equipment and procedures for obtaining samples from effluent ducts and stacks, equipment and procedures for laboratory analysis, and procedures for calculating results.

The ASTM standards are available from ASTM at <https://www.astm.org> or 1100 Barr Harbor Drive, West Conshohocken, PA 19428–2959, telephone number: (610) 832–9500, fax number: (610) 832–9555 email address: service@astm.org.

The searches conducted for the 2022 proposal and 2023 supplemental proposal identified 26 VCS that were potentially applicable for these rules in lieu of the EPA reference methods. After reviewing the available standards, the EPA determined that 26 candidate VCS (ASTM D3154–00 (2014), ASTM D3464–96 (2014), ASTM 3796–09 (2016), ASTM D3796–90 (2004) ISO 10780:1994 (2016), ASME B133.9–1994 (2001), ISO 10396:(2007), ANSI/ASME PTC 19–10–1981—Part 10 (2010) Flue and Exhaust Gas Analyses—Instrumental Procedure Only, ISO 12039:2001 (2012), ASTM D5835–95 (2013), ASTM D6522–11, CAN/CSA Z223.2–M86 (R1999), ISO 9096:1992 (2003), ANSI/ASME PTC–38–1980 (1985), ASTM D3685/D3685M– 98–13, CAN/CSA Z223.1–M1977, National Institute of Occupational Safety and Health (NIOSH) Method 2010 “Amines, Aliphatic”, ASTM D6060–96 (2009), EN 1948–3 (2006), EN 1911–1,2,3 (1998), ASTM D6735–01 (2009), ISO 10397:1993, ASTM D6331 (2014), EN13211:2001, CAN/CSA Z223.26–M1987, ASTM E1979–21, ASTM D4358–05) identified for measuring emissions of pollutants or their surrogates subject to emission standards in the rule would not be practical due to lack of equivalency, documentation, validation data and other important technical and policy considerations. Additional information for the VCS

search and determinations can be found in the memorandums *Voluntary Consensus Standard Results for National Emission Standards for Hazardous Air Pollutants: Primary Copper Smelting Residual Risk and Technology Review and Primary Copper Smelting Area Source Technology Review* (Docket ID No. EPA–HQ–OAR–2020–0430–0065) and *Voluntary Consensus Standard Results for National Emission Standards for Hazardous Air Pollutants: Primary Copper Smelting Residual Risk and Technology Review and Primary Copper Smelting Area Source Technology Review and Voluntary Consensus Standard Results for National Emission Standards of Hazardous Air Pollutants: Primary Copper Smelting Supplemental Proposal* (Docket ID No. EPA–HQ–OAR–2020–0430–0150), which are available in the docket for this action. Under 40 CFR 63.7(f) and 63.8(f), a source may apply to the EPA to use alternative test methods or alternative monitoring requirements in place of any required testing methods, performance specifications or procedures in the final rule or any amendments.

The EPA is also incorporating by reference EPA/100/R–10/005, *Recommended Toxicity Equivalence Factors (TEFs) for Human Health Risk Assessments of 2, 3, 7, 8-Tetrachlorodibenzo-p-dioxin and Dioxin-Like Compounds*, December 2010. This is the international method of expressing toxicity equivalents for dioxins/furans where a recommended toxicity equivalent factor (TEF) is multiplied by each individual compound's (congener) emission concentration to calculate the toxic equivalent quotient (TEQ). To estimate risk associated with the mixture, the dose-response function for the index chemical is evaluated at this sum, which is an estimate of the total index chemical equivalent dose for the mixture components being considered. This method may be obtained from <https://www.epa.gov/sites/default/files/2013-09/documents/tefs-for-dioxin-epa-00-r-10-005-final.pdf>, or U.S. Environmental Protection Agency, 1200 Pennsylvania Avenue NW, Washington, DC 20460, (202) 272–0167, <https://www.epa.gov>.

J. Executive Order 12898: Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations and Executive Order 14096: Revitalizing Our Nation's Commitment to Environmental Justice for All

The EPA believes that the human health or environmental conditions that

exist prior to this action result in or have the potential to result in disproportionate and adverse human health or environmental effects on communities with environmental justice concerns. The EPA evaluated the demographic characteristics of communities located near the major source facilities and determined that elevated cancer risks associated with emissions from these facilities disproportionately affect Native American, Hispanic, populations Below Poverty Level and Over 25 without High School Diploma individuals living nearby. As part of its environmental justice analysis, EPA evaluated whether the final action for the Primary Copper Smelting Major Source Category would address the existing disproportionately high and adverse human health effect on these individuals and EPA further evaluated the projected distribution of reductions in risk resulting from this action.

The EPA believes that this action is likely to reduce existing disproportionate and adverse effects on communities with environmental justice concerns. The agency estimated the MIR at Freeport will be reduced from 70-in-1 million to 20-in-1 million and the population with cancer risks greater than or equal to 1-in-1 million will be reduced from 21,875 to 16,962 because of this action. We estimate that the maximum chronic noncancer inhalation TOSHI will be reduced from 1 to less than 1 (0.3), and the acute HQ will be reduced from a value of 7 to 2 at Freeport. Given the uncertainties in the emissions data at Asarco and the short timeframe to complete the final rule, we did not evaluate the impact of the final standards on the population living in the vicinity of the Asarco facility. The standards in this final rule are estimated to reduce metal HAP emissions, primarily lead and arsenic, from this source category by 8.0 tpy.

The methodology and the results of the demographic analysis are presented in section V.F. of this preamble and in the technical report *Risk and Technology Review—Analysis of Demographic Factors for Populations Living Near Primary Copper Smelting Source Category Operations—Final Rule* (Docket ID No. EPA-HQ-OAR-2020-0430). The information supporting this Executive order review is contained in section V.F. of this preamble.

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 63

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

Michael S. Regan,
Administrator.

For the reasons stated in the preamble, title 40, chapter I of the Code of Federal Regulations is amended as follows:

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

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

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

Subpart A—General Provisions

- 2. Amend § 63.14 by revising paragraphs (f)(1) and (i)(95), (105), and (110) and adding paragraph (o)(30) to read as follows:

§ 63.14 Incorporations by reference.

* * * * *

(f) * * *

(1) ANSI/ASME PTC 19.10–1981, Flue and Exhaust Gas Analyses [Part 10, Instruments and Apparatus], issued August 31, 1981, IBR approved for §§ 63.309(k); 63.365(b); 63.457(k); 63.772(e) and (h); 63.865(b); 63.997(e); 63.1282(d) and (g); 63.1450(a), (b), (d), and (e) through (g); 63.1625(b); table 5 to subpart EEEE; §§ 63.3166(a); 63.3360(e); 63.3545(a); 63.3555(a); 63.4166(a); 63.4362(a); 63.4766(a); 63.4965(a); 63.5160(d); table 4 to subpart UUUU; table 3 to subpart YYYY; §§ 63.7822(b); 63.7824(e); 63.7825(b); 63.8000(d); 63.9307(c); 63.9323(a); 63.9621(b) and (c); 63.11148(e); 63.11155(e); 63.11162(f); 63.11163(g); 63.11410(j); 63.11551(a); 63.11646(a); 63.11945; table 4 to subpart AAAAA; table 5 to subpart DDDDD; table 4 to subpart JJJJJ; table 4 to subpart KKKKK; table 4 to subpart SSSSS; tables 4 and 5 to subpart UUUUU; table 1 to subpart ZZZZZ; table 4 to subpart JJJJJJ.

* * * * *

(i) * * *

(95) ASTM D6420–99 (Reapproved 2010), Standard Test Method for Determination of Gaseous Organic Compounds by Direct Interface Gas Chromatography-Mass Spectrometry, Approved October 1, 2010, IBR

approved for §§ 63.670(j); table 4 to subpart UUUU; 63.1450(f); 63.7142(b); appendix A to this part.

* * * * *

(105) ASTM D6784–16, Standard Test Method for Elemental, Oxidized, Particle-Bound and Total Mercury in Flue Gas Generated from Coal-Fired Stationary Sources (Ontario Hydro Method), Approved March 1, 2016; IBR approved for §§ 63.1450(d); 63.9621; table 5 to subpart UUUUU; appendix A to subpart UUUUU.

* * * * *

(110) 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 §§ 63.1450(c), (e), and (g); 63.1453(h); 63.1625(b); table 3 to subpart LLLLL; §§ 63.7823(c) through (e); 63.7833(g); 63.11423(c).

* * * * *

(o) * * *

(30) EPA/100/R–10/005, Recommended Toxicity Equivalence Factors (TEFs) for Human Health Risk Assessments of 2, 3, 7, 8-Tetrachlorodibenzo-p-dioxin and Dioxin-Like Compounds, December 2010; IBR approved for § 63.1459 and table 2 to subpart QQQ. (Available at <https://www.epa.gov/sites/default/files/2013-09/documents/tefs-for-dioxin-epa-00-r-10-005-final.pdf>.)

* * * * *

- 3. Effective July 15, 2024, further amend § 63.14 by:

- a. Revising paragraphs (f)(1) and (i)(110);
- b. Redesignating paragraphs (o)(1) through (30) as paragraphs (o)(2) through (31); and
- c. Adding new paragraph (o)(1).

The revisions and addition read as follows:

§ 63.14 Incorporations by reference.

* * * * *

(f) * * *

(1) ANSI/ASME PTC 19.10–1981, Flue and Exhaust Gas Analyses [Part 10, Instruments and Apparatus], issued August 31, 1981, IBR approved for §§ 63.116(c); 63.116 and (h); 63.128(a); 63.145(i); 63.309(k); 63.365(b); 63.457(k); 63.490(g); 63.772(e) and (h); 63.865(b); 63.997(e); 63.1282(d) and (g); 63.1450(a), (b), and (e) through (g); 63.1625(b); table 5 to subpart EEEE; §§ 63.3166(a); 63.3360(e); 63.3545(a); 63.3555(a); 63.4166(a); 63.4362(a); 63.4766(a); 63.4965(a); 63.5160(d); table 4 to subpart UUUU; table 3 to subpart YYYY; §§ 63.7822(b); 63.7824(e); 63.7825(b); 63.8000(d); 63.9307(c); 63.9323(a); 63.9621(b) and (c); 63.11148(e); 63.11155(e); 63.11162(f);

63.11163(g); 63.11410(j); 63.11551(a); 63.11646(a); 63.11945; table 4 to subpart AAAAA; table 5 to subpart DDDDD; table 4 to subpart JJJJJ; table 4 to subpart KKKKK; table 4 to subpart SSSSS; tables 4 and 5 to subpart UUUUU; table 1 to subpart ZZZZZ; table 4 to subpart JJJJJ.

* * * * *

(i) * * *

(110) 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 §§ 63.1450(c), (e), and (g); 63.1453(h); 63.1625(b); table 3 to subpart LLLLL; §§ 63.7823(c) through (f), 63.7833(g); 63.11423(c).

* * * * *

(o) * * *

(1) EPA/100/R–10/005, Recommended Toxicity Equivalence Factors (TEFs) for Human Health Risk Assessments of 2, 3, 7, 8-Tetrachlorodibenzo-p-dioxin and Dioxin-Like Compounds, December 2010; IBR approved for § 63.1459 and table 2 to subpart QQQ. (Available at <https://www.epa.gov/sites/default/files/2013-09/documents/tefs-for-dioxin-epa-00-r-10-005-final.pdf>).

* * * * *

■ 4. Revise subpart QQQ, consisting of §§ 63.1440 through 63.1459, to read as follows:

Subpart QQQ—National Emission Standards for Hazardous Air Pollutants for Primary Copper Smelting

Sec.

- 63.1440 What is the purpose of this subpart?
- 63.1441 Am I subject to this subpart?
- 63.1442 What parts of my plant does this subpart cover?
- 63.1443 When do I have to comply with this subpart?
- 63.1444 What emissions limitations, work practice standards, and design standards must I meet for my copper concentrate dryers, smelting vessels, slag cleaning vessels, copper converter departments, anode refining departments, process fugitive emissions from roofline vents, and bypass stacks?
- 63.1445 What work practice standards must I meet for my fugitive dust sources?
- 63.1446 What alternative emission limitation may I meet for my combined gas streams?
- 63.1447 What are my operation and maintenance requirements?
- 63.1448 What are my general requirements for complying with this subpart?
- 63.1449 By what dates must I conduct performance tests or other initial compliance demonstrations?
- 63.1450 What test methods and other procedures must I use to demonstrate initial compliance with the emission limitations and design standards?
- 63.1451 How do I demonstrate initial compliance with the emission

limitations, work practice standards, design standards, and operation and maintenance requirements that apply to me?

- 63.1452 What are my monitoring requirements?
- 63.1453 How do I demonstrate continuous compliance with the emission limitations, work practice standards, design standards, and operation and maintenance requirements that apply to me?
- 63.1454 What notifications must I submit and when?
- 63.1455 What reports must I submit and when?
- 63.1456 What records must I keep and how long must I keep my records?
- 63.1457 What part of the general provisions apply to me?
- 63.1458 Who implements and enforces this subpart?
- 63.1459 What definitions apply to this subpart?
- Table 1 to Subpart QQQ of Part 63—Applicability of General Provisions to This Subpart
- Table 2 to Subpart QQQ of Part 63—Non-Mercury HAP Emission Limits
- Table 3 to Subpart QQQ of Part 63—2010 Toxic Equivalency Factors (TEFs)
- Table 4 to Subpart QQQ of Part 63—Compliance Dates for Amendments Being Promulgated on May 13, 2024
- Figure 1 to Subpart QQQ of Part 63—Data Summary Sheet for Determination of Average Opacity

Subpart QQQ—National Emission Standards for Hazardous Air Pollutants for Primary Copper Smelting

§ 63.1440 What is the purpose of this subpart?

This subpart establishes national emission standards for hazardous air pollutants (NESHAP) for primary copper smelters. This subpart also establishes requirements to demonstrate initial and continuous compliance with all applicable emission limitations, work practice standards, design standards, and operation and maintenance requirements in this subpart.

§ 63.1441 Am I subject to this subpart?

You are subject to this subpart if you own or operate a primary copper smelter that is (or is part of) a major source of hazardous air pollutant (HAP) emissions on the first compliance date that applies to you (see § 63.1443). Your primary copper smelter is a major source of HAP if it emits or has the potential to emit any single HAP at the rate of 10 tons or more per year or any combination of HAP at a rate of 25 tons or more per year.

§ 63.1442 What parts of my plant does this subpart cover?

(a) This subpart applies to each new and existing affected source at your

primary copper smelter. The affected sources are each copper concentrate dryer, each smelting vessel, each slag cleaning vessel, each copper converter department, each anode refining department, process fugitive emission sources (i.e., roofline vents) from smelting vessels, slag cleaning vessels, copper converter department and anode refining department, each bypass stack, and the entire group of fugitive dust sources, as defined in § 63.1459.

(b) The following affected sources: each copper concentrate dryer, each smelting vessel, each slag cleaning vessel, each copper converter department, and the entire group of fugitive dust sources at your primary copper smelter are existing if you commenced construction or reconstruction of the affected source before April 20, 1998.

(c) The following affected sources: each copper concentrate dryer, each smelting vessel, each slag cleaning vessel, each copper converter department and the entire group of fugitive dust sources at your primary copper smelter are new if you commenced construction or reconstruction of the affected source on or after April 20, 1998. An affected source is reconstructed if it meets the definition of “reconstruction” in § 63.2.

(d) The following affected sources: each anode refining department and process fugitive emission sources (i.e., roofline vents) from smelting vessels, slag cleaning vessels, copper converter department and anode refining department are existing if you commenced construction or reconstruction of the affected source before January 11, 2022.

(e) The following affected sources: each anode refining department and process fugitive emission sources (i.e., roofline vents) from smelting vessels, slag cleaning vessels, copper converter department and anode refining department at your primary copper smelter are new if you commenced construction or reconstruction of the affected source on or after January 11, 2022. An affected source is reconstructed if it meets the definition of “reconstruction” in § 63.2.

(f) The bypass stack is existing if you commenced construction or reconstruction of the affected source before July 24, 2023.

(g) The bypass stack is new if you commenced construction or reconstruction of the affected source on or after July 24, 2023. An affected source is reconstructed if it meets the definition of “reconstruction” in § 63.2.

§ 63.1443 When do I have to comply with this subpart?

(a) If you have an existing affected source, you must comply with each emission limitation, work practice standard, design standard, and operation and maintenance requirement in this subpart that applies to you no later than June 13, 2005, except as specified in table 4 to this subpart.

(b) If you have a new affected source and its initial startup date is on or before June 12, 2002, you must comply with each emission limitation, work practice standard, design standard, and operation and maintenance requirement in this subpart that applies to you by June 12, 2002, except as specified in table 4 to this subpart.

(c) If you have a new affected source and its initial startup date is after June 12, 2002, you must comply with each emission limitation, work practice standard, design standard, and operation and maintenance requirement in this subpart that applies to you upon initial startup, except as specified in table 4 to this subpart.

(d) If your primary copper smelter is an area source that becomes a major source of HAP (see § 63.1441), the compliance dates listed in paragraphs (d)(1) and (2) of this section apply to you.

(1) Any portion of the existing primary copper smelter that is a new affected source or a new reconstructed source must be in compliance with this subpart upon startup.

(2) All other parts of the primary copper smelter must be in compliance with this subpart no later than 3 years after it becomes a major source (see § 63.1441).

(e) You must meet the notification and schedule requirements in § 63.1454. Several of these notifications must be submitted before the compliance date for your affected source.

§ 63.1444 What emissions limitations, work practice standards, and design standards must I meet for my copper concentrate dryers, smelting vessels, slag cleaning vessels, copper converter departments, anode refining departments, process fugitive emissions from roofline vents, and bypass stacks?

(a) *Copper concentrate dryers.* For each copper concentrate dryer, you must comply with the emission limitation in paragraph (a)(1) or (2) of this section that applies to you.

(1) For each existing copper concentrate dryer, you must not cause to be discharged to the atmosphere from the dryer vent any gases that contain filterable particulate matter in excess of 50 milligrams per dry standard cubic

meter (mg/dscm) as measured using the test methods specified in § 63.1450(a).

(2) For each new copper concentrate dryer, you must not cause to be discharged to the atmosphere from the dryer vent any gases that contain filterable particulate matter in excess of 23 mg/dscm as measured using the test methods specified in § 63.1450(a).

(b) *Smelting vessels.* For each smelting vessel, you must comply with the emission limitations and work practice standards in paragraphs (b)(1) and (2) of this section.

(1) For each smelting vessel, you must not cause to be discharged to the atmosphere any process off-gas that contains nonsulfuric acid particulate matter in excess of 6.2 mg/dscm as measured using the test methods specified in § 63.1450(b). Process off-gas from a smelting vessel is generated when copper ore concentrates and fluxes are being smelted to form molten copper matte and slag layers.

(2) For each smelting vessel, you must control the process fugitive emissions released when tapping copper matte or slag from the smelting vessel according to paragraphs (b)(2)(i) and (ii) of this section.

(i) At all times when copper matte or slag is tapped from the smelting vessel, you must operate a capture system that collects the gases and fumes released from the tapping port in use. The design and placement of this capture system must be such that the tapping port opening, launder, and receiving vessel (e.g., ladle, slag pot) are positioned within the confines or influence of the capture system's ventilation draft during those times when the copper matte or slag is flowing from the tapping port opening.

(ii) You must not cause to be discharged to the atmosphere from the capture system used to comply with paragraph (b)(2)(i) of this section any gases that contain filterable particulate matter in excess of 23 mg/dscm as measured using the test methods specified in § 63.1450(a).

(c) *Slag cleaning vessels.* For each slag cleaning vessel, you must comply with the emission limitations and work practice standards in paragraphs (c)(1) through (3) of this section that apply to you.

(1) For each slag cleaning vessel, except as provided for in paragraph (c)(2) of this section, you must not cause to be discharged to the atmosphere any process off-gas that contains nonsulfuric acid particulate matter in excess of 6.2 mg/dscm as measured using the test methods specified in § 63.1450(b).

(2) As an alternative to complying with the emission limit for nonsulfuric

acid particulate matter in paragraph (c)(1) of this section, for each existing slag cleaning vessel you may choose to comply with the emission limit for filterable particulate matter specified in this paragraph (c)(2). You must not cause to be discharged to the atmosphere any process off-gas that contains filterable particulate matter in excess of 46 mg/dscm as measured using the test methods specified in § 63.1450(a).

(3) For each slag cleaning vessel, you must control process fugitive emissions released when tapping copper matte or slag from the slag cleaning vessel according to paragraphs (c)(3)(i) and (ii) of this section.

(i) At all times when copper matte or slag is tapped from the slag cleaning vessel, you must operate a capture system that collects the gases and fumes released from the tapping port in use. The design and placement of this capture system must be such that the tapping port opening, launder, and receiving vessel (e.g., ladle, slag pot) are positioned within the confines or influence of the capture system's ventilation draft during those times when the copper matte or slag is flowing from the tapping port opening.

(ii) You must not cause to be discharged to the atmosphere from the capture system used to comply with paragraph (c)(3)(i) of this section any gases that contain filterable particulate matter in excess of 23 mg/dscm as measured using the test methods specified in § 63.1450(a).

(d) *Existing copper converter departments.* For each existing copper converter department, you must comply with the emission limitations and work practice standards in paragraphs (d)(1) through (6) of this section that apply to you.

(1) You must operate a capture system that collects the process off gas vented from each batch copper converter. At all times when one or more batch copper converters are blowing, you must operate the capture system according to the written operation and maintenance plan that has been prepared according to the requirements in § 63.1447(b).

(2) If your copper converter department uses Peirce-Smith converters, the capture system design must include use of a primary hood that covers the entire mouth of the converter vessel when the copper converter is positioned for blowing. Additional hoods (e.g., secondary hoods) or other capture devices must be included in the capture system design as needed to achieve the opacity limit in paragraph (d)(4) of this section. The capture system design may use multiple intake

and duct segments through which the ventilation rates are controlled independently of each other, and individual duct segments may be connected to separate control devices.

(3) If your copper converter department uses Hoboken converters, the capture system must collect all process off-gas vented during blowing through the side-flue intake on each converter vessel.

(4) You must operate the capture system such that any visible emissions exiting the roof monitors or roof exhaust fans on the building housing the copper converter department meet the opacity limit as specified in paragraphs (d)(4)(i) and (ii) of this section.

(i) The opacity of any visible emissions exiting the roof monitors or roof exhaust fans on the building housing the copper converter department must not exceed 4 percent as determined by a performance test conducted according to § 63.1450(c).

(ii) The opacity limit in paragraph (d)(4)(i) of this section applies only at those times when a performance test is conducted according to § 63.1450(c). The requirements for compliance with opacity and visible emission standards specified in § 63.6(h) do not apply to this opacity limit.

(5) You must not cause to be discharged to the atmosphere from any Peirce-Smith converter primary hood capture system or Hoboken converter side-flue intake capture system any process off-gas that contains nonsulfuric acid particulate matter in excess of 6.2 mg/dscm as measured using the test methods specified in § 63.1450(b).

(6) You must not cause to be discharged to the atmosphere from any secondary capture system any gases that contain filterable particulate matter in excess of 23 mg/dscm as measured using the test methods specified in § 63.1450(a).

(e) *New copper converter departments.* For each new copper converter department for which construction commenced on or after April 20, 1998, the use of batch copper converters is prohibited. For each new copper converter department which will contain a copper converter other than a batch converter (such as a continuous converter), you must comply with the emission limitation and work practice standards in paragraphs (e)(1) and (2) of this section.

(1) You must not cause to be discharged to the atmosphere from any combination of stacks or other vents any captured process off-gas that contains filterable particulate matter greater than a daily (24-hour) average of 0.031 pounds of particulate matter per ton of

copper concentrate feed charged to the smelting vessel as measured using the test methods specified in § 63.1450(a).

(2) You must operate a capture system that collects the gases and fumes released from converting vessels and conveys the collected gas stream to a control device.

(f) *New and existing anode refining departments.* Except as provided in paragraph (f)(1) of this section, for each new and existing anode refining department, you must comply with the emission limitation and work practice standards in paragraphs (f)(2) and (3) of this section.

(1) If the anode refining department process exhaust gases are combined with the Hoboken converter process fugitive capture system, you must demonstrate compliance with the emission limitation and work practice standards in paragraph (g) of this section.

(2) For each new and existing anode refining department, you must not discharge to the atmosphere captured process exhaust gases from the anode refining furnaces containing filterable particulate matter emissions in excess of 5.8 mg/dscm as measured using the test methods specified in § 63.1450(a).

(3) You must operate a capture system that collects the process off-gases and fumes released from the anode refining department and convey the collected gas stream to a control device.

(g) *Existing combined anode refining department and Hoboken converter process fugitive capture system.* For each new and existing anode refining department and Hoboken converter process fugitive capture system, you must comply with the emission limitation and work practice standards in paragraphs (g)(1) through (3) of this section.

(1) You must not discharge to the atmosphere gases from the combination of the anode refining department and Hoboken converter process fugitive capture system filterable particulate matter emissions in excess of 4.1 mg/dscm as measured using the test methods specified in § 63.1450(a).

(2) You must operate a Hoboken converter process fugitive capture system that collects the process off-gases and fumes released from the copper converter department.

(3) You must operate a capture system that collects the process off-gases and fumes released from the anode refining department and convey the collected gas stream to a control device.

(h) *New and existing sources of process fugitive gases from the roofline vents associated with the smelting vessels, the slag cleaning vessels, copper*

converter department, and the anode refining department. You must not discharge to the atmosphere process fugitive gases from any combination of new and existing roofline vents associated with the smelting vessels, slag cleaning vessels, copper converter departments and the anode refining departments containing filterable particulate matter emissions in excess of 6.3 lb/hr as measured using the test methods specified in § 63.1450(e).

(i) *Baghouses.* For each baghouse applied to meet any filterable particulate matter emission limit in paragraphs (a) through (h) of this section, you must operate the baghouse such that the bag leak detection system does not alarm for more than 5 percent of the total operating time in any semiannual reporting period.

(j) *Venturi wet scrubbers.* For each venturi wet scrubber applied to meet any filterable particulate matter emission limit in paragraphs (a) through (h) of this section, you must comply with the site-specific operating limit(s) of maintaining the hourly average pressure drop and scrubber water flow rate established during the initial or subsequent performance test in accordance with § 63.1450(a)(4).

(k) *Other control devices.* For each control device other than a baghouse or venturi wet scrubber applied to meet any filterable particulate matter emission limit in paragraphs (a) through (h) of this section, you must operate the control device as specified in paragraphs (k)(1) and (2) of this section.

(1) You must select one or more operating parameters, as appropriate for the control device design, that can be used as representative and reliable indicators of the control device operation.

(2) You must maintain the hourly average value for each of the selected parameters at or above the minimum level or at or below the maximum level, as appropriate for the selected parameter, established during the initial or subsequent performance test in accordance with § 63.1450(a)(5).

(l) *Existing source mercury emissions.* You must not discharge exhaust gases to the atmosphere through any combination of stacks or other vents from copper concentrate dryers, copper converter department, the anode refining department, slag cleaning vessel and smelting vessels containing mercury emissions in excess of 0.033 lb/hr for existing sources as measured by the test methods in § 63.1450(d).

(m) *New source mercury emissions.* You must not discharge exhaust gases to the atmosphere through any combination of stacks or other vents

from the copper concentrate dryers, copper converter department, the anode refining department, slag cleaning vessel and smelting vessels containing mercury emissions in excess of 0.00097 lb/hr for new sources as measured by the test methods in § 63.1450(d).

(n) *Control devices for mercury.* For each control device applied to meet the mercury emission limit in paragraph (l) or (m) of this section, you must operate the control device as specified in paragraphs (n)(1) and (2) of this section.

(1) You must select one or more operating parameters, as appropriate for the control device design, that can be used as representative and reliable indicators of the control device operation.

(2) You must maintain the hourly average value for each of the selected parameters at or above the minimum level or at or below the maximum level, as appropriate for the selected parameter, established during the initial or subsequent performance test in accordance with § 63.1450(d)(3).

(o) *New and existing sources of benzene, toluene, chlorine, hydrogen chloride, polycyclic aromatic hydrocarbons excluding naphthalene, naphthalene, and dioxins/furans emissions.* You must not discharge exhaust gases to the atmosphere through any combination of stacks or other vents from the copper concentrate dryers, copper converter department, the anode refining department, slag cleaning vessels and the smelting vessels in excess the emission limits in table 2 to this subpart as measured by the test methods in § 63.1450(f).

(p) *Existing sources of process fugitive gases from the combination of roofline vents associated with the Peirce-Smith converter department, Inco flash furnace, and anode refining department.* For any combination of new and existing roofline vents associated with the Peirce-Smith converter department, Inco flash furnace, and anode refining department, you must comply with the emission limitation and design standards in paragraph (p)(1) and (2) of this section.

(1) *Roofline emission limit for the Peirce-Smith converter department, Inco flash furnace, and anode refining department.* You must not discharge to the atmosphere process fugitive gases from any combination of existing roofline vents associated with the Peirce-Smith copper converter department, Inco flash furnace, and the anode refining department containing lead emissions in excess of 0.326 lb/hr as measured using the test methods specified in § 63.1450(g).

(2) *Design standards for the Peirce-Smith converter department, Inco flash furnace, and anode refining department.* You must comply with design standards in paragraphs (p)(2)(i) through (iii) of this section at all times when the primary copper smelter is operating, except as provided herein.

(i) *Flash furnace area capture system.* Operate hooding and interceptor walls with a design evacuation rate of at least 50,000 cfm hourly average to capture fugitive emissions from the flash furnace area, matte tapping and slag skimming areas, and route emissions to a control device whenever the flash furnace is in operation except for brief periods when slag is being returned to the flash furnace using the slag return launder.

(ii) *Fuming ladle capture system.* Operate hood and interceptor walls with a design evacuation rate of at least 40,000 cfm to capture fugitive emissions from fuming ladles in the converter aisle and material transfer areas, and route emissions to a control device whenever a fuming ladle is detected.

(iii) *Anode furnace secondary hood capture and control system.* Operate a secondary hood around each in-use anode furnace to capture process fugitive emissions and route emissions to a control device. The design evacuation rate for the total system of all anode furnace secondary hoods shall be at least 150,000 cfm hourly average.

(q) *Bypass stack work practice standards.* When using the bypass stack for planned maintenance of control devices and processes, the work practice standard is applicable for the bypass stack for the duration of the planned maintenance. You must comply with work practice standards in paragraphs (q)(1) through (3) of this section.

(1) In the case of planned control device or process maintenance, feed to the smelting vessel must cease; power to the electric furnace must be lowered, and a crust allowed to form on the surface of the slag; the operation of the converters must cease and the converters rolled out; and the operation of the anode vessels must cease.

(2) If the fan to the anode refining point source baghouse is functioning, then the residual process gases must be redirected to the control device. If the process gas from a device being maintained can be rerouted to a different control device instead of the bypass stack, it must be redirected to the control device. Control devices must be used until emissions are minimized.

(3) If there is a shutdown or emergency shutdown event, the control devices should continue to run until process emissions cease. If the control

devices are shut down before the process emissions cease and the bypass stack is used to vent the process gas to the atmosphere, there will be a violation of the emission and work practice standards.

§ 63.1445 What work practice standards must I meet for my fugitive dust sources?

(a) You must control particulate matter emissions from fugitive dust sources at your primary copper smelter by operating according to a written fugitive dust control plan that has been approved by the Administrator or approved authority under 40 CFR part 70 or 71. For the purpose of complying with this paragraph (a) you must submit a fugitive dust control plan which addresses the fugitive dust sources specified in paragraph (b) of this section and includes the information specified in paragraph (c) of this section on the schedule provided in paragraphs (e) and (f) of this section.

(b) Before November 12, 2024, your fugitive dust control plan must address each of the fugitive dust emission sources listed in paragraphs (b)(1) through (6), except paragraphs (b)(1)(i) and (ii), of this section that are located at your primary copper smelter. On or after November 12, 2024, your fugitive dust control plan must address each of the fugitive dust emission sources listed in paragraphs (b)(1) through (7) of this section that are located at your primary copper smelter.

(1) On-site roadways used by trucks or other motor vehicles (e.g., front-end loaders) when transporting bulk quantities of fugitive dust materials. Paved roads and parking areas that are not used by these vehicles do not need to be included in the plan (e.g., employee and visitor parking lots).

(i) You must conduct routine cleaning of paved roads with a sweeper, vacuum or wet broom (in accordance with applicable recommendations by the manufacturer of the street sweeper, vacuum, or wet broom), with such cleaning to occur no less frequently than on a daily basis unless the roads have sufficient surface moisture such that fugitive dust is not generated.

(ii) Chemical dust suppressants will be applied not less frequently than once per month at slag haul roads and not less frequently than every 6 weeks on all other unpaved roads unless the roads have sufficient surface moisture such that fugitive dust is not generated.

(2) Unloading of fugitive dust materials from trucks or railcars.

(3) Outdoor piles used for storage of fugitive dust materials.

(4) Bedding areas used for blending copper concentrate and other feed constituents.

(5) Each transfer point in conveying systems used to transport fugitive dust materials. These points include, but are not limited to, transfer of material from one conveyor belt to another and transfer of material to a hopper or bin.

(6) Other site-specific sources of fugitive dust emissions that the Administrator or delegated authority under 40 CFR part 70 or 71 designate to be included in your fugitive dust control plan.

(7) The cargo compartment of all trucks or other motor vehicles (e.g., front-end loaders) when transporting bulk quantities of fugitive dust materials must be maintained to ensure:

(i) The floor, sides, and/or tailgate(s) are free of holes or other openings.

(ii) All loads of trucks containing copper concentrate arriving at the facility are covered with a tarp to prevent spills and fugitive emissions.

(iii) Trucks are loaded only to such a level as to prevent spillage over the side.

(iv) A speed limit of 15 mph is required.

(v) All dust producing material internally transferred or moved by truck at the facility is covered with a tarp to prevent spills and fugitive emissions.

(c) Your fugitive dust control plan must describe the control measures you use to control fugitive dust emissions from each source addressed in the plan, as applicable and appropriate for your site conditions. Examples of control measures include, but are not limited to, locating the source inside a building or other enclosure, installing and operating a local hood capture system over the source and venting the captured gas stream to a control device, placing material stockpiles below grade, installing wind screens or wind fences around the source, spraying water on the source as weather conditions require, applying appropriate dust suppression agents on the source, or combinations of these control measures.

(d) The requirement for you to operate according to a written fugitive dust control plan must be incorporated in your operating permit that is issued by the approved authority under 40 CFR part 70 or 71. A copy of your fugitive dust control plan must be sent to the approved authority under 40 CFR part 70 or 71 on or before the compliance date for your primary copper smelter, as specified in § 63.1443 or paragraph (b) of this section.

(e) For any element of the fugitive dust control plan that requires new construction at the facility, the owner or operator shall complete such construction, in accordance with the specifications and schedule set forth in the approved fugitive dust control plan.

(f) The fugitive dust control plan must be reviewed, updated (if necessary), and then submitted to the approved permitting authority under 40 CFR part 70 or 71 with each application for the title V operating permit renewal and with each permit application for the construction or modification of lead-bearing fugitive dust generating sources. On or after November 12, 2024, the owner or operator must submit a copy fugitive dust plan in PDF format to the EPA via Compliance and Emissions Data Reporting Interface (CEDRI), which can be accessed through EPA's Central Data Exchange (CDX) (<https://cdx.epa.gov>) following the procedure specified in §§ 63.1455(e) and 63.9(k).

§ 63.1446 What alternative emission limitation may I meet for my combined gas streams?

(a) For situations where you combine gas streams from two or more affected sources for discharge to the atmosphere through a single vent, you may choose to meet the requirements in paragraph (b) of this section as an alternative to complying with the individual filterable particulate matter emission limits specified in § 63.1444 that apply to you. This alternative emission limit for a combined gas stream may be used for any combination of the affected source

gas streams specified in paragraphs (a)(1) through (6) of this section.

(1) Gas stream discharged from a copper concentrate dryer vent that would otherwise be subject to § 63.1444(a)(1) or (2);

(2) Gas stream discharged from a smelting vessel capture system that would otherwise be subject to § 63.1444(b)(2)(ii);

(3) Process off-gas stream discharged from a slag cleaning vessel that would otherwise be subject to § 63.1444(c)(2);

(4) Gas stream discharged from a slag cleaning vessel capture system that would otherwise be subject to § 63.1444(c)(3)(ii);

(5) Gas stream discharged from an existing batch copper converter secondary capture system that would otherwise be subject to § 63.1444(d)(6); and

(6) Gas stream discharged from anode refining departments that would otherwise be subject to § 63.1444(f)(2).

(b) You must meet the requirements specified in paragraphs (b)(1) and (2) of this section for the combined gas stream discharged through a single vent.

(1) For each combined gas stream discharged through a single vent, you must not cause to be discharged to the atmosphere any gases that contain filterable particulate matter in excess of the emission limit calculated using the procedure in paragraph (b)(2) of this section and measured using the test methods specified in § 63.1450(a).

(2) You must calculate the alternative filterable particulate matter emission limit for your combined gas stream using equation 1 to this paragraph (b)(2). The volumetric flow rate value for each of the individual affected source gas streams that you use for equation 1 (i.e., the flow rate of the gas stream discharged from the affected source but before this gas stream is combined with the other gas streams) is to be the average of the volumetric flow rates measured using the test method specified in § 63.1450(a)(1)(ii):

Equation 1 to Paragraph (b)(2)

$$E_{Alt} = \frac{E_d Q_d + E_{sv} Q_{sv} + E_{scvp} Q_{scvp} + E_{scvf} Q_{scvf} + E_{cc} Q_{cc} + E_{ard} Q_{ard}}{Q_d + Q_{sv} + Q_{scvp} + Q_{scvf} + Q_{cc} + Q_{ard}}$$

Where:

E_{Alt} = Alternative filterable particulate matter emission limit for the combined gas stream discharged to atmosphere through a single vent (mg/dscm);

E_d = Filterable particulate matter emission limit applicable to copper concentrate dryer as specified in § 63.1444(a)(1) or (2) (mg/dscm);

Q_d = Copper concentrate dryer exhaust gas stream volumetric flow rate before being combined with other gas streams (dscm/hr);

E_{sv} = Filterable particulate matter emission limit for smelting vessel capture system as specified in § 63.1444(b)(2)(ii) (mg/dscm);

Q_{sv} = Smelting vessel capture system exhaust gas stream volumetric flow rate before being combined with other gas streams (dscm/hr);

E_{scvp} = Filterable particulate matter emission limit for slag cleaning vessel process off-gas as specified in § 63.1444(c)(2) (mg/dscm);

Qscvp = Slag cleaning vessel process off-gas volumetric flow rate before being combined with other gas streams (dscm/hr);

Escvf = Filterable particulate matter emission limit for slag cleaning vessel capture system as specified in § 63.1444(c)(3)(ii) (mg/dscm);

Qscvf = Slag cleaning vessel capture system exhaust gas stream volumetric flow rate before being combined with other gas streams (dscm/hr);

Ecc = Filterable particulate matter emission limit for the existing batch copper converter secondary capture system as specified in § 63.1444(d)(6) (mg/dscm);

Qcc = Batch copper converter capture system exhaust gas stream volumetric flow rate before being combined with other gas streams (dscm/hr);

E_{ard} = Filterable particulate matter emission limit for the anode refining department as specified in § 63.1444(f)(2); and

Q_{ard} = Anode refining department exhaust gas stream volumetric flow rate before being combined with other gas streams (dscm/hr).

(c) For each baghouse applied to meet any filterable particulate matter emission limit in paragraph (b) of this section, you must operate the baghouse such that the bag leak detection system does not alarm for more than 5 percent of the total operating time in any semiannual reporting period.

(d) For each venturi wet scrubber applied to meet any filterable particulate matter emission limit in paragraph (b) of this section, you must maintain the hourly average pressure drop and scrubber water flow rate at or above the minimum levels established during the initial or subsequent performance test in accordance with § 63.1450(a)(4).

(e) For each control device other than a baghouse or venturi wet scrubber applied to meet any filterable particulate matter emission limit in paragraph (b) of this section, you must operate the control device as specified in paragraphs (e)(1) and (2) of this section.

(1) You must select one or more operating parameters, as appropriate for the control device design, that can be used as representative and reliable indicators of the control device operation.

(2) You must maintain the hourly average value for each of the selected parameters at or above the minimum level or at or below the maximum level, as appropriate for the selected parameter, established during the initial or subsequent performance test in accordance with § 63.1450(a)(5).

§ 63.1447 What are my operation and maintenance requirements?

(a) Before November 12, 2024, as required by § 63.6(e)(1)(i), you must

always operate and maintain your affected source, including air pollution control and monitoring equipment, in a manner consistent with good air pollution control practices for minimizing emissions at least to the levels required by this subpart. On or after November 12, 2024, at all times, you must maintain and operate any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. The general duty to minimize emissions does not require the owner or operator to make any further efforts to reduce emissions if levels required by the applicable standard have been achieved.

Determination of whether a source is operating in compliance with operation and maintenance requirements will be based on information available to the Administrator which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source.

(b) You must prepare and operate at all times according to a written operation and maintenance plan for each capture system and control device subject to standards in § 63.1444 or § 63.1446. The plan must address the requirements in paragraphs (b)(1) through (4) of this section as applicable to the capture system or control device.

(1) *Preventative maintenance.* You must perform preventative maintenance for each capture system and control device according to written procedures specified in your operation and maintenance plan. The procedures must include a preventative maintenance schedule that is consistent with the manufacturer's instructions for routine and long-term maintenance.

(2) *Capture system inspections.* You must conduct monthly inspections of the equipment components of the capture system that can affect the performance of the system to collect the gases and fumes emitted from the affected source (e.g., hoods, exposed ductwork, dampers, fans) according to written procedures specified in your operation and maintenance plan. The inspection procedure must include the requirements in paragraphs (b)(2)(i) through (iii) of this section as applicable to the capture system or control device.

(i) Observations of the physical appearance of the equipment to confirm the physical integrity of the equipment (e.g., verify by visual inspection no holes in ductwork or hoods, no flow

constrictions caused by dents, or accumulated dust in ductwork).

(ii) Inspection, and if necessary testing, of equipment components to confirm that the component is operating as intended (e.g., verify by appropriate measures that flow or pressure sensors, damper plates, automated damper switches and motors are operating according to manufacture or engineering design specifications).

(iii) In the event that a defective or damaged component is detected during an inspection, you must initiate corrective action according to written procedures specified in your operation and maintenance plan to correct the defect or deficiency as soon as practicable.

(3) *Copper converter department capture system operating limits.* You must establish, according to the requirements in paragraph (b)(3)(i) through (iii) of this section, operating limits for the capture system that are representative and reliable indicators of the performance of capture system when it is used to collect the process off-gas vented from batch copper converters during blowing.

(i) Select operating limit parameters appropriate for the capture system design that are representative and reliable indicators of the performance of the capture system when it is used to collect the process off-gas vented from batch copper converters during blowing. At a minimum, you must use appropriate operating limit parameters that indicate the level of the ventilation draft and the damper position settings for the capture system when operating to collect the process off-gas from the batch copper converters during blowing. Appropriate operating limit parameters for ventilation draft include, but are not limited to, volumetric flow rate through each separately ducted hood, total volumetric flow rate at the inlet to control device to which the capture system is vented, fan motor amperage, or static pressure. Any parameter for damper position setting may be used that indicates the duct damper position relative to the fully open setting.

(ii) For each operating limit parameter selected in paragraph (b)(3)(i) of this section, designate the value or setting for the parameter at which the capture system operates during batch copper converter blowing. If your blister copper production operations allow for more than one batch copper converter to be operating simultaneously in the blowing mode, designate the value or setting for the parameter at which the capture system operates during each possible batch copper converter blowing configuration that you may operate at

your smelter (*i.e.*, the operating limits with one converter blowing, with two converters blowing, with three converters blowing, as applicable to your smelter).

(iii) Include documentation in the plan to support your selection of the operating limits established for the capture system. This documentation must include a description of the capture system design, a description of the capture system operation during blister copper production, a description of each selected operating limit parameter, a rationale for why you chose the parameter, a description of the method used to monitor the parameter according to the requirements in § 63.1452(a), and the data used to set the value or setting for the parameter for each of your batch copper converter configurations.

(4) *Baghouse leak detection corrective actions.* In the event a bag leak detection system alarm is triggered, you must initiate corrective action according to written procedures specified in your operation and maintenance plan to determine the cause of the alarm within 1 hour of the alarm, initiate corrective action to correct the cause of the problem within 24 hours of the alarm, and complete the corrective action as soon as practicable. Corrective actions may include, but are not limited to, the activities listed in paragraphs (b)(3)(i) through (vi) of this section.

(i) Inspecting the baghouse for air leaks, torn or broken bags or filter media, or any other condition that may cause an increase in emissions.

(ii) Sealing off defective bags or filter media.

(iii) Replacing defective bags or filter media or otherwise repairing the control device.

(iv) Sealing off a defective baghouse compartment.

(v) Cleaning the bag leak detection system probe, or otherwise repair the bag leak detection system.

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

§ 63.1448 What are my general requirements for complying with this subpart?

(a) Before November 12, 2024, you must be in compliance with the emission limitations, work practice standards, and operation and maintenance requirements in this subpart at all times, except during periods of startup, shutdown, and malfunction as defined in § 63.2. On or after November 12, 2024, you must be in compliance with the emission limitations, work practice standards, design standards, and operation and

maintenance requirements in this subpart at all times.

(b) During the period between the compliance date specified for your affected source in § 63.1443, and the date upon which continuous monitoring systems have been installed and certified and any applicable operating limits have been set, you must maintain a log detailing the operation and maintenance of the process and emissions control equipment.

(c) Before November 12, 2024, you must develop a written startup, shutdown, and malfunction plan according to the provisions in § 63.6(e)(3). For affected sources, a startup, shutdown, and malfunction plan is not required on or after November 12, 2024.

§ 63.1449 By what dates must I conduct performance tests or other initial compliance demonstrations?

(a) As required in § 63.7(a)(2), you must conduct a performance test within 180 calendar days of the compliance date that is specified in § 63.1443 for your affected source to demonstrate initial compliance with each emission and opacity limit in §§ 63.1444 and 63.1446 that applies to you.

(b) For each work practice standard and operation and maintenance requirement that applies to you where initial compliance is not demonstrated using a performance test or opacity observation, you must demonstrate initial compliance within 30 calendar days after the compliance date that is specified for your affected source in § 63.1443.

§ 63.1450 What test methods and other procedures must I use to demonstrate initial compliance with the emission limitations and design standards?

(a) *Filterable particulate matter emission limits.* Before November 12, 2024, you must conduct each performance test to determine compliance with the filterable particulate matter emission limits in § 63.1444 or § 63.1446 that apply to you according to the requirements for representative test conditions specified in § 63.7(e)(1) and using the test methods and procedures in paragraphs (a)(1) through (5) of this section. On or after November 12, 2024, you must conduct each performance test to determine compliance with the filterable particulate matter emission limits in § 63.1444 or § 63.1446 that apply to you according to the requirements for representative test conditions specified in paragraph (a)(6) of this section and using the test methods and procedures in paragraphs (a)(1) through (5) of this section.

(1) Determine the concentration of filterable particulate matter according to the test methods in appendices A–1 through A–8 to 40 CFR part 60 as specified in paragraphs (a)(1)(i) through (v) of this section.

(i) Method 1 to select sampling port locations and the number of traverse points. Sampling ports must be located at the outlet of the control device and prior to any releases to the atmosphere.

(ii) Method 2, 2F, or 2G to determine the volumetric flow rate of the stack gas.

(iii) Method 3, 3A, or 3B to determine the dry molecular weight of the stack gas. The ANSI/ASME PTC 19–10–1981 Part 10 (incorporated by reference, see § 63.14) is an acceptable alternative to EPA Method 3B manual portion only but not the instrumental portion.

(iv) Method 4 to determine the moisture content of the stack gas.

(v) Method 5, 5D, or 17, as applicable, to determine the concentration of filterable particulate matter.

(2) As an alternative to using the applicable method specified in paragraph (a)(1)(v) of this section, you may determine filterable particulate matter emissions from the control device using Method 29 in appendix A–8 to 40 CFR part 60 provided that you follow the procedures and precautions prescribed in Method 29. If the control device is a positive pressure baghouse, you must also follow the measurement procedure specified in sections 8.1 through 8.3 of Method 5D in appendix A–3 to 40 CFR part 60.

(3) You must conduct three separate test runs for each performance test. Each test run must have a minimum sampling time of 60 minutes and a minimum sampling volume of 0.85 dscm. For the purpose of determining compliance with the applicable filterable particulate matter emission limit, the arithmetic mean of the results for the three separate test runs is used.

(4) For a venturi wet scrubber applied to emissions from an affected source and subject to emission limits and work practice standards in § 63.1444(j) or § 63.1446(d) for pressure drop and scrubber water flow rate, you must establish site-specific operating limits according to the procedures in paragraphs (a)(4)(i) and (ii) of this section.

(i) Using the continuous parameter monitoring system (CPMS) required in § 63.1452, measure and record the pressure drop and scrubber water flow rate during each run of the particulate matter performance test.

(ii) Compute and record the hourly average pressure drop and scrubber water flow rate for each individual test run. Your operating limits are the lowest

average pressure drop and scrubber water flow rate value in any of the three runs that meet the applicable emission limit.

(5) For a control device other than a baghouse or venturi wet scrubber applied to emissions from an affected source and subject to work practice standards and emission limit(s) in § 63.1444(k) or § 63.1446(e) for appropriate, site-specific operating parameters that are representative and reliable indicators of the control device performance, you must establish a site-specific operating limit(s) according to the procedures in paragraphs (a)(5)(i) through (iv) of this section.

(i) Select one or more operating parameters, as appropriate for the control device design, that can be used as representative and reliable indicators of the control device operation.

(ii) Using the CPMS required in § 63.1452, measure and record the selected operating parameters for the control device during each run of the filterable particulate matter performance test.

(iii) Compute and record the hourly average value for each of the selected operating parameters for each individual test run. Your operating limits are the lowest value or the highest value, as appropriate for the selected operating parameter, measured in any of the three runs that meet the applicable emission limit.

(iv) You must prepare written documentation to support your selection of the operating parameters used for the control device. This documentation must include a description of each selected parameter, a rationale for why you chose the parameter, a description of the method used to monitor the parameter, and the data recorded during the performance test and used to set the operating limit(s).

(6) You must conduct each performance test that applies to your affected source under normal operating conditions of the affected source. The owner or operator may not conduct performance tests during periods of malfunction. The use of the bypass stack during a performance test of the process shall invalidate the performance test. The owner or operator must record the process information that is necessary to document operating conditions during the test and include in such record an explanation to support that such conditions represent the entire range of normal operation, including operational conditions for maximum emissions if such emissions are not expected during maximum production. The owner or operator shall make available to the

Administrator such records as may be necessary to determine the conditions of performance tests.

(b) *Nonsulfuric acid particulate matter emission limits.* Before November 12, 2024, you must conduct each performance test to determine compliance with the nonsulfuric acid particulate matter emission limits in § 63.1444 that apply to you according to the requirements for representative test conditions specified in § 63.7(e)(1) and using the test methods and procedures in paragraphs (b)(1) and (2) of this section. On or after November 12, 2024, you must conduct each performance test to determine compliance with the nonsulfuric acid particulate matter emission limits in § 63.1444 that apply to you according to the requirements for representative test conditions specified in paragraph (b)(4) of this section and using the test methods and procedures in paragraphs (b)(1) through (3) of this section.

(1) Determine the concentration of nonsulfuric acid particulate matter according to the test methods in appendices A–1 through A–8 to 40 CFR part 60 as specified in paragraphs (b)(1)(i) through (v) of this section.

(i) Method 1 to select sampling port locations and the number of traverse points. Sampling ports must be located at the outlet of the control device and prior to any releases to the atmosphere.

(ii) Method 2, 2F, or 2G to determine the volumetric flow rate of the stack gas.

(iii) Method 3, 3A, or 3B to determine the dry molecular weight of the stack gas. The ANSI/ASME PTC 19–10–1981 Part 10 (incorporated by reference, see § 63.14) is an acceptable alternative to EPA Method 3B manual portion only but not the instrumental portion.

(iv) Method 4 to determine the moisture content of the stack gas.

(v) Method 5B to determine the nonsulfuric acid particulate matter emissions.

(2) You must conduct three separate test runs for each performance test. Each test run must have a minimum sampling time of 240 minutes and a minimum sampling volume of 3.4 dscm. For the purpose of determining compliance with the nonsulfuric acid particulate matter emission limit, the arithmetic mean of the results for the three separate test runs is used.

(3) For a control device applied to emissions from an affected source and subject to work practice standards and emission limit(s) in § 63.1444(i), (j), or (k) or § 63.1446(e) for appropriate, site-specific operating parameters that are representative and reliable indicators of the control device performance, you must establish a site-specific operating

limit(s) according to the procedures in paragraphs (a)(5)(i) through (iv) of this section.

(4) You must conduct each performance test that applies to your affected source under normal operating conditions of the affected source. The owner or operator may not conduct performance tests during periods of malfunction. The use of the bypass stack during a performance test of the process shall invalidate the performance test. The owner or operator must record the process information that is necessary to document operating conditions during the test and include in such record an explanation to support that such conditions represent the entire range of normal operation, including operational conditions for maximum emissions if such emissions are not expected during maximum production. The owner or operator shall make available to the Administrator such records as may be necessary to determine the conditions of performance tests.

(c) *Copper converter department capture system opacity limit.* You must conduct each performance test to determine compliance with the opacity limit in § 63.1444 using the test methods and procedures in paragraphs (c)(1) through (9) of this section and during the particulate matter performance test.

(1) You must conduct the performance test during the period when the primary copper smelter is operating under conditions representative of the smelter's normal blister copper production rate. You may not conduct a performance test during a malfunction. Before conducting the performance test, you must prepare a written test plan specifying the copper production conditions to be maintained throughout the opacity observation period and including a copy of the written documentation you have prepared according to paragraph (a)(3) of this section to support the established operating limits for the copper converter department capture system. You must submit a copy of the test plan for review and approval by the Administrator or delegated authority. During the observation period, you must collect appropriate process information and copper converter department capture system operating information to prepare documentation sufficient to verify that all opacity observations were made during the copper production and capture system operating conditions specified in the approved test plan.

(2) You must notify the Administrator or delegated authority before conducting the opacity observations to allow the Administrator or delegated authority the opportunity to have authorized

representatives attend the test. Written notification of the location and scheduled date for conducting the opacity observations must be received by the Administrator on or before 30 calendar days before this scheduled date.

(3) You must gather the data needed for determining compliance with the opacity limit using qualified visible emission observers and process monitors as described in paragraphs (c)(3)(i) and (ii) of this section.

(i) Opacity observations must be performed by a sufficient number of qualified visible emission observers to obtain two complete concurrent sets of opacity readings for the required observation period. Each visible emission observer must be certified as a qualified observer by the procedure specified in section 3 of Method 9 in appendix A-4 to 40 CFR part 60. The entire set of readings during the required observation period does not need to be made by the same two observers. More than two observers may be used to allow for substitutions and provide for observer rest breaks. The owner or operator must obtain proof of current visible emission reading certification for each observer. ASTM D7520-16 (incorporated by reference, see § 63.14) is an acceptable alternative to EPA Method 9 with the specified conditions in paragraphs (c)(3)(i)(A) through (E) of this section.

(A) During the digital camera opacity technique (DCOT) certification procedure outlined in section 9.2 of ASTM D7520-16, you 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).

(B) You 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.

(C) You must follow the record keeping procedures outlined in § 63.10(b)(1) for the DCOT certification, compliance report, data sheets, and all raw unaltered JPEGs used for opacity and certification determination.

(D) You or the DCOT vendor must have a minimum of four (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% opacity of anyone reading and the average error must not exceed 7.5% opacity.

(E) 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 and/or training of the DCOT camera, software and operator in accordance with ASTM D7520-16 and this letter is on the facility, DCOT operator, and DCOT vendor.

(ii) A person (or persons) familiar with the copper production operations conducted at the smelter must serve as the indoor process monitor. The indoor process monitor is stationed at a location inside the building housing the batch copper converters such that he or she can visually observe and record operations that occur in the batch copper converter aisle during the times that the visible emission observers are making opacity readings. More than one indoor process monitor may be used to allow for substitutions and provide for rest breaks.

(4) You must make all opacity observations using Method 9 in appendix A-4 to 40 CFR part 60 and following the procedures described in paragraphs (c)(4)(i) and (ii) of this section. ASTM D7520-16 (incorporated by reference, see § 63.14) is an acceptable alternative to EPA Method 9 with the specified conditions in paragraphs (c)(3)(i)(A) through (E) of this section.

(i) Each visible emission observer must make his or her readings at a position from the outside of the building that houses the copper converter department such that the observer's line-of-sight is approximately perpendicular to the longer axis of the converter building, and the observer has an unobstructed view of the building roof monitor sections or roof exhaust fan outlets that are positioned over each of the batch copper converters inside the building. Opacity readings can only be made during those times when the observer's position meets the sun orientation and other conditions specified in section 2.1 of Method 9 in appendix A-4 to 40 CFR part 60.

(ii) At 15-second intervals, each visible emission observer views the building roof monitor sections or roof exhaust fan outlets that are positioned over each of the batch copper converters inside the building and reads the opacity of the visible plumes. If no plume is visible, the observer records zero as the opacity value for the 15-second interval. In situations when it is possible for an observer to distinguish two or more visible emission plumes from the building roof monitor sections or roof exhaust fan outlets, the observer must identify, to the extent feasible, the plume having the highest opacity and

record his or her opacity reading for that plume as the opacity value for the 15-second interval.

(5) You must make opacity observations for a period of sufficient duration to obtain a minimum of 120 1-minute intervals during which at least one copper converter is blowing and no interferences have occurred from other copper production events, as specified in paragraph (c)(7) of this section, which generate visible emissions inside the building that potentially can interfere with the visible emissions from the converter capture systems as seen by the outside observers. To obtain the required number of 1-minute intervals, the observation period may be divided into two or more segments performed on the same day or on different days if conditions prevent the required number of opacity readings from being obtained during one continuous time period. Examples of these conditions include, but are not limited to, changes in the sun's orientation relative to visible emission observers' positions such that the conditions in Method 9 in appendix A-4 to 40 CFR part 60 are no longer met or an unexpected thunderstorm. If the total observation period is divided into two or more segments, all opacity observations must be made during the same set of copper production conditions described in your approved test plan as required by paragraph (c)(1) of this section.

(6) You must gather indoor process information during all times that the visible emission observers are making opacity readings outside the building housing the copper converter department. The indoor process monitor must continually observe the operations occurring in the copper converter department and prepare a written record of his or her observations using the procedure specified in paragraphs (c)(6)(i) through (iv) of this section.

(i) At the beginning of each observation period or segment, the clock time setting on the watch or clock to be used by the indoor process monitor must be synchronized with the clock time settings for the timepieces to be used by the outdoor opacity observers.

(ii) During each period or segment when opacity readings are being made by the visible emission observers, the indoor process monitor must continuously observe the operations occurring in the copper converter department and record his or her observations in a log book, on data sheets, or other type of permanent written format.

(iii) When a batch copper converter is blowing, a record must be prepared for the converter that includes, but is not

limited to, the clock times for when blowing begins and when blowing ends and the converter blowing rate. This information may be recorded by the indoor process monitor or by a separate, automated computer data system.

(iv) The process monitor must record each event other than converter blowing that occurs in or nearby the converter aisle that he or she observes to generate visible emissions inside the building. The recorded entry for each event must include, but is not limited to, a description of the event and the clock times when the event begins and when the event ends.

(7) You must prepare a summary of the data for the entire observation period using the information recorded during the observation period by the outdoor visible emission observers and the indoor process monitor and the procedure specified in paragraphs (c)(7)(i) through (iv) of this section.

(i) Using the field data sheets, identify the 1-minute clock times for which a total of eight opacity readings were made and recorded by both observers at 15-second intervals according to the test procedures (i.e., a total of four opacity values have been recorded for the 1-minute interval by each of the two observers). Calculate the average of the eight 15-second interval readings recorded on the field data sheets by the two observers during the clock time minute interval (add the four consecutive 15-second interval opacity readings made by Observer A during the specified clock time minute, plus the four consecutive 15-second interval opacity readings made by Observer B during the same clock time minute, and divide the resulting total by eight). Record the clock time and the opacity

average for the 1-minute interval on a data summary sheet. Figure 1 to this subpart shows an example of the format for the data summary sheet you may use, but are not required to use.

(ii) Using the data summary sheets prepared according to paragraph (c)(7)(i) of this section and the process information recorded according to paragraph (c)(6)(iii) of this section, identify those 1-minute intervals for which at least one of the batch copper converters was blowing.

(iii) Using the data summary sheets prepared according to paragraph (c)(7)(ii) of this section and the process information recorded according to paragraph (c)(6)(iv) of this section, identify the 1-minute intervals during which at least one copper converter was blowing but none of the interference events listed in paragraphs (c)(7)(iii)(A) through (F) of this section occurred. Other ancillary activities not listed but conducted in or adjacent to the converter aisle during the opacity observations are not considered to be interference events (e.g., converter aisle cleaning, placement of smoking ladles or skulls on the converter aisle floor).

(A) Charging of copper matte, reverts, or other materials to a batch copper converter;

(B) Skimming slag or other molten materials from a batch copper converter;

(C) Pouring of blister copper or other molten materials from a batch copper converter;

(D) Return of slag or other molten materials to the flash smelting vessel or slag cleaning vessel;

(E) Roll-out or roll-in of the batch copper converter; or

(F) Smoke and fumes generated inside the converter building by operation of

the smelting vessel, the slag cleaning vessel (if used), anode refining and casting processes that drift into the copper converter department.

(iv) Using the data summary sheets prepared according to paragraph (c)(7)(iii) of this section, up to five 1-minute intervals following an interference event may be eliminated from data used for the compliance determination calculation specified in paragraph (c)(8) of this section by applying a time delay factor. The time delay factor must be a constant number of minutes not to exceed 5 minutes that is added to the clock time recorded when cessation of the interference event occurs. The same time delay factor must be used for all interference events (i.e., a constant time delay factor for the smelter of 1 minute, 2 minutes, 3 minutes, 4 minutes, or 5 minutes). The number of minutes to be used for the time delay factor is determined based on the site-specific equipment and converter building configuration. An explanation of the rationale for selecting the value used for the time delay factor must be prepared and included in the test report.

(8) You must use the data summary prepared in paragraph (c)(7) of this section to calculate the average opacity value for a minimum of 120 1-minute intervals during which at least one copper converter was blowing with no interference events as determined according to paragraphs (c)(7)(iii) and (iv) of this section. Average opacity is calculated using equation 1 to this paragraph (c)(8):

Equation 1 to paragraph (c)(8)

$$VE_{ave} = \frac{1}{n} \sum_{i=1}^n VE_i$$

Where:

VE_{ave} = Average opacity to be used for compliance determination (percent);

n = Total number of 1-minute intervals during which at least one copper converter was blowing with no interference events as determined according to paragraphs (c)(7)(iii) and (iv) of this section (at least 120 1-minute intervals);

i = 1-minute interval "i" during which at least one copper converter was blowing with no interference events as determined according to paragraphs (c)(7)(iii) and (iv) of this section; and

VE_i = Average opacity value calculated for the eight opacity readings recorded during 1-minute interval "i" (percent).

(9) You must certify that the copper converter department capture system operated during the performance test at the operating limits established in your capture system operation and maintenance plan using the procedure specified in paragraphs (c)(9)(i) through (iv) of this section.

(i) Concurrent with all opacity observations, measure and record values for each of the operating limit parameters in your capture system operation and maintenance plan according to the monitoring requirements specified in § 63.1452(a).

(ii) For any dampers that are manually set and remain in the same position at all times the capture system is operating, the damper position must be visually checked and recorded at the beginning and end of each opacity observation period segment.

(iii) Review the recorded monitoring data. Identify and explain any times during batch copper converter blowing when the capture system operated outside the applicable operating limits.

(iv) Certify in your performance test report that during all observation period segments, the copper converter department capture system was

operating at the values or settings established in your capture system operation and maintenance plan.

(d) *Mercury emissions.* You must conduct each performance test to determine compliance with the mercury emission limits in § 63.1444 that apply to you according to the requirements for representative test conditions specified in paragraph (d)(4) of this section and using the test methods and procedures in paragraphs (d)(1) through (3) of this section.

(1) Determine the concentration of mercury according to the test methods in appendices A–1 through A–8 to 40 CFR part 60 as specified in paragraphs (d)(1)(i) through (v) of this section.

(i) Method 1 to select sampling port locations and the number of traverse points. Sampling ports must be located at the outlet of the control device and prior to any releases to the atmosphere.

(ii) Method 2, 2F, or 2G to determine the volumetric flow rate of the stack gas.

(iii) Method 3, 3A, or 3B to determine the dry molecular weight of the stack gas. The ANSI/ASME PTC 19–10–1981 Part 10 (incorporated by reference, see § 63.14) is an acceptable alternative to EPA Method 3B manual portion only but not the instrumental portion.

(iv) Method 4 to determine the moisture content of the stack gas.

(v) Method 29, 30A, or 30B, as applicable, to determine the concentration of mercury. You can also use ASTM D6784–16 (incorporated by reference, see § 63.14) or equivalent.

(2) You must conduct three separate test runs for each performance test. Duration of sampling is at least two hours per run. If performing measurements using Method 29 in appendix A–8 to 40 CFR part 60, you must collect a minimum sample volume of 1.7 dscm (60 dscf). For the purpose of determining compliance with the applicable mercury emission limit, the arithmetic mean of the results for the three separate test runs is used.

(3) For a control device or process operating parameter applied to emissions from an affected source and subject to site-specific operating limit(s) in § 63.1444(n) for appropriate, site-specific operating parameters that are representative and reliable indicators of the control device performance, you must establish a site-specific operating limit(s) according to the procedures in paragraphs (d)(3)(i) through (iv) of this section.

(i) Select one or more operating parameters, as appropriate for the control device design or process parameter (*i.e.*, mercury content of concentrate feed), that can be used as

representative and reliable indicators of the control device or process operation.

(ii) Using the CPMS required in § 63.1452, measure and record the selected operating parameters for the control device during each run of the mercury performance test.

(iii) Compute and record the hourly average value for each of the selected operating parameters for each individual test run. Your operating limits are the lowest value or the highest value, as appropriate for the selected operating parameter, measured in any of the three runs that meet the applicable emission limit.

(iv) You must prepare written documentation to support your selection of the operating parameters used for the control device. This documentation must include a description of each selected parameter, a rationale for why you chose the parameter, a description of the method used to monitor the parameter, and the data recorded during the performance test and used to set the operating limit(s).

(4) You must conduct each performance test that applies to your affected source under normal operating conditions of the affected source. The owner or operator may not conduct performance tests during periods of malfunction. The use of the bypass stack during a performance test of the process shall invalidate the performance test. The owner or operator must record the process information that is necessary to document operating conditions during the test and include in such record an explanation to support that such conditions represent the entire range of normal operation, including operational conditions for maximum emissions if such emissions are not expected during maximum production. The owner or operator shall make available to the Administrator such records as may be necessary to determine the conditions of performance tests.

(e) *Anode refining department, copper converter department, slag cleaning vessels, and smelting vessels process fugitive roofline vent filterable particulate matter emission limit.* You must conduct each performance test to determine compliance with the roofline vent process fugitive filterable particulate matter emission limits in § 63.1444 that apply to you according to the requirements for representative test conditions specified in paragraph (e)(3) of this section and using the test methods and procedures in paragraphs (e)(1) and (2) of this section.

(1) Determine the concentration of anode refining department, copper converter department, slag cleaning

vessels, and smelting vessels process fugitive roofline vent filterable particulate matter according to the test methods in appendices A–1 through A–8 to 40 CFR part 60 as specified in paragraphs (e)(1)(i) through (vi) of this section.

(i) Method 1 to select sampling port locations and the number of traverse points. Sampling ports must be located at the outlet of the control device and prior to any releases to the atmosphere. Use Method 5D, section 8.1.3, Roof Monitor or Monovent, or approved sample locations by EPA Office of Air and Radiation (OAR), OAQPS, Measurement Technology Group or delegated authority.

(ii) Method 2, 2F, or 2G to determine the volumetric flow rate of the stack gas or calibrated anemometer.

(iii) Method 3, 3A, or 3B to determine the dry molecular weight of the stack gas.

The ANSI/ASME PTC 19–10–1981 Part 10 (incorporated by reference, see § 63.14) is an acceptable alternative to EPA Method 3B manual portion only but not the instrumental portion.

(iv) Method 4 to determine the moisture content of the stack gas.

(v) Method 17 to determine in-stack mass volume of the anode refining, converter and smelting process fugitive roof vent filterable particulate matter emissions. Isokinetic calculations are waived due to low flow rates and high variability. Use the filter specified in section 7.2.1 of Method 29. An approved Federal reference method (FRM)/Federal equivalent method (FEM) may be used if it can tolerate the 150 °F temperatures on the roof vents. Tapered element oscillating microbalances (TEOMs) are not appropriate for this sampling. An alternative test method may be requested to EPA OAR, OAQPS, Measurement Technology Group.

(vi) Method 9 to establish opacity as an operating parameter, if appropriate. ASTM D7520–16 (incorporated by reference, see § 63.14) is an acceptable alternative to EPA Method 9 with the specified conditions in paragraphs (c)(3)(i)(A) through (E) of this section.

(2) You must conduct three separate test runs for each performance test. Each test run must have a minimum sampling time of 12 hours. For the purpose of determining compliance with the filterable particulate matter emission limit, the arithmetic mean of the results for the three separate test runs for each roofline vent (*i.e.*, anode refining department, copper converter department, smelting vessels, slag cleaning vessels) is used. The three test run average of the filterable particulate

matter emission rates from each vent should be summed to compare to the emission limit in § 63.1444.

(3) You must conduct each performance test that applies to your affected source under normal operating conditions of the affected source. The owner or operator may not conduct performance tests during periods of malfunction. The use of the bypass stack during a performance test of the process shall invalidate the performance test. The owner or operator must record the process information that is necessary to document operating conditions during the test and include in such record an explanation to support that such conditions represent the entire range of normal operation, including operational conditions for maximum emissions if such emissions are not expected during maximum production. The owner or operator shall make available to the Administrator such records as may be necessary to determine the conditions of performance tests.

(f) *Benzene, toluene, chlorine, hydrogen chloride, polycyclic aromatic hydrocarbons excluding naphthalene, naphthalene, and dioxins/furans emissions.* You must conduct each performance test to determine compliance with the benzene, toluene, chlorine, hydrogen chloride, polycyclic aromatic hydrocarbons excluding naphthalene, naphthalene, and dioxins/furans emission limits in table 2 to this subpart that apply to you according to the requirements for representative test conditions specified in paragraph (f)(8) of this section and using the test methods and procedures in paragraphs (f)(1) through (7) of this section.

(1) Use the test methods in appendices A–1 through A–8 to 40 CFR

part 60 as specified in paragraphs (f)(1)(i) through (iv) of this section to select sampling port locations and the number of traverse points and to determine the volumetric flow rate, dry molecular weight, and moisture content of the stack gas.

(i) Method 1 to select sampling port locations and the number of traverse points. Sampling ports must be located at the outlet of the control device and prior to any releases to the atmosphere.

(ii) Method 2, 2F, or 2G to determine the volumetric flow rate of the stack gas.

(iii) Method 3, 3A, or 3B to determine the dry molecular weight of the stack gas. The ANSI/ASME PTC 19–10–1981 Part 10 (incorporated by reference, see § 63.14) is an acceptable alternative to EPA Method 3B manual portion only but not the instrumental portion.

(iv) Method 4 to determine the moisture content of the stack gas.

(2) Determine the concentration of benzene and toluene for each stack using Method 18 in to appendix A–6 to 40 CFR part 60 to determine the concentration of benzene and toluene; or as an alternative ASTM D6420–99 (Reapproved 2010) (incorporated by reference, see § 63.14), may be used provided that the target compound(s) are those listed in section 1.1 of ASTM D6420–99 (Reapproved 2010) as measurable; the target compounds do not include methane and ethane because their atomic mass is less than 35; and the test results are not a total VOC method. Each test must consist of three separate runs. The duration of sampling must be at least two hours per run.

(3) Determine the concentration of chlorine and hydrogen chloride for each stack using Method 26A in appendix A–

8 to 40 CFR part 60. Each test must consist of three separate runs. The minimum sample volume must be at least 2 dry cubic meters per run. Each run must be conducted for a minimum of 1 hour.

(4) Determine the concentration of polycyclic aromatic hydrocarbons excluding naphthalene, naphthalene, and dioxins/furans for each stack using Method 23 in appendix A–7 to 40 CFR part 60. Each test must consist of three separate runs. The test duration must be at least 3 hours and the must be at least 3 dscm (106 dscf). Method 23 complete list of PAHs and dioxin and furan congeners must be analyzed and reported.

(5) During each stack test run, measure the weight of copper concentrate feed charged to the smelting vessel and calculate the emissions rate in pounds of pollutant per ton of copper concentrate feed charged to the smelting vessel (lb/ton), except for dioxins/furans which should be calculated in nanograms of pollutant Toxicity Equivalent Quotient (TEQ) per megagram of copper concentrate feed charged to the smelting vessel (ng/Mg) for each test run. To calculate the TEQ, multiply each D/F congener emission concentration times the appropriate Toxicity Equivalent Factor (TEF) in table 3 to this subpart. If any measurement result is reported as below the method detection limit, use the method detection limit for that value when calculating the emission rate. Calculate the total emissions rate for each test run by summing the emissions across all stacks, as shown in equation 2 to this paragraph (f)(5).

Equation 2 to Paragraph (f)(5)

$$E_{f,i} = \sum_{s=1}^n \frac{C_s \times Q_s}{P}$$

Where:

$E_{f,i}$ = Emissions rate for test run “i” for all emission stacks at the facility “f”, lb/ton or ng/Mg, as applicable of copper concentrate feed charged to the smelting vessel;

C_s = Emission rate for stack “s” measured during test run “i” on at facility “f”, lb/dscf;

Q_s = Average volumetric flow rate of stack gas measured at stack “s” during test run “i” at facility “f”, dscf/hour;

P = Copper concentrate feed charged to the smelting vessel during the stack test, ton/hour or Mg/hour, as applicable; and
 n = Number of emissions stacks at facility “f”.

(6) Calculate the average emissions rate for each facility using the three test

runs, as shown in equation 3 to this paragraph (f)(6). For the purposes of determining compliance with the applicable emission limits in table 2 to this subpart, the arithmetic mean of the results for the three separate test runs is used as calculated using equation 3.

Equation 3 to paragraph (f)(6)

$$E_f = \frac{E_1 + E_2 + E_3}{3}$$

Where:

E_f = Average emission rate for facility "F", lb/ton or ng/Mg of copper concentrate feed charged to the smelting vessel, as applicable.

E_1 = Emissions rate for run 1 for facility "F", lb/ton or ng/Mg of copper concentrate feed charged to the smelting vessel, as applicable.

E_2 = Emissions rate for run 2 for facility "F", lb/ton or ng/Mg of copper concentrate feed charged to the smelting vessel, as applicable.

E_3 = Emissions rate for run 3 for facility "F", lb/ton or ng/Mg of copper concentrate feed charged to the smelting vessel, as applicable.

* * * * *

(7) For a control device applied to emissions from an affected source and subject to work practice standards and emission limit(s) in § 63.1444(o) for appropriate, site-specific operating parameters that are representative and reliable indicators of the control device performance, you must establish a site-specific operating limit(s) according to the procedures in paragraphs (f)(7)(i) through (iv) of this section.

(i) Select one or more operating parameters, as appropriate for the control device design, that can be used as representative and reliable indicators of the control device operation.

(ii) Using the CPMS required in § 63.1452, measure and record the selected operating parameters for the control device during each run of the benzene, toluene, chlorine, hydrogen chloride, polycyclic aromatic hydrocarbons excluding naphthalene, naphthalene and dioxins/furans performance test.

(iii) Compute and record the hourly average value for each of the selected operating parameters for each individual test run. Your operating limits are the lowest value or the highest value, as appropriate for the selected operating parameter, measured in any of the three runs that meet the applicable emission limit.

(iv) You must prepare written documentation to support your selection of the operating parameters used for the control device. This documentation must include a description of each selected parameter, a rationale for why you chose the parameter, a description of the method used to monitor the parameter, and the data recorded during the performance test and used to set the operating limit(s).

(8) You must conduct each performance test that applies to your affected source under normal operating conditions of the affected source. You may not conduct a performance test during a malfunction. The use of the

bypass stack during a performance test of the process shall invalidate the performance test. The owner or operator must record the process information that is necessary to document operating conditions during the test and include in such record an explanation to support that such conditions represent the entire range of normal operation, including operational conditions for maximum emissions if such emissions are not expected during maximum production. The owner or operator shall make available to the Administrator such records as may be necessary to determine the conditions of performance tests.

(g) *Peirce-Smith converter department, Inco flash furnace, and anode refining department process fugitive roofline vent lead.* For facilities using a combination of Peirce-Smith converter department, Inco flash furnace, and anode refining department, you must conduct each performance test to determine compliance with the roofline vent process fugitive lead emission limits in § 63.1444(p)(1) that apply to you according to the requirements for representative test conditions specified in paragraph (g)(3) of this section and using the test methods and procedures in paragraphs (g)(1) and (2) of this section. You must also comply with establishing operating parameters in paragraphs (g)(4) through (7) of this section.

(1) Determine the concentration of Peirce-Smith converter department, Inco flash furnace, and anode refining department process fugitive roofline vent lead according to the test methods in appendices A–1 through A–8 to 40 CFR part 60 as specified in paragraphs (g)(1)(i) through (vii) of this section.

(i) Method 1 to select sampling port locations and the number of traverse points. Sampling ports must be located at the outlet of the control device and prior to any releases to the atmosphere. Use Method 5D section 8.1.3 Roof Monitor or Monovent or approved sample locations by MTG or delegated authority.

(ii) Method 2, 2F, or 2G to determine the volumetric flow rate of the stack gas or calibrated anemometer.

(iii) Method 3, 3A, or 3B to determine the dry molecular weight of the stack gas. The ANSI/ASME PTC 19–10–1981 Part 10 (incorporated by reference, see § 63.14) is an acceptable alternative to EPA Method 3B manual portion only but not the instrumental portion.

(iv) Method 4 to determine the moisture content of the stack gas.

(v) Method 17 to determine in-stack mass volume of the anode refining, converter and smelting process fugitive

roof vent lead emissions. Isokinetic calculations are waived due to low flow rates and high variability. Use the filter specified in section 7.2.1 of Method 29. An approved FRM/FEM may be used if it can tolerate the 150 F temperatures on the roof vents. TEOMs are not appropriate for this sampling. An alternative test method may be requested to EPA OAR, OAQPS, Measurement Technology Group.

(vi) Method 29 filter analysis by inductively coupled plasma mass spectrometry (ICP–MS) for lead.

(vii) Method 9 to establish opacity as an operating parameter, if appropriate. ASTM D7520–16 (incorporated by reference, see § 63.14) is an acceptable alternative to EPA Method 9 with the specified conditions in paragraphs (c)(3)(i)(A) through (E) of this section.

(2) You must conduct three separate test runs for each performance test. Each test run must have a minimum sampling time of 12 hours. For the purpose of determining compliance with the lead emission limit, the arithmetic mean of the results for the three separate test runs for each roofline vent (*i.e.*, anode refining department, copper converter department, smelting vessels, slag cleaning vessels) is used. The three test run average of the lead emission rates from each vent should be summed to compare to the emission limit in § 63.1444.

(3) You must conduct each performance test that applies to your affected source under normal operating conditions of the affected source. The owner or operator may not conduct performance tests during periods of malfunction. The use of the bypass stack during a performance test of the process shall invalidate the performance test. The owner or operator must record the process information that is necessary to document operating conditions during the test and include in such record an explanation to support that such conditions represent the entire range of normal operation, including operational conditions for maximum emissions if such emissions are not expected during maximum production. The owner or operator shall make available to the Administrator such records as may be necessary to determine the conditions of performance tests.

(4) Establish a site-specific operating limit for a parameter, like opacity, based on values measured during the performance test.

(5) For your flash furnace capture system you must establish site specific operating parameters as specified in § 63.1444(p)(2)(i).

(6) For your fuming ladle capture system, you must establish site specific

operating parameters as specified in § 63.1444(p)(2)(ii).

(7) For your anode furnace secondary capture and control system, you must establish site specific operating parameters as specified in § 63.1444(p)(2)(iii).

§ 63.1451 How do I demonstrate initial compliance with the emission limitations, work practice standards, design standards, and operation and maintenance requirements that apply to me?

(a) *Filterable particulate matter emission limits.* For each copper concentrate dryer, smelting vessel, slag cleaning vessel, copper converter department, anode refining department, and combination of anode refining department and Hoboken converter process fugitive capture system subject to a filterable particulate matter emission limit in § 63.1444 or § 63.1446, you have demonstrated initial compliance if you meet both of the conditions in paragraphs (a)(1) and (2) of this section.

(1) The average concentration of filterable particulate matter from the affected source, any capture system, or control device applied to emissions from the affected source, measured according to the performance test procedures in § 63.1450(a), did not exceed the applicable emission limit, and establishes operating parameter.

(2) You have submitted a notification of compliance status according to the requirements in § 63.1454(e) and performance test results according to the requirements in § 63.1455(e).

(b) *Nonsulfuric acid particulate matter emissions limits.* For each smelting vessel, slag cleaning vessel, and copper converter departments subject to the nonsulfuric acid particulate matter emissions limit in § 63.1444 as applies to you, you have demonstrated initial compliance if you meet both of the conditions in paragraphs (b)(1) and (2) of this section.

(1) The average concentration of nonsulfuric acid particulate matter in the process off-gas discharged from the affected source, measured according to the performance test procedures in § 63.1450(b), did not exceed 6.2 mg/dscm.

(2) You have submitted a notification of compliance status according to the requirements in § 63.1454(e) and performance test results according to the requirements in § 63.1455(e).

(c) *Copper converter department visible emissions.* For each existing copper converter department subject to the opacity limit in § 63.1444, you have demonstrated initial compliance if you meet both of the conditions in paragraphs (c)(1) and (2) of this section.

(1) The opacity of visible emissions exiting the roof monitors or roof exhaust fans on the building housing the copper converter department measured according to the performance test procedures in § 63.1450(c), did not exceed 4 percent opacity.

(2) You have submitted a notification of compliance status according to the requirements in § 63.1454(e).

(d) *Copper converter department capture systems.* You have demonstrated initial compliance of the copper converter department capture system if you meet all of the conditions in paragraphs (d)(1) through (4) of this section.

(1) Prepared the capture system operation and maintenance plan according to the requirements in § 63.1447(b);

(2) Conducted an initial performance test according to the procedures of § 63.1450(c) demonstrating the opacity of any visible emissions exiting the roof monitors or roof exhaust fans on the building housing the copper converter department does not exceed 4 percent opacity;

(3) Included in your notification of compliance status a copy of your written capture system operation and maintenance plan and have certified in your notification of compliance status that you will operate the copper converter department capture system at all times during blowing at the values or settings established for the operating limits in that plan; and

(4) Submitted a notification of compliance status according to the requirements in § 63.1454(e) and performance test results according to the requirements in § 63.1455(e).

(e) *Baghouses.* For each baghouse subject to operating limits in § 63.1444(i) or § 63.1446(c), you have demonstrated initial compliance if you meet all of the conditions in paragraphs (e)(1) through (3) of this section.

(1) You have included in your written operation and maintenance plan required under § 63.1447(b) detailed descriptions of the procedures you use for inspection, maintenance, bag leak detection, and corrective action for the baghouse.

(2) You have certified in your notification of compliance status that you will operate the baghouse according to your written operation and maintenance plan.

(3) You have submitted the notification of compliance status according to the requirements in § 63.1454(e).

(f) *Venturi wet scrubbers.* For each venturi wet scrubber subject to operating limits in § 63.1444(j) or

§ 63.1446(d), you have demonstrated initial compliance if you meet all of the conditions in paragraphs (f)(1) through (3) of this section.

(1) Established site-specific operating limits for pressure drop and scrubber water flow rate and have a record of the pressure drop and scrubber water flow rate measured during the performance test you conduct to demonstrate initial compliance with paragraph (a) or (k) of this section.

(2) Certified in your notification of compliance status that you will operate the venturi wet scrubber within the established operating limits for pressure drop and scrubber water flow rate.

(3) Submitted a notification of compliance status according to the requirements in § 63.1454(e).

(g) *Other control devices.* For each control device other than a baghouse or venturi wet scrubber subject to operating limits in § 63.1444(k) or (n) or § 63.1446(e), you have demonstrated initial compliance if you meet all of the conditions in paragraphs (g)(1) through (4) of this section.

(1) Selected one or more operating parameters, as appropriate for the control device design, that can be used as representative and reliable indicators of the control device operation.

(2) Established site-specific operating limits for each of the selected operating parameters based on values measured during the performance test you conduct to demonstrate initial compliance with paragraph (a) of this section and have prepared written documentation according to the requirements in § 63.1450(a)(5)(iv).

(3) Included in your notification of compliance status a copy of the written documentation you have prepared to demonstrate compliance with paragraph (g)(2) of this section and have certified in your notification of compliance status that you will operate the control device within the established operating limits.

(4) Submitted a notification of compliance status according to the requirements in § 63.1454(e).

(h) *Fugitive dust sources.* For all fugitive dust sources subject to work practice standards in § 63.1445, you have demonstrated initial compliance if you meet all of the conditions in paragraphs (h)(1) through (3) of this section.

(1) Prepared a written fugitive dust control plan according to the requirements in § 63.1445 and it has been approved by the delegated authority.

(2) Certified in your notification of compliance status that you will control emissions from the fugitive dust sources

according to the procedures in the approved plan.

(3) Submitted the notification of compliance status according to the requirements in § 63.1454(e).

(i) *Operation and maintenance requirements.* You have demonstrated initial compliance with the operation and maintenance requirements that apply to you if you meet all of the conditions in paragraphs (i)(1) through (3) of this section.

(1) Prepared an operation and maintenance plan according to the requirements in § 63.1447(b).

(2) Certified in your notification of compliance status that you will operate each capture system and control device according to the procedures in the plan.

(3) Submitted the notification of compliance status according to the requirements in § 63.1454(e).

(j) *Mercury emissions.* For any combination of copper concentrate dryers, smelting vessel, copper converter department, slag cleaning vessel and anode refining department subject to a mercury emission limit in § 63.1444, you have demonstrated initial compliance if you meet the conditions in paragraphs (j)(1) through (3) of this section.

(1) The sum of the mercury emissions (lb/hr) from the affected sources measured according to the performance test procedures in § 63.1450(d), did not exceed the applicable emission limit.

(2) Established a site-specific operating limit for a parameter based on values measured during the performance test you conduct to demonstrate initial compliance with this paragraph (j) and have prepared written documentation according to the requirements in § 63.1450(d)(3)(iv).

(3) You have submitted a notification of compliance status according to the requirements in § 63.1454(e) and performance test results according to the requirements in § 63.1455(e).

(k) *Process fugitive filterable particulate matter from roofline vents.* For emissions from roofline vents associated with the smelting vessels, slag cleaning vessels, copper converter department, and anode refining department subject to a filterable particulate matter emission limit in § 63.1444(h), you have demonstrated initial compliance if you meet the conditions in paragraphs (k)(1) through (3) of this section.

(1) The sum of filterable particulate matter emissions from the combination of roofline vents as measured according to the performance test procedures in § 63.1450(e), did not exceed 6.3 lb/hr.

(2) Established a site-specific operating limit for a parameter, like

opacity, based on values measured during the performance test you conduct to demonstrate initial compliance with this paragraph (k) and have prepared written documentation according to the requirements in § 63.1450(e).

(3) You have submitted a notification of compliance status according to the requirements in § 63.1454(e) and performance test results according to the requirements in § 63.1455(e).

(l) *Benzene, toluene, chlorine, hydrogen chloride, polycyclic aromatic hydrocarbons excluding naphthalene, naphthalene, and dioxins/furans emissions.* For any combination of copper concentrate dryer, smelting vessel, slag cleaning vessel, copper converter department, and anode refining department subject to the benzene, toluene, chlorine, hydrogen chloride, polycyclic aromatic hydrocarbons excluding naphthalene, naphthalene, and dioxins/furans emission limits in table 2 to this subpart, you have demonstrated initial compliance if you meet both of the conditions in paragraphs (l)(1) and (2) to this section.

(1) The emissions of benzene, toluene, chlorine, hydrogen chloride, polycyclic aromatic hydrocarbons excluding naphthalene, naphthalene, and dioxins/furans emissions per mass of copper concentrate feed to the smelting vessel from the affected sources measured according to the performance test procedures in § 63.1450(f), did not exceed the applicable emission limit.

(2) You have submitted a notification of compliance status according to the requirements in § 63.1454(e) and performance test results according to the requirements in § 63.1455(e).

(m) *Process fugitive lead from roofline vents.* For emissions from the combination of roofline vents associated with the Peirce-Smith converter department, Inco flash furnace, and anode refining department subject to a lead emission limit and design standards in § 63.1444(p), you have demonstrated initial compliance if you meet the conditions in paragraphs (m)(1) through (5) of this section.

(1) The sum of lead emissions from the combination of roofline vents as measured according to the performance test procedures in § 63.1450(g), did not exceed 0.326 lb/hr.

(2) You have submitted a notification of compliance status and performance test results according to requirements of §§ 63.1454(e), 63.1455(e)(1), and 63.9(k)

(3) For your flash furnace capture system, you have established timed interlock on the slag return launder.

(4) For your fuming ladle capture system, you have determined flow rate by a calibrated flowmeter or test.

(5) For your anode furnace secondary hood capture and control system, you have determined flow rate by a calibrated flowmeter or test.

§ 63.1452 What are my monitoring requirements?

(a) *Copper converter department capture systems.* For each operating limit established under your capture system operation and maintenance plan, you must install, operate, and maintain an appropriate monitoring device according to the requirements in paragraphs (a)(1) through (6) of this section to measure and record the operating limit value or setting at all times the copper converter department capture system is operating during batch copper converter blowing. Dampers that are manually set and remain in the same position at all times the capture system is operating are exempted from the requirements of this paragraph (a).

(1) Install the monitoring device, associated sensor(s), and recording equipment according to the manufacturers' specifications. Locate the sensor(s) used for monitoring in or as close to a position that provides a representative measurement of the parameter being monitored.

(2) If a flow measurement device is used to monitor the operating limit parameter, you must meet the requirements in paragraphs (a)(2)(i) through (iv) of this section.

(i) Locate the flow sensor and other necessary equipment such as straightening vanes in a position that provides a representative flow.

(ii) Use a flow sensor with a minimum tolerance of 2 percent of the flow rate.

(iii) Reduce swirling flow or abnormal velocity distributions due to upstream and downstream disturbances.

(iv) Conduct a flow sensor calibration check at least semiannually.

(3) If a pressure measurement device is used to monitor the operating limit parameter, you must meet the requirements in paragraphs (a)(3)(i) through (v) of this section.

(i) Locate the pressure sensor(s) in or as close to a position that provides a representative measurement of the pressure.

(ii) Minimize or eliminate pulsating pressure, vibration, and internal and external corrosion.

(iii) Use a gauge with a minimum tolerance of 0.5 inch of water or a transducer with a minimum tolerance of 1 percent of the pressure range.

(iv) Check pressure tap pluggage daily.

(v) Using a manometer, check gauge calibration quarterly and transducer calibration monthly.

(4) Conduct calibration and validation checks any time the sensor exceeds the manufacturer's specifications or you install a new sensor.

(5) At least monthly, inspect all components for integrity, all electrical connections for continuity, and all mechanical connections for leakage.

(6) Record the results of each inspection, calibration, and validation check.

(b) *Baghouses*. For each baghouse subject to the operating limit in § 63.1444(i) or § 63.1446(c) for the bag leak detection system alarm, you must at all times monitor the relative change in particulate matter loadings using a bag leak detection system according to the requirements in paragraph (b)(1) of this section and conduct regular inspections according to the requirements in paragraph (b)(2) of this section.

(1) You must install, operate, and maintain each bag leak detection system according to the requirements in paragraphs (b)(1)(i) through (vii) of this section.

(i) The system must be certified by the manufacturer to be capable of detecting emissions of particulate matter at concentrations of 10 milligrams per actual cubic meter (0.0044 grains per actual cubic foot) or less.

(ii) The system must provide output of relative changes in particulate matter loadings.

(iii) The system must be equipped with an alarm that will sound when an increase in relative particulate loadings is detected over a preset level. The alarm must be located such that it can be heard by the appropriate plant personnel.

(iv) Each system that works based on the triboelectric effect must be installed, operated, and maintained in a manner consistent with the guidance document "Fabric Filter Bag Leak Detection Guidance," EPA-454/R-98-015, September 1997. You may obtain a copy of this guidance document by contacting the National Technical Information Service (NTIS) at 800-553-6847. You may install, operate, and maintain other types of bag leak detection systems in a manner consistent with the manufacturer's written specifications and recommendations.

(v) To make the initial adjustment of the system, establish the baseline output by adjusting the sensitivity (range) and the averaging period of the device. Then, establish the alarm set points and the alarm delay time.

(vi) Following the initial adjustment, do not adjust the sensitivity or range, averaging period, alarm set points, or alarm delay time, except as detailed in your operation and maintenance plan. Do not increase the sensitivity by more than 100 percent or decrease the sensitivity by more than 50 percent over a 365-day period unless a responsible official certifies, in writing, that the baghouse has been inspected and found to be in good operating condition.

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

(2) You must conduct baghouse inspections at their specified frequencies according to the requirements in paragraphs (b)(2)(i) through (viii) of this section.

(i) Monitor the pressure drop across each baghouse cell each day to ensure pressure drop is within the normal operating range identified in the manual.

(ii) Confirm that dust is being removed from hoppers through weekly visual inspections or other means of ensuring the proper functioning of removal mechanisms.

(iii) Check the compressed air supply for pulse-jet baghouses each day.

(iv) Monitor cleaning cycles to ensure proper operation using an appropriate methodology.

(v) Check bag cleaning mechanisms for proper functioning through monthly visual inspection or equivalent means.

(vi) Make monthly visual checks of bag tension on reverse air and shaker-type baghouses to ensure that bags are not kinked (knead or bent) or laying on their sides. You do not have to make this check for shaker-type baghouses using self-tensioning (spring-loaded) devices.

(vii) Confirm the physical integrity of the baghouse through quarterly visual inspections of the baghouse interior for air leaks.

(viii) Inspect fans for wear, material buildup, and corrosion through quarterly visual inspections, vibration detectors, or equivalent means.

(c) *Venturi wet scrubbers*. For each venturi wet scrubber subject to the operating limits for pressure drop and scrubber water flow rate in § 63.1444(j) or § 63.1446(d), you must at all times monitor the hourly average pressure drop and water flow rate using a CPMS. You must install, operate, and maintain each CPMS according to the requirements in paragraphs (c)(1) and (2) of this section.

(1) For the pressure drop CPMS, you must meet the requirements in

paragraphs (c)(1)(i) through (vi) of this section.

(i) Locate the pressure sensor(s) in or as close to a position that provides a representative measurement of the pressure and that minimizes or eliminates pulsating pressure, vibration, and internal and external corrosion.

(ii) Use a gauge with a minimum measurement sensitivity of 0.5 inch of water or a transducer with a minimum measurement sensitivity of 1 percent of the pressure range.

(iii) Check the pressure tap for pluggage daily.

(iv) Using a manometer, check gauge calibration quarterly and transducer calibration monthly.

(v) Conduct calibration checks any time the sensor exceeds the manufacturer's specified maximum operating pressure range, or install a new pressure sensor.

(vi) At least monthly, inspect all components for integrity, all electrical connections for continuity, and all mechanical connections for leakage.

(2) For the scrubber water flow rate CPMS, you must meet the requirements in paragraphs (c)(2)(i) through (iv) of this section.

(i) Locate the flow sensor and other necessary equipment in a position that provides a representative flow and that reduces swirling flow or abnormal velocity distributions due to upstream and downstream disturbances.

(ii) Use a flow sensor with a minimum measurement sensitivity of 2 percent of the flow rate.

(iii) Conduct a flow sensor calibration check at least semiannually according to the manufacturer's instructions.

(iv) At least monthly, inspect all components for integrity, all electrical connections for continuity, and all mechanical connections for leakage.

(d) *Other control devices and operating parameters*. For each control device other than a baghouse or venturi wet scrubber subject to the operating limits for appropriate parameters in § 63.1444(k) or § 63.1446(e), or a control device for mercury subject to § 63.1444(n), you must at all times monitor each of your selected parameters using an appropriate CPMS. You must install, operate, and maintain each CPMS according to the equipment manufacturer's specifications and the requirements in paragraphs (d)(1) through (5) of this section.

(1) Locate the sensor(s) used for monitoring in or as close to a position that provides a representative measurement of the parameter being monitored.

(2) Determine the hourly average of all recorded readings.

(3) Conduct calibration and validation checks any time the sensor exceeds the manufacturer's specifications or you install a new sensor.

(4) At least monthly, inspect all components for integrity, all electrical connections for continuity, and all mechanical connections for leakage.

(5) Record the results of each inspection, calibration, and validation check.

(e) *Continuous monitoring.* Except for monitoring malfunctions, associated repairs, and required quality assurance or control activities (including as applicable, calibration checks and required zero and span adjustments), you must monitor continuously (or collect data at all required intervals) at all times an affected source is operating.

(f) *Data collection for assessing compliance.* You may not use data recorded during monitoring malfunctions, associated repairs, and required quality assurance or control activities in data averages and calculations used to report emission or operating levels or to fulfill a minimum data availability requirement, if applicable. You must use all the data collected during all other periods in assessing compliance.

(g) *Monitoring malfunctions.* A monitoring malfunction is any sudden, infrequent, not reasonably preventable failure of the monitor to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions.

(h) *Bypass stacks.* You must maintain an appropriate monitoring device according to the requirements in paragraph (h)(1) or (2) of this section to demonstrate the work practice standards are limiting the emissions at all times the bypass stack is in use.

(1) If a SO₂ continuous emissions monitoring system (CEMS) is utilized as a continuous monitor during planned maintenance events, a cylinder gas audit (CGA) and daily calibration or a 3-point linearity test must be conducted prior to the performance test according to Procedure 1, section 5.1.2, in appendix F to 40 CFR part 60 to conduct the CGA.

(2) If a particulate matter (PM) detector is CPMS, you must install, operate, and maintain each PM detector according to the equipment manufacturer's specifications and the requirements in paragraphs (h)(2)(i) through (v) of this section.

(i) Locate the detector(s) used for monitoring in or as close to a position that provides a representative measurement of the parameter being monitored.

(ii) Determine the hourly average of all recorded readings.

(iii) Conduct calibration and validation checks any time the detector exceeds the manufacturer's specifications or you install a new detector.

(iv) At least monthly, inspect all components for integrity, all electrical connections for continuity, and all mechanical connections for leakage.

(v) Record the results of each inspection, calibration, and validation check.

§ 63.1453 How do I demonstrate continuous compliance with the emission limitations, work practice standards, design standards, and operation and maintenance requirements that apply to me?

(a) *Filterable particulate matter emission limits.* For each affected source subject to a particulate matter emission limit in § 63.1444 or § 63.1446 as applies to you, you must demonstrate continuous compliance according to the requirements in paragraphs (a)(1) and (2) of this section.

(1) For each copper concentrate dryer, smelting vessel, slag cleaning vessel, copper converter department, anode refining department, and combination of anode refining department and Hoboken converter process fugitive capture system subject to a filterable particulate matter emission limit in § 63.1444 or § 63.1446 as applies to you, you must demonstrate continuous compliance by meeting the conditions in paragraphs (a)(1)(i) through (iii) or paragraphs (a)(1)(i) and (iv) through (vii) of this section.

(i) Maintain the average concentration of filterable particulate matter in the gases discharged from the affected source at or below the applicable emission limit. If a particulate matter continuous emissions monitoring system (PM CEMS) is used, you must demonstrate continued compliance according to the requirements in paragraphs (a)(1)(iv) through (vii) of this section.

(ii) Monitor the operating parameter(s) established during the performance test according to the requirements in §§ 63.1450(a) and 63.1452 and collect, reduce, and record the monitoring data for each of the operating limit parameters according to the applicable requirements of this subpart.

(iii) Conduct subsequent performance tests following your initial performance test no less frequently than once per year according to the performance test procedures in § 63.1450(a). New operating limits may be established during subsequent performance tests as long as the performance tests demonstrate compliance with the emission limits.

(iv) Install, operate, and maintain a PM CEMS to measure and record PM concentrations and gas stream flow rates for the exhaust gases discharged to the atmosphere from each affected source subject to the emissions limit in this paragraph (a)(1). A single PM CEMS may be used for the combined exhaust gas streams from multiple affected sources at a point before the gases are discharged to the atmosphere. For each PM CEMS used to comply with this paragraph (a)(1), you must meet the requirements in this paragraph (a)(1)(iv) and paragraphs (a)(1)(v) through (vii) of this section.

(v) You must install, certify, operate, and maintain the PM CEMS according to EPA Performance Specification 11 in appendix B to 40 CFR part 60, and the quality assurance requirements of Procedure 2 in appendix F to 40 CFR part 60.

(vi) You must conduct an initial performance evaluation of the PM CEMS according to the requirements of Performance Specification 11 in appendix B to 40 CFR part 60. Thereafter, you must perform the performance evaluations as required by Procedure 2 in appendix F to 40 CFR part 60.

(vii) You must perform quarterly accuracy determinations and daily calibration drift tests for the PM CEMS according to Procedure 2 in appendix F to 40 CFR part 60.

(2) For each smelting vessel, slag cleaning vessel, and copper converter department subject to the nonsulfuric acid particulate matter emission limit in § 63.1444 as applies to you, you must demonstrate continuous compliance by meeting the conditions in paragraphs (a)(2)(i) through (iii) of this section.

(i) Maintain the average concentration of nonsulfuric acid particulate matter in the process off-gas discharged from the affected source at or below 6.2 mg/dscm.

(ii) Monitor the operating parameter established during the performance tests according to the requirements in §§ 63.1450(b) and 63.1452 and collect, reduce, and record the monitoring data for each of the operating limit parameters according to the applicable requirements of this subpart.

(iii) Conduct subsequent performance tests following your initial performance test no less frequently than once per year according to the performance test procedures in § 63.1450(b). New operating limits may be established during subsequent performance tests as long as the performance tests demonstrate compliance with the emission limits.

(b) *Copper converter department capture systems.* You must demonstrate continuous compliance of the copper converter department capture system by meeting the requirements in paragraphs (b)(1) through (4) of this section.

(1) Operate the copper converter department capture system at all times during blowing at or above the lowest values or settings established for the operating limits and demonstrated to achieve the opacity limit according to the applicable requirements of this subpart;

(2) Inspect and maintain the copper converter department capture system according to the applicable requirements in § 63.1447 and recording all information needed to document conformance with these requirements;

(3) Monitor the copper converter department capture system according to the requirements in § 63.1452(a) and collecting, reducing, and recording the monitoring data for each of the operating limit parameters according to the applicable requirements of this subpart; and

(4) Conduct subsequent performance tests according to the requirements of § 63.1450(c) following your initial performance test no less frequently than once per year to demonstrate that the opacity of any visible emissions exiting the roof monitors or roof exhaust fans on the building housing the copper converter department does not exceed 4 percent opacity.

(c) *Baghouses.* For each baghouse subject to the operating limit for the bag leak detection system alarm in § 63.1444(i) or § 63.1446(c), you must demonstrate continuous compliance by meeting the requirements in paragraphs (c)(1) through (3) of this section.

(1) Maintain the baghouse such that the bag leak detection system alarm does not sound for more than 5 percent of the operating time during any semiannual reporting period. To determine the percent of time the alarm sounded use the procedures in paragraphs (c)(1)(i) through (v) of this section.

(i) Alarms that occur due solely to a malfunction of the bag leak detection system are not included in the calculation.

(ii) Before November 12, 2024, alarms that occur during startup, shutdown, or malfunction are not included in the calculation if the condition is described in the startup, shutdown, and malfunction plan, and you operated the source during such periods in accordance with § 63.6(e)(1). On or after November 12, 2024, alarms that occur due solely to a malfunction of the bag

leak detection system are not included in the calculation.

(iii) Count 1 hour of alarm time for each alarm when you initiated procedures to determine the cause of the alarm within 1 hour.

(iv) Count the actual amount of time you took to initiate procedures to determine the cause of the alarm if you did not initiate procedures to determine the cause of the alarm within 1 hour of the alarm.

(v) Calculate the percentage of time the alarm on the bag leak detection system sounds as the ratio of the sum of alarm times to the total operating time multiplied by 100.

(2) Maintain records of the times the bag leak detection system alarm sounded, and for each valid alarm, the time you initiated corrective action, the corrective action(s) taken, and the date on which corrective action was completed.

(3) Inspect and maintain each baghouse according to the requirements in § 63.1452(b)(2) and recording all information needed to document conformance with these requirements. If you increase or decrease the sensitivity of the bag leak detection system beyond the limits specified in § 63.1452(b)(1)(vi), you must include a copy of the required written certification by a responsible official in the next semiannual compliance report.

(d) *Venturi wet scrubbers.* For each venturi wet scrubber subject to the operating limits for pressure drop and scrubber water flow rate in § 63.1444(j) or § 63.1446(d), you must demonstrate continuous compliance by meeting the requirements of paragraphs (d)(1) through (3) of this section.

(1) Maintain the hourly average pressure drop and scrubber water flow rate at levels no lower than those established during the initial or subsequent performance test;

(2) Inspect and maintain each venturi wet scrubber CPMS according to § 63.1452(c) and recording all information needed to document conformance with these requirements; and

(3) Collect and reduce monitoring data for pressure drop and scrubber water flow rate according to § 63.1452(e) and recording all information needed to document conformance with these requirements.

(e) *Other control devices.* For each control device other than a baghouse or venturi wet scrubber subject to the operating limits for site-specific operating parameters in § 63.1444(k) or § 63.1446(e), you must demonstrate continuous compliance by meeting the

requirements of paragraphs (e)(1) through (3) of this section:

(1) Maintain the hourly average rate at levels no lower than those established during the initial or subsequent performance test;

(2) Inspect and maintain each CPMS operated according to § 63.1452(d) and record all information needed to document conformance with these requirements; and

(3) Collect and reduce monitoring data for selected parameters according to § 63.1452(e) and recording all information needed to document conformance with these requirements.

(f) *Fugitive dust sources.* For each fugitive dust source subject to work practice standards in § 63.1445, you must demonstrate continuous compliance by implementing all of fugitive control measures specified for the source in your written fugitive dust control plan.

(g) *Mercury emissions.* For each affected source subject to mercury emissions limit in § 63.1444 as applies to you must demonstrate continuous compliance according to the requirements in paragraph (g)(1) or paragraphs (g)(2) and (3) of this section.

(1) Maintain the average concentration of mercury discharged from the facility at or below the emission limit in § 63.1444 monitored by a mercury continuous emissions monitoring system (Hg CEMS). If the Hg CEMS is used, you must demonstrate continuous compliance according to the requirements in paragraphs (g)(1)(i) through (v) of this section.

(i) Install and operate a Hg CEMS in accordance with Performance Specification 12A (PS 12A) of appendix B to 40 CFR part 60.

(ii) Maintain each Hg CEMS according to the quality assurance requirements in Procedure 5 of appendix F to 40 CFR part 60. The relative accuracy testing of Hg CEMS must be conducted at normal operating conditions.

(iii) Use a span value for any Hg CEMS that represents the mercury concentration corresponding to approximately two times the emissions standard and may be rounded up to the nearest multiple of 5 µg/m³ of total mercury or higher level if necessary to include Hg concentrations which may occur.

(iv) Determine the average on a 6-hour rolling basis.

(v) Install, operate, calibrate, and maintain an instrument for continuously measuring and recording the exhaust gas flow rate to the atmosphere.

(2) Monitor the operating parameter established during the performance tests

according to the requirements in §§ 63.1450(d) and 63.1452 and collecting, reducing, and recording the monitoring data for each of the operating limit parameters according to the applicable requirements of this subpart.

(3) Conduct subsequent performance tests following your initial performance test no less frequently than once per year according to the performance test procedures in § 63.1450(d). New operating limits may be established during subsequent performance tests as long as the performance tests demonstrate compliance with the emission limits.

(h) *Process fugitive filterable particulate matter and lead from roofline vents.* For emissions from roofline vents associated with the smelting vessels, slag cleaning vessels, copper converter department, and anode refining department subject to a filterable particulate matter emission limit in § 63.1444(h), and for emissions from the combination of roofline vents associated with the Peirce-Smith converter department, Inco flash furnace, and anode refining department subject to a lead emission limit in § 63.1444(p), you must demonstrate continuous compliance according to the requirements in paragraph (h)(1) or (2) and paragraph (h)(3) of this section. For the applicable design standards in § 63.1444(p), you must demonstrate continuous compliance according to the requirements in paragraphs (h)(4) through (6) of this section.

(1) *Operating parameter.* You must demonstrate continuous compliance with the established site-specific operating limit for a parameter, like opacity, based on values measured during the performance test you conduct to demonstrate initial compliance. If the operating parameter is visible emissions (VE) at each roofline vent, you must meet the requirements in paragraphs (h)(1)(i) through (v) of this section.

(i) Perform daily VE observations of each roofline vent according to the procedures of Method 22 of appendix A–7 to 40 CFR part 60. You must conduct the Method 22 test while the affected source is operating under normal conditions. The duration of each Method 22 test must be at least 15 minutes.

(ii) If VE are observed during any daily test conducted using Method 22 of appendix A–7 to 40 CFR part 60, you must promptly conduct an opacity test, according to the procedures of Method 9 of appendix A–4 to 40 CFR part 60. ASTM D7520–16 (incorporated by reference, see § 63.14) is an acceptable

alternative to EPA Method 9 with the specified conditions in § 63.1450(c)(3)(i)(A) through (E).

(iii) You may decrease the frequency of Method 22 testing from daily to weekly for a roofline vent if one of the conditions in paragraph (h)(1)(iii)(A) or (B) of this section is met.

(A) No VE are observed in 30 consecutive daily Method 22 tests for any roofline vent; or

(B) No opacity greater than the site-specific operating limit is observed during any of the tests under Method 9 of appendix A–4 to 40 CFR part 60 for any roofline vent.

(iv) If VE are observed during any weekly test and opacity greater than the site-specific operating limit is observed in the subsequent test under Method 9 of appendix A–4 to 40 CFR part 60, you must promptly initiate and complete corrective actions according to your operation, maintenance, and monitoring plan (OM&M) plan, resume testing of that roof vent following Method 22 of appendix A–7 to 40 CFR part 60, on a daily basis, as described in paragraph (h)(1)(i) of this section, and maintain that schedule until one of the conditions in paragraph (h)(1)(iii)(A) or (B) of this section is met, at which time you may again decrease the frequency of Method 22 testing to a weekly basis.

(v) If greater than the site-specific opacity operating limit is observed during any test conducted using Method 9 of appendix A–4 to 40 CFR part 60, you must report these deviations by following the requirements in § 63.1455.

(2) Monitor the site-specific operating parameter established during the performance tests according to the requirements in § 63.1450(e) for filterable particulate matter and § 63.1450(g) for lead if applicable, and § 63.1452, collect, reduce, and record the monitoring data for each of the operating limit parameters according to the applicable requirements of this subpart.

(3) Conduct subsequent performance tests following your initial performance test no less frequently than once per year according to the performance test procedures in § 63.1450(e) for filterable particulate matter and § 63.1450(g) for lead if applicable. New operating limits may be established during subsequent performance tests as long as the performance tests demonstrate compliance with the emission limits.

(4) For your flash furnace capture system, you must inspect the hooding, walls, and damper quarterly.

(5) For your fuming ladle capture system, you must inspect the hooding, walls, and ladle during maintenance periods.

(6) For your anode furnace secondary hood capture and control system, you must inspect the hood, walls, and damper during maintenance periods, and operate anode furnace secondary hood system at all times the anode furnaces are operating.

(i) *Benzene, toluene, chlorine, hydrogen chloride, polycyclic aromatic hydrocarbons excluding naphthalene, naphthalene, and dioxins/furans emissions.* For each affected source subject to the benzene, toluene, chlorine, hydrogen chloride, polycyclic aromatic hydrocarbons excluding naphthalene, naphthalene, and dioxins/furans emission limits in table 2 to this subpart, you must demonstrate continuous compliance according to paragraphs (i)(1) and (2) to this section.

(1) You must monitor the site-specific operating parameter established during the performance tests according to the requirements in § 63.1450(f) and collect, reduce, and record the monitoring data for each of the operating limit parameters according to the applicable requirements of this subpart.

(2) You must demonstrate continuous compliance by conducting subsequent performance tests following your initial performance test at least once every five years according to the performance test procedures in § 63.1450(f). New operating limits may be established during subsequent performance tests as long as the performance tests demonstrate compliance with the emission limits.

§ 63.1454 What notifications must I submit and when?

(a) You must submit all of the notifications in §§ 63.6(h)(4) and (5), 63.7(b) and (c), 63.8(f)(4), and 63.9(b) through (h) that apply to you by the specified dates.

(b) As specified in § 63.9(b)(2), if you start your affected source before June 12, 2002, you must submit your initial notification not later than October 10, 2002, or no later than 120 days after the source becomes subject to this subpart (see § 63.1441), whichever is later.

(c) As specified in § 63.9(b)(3), if you start your new affected source on or after June 12, 2002, you must submit your initial notification not later than 120 calendar days after you become subject to this subpart (see § 63.1441).

(d) If you are required to conduct a performance test, you must submit a notification of intent to conduct a performance test at least 60 calendar days before the performance test is scheduled to begin as required in § 63.7(b)(1).

(e) If you are required to conduct a performance test, opacity observation,

or other initial compliance demonstration, you must submit a notification of compliance status according to § 63.9(h)(2)(ii) by the date specified in paragraph (e)(1) or (2) of this section as applies to you.

(1) For each initial compliance demonstration that does not include a performance test, you must submit the notification of compliance status before the close of business on the 30th calendar day following the completion of the initial compliance demonstration.

(2) For each initial compliance demonstration that includes a performance test, you must submit the notification of compliance status, including the performance test results, before the close of business on the 60th calendar day following the completion of the performance test according to § 63.10(d)(2).

§ 63.1455 What reports must I submit and when?

(a) You must submit each report in paragraphs (a)(1) and (2) of this section that applies to you.

(1) You must submit a compliance report semiannually according to the requirements in paragraph (b) of this section and containing the information in paragraph (c) of this section.

(2) Before November 12, 2024, you must submit an immediate startup, shutdown, and malfunction report if you had a startup, shutdown, or malfunction during the reporting period that is not consistent with your startup, shutdown, and malfunction plan. You must report the actions taken for the event by fax or telephone within 2 working days after starting actions inconsistent with the plan. You must submit the information in § 63.10(d)(5)(ii) by letter within 7 working days after the end of the event unless you have made alternative arrangements with the delegated authority. On or after November 12, 2024, you must report any deviation from an applicable standard in §§ 63.1444, 63.1445, and 63.1446 as part of your semiannual compliance report and include the information required in paragraph (c) of this section. In an event of an emergency situation, you must report the emergency and the actions taken for the event by email or telephone within 2 working days of the time when emissions limitations were exceeded due to the emergency (or an alternate timeframe acceptable to the delegated authority). For the purposes of complying with this paragraph (a)(2), an emergency situation is any situation arising from sudden and reasonably unforeseeable events beyond the control of the facility owner or operator that

requires immediate corrective action to restore normal operation, and that causes the affected source to exceed an applicable emissions limitation under this subpart, due to unavoidable increases in emissions attributable to the emergency. An emergency must not include noncompliance to the extent it is caused by improperly designed equipment, lack of preventive maintenance, careless or improper operation, or operator error. You must submit the report within 7 working days after the end of the event unless you have made alternative arrangements with the delegated authority. This report must contain a description of the emergency, any steps taken to mitigate the emissions and corrective actions taken.

(b) Unless the Administrator has approved a different schedule under § 63.10(a), you must submit each compliance report required in paragraph (a) of this section according to the applicable requirements in paragraphs (b)(1) through (5) of this section following the procedures in § 63.9(k).

(1) The first compliance report must cover the period beginning on the compliance date that is specified for your affected source in § 63.1443 and ending on June 30 or December 31, whichever date comes first after the compliance date that is specified for your source in § 63.1443.

(2) The first compliance report must be delivered no later than July 31 or January 31, whichever date comes first after your first compliance report is due.

(3) Each subsequent compliance report must cover the semiannual reporting period from January 1 through June 30 or the semiannual reporting period from July 1 through December 31.

(4) Each subsequent compliance report must be delivered no later than July 31 or January 31, whichever date comes first after the end of the semiannual reporting period.

(5) For each affected source that is subject to permitting regulations pursuant to 40 CFR part 70 or 71, and if the delegated authority has established dates for submitting semiannual reports pursuant to 40 CFR 70.6(a)(3)(iii)(A) or 71.6(a)(3)(iii)(A), you may submit the first and subsequent compliance reports according to the dates the delegated authority has established instead of according to the dates in paragraphs (b)(1) through (4) of this section.

(c) Each compliance report must contain the information in paragraphs (c)(1) through (3) of this section and, as applicable, paragraphs (c)(4) through (8) of this section.

(1) Company name and address.

(2) Statement by a responsible official, as defined in § 63.2, with that official's name, title, and signature, certifying the accuracy and completeness of the content of the report.

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

(4) Before November 12, 2024, if you had a startup, shutdown or malfunction during the reporting period and you took actions consistent with your startup, shutdown, and malfunction plan, the compliance report must include the information in § 63.10(d)(5)(i). On or after November 12, 2024, you are not required to have a startup, shutdown, and malfunction plan and you are not required to include in your report the information in § 63.10(d)(5)(i).

(5) If there are no deviations from any emission limitations (emission limit, operating limit, opacity limit) that applies to you and there are no deviations from the requirements for work practice standards in this subpart, a statement that there were no deviations from the emission limitations, work practice standards, or operation and maintenance requirements during the reporting period.

(6) If there were no periods during which an operating parameter monitoring system was out-of-control as specified in § 63.8(c)(7), a statement that there were no periods during which the monitoring system was out-of-control during the reporting period.

(7) For each deviation from an emission limitation (emission limit, operating limit, opacity limit) and for each deviation from the requirements for work practice standards that occurs at an affected source where you are not using a continuous monitoring system to comply with the emission limitations or work practice standards in this subpart, the compliance report must contain the information in paragraphs (c)(1) through (4) of this section and the information in paragraphs (c)(7)(i) and (ii) of this section.

(i) The total operating time of each affected source during the reporting period.

(ii) Information on the number, date, time, duration, and cause of deviations (including unknown cause, if applicable), as applicable, the corrective action taken, a list of the affected sources or equipment, an estimate of the quantity of each regulated pollutant emitted over any emission limit, and a description of the method used to estimate the emissions.

(8) For each deviation from an emission limitation (emission limit,

operating limit, opacity limit, and visible emission limit) occurring at an affected source where you are using an operating parameter monitoring system to comply with the emission limitation in this subpart, you must include the information in paragraphs (c)(1) through (4) of this section and the information in paragraphs (c)(8)(i) through (xi) of this section.

(i) The cause of each deviations (including unknown cause, if applicable), the corrective action taken, a list of the affected sources or equipment, an estimate of the quantity of each regulated pollutant emitted over any emission limit, and a description of the method used to estimate the emissions.

(ii) If the monitoring system was inoperative, the date and time that each monitoring system was inoperative, except for zero (low-level) and high-level checks.

(iii) If the monitoring system was inoperative, the date, time and duration that each monitoring system was out-of-control, including the information in § 63.8(c)(8).

(iv) The number, date and time that each deviation started and stopped.

(v) A summary of the total duration of the deviation during the reporting period and the total duration as a percent of the total source operating time during that reporting period.

(vi) A breakdown of the total duration of the deviations during the reporting period into those that are due to control equipment problems, process problems, other known causes, and other unknown causes.

(vii) A summary of the total duration of monitoring system downtime during the reporting period and the total duration of monitoring system downtime as a percent of the total source operating time during that reporting period.

(viii) A brief description of the process units.

(ix) A brief description of the monitoring system.

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

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

(d) If you have obtained a title V operating permit pursuant to 40 CFR part 70 or 71 must report all deviations as defined in this subpart in the semiannual monitoring report required by 40 CFR 70.6(a)(3)(iii)(A) or 71.6(a)(3)(iii)(A). If you submit a compliance report pursuant to paragraph (a) of this section along with, or as part of, the semiannual monitoring

report required by 40 CFR 70.6(a)(3)(iii)(A) or 71.6(a)(3)(iii)(A), and the compliance report includes all required information concerning deviations from any emission limitation (including any operating limit), or work practice requirement in this subpart, submission of the compliance report is deemed to satisfy any obligation to report the same deviations in the semiannual monitoring report. However, submission of a compliance report does not otherwise affect any obligation you may have to report deviations from permit requirements to the permit authority.

(e) Within 60 days after the date of completing each performance test or continuous monitoring system (CMS) performance evaluation (as defined in § 63.2) required by this subpart, the owner or operator must submit the results of the performance test or performance evaluation following the procedures specified in § 63.9(k).

(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 or the performance evaluation of CMS measuring relative accuracy test audit (RATA) pollutants 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 through the use of 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 or the performance evaluation of CMS measuring RATA pollutants by methods that are not supported by the ERT, 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.

§ 63.1456 What records must I keep and how long must I keep my records?

(a) You must keep the records listed in paragraphs (a)(1) through (8) of this section.

(1) A copy of each notification and report that you submitted to comply with this subpart, including all documentation supporting any initial notification or notification of compliance status that you submitted, according to the requirements in § 63.10(b)(2)(xiv).

(2) Before November 12, 2024, the records in § 63.6(e)(3)(iii) through (v) related to startup, shutdown, and malfunction. On or after November 12, 2024, you are not required to keep the records required in § 63.6(e)(3)(iii) through (v) related to compliance with a startup, shutdown, and malfunction plan.

(3) Records of performance tests and performance evaluations as required in § 63.10(b)(2)(viii).

(4) For each monitoring system, you must keep the records specified in paragraphs (a)(4)(i) through (iv) of this section.

(i) Records described in § 63.10(b)(2)(vi) through (xi).

(ii) Monitoring data recorded by the monitoring system during a performance evaluation as required in § 63.6(h)(7)(i) and (ii).

(iii) Before November 12, 2024, previous (i.e., superseded) versions of the performance evaluation plan as required in § 63.8(d)(3). On or after November 12, 2024, you must comply with the requirements in § 63.8(d)(1) and (2). The owner or operator shall keep the written procedures required in § 63.8(d)(1) and (2) on record for the life of the affected source or until the affected source is no longer subject to the provisions of this part, to be made available for inspection, upon request, by the Administrator. If the performance evaluation plan is revised, the owner or operator shall keep previous (i.e., superseded) versions of the performance evaluation plan on record to be made available for inspection, upon request, by the Administrator, for a period of 5 years after each revision to the plan. The program of corrective action should be included in the plan required under § 63.8(d)(2).

(iv) Before November 12, 2024, records of the date and time that each deviation started and stopped, and whether the deviation occurred during a period of startup, shutdown, or malfunction or during another period. On or after November 12, 2024, for each failure to meet an applicable standard, you must record the information in paragraphs (a)(4)(iv)(A) through (D) of this section. Examples of such methods to estimate emissions include product-loss calculations, mass balance calculations, measurements, or

engineering judgment based on known process parameters.

(A) The occurrence and duration of each startup, shutdown, or malfunction of process, air pollution control, and monitoring equipment.

(B) In the event that an affected unit fails to meet an applicable standard, record the number of failures. For each failure record the date, time, cause and duration of each failure.

(C) For each failure to meet an applicable standard, record and retain a list of the affected sources or equipment, whether the failure occurred during a period of startup, shutdown or malfunction, actions taken to minimize emissions, an estimate of the quantity of each regulated pollutant emitted over any emission limit and a description of the method used to estimate the emissions.

(D) Record actions taken to minimize emissions in accordance with § 63.1447(a), and any corrective actions taken to return the affected unit to its normal or usual manner of operation.

(5) For each performance test you conduct to demonstrate compliance with an opacity limit according to § 63.1450(c), you must keep the records specified in paragraphs (a)(5)(i) through (ix) of this section.

(i) Dates and time intervals of all opacity observation period segments;

(ii) Description of overall smelter operating conditions during each observation period. Identify, if any, the smelter copper production process equipment that was out-of-service during the performance test and explain why this equipment was not in operation;

(iii) Name, affiliation, and copy of current visible emission reading certification for each visible emission observer participating in the performance test;

(iv) Name, title, and affiliation for each indoor process monitor participating in the performance test;

(v) Copies of all visible emission observer opacity field data sheets;

(vi) Copies of all indoor process monitor operating log sheets;

(vii) Copies of all data summary sheets used for data reduction;

(viii) Copy of calculation sheets of the average opacity value used to demonstrate compliance with the opacity limit; and

(ix) Documentation according to the requirements in § 63.1450(c)(9)(iv) to support your selection of the site-specific capture system operating limits used for each batch copper converter capture system when blowing.

(6) For each baghouse subject to the operating limit in § 63.1444(i) or

§ 63.1446(c), you must keep the records specified in paragraphs (a)(6)(i) and (ii) of this section.

(i) Records of alarms for each bag leak detection system.

(ii) Description of the corrective actions taken following each bag leak detection alarm.

(7) For each control device other than a baghouse or venturi wet scrubber subject to site-specific operating limits in § 63.1444(k) or § 63.1446(e), you must keep documentation according to the requirements in § 63.1450(a)(5)(iv) to support your selection of the site-specific operating limits for the control device.

(8) You must keep records of bypass stack usage, including the flow rate and operating parameter(s).

(b) Your records must be in a form suitable and readily available for expeditious review, according to § 63.10(b)(1).

(c) As specified in § 63.10(b)(1), you must keep each record for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record.

(d) You must keep each record on site for at least 2 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record, according to § 63.10(b)(1). You can keep the records off site for the remaining 3 years.

§ 63.1457 What part of the general provisions apply to me?

Table 1 to this subpart shows which parts of the general provisions in §§ 63.1 through 63.15 apply to you.

§ 63.1458 Who implements and enforces this subpart?

(a) This subpart can be implemented and enforced by us, the United States Environmental Protection Agency (U.S. EPA), or a delegated authority such as your State, local, or tribal agency. If the U.S. EPA Administrator has delegated authority to your State, local, or tribal agency, then that agency has the authority to implement and enforce this subpart. You should contact your U.S. EPA Regional Office to find out if this subpart is delegated to your State, local, or tribal agency.

(b) In delegating implementation and enforcement authority of this subpart to a State, local, or tribal agency under subpart E of this part, the authorities listed in paragraph (c) of this section are retained by the U.S. EPA Administrator and are not transferred to the State, local, or tribal agency.

(c) The authorities that will not be delegated to State, local, or tribal agencies are as listed in paragraphs (c)(1) through (5) of this section.

(1) Approval of alternatives to the emission limitations and work practice standards in §§ 63.1444 through 63.1446 under § 63.6(g).

(2) Approval of major alternatives to test methods under § 63.7(f) and as defined in § 63.90.

(3) Approval of major alternatives to monitoring under § 63.8(f) and as defined in § 63.90.

(4) Approval of major alternatives to recordkeeping and reporting under § 63.10(f) and as defined in § 63.90.

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

§ 63.1459 What definitions apply to this subpart?

Terms used in this subpart are defined in the Clean Air Act, in § 63.2, and in this section as follows:

Anode refining department means the area at a primary copper smelter in which anode copper refining operations are performed. Emission sources in the anode refining department include anode refining furnaces and utility vessels.

Baghouse means a control device that collects particulate matter by filtering the gas stream through bags. A baghouse is also referred to as a “fabric filter.”

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

Batch copper converter means a Peirce-Smith converter or Hoboken converter in which copper matte is oxidized to form blister copper by a process that is performed in discrete batches using a sequence of charging, blowing, skimming, and pouring.

Blowing means the operating mode for a batch copper converter during which air or oxygen-enriched air is injected into the molten converter bath.

Bypass stack means a device used for discharging combustion gases to avoid severe damage to the air pollution control device or other equipment and conduct planned maintenance safely in accordance with the work practice standard in § 63.1444(q). The use of a bypass stack during a performance test of a process or control device will invalidate the test.

Capture system means the collection of components used to capture gases and fumes released from one or more

emission points, and to convey the captured gases and fumes to a control device. A capture system may include, but is not limited to, the following components as applicable to a given capture system design: duct intake devices, hoods, enclosures, ductwork, dampers, manifolds, plenums, and fans.

Charging means the operating mode for a batch copper converter during which molten or solid material is added into the vessel.

Control device means the air pollution control equipment used to collect particulate matter and other emissions from a gas stream.

Converting vessel means a furnace, reactor, or other type of vessel in which copper matte is oxidized to form blister copper.

Copper concentrate dryer means a vessel in which copper concentrates are heated in the presence of air to reduce the moisture content of the material. Supplemental copper-bearing feed materials and fluxes may be added or mixed with the copper concentrates fed to a copper concentrate dryer.

Copper concentrate feed means the mixture of copper concentrate, secondary copper-bearing materials, recycled slags and dusts, fluxes, and other materials blended together for feeding to the smelting vessel.

Copper converter department means the area at a primary copper smelter in which the copper converters are located. This could include a batch copper converter or other type of copper converter, such as a continuous copper converter.

Copper matte means a material predominately composed of copper and iron sulfides produced by smelting copper ore concentrates.

Deviation means any instance in which an affected source subject to this subpart, or an owner or operator of such a source:

(1) Fails to meet any requirement or obligation established by this subpart including, but not limited to, any emission limitation (including any operating limit) or work practice standard;

(2) Fails to meet any term or condition that is adopted to implement an applicable requirement in this subpart and that is included in the operating

permit for any affected source required to obtain such a permit; or

(3) Fails to meet any emission limitation (including any operating limit) or work practice standard in this subpart during startup, shutdown, or malfunction, regardless of whether or not such failure is permitted by this subpart.

Emission limitation means any emission limit, opacity limit, operating limit, or visible emission limit.

Fugitive dust material means copper concentrate, dross, reverts, slag, speiss, or other solid copper-bearing materials.

Fugitive dust source means a stationary source of particulate matter emissions resulting from the handling, storage, transfer, or other management of fugitive dust materials where the source is not associated with a specific process, process vent, or stack. Examples of a fugitive dust source include, but are not limited to, on-site roadways used by trucks transporting copper concentrate, unloading of materials from trucks or railcars, outdoor material storage piles, and transfer of material to hoppers and bins.

Holding means the operating mode for a batch copper converter or a holding furnace associated with a smelting vessel during which the molten bath is maintained in the vessel but no blowing or smelting is performed nor is material added into or removed from the vessel.

New copper converter system means the copper matte is oxidized and forms copper blister by a process that is performed continuously. This system may include a flash smelting furnace, flash converting furnace, secondary gas system, a rotary dryer, anode area, matte grinding plant, hydrometallurgical plant and possibly an acid plant.

Opacity means the degree to which emissions reduce the transmission of light.

Particulate matter means any finely divided solid or liquid material, other than uncombined water, as measured by the specific reference method.

Pouring means the operating mode for a batch copper converter during which molten copper is removed from the vessel.

Primary copper smelter means any installation or any intermediate process engaged in the production of copper from copper sulfide ore concentrates

through the use of pyrometallurgical techniques.

Responsible official means responsible official as defined in 40 CFR 70.2.

Roofline vents means an exhaust system designed to evacuate process fugitive emissions that collect in the roofline area of various process buildings (e.g., smelting building roof vents, converter building roof vents, etc.).

Secondary gas system means a capture system that collects the gases and fumes released when removing and transferring molten materials from one or more vessels using tapping ports, launders, and other openings in the vessels. Examples of molten material include, but are not limited to: Copper matte, slag, and blister copper.

Skimming means the batch copper converter operating mode during which molten slag is removed from the vessel.

Slag cleaning vessel means a vessel that receives molten copper-bearing material and the predominant use of the vessel is to separate this material into molten copper matte and slag layers.

Smelting vessel means a furnace, reactor, or other type of vessel in which copper ore concentrate and fluxes are smelted to form a molten mass of material containing copper matte and slag. Other copper-bearing materials may also be charged to the smelting furnace.

TEQ means the international method of expressing toxicity equivalents for dioxins/furans as defined in EPA/100/R-10/005 (incorporated by reference, see § 63.14). The Toxic Equivalency 49 Factors (TEFs) used to determine the dioxin and furan TEQs are listed in table 3 to this subpart.

Work practice standard means any design, equipment, work practice, or operational standard, or combination thereof, that is promulgated pursuant to section 112(h) of the Clean Air Act.

**Table 1 to Subpart QQQ of Part 63—
Applicability of General Provisions to
This Subpart**

As required in § 63.1457, you must comply with the requirements of the NESHAP General Provisions (subpart A of this part) shown in the following table:

Citation	Subject	Applies to this subpart	Explanation
§ 63.1	Applicability	Yes.	
§ 63.2	Definitions	Yes.	
§ 63.3	Units and Abbreviations	Yes.	
§ 63.4	Prohibited Activities	Yes.	
§ 63.5	Construction and Reconstruction	Yes.	

Citation	Subject	Applies to this subpart	Explanation
§ 63.6(a) through (d), (e)(iii), and (f)(2) and (3), (g). § 63.6(e)(1)(i)	Compliance with Standards and Maintenance Requirements. Operation and Maintenance Requirements.	Yes. Yes before November 12, 2024. No on or after November 12, 2024.	General duty requirements to minimize emissions at all times are contained in § 63.1447(a). Malfunctions are no longer exempt.
§ 63.6(e)(1)(ii)	Requirement to correct malfunctions as soon as practicable.	Yes before November 12, 2024. No on or after November 12, 2024.	
§ 63.6(e)(2)	Reserved	No.	
§ 63.6(e)(3)	Requirement to develop a startup, shutdown, and malfunction plan.	Yes before November 12, 2024. No on or after November 12, 2024.	Startup, shutdown, and malfunction (SSM) plans are no longer necessary.
§ 63.6(f)(1)	Compliance with nonopacity emission standards during periods of startup, shutdown, and malfunction.	Yes before November 12, 2024. No on or after November 12, 2024.	Source category rules apply at all times.
§ 63.6(h)	Determining compliance with Opacity and VE standards.	No	This subpart specifies the requirements and test protocol used to determine compliance with the opacity limits.
§ 63.6(i) and (j)	Extension of Compliance and Presidential Compliance Exemption.	Yes.	
§ 63.7(a)(1) and (2)	Applicability and Performance Test Dates.	No	This subpart specifies performance test applicability and dates.
§ 63.7(a)(3), (b) through (d), (f) through (h). § 63.7(e)(1)	Performance Testing Requirements. Performance Testing	Yes. Yes before November 12, 2024. No on or after November 12, 2024.	See §§ 63.1450 and 63.1444.
§ 63.8 except for (a)(4), (c)(1)(i) and (iii), (c)(4), (d)(3), and (f)(6). § 63.8(a)(4)	Monitoring Requirements	Yes. No	This subpart does not require flares.
§ 63.8(c)(1)(i) and (iii)	Additional Monitoring Requirements for Control devices in § 63.11. Operation and Maintenance of and SSM plan for Continuous Monitoring Systems.	Yes before November 12, 2024. No on or after November 12, 2024.	Cross references to the general duty and SSM plan requirements in those paragraphs are no longer necessary.
§ 63.8(c)(4)	Continuous Monitoring System Requirements.	No	This subpart specifies requirements for operation of CMS.
§ 63.8(d)(3)	Quality Control Program	Yes before November 12, 2024. No on or after November 12, 2024.	See § 63.1456(a)(4)(iii).
§ 63.8(f)(6)	RATA Alternative	No	This subpart does not require continuous emission monitoring systems.
§ 63.9	Notification Requirements	Yes.	
§ 63.9(g)(5)	DATA reduction	No	This subpart specifies data reduction requirements.
§ 63.10 except for (b)(2)(i), (ii), (iv), (v), and (xiii), (c)(7), (8), and (15), and (d)(5). § 63.10(b)(2)(i)	Recordkeeping and reporting Requirements. General Recordkeeping Requirements during Startup and Shutdown.	Yes. Yes before November 12, 2024. No on or after November 12, 2024.	No longer necessary because recordkeeping and reporting applicable to normal operations will apply to startup and shutdown.
§ 63.10(b)(2)(ii)	General Recordkeeping Requirements during Startup, Shutdown, and Malfunction and Failures to Meet Standards.	Yes before November 12, 2024. No on or after November 12, 2024.	See § 63.1456(a)(4)(iv) for recordkeeping requirements for a deviation from a standard.
§ 63.10(b)(2)(iv)	Actions Taken to Minimize Emissions during Startup, Shutdown, and Malfunction.	Yes before November 12, 2024. No on or after November 12, 2024.	See § 63.1456 for the recordkeeping requirements of actions taken to minimize emissions and record corrective actions.
§ 63.10(b)(2)(v)	Actions Taken to Minimize Emissions during Startup, Shutdown, and Malfunction.	Yes before November 12, 2024. No on or after November 12, 2024.	Requirements to document that actions taken during SSM events are consistent with SSM plan are no longer required.
§ 63.10(b)(2)(xiii)	CMS Records for RATA Alternative.	No	This subpart does not require continuous emission monitoring systems.

Citation	Subject	Applies to this subpart	Explanation
§ 63.10(c)(7)–(8)	Records of Excess Emissions and Parameter Monitoring Exceedances for CMS.	No	This subpart specifies record keeping requirements.
§ 63.10(c)(15)	Use of SSM Plan	Yes before November 12, 2024. No on or after November 12, 2024.	This provision would be eliminated because it referenced the source's SSM plan, which is no longer required.
§ 63.10(d)(5)	SSM Reporting and Record-keeping Requirements.	Yes before November 12, 2024. No on or after November 12, 2024.	See §§ 63.1455(c)(4) and 63.1456.
§ 63.11	Control Device Requirements	No	This subpart does not require flares.
§ 63.12	State Authority and Delegations ...	Yes.	
§§ 63.13 through 63.16	Addresses, Incorporation by Reference, Availability of Information, Performance Track Provisions.	Yes.	

**Table 2 to Subpart QQQ of Part 63—
Non-Mercury HAP Emission Limits**

As required in § 63.1444(o), you must meet each emission limit in the following table that applies to you.

For. . .	You must meet the following emission limit
Each new and existing combination of stacks or other vents from the copper concentrate dryers, converting department, the anode refining department, and the smelting vessels.	Benzene emissions must not exceed 1.7E–03 lb/ton copper concentrate feed charged to the smelting vessel.
Each new and existing combination of stacks or other vents from the copper concentrate dryers, converting department, the anode refining department, and the smelting vessels.	Toluene emissions must not exceed 8.4E–04 lb/ton copper concentrate feed charged to the smelting vessel.
Each new and existing combination of stacks or other vents from the copper concentrate dryers, converting department, the anode refining department, and the smelting vessels.	Chlorine emissions must not exceed 5.4E–03 lb/ton copper concentrate feed charged to the smelting vessel.
Each new and existing combination of stacks or other vents from the copper concentrate dryers, converting department, the anode refining department, and the smelting vessels.	Hydrogen chloride emissions must not exceed 1.5E–03 lb/ton copper concentrate feed charged to the smelting vessel.
Each new and existing combination of stacks or other vents from the copper concentrate dryers, converting department, the anode refining department, and the smelting vessels.	Polycyclic aromatic hydrocarbons (excluding naphthalene) emissions must not exceed 1.0E–04 lb/ton copper concentrate feed charged to the smelting vessel.
Each new and existing combination of stacks or other vents from the copper concentrate dryers, converting department, the anode refining department, and the smelting vessels.	Naphthalene emissions must not exceed 2.8E–04 lb/ton copper concentrate feed charged to the smelting vessel.
Each new and existing combination of stacks or other vents from the copper concentrate dryers, converting department, the anode refining department, and the smelting vessels.	Dioxins/Furans emissions ¹ must not exceed 6.0E+01 ng TEQ/Mg copper concentrate feed charged to the smelting vessel.

¹ Determined using the toxic equivalency factors listed in Table 2 of Recommended Toxicity Equivalence Factors (TEFs) for Human Health Risk Assessments of 2, 3, 7, 8- Tetrachlorodibenzo-p-dioxin and Dioxin-Like Compounds (incorporated by reference, see § 63.14).

**TABLE 3 TO SUBPART QQQ OF PART
63—2010 TOXIC EQUIVALENCY FAC-
TORS (TEFs)**

Congener	TEF (mammals)
2,3,7,8-Te CDD	1
1,2,3,7,8-Pe CDD	1
1,2,3,4,7,8-HxCDD	0.1
1,2,3,6,7,8-HxCDD	0.1
1,2,3,7,8,9-HxCDD	0.1
1,2,3,4,6,7,8-HpCDD	0.01

**TABLE 3 TO SUBPART QQQ OF PART
63—2010 TOXIC EQUIVALENCY FAC-
TORS (TEFs)—Continued**

Congener	TEF (mammals)
OCDD	0.0003
2,3,7,8-Te CDF	0.1
1,2,3,7,8-Pe CDF	0.03
2,3,4,7,8-Pe CDF	0.3
1,2,3,4,7,8-HxCDF	0.1
1,2,3,6,7,8-HxCDF	0.1

**TABLE 3 TO SUBPART QQQ OF PART
63—2010 TOXIC EQUIVALENCY FAC-
TORS (TEFs)—Continued**

Congener	TEF (mammals)
2,3,4,6,7,8-HxCDF	0.1
1,2,3,7,8,9-HxCDF	0.1
1,2,3,4,6,7,8-HpCDF	0.01
1,2,3,4,7,8,9-HpCDF	0.01
OCDF	0.0003

TABLE 4 TO SUBPART QQQ OF PART 63—COMPLIANCE DATES FOR AMENDMENTS BEING PROMULGATED ON MAY 13, 2024

If the construction/reconstruction date is . . .	Then the owner or operator must comply with . . .	And the owner or operator must achieve compliance . . .
On or before January 11, 2022.	Requirements for existing sources in §§ 63.1444(f)(2) and (3), (l); 63.1446; 63.1449; ¹ 63.1450(a) and (d); and 63.1451 through 63.1456, as applicable.	On or before May 13, 2025.
After January 11, 2022	Requirements for existing sources in §§ 63.1444(h); 63.1449; ¹ 63.1450(e); and 63.1451 through 63.1456, as applicable.	On or before May 13, 2026.
On or before July 24, 2023.	Requirements for new sources in §§ 63.1444(e)(1) and (2), (f)(2) and (3), (h), (m); 63.1446; 63.1449; ¹ 63.1450(a), (d), (e); and 63.1451 through 63.1456, as applicable.	Upon initial startup or May 13, 2024, whichever is later.
On or before July 24, 2023.	Requirements for existing sources in §§ 63.1444(g); 63.1449; ¹ 63.1450(a); and 63.1451 through 63.1456, as applicable.	On or before May 13, 2027.
After July 24, 2023	Requirements for existing sources in §§ 63.1444(o); 63.1449; ¹ 63.1450(f); and 63.1451 through 63.1456, as applicable.	On or before May 13, 2025.
On or before May 13, 2024.	Requirements for existing sources in §§ 63.1444(q); 63.1449; ¹ 63.1450(a), (g); and 63.1451 through 63.1456, as applicable.	On or before November 12, 2024.
	Requirements for new sources in §§ 63.1444(o), (q); 63.1449; ¹ 63.1450(a), (f), (g); and 63.1451 through 63.1456, as applicable.	Upon initial startup or May 13, 2024, whichever is later.
	Requirements for existing sources in §§ 63.1444(p); 63.1449; ¹ 63.1450(g); and 63.1451 through 63.1456, as applicable.	On or before May 13, 2027.

¹ Section 63.1449(a) provides that any necessary performance test is conducted within 180 days of the compliance date.

FIGURE 1 TO SUBPART QQQ OF PART 63—DATA SUMMARY SHEET FOR DETERMINATION OF AVERAGE OPACITY

[illegible]

Subpart EEEEEEE—National Emission Standards for Hazardous Air Pollutants for Primary Copper Smelting Area Sources

■ 5. Amend § 63.11147 by revising paragraphs (b)(6), (c)(1) and (5), (d), and (e) to read as follows:

§ 63.11147 What are the standards and compliance requirements for existing sources not using batch copper converters?

* * * * *

(b) * * *

(6) You must submit to the permitting authority by the 20th day of each month a report summarizing the 24-hour average mass PM₁₀ emissions rates for the previous month. Beginning

November 12, 2024, the owner or operator must electronically submit all subsequent reports in PDF format to the EPA via CEDRI, which can be accessed through EPA's CDX (<https://cdx.epa.gov/>) following the procedures specified in § 63.9(k).

* * * * *

(c) * * *

(1) At all times, you must maintain and operate any affected source,

including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. The general duty to minimize emissions does not require the owner or operator to make any further efforts to reduce emissions if levels required by the applicable standard have been achieved. Determination of whether a source is operating in compliance with operation and maintenance requirements will be based on information available to the permitting authority which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source.

* * * * *

(5) Before November 12, 2024, as an alternative to the requirements in paragraph (c)(4) of this section, you must comply with the startup, shutdown, and malfunction requirements in § 63.6(e)(3). On or after November 12, 2024, you may not use the requirements in § 63.6(e)(3) as an alternative to the requirements in paragraph (c)(4) of this section. You must comply with all emissions limitation or work practice standards in this subpart at all times.

(d) *Deviations.* You must submit written notification to the permitting authority of any deviation from the requirements of this subpart, including the number, date, time, duration, and the cause of such events (including unknown cause, if applicable); a list of the affected sources or equipment; an estimate of the quantity of each regulated pollutant emitted over any emission limit and a description of the method used to estimate the emissions; and the probable cause of such deviations and any corrective actions or preventative measures taken. You must submit this notification within 14 days of the date the deviation started.

(e) *Reports.* (1) You must submit semiannual monitoring reports to your permitting authority. All instances of deviations from the requirements of this subpart must be clearly identified in the reports. The report must contain the number, date, time, duration, and the cause of each deviation (including unknown cause, if applicable); a list of the affected sources or equipment; an estimate of the quantity of each regulated pollutant emitted over any emission limit and a description of the method used to estimate the emissions; and the probable cause of such deviations and any corrective actions or preventative measures taken. Examples

of methods used to estimate the emissions would include product-loss calculations, mass balance calculations, measurements when available, or engineering judgment based on known process parameters.

(2) Beginning November 13, 2024, the owner or operator must electronically submit all subsequent semiannual monitoring reports in PDF format to the EPA via CEDRI, which can be accessed through EPA's CDX (<https://cdx.epa.gov/>) following the procedures specified in § 63.9(k).

* * * * *

■ 6. Amend § 63.11148 by:

■ a. Revising paragraphs (a)(1), (a)(3)(ii), (a)(4)(iv), (b)(1), (b)(2)(i), (b)(4), (c)(2) and (4), (e)(3), (f)(1), (f)(4)(ii) and (iii), (f)(5), (g), and (h); and

■ b. Adding paragraph (i).

The revisions and addition read as follows:

§ 63.11148 What are the standards and compliance requirements for existing sources using batch copper converters?

(a) * * *

(1) For each copper concentrate dryer, you must not discharge to the atmosphere from the dryer vent any gases that contain filterable particulate matter (PM) in excess of 0.022 grains per dry standard cubic foot (gr/dscf).

* * * * *

(3) * * *

(ii) You must not cause to be discharged to the atmosphere from the capture system used to comply with paragraph (a)(3)(i) of this section any gases that contain filterable PM in excess of 0.022 gr/dscf.

(4) * * *

(iv) For each secondary capture system that is used to comply with paragraph (a)(4)(ii) of this section and is not vented to a gas cleaning system controlling PM and a sulfuric acid plant, you must not cause to be discharged to the atmosphere any gases that contain filterable particulate matter in excess of 0.02 grains/dscf.

(b) * * *

(1) Each COMS must meet Performance Specification 1 in appendix B to 40 CFR part 60.

(2) * * *

(i) You must automatically (intrinsic to the opacity monitor) check the zero and upscale (span) calibration drifts at least once daily. For a particular COMS, the acceptable range of zero and upscale calibration materials is as defined in the applicable version of Performance Specification 1 in appendix B to 40 CFR part 60.

* * * * *

(4) You must log in ink or electronic format and maintain a record of 24-hour

opacity measurements performed in accordance with paragraph (b)(3) of this section and any corrective actions taken, if any. A record of corrective actions taken must include the start date, start time, and duration in hours during which the 24-hour rolling average opacity exceeded 15 percent and the start date, start time and type of the corrective action and the date and time the corrective action was completed.

(c) * * *

(2) The baghouse leak detection system must meet the specifications and requirements in paragraphs (c)(2)(i) through (vi) of this section.

(i) The bag leak detection system must be certified by the manufacturer to be capable of detecting particulate matter emissions at concentrations that can effectively discern any dysfunctional leaks of the baghouse.

(ii) The bag leak detection system sensor must provide output of relative or absolute particulate matter loadings.

(iii) The bag leak detection system must be equipped with a device to continuously record the output signal from the sensor.

(iv) The bag leak detection system must be equipped with an alarm system that will sound automatically when an increase in relative particulate emissions over a preset level is detected. The alarm must be located where it is easily heard by plant operating personnel.

(v) The bag leak detection system must be installed downstream of the baghouse.

(vi) The bag leak detection system must be installed, operated, calibrated, and maintained in a manner consistent with the manufacturer's written specifications and recommendations. The calibration of the system must, at a minimum, consist of establishing the relative baseline output level by adjusting the sensitivity and the averaging period of the device and establishing the alarm set points and the alarm delay time.

* * * * *

(4) You must log in ink or electronic format and maintain a record of installation, calibration, maintenance, and operation of the bag leak detection system. If the bag leak detection system alarm sounds, the records must include an identification of the date and time of all bag leak detection alarms, their cause, the time you initiated corrective actions, and an explanation of the corrective actions taken, including the date corrective actions were completed, if any.

* * * * *

(e) * * *

(3) Before November 12, 2024, you must conduct each performance test according to § 63.7(e)(1) using the test methods and procedures in paragraphs (e)(3)(i) through (v) of this section. On or after November 12, 2024, you must conduct each performance test using the test methods and procedures in paragraphs (e)(3)(i) through (vi) of this section.

(i) Method 1 or 1A in appendix A–1 to 40 CFR part 60 to select sampling port locations and the number of traverse points in each stack or duct. Sampling sites must be located at the outlet of the control device (or at the outlet of the emissions source if no control device is present) prior to any releases to the atmosphere.

(ii) Method 2, 2A, 2C, 2D, 2F, or 2G in appendices A–1 and A–2 to 40 CFR part 60 to determine the volumetric flow rate of the stack gas.

(iii) Method 3, 3A, or 3B in appendix A–2 to 40 CFR part 60 to determine the dry molecular weight of the stack gas. You may use ANSI/ASME PTC 19.10–1981 (incorporated by reference—see § 63.14) as an alternative to EPA Method 3B manual portion only and not the instrumental portion.

(iv) Method 4 in appendix A–3 to 40 CFR part 60 to determine the moisture content of the stack gas.

(v) Method 5 in appendix A–3 to 40 CFR part 60 to determine the PM concentration for negative pressure baghouses or Method 5D in appendix A–3 to 40 CFR part 60 for positive pressure baghouses. A minimum of three valid test runs are needed to comprise a PM performance test.

(vi) You must conduct each performance test that applies to your affected source under normal operating conditions of the affected source. The owner or operator may not conduct performance tests during periods of malfunction. The owner or operator must record the process information that is necessary to document operating conditions during the test and include in such record an explanation to support that such conditions represent the entire range of normal operation, including operational conditions for maximum emissions if such emissions are not expected during maximum production. The owner or operator shall make available to the Administrator such records as may be necessary to determine the conditions of performance tests.

(f) * * *

(1) At all times, you must maintain and operate any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with

safety and good air pollution control practices for minimizing emissions. The general duty to minimize emissions does not require the owner or operator to make any further efforts to reduce emissions if levels required by the applicable standard have been achieved. Determination of whether a source is operating in compliance with operation and maintenance requirements will be based on information available to the permitting authority which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source.

* * * * *

(4) * * *

(ii) You must document through signed contemporaneous logs or other relevant evidence that an emergency occurred, and you can identify the probable cause, your facility was being operated properly at the time the emergency occurred, and the corrective actions taken to minimize emissions as required by paragraph (f)(4)(i) of this section. Documentation must include the date, time, duration, of such events (including unknown cause, if applicable); a list of the affected sources or equipment; and an estimate of the quantity of each regulated pollutant emitted over any emission limit and a description of the method used to estimate the emissions.

(iii) You must submit a notice of the emergency to the permitting authority within two working days of the time when emission limitations were exceeded due to the emergency (or an alternate timeframe acceptable to the permitting authority). This notice must contain the number, date, time, duration, and the cause of such events (including unknown cause, if applicable); a list of the affected sources or equipment; an estimate of the quantity of each regulated pollutant emitted over any emission limit and a description of the method used to estimate the emissions; and the probable cause of such deviations and any corrective actions or preventative measures taken.

(5) Before November 12, 2024, as an alternative to the requirements in paragraph (f)(4) of this section, you must comply with the startup, shutdown, and malfunction requirements in § 63.6(e)(3). On or after November 12, 2024, you may not use the requirements in § 63.6(e)(3) as an alternative to the requirements in paragraph (f)(4) of this section. Emissions limitation or work practice standards in this subpart apply at all times.

(g) *Recordkeeping requirements.* (1) You must maintain records of the occurrence and duration in hours of each startup, shutdown, or malfunction of process, air pollution control, and monitoring equipment.

(2) In the event that an affected unit fails to meet an applicable standard, record the number of failures. For each failure record the date, time, cause and duration of each failure.

(3) For each failure to meet an applicable standard, record and retain a list of the affected sources or equipment, whether the failure occurred during a period of startup, shutdown or malfunction, actions taken to minimize emissions, an estimate of the quantity of each regulated pollutant emitted over any emission limit and a description of the method used to estimate the emissions.

(4) Record actions taken to minimize emissions in accordance with § 63.11147(c), paragraph (f) of this section, or § 63.11149(c)(3) as applicable, and any corrective actions taken to return the affected unit to its normal or usual manner of operation.

(5) You must maintain a file of all measurements, including continuous monitoring system, monitoring device, and performance testing measurements; all continuous monitoring system performance evaluations; all continuous monitoring system or monitoring device calibration checks; adjustments and maintenance performed on these systems or devices; and all other information required by this section recorded in a permanent form suitable for inspection. The file must be retained for at least 5 years following the date of such measurements, maintenance, and reports.

(6) 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.

(h) *Reporting requirements.* (1) You must prepare and submit to the permitting authority an excess emissions and monitoring systems performance report and summary report every calendar quarter. A less frequent reporting interval may be used for either report as approved by the permitting authority.

(2) The summary report must include the information in paragraphs (h)(2)(i) through (iv) of this section.

(i) The magnitude of excess emissions computed, any conversion factor(s) used, and the date and time of commencement and completion of each time period of excess emissions. The process operating time during the reporting period. Examples of methods used to estimate the emissions would include product-loss calculations, mass balance calculations, measurements when available, or engineering judgment based on known process parameters.

(ii) Specific identification of each period of excess emissions that occurs during startups, shutdowns, and malfunctions of the affected facility. The nature and cause of any malfunction (if known), the corrective action taken or preventative measures adopted.

(iii) The date, time, and duration in hours identifying each period during which the continuous monitoring system was inoperative except for zero and span checks and the nature of the system repairs or adjustments.

(iv) When no excess emissions have occurred or the continuous monitoring system(s) have not been inoperative, repaired, or adjusted, such information must be stated in the report.

(i) *Electronic reporting requirements.* Beginning on November 13, 2024, within 60 days after the date of completing each performance test required by this subpart, you must submit the results of the performance test following the procedures specified in § 63.9(k).

(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.

■ 7. Revise § 63.11149 to read as follows:

§ 63.11149 What are the standards and compliance requirements for new sources?

(a) *Emissions limits and work practice standards.* (1) You must not discharge to the atmosphere exhaust gases that contain filterable PM in excess of 0.6 pound per ton of copper concentrate feed charged on a 24-hour average basis from any combination of stacks, vents, or other openings on furnaces, reactors, or other types of process vessels used for the production of anode copper from copper sulfide ore concentrates by pyrometallurgical techniques. Examples of such process equipment include, but are not limited to, copper concentrate dryers, smelting flash furnaces, smelting bath furnaces, converting vessels, combined smelting and converting reactors, anode refining furnaces, and anode shaft furnaces.

(2) You must operate a capture system that collects the gases and fumes released during the transfer of molten materials from smelting vessels and converting vessels and conveys the collected gas stream to a baghouse or other PM control device.

(3) You must operate one or more capture systems that collect the gases and fumes released from each vessel used to refine blister copper, remelt anode copper, or remelt anode scrap and convey each collected gas stream to a baghouse or other PM control device. One control device may be used for multiple collected gas streams.

(b) *Monitoring requirements.* (1) You must install, operate, and maintain a PM continuous emissions monitoring system (CEMS) to measure and record PM concentrations and gas stream flow rates for the exhaust gases discharged to the atmosphere from each affected source subject to the emissions limit in paragraph (a)(1) of this section. A single PM CEMS may be used for the combined exhaust gas streams from multiple affected sources at a point before the gases are discharged to the atmosphere. For each PM CEMS used to comply with this paragraph (b)(1), you must meet the requirements in paragraphs (b)(1)(i) through (iii) of this section.

(i) You must install, certify, operate, and maintain the PM CEMS according to EPA Performance Specification 11 in appendix B to 40 CFR part 60, and the quality assurance requirements of Procedure 2 in appendix F to 40 CFR part 60.

(ii) You must conduct an initial performance evaluation of the PM CEMS according to the requirements of Performance Specification 11 in

appendix B to 40 CFR part 60.

Thereafter, you must perform the performance evaluations as required by Procedure 2 in appendix F to 40 CFR part 60.

(iii) You must perform quarterly accuracy determinations and daily calibration drift tests for the PM CEMS according to Procedure 2 in appendix F to 40 CFR part 60.

(2) You must install, operate, and maintain a weight measurement system to measure and record the weight of the copper concentrate feed charged to the smelting vessel on a daily basis.

(3)(i) You must comply with the requirements in § 63.8(d)(1) and (2).

(ii) The owner or operator shall keep the written procedures required in § 63.8(d)(1) and (2) on record for the life of the affected source or until the affected source is no longer subject to the provisions of this part, to be made available for inspection, upon request, by the Administrator. If the performance evaluation plan is revised, the owner or operator shall keep previous (i.e., superseded) versions of the performance evaluation plan on record to be made available for inspection, upon request, by the Administrator, for a period of 5 years after each revision to the plan. The program of corrective action should be included in the plan required under § 63.8(d)(2).

(c) *Compliance requirements.* (1) You must demonstrate initial compliance with the emissions limit in paragraph (a)(1) of this section using the procedures in paragraph (c)(2) this section within 180 days after startup and report the results in your notification of compliance status no later than 30 days after the end of the compliance demonstration.

(2) You must demonstrate continuous compliance with the emissions limit in paragraph (a)(1) of this section using the procedures in paragraphs (c)(2)(i) through (iii) of this section whenever your facility is producing copper from copper concentrate.

(i) You must continuously monitor and record PM emissions, determine and record the daily (24-hour) value for each day, and calculate and record the daily average pounds of filterable PM per ton of copper concentrate feed charged to the smelting vessel according to the requirements in paragraph (b) of this section.

(ii) You must calculate the daily average at the end of each calendar day for the preceding 24-hour period.

(iii) You must maintain records of the calculations of daily averages with supporting information and data, including measurements of the weight of copper concentrate feed charged to

the smelting vessel. Collected PM CEMS data must be made available for inspection.

(3)(i) At all times, you must maintain and operate any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. The general duty to minimize emissions does not require the owner or operator to make any further efforts to reduce emissions if levels required by the applicable standard have been achieved. Determination of whether a source is operating in compliance with operation and maintenance requirements will be based on information available to the permitting authority which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source.

(ii) All pollution control equipment must be installed, maintained, and operated properly. Instructions from the vendor or established maintenance practices that maximize pollution control must be followed. All necessary equipment control and operating devices, such as pressure gauges, amp meters, volt meters, flow rate indicators, temperature gauges, continuous emissions monitor, etc., must be installed, operated properly and easily accessible to compliance inspectors. A copy of all manufacturers' operating instructions for pollution control equipment and pollution emitting equipment must be maintained at your facility site. These instructions must be available to all employees who operate the equipment and must be made available to the permitting authority upon request. Maintenance records must be made available to the permitting authority upon request.

(iii) You must document the activities performed to assure proper operation and maintenance of the air pollution control equipment and monitoring systems or devices. Records of these activities must be maintained as required by the permitting authority.

(4)(i) In the event that an affected unit fails to meet an applicable standard, record the number of failures. For each failure record the date, time, the cause and duration of each failure.

(ii) For each failure to meet an applicable standard, record and retain a list of the affected sources or equipment, an estimate of the quantity of each regulated pollutant emitted over any emission limit and a description of the method used to estimate the emissions.

(iii) Record actions taken in accordance with the general duty requirements to minimize emissions in paragraph (c)(3) of this section and any corrective actions taken to return the affected unit to its normal or usual manner of operation.

(d) *Alternative startup, shutdown, and malfunction requirements.* Before November 12, 2024, you must comply with the requirements specified in this paragraph (d) as an alternative to the requirements in § 63.6(e)(3). On or after November 12, 2024, you may not use the requirements in § 63.6(e)(3) as an alternative to the requirements in this paragraph (d). Emissions limitation or work practice standards in this subpart apply at all times. In the event of an emergency situation, you must comply with the requirements specified in paragraphs (d)(1) through (3) of this section. For the purpose of complying with this paragraph (d), an emergency situation is any situation arising from sudden and reasonably unforeseeable events beyond the control of the facility owner or operator that requires immediate corrective action to restore normal operation, and that causes the affected source to exceed an applicable emissions limitation under this subpart, due to unavoidable increases in emissions attributable to the emergency. An emergency must not include noncompliance to the extent it is caused by improperly designed equipment, lack of preventive maintenance, careless or improper operation, or operator error.

(1) During the period of the emergency, you must implement all reasonable steps to minimize levels of emissions that exceeded the emission standards or other applicable requirements in this subpart.

(2) You must document through signed contemporaneous logs or other relevant evidence that an emergency occurred and you can identify the probable cause, your facility was being operated properly at the time the emergency occurred, and the corrective actions taken to minimize emissions as required by paragraph (d)(1) of this section.

(3) You must submit a notice of the emergency to the permitting authority within two working days of the time when emissions limitations were exceeded due to the emergency (or an alternate timeframe acceptable to the permitting authority). This notice must contain a description of the emergency, any steps taken to mitigate emissions, and corrective actions taken.

(e) *Reports.* (1) You must submit to the permitting authority by the 20th day of each month a summary of the daily average PM per ton of copper

concentrate feed charged to the smelting vessel for the previous month.

(2) Beginning November 12, 2024, the owner or operator must electronically submit all subsequent monthly PM emission reports and notification of compliance status in PDF format to the EPA via CEDRI, which can be accessed through EPA's CDX (<https://cdx.epa.gov/>) following the procedures specified in § 63.9(k).

(3) For each deviation from an emission limitation in paragraph (a)(1) of this section occurring at an affected source, you must include in your semiannual monitoring report the information in paragraphs (e)(3)(i) through (x) of this section.

(i) The date and time that each malfunction started and stopped.

(ii) The start date, and start time, and duration in hours (or minutes for CEMS) that each continuous monitoring system was inoperative, except for zero (low-level) and high-level checks.

(iii) The start date, start time, and duration in hours (or minutes for CEMS) that each continuous monitoring system was out-of-control, including the information in § 63.8(c)(8).

(iv) The total duration in hours (or minutes for CEMS) of all deviations for each CMS during the reporting period, the total operating time in hours of the affected source during the reporting period, a summary of the total duration of the deviation during the reporting period and the total duration as a percent of the total source operating time during that reporting period.

(v) A breakdown of the total duration in hours (or minutes for CEMS) of the deviations during the reporting period including those that are due to control equipment problems, process problems, other known causes, and other unknown causes.

(vi) The total duration in hours (or minutes for CEMS) of continuous monitoring system downtime for each CMS during the reporting period, the total operating time in hours of the affected source during the reporting period, and the total duration of CMS downtime as a percent of the total source operating time during the reporting period.

(vii) A brief description of the process units.

(viii) The monitoring equipment manufacturer and model number and the pollutant or parameter monitored.

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

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

■ 8. Amend § 63.11151 by adding the definition “Blowing” in alphabetical order and revising the definition “Capture system” to read as follows:

§ 63.11151 What definitions apply to this subpart?

* * * * *

Blowing means the operating mode for a batch copper converter during which air or oxygen-enriched air is injected into the molten converter bath.

Capture system means the collection of components used to capture gases and fumes released from one or more emissions points and then convey the captured gas stream to a control device. A capture system may include, but is not limited to, the following

components as applicable to a given capture system design: duct intake devices, hoods, enclosures, ductwork, dampers, manifolds, plenums, and fans.

* * * * *

■ 9. Amend § 63.11152 by:

■ a. Revising paragraph (c) introductory text;

■ b. Removing the undesignated paragraph after paragraph (c)(5); and

■ c. Adding paragraph (c)(6).

The revision and addition read as follows:

§ 63.11152 Who implements and enforces this subpart?

* * * * *

(c) The authorities that will not be delegated to State, local, or tribal

agencies are listed in paragraphs (c)(1) through (6) of this section.

* * * * *

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

■ 10. Revise table 1 to subpart EEEEEEE of part 63 to read as follows:

Table 1 to Subpart EEEEEEE of Part 63—Applicability of General Provisions to This Subpart

As required in § 63.11150(a), you must comply with the requirements of the NESHAP General Provisions (subpart A of this part) as shown in the following table.

Citation	Subject	Applies to this subpart?	Explanation
§ 63.1(a)(1) through (4), (6), and (10) through (12), (b)(1) and (3), (c)(1), (2), and (5), (e).	Applicability	Yes..	
§ 63.1(a)(5) and (7) through (9), (b)(2), (c)(3) and (4), (d).	Reserved	No..	
§ 63.2	Definitions	Yes..	
§ 63.3	Units and Abbreviations	Yes..	
§ 63.4	Prohibited Activities and Circumvention.	Yes..	
§ 63.5	Preconstruction Review and Notification Requirements.	No..	
§ 63.6(a), (b)(1) through (5) and (7), (c)(1), (2), and (5).	Compliance with Standards and Maintenance Requirements—Applicability and Compliance Dates.	Yes..	
§ 63.6(e)(1)(i)	Operation and Maintenance Requirements—general duty to minimize emissions.	Yes before November 12, 2024 ... No on or after November 12, 2024.	See §§ 63.11147(c) and 63.11148(f) for the general duty to minimize emissions at all times at existing sources. See § 63.11149(c)(3) for the general duty to minimize emissions at all times at new sources.
§ 63.6(e)(1)(ii)	Requirement to correct malfunctions as soon as practicable..	Yes before November 12, 2024 ... No on or after November 12, 2024.	Malfunctions are no longer exempt.
§ 63.6(e)(1)(iii) .....	.....	Yes..	
§ 63.6(e)(3)	Startup, Shutdown, and Manufacturing Plan.	Yes before November 12, 2024 ... No on or after November 12, 2024.	The requirements for emergency situations for existing sources are contained in §§ 63.11147(c)(5) and 63.11148(f)(5). See § 63.11149(d) for the emergency requirements for new sources.
§ 63.6(f)(1)	Compliance with Nonopacity Emission Standards.	Yes before November 12, 2024 ... No on or after November 12, 2024.	Emission standards apply at all times. Some requirements of § 63.6(f)(1) are no longer applicable.
§ 63.6(f)(2) through (3) .....	.....	Yes..	
§ 63.6(g), (i), (j)	Compliance with Nonopacity Emission Standards.	Yes..	
§ 63.6(h)(1)	Compliance with Opacity and Visible Emission Standards.	Yes before November 12, 2024 ... No on or after November 12, 2024.	Requirements apply to new sources but not existing sources. Emission standards apply at all times. Some requirements of § 63.6(h)(1) are no longer applicable.
§ 63.6(b)(6), (c)(3) and (4), (d), (e)(2), (e)(3)(ii), (h)(2)(ii), (h)(3), (h)(5)(iv), (i)(15).	Reserved	No..	

Citation	Subject	Applies to this subpart?	Explanation
§ 63.6(h)(2) through (4), (h)(5)(i) through (iii), (h)(6) through (9).	.....	Yes/No.	Requirements apply to new sources but not existing sources.
§ 63.7(a), (e)(2) through (4), (f), (g), (h).	Performance Testing Requirements.	Yes..	
§ 63.7(e)(1)	Performance Testing Requirements.	No	See § 63.11148(e) for performance testing requirements.
§ 63.7(b), (c) .....	.....	Yes/No	Notification of performance tests and quality assurance program apply to new sources but not existing sources.
§ 63.8(a)(1) and (2), (b), (c)(1)(ii), (c)(2) through (8), (f), (g).	Monitoring Requirements	Yes..	
§ 63.8(c)(1)(i) and (iii)	General Duty and SSM Plan Requirements for Continuous Monitoring Systems.	Yes before November 12, 2024. .. No on or after November 12, 2024..	
§ 63.8(a)(3)	Reserved	No..	
§ 63.8(a)(4) .....	.....	No	This subpart does not require flares.
§ 63.8(d)(1) and (2), (e)	Quality Control	Yes/No	Requirements for quality control program and performance evaluations apply to new sources but not existing sources.
§ 63.8(d)(3)	Written Procedures for Continuous Monitoring Systems.	Yes before November 12, 2024 ... No on or after November 12, 2024.	Requirements for quality control program and performance evaluations apply to new sources but not existing sources. See § 63.11149(b)(3).
§ 63.9(a), (b)(1), (2), and (5), (c), (d), (h)(1) through (3), (5), and (6), (i), (j).	Notification Requirements	Yes..	
§ 63.9(b)(3), (h)(4)	Reserved	No..	
§ 63.9(b)(4), (f) .....	.....	No..	
§ 63.9(e), (g) .....	.....	Yes/No	Notification requirements for performance test and use of continuous monitoring systems apply to new sources but not existing sources.
§ 63.9(k)	Electronic submission of notifications or reports.	Yes..	
§ 63.10(a), (b)(1), (d)(1), (2), and (4), (f).	Recordkeeping and Reporting Requirements.	Yes/No	Recordkeeping requirements apply to new sources but not existing sources.
§ 63.10(b)(2)(iii) and (vi) through (xiv), (b)(3), (c)(1), (5) through (8), and (10) through (14), (e)(1) and (2).	.....	Yes/No	Recordkeeping requirements apply to new sources but not existing sources.
§ 63.10(b)(2)(i) through (ii) and (iv) through (v).	General Recordkeeping Requirements and Actions to Minimize Emissions During Startup, Shutdown, and Malfunction.	Yes before November 12, 2024 ... No on or after November 12, 2024.	Recordkeeping requirements apply to new sources but not existing sources. See § 63.11149(c)(4). Startup, Shutdown, and Malfunction are no longer exempt from emission standards. See § 63.11148(g).
§ 63.10(c)(2) and (4) and (9)	Reserved	No..	
§ 63.10(c)(15)	Use of Startup, Shutdown, and Malfunction Plan.	For new sources, Yes before November 12, 2024. No on or after November 12, 2024.	Recordkeeping requirements apply to new sources but not existing sources. Startup, Shutdown, and Malfunction Plans are no longer required.
§ 63.10(d)(3), (e)(4) .....	.....	No	Reporting requirements apply to new sources but not existing sources.
§ 63.10(d)(5)	Startup, Shutdown, and Malfunction Reporting.	For new sources, Yes before November 12, 2024. No on or after November 12, 2024.	Reporting requirements apply to new sources but not existing sources. See §§ 63.11147(e), 63.11148(h), 63.11149(e)(2).
§ 63.10(e)(3) .....	.....	Yes/No	Reporting requirements apply to new sources but not existing sources.
§ 63.11	Control Device Requirements	No	This subpart does not require flares.

Citation	Subject	Applies to this subpart?	Explanation
§ 63.12	State Authorities and Delegations	Yes..	
§ 63.13	Addresses	Yes..	
§ 63.14	Incorporations by Reference	Yes..	
§ 63.15	Availability of Information and Confidentiality.	Yes..	
§ 63.16	Performance Track Provisions	Yes..	