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40 CFR Part 63
National Emission Standards for Hazardous Air Pollutants: Ferroalloys Production; Proposed Rule

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 63

[EPA–HQ–OAR–2010–0895; FRL–9909–26–OAR]

RIN 2060–AQ11

National Emission Standards for Hazardous Air Pollutants: Ferroalloys Production

AGENCY: Environmental Protection Agency (EPA).

ACTION: Supplemental notice of proposed rulemaking.

SUMMARY: This action supplements our proposed amendments to the national emission standards for hazardous air pollutants (NESHAP) for the Ferroalloys Production source category published in the **Federal Register** on November 23, 2011. In that action, the Environmental Protection Agency (EPA) proposed amendments based on the initial technology and residual risk reviews for this source category. Today's action presents a revised technology review and a revised residual risk review for the Ferroalloys Production source category and proposes revisions to the standards based on those reviews. This action also proposes new compliance requirements to meet the revised standards. This action would result in significant environmental improvements through the reduction of fugitive manganese emissions and through more stringent emission limits for several processes.

DATES: *Comments.* Comments must be received on or before November 20, 2014. A copy of comments on the information collection provisions should be submitted to the Office of Management and Budget (OMB) on or before November 5, 2014.

Public Hearing. If anyone contacts the EPA requesting a public hearing by October 14, 2014 the EPA will hold a public hearing on October 21, 2014 from 1:00 p.m. [Eastern Standard Time] to 8:00 p.m. [Eastern Standard Time] in Marietta, Ohio. If the EPA holds a public hearing, the EPA will keep the record of the hearing open for 30 days after completion of the hearing to provide an opportunity for submission of rebuttal and supplementary information.

ADDRESSES: *Comments.* Submit your comments, identified by Docket ID No. EPA–HQ–OAR–2010–0895, by one of the following methods:

- *Federal eRulemaking Portal: http://www.regulations.gov.* Follow the online instructions for submitting comments.
- *Email: A-and-R-Docket@epa.gov.* Include ''Attention Docket ID No. EPA–HQ–OAR–2010–0895'' in the subject line of the message.
- *Fax:* (202) 566–9744. Attention Docket ID Number EPA–HQ–OAR–2010–0895.
- *Mail:* Environmental Protection Agency, EPA Docket Center (EPA/DC), Mail Code 28221T, Attention Docket ID No. EPA–HQ–OAR–2010–0895, 1200 Pennsylvania Avenue NW., Washington, DC 20460. Please include a total of two copies. In addition, please mail a copy of your comments on the information collection provisions to the Office of Information and Regulatory Affairs, Office of Management and Budget (OMB), Attn: Desk Officer for EPA, 725 17th Street NW., Washington, DC 20503.
- *Hand/Courier Delivery:* EPA Docket Center, Room 3334, EPA WJC West Building, 1301 Constitution Avenue NW., Washington, DC 20004, Attention Docket ID No. EPA–HQ–OAR–2010–0895. Such deliveries are only accepted during the Docket's normal hours of operation, and special arrangements should be made for deliveries of boxed information.

Instructions. Direct your comments to Docket ID No. EPA–HQ–OAR–2010–0895. The EPA's policy is that all comments received will be included in the public docket without change and may be made available online at *http://www.regulations.gov,* including any personal information provided, unless the comment includes information claimed to be confidential business information (CBI) or other information whose disclosure is restricted by statute. Do not submit information that you consider to be CBI or otherwise protected through *www.regulations.gov* or email. The *http://www.regulations.gov* Web site is an ''anonymous access'' system, which means the EPA will not know your identity or contact information unless you provide it in the body of your comment. If you send an email comment directly to the EPA without going through *http://www.regulations.gov,* your email address will be automatically captured and included as part of the comment that is placed in the public docket and made available on the Internet. If you submit an electronic comment, the EPA recommends that you include your name and other contact information in the body of your comment and with any disk or CD–ROM you submit. If the EPA cannot read your comment due to technical difficulties and cannot contact you for clarification, the EPA may not be able to consider your comment. Electronic files should not include special characters or any form of encryption and be free of any defects or viruses. For additional information about the EPA's public docket, visit the EPA Docket Center homepage at: *http://www.epa.gov/dockets.*

Docket. The EPA has established a docket for this rulemaking under Docket ID Number EPA–HQ–OAR–2010–0895. All documents in the docket are listed in the regulations.gov index. Although listed in the index, some information is not publicly available, *e.g.,* CBI or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, is not placed on the Internet and will be publicly available only in hard copy. Publicly available docket materials are available either electronically in regulations.gov or in hard copy at the EPA Docket Center, EPA WJC West Building, Room 3334, 1301 Constitution Ave., NW., Washington, DC. The Public Reading Room is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays. The telephone number for the Public Reading Room is (202) 566–1744, and the telephone number for the EPA Docket Center is (202) 566–1742.

Public Hearing. If requested, we will hold a public hearing on October 21, 2014, from 1:00 p.m. [Eastern Standard Time] to 8:00 p.m. [Eastern Standard Time] in Marietta, Ohio. There will be a dinner break from 5:00 p.m. [Eastern Standard Time] until 6:00 p.m. [Eastern Standard Time]. Please contact Ms. Virginia Hunt of the Sector Policies and Programs Division (E143–01), Office of Air Quality Planning and Standards, Environmental Protection Agency, Research Triangle Park, NC 27711; telephone number: 919–541–0832; email address: *hunt.virginia@epa.gov;* to register to speak at the hearing or to inquire as to whether or not a hearing will be held. The last day to pre-register in advance to speak at the hearing will be October 20, 2014. Additionally, requests to speak will be taken the day of the hearing at the hearing registration desk, although preferences on speaking times may not be able to be fulfilled. If you require the service of a translator or special accommodations such as audio description, please let us know at the time of registration. If you require an accommodation we ask that you pre-register for the hearing, as we may not be able to arrange such accommodations without advance notice. The hearing will provide interested parties the opportunity to present data, views or arguments concerning the proposed action. The EPA will make every effort to accommodate all speakers who arrive and register.

FOR FURTHER INFORMATION CONTACT: For questions about this proposed action, contact Mr. Phil Mulrine, Sector Policies and Programs Division (D243–02), Office of Air Quality Planning and Standards, Environmental Protection Agency, Research Triangle Park, NC 27711; telephone (919) 541–5289; fax number: (919) 541–3207; and email address: *mulrine.phil@epa.gov.* For specific information regarding the risk modeling methodology, contact Ms. Darcie Smith, Health and Environmental Impacts Division (C539–02), Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, NC 27711; telephone number: (919) 541–2076; fax number: (919) 541–2076; and email address: *smith.darcie@epa.gov.* For information about the applicability of the National Emissions Standards for Hazardous Air Pollutants (NESHAP) to a particular entity, contact Cary Secrest, Office of Enforcement and Compliance Assurance (OECA), telephone number: (202) 564–8661 and email address: *seacrest.cary@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:

AEGL—acute exposure guideline levels
AERMOD—air dispersion model used by the HEM–3 model
ATSDR—Agency for Toxic Substances and Disease Registry
BLDS—bag leak detection system
BTF—Beyond the Floor
CAA—Clean Air Act
CalEPA—California EPA
CBI—Confidential Business Information
CFR—Code of Federal Regulations
EJ—environmental justice
EPA—Environmental Protection Agency
ERPG—Emergency Response Planning Guidelines
ERT—Electronic Reporting Tool
FR—Federal Register
HAP—hazardous air pollutants
HCl—hydrochloric acid
HEM–3—Human Exposure Model, Version 1.1.0
HI—Hazard Index
HQ—Hazard Quotient
ICR—Information Collection Request
IRIS—Integrated Risk Information System
km—kilometer
LOAEL—lowest-observed-adverse-effect level
MACT—maximum achievable control technology
MACT Code—Code within the National Emissions Inventory used to identify processes included in a source category
mg/dscm—milligrams per dry standard cubic meter
mg/kg-day—milligrams per kilogram-day
mg/m^{3}—milligrams per cubic meter
MIR—maximum individual risk
MRL—Minimal Risk Level
NAAQS—National Ambient Air Quality Standards
NAICS—North American Industry Classification System
NAS—National Academy of Sciences
NATA—National Air Toxics Assessment
NESHAP—National Emissions Standards for Hazardous Air Pollutants
NOAEL—no-observed-adverse-effect level
NRC—National Research Council
NTTAA—National Technology Transfer and Advancement Act
OAQPS—Office of Air Quality Planning and Standards
OECA—Office of Enforcement and Compliance Assurance
OMB—Office of Management and Budget
PAH—polycyclic aromatic hydrocarbons
PB–HAP—hazardous air pollutants known to be persistent and bio-accumulative in the environment
PEL—probable effect level
PM—particulate matter
POM—polycyclic organic matter
ppm—parts per million
RDL—representative method detection level
REL—reference exposure level
RFA—Regulatory Flexibility Act
RfC—reference concentration
RfD—reference dose
RTR—residual risk and technology review
SAB—Science Advisory Board
SBA—Small Business Administration
SSM—startup, shutdown and malfunction
TOSHI—target organ-specific hazard index
TPY—tons per year
TRIM.FaTE—Total Risk Integrated Methodology.Fate, Transport, and Ecological Exposure model
TTN—Technology Transfer Network
UF—uncertainty factor
µg/dscm—micrograms per dry standard cubic meter
µg/m^{3}—micrograms per cubic meter
UMRA—Unfunded Mandates Reform Act
UPL—Upper Prediction Limit
URE—unit risk estimate
VCS—voluntary consensus standards

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

I. General Information

A. Does this action apply to me?

Table 1 of this preamble lists the industrial source category that is the subject of this supplemental proposal. Table 1 is not intended to be exhaustive but rather to provide a guide for readers regarding the entities that this proposed action is likely to affect. The proposed standards, once finalized, will be directly applicable to the affected sources. Federal, state, local and tribal government agencies are not affected by this proposed action. As defined in the ''Initial List of Categories of Sources Under Section 112(c)(1) of the Clean Air Act Amendments of 1990'' (see 57 FR 31576, July 16, 1992), the ''Ferroalloys Production'' source category is any facility engaged in producing ferroalloys such as ferrosilicon, ferromanganese and ferrochrome.[1] The EPA redefined the Ferroalloys Production source category when it promulgated the 1999 Ferroalloys Production standard so that it now includes only major sources that produce products containing manganese (Mn). (64 FR 27450, May 20, 1999.) The 1999 standard applies specifically to two ferroalloy product types: Ferromanganese and silicomanganese.

TABLE 1—NESHAP AND INDUSTRIAL SOURCE CATEGORIES AFFECTED BY THIS PROPOSED ACTION

Source category	NESHAP	NAICS code[a]
Ferroalloys Production	Ferroalloys Production	331110

[a] 2012 North American Industry Classification System

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

In addition to being available in the docket, an electronic copy of this action is available on the Internet through the EPA's Technology Transfer Network (TTN) Web site, a forum for information and technology exchange in various areas of air pollution control. Following signature by the EPA Administrator, the EPA will post a copy of this proposed action at: *http://www.epa.gov/ttn/atw/ferropg.html.* Following publication in the **Federal Register**, the EPA will post the **Federal Register** version of the proposal and key technical documents at this same Web site. Information on the overall residual risk and technology review program is available at the following Web site: *http://www.epa.gov/ttn/atw/rrisk/rtrpg.html.*

C. What should I consider as I prepare my comments for the EPA?

Submitting CBI. Do not submit information containing CBI to the EPA through *http://www.regulations.gov* or email. Clearly mark the part or all of the information that you claim to be CBI. For CBI information on a disk or CD–ROM that you mail to the EPA, mark the outside of the disk or CD–ROM as CBI and then identify electronically within the disk or CD–ROM the specific information that is claimed as CBI. In addition to one complete version of the comments that includes information claimed as CBI, you must submit a copy of the comments that does not contain the information claimed as CBI for inclusion in the public docket. If you submit a CD–ROM or disk that does not contain CBI, mark the outside of the disk or CD–ROM clearly that it does not contain CBI. Information not marked as CBI will be included in the public docket and the EPA's electronic public docket without prior notice. Information marked as CBI will not be disclosed except in accordance with procedures set forth in 40 Code of Federal Regulations (CFR) part 2. Send or deliver information identified as CBI only to the following address: Roberto Morales, OAQPS Document Control Officer (C404–02), OAQPS, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711, Attention Docket ID Number EPA–HQ–OAR–2010–0895.

II. Background Information

A. What is the statutory authority for this action?

Section 112 of the Clean Air Act (CAA) establishes a two-stage regulatory process to address emissions of hazardous air pollutants (HAP) from stationary sources. In the first stage, after the EPA has identified categories of sources emitting one or more of the HAP listed in CAA section 112(b), CAA section 112(d) requires us to promulgate technology-based NESHAP for those sources. ''Major sources'' are those that emit or have the potential to emit 10 tons per year (tpy) or more of a single HAP or 25 tpy or more of any combination of HAP. For major sources, the technology-based NESHAP must reflect the maximum degree of emission reductions of HAPs achievable (after considering cost, energy requirements and non-air quality health and environmental impacts) and are commonly referred to as maximum achievable control technology (MACT) standards.

MACT standards must reflect the maximum degree of emissions reduction achievable through the application of measures, processes, methods, systems or techniques, including, but not limited to, measures that (1) reduce the volume of or eliminate pollutants through process changes, substitution of materials or other modifications; (2) enclose systems or processes to eliminate emissions; (3) capture or treat pollutants when released from a process, stack, storage or fugitive emissions point; (4) are design, equipment, work practice or operational standards (including requirements for operator training or certification); or (5) are a combination of the above. CAA section 112(d)(2)(A)–(E). The MACT standards may take the form of design, equipment, work practice or operational standards where the EPA first determines either that (1) a pollutant cannot be emitted through a conveyance designed and constructed to emit or capture the pollutant, or that any requirement for, or use of, such a conveyance would be inconsistent with law; or (2) the application of measurement methodology to a particular class of sources is not practicable due to technological and economic limitations. CAA section 112(h)(1)–(2).

The MACT ''floor'' is the minimum control level allowed for MACT standards promulgated under CAA section 112(d)(3) and may not be based on cost considerations. For new sources, the MACT floor cannot be less stringent than the emissions control that is achieved in practice by the best-controlled similar source. The MACT floor for existing sources can be less stringent than floors for new sources, but not less stringent than the average emissions 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, the EPA must also consider control options that are more stringent than the floor. We may establish standards more stringent than the floor based on considerations of the cost of achieving the emission reductions, any

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[1] U.S. EPA. Documentation for Developing the Initial Source Category List—Final Report, EPA/OAQPS, EPA–450/3–91–030, July, 1992.

non-air quality health and environmental impacts and energy requirements.

The EPA is then required to review these technology-based standards and revise them ''as necessary (taking into account developments in practices, processes, and control technologies)'' no less frequently than every eight years. CAA section 112(d)(6). In conducting this review, the EPA is not required to recalculate the MACT floor. *Natural Resources Defense Council (NRDC)* v. *EPA,* 529 F.3d 1077, 1084 (D.C. Cir. 2008). *Association of Battery Recyclers, Inc.* v. *EPA,* 716 F.3d 667 (D.C. Cir. 2013).

The second stage in standard-setting focuses on reducing any remaining (*i.e.,* ''residual'') risk according to CAA section 112(f). Section 112(f)(1) required that the EPA prepare a report to Congress discussing (among other things) methods of calculating the risks posed (or potentially posed) by sources after implementation of the MACT standards, the public health significance of those risks and the EPA's recommendations as to legislation regarding such remaining risk. The EPA prepared and submitted the *Residual Risk Report to Congress,* EPA–453/R–99–001 (*Risk Report*) in March 1999. CAA section 112(f)(2) then provides that if Congress does not act on any recommendation in the *Risk Report,* the EPA must analyze and address residual risk for each category or subcategory of sources 8 years after promulgation of such standards pursuant to CAA section 112(d).

Section 112(f)(2) of the CAA requires the EPA to determine for source categories subject to MACT standards whether the emission standards provide an ample margin of safety to protect public health. Section 112(f)(2)(B) of the CAA expressly preserves the EPA's use of the two-step process for developing standards to address any residual risk and the agency's interpretation of ''ample margin of safety'' developed in the *National Emissions Standards for Hazardous Air Pollutants: Benzene Emissions From Maleic Anhydride Plants, Ethylbenzene/Styrene Plants, Benzene Storage Vessels, Benzene Equipment Leaks, and Coke By-Product Recovery Plants* (Benzene NESHAP) (54 FR 38044, September 14, 1989). The EPA notified Congress in the *Risk Report* that the agency intended to use the Benzene NESHAP approach in making CAA section 112(f) residual risk determinations (EPA–453/R–99–001, p. ES–11). The EPA subsequently adopted this approach in its residual risk determinations and in a challenge to the risk review for the Synthetic Organic Chemical Manufacturing source category, the United States Court of Appeals for the District of Columbia Circuit upheld as reasonable the EPA's interpretation that subsection 112(f)(2) incorporates the approach established in the Benzene NESHAP. See *NRDC* v. *EPA,* 529 F.3d 1077, 1083 (D.C. Cir. 2008) (''[S]ubsection 112(f)(2)(B) expressly incorporates the EPA's interpretation of the Clean Air Act from the Benzene standard, complete with a citation to the **Federal Register**.''); see also *A Legislative History of the Clean Air Act Amendments of 1990,* vol. 1, p. 877 (Senate debate on Conference Report).

The first step in the process of evaluating residual risk is the determination of acceptable risk. If risks are unacceptable, the EPA cannot consider cost in identifying the emissions standards necessary to bring risks to an acceptable level. The second step is the determination of whether standards must be further revised in order to provide an ample margin of safety to protect public health. The ample margin of safety is the level at which the standards must be set, unless an even more stringent standard is necessary to prevent, taking into consideration costs, energy, safety and other relevant factors, an adverse environmental effect.

1. Step 1—Determination of Acceptability

The agency in the Benzene NESHAP concluded that ''the acceptability of risk under section 112 is best judged on the basis of a broad set of health risk measures and information'' and that the ''judgment on acceptability cannot be reduced to any single factor.'' Benzene NESHAP at 38046. The determination of what represents an ''acceptable'' risk is based on a judgment of ''what risks are acceptable in the world in which we live'' (*Risk Report* at 178, quoting *NRDC* v. *EPA,* 824 F. 2d 1146, 1165 (D.C. Cir. 1987) (en banc) (''Vinyl Chloride''), recognizing that our world is not risk-free.

In the Benzene NESHAP, we stated that ''EPA will generally presume that if the risk to [the maximum exposed] individual is no higher than approximately one in 10 thousand, that risk level is considered acceptable.'' 54 FR at 38045, September 14, 1989. We discussed the maximum individual lifetime cancer risk (or maximum individual risk (MIR)) as being ''the estimated risk that a person living near a plant would have if he or she were exposed to the maximum pollutant concentrations for 70 years.'' *Id.* We explained that this measure of risk ''is an estimate of the upper bound of risk based on conservative assumptions, such as continuous exposure for 24 hours per day for 70 years.'' *Id.* We acknowledged that maximum individual lifetime cancer risk ''does not necessarily reflect the true risk, but displays a conservative risk level which is an upper-bound that is unlikely to be exceeded.'' *Id.*

Understanding that there are both benefits and limitations to using the MIR as a metric for determining acceptability, we acknowledged in the Benzene NESHAP that ''consideration of maximum individual risk * * * must take into account the strengths and weaknesses of this measure of risk.'' *Id.* Consequently, the presumptive risk level of 100-in-1 million (1-in-10 thousand) provides a benchmark for judging the acceptability of maximum individual lifetime cancer risk, but does not constitute a rigid line for making that determination. Further, in the Benzene NESHAP, we noted that:

> [p]articular attention will also be accorded to the weight of evidence presented in the risk assessment of potential carcinogenicity or other health effects of a pollutant. While the same numerical risk may be estimated for an exposure to a pollutant judged to be a known human carcinogen, and to a pollutant considered a possible human carcinogen based on limited animal test data, the same weight cannot be accorded to both estimates. In considering the potential public health effects of the two pollutants, the Agency's judgment on acceptability, including the MIR, will be influenced by the greater weight of evidence for the known human carcinogen.

Id. at 38046. The agency also explained in the Benzene NESHAP that:

> [i]n establishing a presumption for MIR, rather than a rigid line for acceptability, the Agency intends to weigh it with a series of other health measures and factors. These include the overall incidence of cancer or other serious health effects within the exposed population, the numbers of persons exposed within each individual lifetime risk range and associated incidence within, typically, a 50 km exposure radius around facilities, the science policy assumptions and estimation uncertainties associated with the risk measures, weight of the scientific evidence for human health effects, other quantified or unquantified health effects, effects due to co-location of facilities, and co-emission of pollutants.

Id. at 38045. In some cases, these health measures and factors taken together may provide a more realistic description of the magnitude of risk in the exposed population than that provided by maximum individual lifetime cancer risk alone.

As noted earlier, in *NRDC* v. *EPA,* the court held that section 112(f)(2) ''incorporates the EPA's interpretation of the Clean Air Act from the Benzene Standard.'' The court further held that Congress' incorporation of the Benzene standard applies equally to carcinogens and non-carcinogens. 529 F.3d at 1081–82. Accordingly, we also consider non-cancer risk metrics in our determination of risk acceptability and ample margin of safety.

2. Step 2—Determination of Ample Margin of Safety

CAA section 112(f)(2) requires the EPA to determine, for source categories subject to MACT standards, whether those standards provide an ample margin of safety to protect public health. As explained in the Benzene NESHAP, ''the second step of the inquiry, determining an 'ample margin of safety,' again includes consideration of all of the health factors, and whether to reduce the risks even further. . . . Beyond that information, additional factors relating to the appropriate level of control will also be considered, including costs and economic impacts of controls, technological feasibility, uncertainties and any other relevant factors. Considering all of these factors, the agency will establish the standard at a level that provides an ample margin of safety to protect the public health, as required by section 112.'' 54 FR at 38046, September 14, 1989.

According to CAA section 112(f)(2)(A), if the MACT standards for HAP ''classified as a known, probable, or possible human carcinogen do not reduce lifetime excess cancer risks to the individual most exposed to emissions from a source in the category or subcategory to less than one in one million,'' the EPA must promulgate residual risk standards for the source category (or subcategory), as necessary to provide an ample margin of safety to protect public health. In doing so, the EPA may adopt standards equal to existing MACT standards if the EPA determines that the existing standards (*i.e.,* the MACT standards) are sufficiently protective. *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.'') The EPA must also adopt more stringent standards, if necessary, to prevent an adverse environmental effect,[2] but must consider cost, energy, safety and other relevant factors in doing so.

The CAA does not specifically define the terms ''individual most exposed,'' ''acceptable level'' and ''ample margin of safety.'' In the Benzene NESHAP, 54 FR at 38044–38045, September 14, 1989, we stated as an overall objective:

> In protecting public health with an ample margin of safety under section 112, EPA strives to provide maximum feasible protection against risks to health from hazardous air pollutants by (1) protecting the greatest number of persons possible to an individual lifetime risk level no higher than approximately 1-in-1 million and (2) limiting to no higher than approximately 1-in-10 thousand [i.e., 100-in-1 million] the estimated risk that a person living near a plant would have if he or she were exposed to the maximum pollutant concentrations for 70 years.

The agency further stated that ''[t]he EPA also considers incidence (the number of persons estimated to suffer cancer or other serious health effects as a result of exposure to a pollutant) to be an important measure of the health risk to the exposed population. Incidence measures the extent of health risks to the exposed population as a whole, by providing an estimate of the occurrence of cancer or other serious health effects in the exposed population.'' *Id.* at 38045.

In the ample margin of safety decision process, the agency again considers all of the health risks and other health information considered in the first step, including the incremental risk reduction associated with standards more stringent than the MACT standard or a more stringent standard that EPA has determined is necessary to ensure risk is acceptable. In the ample margin of safety analysis, the agency considers additional factors, including costs and economic impacts of controls, technological feasibility, uncertainties and any other relevant factors. Considering all of these factors, the agency will establish the standard at a level that provides an ample margin of safety to protect the public health, as required by CAA section 112(f). 54 FR 38046, September 14, 1989.

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

Ferroalloys are alloys of iron in which one or more chemical elements (such as chromium, manganese and silicon) are added into molten metal. Ferroalloys are consumed primarily in iron and steel making and are used to produce steel and cast iron products with enhanced or special properties. The ferroalloys products that are the focus of the NESHAP are ferromanganese (FeMn) and silicomanganese (SiMn), which are produced by two facilities in the United States. One facility (Eramet) is located in Marietta, Ohio and produces both FeMn and SiMn. The other plant (Felman) is located in Letart, West Virginia and produces only SiMn.

Ferroalloys within the scope of this source category are produced using submerged electric arc furnaces, which are furnaces in which the electrodes are submerged into the charge. The submerged arc process is a reduction smelting operation. The reactants consist of metallic ores (ferrous oxides, silicon oxides, manganese oxides, etc.) and a carbon-source reducing agent, usually in the form of coke, charcoal, high- and low-volatility coal, or wood chips. Raw materials are crushed and sized and then conveyed to a mix house for weighing and blending. Conveyors, buckets, skip hoists or cars transport the processed material to hoppers above the furnace. The mix is gravity-fed through a feed chute either continuously or intermittently, as needed. At high temperatures in the reaction zone, the carbon source reacts with metal oxides to form carbon monoxide and to reduce the ores to base metal.[3] The molten material (product and slag) is tapped from the furnace, sometimes subject to post-furnace refining and poured into casting beds on the furnace room floor. Once the material hardens, it is transported to product crushing and sizing systems and packaged for transport to the customer.

The NESHAP for Ferroalloys Production: Ferromanganese and Silicomanganese were promulgated on May 20, 1999 (64 FR 27450) and codified at 40 CFR part 63, subpart XXX.[4] The 1999 NESHAP applies to all new and existing ferroalloys production facilities that manufacture ferromanganese or silicomanganese and are major sources or are co-located at major sources of HAP emissions.

The existing Ferroalloys Production NESHAP rule applies to process emissions from the submerged arc furnaces, the metal oxygen refining process and the product crushing equipment; process fugitive emissions from the furnace; and outdoor fugitive dust emissions sources such as

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[2] ''Adverse environmental effect'' is defined as any significant and widespread adverse effect, which may be reasonably anticipated to wildlife, aquatic life or natural resources, including adverse impacts on populations of endangered or threatened species or significant degradation of environmental qualities over broad areas. CAA section 112(a)(7).

[3] EPA. AP–42, 12.4. Ferroalloy Production. 10/86.

[4] The emission limits were revised on March 22, 2001 (66 FR 16024) in response to a petition for reconsideration submitted to the EPA following promulgation of the final rule and a petition for review filed in the U.S. Court of Appeals for the District of Columbia Circuit.

roadways, yard areas and outdoor material storage and transfer operations. For the electric (submerged) arc furnace process, the NESHAP specifies numerical emissions limits for particulate matter (as a surrogate for non-mercury (or particulate) metal HAP). The NESHAP also includes emissions limits for particulate matter (again as a surrogate for particulate metal HAP) for process emissions from the metal oxygen refining process and product crushing and screening equipment. Table 2 is a summary of the applicable limits in the existing Subpart XXX.

TABLE 2—EMISSION LIMITS IN SUBPART XXX

New or reconstructed or existing source	Affected source	Applicable PM emission standards	Subpart XXX reference
New or reconstructed	Submerged arc furnace	0.23 kilograms per hour per megawatt (kg/hr/MW) (0.51 pounds per hour per megawatt (lb/hr/MW) or 35 milligrams per dry standard cubic meter (mg/dscm) (0.015 grains per dry standard cubic foot (gr/dscf).	40 CFR 63.1652(a)(1) and (a)(2)
Existing	Open submerged arc furnace producing ferromanganese and operating at a furnace power input of 22 megawatts (MW) or less.	9.8 kg/hr (21.7 lb/hr)	40 CFR 63.1652(b)(1)
Existing	Open submerged arc furnace producing ferromanganese and operating at a furnace power input greater than 22 MW.	13.5 kg/hr (29.8 lb/hr)	40 CFR 63.1652(b)(2)
Existing	Open submerged arc furnace producing silicomanganese and operating at a furnace power input greater than 25 MW.	16.3 kg/hr (35.9 lb/hr)	40 CFR 63.1652(b)(3)
Existing	Open submerged arc furnace producing silicomanganese and operating at a furnace power input of 25 MW or less.	12.3 kg/hr (27.2 lb/hr)	40 CFR 63.1652(b)(4)
Existing	Semi-sealed submerged arc furnace (primary, tapping and vent stacks) producing ferromanganese.	11.2 kg/hr (24.7 lb/hr)	40 CFR 63.1652(c)
New, reconstructed, or existing	Metal oxygen refining process	69 mg/dscm (0.03 gr/dscf)	40 CFR 63.1652(d)
New or reconstructed	Individual equipment associated with the product crushing and screening operation.	50 mg/dscm (0.022 gr/dscf)	40 CFR 63.1652(e)(1)
Existing	Individual equipment associated with the product crushing and screening operation.	69 mg/dscm (0.03 gr/dscf)	40 CFR 63.1652(e)(2)

The 1999 NESHAP established a building opacity limit of 20 percent that is measured during the required furnace control device performance test. The rule provides an excursion limit of 60 percent opacity for one 6-minute period during the performance test. The opacity observation is focused only on emissions exiting the shop due solely to operations of any affected submerged arc furnace. In addition, blowing taps, poling and oxygen lancing of the tap hole, burndowns associated with electrode measurements and maintenance activities associated with submerged arc furnaces and casting operations are exempt from the opacity standards specified in § 63.1653.

For outdoor fugitive dust sources, as defined in § 63.1652, the 1999 NESHAP requires that plants prepare and operate according to an outdoor fugitive dust control plan that describes in detail the measures that will be put in place to control outdoor fugitive dust emissions from the individual outdoor fugitive dust sources at the facility. The owner or operator must submit a copy of the outdoor fugitive dust control plan to the designated permitting authority on or before the applicable compliance date.

C. What is the history of the Ferroalloys Production Risk and Technology Review?

Pursuant to section 112(f)(2) of the CAA, we first evaluated the residual risk associated with the Ferroalloys Production NESHAP in 2011. We also conducted a technology review, as required by section 112(d)(6) of the CAA. Finally, we also reviewed the 1999 MACT rule to determine if other amendments were appropriate. Based on the results of that previous residual risk and technology review (RTR) and the MACT rule review, we proposed amendments to subpart XXX on November 23, 2011 (76 FR 72508) (referred to from here on as the 2011 proposal in the remainder of this FR notice). The proposed amendments in the 2011 proposal which we are revisiting in today's supplemental proposal include the following:

- Revisions to particulate matter (PM) standards for electric arc furnaces and local ventilation control devices;
- emission limits for mercury, polycyclic aromatic hydrocarbons (PAHs), and hydrochloric acid (HCl);
- proposed requirements to control process fugitive emissions based on full-building enclosure with negative pressure, or fenceline monitoring as an alternative;
- a provision for emissions averaging;
- amendments to the monitoring, notification, recordkeeping and testing requirements; and
- proposed provisions establishing an affirmative defense to civil penalties for violations caused by malfunctions.

The comment period for the 2011 proposal opened on November 23, 2011, and ended on January 31, 2012. We received significant comments from industry representatives, environmental organizations local community groups. We also met with stakeholders (from industry, community groups and environmental organizations) after proposal to further discuss their comments, concerns and related issues. After reviewing the comments and after consideration of additional data and information received since the 2011 proposal, we determined it is appropriate to revise some of our analyses and publish a supplemental proposal. Therefore, in today's Notice of Supplemental Proposed Rulemaking we present revised analyses, and based on those analyses we are proposing revised amendments for the items listed above to allow the public an opportunity to review and comment on these revised analyses and revised proposed amendments. In addition, we have reevaluated the proposed affirmative defense provisions in light of a recent court decision vacating an affirmative defense in one of the EPA's Section 112(d) regulations. *NRDC* v. *EPA,* 749 F.3d 1055 (D.C. Cir., 2014) (vacating affirmative defense provisions in Section 112(d) rule establishing emission standards for Portland cement kilns). In this supplemental proposal, we are withdrawing our 2011 proposal to include an affirmative defense provision in this regulation.

However, we also proposed other requirements in the 2011 proposal (listed below) for which we have made no revisions to the analyses, we are not proposing any changes and are not reopening for public comment. The other requirements that we proposed in the 2011 proposal, for which we are not re-opening for comment, are the following:

- PM standards for metal oxygen refining processes and crushing and screening operations;
- emissions limits for formaldehyde;
- elimination of SSM exemptions; and
- electronic reporting.

We will address the comments we received on these other proposed requirements during the public comment period for the 2011 proposal at the time we take final action.

In the 2011 proposal, we also included information about several ATSDR health consultations and a study (Kim *et al.*) that had been conducted in the Marietta area. We note that the Kim *et al.* study was included in the 2012 ATSDR review of manganese. Since the 2011 proposal, additional studies on the potential toxicity of manganese have been published. These studies add to the literature regarding potential health effects from exposure to manganese and will be included, along with the complete body of scientific evidence, in future reviews of manganese toxicity.

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

Commenters on the 2011 proposal expressed concern that the data set used in the risk assessment did not adequately reflect current operations at the plants. In response to these comments, we worked with the facilities to address these concerns and we obtained a significant amount of new data in order to establish a more robust dataset than the dataset we had for the 2011 proposal. Specifically, the plants provided data collected during their 2011 and 2012 compliance tests and, in response to an Information Collection Request (ICR) from the EPA in December 2012, they conducted more tests in the spring of 2013. This combined testing effort provided the following data:

- Additional stack test data for arsenic, cadmium, chromium, lead, manganese, mercury, nickel, HCl, formaldehyde, PAH, polychlorinated biphenyls (PCB) and dioxins/furans;
- Test data collected using updated, state-of-the-art test methods and procedures;
- Hazardous air pollutant (HAP) test data for all operational furnaces;
- Test data obtained during different seasonal conditions (*i.e.,* spring and fall);
- Test data for both products (ferromanganese and silicomanganese) for both furnaces at Eramet (Felman only produces silicomanganese).

With the new data, we no longer have to extrapolate HAP emissions from a ratio of PM to HAP emissions from just one or two tested furnaces. We are also using test data collected using state-of-the-art test methods that provide better QA/QC of the test results. For mercury, test data were collected for the supplemental proposal using EPA Method 30B, which requires paired samples collected for each test run, in addition to a spiked sample during the 3-run test. Test data for PAH were collected using CARB 429, which provides greater sensitivity, precision and identification of individual PAH compounds as compared to Method 0010 which was used for previous tests. We also received PCB and dioxin/furan test data that were collected using CARB 428, which uses high resolution instruments and provides a specific procedure for measuring PCBs in addition to dioxin/furans.

The data described above, which we received prior to summer 2014, were incorporated into our risk assessment, technology review and other MACT analyses presented in this Notice. However, we recently received additional test reports and data for PAH, mercury and PM emissions from one of the furnaces at Eramet (Furnace #12). We also received additional data on PM emissions for Furnaces #1 and #12 at Eramet and for the tapping baghouse at Eramet. We have not yet completed our technical review of these new data and we were not able to incorporate these new data (on PAHs, PM, or Hg) into our RTR or MACT analyses in time for the publication of today's Notice.[5] [6] These test reports (which we received on August 19, 2014) are available in the docket for today's action. We have not yet determined the technical viability of these data or how these data would affect the RTR and MACT analyses. Nevertheless, we seek comment on these new data and how these data would impact our analyses and results presented in today's Notice. Based on comments and information that we receive in response to this supplemental proposal, and after we complete our review of these data, we will consider these data as appropriate as we develop the final rule.

Commenters also expressed concern that the estimated cost and operational impacts of the 2011 proposed process fugitive standards based on use of a total building enclosure requirement were significantly underestimated. In their comments both companies submitted substantial additional information and estimates regarding the elements, costs and impacts involved with constructing and operating a full building enclosure for their facilities. We also received comments saying that full-enclosure with negative pressure can lead to worker safety and health issues related to indoor air quality if the systems are not designed and operated appropriately to provide sufficient air exchanges and air conditioning in the work space. Furthermore, in their comments and in subsequent meetings and other communications, the companies also provided design and cost information for an alternative approach to substantially reduce fugitive emissions based on enhanced local capture and control of these emissions at each plant. In the summer of 2012 and fall of 2013, both plants submitted updated enhanced capture plans and cost estimates to implement those plans. We also consulted with outside ventilation experts and control equipment vendors to re-evaluate the costs of process fugitive capture as well as costs of other control measures such as activated carbon injection. We also gathered a

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[5] Emission Measurement Summary Report. Furnace No. 12 Scrubber. PAHs and Mercury. Eramet Marietta, Inc. Marietta, OH. Prepared for: Eramet Marietta, Inc. Marietta, Ohio. Prepared by Environmental Quality Management, Inc. 1800 Carillon Boulevard, Cincinnati, Ohio 45240. January 2013.

[6] Emission Measurement Summary Report. Filterable Particulate Matter Furnaces 1 and 12. Eramet Marietta, Inc. Marietta, OH. *Prepared for:* Eramet Marietta, Inc. Marietta, Ohio 45750–0299 *Prepared by:* Environmental Quality Management, Inc., Cincinnati, Ohio 45240. April 2014.

substantial amount of opacity data from both facilities and collected additional information regarding the processes, control technologies and modeling input parameters (such as stack release heights and fugitive emissions release characteristics). We reviewed and evaluated these data and information provided by the facilities, the ventilation experts and vendors, and revised our analyses accordingly.

III. Analytical Procedures

A. For purposes of this supplemental proposal, how did we estimate the post-MACT risks posed by the Ferroalloys Production Source Category?

The EPA conducted a risk assessment that provides estimates of the MIR posed by the HAP emissions from each source in the source category, the hazard index (HI) for chronic exposures to HAP with the potential to cause noncancer health effects and the hazard quotient (HQ) for acute exposures to HAP with the potential to cause noncancer health effects. The assessment also provides estimates of the distribution of cancer risks within the exposed populations, cancer incidence and an evaluation of the potential for adverse environmental effects. The risk assessment consisted of eight primary steps, as discussed in detail in the 2011 proposal. The docket for this rulemaking contains the following document which provides more information on the risk assessment inputs and models: *Residual Risk Assessment for the Ferroalloys Production Source Category in Support of the September 2014 Supplemental Proposal* (risk assessment document). The methods used to assess risks (as described in the eight primary steps below) are consistent with those peer-reviewed by a panel of the EPA's Science Advisory Board (SAB) in 2009 and described in their peer review report issued in 2010;[7] they are also consistent with the key recommendations contained in that report.

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

As explained previously, the revised data set for the ferroalloys production source category, derived from the two existing ferromanganese and silicomanganese production facilities, constitutes the basis for the revised risk assessment. We estimated the magnitude of emissions using emissions test data collected through ICRs along with additional data submitted voluntarily by the companies. We also collected information regarding emissions release characteristics such as stack heights, stack gas exit velocities, stack temperatures and source locations. In addition to the quality assurance (QA) of the source data for the facilities contained in the data set, we also checked the coordinates of every emission source in the data set through visual observations using tools such as GoogleEarth and ArcView. Where coordinates were found to be incorrect, we identified and corrected them to the extent possible. We also performed a QA assessment of the emissions data and release characteristics to ensure the data were reliable and that there were no outliers. The emissions data and the methods used to estimate emissions from all the various emissions sources are described in more detail in the technical document: *Revised Development of the RTR Emissions Dataset for the Ferroalloys Production Source Category for the 2014 Supplemental Proposal,* which is available in the docket for this action.

2. How did we estimate MACT-allowable emissions?

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

For this supplemental proposal, we evaluated allowable stack emissions based on the level of control required by the 1999 MACT standards. We also evaluated the level of reported actual emissions and available information on the level of control achieved by the emissions controls in use. Further explanation is provided in the technical document: *Revised Development of the RTR Emissions Dataset for the Ferroalloys Production Source Category for the 2014 Supplemental Proposal,* which is available in the docket.

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

Both long-term and short-term inhalation exposure concentrations and health risks from the source category addressed in this proposal were estimated using the Human Exposure Model (Community and Sector HEM–3 version 1.1.0). The HEM–3 performs three primary risk assessment activities: (1) Conducting dispersion modeling to estimate the concentrations of HAP in ambient air, (2) estimating long-term and short-term inhalation exposures to individuals residing within 50 kilometers (km) of the modeled sources[8], and (3) estimating individual and population-level inhalation risks using the exposure estimates and quantitative dose-response information.

The air dispersion model used by the HEM–3 model (AERMOD) is one of the EPA's preferred models for assessing pollutant concentrations from industrial facilities.[9] To perform the dispersion modeling and to develop the preliminary risk estimates, HEM–3 draws on three data libraries. The first is a library of meteorological data, which is used for dispersion calculations. This library includes 1 year (2011) of hourly surface and upper air observations for more than 800 meteorological stations, selected to provide coverage of the United States and Puerto Rico. A second library of United States Census Bureau census block[10] internal point locations and populations provides the basis of human exposure calculations (U.S. Census, 2010). In addition, for each census block, the census library includes the elevation and controlling hill height, which are also used in dispersion calculations. A third library of pollutant unit risk factors and other

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[7] U.S. EPA SAB. *Risk and Technology Review (RTR) Risk Assessment Methodologies: For Review by the EPA's Science Advisory Board with Case Studies—MACT I Petroleum Refining Sources and Portland Cement Manufacturing,* May 2010.

[8] This metric comes from the Benzene NESHAP. See 54 FR 38046.

[9] U.S. EPA. Revision to the *Guideline on Air Quality Models: Adoption of a Preferred General Purpose (Flat and Complex Terrain) Dispersion Model and Other Revisions* (70 FR 68218, November 9, 2005).

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

health benchmarks is used to estimate health risks. These risk factors and health benchmarks are the latest values recommended by the EPA for HAP and other toxic air pollutants. These values are available at: *http://www.epa.gov/ttn/atw/toxsource/summary.html* and are discussed in more detail later in this section.

In developing the risk assessment for chronic exposures, we used the estimated annual average ambient air concentrations of each HAP emitted by each source for which we have emissions data in the source category. The air concentrations at each nearby census block centroid were used as a surrogate for the chronic inhalation exposure concentration for all the people who reside in that census block. We calculated the MIR for each facility as the cancer risk associated with a continuous lifetime (24 hours per day, 7 days per week, and 52 weeks per year for a 70-year period) exposure to the maximum concentration at the centroid of inhabited census blocks. Individual cancer risks were calculated by multiplying the estimated lifetime exposure to the ambient concentration of each of the HAP (in micrograms per cubic meter ($\mu g/m^3$)) by its unit risk estimate (URE). The URE is an upper bound estimate of an individual's probability of contracting cancer over a lifetime of exposure to a concentration of 1 microgram of the pollutant per cubic meter of air. For residual risk assessments, we generally use URE values from the EPA's Integrated Risk Information System (IRIS). For carcinogenic pollutants without EPA IRIS values, we look to other reputable sources of cancer dose-response values, often using California EPA (CalEPA) URE values, where available. In cases where new, scientifically credible dose response values have been developed in a manner consistent with the EPA guidelines and have undergone a peer review process similar to that used by the EPA, we may use such dose-response values in place of, or in addition to, other values, if appropriate.

In the case of nickel compounds, to provide a conservative estimate of potential cancer risks, we used the IRIS URE value for nickel subsulfide (which is considered the most potent carcinogen among all nickel compounds) in the assessment for the 2011 proposed rule for ferroalloys production. In the 2011 proposed rule, the determination of the percent of nickel subsulfide was considered a major factor for estimating the risks of cancer due to nickel-containing emissions. Nickel speciation information for some of the largest nickel-emitting sources (including oil combustion, coal combustion and others) suggested that at least 35 percent of total nickel emissions may be soluble compounds and that the cancer risk for the mixture of inhaled nickel compounds (based on nickel subsulfide and representative of pure insoluble crystalline nickel) was derived to reflect the assumption that 65 percent of the total mass of nickel may be carcinogenic.

Based on consistent views of major scientific bodies (*i.e.,* National Toxicology Program (NTP) in their 12th Report of the Carcinogens (ROC) [11], International Agency for Research on Cancer (IARC) [12] and other international agencies) [13] that consider all nickel compounds to be carcinogenic, we currently consider all nickel compounds to have the potential of being carcinogenic to humans. The *12th Report of the Carcinogens* states that the ''combined results of epidemiological studies, mechanistic studies, and carcinogenic studies in rodents support the concept that nickel compounds generate nickel ions in target cells at sites critical for carcinogenesis, thus allowing consideration and evaluation of these compounds as a single group.'' Although the precise nickel compound (or compounds) responsible for carcinogenic effects in humans is not always clear, studies indicate that nickel sulfate and the combinations of nickel sulfides and oxides encountered in the nickel refining industries cause cancer in humans (these studies are summarized in a review by Grimsrud *et al.,* 2010 [14]). The major scientific bodies mentioned above have also recognized that there are differences in toxicity and/or carcinogenic potential across the different nickel compounds.

In the inhalation risk assessment for the 2011 proposed rule, to take a conservative approach, we considered all nickel compounds to have the same carcinogenic potential as nickel subsulfide and used the IRIS URE for nickel subsulfide to estimate risks due to all nickel emissions from the source category. However, given that there are two additional URE values [15] derived for exposure to mixtures of nickel compounds, as a group, that are 2–3 fold lower than the IRIS URE for nickel subsulfide, the EPA also considers it reasonable to use a value that is 50 percent of the IRIS URE for nickel subsulfide for providing an estimate of the lower end of the plausible range of cancer potency values for different mixtures of nickel compounds. In the public comments provided in response to the proposal and available in the docket, one facility provided additional data in the form of a laboratory test report that indicated it would be unlikely that 100 percent of the nickel from the furnace would be in the form of nickel subsulfide. Given our current knowledge of the carcinogenic potential of all nickel compounds, and the potential differences in carcinogenic potential across nickel compounds, we consider it reasonable to use a value that is 50 percent of the IRIS URE for nickel subsulfide for providing an estimate of the cancer potency values for different mixtures of nickel compounds in the revised data set for the current supplemental proposal.

The EPA estimated incremental individual lifetime cancer risks associated with emissions from the facilities in the source category as the sum of the risks for each of the carcinogenic HAP (including those classified as carcinogenic to humans, likely to be carcinogenic to humans, and suggestive evidence of carcinogenic potential [16]) emitted by the modeled sources. Cancer incidence and the distribution of individual cancer risks for the population within 50 km of the sources were also estimated for the source category as part of this

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[11] National Toxicology Program (NTP), 2011. Report on carcinogens. 12th ed. Research Triangle Park, NC: US Department of Health and Human Services (DHHS), Public Health Service. Available online at *http://ntp.niehs.nih.gov/ntp/roc/twelfth/roc12.pdf.*

[12] International Agency for Research on Cancer (IARC), 1990. IARC monographs on the evaluation of carcinogenic risks to humans. Chromium, nickel, and welding. Vol. 49. Lyons, France: International Agency for Research on Cancer, World Health Organization Vol. 49:256.

[13] World Health Organization (WHO, 1991) and the European Union's Scientific Committee on Health and Environmental Risks (SCHER, 2006).

[14] Grimsrud TK and Andersen A. Evidence of carcinogenicity in humans of water-soluble nickel salts. J Occup Med Toxicol 2010, 5:1–7. Available online at *http://www.ossup-med.com/content/5/1/7.*

[15] Two UREs (other than the current IRIS values) have been derived for nickel compounds as a group: One developed by the California Department of Health Services (*http://www.arb.ca.gov/toxics/id/summary/nickel_tech_b.pdf*) and the other by the Texas Commission on Environmental Quality (*http://www.epa.gov/ttn/atw/nata1999/99pdfs/healtheffectsinfo.pdf*).

[16] These classifications also coincide with the terms ''known carcinogen, probable carcinogen, and possible carcinogen,'' respectively, which are the terms advocated in the EPA's previous *Guidelines for Carcinogen Risk Assessment,* published in 1986 (51 FR 33992, September 24, 1986). Summing the risks of these individual compounds to obtain the cumulative cancer risks is an approach that was recommended by the EPA's Science Advisory Board (SAB) in their 2002 peer review of EPA's National Air Toxics Assessment (NATA) entitled, *NATA—Evaluating the National-scale Air Toxics Assessment 1996 Data—an SAB Advisory,* available at: *http://yosemite.epa.gov/sab/sabproduct.nsf/214C6E915BB04E14852570CA007A682C/$File/ecadv02001.pdf.*

assessment by summing individual risks. A distance of 50 km is consistent with both the analysis supporting the 1989 Benzene NESHAP (54 FR 38044, September 14, 1989) and the limitations of Gaussian dispersion models, including AERMOD.

To assess the risk of non-cancer health effects from chronic exposures, we summed the HQ for each of the HAP that affects a common target organ system to obtain the HI for that target organ system (or target organ-specific HI, TOSHI). The HQ is the estimated exposure divided by the chronic reference value, which is a value selected from one of several sources. First, the chronic reference level can be the EPA reference concentration (RfC) (*http://www.epa.gov/riskassessment/glossary.htm*), defined as ''an estimate (with uncertainty spanning perhaps an order of magnitude) of a continuous inhalation exposure to the human population (including sensitive subgroups) that is likely to be without an appreciable risk of deleterious effects during a lifetime.'' Alternatively, in cases where an RfC from the EPA's IRIS database is not available or where the EPA determines that using a value other than the RfC is appropriate, the chronic reference level can be a value from the following prioritized sources: (1) The Agency for Toxic Substances and Disease Registry Minimum Risk Level (MRL) (*http://www.atsdr.cdc.gov/mrls/index.asp*), which is defined as ''an estimate of daily human exposure to a hazardous substance that is likely to be without an appreciable risk of adverse non-cancer health effects (other than cancer) over a specified duration of exposure''; (2) the CalEPA Chronic Reference Exposure Level (REL) (*http://www.oehha.ca.gov/air/hot_spots/pdf/HRAguidefinal.pdf*), which is defined as ''the concentration level (that is expressed in units of micrograms per cubic meter ($\mu g/m^3$) for inhalation exposure and in a dose expressed in units of milligram per kilogram-day (mg/kg-day) for oral exposures), at or below which no adverse health effects are anticipated for a specified exposure duration''; or (3), as noted above, a scientifically credible dose-response value that has been developed in a manner consistent with the EPA guidelines and has undergone a peer review process similar to that used by the EPA, in place of or in concert with other values.

For the ferroalloys source category, we applied this policy in our estimate of noncancer inhalation hazards and note the following related to manganese. There is an existing IRIS RfC for manganese (Mn) published in 1993.[17] This value was used in the RTR risk assessment supporting the Ferroalloys Notice of Proposed Rulemaking.[18] However, since the 2011 proposal, ATSDR has published an assessment of Mn toxicity (2012) which includes a chronic inhalation value (*i.e.,* an ATSDR Minimal Risk Level or MRL).[19] Both the 1993 IRIS RfC and the 2012 ATSDR MRL were based on the same study (Roels *et al.,* 1993). In developing their assessment, ATSDR used updated dose-response modeling methodology (benchmark dose approach) and considered recent pharmacokinetic findings to support their MRL derivation. Consistent with Agency policy, which was supported by SAB,[20] the EPA has chosen in this instance to rely on the ATSDR MRL for Mn in the current ferroalloys supplemental proposal.

The EPA also evaluated screening estimates of acute exposures and risks for each of the HAP at the point of highest potential off-site exposure for each facility. To do this, the EPA estimated the risks when both the peak hourly emissions rate and worst-case dispersion conditions occur. We also assume that a person is located at the point of highest impact during that same time. In accordance with our mandate in section 112 of the Clean Air Act, we use the point of highest off-site exposure to assess the potential risk to the maximally exposed individual. The acute HQ is the estimated acute exposure divided by the acute dose-response value. In each case, the EPA calculated acute HQ values using best available, short-term dose-response values. These acute dose-response values, which are described below, include the acute REL, acute exposure guideline levels (AEGL) and emergency response planning guidelines (ERPG) for 1-hour exposure durations. As discussed below, we used conservative assumptions for emissions rates, meteorology and exposure location for our acute analysis.

As described in the *CalEPA's Air Toxics Hot Spots Program Risk Assessment Guidelines, Part I, The Determination of Acute Reference Exposure Levels for Airborne Toxicants,* an acute REL value (*http://www.oehha.ca.gov/air/pdf/acuterel.pdf*) is defined as ''the concentration level at or below which no adverse health effects are anticipated for a specified exposure duration.'' *Id.* at page 2. Acute REL values are based on the most sensitive, relevant, adverse health effect reported in the peer-reviewed medical and toxicological literature. Acute REL values are designed to protect the most sensitive individuals in the population through the inclusion of margins of safety. Because margins of safety are incorporated to address data gaps and uncertainties, exceeding the REL does not automatically indicate an adverse health impact.

As we state above, in assessing the potential risks associated with acute exposures to HAP, we do not follow a prioritization scheme and therefore we consider available dose-response values from multiple authoritative sources. In the RTR program, EPA assesses acute risk using toxicity values derived from one hour exposures. Based on an in-depth examination of the available acute value for nickel [California EPA's acute (1-hour) REL], we have concluded that this value is not appropriate to use to support EPA's risk and technology review rules. This conclusion takes into account: The effect on which the acute REL is based; aspects of the methodology used in its derivation; and how this assessment stands in comparison to the ATSDR toxicological assessment, which considered the broader nickel health effects database.

The broad nickel noncancer health effects database strongly suggests that the respiratory tract is the primary target of nickel toxicity following inhalation exposure. The available database on acute noncancer respiratory effects is limited and was considered unsuitable for quantitative analysis of nickel toxicity by both California EPA[21] and ATSDR.[22] The California EPA's acute (1-hour) REL is based on an alternative endpoint, immunotoxicity in mice, specifically depressed antibody response measured in an antibody plaque assay.

In addition, the current California acute (1-hour) REL for Ni includes the application of methods that are different from those described in EPA guidelines. Specifically, the (1-hour) REL applies uncertainty factors that depart from the defaults in EPA guidelines and does not

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[17] US EPA Integrated Risk Information System Review of Manganese (1993) available at *http://www.epa.gov/iris/subst/0373.htm.*

[18] 2011 Notice of proposed Rulemaking reference (76 FR 72508).

[19] Agency for Toxic Substances & Disease Registry Toxicological Profile for Manganese (2012) available at *http://www.atsdr.cdc.gov/toxprofiles/tp.asp?id=102&tid=23.*

[20] The SAB peer review of RTR Risk Assessment Methodologies is available at: *http://yosemite.epa.gov/sab/sabproduct.nsf/4AB3966E263D943A8525771F00668381/$File/EPA-SAB-10-007-unsigned.pdf.*

[21] *http://oehha.ca.gov/air/allrels.html.*

[22] *http://www.atsdr.cdc.gov/substances/toxsubstance.asp?toxid=44.*

apply an inhalation dosimetric adjustment factor.

Further, the ATSDR's intermediate MRL (relevant to Ni exposures for a time frame between 14 and 364 days), was established at the same concentration as the California EPA (1- hour) REL, indicating that exposure to this concentration ''is likely to be without appreciable risk of adverse noncancer effects'' (MRL definition)[23] for up to 364 days.

We have high confidence in the nickel ATSDR intermediate MRL. Our analysis of the broad toxicity database for nickel indicates that this value is based on the most biologically-relevant endpoint. That is, the intermediate MRL is based on a scientifically sound study of acute respiratory toxicity. Furthermore, this value is supported by a robust subchronic nickel toxicity database and was derived following guidelines that are consistent with EPA guidelines.[24] Finally, there are no AEGL–1/ERPG–1 or AEGL–2/ERPG–2 values available for nickel. Thus, for all the above mentioned reasons, we will not include Ni in our acute analysis for this source category or in future assessments unless and until an appropriate value becomes available.

AEGL values were derived in response to recommendations from the National Research Council (NRC). As described in *Standing Operating Procedures (SOP) of the National Advisory Committee on Acute Exposure Guideline Levels for Hazardous Substances* (*http://www.epa.gov/oppt/aegl/pubs/sop.pdf*),[25] ''the NRC's previous name for acute exposure levels—community emergency exposure levels—was replaced by the term AEGL to reflect the broad application of these values to planning, response and prevention in the community, the workplace, transportation, the military and the remediation of Superfund sites.'' *Id.* at 2. This document also states that AEGL values ''represent threshold exposure limits for the general public and are applicable to emergency exposures ranging from 10 minutes to eight hours.'' *Id.* at 2.

The document lays out the purpose and objectives of AEGL by stating that ''the primary purpose of the AEGL program and the National Advisory Committee for Acute Exposure Guideline Levels for Hazardous Substances is to develop guideline levels for once-in-a-lifetime, short-term exposures to airborne concentrations of acutely toxic, high-priority chemicals.'' *Id.* at 21. In detailing the intended application of AEGL values, the document states that ''[i]t is anticipated that the AEGL values will be used for regulatory and nonregulatory purposes by U.S. Federal and state agencies and possibly the international community in conjunction with chemical emergency response, planning, and prevention programs. More specifically, the AEGL values will be used for conducting various risk assessments to aid in the development of emergency preparedness and prevention plans, as well as real-time emergency response actions, for accidental chemical releases at fixed facilities and from transport carriers.'' *Id.* at 31.

The AEGL–1 value is then specifically defined as ''the airborne concentration (expressed as ppm (parts per million) or mg/m^3 (milligrams per cubic meter)) of a substance above which it is predicted that the general population, including susceptible individuals, could experience notable discomfort, irritation, or certain asymptomatic nonsensory effects. However, the effects are not disabling and are transient and reversible upon cessation of exposure.'' *Id.* at 3. The document also notes that, ''Airborne concentrations below AEGL–1 represent exposure levels that can produce mild and progressively increasing but transient and nondisabling odor, taste, and sensory irritation or certain asymptomatic, nonsensory effects.'' *Id.* Similarly, the document defines AEGL–2 values as ''the airborne concentration (expressed as parts per million or milligrams per cubic meter) of a substance above which it is predicted that the general population, including susceptible individuals, could experience irreversible or other serious, long-lasting adverse health effects or an impaired ability to escape.'' *Id.*

ERPG values are derived for use in emergency response, as described in the American Industrial Hygiene Association's ERP Committee document entitled, *ERPGS Procedures and Responsibilities* (*http://sp4m.aiha.org/insideaiha/GuidelineDevelopment/ERPG/Documents/ERP–SOPs2006.pdf*), which states that, ''Emergency Response Planning Guidelines were developed for emergency planning and are intended as health based guideline concentrations for single exposures to chemicals.''[26] *Id.* at 1. The ERPG–1 value is defined as ''the maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to 1 hour without experiencing other than mild transient adverse health effects or without perceiving a clearly defined, objectionable odor.'' *Id.* at 2. Similarly, the ERPG–2 value is defined as ''the maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to one hour without experiencing or developing irreversible or other serious health effects or symptoms which could impair an individual's ability to take protective action.'' *Id.* at 1.

As can be seen from the definitions above, the AEGL and ERPG values include the similarly-defined severity levels 1 and 2. For many chemicals, a severity level 1 value AEGL or ERPG has not been developed because the types of effects for these chemicals are not consistent with the AEGL–1/ERPG–1 definitions; in these instances, we compare higher severity level AEGL–2 or ERPG–2 values to our modeled exposure levels to screen for potential acute concerns. When AEGL–1/ERPG–1 values are available, they are used in our acute risk assessments.

Acute REL values for 1-hour exposure durations are typically lower than their corresponding AEGL–1 and ERPG–1 values. Even though their definitions are slightly different, AEGL–1 values are often the same as the corresponding ERPG–1 values, and AEGL–2 values are often equal to ERPG–2 values. Maximum HQ values from our acute screening risk assessments typically result when basing them on the acute REL value for a particular pollutant. In cases where our maximum acute HQ value exceeds 1, we also report the HQ value based on the next highest acute dose-response value (usually the AEGL–1 and/or the ERPG–1 value).

To develop screening estimates of acute exposures in the absence of hourly emissions data, generally we first develop estimates of maximum hourly emissions rates by multiplying the average actual annual hourly emissions rates by a default factor to cover routinely variable emissions. We choose the factor to use partially based on process knowledge and engineering judgment. The factor chosen also reflects a Texas study of short-term emissions variability, which showed that most peak emission events in a

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[23] Agency for Toxic Substances and Disease Registry (ATSDR), Toxic Substances Portal. Minimal Risk Levels (MRLs) *http://www.atsdr.cdc.gov/mrls/index.asp.*

[24] US EPA 2002. Review of the reference dose and reference concentration processes (EPA/630/P–02/002F), December 2002, *http://www.epa.gov/raf/publications/pdfs/rfd-final.pdf*

[25] National Academy of Sciences (NAS), 2001. *Standing Operating Procedures for Developing Acute Exposure Levels for Hazardous Chemicals,* page 2.

[26] *ERP Committee Procedures and Responsibilities.* November 1, 2006. American Industrial Hygiene Association.

heavily-industrialized four-county area (Harris, Galveston, Chambers and Brazoria Counties, Texas) were less than twice the annual average hourly emissions rate. The highest peak emissions event was 74 times the annual average hourly emissions rate, and the 99th percentile ratio of peak hourly emissions rate to the annual average hourly emissions rate was 9.[27] Considering this analysis, to account for more than 99 percent of the peak hourly emissions, we apply a conservative screening multiplication factor of 10 to the average annual hourly emissions rate in our acute exposure screening assessments as our default approach. However, we use a factor other than 10 if we have information that indicates that a different factor is appropriate for a particular source category.

For this source category, data were available to determine process-specific factors. Some processes, for example the electric arc furnaces, operate continuously so there are no peak emissions. These processes received a factor of 1 in the acute assessment. Other processes, for example tapping and casting, have specific cycles, with peak emissions occurring for a part of that cycle (*e.g.,* 30 minutes during a 2-hour period). For these processes, we used a factor of 4 in the acute assessment. Even with data available to develop process-specific factors, our acute assessment is still conservative in that it assumes that every process releases its peak emissions at the same hour and that this is the same hour as the worst-case dispersion conditions. This results in a highly conservative exposure scenario. A further discussion of why this factor of 4 was chosen can be found in the memorandum, *Revised Development of the RTR Emissions Dataset for the Ferroalloys Production Source Category for the 2014 Supplemental Proposal,* available in the docket for this rulemaking.

As part of our acute risk assessment process, for cases where acute HQ values from the screening step were less than or equal to 1 (even under the conservative assumptions of the screening analysis), acute impacts were deemed negligible and no further analysis was performed. In cases where an acute HQ from the screening step was greater than 1, additional site-specific data were considered to develop a more refined estimate of the potential for acute impacts of concern. For this source category, the data refinements employed consisted of determining that the receptor with the maximum concentration was off of plant property. These refinements are discussed more fully in the *Residual Risk Assessment for the Ferroalloys Production Source Category in Support of the September 2014 Supplemental Proposal,* which is available in the docket for this source category. Ideally, we would prefer to have continuous measurements over time to see how the emissions vary by each hour over an entire year. Having a frequency distribution of hourly emissions rates over a year would allow us to perform a probabilistic analysis to estimate potential threshold exceedances and their frequency of occurrence. Such an evaluation could include a more complete statistical treatment of the key parameters and elements adopted in this screening analysis. Recognizing that this level of data is rarely available, we instead rely on the multiplier approach.

To better characterize the potential health risks associated with estimated acute exposures to HAP, and in response to a key recommendation from the SAB's peer review of the EPA's RTR risk assessment methodologies,[28] we generally examine a wider range of available acute health metrics (*e.g.,* RELs, AEGLs) than we do for our chronic risk assessments. This is in response to the SAB's acknowledgement that there are generally more data gaps and inconsistencies in acute reference values than there are in chronic reference values. In some cases, when Reference Value Arrays[29] for HAP have been developed, we consider additional acute values (*i.e.,* occupational and international values) to provide a more complete risk characterization.

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

The EPA conducted a screening analysis examining the potential for significant human health risks due to exposures via routes other than inhalation (*i.e.,* ingestion). We first determined whether any sources in the source category emitted any hazardous air pollutants known to be persistent and bioaccumulative in the environment (PB–HAP). The PB–HAP compounds or compound classes are identified for the screening from the EPA's Air Toxics Risk Assessment Library (available at *http://www2.epa.gov/fera/risk-assessment-and-modeling-air-toxics-risk-assessment-reference-library*).

For the Ferroalloys Production source category, we identified emissions of cadmium compounds, chlorinated dibenzodioxins and furans, lead compounds, mercury compounds and polycyclic organic matter. Because one or more of these PB–HAP are emitted by at least one facility in the Ferroalloys Production source category, we proceeded to the second step of the evaluation. In this step, we determined whether the facility-specific emissions rates of each of the emitted PB–HAP were large enough to create the potential for significant non-inhalation human health risks under reasonable worst-case conditions. To facilitate this step, we developed emissions rate screening levels for several PB–HAP using a hypothetical upper-end screening exposure scenario developed for use in conjunction with the EPA's Total Risk Integrated Methodology.Fate, Transport, and Ecological Exposure (TRIM.FaTE) model. The PB–HAP with emissions rate screening level values are: Lead, cadmium, chlorinated dibenzodioxins and furans, mercury compounds, and polycyclic organic matter (POM). We conducted a sensitivity analysis on the screening scenario to ensure that its key design parameters would represent the upper end of the range of possible values, such that it would represent a conservative but not impossible scenario. The facility-specific emissions rates of these PB–HAP were compared to the emission rate screening levels for these PB–HAP to assess the potential for significant human health risks via non-inhalation pathways. We call this application of the TRIM.FaTE model the Tier I TRIM-screen or Tier I screen.

For the purpose of developing emissions rates for our Tier I TRIM-screen, we derived emission levels for these PB–HAP (other than lead compounds) at which the maximum excess lifetime cancer risk would be 1-in-1 million (*i.e.,* for polychlorinated dibenzodioxins and furans and POM) or, for HAP that cause non-cancer health effects (*i.e.,* cadmium compounds and mercury compounds), the maximum hazard quotient would be 1. If the emissions rate of any PB–HAP included in the Tier I screen exceeds the Tier I screening emissions rate for any facility, we conduct a second screen, which we call the Tier II TRIM-screen or Tier II screen.

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[27] See *http://www.tceq.state.tx.us/compliance/field_ops/eer/index.html* or docket to access the source of these data.

[28] The SAB peer review of RTR Risk Assessment Methodologies is available at: *http://yosemite.epa.gov/sab/sabproduct.nsf/4AB3966E263D943A8525771F00668381/$File/EPA-SAB-10-007-unsigned.pdf.*

[29] U.S. EPA. (2009) Chapter 2.9 Chemical Specific Reference Values for Formaldehyde in Graphical Arrays of Chemical-Specific Health Effect Reference Values for Inhalation Exposures (Final Report). U.S. Environmental Protection Agency, Washington, DC, EPA/600/R–09/061 and available online at *http://cfpub.epa.gov/ncea/cfm/recordisplay.cfm?deid=211003.*

In the Tier II screen, the location of each facility that exceeded the Tier I emission rate is used to refine the assumptions associated with the environmental scenario while maintaining the exposure scenario assumptions. We then adjust the risk-based Tier I screening level for each PB–HAP for each facility based on an understanding of how exposure concentrations estimated for the screening scenario change with meteorology and environmental assumptions. PB–HAP emissions that do not exceed these new Tier II screening levels are considered to pose no unacceptable risks. When facilities exceed the Tier II screening levels, it does not mean that multipathway impacts are significant, only that we cannot rule out that possibility based on the results of the screen.

If the PB–HAP emissions for a facility exceed the Tier II screening emissions rate and data are available, we may decide to conduct a more refined multipathway assessment. A refined assessment replaces some of the assumptions made in the Tier II screen, with site-specific data. The refined assessment also uses the TRIM.FaTE model and facility-specific emission rate screening levels that are created for each PB–HAP. For the ferroalloys production source category, we did conduct a refined multipathway assessment for one facility in the category. A detailed discussion of the approach for this assessment can be found in Appendix 10 (*Technical Support Document: Human Health Multipathway Residual Risk Assessment for the Ferroalloys Production Source Category*) of the risk assessment document.

In evaluating the potential multi-pathway risk from emissions of lead compounds, rather than developing a screening emissions rate for them, we compared maximum estimated chronic inhalation exposures with the level of the current National Ambient Air Quality Standard (NAAQS) for lead.[30] Values below the level of the primary (health-based) lead NAAQS were considered to have a low potential for multi-pathway risk.

For further information on the multipathway analysis approach, see the *Residual Risk Assessment for the Ferroalloys Production Source Category in Support of the September 2014 Supplemental Proposal,* which is available in the docket for this action.

5. How did we assess risks considering the revised emissions control options?

In addition to assessing baseline inhalation risks and potential multipathway risks, we also estimated risks considering the emissions reductions that would be achieved by the control options under consideration in this supplemental proposal. In these cases, the expected emissions reductions were applied to the specific HAP and emissions points in the RTR emissions dataset to develop corresponding estimates of risk that would exist after implementation of the proposed amendments in today's action.

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

a. Adverse Environmental Effect

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

b. Environmental HAP

The EPA focuses on seven HAP, which we refer to as ''environmental HAP,'' in its screening analysis: Five persistent bioaccumulative HAP (PB–HAP) and two acid gases. The five PB–HAP are cadmium, dioxins/furans, polycyclic organic matter (POM), mercury (both inorganic mercury and methyl mercury) and lead compounds. The two acid gases are hydrogen chloride (HCl) and hydrogen fluoride (HF). The rationale for including these seven HAP in the environmental risk screening analysis is presented below.

The HAP that persist and bioaccumulate are of particular environmental concern because they accumulate in the soil, sediment and water. The PB–HAP are taken up, through sediment, soil, water, and/or ingestion of other organisms, by plants or animals (*e.g.,* small fish) at the bottom of the food chain. As larger and larger predators consume these organisms, concentrations of the PB–HAP in the animal tissues increase as does the potential for adverse effects. The five PB–HAP we evaluate as part of our screening analysis account for 99.8 percent of all PB–HAP emissions nationally from stationary sources (on a mass basis from the 2005 NEI).

In addition to accounting for almost all of the mass of PB–HAP emitted, we note that the TRIM.FaTE model that we use to evaluate multipathway risk allows us to estimate concentrations of cadmium compounds, dioxins/furans, POM and mercury in soil, sediment and water. For lead compounds, we currently do not have the ability to calculate these concentrations using the TRIM.FaTE model. Therefore, to evaluate the potential for adverse environmental effects from lead compounds, we compare the estimated HEM-modeled exposures from the source category emissions of lead with the level of the secondary National Ambient Air Quality Standard (NAAQS) for lead.[31] We consider values below the level of the secondary lead NAAQS as unlikely to cause adverse environmental effects.

Due to their well-documented potential to cause direct damage to terrestrial plants, we include two acid gases, HCl and HF, in the environmental screening analysis. According to the 2005 NEI, HCl and HF account for about 99 percent (on a mass basis) of the total acid gas HAP emitted by stationary sources in the U.S. In addition to the potential to cause direct damage to plants, high concentrations of HF in the air have been linked to fluorosis in livestock. Air concentrations of these HAP are already calculated as part of the human multipathway exposure and risk screening analysis using the HEM3–AERMOD air dispersion model, and we are able to use the air dispersion modeling results to estimate the potential for an adverse environmental effect.

The EPA acknowledges that other HAP beyond the seven HAP discussed above may have the potential to cause adverse environmental effects. Therefore, the EPA may include other relevant HAP in its environmental risk

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[30] In doing so, EPA notes that the legal standard for a primary NAAQS—that a standard is requisite to protect public health and provide an adequate margin of safety (CAA section 109(b))—differs from the section 112(f) standard (requiring among other things that the standard provide an ''ample margin of safety''). However, the lead NAAQS is a reasonable measure of determining risk acceptability (i.e. the first step of the Benzene NESHAP analysis) since it is designed to protect the most susceptible group in the human population—children, including children living near major lead emitting sources. 73 FR 67002/3; 73 FR 67000/3; 73 FR 67005/1. In addition, applying the level of the primary lead NAAQS at the risk acceptability step is conservative, since that primary lead NAAQS reflects an adequate margin of safety.

[31] The secondary lead NAAQS is a reasonable measure of determining whether there is an adverse environmental effect since it was established considering ''effects on soils, water, crops, vegetation, man-made materials, animals, wildlife, weather, visibility and climate, damage to and deterioration of property, and hazards to transportation, as well as effects on economic values and on personal comfort and well-being.''

screening in the future, as modeling science and resources allow. The EPA invites comment on the extent to which other HAP emitted by the source category may cause adverse environmental effects. Such information should include references to peer-reviewed ecological effects benchmarks that are of sufficient quality for making regulatory decisions, as well as information on the presence of organisms located near facilities within the source category that such benchmarks indicate could be adversely affected.

c. Ecological Assessment Endpoints and Benchmarks for PB–HAP

An important consideration in the development of the EPA's screening methodology is the selection of ecological assessment endpoints and benchmarks. Ecological assessment endpoints are defined by the ecological entity (*e.g.,* aquatic communities including fish and plankton) and its attributes (*e.g.,* frequency of mortality). Ecological assessment endpoints can be established for organisms, populations, communities or assemblages, and ecosystems.

For PB–HAP (other than lead compounds), we evaluated the following community-level ecological assessment endpoints to screen for organisms directly exposed to HAP in soils, sediment and water:

- Local terrestrial communities (*i.e.,* soil invertebrates, plants) and populations of small birds and mammals that consume soil invertebrates exposed to PB–HAP in the surface soil.
- Local benthic (*i.e.,* bottom sediment dwelling insects, amphipods, isopods and crayfish) communities exposed to PB–HAP in sediment in nearby water bodies.
- Local aquatic (water-column) communities (including fish and plankton) exposed to PB–HAP in nearby surface waters.

For PB–HAP (other than lead compounds), we also evaluated the following population-level ecological assessment endpoint to screen for indirect HAP exposures of top consumers via the bioaccumulation of HAP in food chains.

- Piscivorous (*i.e.,* fish-eating) wildlife consuming PB–HAP-contaminated fish from nearby water bodies.

For cadmium compounds, dioxins/furans, POM and mercury, we identified the available ecological benchmarks for each assessment endpoint. An ecological benchmark represents a concentration of HAP (*e.g.,* 0.77 ug of HAP per liter of water) that has been linked to a particular environmental effect level (*e.g.,* a no-observed-adverse-effect level (NOAEL)) through scientific study. For PB–HAP we identified, where possible, ecological benchmarks at the following effect levels:

Probable effect levels (PEL): Level above which adverse effects are expected to occur frequently.

Lowest-observed-adverse-effect level (LOAEL): The lowest exposure level tested at which there are biologically significant increases in frequency or severity of adverse effects.

No-observed-adverse-effect levels (NOAEL): The highest exposure level tested at which there are no biologically significant increases in the frequency or severity of adverse effect.

We established a hierarchy of preferred benchmark sources to allow selection of benchmarks for each environmental HAP at each ecological assessment endpoint. In general, the EPA sources that are used at a programmatic level (*e.g.,* Office of Water, Superfund Program) were used, if available. If not, the EPA benchmarks used in regional programs (*e.g.,* Superfund) were used. If benchmarks were not available at a programmatic or regional level, we used benchmarks developed by other federal agencies (*e.g.,* National Oceanic and Atmospheric Administration (NOAA)) or state agencies.

Benchmarks for all effect levels are not available for all PB–HAP and assessment endpoints. In cases where multiple effect levels were available for a particular PB–HAP and assessment endpoint, we use all of the available effect levels to help us to determine whether ecological risks exist and, if so, whether the risks could be considered significant and widespread.

d. Ecological Assessment Endpoints and Benchmarks for Acid Gases

The environmental screening analysis also evaluated potential damage and reduced productivity of plants due to direct exposure to acid gases in the air. For acid gases, we evaluated the following ecological assessment endpoint:

- Local terrestrial plant communities with foliage exposed to acidic gaseous HAP in the air.

The selection of ecological benchmarks for the effects of acid gases on plants followed the same approach as for PB–HAP (*i.e.,* we examine all of the available benchmarks). For HCl, the EPA identified chronic benchmark concentrations. We note that the benchmark for chronic HCl exposure to plants is greater than the reference concentration for chronic inhalation exposure for human health. This means that where the EPA includes regulatory requirements to prevent an exceedance of the reference concentration for human health, additional analyses for adverse environmental effects of HCl would not be necessary.

For HF, the EPA identified chronic benchmark concentrations for plants and evaluated chronic exposures to plants in the screening analysis. High concentrations of HF in the air have also been linked to fluorosis in livestock. However, the HF concentrations at which fluorosis in livestock occur are higher than those at which plant damage begins. Therefore, the benchmarks for plants are protective of both plants and livestock.

e. Screening Methodology

For the environmental risk screening analysis, the EPA first determined whether any facilities in the ferroalloys production source category sources emitted any of the seven environmental HAP. For the ferroalloys production source category, we identified emissions of five of the PB HAP (cadmium, mercury, lead compounds, dioxins and polycyclic organic matter) and one acid gas (HCl).

Because one or more of the seven environmental HAP evaluated are emitted by the facilities in the source category, we proceeded to the second step of the evaluation.

f. PB–HAP Methodology

For cadmium, mercury, POM and dioxins/furans, the environmental screening analysis consists of two tiers, while lead compounds are analyzed differently as discussed earlier. In the first tier, we determined whether the maximum facility-specific emission rates of each of the emitted environmental HAP were large enough to create the potential for adverse environmental effects under reasonable worst-case environmental conditions. These are the same environmental conditions used in the human multipathway exposure and risk screening analysis.

To facilitate this step, TRIM.FaTE was run for each PB–HAP under hypothetical environmental conditions designed to provide conservatively high HAP concentrations. The model was set to maximize runoff from terrestrial parcels into the modeled lake, which in turn, maximized the chemical concentrations in the water, the sediments and the fish. The resulting media concentrations were then used to back-calculate a screening level emission rate that corresponded to the relevant exposure benchmark concentration value for each assessment endpoint. To assess emissions from a facility, the reported emission rate for each PB–HAP was compared to the screening level emission rate for that PB–HAP for each assessment endpoint. If emissions from a facility do not exceed the Tier I screening level, the facility ''passes'' the screen, and therefore, is not evaluated further under the screening approach. If emissions from a facility exceed the Tier I screening level, we evaluate the facility further in Tier II.

In Tier II of the environmental screening analysis, the emission rate screening levels are adjusted to account for local meteorology and the actual location of lakes in the vicinity of facilities that did not pass the Tier I screen. The modeling domain for each facility in the tier II analysis consists of eight octants. Each octant contains 5 modeled soil concentrations at various distances from the facility (5 soil concentrations × 8 octants = total of 40 soil concentrations per facility) and 1 lake with modeled concentrations for water, sediment and fish tissue. In the tier II environmental risk screening analysis, the 40 soil concentration points are averaged to obtain an average soil concentration for each facility for each PB–HAP. For the water, sediment and fish tissue concentrations, the highest value for each facility for each pollutant is used. If emission concentrations from a facility do not exceed the Tier II screening levels, the facility passes the screen and typically is not evaluated further. If emissions from a facility exceed the Tier II screening level, the facility does not pass the screen and, therefore, may have the potential to cause adverse environmental effects. Such facilities are evaluated further to investigate factors such as the magnitude and characteristics of the area of exceedance.

g. Acid Gas Methodology

The environmental screening analysis evaluates the potential phytotoxicity and reduced productivity of plants due to chronic exposure to acid gases. The environmental risk screening methodology for acid gases is a single-tier screen that compares the average off-site ambient air concentration over the modeling domain to ecological benchmarks for each of the acid gases. Because air concentrations are compared directly to the ecological benchmarks, emission-based screening levels are not calculated for acid gases as they are in the ecological risk screening methodology for PB–HAPs.

For purposes of ecological risk screening, the EPA identifies a potential for adverse environmental effects to plant communities from exposure to acid gases when the average concentration of the HAP around a facility exceeds the LOAEL ecological benchmark. In such cases, we further investigate factors such as the magnitude and characteristics of the area of exceedance (*e.g.,* land use of exceedance area, size of exceedance area) to determine if there is an adverse environmental effect. For further information on the environmental screening analysis approach, see the *Residual Risk Assessment for the Ferroalloys Production Source Category in Support of the September 2014 Supplemental Proposal,* which is available in the docket for this action.

7. How did we conduct facility-wide assessments?

To put the source category risks in context, we typically examine the risks from the entire ''facility,'' where the facility includes all HAP-emitting operations within a contiguous area and under common control. In other words, we examine the HAP emissions not only from the source category of interest, but also emissions of HAP from all other emissions sources at the facility for which we have data. However, for the Ferroalloys Production source category, we did not identify other HAP emissions sources located at these facilities. Thus, we did not perform a separate facility wide risk assessment.

8. How did we consider uncertainties in risk assessment?

In the Benzene NESHAP, we concluded that risk estimation uncertainty should be considered in our decision-making under the ample margin of safety framework. Uncertainty and the potential for bias are inherent in all risk assessments, including those performed for this proposal. Although uncertainty exists, we believe that our approach, which used conservative tools and assumptions, ensures that our decisions are health protective and environmentally protective. A brief discussion of the uncertainties in the RTR emissions dataset, dispersion modeling, inhalation exposure estimates and dose-response relationships follows below. A more thorough discussion of these uncertainties is included in the *Revised Development of the RTR Emissions Dataset for the Ferroalloys Production Source Category for the 2014 Supplemental Proposal* (Emissions Memo) and the other uncertainties are described in more detail in the *Residual Risk Assessment for the Ferroalloys Production Source Category in Support of the September 2014 Supplemental Proposal,* which is available in the docket for this action.

a. Uncertainties in the RTR Emissions Dataset

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

As described above and in the emissions technical document, we gathered a substantial amount of emissions test data for the stack emissions from both facilities. Therefore, the level of uncertainty in the estimates of HAP emissions from the stacks is relatively low. Regarding fugitive emissions, we lack direct quantitative measurements of these emissions, therefore, we had to rely on available emissions factors and other technical information to derive the best estimates of emissions for these emissions. To estimate these fugitive emissions, we relied on information and observations gathered through several site visits by the EPA technical experts, reviewed and evaluated all available emissions factors and analyzed other relevant information such as the measured ratios of HAP metals to particulate matter, estimated capture efficiencies of the various ventilation hoods currently used to capture and control some of the fugitive emissions and the production rates for various products. Based on this information, we have derived the best estimates of fugitive emissions from these sources. Details are described in the Emissions Memo, which is available in the docket for this action. Nevertheless, there are still some uncertainties regarding the precise quantities of fugitive HAP being emitted from these plants.

b. Uncertainties in Dispersion Modeling

We recognize there is uncertainty in ambient concentration estimates associated with any model, including the EPA's recommended regulatory dispersion model, AERMOD. In using a model to estimate ambient pollutant concentrations, the user chooses certain options to apply. For RTR assessments, we select some model options that have the potential to overestimate ambient air concentrations (*e.g.,* not including plume depletion or pollutant transformation). We select other model options that have the potential to underestimate ambient impacts (*e.g.,* not including building downwash). Other options that we select have the potential to either under- or overestimate ambient levels (*e.g.,* meteorology and receptor locations). On balance, considering the directional nature of the uncertainties commonly present in ambient concentrations estimated by dispersion models, the approach we apply in the RTR assessments should yield unbiased estimates of ambient HAP concentrations.

c. Uncertainties in Inhalation Exposure

The EPA did not include the effects of human mobility on exposures in the assessment. Specifically, short-term mobility and long-term mobility between census blocks in the modeling domain were not considered.[32] The approach of not considering short or long-term population mobility does not bias the estimate of the theoretical MIR (by definition), nor does it affect the estimate of cancer incidence because the total population number remains the same. It does, however, affect the shape of the distribution of individual risks across the affected population, shifting it toward higher estimated individual risks at the upper end and reducing the number of people estimated to be at lower risks, thereby increasing the estimated number of people at specific high risk levels (*e.g.,* 1-in-10 thousand or 1-in-1 million).

In addition, the assessment predicted the chronic exposures at the centroid of each populated census block as surrogates for the exposure concentrations for all people living in that block. Using the census block centroid to predict chronic exposures tends to over-predict exposures for people in the census block who live farther from the facility and under-predict exposures for people in the census block who live closer to the facility. Thus, using the census block centroid to predict chronic exposures may lead to a potential understatement or overstatement of the true maximum impact, but is an unbiased estimate of average risk and incidence. We reduce this uncertainty by analyzing large census blocks near facilities using aerial imagery and adjusting the location of the block centroid to better represent the population in the block, as well as adding additional receptor locations where the block population is not well represented by a single location.

The assessment evaluates the cancer inhalation risks associated with pollutant exposures over a 70-year period, which is the assumed lifetime of an individual. In reality, both the length of time that modeled emission sources at facilities actually operate (*i.e.,* more or less than 70 years) and the domestic growth or decline of the modeled industry (*i.e.,* the increase or decrease in the number or size of domestic facilities) will influence the future risks posed by a given source or source category. Depending on the characteristics of the industry, these factors will, in most cases, result in an overestimate both in individual risk levels and in the total estimated number of cancer cases. However, in the unlikely scenario where a facility maintains, or even increases, its emissions levels over a period of more than 70 years, residents live beyond 70 years at the same location, and the residents spend most of their days at that location, then the cancer inhalation risks could potentially be underestimated. However, annual cancer incidence estimates from exposures to emissions from these sources would not be affected by the length of time an emissions source operates.

The exposure estimates used in these analyses assume chronic exposures to ambient (outdoor) levels of pollutants. Because most people spend the majority of their time indoors, actual exposures may not be as high, depending on the characteristics of the pollutants modeled. For many of the HAP, indoor levels are roughly equivalent to ambient levels, but for very reactive pollutants or larger particles, indoor levels are typically lower. This factor has the potential to result in an overestimate of 25 to 30 percent of exposures.[33]

In addition to the uncertainties highlighted above, there are several factors specific to the acute exposure assessment that the EPA conducts as part of the risk review under section 112 of the CAA that should be highlighted. The accuracy of an acute inhalation exposure assessment depends on the simultaneous occurrence of independent factors that may vary greatly, such as hourly emissions rates, meteorology and the presence of humans at the location of the maximum concentration. In the acute screening assessment that we conduct under the RTR program, we assume that peak emissions from the source category and worst-case meteorological conditions co-occur, thus resulting in maximum ambient concentrations. These two events are unlikely to occur at the same time, making these assumptions conservative. We then include the additional assumption that a person is located at this point during this same time period. For this source category, these assumptions would tend to be worst-case actual exposures as it is unlikely that a person would be located at the point of maximum exposure during the time when peak emissions and worst-case meteorological conditions occur simultaneously.

d. Uncertainties in Dose-Response Relationships

There are uncertainties inherent in the development of the dose-response values used in our risk assessments for cancer effects from chronic exposures and non-cancer effects from both chronic and acute exposures. Some uncertainties may be considered quantitatively, and others generally are expressed in qualitative terms. We note as a preface to this discussion a point on dose-response uncertainty that is brought out in the EPA's *2005 Cancer Guidelines;* namely, that ''the primary goal of EPA actions is protection of human health; accordingly, as an Agency policy, risk assessment procedures, including default options that are used in the absence of scientific data to the contrary, should be health protective'' (*EPA 2005 Cancer Guidelines,* pages 1–7). This is the approach followed here as summarized in the next several paragraphs. A complete detailed discussion of uncertainties and variability in dose-response relationships is given in the *Residual Risk Assessment for the Ferroalloys Production Source Category in Support of the September 2014 Supplemental Proposal,* which is available in the docket for this action.

Cancer URE values used in our risk assessments are those that have been developed to generally provide an upper bound estimate of risk. That is, they represent a ''plausible upper limit to the

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[32] Short-term mobility is movement from one micro-environment to another over the course of hours or days. Long-term mobility is movement from one residence to another over the course of a lifetime.

[33] U.S. EPA. *National-Scale Air Toxics Assessment for 1996.* (EPA 453/R–01–003; January 2001; page 85.)

true value of a quantity'' (although this is usually not a true statistical confidence limit).[34] In some circumstances, the true risk could be as low as zero; however, in other circumstances the risk could be greater.[35] When developing an upper bound estimate of risk and to provide risk values that do not underestimate risk, health-protective default approaches are generally used. To err on the side of ensuring adequate health protection, the EPA typically uses the upper bound estimates rather than lower bound or central tendency estimates in our risk assessments, an approach that may have limitations for other uses (*e.g.,* priority-setting or expected benefits analysis).

Chronic non-cancer RfC and reference dose (RfD) values represent chronic exposure levels that are intended to be health-protective levels. Specifically, these values provide an estimate (with uncertainty spanning perhaps an order of magnitude) of a continuous inhalation exposure (RfC) or a daily oral exposure (RfD) to the human population (including sensitive subgroups) that is likely to be without an appreciable risk of deleterious effects during a lifetime. To derive values that are intended to be ''without appreciable risk,'' the methodology relies upon an uncertainty factor (UF) approach (U.S. EPA, 1993, 1994) which considers uncertainty, variability and gaps in the available data. The UF are applied to derive reference values that are intended to protect against appreciable risk of deleterious effects. The UF are commonly default values,[36] *e.g.,* factors of 10 or 3, used in the absence of compound-specific data; where data are available, UF may also be developed using compound-specific information. When data are limited, more assumptions are needed and more UF are used. Thus, there may be a greater tendency to overestimate risk in the sense that further study might support development of reference values that are higher (*i.e.,* less potent) because fewer default assumptions are needed. However, for some pollutants, it is possible that risks may be underestimated.

While collectively termed ''UF,'' these factors account for a number of different quantitative considerations when using observed animal (usually rodent) or human toxicity data in the development of the RfC. The UF are intended to account for: (1) Variation in susceptibility among the members of the human population (*i.e.,* inter-individual variability); (2) uncertainty in extrapolating from experimental animal data to humans (*i.e.,* interspecies differences); (3) uncertainty in extrapolating from data obtained in a study with less-than-lifetime exposure (*i.e.,* extrapolating from sub-chronic to chronic exposure); (4) uncertainty in extrapolating the observed data to obtain an estimate of the exposure associated with no adverse effects; and (5) uncertainty when the database is incomplete or there are problems with the applicability of available studies.

Many of the UF used to account for variability and uncertainty in the development of acute reference values are quite similar to those developed for chronic durations, but they more often use individual UF values that may be less than 10. The UF are applied based on chemical-specific or health effect-specific information (*e.g.,* simple irritation effects do not vary appreciably between human individuals, hence a value of 3 is typically used), or based on the purpose for the reference value (see the following paragraph). The UF applied in acute reference value derivation include: (1) Heterogeneity among humans; (2) uncertainty in extrapolating from animals to humans; (3) uncertainty in lowest observed adverse effect (exposure) level to no observed adverse effect (exposure) level adjustments; and (4) uncertainty in accounting for an incomplete database on toxic effects of potential concern. Additional adjustments are often applied to account for uncertainty in extrapolation from observations at one exposure duration (*e.g.,* 4 hours) to derive an acute reference value at another exposure duration (*e.g.,* 1 hour).

Not all acute reference values are developed for the same purpose and care must be taken when interpreting the results of an acute assessment of human health effects relative to the reference value or values being exceeded. Where relevant to the estimated exposures, the lack of short-term dose-response values at different levels of severity should be factored into the risk characterization as potential uncertainties.

Although every effort is made to identify appropriate human health effect dose-response assessment values for all pollutants emitted by the sources in this risk assessment, some HAP emitted by this source category are lacking dose-response assessments. Accordingly, these pollutants cannot be included in the quantitative risk assessment, which could result in quantitative estimates understating HAP risk. As we state above in section III.A.3, based on a recent in-depth examination of the available acute value for nickel (California EPA's acute (1-hour) REL), we have concluded that this value is not appropriate for our regulatory needs in characterizing the potential for acute health risks. This conclusion takes into account the effect on which the acute REL is based, aspects of the methodology used in its derivation, and how this assessment stands in comparison to other comprehensive toxicological assessments which considered the broader nickel health effects database. Also, there are no AEGL–1 or -2 or ERPG–1 or -2 values available to use in this acute risk assessment. Therefore, we will not include nickel in our acute analysis for this source category or in future assessments unless and until an appropriate value becomes available.

To help to alleviate this potential underestimate, where we conclude similarity with a HAP for which a dose-response assessment value is available, we use that value as a surrogate for the assessment of the HAP for which no value is available. To the extent use of surrogates indicates appreciable risk, we may identify a need to increase priority for new IRIS assessment of that substance. We additionally note that, generally speaking, HAP of greatest concern due to environmental exposures and hazard are those for which dose-response assessments have been performed, reducing the likelihood of understating risk. Further, HAP not included in the quantitative assessment are assessed qualitatively and considered in the risk characterization that informs the risk management decisions, including with regard to consideration of HAP reductions achieved by various control options.

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[34] IRIS glossary (*http://www.epa.gov/NCEA/iris/help_gloss.htm*).

[35] An exception to this is the URE for benzene, which is considered to cover a range of values, each end of which is considered to be equally plausible and which is based on maximum likelihood estimates.

[36] According to the NRC report, *Science and Judgment in Risk Assessment* (NRC, 1994) ''[Default] options are generic approaches, based on general scientific knowledge and policy judgment, that are applied to various elements of the risk assessment process when the correct scientific model is unknown or uncertain.'' The 1983 NRC report, *Risk Assessment in the Federal Government: Managing the Process,* defined default option as ''the option chosen on the basis of risk assessment policy that appears to be the best choice in the absence of data to the contrary'' (NRC, 1983a, p. 63). Therefore, default options are not rules that bind the Agency; rather, the Agency may depart from them in evaluating the risks posed by a specific substance when it believes this to be appropriate. In keeping with EPA's goal of protecting public health and the environment, default assumptions are used to ensure that risk to chemicals is not underestimated (although defaults are not intended to overtly overestimate risk). See EPA, 2004, *An Examination of EPA Risk Assessment Principles and Practices,* EPA/100/B–04/001 available at: *http://www.epa.gov/osa/pdfs/ratf-final.pdf.*

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

e. Uncertainties in the Multipathway Assessment

For each source category, we generally rely on site-specific levels of PB–HAP emissions to determine whether a refined assessment of the impacts from multipathway exposures is necessary. This determination is based on the results of a two-tiered screening analysis that relies on the outputs from models that estimate environmental pollutant concentrations and human exposures for four PB–HAP. Two important types of uncertainty associated with the use of these models in RTR risk assessments and inherent to any assessment that relies on environmental modeling are model uncertainty and input uncertainty.[37] Model uncertainty concerns whether the selected models are appropriate for the assessment being conducted and whether they adequately represent the actual processes that might occur for that situation. An example of model uncertainty is the question of whether the model adequately describes the movement of a pollutant through the soil. This type of uncertainty is difficult to quantify. However, based on feedback received from previous EPA Science Advisory Board reviews and other reviews, we are confident that the models used in the screen are appropriate and state-of-the-art for the multipathway risk assessments conducted in support of RTR.

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

In Tier II of the multipathway assessment, we refine the model inputs to account for meteorological patterns in the vicinity of the facility versus using upper-end national values and we identify the actual location of lakes near the facility rather than the default lake location that we apply in Tier I. By refining the screening approach in Tier II to account for local geographical and meteorological data, we decrease the likelihood that concentrations in environmental media are overestimated, thereby increasing the usefulness of the screen. The assumptions and the associated uncertainties regarding the selected ingestion exposure scenario are the same for Tier I and Tier II.

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

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

For further information on uncertainties and the Tier I and II screening methods, refer to the risk document Appendix 4, *Technical Support Document for TRIM-Based Multipathway Tiered Screening Methodology for RTR.*

We also completed a refined multipathway assessment for this supplemental proposal. The refined assessment contains considerably less uncertainty compared to the Tier I and Tier II screens. Nevertheless, some uncertainties also exist with the refined assessments. The refined multi-pathway assessment and related uncertainties are described in detail in the risk document Appendix 10, *Residual Risk Assessment for the Ferroalloys Production Source Category in Support of the September 2014 Supplemental Proposal,* which is available in the docket for this action.

f. Uncertainties in the Environmental Risk Screening Assessment

For each source category, we generally rely on site-specific levels of environmental HAP emissions to perform an environmental screening assessment. The environmental screening assessment is based on the outputs from models that estimate environmental HAP concentrations. The same models, specifically the TRIM.FaTE multipathway model and the AERMOD air dispersion model, are used to estimate environmental HAP concentrations for both the human multipathway screening analysis and for the environmental screening analysis. Therefore, both screening assessments have similar modeling uncertainties.

Two important types of uncertainty associated with the use of these models in RTR environmental screening assessments—and inherent to any assessment that relies on environmental modeling—are model uncertainty and input uncertainty.[38]

Model uncertainty concerns whether the selected models are appropriate for the assessment being conducted and whether they adequately represent the movement and accumulation of environmental HAP emissions in the environment. For example, does the model adequately describe the movement of a pollutant through the soil? This type of uncertainty is difficult to quantify. However, based on feedback received from previous EPA Science Advisory Board reviews and other reviews, we are confident that the models used in the screen are appropriate and state-of-the-art for the environmental risk assessments conducted in support of our RTR analyses.

Input uncertainty is concerned with how accurately the models have been configured and parameterized for the assessment at hand. For Tier I of the environmental screen for PB–HAP, we configured the models to avoid underestimating exposure and risk to reduce the likelihood that the results indicate the risks are lower than they actually are. This was accomplished by

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[37] In the context of this discussion, the term "uncertainty" as it pertains to exposure and risk encompasses both *variability* in the range of expected inputs and screening results due to existing spatial, temporal, and other factors, as well as *uncertainty* in being able to accurately estimate the true result.

[38] In the context of this discussion, the term "uncertainty," as it pertains to exposure and risk assessment, encompasses both *variability* in the range of expected inputs and screening results due to existing spatial, temporal and other factors, as well as *uncertainty* in being able to accurately estimate the true result.

selecting upper-end values from nationally-representative data sets for the more influential parameters in the environmental model, including selection and spatial configuration of the area of interest, the location and size of any bodies of water, meteorology, surface water and soil characteristics and structure of the aquatic food web. In Tier I, we used the maximum facility-specific emissions for the PB–HAP (other than lead compounds, which were evaluated by comparison to the secondary lead NAAQS) that were included in the environmental screening assessment and each of the media when comparing to ecological benchmarks. This is consistent with the conservative design of Tier I of the screen. In Tier II of the environmental screening analysis for PB–HAP, we refine the model inputs to account for meteorological patterns in the vicinity of the facility versus using upper-end national values, and we identify the locations of water bodies near the facility location. By refining the screening approach in Tier II to account for local geographical and meteorological data, we decrease the likelihood that concentrations in environmental media are overestimated, thereby increasing the usefulness of the screen. To better represent widespread impacts, the modeled soil concentrations are averaged in Tier II to obtain one average soil concentration value for each facility and for each PB–HAP. For PB–HAP concentrations in water, sediment and fish tissue, the highest value for each facility for each pollutant is used.

For the environmental screening assessment for acid gases, we employ a single-tiered approach. We use the modeled air concentrations and compare those with ecological benchmarks.

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

Uncertainty also exists in the ecological benchmarks for the environmental risk screening analysis. We established a hierarchy of preferred benchmark sources to allow selection of benchmarks for each environmental HAP at each ecological assessment endpoint. In general, EPA benchmarks used at a programmatic level (*e.g.,* Office of Water, Superfund Program) were used if available. If not, we used EPA benchmarks used in regional programs (*e.g.,* Superfund Program). If benchmarks were not available at a programmatic or regional level, we used benchmarks developed by other agencies (*e.g.,* NOAA) or by state agencies.

In all cases (except for lead compounds, which were evaluated through a comparison to the NAAQS), we searched for benchmarks at the following three effect levels, as described in section III.A.6. of this notice:

1. A no-effect level (*i.e.,* NOAEL).
2. Threshold-effect level (*i.e.,* LOAEL).
3. Probable effect level (*i.e.,* PEL).

For some ecological assessment endpoint/environmental HAP combinations, we could identify benchmarks for all three effect levels, but for most, we could not. In one case, where different agencies derived significantly different numbers to represent a threshold for effect, we included both. In several cases, only a single benchmark was available. In cases where multiple effect levels were available for a particular PB–HAP and assessment endpoint, we used all of the available effect levels to help us to determine whether risk exists and if the risks could be considered significant and widespread.

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

Further information on uncertainties and the Tier I and II screening methods is provided in Appendix 4 of the document ''Technical Support Document for TRIM-Based Multipathway Tiered Screening Methodology for RTR: Summary of Approach and Evaluation.'' Also, see the *Residual Risk Assessment for the Ferroalloys Production Source Category in Support of the September 2014 Supplemental Proposal,* available in the docket for this action.

B. How did we consider the risk results in making decisions for this supplemental proposal?

As discussed in section II.A of this preamble, in evaluating and developing standards under section 112(f)(2), we apply a two-step process to address residual risk. In the first step, the EPA determines whether risks are acceptable. This determination ''considers all health information, including risk estimation uncertainty, and includes a presumptive limit on maximum individual lifetime [cancer] risk (MIR)[39] of approximately [1-in-10 thousand] [*i.e.,* 100-in-1 million].'' 54 FR 38045, September 14, 1989. If risks are unacceptable, the EPA must determine the emissions standards necessary to bring risks to an acceptable level without considering costs. In the second step of the process, the EPA considers whether the emissions standards provide 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 factors relevant to each particular decision.'' *Id.* The EPA must promulgate emission standards necessary to provide an ample margin of safety.

In past residual risk actions, the EPA considered a number of human health risk metrics associated with emissions from the categories under review, including the MIR, the number of persons in various risk ranges, cancer incidence, the maximum non-cancer HI and the maximum acute non-cancer hazard. *See, e.g.,* 72 FR 25138, May 3, 2007; 71 FR 42724, July 27, 2006. The EPA considered this health information for both actual and allowable emissions. *See, e.g.,* 75 FR 65068, October 21, 2010; 75 FR 80220, December 21, 2010; 76 FR 29032, May 19, 2011. The EPA also discussed risk estimation uncertainties

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

and considered the uncertainties in the determination of acceptable risk and ample margin of safety in these past actions. The EPA considered this same type of information in support of this action.

The agency is considering these various measures of health information to inform our determinations of risk acceptability and ample margin of safety under CAA section 112(f). As explained in the Benzene NESHAP, ''the first step judgment on acceptability cannot be reduced to any single factor'' and thus ''[t]he Administrator believes that the acceptability of risk under [previous] section 112 is best judged on the basis of a broad set of health risk measures and information.'' 54 FR 38046, September 14, 1989. Similarly, with regard to the ample margin of safety determination, ''the Agency again considers all of the health risk and other health information considered in the first step. Beyond that information, additional factors relating to the appropriate level of control will also be considered, including cost and economic impacts of controls, technological feasibility, uncertainties, and any other relevant factors.'' *Id.*

The Benzene NESHAP approach provides flexibility regarding factors the EPA may consider in making determinations and how the EPA may weigh those factors for each source category. In responding to comment on our policy under the Benzene NESHAP, the EPA explained that:

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

See 54 FR at 38057, September 14, 1989. Thus, the level of the MIR is only one factor to be weighed in determining acceptability of risks. 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 MIR less than the presumptively acceptable level is unacceptable in the light of other health risk factors.'' *Id.* at 38045. Similarly, with regard to the ample margin of safety analysis, the EPA stated in the Benzene NESHAP that: ''EPA believes the relative weight of the many factors that can be considered in selecting an ample margin of safety can only be determined for each specific source category. This occurs mainly because technological and economic factors (along with the health-related factors) vary from source category to source category.'' *Id.* at 38061. We also consider the uncertainties associated with the various risk analyses, as discussed earlier in this preamble, in our determinations of acceptability and ample margin of safety.

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

The agency understands the potential importance of considering an individual's total exposure to HAP in addition to considering exposure to HAP emissions from the source category and facility. We recognize that such consideration may be particularly important when assessing non-cancer risks, where pollutant-specific exposure health reference levels (*e.g.,* RfCs) are based on the assumption that thresholds exist for adverse health effects. For example, the agency recognizes that, although exposures attributable to emissions from a source category or facility alone may not indicate the potential for increased risk of adverse non-cancer health effects in a population, the exposures resulting from emissions from the facility in combination with emissions from all of the other sources (*e.g.,* other facilities) to which an individual is exposed may be sufficient to result in increased risk of adverse non-cancer health effects. In May 2010, the SAB advised the EPA ''that RTR assessments will be most useful to decision makers and communities if results are presented in the broader context of aggregate and cumulative risks, including background concentrations and contributions from other sources in the area.''[40]

In response to the SAB recommendations, the EPA is incorporating cumulative risk analyses into its RTR risk assessments, including those reflected in this proposal. The agency is: (1) Conducting facility-wide assessments, which include source category emission points as well as other emission points within the facilities; (2) considering sources in the same category whose emissions result in exposures to the same individuals; and (3) for some persistent and bioaccumulative pollutants, analyzing the ingestion route of exposure. In addition, the RTR risk assessments have always considered aggregate cancer risk from all carcinogens and aggregate non-cancer hazard indices from all non-carcinogens affecting the same target organ system.

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

C. How did we perform the technology review?

Our technology review focused on the identification and evaluation of developments in practices, processes and control technologies that have occurred since the MACT standards were promulgated. Where we identified such developments, in order to inform our decision of whether it is ''necessary'' to revise the emissions standards, we analyzed the technical feasibility of applying these developments and the estimated costs,

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[40] EPA's responses to this and all other key recommendations of the SAB's advisory on RTR risk assessment methodologies (which is available at: *http://yosemite.epa.gov/sab/sabproduct.nsf/4AB3966E263D943A8525771F00668381/$File/EPA-SAB-10-007-unsigned.pdf*) are outlined in a memo to this rulemaking docket from David Guinnup entitled, *EPA's Actions in Response to the Key Recommendations of the SAB Review of RTR Risk Assessment Methodologies.*

energy implications, non-air environmental impacts, as well as considering the emission reductions. We also considered the appropriateness of applying controls to new sources versus retrofitting existing sources.

Based on our analyses of the available data and information, we identified potential developments in practices, processes and control technologies. For this exercise, we considered any of the following to be a "development":

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

We reviewed a variety of data sources in our investigation of potential practices, processes or controls to consider. Among the sources we reviewed were the NESHAP for various industries that were promulgated since the MACT standards being reviewed in this action. We reviewed the regulatory requirements and/or technical analyses associated with these regulatory actions to identify any practices, processes and control technologies considered in these efforts that could be applied to emission sources in the Ferroalloys Production source category, as well as the costs, non-air impacts and energy implications associated with the use of these technologies. Additionally, we requested information from facilities regarding developments in practices, processes or control technology. Finally, we reviewed information from other sources, such as state and/or local permitting agency databases and industry-supported databases.

For the 2011 proposal, our technology review focused on the identification and evaluation of developments in practices, processes and control technologies that have occurred since the 1999 NESHAP was promulgated. In cases where the technology review identified such developments, we conducted an analysis of the technical feasibility of applying these developments, along with the estimated impacts (costs, emissions reductions, risk reductions, etc.) of applying these developments. We then made decisions on whether it is necessary to propose amendments to the 1999 NESHAP to require any of the identified developments. Based on our analyses of the data and information collected by the 2010 ICR and our general understanding of the industry and other available information on potential controls for this industry, we identified several potential developments in practices, processes and control technologies.

Based on our technology review for the 2011 proposed rule, we determined that there had been advances in emissions control measures since the Ferroalloys Production NESHAP was originally promulgated in 1999. Based on that review, we proposed lower PM emissions limits for the process vents because we determined that the existing add-on control devices (baghouses and wet venture scrubbers) were achieving better control than that reflected by the emissions limits in the 1999 MACT rule. Furthermore, based on that previous technology review, to reduce fugitive process emissions, in 2011 we proposed a requirement for sources to enclose the furnace building, prevent the fugitive emissions from being released to the atmosphere by maintaining the furnace building under negative pressure and collect and duct those fugitive emissions to a control device. We proposed that approach in 2011, because at that time, we believed it represented a technically-feasible cost-effective advance in emissions control since the Ferroalloys Production NESHAP was originally promulgated in 1999. Additional details regarding the previously-conducted technology review can be found in the *Technology Review for Ferroalloys Production Source Category* (Docket No. EPA–HQ–OAR–2010–0895–0044), which is available in the docket and are discussed in the preamble to the 2011 proposal (76 FR 72508). However, we received significant adverse public comments regarding the proposed requirement for full-enclosure with negative pressure. After reviewing and considering the comments and other information regarding the costs and feasibility of full-enclosure, we determined that full-enclosure with negative pressure may not be feasible for these facilities and, if feasible, would be much more costly than what we had estimated for the 2011 proposal. Therefore we evaluated other potential approaches to reduce fugitive process emissions based on enhanced local capture and control of the fugitive emissions and secondary capture and control, which are described in more detail below.

We also gathered additional emissions data for the process vents. Therefore, we have updated and revised our technology review for the process vent emissions and fugitive emissions control options. The following paragraphs describe the up-dated and revised technology review and additional analyses that were performed for today's supplemental proposal.

1. Process Vent Emission Limits

The ferroalloy production facilities have add-on control devices such as venturi scrubbers or fabric filters to control emissions of metal HAP from the furnace operations. The furnace operations include charging, smelting and tapping. Other operations that take place inside the furnace buildings include casting and ladle treatment. The vast majority of emissions from the charging and smelting processes are currently vented to the add-on control devices. However, the percent of emissions currently captured and controlled from tapping, ladle treatment and casting are considerably lower and varies across furnaces. The ferroalloy production facilities also use add-on control devices to reduce emissions from the metal oxygen refining (MOR) process, local ventilation sources (*e.g.,* tapping fugitive control device) and the product crushing operations.

To evaluate the effectiveness of these emission control technologies currently used to reduce emissions and meet the emission limits in the 1999 MACT rule, an ICR under section 114 of the Clean Air Act was sent to each of the ferroalloy production facilities on April 28, 2010 and December 21, 2012 to gather source emissions test data and other information for the furnaces, the MOR process and the product crushing operations. The HAP source test data that were collected from the control device outlet for each furnace include: metal HAP (arsenic, cadmium, chromium (total and Cr^{+6}), lead compounds, manganese, mercury and nickel)[41], HCl, formaldehyde, PAH,

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[41] Total phosphorus was also measured for the ICR using EPA Method 29; however this method does not distinguish between white phosphorus (which is a non-HAP) and red phosphorus (which is a HAP). Due to the uncertainty of the percentage of red phosphorus in the total phosphorus test results, it was concluded that phosphorus would not be incorporated in the emissions used for modeling.

PCB and chlorodibenzodioxins and chlorodibenzofurans (CDD/CDF). In addition, emissions were measured from the furnace control device outlet for two non-HAP air pollutants (carbon monoxide and particulate matter). The pollutants measured from the MOR and crushing and sizing operations in 2010 include particulate matter (PM) and metal HAP (arsenic, total chromium, lead compounds, manganese, mercury and nickel).[42] In addition, the facilities provided compliance test reports from 2011 and 2012 and additional emissions data they collected voluntarily, which included test data for PM, metal HAP (arsenic, cadmium, total chromium, lead compounds, manganese, mercury and nickel) and organic HAP (PAH, PCB, CDD/CDF) from the furnace control device outlets.

The test data collected from the ICR responses, the compliance reports and other testing indicate that the PM emissions from the furnace process vents (also known as process stacks) are well below the level of emissions allowed by the current emission standards in subpart XXX. In the 2011 proposal, we proposed lower PM limits to reflect the better performance of these sources. We also proposed lower limits for the MOR process and the crushing and screening process vents in the 2011 proposal. We did not receive any additional test data for the MOR process or the crushing and screening process since the 2011 proposal and have received no other information indicating that changes to the limits we proposed in 2011 for these sources are necessary, therefore we plan no changes to the proposed emission standards in this supplemental proposal for the MOR process and the crushing and screening processes.

However, for the furnace process vents, we did receive additional data and based on that data combined with the data we already had, we evaluated whether it is appropriate to propose revised emissions limits for PM from the furnace process vents. We also re-evaluated the proposed emission limits for the local ventilation system based on the new test data received. Further discussions of the re-evaluations and the proposed revised limits are presented in Section IV below.

For purposes of addressing new ferroalloy production facilities, we considered the feasibility of more stringent emission limits. Specifically, we examined what emission level could be met using available add-on control devices and the emission concentrations that could be achieved by the use of the control devices. The results of this analysis and the proposed decisions are described in Section IV below.

2. Process Fugitive Control Standards

We re-evaluated the costs and operational feasibility associated with the option of requiring full building enclosure with negative pressure at all openings. We also consulted with ventilation experts working with hot process fugitives like those found in the ferroalloys industry (*e.g.,* electric arc furnace steel mini-mills and secondary lead smelters). Furthermore, we received detailed information from each of the Ferroalloys facilities that provides an alternative approach to achieve significant reductions of process fugitive emissions using enhanced local capture, including primary and secondary hoods, which would effectively capture most of the fugitive process emissions and route these emissions to a PM control device (*e.g.,* baghouse or wet scrubber). The plans provided by the facilities are designed to achieve a high overall level of control. These plans are available in the docket for this action (identified by document numbers: EPA–HQ–OAR–2010–0895–0106 and EPA–HQ–OAR–2010–0895–0073).

We also reviewed other options to control process fugitive emissions. When we consider the evolution of the EPA rules on process fugitives in the metallurgical industry, we observe that the primary emphasis on quantifiable emission standards is based on controlling stack emissions with a high degree of efficiency. Standards related to emissions capture are generally related to parameter monitoring of flow rates and damper positions of capture equipment when the stack emission test is occurring. There typically has not been an independent evaluation of the effectiveness of process fugitive control through local ventilation in a quantitative, rigorous manner.

However, there is a history of addressing fugitive emissions by requiring a building opacity limit, including a 20 percent limit in the current subpart XXX (although this limit also contains a 60-percent short-term excursion and it excludes some key process fugitives events such as casting). Subpart FFFFF of Part 63, National Emission Standards for Hazardous Air Pollutants for Integrated Iron and Steel Manufacturing Facilities, contains various building opacity limits ranging from 20 percent for existing sources to 10 percent for new sources. Section 60.272a in the Subpart AAa—Standards of Performance for Steel Plants: Electric Arc Furnaces and Argon-Oxygen Decarburization Vessels Constructed After August 17, 1983 establishes a shop building opacity limit of 6 percent, due solely to the operations of affected electric arc furnace (EAF)(s) or argon-oxygen decarburization vessel (AOD vessel)(s). Building opacity limits in these rules serve as an emissions standard for the control of process fugitive emissions. Opacity limits can ensure effective capture and control of these fugitive emissions if they are established at the appropriate levels and have appropriate compliance monitoring requirements to ensure the fugitive emissions are minimized continuously over time.

After reviewing and evaluating available information regarding approaches to reduce process fugitive emissions, we revised our analysis of options to control these fugitive emissions. The results of the revised analyses of control options for process fugitive emissions are summarized in Section IV and also presented in the *Cost Impacts of Control Options to Address Fugitive HAP Emissions for the Ferroalloys Production NESHAP Supplemental Proposal* document and the *Revised Technology Review for the Ferroalloys Production Source Category for the Supplemental Proposal* document (Revised Technology Review document), which are available in the docket.

IV. Revised Analytical Results and Proposed Decisions for the Ferroalloys Production Source Category

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

As described previously, CAA section 112(d) requires the EPA to promulgate national technology-based emission standards for hazardous air pollutants (NESHAP) for listed source categories, including this source category. In the 2011 proposal, we proposed emissions limits for mercury, PAHs and HCl, which were previously unregulated HAP, pursuant to section 112(d)(2) and 112(d)(3). After proposal, we received a substantial amount of additional data for these HAP and re-analyzed the proposed limits for these HAP considering the additional data.

Based on those analyses we determined it is appropriate to propose revised limits for these three HAP. Therefore, in today's supplemental notice, we are proposing revised emissions limits pursuant to section 112(d)(2) and 112(d)(3) for mercury, PAHs and HCl. In this section, we describe how we developed the revised

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[42] Total phosphorus was also measured using Method 29, but was not used in the technology review.

proposed standards for these HAP, including how we calculated MACT floor limits, how we account for variability in those floor calculations and how we considered beyond the floor (BTF) options. The revised MACT analyses for these previously unregulated pollutants (*i.e.,* mercury, PAH and HCl) are presented in the following paragraphs. For more information on these analyses, see the *Revised MACT Floor Analysis for the Ferroalloys Production Source Category* and the *Mercury Control Options and Impacts for the Ferroalloys Production Industry* documents which are available in the docket for this action.

1. How do we develop MACT floor limits?

As discussed in the 2011 proposal (76 FR 72508), the MACT floor limit for existing sources is calculated based on the average performance of the best performing units in each category or subcategory, and also on a consideration of these units' variability, and the MACT floor for new sources is based on the single best performing source, with a similar consideration of that source's variability. The MACT floor for new sources cannot be less stringent than the emissions performance that is achieved in practice by the best-controlled similar source. To account for variability in the operation and emissions, the stack test data were used to calculate the average emissions and the 99 percent upper predictive limit (UPL) to derive the MACT floor limits. For more information regarding the general use of the UPL and why it is appropriate for calculating MACT floors, see the memorandum titled *Use of the Upper Prediction Limit for Calculating MACT Floors* (UPL Memo), which is available in the docket for this action. Furthermore, with regard to calculation of MACT Floor limits based on limited datasets, we considered additional factors as summarized below and described in more details in the memorandum titled: *Approach for Applying the Upper Prediction Limit to Limited Datasets,* which is available in the docket for this action.

2. What is our approach for applying the upper prediction limit to limited datasets?

The UPL approach addresses variability of emissions data from the best performing source or sources in setting MACT standards. The UPL also accounts for uncertainty associated with emission values in a dataset, which can be influenced by components such as the number of samples available for developing MACT standards and the number of samples that will be collected to assess compliance with the emission limit. The UPL approach has been used in many environmental science applications.[43] [44] [45] [46] [47] [48] As explained in more detail in the UPL Memo, the EPA uses the UPL approach to reasonably estimate the emissions performance of the best performing source or sources to establish MACT floor standards.

With regard to the derivation of MACT limits using limited datasets, in a recent D.C. Circuit Court of Appeals decision in *National Association of Clean Water Agencies* v. *EPA (NACWA),* which involved challenges to EPA's MACT standards for sewage sludge incinerators, questions were raised regarding the application of the UPL to limited datasets. We have since addressed these questions, as explained in detail in the memorandum titled: *Approach for Applying the Upper Prediction Limit to Limited Datasets* (*i.e.,* Limited Dataset Memo), which is available in the docket for this action. We seek comments on the approach described in the Limited Dataset Memo and whether there are other approaches we should consider for such datasets. We also seek comments on the application of this approach for the derivation of MACT limits based on limited datasets in this supplemental proposal, which are described in the following sections of today's notice and in the Limited Dataset Memo.

3. How did we apply the approach for limited datasets to limited datasets in the ferroalloys source category?

For the ferroalloys source category, we have limited datasets for the following pollutants and subcategories: PAHs for existing and new furnaces producing ferromanganese (FeMn); PAHs for new furnaces producing silicon manganese (SiMn); mercury for new furnaces producing SiMn; mercury for existing and new furnaces producing FeMn; and HCl for new furnaces producing FeMn or SiMn. Therefore, we evaluated these specific datasets to determine whether it is appropriate to make any modifications to the approach used to calculate MACT floors for each of these datasets.

For each dataset, we performed the steps outlined in the Limited Dataset Memo, including: Ensuring that we selected the data distribution that best represents each dataset; ensuring that the correct equation for the distribution was then applied to the data; and comparing individual components of each small dataset to determine if the standards based on small datasets reasonably represent the performance of the units included in the dataset. The results of each analysis are described and presented below in the applicable sections for each of the three HAP (i.e., mercury, PAHs and HCl). We seek comments regarding the specific application of the limited dataset approach used to derive the proposed emissions limits for Hg, PAHs and HCl described in the sections below.

4. How did we develop proposed limits for mercury emissions?

a. Background on Mercury

As described above, we obtained significant additional data on mercury emissions from the two ferroalloys production facilities since the 2011 proposal. In particular, we obtained data from each furnace and for each product type (ferromanganese and silicomanganese). While the mercury test data from the 2010 ICR were collected using EPA Method 29 and the mercury test data from the 2012 ICR and other submitted test reports were collected using EPA Method 30B, the mercury test results from the two test methods were considered to be comparable and were used in the MACT Floor analysis. All of the test reports provided analytical results for mercury that were above the detection limit.

The raw materials used to produce ferroalloys contain various amounts of mercury, which is emitted during the smelting process. These mercury emissions are derived primarily from

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[43] Gibbons, R. D. (1987), *Statistical Prediction Intervals for the Evaluation of Ground-Water Quality.* Groundwater, 25: 455–465 and Hart, Barbara F. and Janet Chaseling, *Optimizing Landfill Ground Water Analytes*—New South Wales, Australia, Groundwater Monitoring & Remediation, 2003, 23, 2.

[44] Wan, Can; Xu, Zhao; Pinson, Pierre; Dong, Zhao Yang; Wong, Kit Po. Optimal Prediction Intervals of Wind Power Generation. 2014. IEEE Transactions on Power Systems, ISSN 0885–8950, 29(3): pp. 1166–1174.

[45] Khosravi, Abbas; Mazloumi, Ehsan; Nahavandi, Saeid; Creighton, Doug; van Lint, J. W. C. Prediction Intervals to Account for Uncertainties in Travel Time Prediction. 2011. IEEE Transactions on Intelligent Transportation Systems, ISSN 1524–9050, 12(2):537–547.

[46] Ashkan Zarnani; Petr Musilek; Jana Heckenbergerova. 2014. Clustering numerical weather forecasts to obtain statistical prediction intervals. Meteorological Applications, ISSN 1350–4827. 21(3): 605.

[47] Rayer, Stefan; Smith, Stanley K; Tayman, Jeff. 2009. Empirical Prediction Intervals for County Population Forecasts. Population Research and Policy Review, 28(6): 773–793.

[48] Nicholas A Som; Nicolas P Zegre; Lisa M Ganio; Arne E Skaugset. 2012. Corrected prediction intervals for change detection in paired watershed studies. Hydrological Sciences Journal, ISSN 0262–6667, 57(1): 134–143

the manganese ore although there may be trace amounts in the coke or coal used in the smelting process. Some of the mercury that is in oxidized form is captured on the particulate matter (PM) and then collected in the particle control device (*e.g.,* fabric filter or wet scrubber). In contrast, most of the gaseous elemental mercury is not captured by these particulate control devices and is largely emitted to the atmosphere. Based on the available emissions test data, we estimate Eramet (which, as noted above, produces FeMn and SiMn) emits about 342 pounds per year of mercury from their furnaces and that Felman, which produces only SiMn, emits about 35 lb/yr of mercury from their furnaces. Pursuant to CAA section 112(d)(2) and 112(d)(3), we are proposing to revise the 1999 NESHAP to include emission limits for mercury.

b. Calculation of MACT Floor Limits for Mercury

With regard to determining appropriate MACT limits for mercury, importantly, the new test data confirm that ferromanganese (FeMn) production has substantially higher mercury emissions compared to silicomanganese (SiMn) production and that emissions are considerably higher at Eramet as compared to Felman. This finding is based on an analysis of the product-specific data sets. Furthermore, we evaluated differences in the processes and input materials to try to determine the reasons for the significant difference in mercury emissions. Based on this evaluation, we have determined the input material recipes for producing the different products are quite different. In the case of FeMn production, much more of the Mn ore and high carbon coke are used to reduce the MnO_2 in the ore to Mn to produce FeMn. We conclude the difference in emissions of mercury is due to the significant differences in the input materials and recipe for FeMn as compared to SiMn production.

Because of the significant differences in the input material and the mercury emissions between FeMn and SiMn, we determined that subcategories should be created for ferromanganese and silicomanganese production, with separate MACT limits for mercury proposed for each ferroalloys product (FeMn and SiMn).

The MACT floor dataset for mercury from existing and new furnaces producing FeMn includes 6 test runs from a single furnace. As described above, this dataset (for the calculation of MACT limits for mercury from furnaces producing FeMn) was considered limited and therefore we followed the steps described in the Limited Dataset Memo to determine the appropriate MACT floor limits for mercury for furnaces producing FeMn. We first determined that the dataset is best represented by a normal distribution and ensured that we used the correct equation for the distribution. Because the floor for both existing and new furnaces is based on the performance of a single unit, our evaluation of the data was limited to ensuring that the emission limit is a reasonable estimate of the performance of the unit based on our knowledge about the process and controls. Accordingly, we compared the calculated emission limit to the highest measured value and the average short-term emissions from the unit, and found that the calculated emission limit is about 2.5 times the short-term average from the unit, which is within the range that we see when we evaluate larger data sets using our MACT floor calculation procedures. The fairly wide range in mercury emissions shown by the available data for this best performing unit indicate that variability is significant, and we determined that the emission limit is representative of the actual performance of the unit upon which the limit is based, considering variability. Therefore, we determined that no changes to our standard floor calculation procedure were warranted for this pollutant and subcategory, and we are proposing that the MACT floor is 170 μg/dscm for Hg from existing furnaces producing FeMn. We also note that while we calculated the same MACT floor value for new sources, we are proposing a beyond-the-floor standard for new sources, which is discussed later in this section of this preamble.

The MACT floor dataset for mercury from new furnaces producing SiMn includes 3 test runs from a single furnace (furnace #7 at Felman) that we identified as the best performing unit based on average emissions. After determining that the dataset is best represented by a normal distribution and ensuring that we used the correct equation for the distribution, we evaluated the variance of this unit (furnace #7 at Felman). Our analysis showed that this unit, identified as the best unit based on average emissions, also had the lowest variance, indicating consistent performance. Therefore, we determined that the emission limit reasonably accounts for variability and that no changes to the standard floor calculation procedure were warranted for this pollutant and subcategory, and we are proposing that the MACT floor is 4.0 μg/dscm for Hg from new furnaces producing SiMn.

With regard to mercury emissions from existing furnaces producing SiMn, we have 12 test runs in our dataset. This data set was not determined to be a limited data set. Using the 99 percent UPL method described above, we calculated the MACT floor limit (or 99 percent UPL) for exhaust mercury concentrations from existing furnaces producing SiMn to be 12 μg/dscm.

The MACT floor limits for mercury for existing furnaces are higher than the actual emissions measured during the ICR performance tests at each plant due to an allowance for variability reflected in the UPL. We anticipate that both of the existing sources would be able to meet these product-specific MACT Floor limits for existing sources without installing additional controls. Therefore, the costs and reductions for the MACT floor option were estimated to be zero because we conclude that the facilities would be able to meet the mercury limits with their current furnace controls.

The next step in establishing MACT standards is the BTF analysis. In this step, we investigate other mechanisms for further reducing HAP emissions that are more stringent than the MACT floor level of control in order to ‘‘require the maximum degree of reduction in emissions’’ of HAP. In setting such standards, section 112(d)(2) requires the Agency to consider the cost of achieving the additional emission reductions, any non-air quality health and environmental impacts and energy requirements. Historically, these factors have included factors such as solid waste impacts of a control, effects of emissions on bodies of water, as well as the energy impacts.

c. Beyond the Floor Analysis for Mercury for Existing Furnaces

As described below, we considered BTF control options to further reduce emissions of mercury. The BTF mercury control options were developed assuming sub-categorization of furnace melting operations into ferromanganese production operations and silicomanganese production operations and installing activated carbon injection (ACI) technology with brominated carbon to control mercury emissions.

The BTF mercury limits would be based on the estimated mercury emission reduction that can be achieved through the use of ACI and brominated carbon. The bromine in the activated carbon can oxidize elemental mercury (Hg^0) to oxidized mercury (Hg^{+2}). The oxidized mercury is then suitable for capture on the activated carbon sorbent or further reacts with the bromine to produce mercuric bromide ($HgBr_2$). Both the oxidized mercury and the mercuric bromide can be removed using a PM control device. It is generally accepted that the installation of ACI in conjunction with a fabric filter achieves at least 90 percent reduction of mercury.[49]

All three furnaces at Felman and one of the two furnaces at Eramet (Furnace #1) are equipped with a fabric filter system to reduce PM. The other furnace at Eramet (Furnace #12) controls PM using a wet venturi scrubber. Limited data are available for mercury reduction using ACI with a venturi scrubber system, as described in the mercury control options memorandum.[50] However, we identified one study conducted by the Minnesota Taconite Mercury Control Advisory Committee that evaluated mercury reductions from particulate scrubber systems and ACI.[51] In 2011, a field trial was conducted at Hibbing Taconite to demonstrate the effectiveness of brominated ACI in controlling mercury emissions from a taconite facility. The trial of the brominated ACI system was conducted in September and October 2011 and it was determined that 75 percent Hg removal could be achieved with a brominated ACI rate of about 3 lb/MMacf (126 lb/hr) for the taconite iron ore processing sources. This 75 percent mercury reduction was demonstrated during a two-week continuous injection run in this study. The project also noted that better mercury removal results could be achieved with improved sorbent distribution. Therefore, although the ferroalloys production furnaces are different than the taconite production sources, we assume that the retrofit of ACI on the furnace at Eramet controlled by a wet scrubber would achieve 50 percent additional mercury reduction beyond the level of control that the scrubber is currently achieving. Because of the lower potential mercury reductions expected for brominated carbon ACI and a venturi scrubber (compared to the reductions that would be achieved with use of ACI with fabric filters), we determined that a reduction of 50 percent should be used in establishing the BTF mercury emissions limit to ensure that the limit could be achieved with brominated ACI on both furnaces at all times during FeMn production. Therefore, the BTF limit for FeMn production for existing sources would be 82 µg/dscm.

We estimated the capital costs, annualized costs, emissions reductions and cost effectiveness for the BTF limits for FeMn and SiMn production sources. The details regarding how these limits were derived and the estimated costs and expected reductions of mercury emissions by installing ACI controls, are provided in the *Mercury Control Options and Impacts for the Ferroalloys Production Industry* document which is available in the docket.

Regarding the BTF control option for existing sources that produce ferromanganese, we estimated the costs and reductions based on the installation of ACI on Furnaces 1 and 12 at Eramet with operation only during the production of ferromanganese and a polishing baghouse on Furnace 1. Other costs include labor, materials and waste disposal. The emissions and annual cost for this BTF control option are based on the assumption that both furnaces at Eramet produce ferromanganese 50 percent of the time annually and produce SiMn the other 50 percent of the year. We based this reasonable assumption on available information regarding production patterns for the 2 products at Eramet. The estimated mercury reduction that would be achieved at Furnace 1 at Eramet (which is currently controlled with a baghouse) is assumed to be 90 percent based on the installation of ACI and a new polishing baghouse. Regarding Furnace 12 at Eramet (which is currently controlled with a wet venturi scrubber), the mercury reductions that would be achieved with brominated ACI are assumed to be 50 percent. For the BTF control option for existing sources that produce ferromanganese, we estimate the capital costs would be about $30 million, annualized costs of about $3.3 million and would achieve about 191 pounds per year of reductions in mercury emissions, which results in estimated cost-effectiveness of about $17,600 per pound. All the costs and reductions would be at Eramet since Eramet is the only facility in the U.S. that produces FeMn.

As stated earlier the cost-effectiveness is estimated to be $17,600/lb. However, it is important to note that cost-effectiveness is but one factor we consider in assessing the cost of the emission reduction at issue here. See *NRDC* v. *EPA,* 749 F.3d 1055, 1060 (D.C. Cir. April 18, 2014) (''Section 112 does not command EPA to use a particular form of cost analysis.''). We also consider other factors in assessing the cost of the emission reduction as part of our beyond-the-floor analysis, including, but not limited to, total capital costs, annual costs and costs compared to total revenues (*e.g.,* costs to revenue ratios).

As mentioned above, we estimate the capital costs would be about $30 million, annualized costs of about $3.3 million and that all these costs would be for Eramet, which is the only facility in the United States that produces FeMn. Furthermore, we estimate the annual costs for BTF controls for mercury at Eramet (in addition to the costs for controls for fugitive HAP emissions required as part of the risk analysis explained later in this preamble) would be about 3 percent of revenues, which we believe is potentially significant given the facts at issue here. In addition, it is our understanding that for the past few years the plant has not made any profits. More details regarding the potential economic impacts of the BTF option are provided in the *Economic Impact Analysis (EIA) for the Manganese Ferroalloys RTR Supplemental Proposal* document which is available in the docket for this action.

We also evaluated an approach that could reduce the compliance costs of the BTF option. We considered the possibility that Eramet could potentially decide to produce FeMn in only one furnace and if so, would only need to install ACI for 1 furnace. If so, the costs for Eramet to comply with the BTF option could be significantly lower. This approach would reduce production flexibility, which could pose significant production issues for the company, but would allow Eramet to avoid some of the emissions control costs under the BTF option. However, we realize there would likely be production issues and other issues, with this approach. Furthermore, we believe it would be inappropriate for the rule to essentially restrict production flexibility. Therefore for our cost impacts analysis of the BTF option we have assumed brominated ACI would be needed for both furnaces.

Based on the available economic information, assuming market conditions remain approximately the same, we believe Eramet Marietta would not be able to sustain the costs of BTF mercury controls (in addition to the fugitive control costs required as part of the risk analysis explained later in this

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[49] Sargent & Lundy, IPM Model—Revisions to Cost and Performance for APC Technologies, Mercury Control Cost Development, Final, March 2013.

[50] Memorandum from Bradley Nelson, EC/R to Phil Mulrine, EPA OAQPS/SPPD/MICG, Mercury Control Options and Impacts for the Ferroalloys Production Industry, March 16, 2014.

[51] Michael E Berndt, Minnesota Department of Natural Resources, Division of Lands and Minerals, Minnesota Taconite Mercury Control Advisory Committee: Summary of Phase One Research Results (2010–2012), November 29, 2012. *http://files.dnr.state.mn.us/lands_minerals/reclamation/berndt_2012_final.pdf.*

preamble, in Section IV.C.).[52] This would likely result in substantial economic impacts in the short-term and potential closure of the facility in the longer-term. Since Eramet Marietta is the only facility in the United States which produces FeMn, closure of this facility would eliminate 100 percent of the United States production of FeMn, which is an important product for the steel industry. After considering all the factors described above, we are not proposing BTF limits for mercury for FeMn production.

We also evaluated possible BTF controls for existing SiMn production sources, which have much lower mercury emissions as compared to FeMn production. We estimated that the BTF option for SiMn would achieve an additional 60 pounds/year reductions and that the cost-effectiveness would be about $109,000 per pound of mercury reduced for SiMn production, which we conclude is not cost-effective as a BTF option. Furthermore, based on our economic analyses, we believe that the Felman facility could be at potential risk of closure under this option, especially given that these costs would be in addition to the costs for controlling fugitive HAP metals emissions (such as Mn, As, Ni and Cd). Therefore, we are not proposing BTF limits for mercury for SiMn production.

d. Beyond the Floor Analysis for New and Reconstructed Furnaces

Regarding BTF controls for new or major reconstructed furnaces, we believe such sources would be constructed to include a baghouse as the primary PM control device (in order to comply with the proposed lower new source limits for PM) and then they could add ACI after the baghouse for mercury control along with a polishing baghouse and would achieve at least 90 percent reduction. Therefore, the BTF limit for new FeMn production sources is calculated to be 17 µg/dscm. Regarding SiMn, the BTF limit for new sources producing SiMn would be 1.2 µg/dscm.

The estimated costs for beyond the floor controls for mercury for new and reconstructed sources are based on the costs of installing and operating brominated ACI and a polishing baghouse. Based on this, we estimate that the cost effectiveness of BTF controls for a new and major reconstructed FeMn production source would be about $12,000/lb. Therefore, we conclude that BTF controls would be cost-effective and feasible for any new or major reconstructed furnace that produces FeMn. Therefore we are proposing a limit of 17 µg/dscm for new or major reconstructed furnaces that produce FeMn.

However, for a new SiMn production source, the cost effectiveness would be at least $51,000/lb. Therefore, we believe BTF controls for new SiMn production sources would not be cost-effective. Furthermore, for SiMn production, as described above, the new source MACT floor limit is already low (*i.e.,* 4.0 µg/dscm). Therefore we are proposing an emissions limit of 4.0 µg/dscm for new or major reconstructed SiMn production furnaces based on the new source MACT Floor.

e. Proposed Limits for Existing, New and Reconstructed Sources

Based on all our analyses described above, we are proposing mercury limits based on the MACT Floor (UPL) for each product type (ferromanganese, silicomanganese) for existing furnaces; BTF limits for mercury for new and reconstructed FeMn production furnaces; and mercury limits for new and reconstructed SiMn production furnaces based on the MACT Floor. These limits are summarized in Table 4.

TABLE 4—SUMMARY OF THE PROPOSED MERCURY CONTROL EMISSIONS LIMITS (µg/dscm) FROM THE FURNACE MELTING PROCESSES

Proposed mercury controls	FeMn production (existing sources)	FeMn production (new and reconstructed sources)	SiMn production (existing sources)	SiMn production (new and reconstructed sources)
MACT Floor limits for FeMn and SiMn existing sources; BTF limit for new and reconstructed FeMn sources; and MACT floor limit for new and reconstructed SiMn sources	170	17	12	4.0

5. How did we develop proposed limits for Polycyclic Aromatic Hydrocarbons (PAHs)?

As described above, we obtained additional data on PAH emissions from the two ferroalloys production facilities since the 2011 proposal. In particular, we obtained data from each furnace and for each product type (FeMn and SiMn). We used the resulting dataset to re-evaluate the MACT floor limits and BTF options. For more information on this analysis, see *Revised MACT Floor Analysis for the Ferroalloys Production Source Category,* which is available in the docket.

As in the case of the mercury analysis, our results show that there is a significant difference in PAH emissions during FeMn production as compared to SiMn production. Furthermore, similar to mercury, we conclude that this difference is due to significant differences in the recipe and input materials for FeMn compared to SiMn production.

Therefore, we determined that it would be appropriate to have two subcategories for PAH emissions and establish separate MACT limits for each of these two subcategories.

The MACT floor dataset for PAHs from existing furnaces producing FeMn includes 6 test runs from 2 furnaces. As described above, this dataset (for the calculation of the MACT Floor limit for PAHs for FeMn production furnaces) was considered a limited dataset and therefore we followed the steps described in the Limited Dataset Memo to determine the appropriate MACT Floor limit for PAHs for these sources. This subcategory includes only two units, and the CAA specifies that the existing source MACT floor for subcategories with fewer than 30 sources shall not be less stringent than ‘‘the average emission limitation achieved by the best performing 5 sources.’’ However, since there are only 2 units in the subcategory and we have data for both units, the data from both units serve as the basis for the MACT floor. After determining that the dataset is best represented by a normal distribution and ensuring that we used

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[52] As noted in our risk analysis explained later in this preamble, proposal of the MACT floor standard for mercury (along with the controls for fugitive manganese emissions, which are explained later in this preamble) provide an ample margin of safety to protect public health.

the correct equation for the distribution, we considered the selection of a lower confidence level for determining the emission limit by evaluating whether the calculated limit reasonably represents the performance of the units upon which it is based. In this case, where two units make up the pool of best performers, the calculated emission limit is about twice the short-term average emissions from the best performing sources, indicating that the emission limit is not unreasonable compared to the actual performance of the units upon which the limit is based and is within the range that we see when we evaluate larger datasets using our MACT floor calculation procedures. Therefore, we determined that no changes to our standard floor calculation procedure are warranted for this pollutant and subcategory, and we are proposing that the MACT floor is 1,400 µg/dscm for PAHs from existing furnaces producing FeMn.

The MACT floor dataset for PAHs from new furnaces producing FeMn includes 3 test runs from a single furnace (furnace #12 at Eramet) that we identified as the best performing unit based on average emissions performance. After determining that the dataset is best represented by a normal distribution and ensuring that we used the correct equation for the distribution, we evaluated the variance of the best performing unit. Our analysis showed that this unit, which was identified as the best unit based on average emissions, also had the lowest variance. Therefore, we determined that the emission limit would reasonably account for variability and that no changes to the standard floor calculation procedure were warranted for this pollutant and subcategory, and we are proposing that the MACT floor is 880 µg/dscm for PAHs from new furnaces producing FeMn.

The MACT floor dataset for PAHs initially identified for new furnaces producing SiMn includes 6 test runs from a single furnace (furnace #2 at Felman) that we identified as the best performing unit based on average emissions. After determining that the dataset is best represented by a normal distribution and ensuring that we used the correct equation for the distribution, we evaluated the variance of this unit (furnace #2 at Felman) and concluded that further consideration of the variance was warranted. In particular, we noted that the variance of the dataset for this unit was almost twice as large as the variance of the dataset for the pool of best performing units that was used to calculate the existing source MACT floor. The high degree of variance in the dataset for the unit with the lowest average prompted us to question whether this unit was, in fact, the best performing unit and to evaluate the dataset for the unit with the next lowest average (furnace #7 at Felman). The dataset for furnace #7 includes 3 test runs, the furnaces are controlled with the same type of add-on control technology, and the average emissions from furnace #2 are only about 22 percent lower than the average emissions from furnace #7. While we find the average performance of these 2 units to be similar, the unit with the higher average has a variance more than 2 orders of magnitude lower than that of the unit with the lower average, thus indicating that the unit with the higher average has a far more consistent level of performance. The combination of components from the unit with the higher average (furnace #7) yields an emissions limit that is lower than that calculated from the dataset of the unit (furnace #2) with the lowest average (71.7 versus 132.8 µg/dscm). For these reasons, we determined that the unit with the lowest average (furnace #2) is not the best performing source for this pollutant and we are instead selecting furnace #7 as the best performing source. After selecting the source upon which the new source limit would be based, we next considered whether the selection of a different confidence level would be appropriate. In this case, we determined that a lower confidence level was not warranted given the small amount of variability in the data for the unit that we identified as the best performer. Based on the factors outlined above, we are proposing that the MACT floor is 72 µg/dscm for PAHs from new furnaces producing SiMn.

With regard to PAH emissions from existing furnaces producing SiMn, we have 18 test runs in our dataset. This dataset was not determined to be a limited data set. The UPL results for this dataset using a 99 percent confidence level was determined to be 120 µg/dscm for SiMn production and was determined to be the MACT floor limit for PAHs for existing furnaces producing SiMn.

Based on the data we received prior to summer 2014, we estimate that neither source would need to install additional controls to meet the MACT Floor emission limits described above. However, as mentioned in Section II.D of today's notice, we received additional PAH data in August 2014. We have not yet completed our review and technical analyses of those new data, and have not yet incorporated these new data into our analyses. Nevertheless, we are seeking comments regarding the new PAH data and how these data could affect our analyses.

The current PM controls on both facilities capture some of PAH emissions. Nevertheless, we also considered BTF options for control of PAH emissions based on the additional reductions that could be achieved via control with ACI. Based on information from carbon vendors, an activated carbon system that is designed to achieve up to 90 percent reduction in mercury emissions should also achieve significant reductions in PAH with no additional costs. However, significant uncertainties remain regarding the percent of reductions in PAHs that would be achieved with ACI. One study[53] found that ACI can achieve 74–91 percent reduction in PAH emissions depending on the concentration of activated carbon in the flue gas. Based on this information, we assume that ACI probably can achieve 75 percent reduction in PAH emissions from the furnace. Therefore, for our analysis of BTF options, we assumed an ACI system can achieve 75 percent reduction of PAH emissions from the furnace exhaust. Based on this assumption, possible BTF limits for PAHs would be 340 µg/dscm for FeMn production furnaces and 28 µg/dscm for SiMn production furnaces. The estimated capital and annualized costs to achieve these BTF PAH limits are the same costs as those shown for mercury in the mercury control options memorandum. For FeMn production, the capital cost was calculated to be $30.2 million and the annual cost was calculated to be $3.4 million and would only apply to the furnaces at Eramet and the estimated PAH reductions would be 2.35 tons per year, which results in cost-effectiveness of $1.4 million per ton of PAH. The capital cost for a beyond the floor PAH option for SiMn and FeMn production was calculated to be $41.7 million with an annual cost of $6.9 million and the estimated PAH reductions would be 4.0 tons per year, which results in cost-effectiveness of $1.7 million per ton, which we conclude is not cost-effective for PAHs. Given the uncertainties regarding the percent of PAH reductions that can be achieved with ACI and since the cost-effectiveness is relatively high for this HAP, we are not proposing BTF limits for PAHs. Instead, we have determined that it is appropriate to propose PAH limits based on the MACT Floor level of control, therefore we are proposing a MACT limit of 1,400 µg/

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[53] Hong-Cang Zhou, Zhao-Ping Zhong, Bao-Sheng Jin, Ya-Ji Huang and Rui Xiao, Experimental study on the removal of PAHs using in-duct activated carbon injection, Chemosphere, November 17, 2004.

dscm for PAHs for existing FeMn production furnaces and 880 µg/dscm for PAHs for new and reconstructed FeMn production furnaces and we are proposing a MACT floor limit of 120 µg/dscm for PAHs for existing SiMn production furnaces and 72 µg/dscm for PAHs for new and reconstructed SiMn production furnaces.

TABLE 5—PROPOSED EMISSIONS LIMITS (µG/dscm) FOR PAHS FROM THE FURNACE MELTING PROCESSES

	FeMn production (existing sources)	FeMn production (new and reconstructed sources)	SiMn production (existing sources)	SiMn production (new and reconstructed sources)
Proposed Emissions Limits for PAHs	1400	880	120	72

6. How did we develop limits for hydrochloric acid (HCl)?

Like mercury and PAH, we obtained additional HCl test data since proposal. However, more than half the test results (20 of the 36 test runs) were below the detection limit. This situation required the use of additional statistical analysis, as described in the *Revised MACT Floor Analysis for the Ferroalloys Production Source Category,* which is available in the docket. We determined the data set for HCl from furnace outlets has a non-normal distribution. The non-normal distribution of the data is a result of the mix of analytical results reported above and below the detection limit and is not due to the type of product being produced (FeMn or SiMn) in the furnace. Therefore, for HCL we are not establishing subcategories based on product. An equation for log-normally distributed data was used to determine the UPL of the HCl dataset for both FeMn and SiMn production combined. The UPL for the log-normal dataset was calculated to be 1,100 µg/dscm. Because more than half of the dataset were reported below the detection limit, using EPA procedures, three times the representative method detection level (RDL) for HCl (180 µg/dscm), was compared to the calculated UPL. The calculated UPL was higher and, thus, was selected as the MACT floor limit for existing furnaces. At this level, we expect neither source would need to install additional controls to meet the MACT floor emission limits.

The MACT floor dataset for HCl from new furnaces producing FeMn or SiMn includes 6 test runs from a single furnace (furnace #5 at Felman) that we identified as the best performing unit based on average emissions. As described above, this dataset (for the calculation of the new source limit for HCL) was considered a limited dataset and therefore we followed the steps described in the Limited Dataset Memo to determine the appropriate MACT Floor limit for HCl for new furnaces. After determining that the dataset is best represented by a non-normal distribution and ensuring that we used the correct equation for the distribution, we evaluated the variance of this best performing unit. Our analysis showed that this unit, identified as the best unit based on average emission, also had the lowest variance, indicating consistent performance. Therefore, we determined that the emission limit reasonably accounts for variability and that no changes to the standard floor calculation procedure were warranted for this pollutant and subcategory. We also note that for this standard, the calculated new source floor level was below the level that can be accurately measured (the level that we refer to as ''3 times the representative detection level'' or 3xRDL). Therefore, we are proposing a new source MACT emission limit of 180 ppm for HCl, which is the 3xRDL value for HCl.

No facilities in the source category use add-on control devices or work practices to limit emissions of HCl beyond what is normally achieved as co-control of the emissions with particulate matter control device. Also, as explained above, there are a significant number of non-detects for HCl. Thus, emissions are already low. Nevertheless, we evaluated possible beyond the floor options to further reduce HCl to ensure our analyses were complete. The BTF analyses are described in the *Revised MACT Floor Analysis for the Ferroalloys Production Source Category* document which is available in the docket. We did not identify any appropriate BTF options for HCl.

Given the low emissions of HCl and the results of our analyses, we are not proposing beyond the floor limits for HCl. Therefore, in this supplemental proposal, we are proposing emission limits for HCl of 1,100 µg/dscm for existing furnaces and 180 µg/dscm for new or reconstructed furnaces, which are at the level of the MACT floors.

TABLE 6—PROPOSED EMISSIONS LIMITS (µg/dscm) FOR HCL FROM THE FURNACE MELTING PROCESSES

	FeMn and SiMn production (existing sources)	FeMn and SiMn production (new and reconstructed sources)
Proposed Emissions Limits for HCl	1100	180

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

1. Inhalation Risk Assessment Results

Table 7 of this preamble provides an overall summary of the results of the inhalation risk assessment.

TABLE 7—FERROALLOYS PRODUCTION SOURCE CATEGORY INHALATION RISK ASSESSMENT RESULTS

Maximum Individual Cancer Risk (-in-1 million) [a]	Estimated Population at Increased Risk Levels of Cancer	Estimated Annual Cancer Incidence (cases per year)	Maximum Chronic Non-cancer TOSHI [b]	Maximum Screening Acute Non-cancer HQ [c]
Actual Emissions				
20	≥ 1-in-1 million: 31,000. ≥ 10-in-1 million: 400	0.002	4	HQ_{REL} = 1 (arsenic compounds, hydrofluoric acid, formaldehyde)

TABLE 7—FERROALLOYS PRODUCTION SOURCE CATEGORY INHALATION RISK ASSESSMENT RESULTS—Continued

Maximum Individual Cancer Risk (-in-1 million) [a]	Estimated Population at Increased Risk Levels of Cancer	Estimated Annual Cancer Incidence (cases per year)	Maximum Chronic Non-cancer TOSHI [b]	Maximum Screening Acute Non-cancer HQ [c]
	≥ 100-in-1 million: 0.			
Allowable Emissions [d]				
100	≥ 1-in-1 million: 94,000. ≥ 10-in-1 million: 2,500 ≥ 100-in-1 million: 0.	0.005	40	—

[a] Estimated maximum individual excess lifetime cancer risk due to HAP emissions from the source category.

[b] Maximum TOSHI. The target organ with the highest TOSHI for the Ferroalloys Production source category for both actual and allowable emissions is the neurological system. The estimated population at increased levels of noncancer hazard is 1,500 based on actual emissions and 11,000 based on allowable emissions.

[c] See Section III.A.3 of this notice for explanation of acute dose-response values. Acute assessments are not performed on allowable emissions.

[d] The development of allowable emission estimates can be found in the memorandum titled *Revised Development of the RTR Emissions Dataset for the Ferroalloys Production Source Category for the 2014 Supplemental Proposal,* which is available in the docket.

The inhalation risk modeling performed to estimate risks based on actual and allowable emissions relied primarily on emissions data from the ICRs and calculations described in the Emissions Memo. The results of the chronic baseline inhalation cancer risk assessment indicate that, based on estimates of current actual emissions, the maximum individual lifetime cancer risk (MIR) posed by the ferroalloys production source category is 20-in-1 million, with chromium compounds, PAHs and nickel compounds from tapping fugitives, furnace fugitives and a furnace accounting for 70 percent of the MIR. The total estimated cancer incidence from ferroalloys production sources based on actual emission levels is 0.002 excess cancer cases per year or one case every 500 years, with emissions of PAH, chromium compounds and cadmium compounds contributing 42 percent, 18 percent and 15 percent, respectively, to this cancer incidence. In addition, we note that approximately 400 people are estimated to have cancer risks greater than or equal to 10-in-1 million, and approximately 31,000 people are estimated to have risks greater than or equal to 1-in-1 million as a result of actual emissions from this source category.

When considering MACT-allowable emissions, the maximum individual lifetime cancer risk is estimated to be up to 100-in-1 million, driven by emissions of arsenic compounds and cadmium compounds from the MOR process baghouse outlet. The estimated cancer incidence is estimated to be 0.005 excess cancer cases per year or one excess case in every 200 years. Approximately 2,500 people are estimated to have cancer risks greater than or equal to 10-in-1 million and approximately 94,000 people are estimated to have cancer risks greater than or equal to 1-in-1 million considering allowable emissions from ferroalloys facilities.

The risk results described in this section and shown in Table 7 are based on the emissions data received prior to summer 2014. These results do not reflect the new PAH, PM or mercury data we received in August 2014 (as described in Section II.D. in this notice). We seek comment on the new data, which are available in the docket for today's action, and how these additional data would impact the risk assessment.

The maximum modeled chronic non-cancer HI (TOSHI) value for the source category based on actual emissions is estimated to be 4, with manganese emissions from tapping fugitives accounting for 93 percent of the HI. Approximately 1,500 people are estimated to have exposure to HI levels greater than 1 as a result of actual emissions from this source category. When considering MACT-allowable emissions, the maximum chronic non-cancer TOSHI value is estimated to be 40, driven by allowable emissions of manganese from the MOR process baghouse outlet. Approximately 11,000 people are estimated to have exposure to HI levels greater than 1 considering allowable emissions from these ferroalloys facilities.

2. Acute Risk Results

Our screening analysis for worst-case acute impacts based on actual emissions indicates the potential for three pollutants—arsenic compounds, formaldehyde, and hydrofluoric acid—to have HQ values of 1, based on their respective REL value. Both facilities have estimated HQs of 1 for these pollutants.

To better characterize the potential health risks associated with estimated worst-case acute exposures to HAP from the source category at issue and in response to a key recommendation from the SAB's peer review of the EPA's section 112(f) RTR risk assessment methodologies, we examine a wider range of available acute health metrics than we do for our chronic risk assessments. This is in acknowledgement that there are generally more data gaps and inconsistencies in acute reference values than there are in chronic reference values. By definition, the acute CalEPA REL represents a health-protective level of exposure, with no risk anticipated below those levels, even for repeated exposures; however, the health risk from higher-level exposures is unknown. Therefore, when a CalEPA REL is exceeded and an AEGL–1 or ERPG–1 level is available (*i.e.,* levels at which mild effects are anticipated in the general public for a single exposure), we have used them as a second comparative measure. Historically, comparisons of the estimated maximum off-site 1-hour exposure levels have not been typically made to occupational levels for the purpose of characterizing public health risks in RTR assessments. This is because occupational ceiling values are not generally considered protective for the general public since they are designed to protect the worker population (presumed healthy adults) for short-duration (less than 15-minute) increases in exposure. As a result, for most chemicals, the 15-minute occupational ceiling values are set at levels higher than a 1-hour AEGL–1, making comparisons to them irrelevant unless the AEGL–1 or ERPG–1 levels are also exceeded.

All the HAP in this analysis have worst-case acute HQ values of 1 or less, indicating that they carry no potential to pose acute concerns. In characterizing the potential for acute non-cancer impacts of concern, it is important to remember the upward bias of these exposure estimates (*e.g.,* worst-case meteorology coinciding with a person located at the point of maximum concentration during the hour) and to consider the results along with the conservative estimates used to develop peak hourly emissions as described earlier, as well as the screening methodology. Refer to the document titled *Revised Development of the RTR Emissions Dataset for the Ferroalloys Production Source Category for the 2014 Supplemental Proposal* (which is available in the docket for this action) for a detailed description of how the hourly emissions were developed for this source category.

3. Multipathway Risk Screening Results

Results of the worst-case Tier I screening analysis indicate that PB–HAP emissions (based on estimates of actual emissions) from one or both facilities in this source category exceed the screening emission rates for cadmium compounds, mercury compounds, dioxins and PAH. For the compounds and facilities that did not screen out at Tier I, we conducted a Tier II screen. The Tier II screen replaces some of the assumptions used in Tier I with site-specific data, including the land use around the facilities, the location of fishable lakes and local wind direction and speed. The Tier II screen continues to rely on high-end assumptions about consumption of local fish and locally grown or raised foods (adult female angler at 99th percentile consumption for fish[54] and 90th percentile for consumption of locally grown or raised foods[55]) and uses an assumption that the same individual consumes each of these foods in high end quantities (*i.e.,* that an individual has high end ingestion rates for each food). The result of this analysis was the development of site-specific emission rate screening levels for each PB–HAP. It is important to note that, even with the inclusion of some site-specific information in the Tier II analysis, the multi-pathway screening analysis is still a very conservative, health-protective assessment (*e.g.,* upper-bound consumption of local fish, locally grown and/or raised foods) and in all likelihood will yield results that serve as an upper-bound multi-pathway risk associated with a facility.

While the screening analysis is not designed to produce a quantitative risk result, the factor by which the emissions exceed the screening level serves as a rough gauge of the ‘‘upper-limit’’ risks we would expect from a facility. Thus, for example, if a facility emitted a PB–HAP carcinogen at a level 2 times the screening level, we can say with a high degree of confidence that the actual maximum cancer risks will be less than 2-in-1 million. Likewise, if a facility emitted a noncancer PB–HAP at a level 2 times the screening level, the maximum noncancer hazard would represent an HQ less than 2. The high degree of confidence comes from the fact that the screens are developed using the very conservative (health-protective) assumptions that we describe above.

Based on the Tier II screening analysis, no facility emits cadmium compounds above the Tier II screening levels. One facility emits mercury compounds above the Tier II screening levels and exceeds that level by a factor of 9. Both facilities emit chlorinated dibenzodioxins and furans (CDDF) as 2,3,7,8-tetrachlorodibenzo-p-dioxin toxicity equivalent (TEQ) above the Tier II screening levels and the facility with the highest emissions of dioxins exceeds its Tier II screening level by a factor of 20. Both facilities emit POM as benzo(a)pyrene TEQ above the Tier II screening levels and the facility with the highest emissions exceeds its screening level by a factor of 20.

Polychlorinated biphenyls (PCB) are PB–HAP that do not currently have multi-pathway screening values and so are not evaluated for potential non-inhalation risks. These HAP however, are not emitted in appreciable quantities (estimated to be 0.00026 tpy) from the ferroalloys source category and we do not believe they contribute to multi-pathway risks for this source category.

Results of the analysis for lead indicate that based on the baseline, actual emissions, the maximum annual off-site ambient lead concentration was only 50 percent of the NAAQS for lead and if the total annual emissions occurred during a 3-month period, the maximum 3-month rolling average concentrations would exceed the NAAQS. However, as shown later in this preamble, based on emissions estimated for the post-control scenario, the maximum annual off-site ambient lead concentration was only 3 percent of the NAAQS for lead. If the total annual emissions occurred during a 3-month period, the maximum 3-month rolling average concentrations would be about 12 percent of the NAAQS for lead, indicating that there is no concern for multi-pathway risks due to lead emissions.

4. Multipathway Refined Risk Results

A refined multipathway analysis was conducted for one facility in this source category using the TRIM.FaTE model. The facility, Eramet Marietta Incorporated, in Marietta, Ohio, was selected based upon its close proximity to nearby lakes and farms as well as having the highest potential multipathway risks for three of the four PB–HAP based on the Tier II analysis. These three PB–HAP were cadmium, mercury and PAHs. (Even though neither facility exceeded the Tier II screening levels for cadmium, Eramet had the higher value.) Eramet also emits dioxins, but the other facility had a higher exceedance of its Tier II screening level. The refined analysis was conducted on all four PB–HAP. The refined analysis for this facility showed that the Tier II screen for each pollutant over-predicted the potential risk when compared to the refined analysis results.

Overall, the refined analysis predicts a potential lifetime cancer risk of 10-in-1 million to the maximum most exposed individual due to exposure to dioxins and PAHs. The non-cancer HQ is predicted to be below 1 for cadmium compounds and 1 for mercury compounds.

Further details on the refined multipathway analysis can be found in Appendix 10 of the *Residual Risk Assessment for the Ferroalloys Production Source Category in Support of the September 2014 Supplemental Proposal,* which is available in the docket.

5. Environmental Risk Screening Results

As described in Section III.A, we conducted an environmental risk screening assessment for the ferroalloys source category. In the Tier I screening analysis for PB–HAP the individual modeled Tier I concentrations for one facility in the source category exceeded some sediment, fish—avian piscivorus and surface soil benchmarks for PAHs, methylmercury and mercuric chloride. Therefore, we conducted a Tier II assessment.

In the Tier II screening analysis for PAHs and methylmercury none of the individual modeled concentrations for any facility in the source category exceeded any of the ecological benchmarks (either the LOAEL or NOAEL). For mercuric chloride, soil benchmarks were exceeded for some individual modeled points that collectively accounted for 5 percent of the modeled area. However, the

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[54] Burger, J. 2002. Daily consumption of wild fish and game: Exposures of high end recreationists. International Journal of Environmental Health Research 12:343–354.

[55] U.S. EPA. Exposure Factors Handbook 2011 Edition (Final). U.S. Environmental Protection Agency, Washington, DC, EPA/600/R–09/052F, 2011.

weighted average modeled concentration for all soil parcels was well below the soil benchmarks.

For HCl, each individual concentration (*i.e.,* each off-site data point in the modeling domain) was below the ecological benchmarks for all facilities. The average modeled HCl concentration around each facility (*i.e.,* the average concentration of all off-site data points in the modeling domain) did not exceed any ecological benchmark.

6. Facility-Wide Risk Assessment Results

For both facilities in this source category, there are no other HAP emissions sources present beyond those included in the source category. Therefore, we conclude that the facility-wide risk is the same as the source category risk and that no separate facility-wide analysis is necessary.

7. Demographic Analysis Results

To examine the potential for any environmental justice (EJ) issues that might be associated with the source category, we performed a demographic analysis, which is an assessment of risks to individual demographic groups, of the population close to the facilities. In this analysis, we evaluated the distribution of HAP-related cancer risks and non-cancer hazards from the ferroalloys production source category across different social, demographic and economic groups within the populations living near facilities identified as having the highest risks. The methodology and the results of the demographic analyses are included in a technical report, *Risk and Technology Review—Analysis of Socio-Economic Factors for Populations Living Near Ferroalloys Facilities,* which is available in the docket for this action.

The results of the demographic analysis are summarized in Table 8 below. These results, for various demographic groups, are based on the estimated risks from actual emissions levels for the population living within 50 km of the facilities.

TABLE 8—FERROALLOY PRODUCTION DEMOGRAPHIC RISK ANALYSIS RESULTS

	Nationwide	Population with cancer risk at or above 1-in-1 million due to ferroalloys production	Population with chronic hazard index above 1 due to ferroalloys production
Total Population	312,861,265	31,283	1,521
Race by Percent			
White	72	96	99
All Other Races	28	4	1
Race by Percent			
White	72	96	99
African American	13	1	0
Native American	1	0	0
Other and Multiracial	14	2	1
Ethnicity by Percent			
Hispanic	17	1	1
Non-Hispanic	83	99	99
Income by Percent			
Below Poverty Level	14	15	7
Above Poverty Level	86	85	93
Education by Percent			
Over 25 and without High School Diploma	15	11	11
Over 25 and with a High School Diploma	85	89	89

The results of the ferroalloys production source category demographic analysis indicate that emissions from the source category expose approximately 31,000 people to a cancer risk at or above 1-in-1 million and approximately 1,500 people to a chronic non-cancer TOSHI greater than 1 (we note that many of those in the first risk group are the same as those in the second). The percentages of the at-risk population in each demographic group (except for White and non-Hispanic) are similar to or lower than their respective nationwide percentages. Implementation of the provisions included in this proposal is expected to significantly reduce the number of people estimated to have a cancer risk greater than 1-in-1 million due to HAP emissions from these sources from 31,000 people to about 6,600 people. Implementation of the provisions included in the proposal also is expected to reduce the number of people estimated to have a chronic non-cancer TOSHI greater than 1 from 1,500 people to no people with a TOSHI greater than 1.

C. What are our proposed decisions regarding risk acceptability, ample margin of safety and adverse environmental effects based on our revised analyses?

1. Risk Acceptability

As noted in Section II.A.1 of this preamble, the EPA sets standards under CAA section 112(f)(2) using ‘‘a two-step standard-setting approach, with an analytical first step to determine an ‘acceptable risk’ that considers all health information, including risk estimation uncertainty and includes a presumptive limit on maximum individual lifetime risk (MIR) of approximately 1 in 10 thousand[56].'' (54 FR 38045, September 14, 1989).

In this proposal, the EPA estimated risks based on both actual and allowable emissions from ferroalloy facilities. In determining acceptability, we considered risks based on both actual and allowable emissions.

a. Estimated Risks From Actual Emissions

The baseline inhalation cancer risk to the individual most exposed to emissions from sources in the ferroalloys source category is 20-in-1 million based on actual emissions. The estimated incidence of cancer due to inhalation exposures is 0.002 excess cancer cases per year, or 1 case every 500 years. Approximately 31,000 people face an increased cancer risk greater than 1-in-1 million due to inhalation exposure to actual HAP emissions from this source category and approximately 400 people face an increased risk greater than 10-in-1 million and up to 20-in-1 million. The agency estimates that the maximum chronic non-cancer TOSHI from inhalation exposure is 4, with manganese emissions from tapping fugitives accounting for a large portion (93 percent) of the HI.

The Tier II multipathway screening analysis of actual emissions indicated the potential for PAH emissions that are about 20 times the screening level for cancer, dioxin emissions that are about 20 times the screening level for cancer and mercury emissions that are 9 times above the screening level for non-cancer.

As noted above, the Tier II multipathway screen is conservative in that it incorporates many health-protective assumptions. For example, the EPA chooses inputs from the upper end of the range of possible values for the influential parameters used in the Tier II screen and assumes that the exposed individual exhibits ingestion behavior that would lead to a high total exposure. A Tier II exceedance cannot be equated with a risk value or a HQ or HI. Rather, it represents a high-end estimate of what the risk or hazard may be. For example, an exceedance of 2 for a non-carcinogen can be interpreted to mean that we have high confidence that the HI would be lower than 2. Similarly, an exceedance of 30 for a carcinogen means that we have high confidence that the risk is lower than 30-in-1-million. Confidence comes from the conservative, or health-protective, assumptions that are used in the Tier II screen.

The refined multipathway analysis that the EPA conducted for one specific facility showed that the Tier II screen for each pollutant over-predicted the potential risk when compared to the refined analysis results. That refined multipathway assessment showed that the Tier II screen resulted in estimated risks that are higher than the risks estimated by the refined analysis by 3 times for PAH, 2 times for dioxins, and 6 times for cadmium. The HQ for mercury went from 9 in Tier II to 1.

The screening assessment of worst-case acute inhalation impacts from baseline actual emissions indicates that all pollutants have HQ values of 1 or less, based on their respective REL values. Considering the conservative, health-protective nature of the approach that is used to develop these acute estimates, it is highly unlikely that an individual would have an acute exposure above the REL. Specifically, the analysis is based on the assumption that worst-case emissions and meteorology would coincide with a person being at the exact location of maximum impact for a period of time long enough to have an exposure level above the conservative REL value. The fact that the facilities in this source category are not located in areas that naturally lead to people being near the fence line for periods of time indicates that the exposure scenario used in the screening assessment would be unlikely to occur.

b. Estimated Risks From Allowable Emissions

The EPA estimates that the baseline inhalation cancer risk to the individual most exposed to emissions from sources in the ferroalloys source category is up to 100-in-1 million based on allowable emissions, with arsenic and cadmium emissions driving the risks. The EPA estimates that the incidence of cancer due to inhalation exposures could be up to 0.005 excess cancer cases per year, or 1 case approximately every 200 years. About 94,000 people could face an increased cancer risk greater than 1-in-1 million due to inhalation exposure to allowable HAP emissions from these source categories and approximately 2,500 people could face an increased risk greater than 10-in-1 million and up to 100-in-1 million due to allowable emissions.

The risk assessment estimates that the maximum chronic non-cancer TOSHI from inhalation exposure values is up to 40, driven by allowable manganese emissions. Approximately 11,000 people are estimated to have exposure to HI levels greater than 1.

c. Acceptability Determination

In determining whether risks are acceptable for this source category, the EPA considered all available health information and risk estimation uncertainty as described above.

The risk results indicate that the allowable inhalation cancer risks to the individual most exposed are up to but no greater than approximately 100–in-1 million, which is the presumptive limit of acceptability. The MIR based on actual emissions is 20-in-1 million, well below the presumptive limit. The maximum chronic exposure to manganese exceeds the human health dose-response value for manganese by a factor of approximately 4 based on actual emissions. For allowable emissions, exposures could exceed the health value up to a factor of approximately 40. The noncancer hazard is driven by manganese emissions.

Neither the acute risk nor the risks from the multipathway assessment exceeded levels of concern, however the EPA does note that the refined multipathway exposure estimate for mercury was at the level of the RfD.

The EPA proposes that the risks are unacceptable for the following reasons. First, the EPA considered the fact that the noncancer hazard quotient ranges from 4 based on actual emissions to 40 based on allowable emissions. The EPA has not established under section 112 of the CAA a numerical range for risk acceptability for noncancer effects as it has with carcinogens, nor has it determined that there is a bright line above which acceptability is denied. However, the Agency has established that, as exposure increases above a reference level (as indicated by a HQ or TOSHI greater than 1), confidence that the public will not experience adverse health effects decreases and the likelihood that an effect will occur increases. For the ferroalloys source category, the potential for members of the public to be exposed to manganese at concentrations up to 40 times the MRL reduces the Agency's confidence that the public is protected from adverse health effects and diminishes the Agency's ability to determine that such exposures are acceptable. Second, the EPA considered the fact that the cancer risk estimate for actual emissions is 20-in-1 million and up to 100-in-1 million for allowable emissions. While 20-in-1 million is well within the acceptable range, risks from allowable emissions are at the upper end of the range of acceptability. This fact, combined with

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[56] 1-in-10 thousand is equivalent to 100-in-1 million. The EPA currently describes cancer risks as 'n-in-1 million.'

the fact that the noncancer hazard is up to 40 times the MRL and the refined multipathway HQ for mercury is at the RfD, leads the agency to conclude that the risk from this source category is unacceptable.

2. Proposed Controls to Address Unacceptable Risks

a. Stack Emissions

In order to address the unacceptable risk from this source category, we evaluated the potential to reduce MACT-allowable stack emissions, which resulted in a cancer MIR of 100-in-1 million, primarily due to allowable stack emissions of arsenic and cadmium and contributed significantly to the chronic noncancer TOSHI of 40, primarily due to allowable stack emissions of manganese. Our analysis determined that we could lower the existing particulate matter emission limits by approximately 50 percent for furnace stack emissions, by 80 percent for crushing and screening stack emissions and by 98 percent for the metal oxygen refining (MOR) process, which would help reduce risk to an acceptable level. As explained above, the MOR is a major driver of the allowable risks. Therefore, by lowering the MOR limit by 98 percent, this results in a large reduction in the allowable risks.

For the reasons described above, under the authority of CAA section 112(f)(2), we propose particulate matter emission limits for the stacks at the following levels: 4.0 mg/dscm for new or reconstructed electric arc furnaces and 25 mg/dscm for existing electric arc furnaces. In the 2011 proposal, we proposed a limit of 3.9 mg/dscm for any new, reconstructed or existing MOR process and 13 mg/dscm for any new, reconstructed or existing crushing and screening equipment. We believe sources can achieve the limits we are proposing today with existing controls. These emissions limits will substantially reduce potential risks due to allowable emissions from the stacks. We propose that compliance for all existing and new sources will be demonstrated by periodic stack testing, along with installation and continuous operation of bag leak detection systems for both new and existing sources that have baghouses, and continuous monitoring of liquid flow rate and pressure drop for sources controlled with wet scrubbers.

b. Process Fugitive Emissions Sources

Process fugitive sources are partially controlled by the existing MACT rule via a shop building opacity standard; however, that standard was only intended to address tapping process fugitives generated under ''normal'' tapping process operating conditions. Casting and crushing and screening process fugitives in the furnace building were not included. Under the authority of section 112 of the Act, which allows the use of measures to enclose systems or processes to eliminate emissions and measures to collect, capture or treat such pollutants when released from a process, stack, storage, or fugitive emissions point, we evaluated options to achieve improved emissions capture. In the 2011 proposal, we proposed full-enclosure with negative pressure and viewed local capture as not being an appropriate method of risk reduction. However, based on comments and other information gathered since the 2011 proposal and after further review and analyses of available information, we reevaluated whether the necessary risk reduction could be accomplished by an alternative approach to control fugitive emissions based on enhanced local capture of emissions. This control approach would include a combination of primary and secondary hoods that effectively capture process fugitive emissions and vents those emissions to PM control devices. The secondary capture would include hooding at the roof-lines whereby remaining fugitives are collected and vented to control devices. As described further under the technology review section of this preamble, this approach (based on enhanced local capture and control of process fugitives, using primary and secondary hoods), will effectively reduce process fugitive emissions. We conclude that this approach will achieve substantial reductions of process fugitive emissions (approximately 95 percent capture and control of fugitive emissions) and will also substantially reduce the estimated risks due to these emissions. Therefore, under section 112(f) of the CAA we are proposing this control option that is based on enhanced capture of fugitive emissions using primary hoods (that capture process fugitive emissions near the source) and secondary capture of fugitives (which would capture remaining fugitive emissions near the roof-line) and includes a tight opacity limit of 8 percent to ensure fugitives are effectively captured and controlled. We are proposing that the facilities in this source category must install and maintain a process fugitives capture system that is designed to capture and control 95 percent or more of the process fugitive emissions. This is the same exact control approach described in more detail under the technology review section of today's notice and the same control approach that we are proposing under section 112(d)(6) of the Act, as described below. We estimate that this control approach will achieve about 95 percent capture of process fugitive emissions and will achieve about 77 tpy reduction in HAP metals emissions and will substantially reduce risks due to process fugitive emissions. We conclude that achieving these reductions is the level of control needed to address the unacceptable risks due to HAP emissions from the source category.

c. Results of the Post-control Risk Assessment

The results of the post-control chronic inhalation cancer risk assessment indicate that the maximum individual lifetime cancer risk posed by these two facilities, after the implementation of the proposed controls, could be up to 10-in-1 million, reduced from 20-in-1 million (i.e., pre-controls), with an estimated reduction in cancer incidence to 0.001 excess cancer cases per year, reduced from 0.002 excess cancer cases per year. In addition, the number of people estimated to have a cancer risk greater than or equal to 1-in-1 million would be reduced from 31,000 to 6,600. The results of the post-control assessment also indicate that the maximum chronic noncancer inhalation TOSHI value would be reduced to 1, from the baseline estimate of 4. The number of people estimated to have a TOSHI greater than 1 would be reduced from 1,500 to 0. We also estimate that after the implementation of controls, the maximum worst-case acute HQ value would be reduced from 1 to less than 1 (based on REL values).

Considering post-control emissions of multipathway HAP, mercury emissions would be reduced by approximately 3 lbs/yr, lead would be reduced by about 1,600 lbs/yr, POM emissions would be reduced by approximately 5,200 lbs/yr, cadmium would be reduced by about 150 lbs/yr and dioxins and furans would be reduced by about 0.002 lbs/yr from the baseline emission rates.

3. Ample Margin of Safety Analysis

Under the ample margin of safety analysis, we again consider all of the health factors evaluated in the acceptability determination and evaluate 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 in this source category to further reduce the risks due to emissions of HAP identified in our risk assessment.

We estimate that the actions proposed under CAA section 112(f)(2), as described above to address unacceptable risks, will reduce the MIR associated with arsenic, nickel, chromium and PAHs from 20-in-1 million to 10-in-1 million for actual emissions. The cancer incidence will be reduced from 0.002 to 0.001 cases per year and the number of people estimated to have cancer risks greater than 1-in-1 million will be reduced, from 31,000 people to 6,600 people. The chronic noncancer inhalation TOSHI will be reduced from 4 to 1 and the number of people exposed to a TOSHI level greater than 1 will be reduced from 1,500 people to 0. In addition, the potential multipathway impacts will be reduced.

Based on all of the above information, we conclude that the risks after implementation of the proposed controls are acceptable. Based on our research and analysis, we did not identify any cost-effective controls beyond those proposed above that would achieve further reduction in risk. While in theory the 2011 proposed approach of total enclosure would provide some additional risk reduction, the additional risk reduction is minimal and, as noted, we have substantial doubts that it would be feasible for these facilities. Therefore we conclude that the controls to achieve acceptable risks (described above) will also provide an ample margin of safety to protect public health.

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

1. Metal HAP Emissions Limits From Stacks

As mentioned in the previous section, the available test data from the five furnaces located at two facilities indicate that all of these furnaces have PM emission levels that are well below their respective emission limits (the emission limits are based on size and product being produced in the furnace) in the 1999 MACT rule. These findings demonstrate that the add-on emission control technologies (venturi scrubber, positive pressure fabric filter, negative pressure fabric filter) used to control emissions from the furnaces are quite effective in reducing particulate matter (used as a surrogate for metal HAP) and that all of the facilities have emissions well below the current limits.

Under section 112(d)(6) of the Clean Air Act (CAA), we are required to revise emission standards, taking into account developments in practices, processes and control technologies. The particulate matter (PM) emissions, used as a surrogate for metal HAP, that were reported by the industry in response to the 2010 ICR were far below the level specified in the current NESHAP, indicating improvements in the control of PM emissions since promulgation of the current NESHAP. We re-evaluated the data received in 2010, along with additional data received in 2012 and 2013, to determine whether it is appropriate to propose revised emissions limits for PM from the furnace process vents. The re-evaluation of the PM limits was completed using available PM emissions test data from all the furnaces and consideration of variability across those data. More details regarding the available PM data and this re-evaluation are provided in the *Revised Technology Review for the Ferroalloys Production Source Category for the Supplemental Proposal,* which is available in the docket. Unlike PAH and mercury stack data, we did not see significant differences in variability of the PM data sets depending on product produced (*e.g.,* ferromanganese or silicomanganese). Therefore, we are not proposing to subcategorize the PM stack limits based on product type.

Based on this analysis, we determined that it is appropriate to propose revised PM limits for the furnaces and that the revised existing source furnace stack PM emissions limit should be 25 milligrams per dry standard cubic meter (mg/dscm). Therefore, we are proposing a revised emissions limit of 25 mg/dscm for existing furnace stack PM emissions in this supplemental proposal. This emission limit is slightly higher than the existing source furnace PM emission limit of 24 mg/dscm that we proposed in the 2011 proposal. The revised emissions limit is based on more data than the previous proposed limit. No additional add-on controls are expected to be required by the facilities to meet the revised existing source limit of 25 mg/dscm. However, this revised limit would result in significantly lower ‘‘allowable’’ PM emissions from the source category compared to the level of emissions allowed by the 1999 MACT rule and would help prevent any emissions increases. To demonstrate compliance, we propose these sources would be required to conduct periodic performance testing and develop and operate according to a baghouse operating plan or continuously monitor venturi scrubber operating parameters. We also propose that furnace baghouses would be required to be equipped with bag leak detection systems (BLDS).

The revised new source PM standard for furnaces was determined by evaluating the available data from the best performing furnace (which was determined to be furnace #2 at Felman). The new source MACT limit was determined to be 4.0 mg/dscm based on data from furnace #2 and was selected as the proposed MACT emissions limit for PM from new and reconstructed source furnace stacks.

The PM emission limit for the local ventilation control device outlet was also re-evaluated using compliance test data and test data from the 2012 ICR. A local ventilation control device is used to capture tapping, casting, or ladle treatment emissions and direct them to a control device other than one associated with the furnace. The 2011 proposal included a proposed PM limit for the local ventilation control device that was based on PM data from the furnaces. After the 2011 proposal, we received test data from 3 different emissions tests (for a total of 9 test runs) specifically for this local ventilation source. We determined these data were more appropriate for the development of a limit for this source than the furnace data we had used for the 2011 proposal. There is currently only one local ventilation control device outlet emissions source in this source category.

Using the new data for the one existing local ventilation source, we calculated a revised emissions limit of 4.0 mg/dscm and determined that this was an appropriate emissions limit for this source. Therefore we are proposing this emissions limit of 4.0 mg/dscm for existing, new and reconstructed local ventilation control device emissions sources.

2. Metal HAP Emissions From Process Fugitives

In the 2011 proposal, we concluded that a proposed requirement for sources to enclose the furnace building, collect fugitive emissions such that the furnace building is maintained under negative pressure and duct those emissions to a control device represented an advance in emissions control measures since the Ferroalloys Production NESHAP was originally promulgated in 1999. Commenters on the 2011 proposal disagreed with our assessment. Based on these comments, we reassessed the proposed requirement for negative pressure ventilation and determined that the installation and operation of the proposed system may not be feasible and would likely be very costly. For example, the recent secondary lead NESHAP requires use of such a system, but we recognize that a much smaller volume of air must be evacuated at secondary lead facilities because of their smaller size compared to ferroalloy facilities. We agree that we had underestimated the costs of such negative pressure systems and we have provided updated cost analyses.

Commenters also raised concerns about worker safety and comfort in designing and operating such systems based on historical examples. We believe that such issues can be overcome with proper ventilation design and installation of air conditioning systems and other steps to ensure these issues are not a problem. However, after further review and evaluation we conclude that it would be quite costly for these facilities to become fully enclosed with negative pressure and achieve the appropriate ventilation and conditioning of indoor air.

Going back to the original goal of identifying advances in emissions control measures since the Ferroalloys Production NESHAP was promulgated in 1999, we have arrived at a different conclusion than we described in the 2011 proposal. We re-evaluated the costs and operational feasibility associated with the full building enclosure with negative pressure that we proposed in 2011. We consulted with ventilation experts who have worked with hot process fugitives similar to those found in the ferroalloys industry (*e.g.,* electric arc furnace steel mini-mills and secondary lead smelters). We determined that substantially more air flow, air exchanges, ductwork, fans and control devices and supporting structural improvements would be needed (compared to what we had estimated in the 2011 proposal) to achieve negative pressure and also ensure adequate ventilation and air quality in these large furnace buildings. Therefore, we determined that the proposed negative pressure approach presented in the 2011 proposal would be much more expensive than what we had estimated in 2011 and may not be feasible for these facilities.

We also evaluated another option based on enhanced capture of the process fugitive emissions using a combination of effective local capture with primary hooding close to the emissions sources and secondary capture of remaining fugitives with roof-line capture hoods and control devices. These buildings are currently designed such that fugitive emissions that are not captured by the primary hoods flow upward with a natural draft to the open roof vents and are vented to the atmosphere uncontrolled. Under our enhanced control scenario, the primary capture close to the emissions sources would be significantly improved with effective local hooding and ventilation and the remaining fugitive emissions (that are not captured by the primary hoods) would be drawn up to the roof-line and captured with secondary hooding and vented to control devices.

In cases where additional collection of fugitives from the roof monitors is needed to comply with building opacity limits, fume collection areas may be isolated via baffles (so the area above the furnace where fumes collect may be kept separated from ''empty'' spaces in large buildings) and roof monitors over fume collection areas can be sealed and directed to control devices. The fugitive emission capture system should achieve inflow at the building floor, but outflow toward the roof where most of the remaining fugitives would be captured by the secondary hooding. We conclude that a rigorous, systematic examination of the ventilation requirements throughout the building is the key to developing a fugitive emission capture system (consisting of primary hoods, secondary hoods, enclosures and/or building ventilation ducted to particulate matter control devices) that can be designed and operated to achieve very low levels of fugitive emissions. Such an evaluation considers worker health, safety and comfort and it is designed to optimize existing ventilation options (fan capacity and hood design) and add additional capture options to meet specified design criteria determined through the evaluation process. Thus, we conclude that an enhanced capture system based on these design principles does represent an advancement in technology. We estimate that this control scenario would capture about 95 percent of the process fugitive emissions and vent those emissions to PM control devices. This enhanced local capture option is described in more detail in the Revised Technology Review document and in the *Cost Impacts of Control Options to Address Fugitive HAP Emissions for the Ferroalloys Production NESHAP Supplemental Proposal* document (Cost Impacts document) which are available in the docket.

Under this control option, the cost elements vary by plant and furnace and include the following:

- Curtains or doors surrounding furnace tops to contain fugitive emissions;
- Improvements to hoods collecting tapping emissions;
- Upgrade fans to improve the airflow of fabric filters controlling fugitive emissions;
- Addition of ''secondary capture'' or additional hoods to capture emissions from tapping platforms or crucibles;
- Addition of fugitives capture for casting operations;
- Improvement of existing control devices or addition of fabric filters; and
- Addition of rooftop ventilation, in which fugitive emissions escaping local capture are collected in the roof canopy over process areas through addition of partitions, hoods, and then directed through ducts to control devices.

We estimate the total capital costs of installing the required ductwork, fans and control devices under the enhanced capture option (which is described above and in more detail in the Cost Impacts document) to be $37.6 million and the total annualized cost to be $7.1 million for the two plants. We estimate that this option would reduce metal HAP emissions by 75 tons per year, resulting in a cost per ton of metal HAP removed to be $94,600 per ton ($47 per pound). The total estimated HAP reduction for the enhanced capture option is 77 tons per year at a cost per ton of $91,900 ($46 per pound). We also estimate that this option would achieve PM emission reductions of 229 tons per year, resulting in cost per ton of PM removed of $30,900 per ton and achieve $PM_{2.5}$ emission reductions of 48 tons per year, resulting in a cost per ton of $PM_{2.5}$ removal of $147,000 per ton. We believe these controls for process fugitive HAP emissions (described above), which are based on enhanced capture (with primary and secondary hooding) are feasible for the Ferroalloys Production source category from a technical standpoint and are cost effective. This cost effectiveness is in the range of cost effectiveness for PM and HAP metals from other previous rules. However, it is important to note that there is no bright line for determining cost-effectiveness for HAP metals. Each rulemaking is different and various factors must be considered. Some of the other factors we consider when making decisions whether to establish standards beyond the floor under section 112(d)(2) or under section 112(d)(6) include, but are not limited to, the following: which of the HAP metals are being reduced and by how much; total capital costs; annual costs; and costs compared to total revenues (*e.g.,* costs to revenue ratios).

We also re-evaluated the option based on building ventilation as described in the 2011 proposal. This control option involves installation of full building ventilation at negative pressure for furnace buildings instead of installing fugitive controls on individual tapping and casting operations. This option would require installation of ductwork from the roof vents of furnace buildings, additional fans, structural repairs to buildings and a new fabric filter for each building. Both Eramet and Felman provided extensive comments and information regarding implementation of building ventilation, including cost estimates based on their own engineering analyses. We thoroughly reviewed the comments and information provided by the companies along with information gathered from other sources, and then revised our costs analyses accordingly for this supplemental proposal.

We estimate that the full building enclosure option would reduce PM emissions from the facilities by 252 tons per year (and total HAP emissions by 83 tons per year). The total estimated capital cost for these fugitive controls is $61 million. Annualized capital cost and operational and maintenance costs are estimated at $19 million per year, which results in an estimated cost per ton of metal HAP removed of $226,000 per ton. We also estimate that this option would achieve PM emission reductions of 252 tons, resulting in cost per ton of PM removed of $74,200 per ton and achieve $PM_{2.5}$ emission reductions of 53 tons, resulting in a cost per ton of $PM_{2.5}$ removal of $353,000 per ton. The incremental cost effectiveness comparing the enhanced capture option to the building ventilation option is $501,000 per ton of PM removed, $2.4 million per ton of $PM_{2.5}$ removed and $2.2 million per ton of HAP removed.

Based on these analyses, we conclude that the full-building enclosure option with negative pressure may not be feasible and would have significant economic impacts on the facilities (including potential closure for one or more facilities). However, we conclude that the enhanced local capture option is a feasible and cost-effective approach to achieve significant reductions in fugitive HAP emissions and will achieve almost as much reductions as the full-building enclosure option (229 vs 252 tons PM reductions) thus achieving most of the risk reductions. In light of the technical feasibility and cost effectiveness of the enhanced capture options, we are proposing the enhanced capture option under the authority of section 112(d)(6) of the CAA.

In the 2011 proposal, we included a requirement that emissions exiting from a shop building may not exceed more than 10 percent opacity for more than one 6-minute period, to be demonstrated every 5 years as part of the periodic required performance tests. For day-to-day continuous monitoring to demonstrate compliance with the proposed shop building requirements, the 2011 proposal relied on achieving the requirement to maintain the shop building at negative pressure to at least 0.007 inches of water. This was to be supplemented by operation and work practice standards that required preparation of a process fugitive emissions ventilation plan for each shop building, which would include schematics with design parameters (*e.g.,* air flow and static pressure) of the ventilation system. The source would conduct a baseline survey to verify that building air supply and exhaust are balanced and the building will be maintained under at least 0.007 inches of water. Such plan would identify critical maintenance activities and schedules, be submitted to the permitting authority and incorporated into the source's operating permit. The baseline survey would be repeated every 5 years or following significant changes to the ventilation system.

With the move to the proposed enhanced local capture alternative, we believe that more frequent opacity monitoring based on an average of 8 percent opacity at all times, is appropriate to demonstrate compliance with the process fugitives standards. We propose that if the average opacity reading from the shop building is greater than 8 percent opacity during an observed furnace process cycle, an additional two more furnace process cycles must be observed such that the average opacity during the entire observation period is less than 7 percent opacity. A furnace process cycle means the period in which the furnace is tapped to the time in which the furnace is tapped again and includes periods of charging, smelting, tapping, casting and ladle raking. We also propose that at no time during operation may any two consecutive 6-minute block opacity readings be greater than 20 percent opacity. We believe that the longer averaging time for this new opacity limit (furnace process cycle vs. individual 6-minute averages) addresses concerns that small variations in an otherwise well-controlled furnace cycle could result in violations of the opacity standard. The proposed 20 percent ceiling ensures that there are no acute events that could adversely affect public health. Finally, the lower limit (8 vs. 10 percent opacity) also reflects that sources should achieve lower overall emissions over a longer averaging period. We propose that sources be required to conduct opacity observations at least once per week for each operating furnace and each MOR operation. Similar to the 2011 proposal, continuous monitoring of key ventilation operating system parameters and periodic inspections of the ventilation systems would ensure that the ventilation systems are operating as designed.

Also, similar to the 2011 proposal, we believe that the source should demonstrate that the overall design of the ventilation system is adequate to achieve the proposed standards. We propose that the facilities in this source category must maintain a process fugitives capture system that is designed to collect 95 percent or more of the process fugitive emissions from furnace operations, casting MOR process, ladle raking and slag skimming and crushing and screening operations and convey the collected emissions to a control device that meets specified emission limits and the proposed opacity limits. We believe that if the source designs the plan according to the most recent (at the time of construction) ventilation design principles recommended by the American Conference of Governmental Industrial Hygienists (ACHIH), includes detailed schematics of the ventilation system design, addresses variables that affect capture efficiency such as cross drafts and describes protocol or design characteristics to minimize such events and identifies monitoring and maintenance steps, the plan will be capable of ensuring the system is properly designed and continues to operate as designed. We would continue to require that this plan be submitted to the permitting authority, incorporated into the source's operating permit and updated every 5 years or when there is a significant change in variables that affect process fugitive emissions ventilation design. This list of design criteria, coupled with the requirement for frequent opacity observations and operating parameter monitoring will result in enforceable requirements. We recognize that other design requirements and/or more frequent opacity observations may yield more compliance certainty, but incur greater costs and not result in measurable decreases in emissions. However, we request comment on other measures that could be considered to demonstrate that well designed (*e.g.,* at least 95 percent overall capture of process fugitive emissions) plans are developed and maintained. We request that such comments include costs, measurement techniques or other information to evaluate their efficacy.

E. What other actions are we proposing?

In addition to the proposed actions described above, we re-evaluated compliance requirements associated with the 2011 proposed amendments to determine whether we should make changes to those proposed amendments. Based on this re-evaluation, we are proposing the following changes to what was proposed in the 2011 proposal.

1. Stack Emission Limits

In response to public comments, we revisited the format of the stack emission limits. We concluded that a concentration-based limit is still appropriate, but we agree that the proposed CO_2 concentration correction poses a problem under certain control device configurations. While such a concentration correction is appropriate for combustion sources such as boilers, we agree that its use in the context of ferroalloys production is not helpful. The PM stack limits proposed above do not include a CO_2 correction.

2. Emissions Averaging

As described above, we have decided to retain a concentration format for the emissions limits for the stacks but we are not retaining the emissions averaging provision in this supplemental proposal that we had proposed in 2011. We believe a concentration format is the best format for this NESHAP and we have concluded that it is not the best format to use under an emissions averaging option. We are concerned that emissions from a large furnace emitting a lower than average concentration could still emit more emissions than a small furnace with a higher than average concentration. This could result in a net increase in emissions from the two furnaces compared to their emissions if they were not allowed to average emissions. For this reason, we are proposing not to include the emissions averaging provisions in the rule, which is a change from the 2011 proposal.

3. Fenceline Monitoring Alternative

In the 2011 proposal, we assumed there could be control measures other than maintaining the furnace buildings under negative pressure that would achieve equivalent emissions reductions. Therefore, to provide some flexibility to facilities regarding how to achieve the reductions of fugitive emissions, in lieu of building the full enclosure and evacuation system described in the 2011 proposal, we proposed that sources could demonstrate compliance with an alternative approach by conducting fenceline monitoring and demonstrate that the ambient concentrations of manganese at their facility boundary remain at levels no more than 0.1 $\mu g/m^3$ on a 60-day rolling average. However, at this time, we believe that the proposed enhanced local capture option described in this supplemental proposal incorporates the features anticipated in a non-negative pressure building option and contains compliance requirements (based on meeting a tight opacity limit and other requirements) that would assess emissions at the point of the maximum output, that is, from the roof monitor of the ferroalloys production building. Furthermore, we determined there were various issues associated with fenceline monitoring at facilities within this source category, including highly variable wind patterns, uncertainties as to how to account for background concentrations and road dust and the large difference between emissions release heights (from the high roof vents and stacks) compared to heights where fenceline monitors would be located (near ground level). Therefore, we are proposing to not include fenceline monitoring in the final rule as an alternative method to demonstrate compliance with a specific ambient level as was described in the 2011 proposal. We believe the proposed tight opacity limit (which would be measured at the emissions sources), along with the proposed requirements to install, operate and maintain effective fugitive capture and control systems, emissions limits for the stacks and various parametric monitoring requirements, are appropriate control requirements to ensure effective capture and control of emissions. However, as described in Section V.I. of this Notice, we are seeking comments regarding other possible options to monitor fugitive emissions, including fenceline monitoring as a tool to monitor trends in ambient concentrations at these locations and to use this information (along with meteorological data and modeling tools) to attempt to quantify trends in emissions that are leaving and entering the facility property.

4. Startup, Shutdown, Malfunction

In the 2011 proposal, we proposed to eliminate two provisions that exempt sources from the requirement to comply with the otherwise applicable CAA section 112(d) emission standards during periods of SSM. We also included provisions for affirmative defense to civil penalties for violations of emission standards caused by malfunctions. Periods of startup, normal operations, and shutdown are all predictable and routine aspects of a source's operations. However, by contrast, malfunction is defined as a ''sudden, infrequent, and not reasonably preventable failure of air pollution control and monitoring equipment, process equipment or a process to operate in a normal or usual manner . . .'' (40 CFR 63.2). As explained in the 2011 proposal, the EPA interprets CAA section 112 as not requiring emissions that occur during periods of malfunction to be factored into development of CAA section 112 standards. Under section 112, emissions standards for new sources must be no less stringent than the level ''achieved'' by the best controlled similar source and for existing sources generally must be no less stringent than the average emission limitation ''achieved'' by the best performing 12 percent of sources in the category. There is nothing in section 112 that directs the Agency to consider malfunctions in determining the level ''achieved'' by the best performing sources when setting emission standards. As the DC Circuit has recognized, the phrase ''average emissions limitation achieved by the best performing 12 percent of'' sources ''says nothing about how the performance of the best units is to be calculated.'' *Nat'l Ass'n of Clean Water Agencies* v. *EPA,* 734 F.3d 1115, 1141 (D.C. Cir. 2013). While the EPA accounts for variability in setting emissions standards, nothing in section 112 requires the Agency to consider malfunctions as part of that analysis. A malfunction should not be treated in the same manner as the type of variation in performance that occurs during routine operations of a source. A malfunction is a failure of the source to perform in a ''normal or usual manner'' and no statutory language compels the EPA to consider such events in setting section 112 standards.

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

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

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

As noted above, the 2011 proposal included an affirmative defense to civil penalties for violations caused by malfunctions. EPA included the affirmative defense in the 2011 proposal as it had in several prior rules in an effort to create a system that incorporates some flexibility, recognizing that there is a tension, inherent in many types of air regulation, to ensure adequate compliance while simultaneously recognizing that despite the most diligent of efforts, emission standards may be violated under circumstances entirely beyond the control of the source. Although the EPA recognized that its case-by-case enforcement discretion provides sufficient flexibility in these circumstances, it included the affirmative defense in the 2011 proposal and in several prior rules to provide a more formalized approach and more regulatory clarity. See *Weyerhaeuser Co.* v. *Costle,* 590 F.2d 1011, 1057–58 (D.C. Cir. 1978) (holding that an informal case-by-case enforcement discretion approach is adequate); but see *Marathon Oil Co.* v. *EPA,* 564 F.2d 1253, 1272–73 (9th Cir. 1977) (requiring a more formalized approach to consideration of ''upsets beyond the control of the permit holder.''). Under the EPA's regulatory affirmative defense provisions, if a source could demonstrate in a judicial or administrative proceeding that it had met the requirements of the affirmative defense in the regulation, civil penalties would not be assessed. The United States Court of Appeals for the District of Columbia Circuit vacated an affirmative defense in one of the EPA's Section 112 regulations. *NRDC* v. *EPA,* 749 F.3d 1055 No. 10–1371 (D.C. Cir., 2014) (vacating affirmative defense provisions in Section 112 rule establishing emission standards for Portland cement kilns). The court found that the EPA lacked authority to establish an affirmative defense for private civil suits and held that under the CAA, the authority to determine civil penalty amounts in such cases lies exclusively with the courts, not the EPA. Specifically, the Court found: ''As the language of the statute makes clear, the courts determine, on a case-by-case basis, whether civil penalties are 'appropriate.' '' See NRDC at *21 (''[U]nder this statute, deciding whether penalties are 'appropriate' in a given private civil suit is a job for the courts, not EPA.''). In light of NRDC, the EPA is withdrawing its proposal to include a regulatory affirmative defense provision in this rulemaking and in this proposal has eliminated sections 63.1627 and 63.1662 (the affirmative defense provisions in the proposed rule published in the **Federal Register** on November 23, 2011 (76 FR 72508)). As explained above, if a source is unable to comply with emissions standards as a result of a malfunction, the EPA may use its case-by-case enforcement discretion to provide flexibility, as appropriate. Further, as the DC Circuit recognized, in an EPA or citizen enforcement action, the court has the discretion to consider any defense raised and determine whether penalties are appropriate. Cf. NRDC at *24. (arguments that violation were caused by unavoidable technology failure can be made to the courts in future civil cases when the issue arises). The same logic applies to EPA administrative enforcement actions.

F. What compliance dates are we proposing?

The proposed changes to the 2011 proposal that are set out in this supplementary proposal will not change the compliance dates proposed. We continue to propose that facilities must comply with the changes set out in this supplementary proposal (which are being proposed under CAA sections 112(d)(2), 112(d)(3), 112(d)(6) and 112(f)(2) for all affected sources), no later than 2 years after the effective date of the final rule. We find that 2 years are necessary to complete the installation of the enhanced local capture system and other controls. In the period between the effective date of this rule and the compliance date, existing sources would continue to comply with the existing requirements specified in §§ 63.1650 through 63.1661, which will protect the health of persons from imminent endangerment.

V. Summary of the Revised Cost, Environmental and Economic Impacts

A. What are the affected sources?

We maintain, as at the 2011 proposal, that the two manganese ferroalloys production facilities currently operating in the United States will be affected by these proposed amendments. We do not know of any new facilities that are expected to be constructed in the foreseeable future. However, there is one other facility that has a permit to produce ferromanganese or silicomanganese in an electric arc furnace, but it is not doing so at present. It is possible, however, that this facility could resume production or another non-manganese ferroalloy producer could decide to commence production of ferromanganese or silicomanganese. Given this uncertainty, our impact analysis is focused on the two existing sources that are currently operating.

B. What are the air quality impacts?

The EPA revised the estimated emissions reductions that are expected to result from the proposed amendments to the 1999 NESHAP based on the proposed changes in this supplemental proposal. A detailed documentation of the analysis can be found in the Cost Impacts document, which is available in the docket.

As noted in the 2011 proposal, emissions of metal HAP from ferroalloys production sources have declined in recent years, primarily as the result of state actions and also due to the industry's own initiative. The proposed amendments in this supplemental proposal would cut HAP emissions (primarily particulate metal HAP such as manganese, arsenic and nickel) by about 60 percent from their current levels. Under the revised proposed emissions standards for process fugitives emissions from the furnace building, we estimate that the HAP emissions reductions would be 77 tpy, including significant reductions of manganese.

As noted in the 2011 proposal, based on the emissions data available to the EPA, we believe that both facilities will be able to comply with the proposed emissions limits for HCl without additional controls. Based on the analyses presented today, we also anticipate that both facilities will be able to comply with the proposed emission limits for mercury and PAH without additional controls.

C. What are the cost impacts?

Under the revised proposed amendments, ferroalloys production facilities are expected to incur costs for the design of a local ventilation system, resulting in a site-specific local ventilation plan and installation of custom hoods and ventilation equipment and additional control devices to manage the air flows generated by the enhanced capture systems. There would also be capital costs associated with installing new or improved continuous monitoring systems, including installation of BLDS on the furnace baghouses that are not currently equipped with these systems.

The revised capital costs for each facility were estimated based on the projected number and types of upgrades required. The specific enhancements for each facility were selected for cost estimation based on estimates directly provided by the facilities based on their engineering analyses and discussions with the EPA. The Cost Impacts document includes a complete description of the revised cost estimate methods used for this analysis and is available in the docket.

Cost elements vary by plant and furnace and include the following elements:

- Curtains or doors surrounding furnace tops to contain fugitive emissions;
- Improvements to hoods collecting tapping emissions;
- Upgraded fans to improve the airflow of fabric filters controlling fugitive emissions;
- Addition of ''secondary capture'' or additional hoods to capture emissions from tapping platforms or crucibles;
- Addition of fugitives capture for casting operations;
- Improvement of existing control devices or addition of fabric filters; and
- Addition of rooftop ventilation, in which fugitive emissions escaping local control are collected in the roof canopy over process areas through addition of partitions and hoods, then directed through roof vents and ducts to control devices.

For purposes of the supplemental proposal analysis, we assumed that enhanced fugitive capture and control systems and roofline ventilation will be installed for all operational furnaces at both facilities and for MOR operations at Eramet Marietta. The specific elements of the capture and control systems selected for each facility are based on information supplied by the facilities incorporating their best estimates of the improvements to fugitive emission capture and control they would implement to achieve the standards included in the supplemental proposal. We estimate the total capital costs of installing the required ductwork, fans and control devices under the enhanced capture option to be $37.6 million and the total annualized cost to be $7.1 million (2012 dollars) for the two plants. We estimate that this option would reduce metal HAP emissions by 75 tons, resulting in a cost per ton of metal HAP removed to be $94,700 per ton ($47 per pound). The total HAP reduction for the enhanced capture option is estimated to be 77 tons per year at a cost per ton of $91,900 per ton ($46 per pound). We also estimate that this option would achieve PM emission reductions of 229 tons per year, resulting in cost per ton of PM removed of $30,900 per ton and achieve $PM_{2.5}$ emission reductions of 48 tons per year, resulting in a cost per ton of $PM_{2.5}$ removal of $147,000 per ton.

D. What are the economic impacts?

As a result of the requirements in this supplemental proposal, we estimate that the total capital cost for the Eramet facility will be about $25 million and the total annualized costs will be about $5.4 million (in 2012 dollars). For impacts to Felman Production LLC, this facility is estimated to incur a total capital cost of $12.4 million and a total annualized costs of just under $1.7 million (in 2012 dollars). In total, these costs could lead to an increase in annualized cost of as much as 1.8 percent of sales, which serves as an estimate for the increase in product prices, and a decrease in output of as much as 9.5 percent. For more information regarding economic impacts, please refer to the *Economic Impact Analysis* report that is included in the public docket for this supplemental proposal.

E. What are the benefits?

The estimated reductions in HAP emissions (*i.e.,* about 77 tpy) that would be achieved by this proposal would provide significant benefits to public health. For example, there would be a significant reduction in emissions of air toxics (especially Mn, Ni, Cd and PAHs). In addition to the HAP reductions, we also estimate that this supplemental proposal would achieve about 48 tons of reductions in $PM_{2.5}$ emissions as a co-benefit of the HAP reductions annually.

This rulemaking is not an ''economically significant regulatory action'' under Executive Order 12866 because it is not likely to have an annual effect on the economy of $100 million or more. Therefore, we have not conducted a Regulatory Impact Analysis (RIA) for this rulemaking or a benefits analysis. While we expect that these avoided emissions will result in improvements in air quality and reduce health effects associated with exposure to air pollution associated with these emissions, we have not quantified or monetized the benefits of reducing these emissions for this rulemaking. This does not imply that there are no benefits associated with these emission reductions. When determining if the benefits of an action exceed its costs, Executive Orders 12866 and 13563 direct the Agency to consider qualitative benefits that are difficult to quantity but nevertheless essential to consider.

Directly emitted particles are precursors to secondary formation of fine particles ($PM_{2.5}$). Controls installed to reduce HAP would also reduce ambient concentrations of $PM_{2.5}$ as a co-benefit. Reducing exposure to $PM_{2.5}$ is associated with significant human health benefits, including avoiding mortality and morbidity from cardiovascular and respiratory illnesses. Researchers have associated $PM_{2.5}$ exposure with adverse health effects in numerous toxicological, clinical and epidemiological studies (U.S. EPA, 2009)[57]. When adequate data and resources are available and an RIA is required, the EPA generally quantifies several health effects associated with exposure to $PM_{2.5}$ (*e.g.,* U.S. EPA, 2012)[58]. These health effects include premature mortality for adults and infants, cardiovascular morbidities such as heart attacks, hospital admissions and respiratory morbidities such as asthma attacks, acute bronchitis, hospital and emergency department visits, work loss days, restricted activity days and respiratory symptoms. The scientific literature also suggests that exposure to $PM_{2.5}$ is also associated with adverse effects on birth weight, pre-term births, pulmonary function and other cardiovascular and respiratory effects (U.S. EPA, 2009), but the EPA has not quantified certain outcomes these impacts in its benefits analyses. $PM_{2.5}$ also increases light extinction, which is an important aspect of visibility.

The rulemaking is also anticipated to reduce emissions of other HAP, including metal HAP (arsenic, cadmium, chromium (both total and Cr^{+6}), lead compounds, manganese and nickel) and PAHs. Some of these HAP are carcinogenic (e.g., arsenic, PAHs) and some have effects other than cancer (e.g., kidney disease from cadmium, respiratory and immunological effects from nickel). While we cannot quantitatively estimate the benefits achieved by reducing emissions of these HAP, we would expect benefits by reducing exposures to these HAP. More information about the health effects of these HAP can be found on the IRIS,[59] ATSDR,[60] and California EPA[61] Web pages.

VI. Request for Comments

We solicit comments on the revised risk assessment and technology review and proposed changes to the previously proposed amendments. We seek comments on the additional data received in August 2014 (as described in Section II.D above) and the impacts of those new data on the analyses and results presented in this notice. We seek comments on the sufficiency of the proposed controls for process fugitive emissions, the design of such systems and how best to monitor them to ensure the systems achieve the estimated efficiency. We also seek comments on other aspects of this supplemental proposal, including, but not limited to, the proposed opacity standards.

The EPA is also soliciting comment with regard to expanding the monitoring requirements in this NESHAP for fugitive particulate matter and manganese emissions being released at the roof vents of furnace buildings using one or more of three different options. For the following three options the EPA is additionally seeking comment on the frequency of monitoring and the cost associated with installation, operation, analysis and ongoing reporting. Additional cost information of these three monitoring options is included in the Cost Impacts document, which is available in the docket.

First, the EPA is soliciting comment on the potential to require the facilities to take periodic measurements of fugitive particulate matter and manganese emissions from the roof vents using portable filter based measurement technologies. The EPA solicits comment on requiring no less than 3 filter based monitoring systems with associated anemometers with the goal of quantifying trends in the process fugitive emissions that are leaving the furnace buildings. We also solicit comment on the appropriate sampling duration and frequency of such measurements (e.g., 8-hour samples gathered at each monitor several times per week or month). This monitoring could provide useful information regarding the remaining fugitive emissions that will be escaping the buildings after the facilities install and operate the improved capture and controls systems that we expect will be installed to comply with this proposed rule. This information will also help improve our understanding of the relationship between the process fugitive emissions and the specific operations within the furnace buildings. However, the measurements would not be tied to a specific emissions limit.

Second, the EPA is soliciting comment on requiring fugitive fenceline filter based measurements of particulate matter and manganese emissions at the facilities with no less than 3 monitoring systems at the property boundaries to monitor trends in ambient concentrations at these locations and to use this information (along with meteorological data and modeling tools) to attempt to quantify trends in emissions that are leaving and entering the facility property. The EPA seeks comment on having the monitoring systems use common ambient filter based sampling techniques as well as gathering data on meteorological conditions simultaneously at each of the sampling sites. The EPA recognizes that this monitoring would be capturing both ground level and other fugitive emissions from the facilities as well as background contributions from other sources, and that this type of monitoring has limitations. Nevertheless, EPA is taking comment on the application and appropriateness of this type of monitoring as part of the requirements within this NESHAP to evaluate emissions leaving the facility property and is taking comment on where to position the monitoring systems to best evaluate the fugitive emissions.

Third, the EPA is soliciting comment regarding the use of new technologies to provide continuous or near continuous long term approaches to monitoring emissions from industrial sources such the Ferroalloys production facilities within this source category. To this end we are seeking comment on the feasibility and practice associated with the use of automated Opacity Monitoring with ASTM D7520–13, using digital camera technology (DCOT) at fixed points to interpret visible emissions from roof vents associated with the processes at each facility, and how this technology could potentially be included as part of the requirements in the NESHAP for ferroalloys production sources. Specifically we are interested in comments regarding how many fixed camera locations would be needed to provide sufficient sun-angle viewing during daylight operating hours, and the frequency of the EXIF 2.1 JPG image analysis (how often the roof vent plume should be evaluated).

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[57] U.S. Environmental Protection Agency (U.S. EPA). 2009. *Integrated Science Assessment for Particulate Matter* (Final Report). EPA–600–R–08–139F. National Center for Environmental Assessment—RTP Division. Available on the Internet at *http://cfpub.epa.gov/ncea/cfm/recordisplay.cfm?deid=216546.*

[58] U.S. Environmental Protection Agency (U.S. EPA). 2012. Regulatory Impact Analysis for the Proposed Revisions to the National Ambient Air Quality Standards for Particulate Matter. Office of Air and Radiation, Research Triangle Park, NC. Available on the Internet at *http://www.epa.gov/ttnecas1/regdata/RIAs/PMRIACombinedFile_Bookmarked.pdf.*

[59] US EPA, 2006. Integrated Risk Information System. *http://www.epa.gov/iris/index.html.*

[60] US Agency for Toxic Substances and Disease Registry, 2006. Minimum Risk Levels (MRLs) for Hazardous Substances. *http://www.atsdr.cdc.gov/mrls/index.html.*

[61] CA Office of Environmental Health Hazard Assessment, 2005. Chronic Reference Exposure Levels Adopted by OEHHA as of December 2008. *http://www.oehha.ca.gov/air/chronic_rels.*

The EPA is moving toward advances in information and emissions monitoring technology that is setting the stage for detection, processing and communication capabilities that can revolutionize environmental protection. The EPA calls this Next Generation Compliance. One of the advances in information sharing is increased transparency. Using transparency as a way to improve performance and increase compliance, the EPA is seeking comments on whether affected sources should be required to post Method 9 readings on their company Web sites and/or State dashboards.

Electronic reporting is another next generation tool that saves time and money while improving results. The EPA is asking for comments on whether the EPA should require affected sources to submit all compliance documents such as notice of compliance status form, deviations from the process fugitive ventilation plan and outdoor fugitive dust plan, and electronic records of the bag leak detection system output.

We are not opening comment on aspects of the 2011 proposal (76 FR 72508) that have not changed and are not addressed in this supplemental proposal. Comments received on the 2011 proposal along with comments received on this supplemental proposal will be addressed in the EPA's Response to Comment document and final rule preamble for the Ferroalloys Production source category.

VII. Submitting Data Corrections

The site-specific emissions profiles used in the source category risk and demographic analyses and instructions are available for download on the RTR Web page at: *http://www.epa.gov/ttn/atw/rrisk/rtrpg.html.* The data files include detailed information for each HAP emissions release point for the facilities in the source category.

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

1. Within this downloaded file, enter suggested revisions to the data fields appropriate for that information.
2. Fill in the commenter information fields for each suggested revision (*i.e.,* commenter name, commenter organization, commenter email address, commenter phone number and revision comments).
3. Gather documentation for any suggested emissions revisions (*e.g.,* performance test reports, material balance calculations, etc.).
4. Send the entire downloaded file with suggested revisions in Microsoft® Access format and all accompanying documentation to Docket ID Number EPA–HQ–OAR–*** (through one of the methods described in the **ADDRESSES** section of this preamble).
5. If you are providing comments on a single facility or multiple facilities, you need only submit one file for all facilities. The file should contain all suggested changes for all sources at that facility. We request that all data revision comments be submitted in the form of updated Microsoft® Excel files that are generated by the Microsoft® Access file. These files are provided on the RTR Web page at: *http://www.epa.gov/ttn/atw/rrisk/rtrpg.html.*

VIII. Statutory and Executive Order Reviews

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

Under Executive Order 12866 (58 FR 51735, October 4, 1993), this action is a significant regulatory action because it raises novel legal and policy issues. Accordingly, the EPA submitted this action to the Office of Management and Budget (OMB) for review under Executive Orders 12866 and 13563 (76 FR 3821, January 21, 2011) and any changes made in response to OMB recommendations have been documented in the docket for this action.

B. Paperwork Reduction Act

The information collection requirements in this supplemental proposed rule have been submitted for approval to the Office of Management and Budget (OMB) under the *Paperwork Reduction Act,* 44 U.S.C. 3501, *et seq.* The Information Collection Request (ICR) document prepared by the EPA has been assigned EPA ICR number 2448.01.

We are proposing changes to the paperwork requirements to the ferroalloys production source category that were proposed in 2011. In the 2011 proposal, we proposed paperwork requirements in the form of increased frequency and number of pollutants tested for stack testing as described in § 63.1625(c) and tighter parameter monitoring requirements to demonstrate continuous compliance as described in § 63.1625(c)(4) and § 63.1626. We are not proposing changes to these requirements. However, in this supplemental proposal we are proposing more frequent opacity monitoring requirements compared to the 2011 proposal and are removing the shop building process fugitives monitoring requirements (to demonstrate negative pressure) that we proposed in 2011.

In addition, in the 2011 proposal, we included an estimate of the burden associated with the affirmative defense in the ICR. However, as explained above, in this supplemental proposal we are withdrawing our proposal to include an affirmative defense and the burden estimate has been revised accordingly.

We estimate two regulated entities are currently subject to subpart XXX and will be subject to this action. The annual monitoring, reporting and recordkeeping burden for this collection (averaged over the first 3 years after the effective date of the standards) as a result of the supplemental proposal revised amendments to subpart XXX (Ferroalloys Production) is estimated to be $643,845 per year. This includes 496 labor hours per year at a total labor cost of $44,366 per year and total non-labor capital and operation and maintenance costs, of $599,479 per year. This estimate includes performance tests, notifications, reporting and recordkeeping associated with the new requirements for ferroalloys production operations. The total burden for the federal government (averaged over the first 3 years after the effective date of the standard) is estimated to be 48 hours per year at a total labor cost of $2,177 per year. Burden is defined at 5 CFR 1320.3(b).

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.

To comment on the Agency's need for this information, the accuracy of the provided burden estimates and any suggested methods for minimizing respondent burden, the EPA has established a public docket for this rule, which includes this ICR, under Docket ID number Docket ID Number EPA–HQ–OAR–2010–0895. Submit any comments related to the ICR to the EPA and OMB. See **ADDRESSES** section at the beginning of this notice for where to submit comments to the EPA. Send comments to OMB at the Office of Information and Regulatory Affairs, Office of Management and Budget, 725 17th Street NW., Washington, DC 20503, Attention: Desk Office for the EPA. Since OMB is required to make a decision concerning the ICR between 30 and 60 days after October 6, 2014, a comment to OMB is best assured of having its full effect if OMB receives it by November 5, 2014. The final rule will respond to any OMB or public comments on the information collection requirements contained in this proposal.

C. Regulatory Flexibility Act

The Regulatory Flexibility Act (RFA) generally requires an agency to prepare a regulatory flexibility analysis of any rule subject to notice and comment rulemaking requirements under the Administrative Procedure Act, or any other statute, unless the agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. Small entities include small businesses, small organizations and small governmental jurisdictions.

For purposes of assessing the impacts of this final rule on small entities, small entity is defined as: (1) a small business as defined by the Small Business Administration's (SBA) regulations at 13 CFR 121.201; (2) a small governmental jurisdiction that is a government of a city, county, town, school district or special district with a population of less than 50,000; and (3) a small organization that is any not-for-profit enterprise that is independently owned and operated and is not dominant in its field. For this source category, which has the NAICS code 331110 (*i.e.,* Electrometallurgical ferroalloy product manufacturing), the SBA small business size standard is 1,000 employees according to the SBA small business standards definitions.

After considering the economic impacts of today's action on small entities, I certify that this action will not have a significant economic impact on a substantial number of small entities. Neither of the companies affected by this rule is considered to be a small entity per the definition provided in this section.

D. Unfunded Mandates Reform Act

This action does not contain a federal mandate under the provisions of Title II of the Unfunded Mandates Reform Act of 1995 (UMRA), 2 U.S.C. 1531–1538 for state, local, or tribal governments, or the private sector. The action would not result in expenditures of $100 million or more for state, local and tribal governments, in aggregate, or the private sector in any 1 year. This final action imposes no enforceable duties on any state, local, or tribal governments, or the private sector. Thus, this action is not subject to the requirements of sections 202 or 205 of the UMRA.

This rule is also not subject to the requirements of section 203 of UMRA because it contains no regulatory requirements that might significantly or uniquely affect small governments as it contains no requirements that apply to such governments nor does it impose obligations upon them.

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, as specified in Executive Order 13132. None of the facilities subject to this action are owned or operated by state governments and, because no new requirements are being promulgated, nothing in this action will supersede state regulations. Thus, Executive Order 13132 does not apply to this action.

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

This action does not have tribal implications, as specified in Executive Order 13175 (65 FR 67249, November 9, 2000). Thus, Executive Order 13175 does not apply to this action. The EPA specifically solicited comment on this action from tribal officials in the 2011 proposal and none were received during the comment period for that proposal.

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

This action is not subject to Executive Order 13045 (62 FR 19885, April 23, 1997) because the Agency does not believe the environmental health risks or safety risks addressed by this action present a disproportionate risk to children. The report, *Analysis of Socio-Economic Factors for Populations Living Near Ferroalloys Facilities,* shows that, prior to the implementation of the provisions included in the proposal and this supplemental proposal, on a nationwide basis, there are approximately 31,000 people exposed to a cancer risk at or above 1-in-1 million and approximately 1,500 people exposed to a chronic noncancer TOSHI greater than 1 due to emissions from the source category. The percentages for all demographic groups, including children 18 years and younger, are similar to or lower than their respective nationwide percentages. Further, implementation of the provisions included in this action is expected to significantly reduce the number of at-risk people due to HAP emissions from these sources (from up to 31,000 to about 6,600), providing significant benefit to all the demographic groups in the at-risk population.

This rule is expected to reduce environmental impacts for everyone, including children. This action establishes emissions limits at the levels based on MACT, as required by the CAA. Based on our analysis, we believe that this rule does not have a disproportionate impact on children.

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

This action is not a ''significant energy action'' as defined under Executive Order 13211, because it is not likely to have a significant adverse effect on the supply, distribution or use of energy. This action will not create any new requirements that affect the energy supply, distribution or use sectors.

I. National Technology Transfer and Advancement Act

Section 12(d) of the National Technology Transfer and Advancement Act of 1995 (NTTAA), Public Law 104–113, 12(d) (15 U.S.C. 272 note) directs the EPA to use voluntary consensus standards (VCS) in its regulatory activities, unless to do so would be inconsistent with applicable law or otherwise impractical. VCS are technical standards (*e.g.,* materials specifications, test methods, sampling procedures and business practices) that are developed or adopted by VCS bodies. The NTTAA directs the EPA to provide Congress, through OMB, explanations when the agency decides not to use available and applicable VCS.

This supplemental proposal involves technical standards. The EPA has decided to use EPA Methods 1, 2, 3A, 3B, 4, 5, 5D, 9, 10, 26A, 29, 30B, 316, CARB 429, SW–846 Method 3052, SW–846 Method 7471b and EPA water Method 1631E of 40 CFR Part 60, Appendix A. No applicable VCS were identified for EPA Methods 30B, 5D, 316, 1631E and CARB 429, SW–846 Method 3052 and SW–846 Method 7471b.

Two VCS were identified acceptable alternatives to the EPA test methods for the purposes of this rule. The VCS standard ANSI/ASME PTC 19–10–1981—Part 10, ''Flue and Exhaust Gas Analyses'' is an acceptable alternative to Method 3B. The VCS ASTM D7520–09, ''Standard Test Method for Determining the Opacity of a Plume in the Outdoor

Ambient Atmosphere'' is an acceptable alternative to Method 9 under specified conditions. The Agency identified 18 VCS as being potentially applicable to these methods cited in this rule. However, the EPA determined that the 18 candidate VCS would not be practical due to lack of equivalency, documentation, validation data and other important technical and policy considerations. The 18 VCS and other information and conclusions, including the search and review results, are in the docket for this rule.

Under §§ 63.7(f) and 63.8(f) of Subpart A of the General Provisions, a source may apply to the EPA for permission to use alternative test methods or alternative monitoring requirements in place of any required testing methods, performance specifications, or procedures in the proposed rule.

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

Executive Order 12898 (59 FR 7629, February 16, 1994) establishes federal executive policy on environmental justice. Its main provision directs federal agencies, to the greatest extent practicable and permitted by law, to make environmental justice part of their mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies and activities on minority populations and low-income populations in the United States.

The EPA has determined that the current health risks posed by emissions from this source category are unacceptable. There are up to 31,000 people nationwide that are currently subject to health risks which may not be considered negligible (*i.e.,* cancer risks greater than 1-in-1 million or chronic noncancer TOSHI greater than 1) due to emissions from this source category. The demographic makeup of this ''at-risk'' population is similar to the national distribution for all demographic groups. The proposed supplemental requirements along with other proposed requirements (76 FR 72508) will reduce the number of people in this at-risk group, from up to 31,000, to about 6,600 people. Based on this analysis, the EPA has determined that the proposed supplemental requirements will not have disproportionately high and adverse human health or environmental effects on minority or low-income populations because it increases the level of environmental protection for all affected populations.

List of Subjects in 40 CFR Part 63

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

Dated: September 4, 2014.

Gina McCarthy,

Administrator.

For the reasons stated in the preamble, part 63 of title 40, chapter I, of the Code of Federal Regulations is proposed to be amended as follows:

PART 63—[AMENDED]

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

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

■ 2. Section 63.14 is amended by:
■ a. Adding paragraph (b)(84);
■ b. Revising paragraph (i)(1);
■ c. Revising paragraph (p)(6) and adding paragraphs (p)(21) and (p)(22); and
■ d. By adding paragraph (s).

§ 63.14 Incorporations by reference.

(b) * * *

(84) ASTM D7520–09, ''Standard Test Method for Determining the Opacity in a Plume in an Outdoor Ambient Atmosphere,'' IBR approved for §§ 63.1625(b) and 63.1657(b).

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(i) * * *

(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. 772(e), 63.772(h), 63.865(b), 63.1282(d) and (g), 63.1625(b), 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), 63.9307(c), 63.9323(a), 63.11148(e), 63.11155(e), 63.11162(f), 63.11163(g), 63.11410(j), 63.11551(a), 63.11646(a), 63.11945, table 5 to subpart DDDDD of this part, table 4 to subpart JJJJJ of this part, Table 5 of subpart UUUUU of this part and table 1 to subpart ZZZZZ of this part.

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(p) * * *

(6) SW–846–7471B, Mercury in Solid Or Semisolid Waste (Manual Cold-Vapor Technique), Revision 2, February 2007, in EPA Publication No. SW–846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Third Edition, IBR approved for § 63.1625(b), table 6 to subpart DDDDD of this part and table 5 to subpart JJJJJJ of this part.

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(21) SW–846–Method 3052, Microwave Assisted Acid Digestion Of Siliceous and Organically Based Matrices, Revision 0, December 1996, in EPA Publication No. SW–846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Third Edition, IBR approved for § 63.1625(b).

(22) Method 1631, Revision E: Mercury in Water by Oxidation, Purge and Trap and Cold Vapor Atomic Fluorescence Spectrometry, August 2002 located at: *http://water.epa.gov/scitech/methods/cwa/metals/mercury/upload/2007_07_10_methods_method_mercury_1631.pdf,* IBR approved for § 63.1625(b).

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(s) The following material is available from the California Air Resources Board (CARB), 1102 Q Street, Sacramento, California 95814, (*http://www.arb.ca.gov/testmeth/*).

(1) Method 429, Determination of Polycyclic Aromatic Hydrocarbon (PAH) Emissions from Stationary Sources, Adopted September 1989, Amended July 1997, IBR approved for § 63.1625(b).

(2) [Reserved]

Subpart XXX—[Amended]

■ 3. Section 63.1620 is added to read as follows:

§ 63.1620 Am I subject to this subpart?

(a) You are subject to this subpart if you own or operate a new or existing ferromanganese and/or silicomanganese production facility that is a major source or is co-located at a major source of hazardous air pollutant emissions.

(b) You are subject to this subpart if you own or operate any of the following equipment as part of a ferromanganese or silicomanganese production facility:

(1) Open, semi-sealed, or sealed submerged arc furnace,

(2) Casting operations,

(3) Metal oxygen refining (MOR) process,

(4) Crushing and screening operations,

(5) Outdoor fugitive dust sources.

(c) A new affected source is any of the sources listed in paragraph (b) of this section for which construction or reconstruction commenced after [DATE OF FINAL RULE PUBLICATION IN THE FEDERAL REGISTER].

(d) Table 1 of this subpart specifies the provisions of subpart A of this part that apply to owners and operators of ferromanganese and silicomanganese production facilities subject to this subpart.

(e) If you are subject to the provisions of this subpart, you are also subject to title V permitting requirements under 40 CFR parts 70 or 71, as applicable.

(f) Emission standards in this subpart apply at all times.

■ 4. Section 63.1621 is added to read as follows:

§ 63.1621 What are my compliance dates?

(a) Existing affected sources must be in compliance with the provisions specified in §§ 63.1620 through 63.1629 no later than [DATE 2 YEARS AFTER EFFECTIVE DATE OF FINAL RULE].

(b) Affected sources in existence prior to [DATE OF FINAL RULE PUBLICATION IN THE FEDERAL REGISTER] must be in compliance with the provisions specified in §§ 63.1650 through 63.1661 by November 21, 2001 and until [DATE 2 YEARS AFTER EFFECTIVE DATE OF FINAL RULE]. As of [DATE 2 YEARS AFTER EFFECTIVE DATE OF FINAL RULE], the provisions of §§ 63.1650 through 63.1661 cease to apply to affected sources in existence prior to [DATE OF FINAL RULE PUBLICATION IN THE FEDERAL REGISTER]. The provisions of §§ 63.1650 through 63.1661 remain enforceable at a source for its activities prior to [DATE 2 YEARS AFTER EFFECTIVE DATE OF FINAL RULE].

(c) If you own or operate a new affected source that commences construction or reconstruction after [DATE OF FINAL RULE PUBLICATION IN THE FEDERAL REGISTER], you must comply with the requirements of this subpart by [DATE OF EFFECTIVE DATE OF FINAL RULE], or upon startup of operations, whichever is later.

■ 5. Section 63.1622 is added to read as follows:

§ 63.1622 What definitions apply to this subpart?

Terms in this subpart are defined in the Clean Air Act (Act), in subpart A of this part, or in this section as follows:

Bag leak detection system means a system that is capable of continuously monitoring 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, light transmittance, or other effect to continuously monitor relative particulate matter loadings.

Capture system means the collection of components used to capture the gases and fumes released from one or more emissions points and then convey the captured gas stream to a control device or to the atmosphere. 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, fans and roofline ventilation systems.

Casting means the period of time from when molten ferroalloy is removed from the tapping station until pouring into casting molds or beds is completed. This includes the following operations: pouring alloy from one ladle to another, slag separation, slag removal and ladle transfer by crane, truck, or other conveyance.

Crushing and screening equipment means the crushers, grinders, mills, screens and conveying systems used to crush, size and prepare for packing manganese-containing materials, including raw materials, intermediate products and final products.

Electric arc furnace means any furnace where electrical energy is converted to heat energy by transmission of current between electrodes partially submerged in the furnace charge.

Furnace process cycle means the period in which the furnace is tapped to the time in which the furnace is tapped again and includes periods of charging, smelting, tapping, casting and ladle raking. For multiple furnaces operating within a single shop building, furnace process cycle means a period sufficient to capture a full cycle of charging, smelting, tapping, casting and ladle raking for each furnace within the shop building.

Ladle treatment means a post-tapping process including metal and alloy additions where chemistry adjustments are made in the ladle after furnace smelting to achieve a specified product.

Local ventilation means hoods and ductwork designed to capture process fugitive emissions close to the area where the emissions are generated (*e.g.,* tap hoods).

Metal oxygen refining (MOR) process means the reduction of the carbon content of ferromanganese through the use of oxygen.

Outdoor fugitive dust source means a stationary source from which hazardous air pollutant-bearing particles are discharged to the atmosphere due to wind or mechanical inducement such as vehicle traffic. Fugitive dust sources include plant roadways, yard areas and outdoor material storage and transfer operations.

Plant roadway means any area at a ferromanganese and silicomanganese production facility that is subject to plant mobile equipment, such as forklifts, front end loaders, or trucks, carrying manganese-bearing materials. Excluded from this definition are employee and visitor parking areas, provided they are not subject to traffic by plant mobile equipment.

Process fugitive emissions source means a source of hazardous air pollutant emissions that is associated with a ferromanganese or silicomanganese production facility and is not a fugitive dust source. Process fugitive sources include emissions that escape capture from the electric arc furnace, tapping operations, casting operations, ladle treatment, MOR or crushing and screening equipment.

Roofline ventilation system means an exhaust system designed to evacuate process fugitive emissions that collect in the roofline area to a control device.

Shop building means the building which houses one or more electric arc furnaces or other processes that generate process fugitive emissions.

Shutdown means the cessation of operation of an affected source for any purpose.

Startup means the setting in operation of an affected source for any purpose.

Tapping emissions means the gases and emissions associated with removal of product from the electric arc furnace under normal operating conditions, such as removal of metal under normal pressure and movement by gravity down the spout into the ladle and filling the ladle.

Tapping period means the time from when a tap hole is opened until the time a tap hole is closed.

■ 6. Section 63.1623 is added to read as follows:

§ 63.1623 What are the emissions standards for new, reconstructed and existing facilities?

(a) *Electric arc furnaces.* You must install, operate and maintain an effective capture system that collects the emissions from each electric arc furnace operation (including charging, melting and tapping operations and emissions from any vent stacks) and conveys the collected emissions to a control device for the removal of the pollutants specified in the emissions standards specified in paragraphs (a)(1) through (a)(5) of this section.

(1) *Particulate matter emissions.* (i) You must not discharge exhaust gases from each electric arc furnace operation containing particulate matter in excess of 4.0 milligrams per dry standard cubic meter (mg/dscm) into the atmosphere from any new or reconstructed electric arc furnace.

(ii) You must not discharge exhaust gases from each electric arc furnace operation containing particulate matter in excess of 25 mg/dscm into the atmosphere from any existing electric arc furnace.

(2) *Mercury emissions.* (i) You must not discharge exhaust gases from each

electric arc furnace operation containing mercury emissions in excess of 17 µg/dscm into the atmosphere from any new or reconstructed electric arc furnace when producing ferromanganese.

(ii) You must not discharge exhaust gases from each electric arc furnace operation containing mercury emissions in excess of 170 µg/dscm into the atmosphere from any existing electric arc furnace when producing ferromanganese.

(iii) You must not discharge exhaust gases from each electric arc furnace operation containing mercury emissions in excess of 4.0 µg/dscm into the atmosphere from any new or reconstructed electric arc furnace when producing silicomanganese.

(iv) You must not discharge exhaust gases from each electric arc furnace operation containing mercury emissions in excess of 12 µg/dscm into the atmosphere from any existing electric arc furnace when producing silicomanganese.

(3) *Polycyclic aromatic hydrocarbon emissions.* (i) You must not discharge exhaust gases from each electric arc furnace operation containing polycyclic aromatic hydrocarbon emissions in excess of 1,400 µg/dscm into the atmosphere from any existing electric arc furnace when producing ferromanganese.

(ii) You must not discharge exhaust gases from each electric arc furnace operation containing polycyclic aromatic hydrocarbon emissions in excess of 880 µg/dscm into the atmosphere from any new or reconstructed electric arc furnace when producing ferromanganese.

(iii) You must not discharge exhaust gases from each electric arc furnace operation containing polycyclic aromatic hydrocarbon emissions in excess of 120 µg/dscm into the atmosphere from any existing electric arc furnace when producing silicomanganese.

(iv) You must not discharge exhaust gases from each electric arc furnace operation containing polycyclic aromatic hydrocarbon emissions in excess of 72 µg/dscm into the atmosphere from any new or reconstructed electric arc furnace when producing silicomanganese.

(4) *Hydrochloric acid emissions.* (i) You must not discharge exhaust gases from each electric arc furnace operation containing hydrochloric acid emissions in excess of 180 µg/dscm into the atmosphere from any new or reconstructed electric arc furnace.

(ii) You must not discharge exhaust gases from each electric arc furnace operation containing hydrochloric acid emissions in excess of 1,100 µg/dscm into the atmosphere from any existing electric arc furnace.

(5) *Formaldehyde emissions.* You must not discharge exhaust gases from each electric arc furnace operation containing formaldehyde emissions in excess of 201 µg/dscm into the atmosphere from any new, reconstructed or existing electric arc furnace.

(b) *Process fugitive emissions.* (1) You must install, operate and maintain a capture system that is designed to collect 95 percent or more of the emissions from the process fugitive emissions sources and convey the collected emissions to a control device that is demonstrated to meet the applicable emission limit specified in paragraph (a)(1) of this section.

(2) The determination of 95-percent overall capture must be demonstrated as required by § 63.1624(a).

(3) You must not cause the emissions exiting from a shop building, to exceed an average of 8 percent opacity.

(i) The opacity readings from the shop building must be taken every 15 seconds during the observed furnace process cycle and the 15 second readings averaged to determine if the 8 percent opacity requirement has been met.

(ii) If the average opacity reading from the shop building is greater than 8 percent opacity during an observed furnace process cycle, an additional two more furnace process cycles must be observed within 7 days and the average opacity during the entire observation periods must be less than 8 percent opacity.

(iii) At no time during operation may the average of any two consecutive 6-minute blocks be greater than 20 percent opacity.

(c) *Local ventilation emissions.* If you operate local ventilation to capture tapping, casting, or ladle treatment emissions and direct them to a control device other than one associated with the electric arc furnace, you must not discharge into the atmosphere any captured emissions containing particulate matter in excess of 4.0 mg/dscm.

(d) *MOR process.* You must not discharge into the atmosphere from any new, reconstructed or existing MOR process exhaust gases containing particulate matter in excess of 3.9 mg/dscm.

(e) *Crushing and screening equipment.* You must not discharge into the atmosphere from any new, reconstructed, or existing piece of equipment associated with crushing and screening exhaust gases containing particulate matter in excess of 13 mg/dscm.

(f) At all times, you must operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator that 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.

■ 7. Section 63.1624 is added to read as follows:

§ 63.1624 What are the operational and work practice standards for new, reconstructed and existing facilities?

(a) *Process fugitive emissions sources.* (1) You must prepare and at all times operate according to, a process fugitive emissions ventilation plan that documents the design and operations to achieve at least 95 percent overall capture of process fugitive emissions. The plan will be deemed to achieve this level of capture if it consists of the following elements:

(i) Documentation of engineered hoods and secondary fugitive capture systems designed according to the most recent, at the time of construction, ventilation design principles recommended by the American Conference of Governmental Industrial Hygienists (ACGIH). The process fugitive emissions capture systems must be designed to achieve sufficient air changes to evacuate the collection area frequently enough to ensure process fugitive emissions are effectively collected by the ventilation system and ducted to the control device(s). Include a schematic for each building indicating duct sizes and locations, hood sizes and locations, control device types, size and locations and exhaust locations. The design plan must address variables that affect capture efficiency such as operations that create cross-drafts and describe protocol or design characteristics to minimize such events. The design plan must identify the key operating parameters and measurement locations to ensure proper operation of the system and establish monitoring parameter values that reflect effective capture.

(ii) List of critical maintenance actions and the schedule to conduct them.

(2) You must submit a copy of the process fugitive emissions ventilation

plan to the designated permitting authority on or before the applicable compliance date for the affected source as specified in § 63.1621 in electronic format and whenever an update is made to the plan. The requirement for you to operate the facility according to the written process fugitives ventilation plan and specifications must be incorporated in the operating permit for the facility that is issued by the designated permitting authority under part 70 of this chapter.

(3) You must update the information required in paragraph (a)(1) and (a)(2) of this section every 5 years or whenever there is a significant change in variables that affect process fugitives ventilation design such as the addition of a new process.

(b) *Outdoor fugitive dust sources.* (1) You must prepare and at all times operate according to, an outdoor fugitive dust control plan that describes in detail the measures that will be put in place to control outdoor fugitive dust emissions from the individual fugitive dust sources at the facility.

(2) You must submit a copy of the outdoor fugitive dust control plan to the designated permitting authority on or before the applicable compliance date for the affected source as specified in § 63.1621. The requirement for you to operate the facility according to a written outdoor fugitive dust control plan must be incorporated in the operating permit for the facility that is issued by the designated permitting authority under part 70 of this chapter.

(3) You are permitted to use existing manuals that describe the measures in place to control outdoor fugitive dust sources required as part of a state implementation plan or other federally enforceable requirement for particulate matter to satisfy the requirements of paragraph (b)(1) of this section.

■ 8. Section 63.1625 is added to read as follows:

§ 63.1625 What are the performance test and compliance requirements for new, reconstructed and existing facilities?

(a) *Performance testing.* (1) All performance tests must be conducted according to the requirements in § 63.7 of subpart A.

(2) Each performance test in paragraphs (c)(1) and (c)(2) must consist of three separate and complete runs using the applicable test methods.

(3) Each run must be conducted under conditions that are representative of normal process operations.

(4) Performance tests conducted on air pollution control devices serving electric arc furnaces must be conducted such that at least one tapping period, or at least 20 minutes of a tapping period, whichever is less, is included in at least two of the three runs. The sampling time for each run must be at least as long as three times the average tapping period of the tested furnace, but no less than 60 minutes.

(5) You must conduct the performance tests specified in paragraph (c) of this section under such conditions as the Administrator specifies based on representative performance of the affected source for the period being tested. Upon request, you must make available to the Administrator such records as may be necessary to determine the conditions of performance tests.

(b) Test methods. The following test methods in appendices of part 60 or 63 of this chapter or as specified elsewhere must be used to determine compliance with the emission standards.

(1) Method 1 of Appendix A–1 of 40 CFR part 60 to select the sampling port location and the number of traverse points.

(2) Method 2 of Appendix A–1 of 40 CFR part 60 to determine the volumetric flow rate of the stack gas.

(3)(i) Method 3A or 3B of Appendix A–2 of 40 CFR part 60 (with integrated bag sampling) to determine the outlet stack and inlet oxygen and CO_2 content.

(ii) You must measure CO_2 concentrations at both the inlet and outlet of the positive pressure fabric filter in conjunction with the pollutant sampling in order to determine isokinetic sampling rates.

(iii) As an alternative to EPA Reference Method 3B, ASME PTC–19–10–1981–Part 10, ‘‘Flue and Exhaust Gas Analyses’’ may be used (incorporated by reference, see 40 CFR 63.14).

(4) Method 4 of Appendix A–3 of 40 CFR part 60 to determine the moisture content of the stack gas.

(5)(i) Method 5 of Appendix A–3 of 40 CFR part 60 to determine the particulate matter concentration of the stack gas for negative pressure baghouses and positive pressure baghouses with stacks.

(ii) Method 5D of Appendix A–3 of 40 CFR part 60 to determine particulate matter concentration and volumetric flow rate of the stack gas for positive pressure baghouses without stacks.

(iii) The sample volume for each run must be a minimum of 4.0 cubic meters (141.2 cubic feet). For Method 5 testing only, you may choose to collect less than 4.0 cubic meters per run provided that the filterable mass collected (*e.g.,* net filter mass plus mass of nozzle, probe and filter holder rinses) is equal to or greater than 10 mg. If the total mass collected for two of three of the runs is less than 10 mg, you must conduct at least one additional test run that produces at least 10 mg of filterable mass collected (*i.e.,* at a greater sample volume). Report the results of all test runs.

(6) Method 30B of Appendix A–8 of 40 CFR part 60 to measure mercury. Apply the minimum sample volume determination procedures as per the method.

(7)(i) Method 26A of Appendix A–8 of 40 CFR part 60 to determine outlet stack or inlet hydrochloric acid concentration.

(ii) Collect a minimum volume of 2 cubic meters.

(8)(i) Method 316 of Appendix A of 40 CFR part 63 to determine outlet stack or inlet formaldehyde.

(ii) Collect a minimum volume of 1.0 cubic meter.

(9) Method 9 of Appendix A–4 of 40 CFR part 60 to determine opacity. ASTM D7520–09, ‘‘Standard Test Method for Determining the Opacity of a Plume in the Outdoor Ambient Atmosphere’’ may be used (incorporated by reference, see 40 CFR 63.14) with the following conditions:

(i) During the digital camera opacity technique (DCOT) certification procedure outlined in Section 9.2 of ASTM D7520–09, 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).

(ii) 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 D7520–09.

(iii) You must follow the recordkeeping 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.

(iv) 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 20 percent opacity of any one reading and the average error must not exceed 7.5 percent opacity.

(v) Use of this approved alternative does not provide or imply a certification or validation of any vendor's hardware or software. The onus to maintain and verify the certification and/or training of the DCOT camera, software and operator in accordance with ASTM D7520–09 and these requirements is on the facility, DCOT operator and DCOT vendor.

(10) Methods to determine the mercury content of manganese ore including a total metals digestion technique, SW–846 Method 3052 and a mercury specific analysis method, SW–846 Method 7471b (Cold Vapor AA) or Water Method 1631E (Cold Vapor Atomic Fluorescence).

(11) California Air Resources Board (CARB) Method 429, Determination of Polycyclic Aromatic Hydrocarbon (PAH) Emissions from Stationary Sources to determine total PAH emissions. The method is available from California Resources Board, 1102 Q Street, Sacramento, California 95814, (*http://www.arb.ca.gov/testmeth/vol3/M_429.pdf*).

(12) The owner or operator may use alternative measurement methods approved by the Administrator following the procedures described in § 63.7(f) of subpart A.

(c) *Compliance demonstration with the emission standards.*

(1) *Initial Performance Test.* You must conduct an initial performance test for air pollution control devices or vent stacks subject to § 63.1623(a), (b)(1) and (c) through (e) to demonstrate compliance with the applicable emission standards.

(2) *Periodic Performance Test.* (i) You must conduct annual particulate matter tests for wet scrubber air pollution control devices subject to § 63.1623(a)(1) to demonstrate compliance with the applicable emission standards.

(ii) You must conduct particulate matter tests every five years for fabric filter air pollution control devices subject to § 63.1623(a)(1) to demonstrate compliance with the applicable emission standards.

(iii) You must conduct annual mercury performance tests for wet scrubber and fabric filter air pollution control devices or vent stacks subject to § 63.1623 (a)(2) to demonstrate compliance with the applicable emission standards.

(iv) You must conduct ongoing performance tests every five years for air pollution control devices or vent stacks subject to § 63.1623(a)(3) through (a)(5), (b)(1) and (c) through (e) to demonstrate compliance with the applicable emission standards.

(3) Compliance is demonstrated for all sources performing emissions tests if the average concentration for the three runs comprising the performance test does not exceed the standard.

(4) *Operating Limits.* You must establish parameter operating limits according to paragraphs (c)(4)(i) through (c)(4)(iv) of this section. Unless otherwise specified, compliance with each established operating limit shall be demonstrated for each 24-hour operating day.

(i) For a wet particulate matter scrubber, you must establish the minimum liquid flow rate and pressure drop as your operating limits during the three-run performance test. If you use a wet particulate matter scrubber and you conduct separate performance tests for particulate matter, you must establish one set of minimum liquid flow rate and pressure drop operating limits. If you conduct multiple performance tests, you must set the minimum liquid flow rate and pressure drop operating limits at the highest minimum hourly average values established during the performance tests.

(ii) For a wet acid gas scrubber, you must establish the minimum liquid flow rate and pH, as your operating limits during the three-run performance test. If you use a wet acid gas scrubber and you conduct separate performance tests for hydrochloric acid, you must establish one set of minimum liquid flow rate and pH operating limits. If you conduct multiple performance tests, you must set the minimum liquid flow rate and pH operating limits at the highest minimum hourly average values established during the performance tests.

(iii) For emission sources with fabric filters that choose to demonstrate continuous compliance through bag leak detection systems you must install a bag leak detection system according to the requirements in § 63.1626(d) and you must set your operating limit such that the sum duration of bag leak detection system alarms does not exceed 5 percent of the process operating time during a 6-month period.

(iv) If you choose to demonstrate continuous compliance through a particulate matter CEMS, you must determine an operating limit (particulate matter concentration in mg/dscm) during performance testing for initial particulate matter compliance. The operating limit will be the average of the PM filterable results of the three Method 5 or Method 5D of Appendix A–3 of 40 CFR part 60 performance test runs. To determine continuous compliance, the hourly average PM concentrations will be averaged on a rolling 30 operating day basis. Each 30 operating day average would have to meet the PM operating limit.

(d) *Compliance demonstration with shop building opacity standards.* (1)(i) If you are subject to § 63.1623(b), you must conduct opacity observations of the shop building to demonstrate compliance with the applicable opacity standards according to § 63.6(h)(5), which addresses the conduct of opacity or visible emission observations.

(ii) You must conduct the opacity observations according to EPA Method 9 of 40 CFR part 60, Appendix A–4, for a period that includes at least one complete furnace process cycle for each furnace.

(iii) You must conduct the opacity observations at least once per week for each operating furnace.

(2) You must determine shop building opacity operating parameters based on either monitoring data collected during the compliance demonstration or established in an engineering assessment.

(i) If you choose to establish parameters based on the initial compliance demonstration, you must simultaneously monitor parameter values for one of the following: the capture system fan motor amperes and all capture system damper positions, the total volumetric flow rate to the air pollution control device and all capture system damper positions, or volumetric flow rate through each separately ducted hood that comprises the capture system. Subsequently you must monitor these parameters according to § 63.1626(h) and ensure they remain within 10 percent of the value recorded during the compliant opacity readings.

(ii) If you choose to establish parameters based on an engineering assessment, then a design analysis shall include, for example, specifications, drawings, schematics and ventilation system diagrams prepared by the owner or operator or capture or control system manufacturer or vendor that describes the shop building opacity system ventilation design based on acceptable engineering texts. The design analysis shall address vent stream characteristics and ventilation system design operating parameters such as fan amps, damper position, flow rate and/or other specified parameters.

(iii) You may petition the Administrator to reestablish these parameter ranges whenever you can demonstrate to the Administrator's satisfaction that the electric arc furnace operating conditions upon which the parameter ranges were previously established are no longer applicable. The values of these parameter ranges determined during the most recent demonstration of compliance must be maintained at the appropriate level for each applicable period.

(3) You will demonstrate continuing compliance with the opacity standards by following the monitoring requirements specified in § 63.1626(g) and the reporting and recordkeeping

requirements specified in § 63.1628(b)(5).

(e) *Compliance demonstration with the operational and work practice standards*—(1) *Process fugitive emissions sources.* You will demonstrate compliance by developing and maintaining a process fugitives ventilation plan, by reporting any deviations from the plan and by taking necessary corrective actions to correct deviations or deficiencies.

(2) *Outdoor fugitive dust sources.* You will demonstrate compliance by developing and maintaining an outdoor fugitive dust control plan, by reporting any deviations from the plan and by taking necessary corrective actions to correct deviations or deficiencies.

(3) *Baghouses equipped with bag leak detection systems.* You will demonstrate compliance with the bag leak detection system requirements by developing analysis and supporting documentation demonstrating conformance with EPA guidance and specifications for bag leak detection systems in § 60.57c(h).

■ 9. Section 63.1626 is added to read as follows:

§ 63.1626 What monitoring requirements must I meet?

(a) *Baghouse Monitoring.* You must prepare and at all times operate according to, a standard operating procedures manual that describes in detail procedures for inspection, maintenance and bag leak detection and corrective action plans for all baghouses (fabric filters or cartridge filters) that are used to control process vents, process fugitive, or outdoor fugitive dust emissions from any source subject to the emissions standards in § 63.1623.

(b) You must submit the standard operating procedures manual for baghouses required by paragraph (a) of this section to the Administrator or delegated authority for review and approval.

(c) Unless the baghouse is equipped with a bag leak detection system, the procedures that you specify in the standard operating procedures manual for inspections and routine maintenance must, at a minimum, include the requirements of paragraphs (c)(1) and (c)(2) of this section.

(1) You must observe the baghouse outlet on a daily basis for the presence of any visible emissions.

(2) In addition to the daily visible emissions observation, you must conduct the following activities:

(i) Weekly confirmation that dust is being removed from hoppers through visual inspection, or equivalent means of ensuring the proper functioning of removal mechanisms.

(ii) Daily check of compressed air supply for pulse-jet baghouses.

(iii) An appropriate methodology for monitoring cleaning cycles to ensure proper operation.

(iv) Monthly check of bag cleaning mechanisms for proper functioning through visual inspection or equivalent means.

(v) Quarterly visual check of bag tension on reverse air and shaker-type baghouses to ensure that the bags are not kinked (kneed or bent) or lying on their sides. Such checks are not required for shaker-type baghouses using self-tensioning (spring loaded) devices.

(vi) Quarterly confirmation of the physical integrity of the baghouse structure through visual inspection of the baghouse interior for air leaks.

(vii) Semiannual inspection of fans for wear, material buildup and corrosion through visual inspection, vibration detectors, or equivalent means.

(d) *Bag leak detection system.* (1) For each baghouse used to control emissions from an electric arc furnace, you must install, operate and maintain a bag leak detection system according to paragraphs (d)(2) through (d)(4) of this section, unless a system meeting the requirements of paragraph (q) of this section, for a CEMS and continuous emissions rate monitoring system, is installed for monitoring the concentration of particulate matter. You may choose to install, operate and maintain a bag leak detection system for any other baghouse in operation at the facility according to paragraphs (d)(2) through (d)(4) of this section.

(2) The procedures you specified in the standard operating procedures manual for baghouse maintenance must include, at a minimum, a preventative maintenance schedule that is consistent with the baghouse manufacturer's instructions for routine and long-term maintenance.

(3) Each bag leak detection system must meet the specifications and requirements in paragraphs (d)(3)(i) through (d)(3)(viii) of this section.

(i) The bag leak detection system must be certified by the manufacturer to be capable of detecting PM emissions at concentrations of 1.0 milligram per dry standard cubic meter (0.00044 grains per actual cubic foot) or less.

(ii) The bag leak detection system sensor must provide output of relative PM loadings.

(iii) The bag leak detection system must be equipped with an alarm system that will alarm when an increase in relative particulate loadings is detected over a preset level.

(iv) You must install and operate the bag leak detection system in a manner consistent with the guidance provided in ''Office of Air Quality Planning and Standards (OAQPS) Fabric Filter Bag Leak Detection Guidance'' EPA–454/R–98–015, September 1997 (incorporated by reference) and the manufacturer's written specifications and recommendations for installation, operation and adjustment of the system.

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

(vi) Following initial adjustment, you must not adjust the sensitivity or range, averaging period, alarm set points, or alarm delay time, except as detailed in the approved standard operating procedures manual required under paragraph (a) of this section. You cannot increase the sensitivity by more than 100 percent or decrease the sensitivity by more than 50 percent over a 365-day period unless such adjustment follows a complete baghouse inspection that demonstrates that the baghouse is in good operating condition.

(vii) You must install the bag leak detector downstream of the baghouse.

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

(4) You must include in the standard operating procedures manual required by paragraph (a) of this section a corrective action plan that specifies the procedures to be followed in the case of a bag leak detection system alarm. The corrective action plan must include, at a minimum, the procedures that you will use to determine and record the time and cause of the alarm as well as the corrective actions taken to minimize emissions as specified in paragraphs (d)(4)(i) and (d)(4)(ii) of this section.

(i) The procedures used to determine the cause of the alarm must be initiated within 30 minutes of the alarm.

(ii) The cause of the alarm must be alleviated by taking the necessary corrective action(s) that may include, but not be limited to, those listed in paragraphs (d)(4)(i)(A) through (d)(4)(i)(F) of this section.

(A) Inspecting the baghouse for air leaks, torn or broken filter elements, or any other malfunction that may cause an increase in emissions.

(B) Sealing off defective bags or filter media.

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

(D) Sealing off a defective baghouse compartment.

(E) Cleaning the bag leak detection system probe, or otherwise repairing the bag leak detection system.

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

(e) If you use a wet particulate matter scrubber, you must collect the pressure drop and liquid flow rate monitoring system data according to § 63.1628, reduce the data to 24-hour block averages and maintain the 24-hour average pressure drop and liquid flow-rate at or above the operating limits established during the performance test according to § 63.1625(c)(4)(i).

(f) If you use curtains or partitions to prevent process fugitive emissions from escaping the area around the process fugitive emission source or other parts of the building, you must perform quarterly inspections of the physical condition of these curtains or partitions to determine if there are any tears or openings.

(g) *Shop building opacity.* In order to demonstrate continuous compliance with the opacity standards in § 63.1623, you must comply with the requirements § 63.1625(d)(1) and one of the monitoring options in paragraphs (g)(1) or (g)(2) of this section. The selected option must be consistent with that selected during the initial performance test described in § 63.1625(d)(2). Alternatively, you may use the provisions of § 63.8(f) to request approval to use an alternative monitoring method.

(1) If you choose to establish operating parameters during the compliance test as specified in § 63.1625(d)(2)(i), you must meet one of the following requirements.

(i) Check and record the control system fan motor amperes and capture system damper positions once per shift.

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

(iii) Install, calibrate and maintain a monitoring device that continuously records the volumetric flow rate at the inlet of the air pollution control device and check and record the capture system damper positions once per shift.

(2) If you choose to establish operating parameters during the compliance test as specified in § 63.1625(d)(2)(ii), you must monitor the selected parameter(s) on a frequency specified in the assessment and according to a method specified in the engineering assessment

(3) All flow rate monitoring devices must meet the following requirements:

(i) Be installed in an appropriate location in the exhaust duct such that reproducible flow rate monitoring will result.

(ii) Have an accuracy ±10 percent over its normal operating range and be calibrated according to the manufacturer's instructions.

(4) The Administrator may require you to demonstrate the accuracy of the monitoring device(s) relative to Methods 1 and 2 of Appendix A–1 of part 60 of this chapter.

(5) Failure to maintain the appropriate capture system parameters (e.g., fan motor amperes, flow rate and/or damper positions) establishes the need to initiate corrective action as soon as practicable after the monitoring excursion in order to minimize excess emissions.

(h) *Furnace Capture System.* You must perform quarterly (once every three months) inspections of the furnace fugitive capture system equipment to ensure that the hood locations have not been changed or obstructed because of contact with cranes or ladles, quarterly inspections of the physical condition of hoods and ductwork to the control device to determine if there are any openings or leaks in the ductwork, quarterly inspections of the hoods and ductwork to determine if there are any flow constrictions in ductwork due to dents or accumulated dust and quarterly examinations of the operational status of flow rate controllers (pressure sensors, dampers, damper switches, etc.) to ensure they are operating correctly. Any deficiencies must be recorded and proper maintenance and repairs performed.

(i) *Requirements for sources using CMS.* If you demonstrate compliance with any applicable emissions limit through use of a continuous monitoring system (CMS), where a CMS includes a continuous parameter monitoring system (CPMS) as well as a continuous emissions monitoring system (CEMS), you must develop a site-specific monitoring plan and submit this site-specific monitoring plan, if requested, at least 60 days before your initial performance evaluation (where applicable) of your CMS. Your site-specific monitoring plan must address the monitoring system design, data collection and the quality assurance and quality control elements outlined in this section and in § 63.8(d). You must install, operate and maintain each CMS according to the procedures in your approved site-specific monitoring plan. Using the process described in § 63.8(f)(4), you may request approval of monitoring system quality assurance and quality control procedures alternative to those specified in paragraphs (j)(1) through (j)(6) of this section in your site-specific monitoring plan.

(1) The performance criteria and design specifications for the monitoring system equipment, including the sample interface, detector signal analyzer and data acquisition and calculations;

(2) Sampling interface location such that the monitoring system will provide representative measurements;

(3) Equipment performance checks, system accuracy audits, or other audit procedures;

(4) Ongoing operation and maintenance procedures in accordance with the general requirements of § 63.8(c)(1) and (c)(3);

(5) Conditions that define a continuous monitoring system that is out of control consistent with § 63.8(c)(7)(i) and for responding to out of control periods consistent with § 63.8(c)(7)(ii) and (c)(8) or Appendix A to this subpart, as applicable; and

(6) Ongoing recordkeeping and reporting procedures in accordance with provisions in § 63.10(c), (e)(1) and (e)(2)(i) and Appendix A to this subpart, as applicable.

(j) If you have an operating limit that requires the use of a CPMS, you must install, operate and maintain each continuous parameter monitoring system according to the procedures in paragraphs (j)(1) through (j)(7) of this section.

(1) The continuous parameter monitoring system must complete a minimum of one cycle of operation for each successive 15-minute period. You must have a minimum of four successive cycles of operation to have a valid hour of data.

(2) Except for periods of monitoring system malfunctions, repairs associated with monitoring system malfunctions and required monitoring system quality assurance or quality control activities (including, as applicable, system accuracy audits and required zero and span adjustments), you must operate the CMS at all times the affected source is operating. A monitoring system malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring system to provide valid data. Monitoring system failures that are caused in part by poor maintenance or careless operation are not malfunctions. You are required to complete monitoring system repairs in response to monitoring system malfunctions and to return the monitoring system to operation as expeditiously as practicable.

(3) You may not use data recorded during monitoring system malfunctions, repairs associated with monitoring system malfunctions, or required

monitoring system quality assurance or control activities in calculations used to report emissions or operating levels. You must use all the data collected during all other required data collection periods in assessing the operation of the control device and associated control system.

(4) Except for periods of monitoring system malfunctions, repairs associated with monitoring system malfunctions and required quality monitoring system quality assurance or quality control activities (including, as applicable, system accuracy audits and required zero and span adjustments), failure to collect required data is a deviation of the monitoring requirements.

(5) You must conduct other CPMS equipment performance checks, system accuracy audits, or other audit procedures specified in your site-specific monitoring plan at least once every 12 months.

(6) You must conduct a performance evaluation of each CPMS in accordance with your site-specific monitoring plan.

(7) You must record the results of each inspection, calibration and validation check.

(k) *CPMS for measuring gaseous flow.* (1) Use a flow sensor with a measurement sensitivity of 5 percent of the flow rate or 10 cubic feet per minute, whichever is greater,

(2) Check all mechanical connections for leakage at least every month and

(3) Perform a visual inspection at least every 3 months of all components of the flow CPMS for physical and operational integrity and all electrical connections for oxidation and galvanic corrosion if your flow CPMS is not equipped with a redundant flow sensor.

(l) *CPMS for measuring liquid flow.* (1) Use a flow sensor with a measurement sensitivity of 2 percent of the flow rate and

(2) Reduce swirling flow or abnormal velocity distributions due to upstream and downstream disturbances.

(m) *CPMS for measuring pressure.* (1) Minimize or eliminate pulsating pressure, vibration and internal and external corrosion and

(2) Use a gauge with a minimum tolerance of 1.27 centimeters of water or a transducer with a minimum tolerance of 1 percent of the pressure range.

(3) Perform checks at least once each process operating day to ensure pressure measurements are not obstructed (*e.g.,* check for pressure tap pluggage daily).

(n) *CPMS for measuring pH.* (1) Ensure the sample is properly mixed and representative of the fluid to be measured.

(2) Check the pH meter's calibration on at least two points every eight hours of process operation.

(o) *Particulate Matter CEMS.* If you are using a CEMS to measure particulate matter emissions to meet requirements of this subpart, you must install, certify, operate and maintain the particulate matter CEMS as specified in paragraphs (q)(1) through (q)(4) of this section.

(1) You must conduct a performance evaluation of the PM CEMS according to the applicable requirements of § 60.13 and Performance Specification 11 at 40 CFR part 60, Appendix B of this chapter.

(2) During each PM correlation testing run of the CEMS required by Performance Specification 11 at 40 CFR part 60, Appendix B of this chapter, PM and oxygen (or carbon dioxide) collect data concurrently (or within a 30-to 60-minute period) by both the CEMS and by conducting performance tests using Method 5 or 5D at 40 CFR part 60, Appendix A–3 or Method 17 at 40 CFR part 60, Appendix A–6 of this chapter.

(3) Perform quarterly accuracy determinations and daily calibration drift tests in accordance with Procedure 2 at 40 CFR part 60, Appendix F of this chapter. Relative Response Audits must be performed annually and Response Correlation Audits must be performed every three years.

(4) Within 60 days after the date of completing each CEMS relative accuracy test audit or performance test conducted to demonstrate compliance with this subpart, you must submit the relative accuracy test audit data and the results of the performance test in the as specified in § 63.1628(e).

■ 10. Section 63.1627 is added to read as follows:

§ 63.1627 What notification requirements must I meet?

(a) You must comply with all of the notification requirements of § 63.9 of subpart A, General Provisions. Electronic notifications are encouraged when possible.

(b)(1) You must submit the process fugitives ventilation plan required under § 63.1624(a), the outdoor fugitive dust control plan required under § 63.1624(b), the site-specific monitoring plan for CMS required under § 63.1626(i) and the standard operating procedures manual for baghouses required under § 63.1626(a) to the Administrator or delegated authority along with a notification that you are seeking review and approval of these plans and procedures. You must submit this notification no later than [DATE 1 YEAR AFTER EFFECTIVE DATE OF FINAL RULE]. For sources that commenced construction or reconstruction after [DATE OF EFFECTIVE DATE OF FINAL RULE], you must submit this notification no later than 180 days before startup of the constructed or reconstructed ferromanganese or silicomanganese production facility. For an affected source that has received a construction permit from the Administrator or delegated authority on or before [DATE OF EFFECTIVE DATE OF FINAL RULE], you must submit this notification no later than [DATE 1 YEAR AFTER EFFECTIVE DATE OF FINAL RULE].

(2) The plans and procedures documents submitted as required under paragraph (b)(1) of this section must be submitted to the Administrator in electronic format for review and approval of the initial submittal and whenever an update is made to the procedure.

■ 11. Section 63.1628 is added to read as follows:

§ 63.1628 What recordkeeping and reporting requirements must I meet?

(a) You must comply with all of the recordkeeping and reporting requirements specified in § 63.10 of the General Provisions that are referenced in Table 1 to this subpart.

(1) Records must be maintained in a form suitable and readily available for expeditious review, according to § 63.10(b)(1). However, electronic recordkeeping and reporting is encouraged and required for some records and reports.

(2) Records must be kept on site for at least two years after the date of occurrence, measurement, maintenance, corrective action, report, or record, according to § 63.10(b)(1).

(b) You must maintain, for a period of five years, records of the information listed in paragraphs (b)(1) through (b)(13) of this section.

(1) Electronic records of the bag leak detection system output.

(2) An identification of the date and time of all bag leak detection system alarms, the time that procedures to determine the cause of the alarm were initiated, the cause of the alarm, an explanation of the corrective actions taken and the date and time the cause of the alarm was corrected.

(3) All records of inspections and maintenance activities required under § 63.1626(a) as part of the practices described in the standard operating procedures manual for baghouses required under § 63.1626(c).

(4) Electronic records of the pressure drop and water flow rate values for wet scrubbers used to control particulate

matter emissions as required in § 63.1626(e), identification of periods when the 1-hour average pressure drop and water flow rate values below the established minimum established and an explanation of the corrective actions taken.

(5) Electronic records of the shop building capture system monitoring required under § 63.1626(g)(1) and (g)(2), as applicable, or identification of periods when the capture system parameters were not maintained and an explanation of the corrective actions taken.

(6) Records of the results of quarterly inspections of the furnace capture system required under § 63.1626(h).

(7) Electronic records of the continuous flow monitors or pressure monitors required under § 63.1626(j) and (k) and an identification of periods when the flow rate or pressure was not maintained as required in § 63.1626(e).

(8) Electronic records of the output of any CEMS installed to monitor particulate matter emissions meeting the requirements of § 63.1626(i)

(9) Records of the occurrence and duration of each startup and/or shutdown.

(10) Records of the occurrence and duration of each malfunction of operation (*i.e.,* process equipment) or the air pollution control equipment and monitoring equipment.

(11) Records that explain the periods when the procedures outlined in the process fugitives ventilation plan required under § 63.1624(a), the fugitives dust control plan required under § 63.1624(b), the site-specific monitoring plan for CMS required under § 63.1626(i) and the standard operating procedures manual for baghouses required under § 63.1626(a).

(c) You must comply with all of the reporting requirements specified in § 63.10 of the General Provisions that are referenced in Table 1 to this subpart.

(1) You must submit reports no less frequently than specified under § 63.10(e)(3) of the General Provisions.

(2) Once a source reports a violation of the standard or excess emissions, you must follow the reporting format required under § 63.10(e)(3) until a request to reduce reporting frequency is approved by the Administrator.

(d) In addition to the information required under the applicable sections of § 63.10, you must include in the reports required under paragraph (c) of this section the information specified in paragraphs (d)(1) through (d)(7) of this section.

(1) Reports that explain the periods when the procedures outlined in the process fugitives ventilation plan required under § 63.1624(a), the fugitives dust control plan required under § 63.1624(b), the site-specific monitoring plan for CMS required under § 63.1626(i) and the standard operating procedures manual for baghouses required under § 63.1626(a).

(2) Reports that identify the periods when the average hourly pressure drop or flow rate of venturi scrubbers used to control particulate emissions dropped below the levels established in § 63.1626(e) and an explanation of the corrective actions taken.

(3) *Bag leak detection system.* Reports including the following information:

(i) Records of all alarms.

(ii) Description of the actions taken following each bag leak detection system alarm.

(4) Reports of the shop building capture system monitoring required under § 63.1626(g)(1) and (g)(2), as applicable, identification of periods when the capture system parameters were not maintained and an explanation of the corrective actions taken.

(5) Reports of the results of quarterly inspections of the furnace capture system required under § 63.1626(h).

(6) Reports of the CPMS required under § 63.1626, an identification of periods when the monitored parameters were not maintained as required in § 63.1626 and corrective actions taken.

(7) If a malfunction occurred during the reporting period, the report must include the number, duration and a brief description for each type of malfunction that occurred during the reporting period and caused or may have caused any applicable emissions limitation to be exceeded. The report must also include a description of actions taken by an owner or operator during a malfunction of an affected source to minimize emissions in accordance with § 63.1623(f), including actions taken to correct a malfunction.

(e) Within 60 days after the date of completing each CEMS relative accuracy test audit or performance test conducted to demonstrate compliance with this subpart, you must submit the relative accuracy test audit data and the results of the performance test in the method specified by paragraphs (e)(1) through (e)(2) of this section. The results of the performance test must contain the information listed in paragraph (e)(2) of this section.

(1)(i) Within 60 days after the date of completing each performance test (as defined in § 63.2), you must submit the results of the performance tests, including any associated fuel analyses, required by this subpart according to the methods specified in paragraphs (e)(1)(i)(A) or (e)(1)(i)(B) of this section.

(A) For data collected using test methods supported by the EPA's Electronic Reporting Tool (ERT) as listed on the EPA's ERT Web site (*http://www.epa.gov/ttn/chief/ert/index.html*), you must submit the results of the performance test to the Compliance and Emissions Data Reporting Interface (CEDRI) that is accessed through the EPA's Central Data Exchange (CDX) (*http://cdx.epa.gov/epa_home.asp*), unless the Administrator approves another approach. Performance test data must be submitted in a file format generated through the use of the EPA's ERT. Owners or operators, who claim that some of the information being submitted for performance tests is confidential business information (CBI), must submit a complete file generated through the use of the EPA's ERT, including information claimed to be CBI, on a compact disk, flash drive, or other commonly used electronic storage media to the EPA. The electronic media must be clearly marked as CBI and mailed to U.S. EPA/OAQPS/CORE CBI Office, Attention: WebFIRE Administrator, MD C404–02, 4930 Old Page Rd., Durham, NC 27703. The same ERT file with the CBI omitted must be submitted to the EPA via CDX as described earlier in this paragraph.

(B) For any performance test conducted using test methods that are not supported by the EPA's ERT as listed on the EPA's ERT Web site, the owner or operator shall submit the results of the performance test to the Administrator at the appropriate address listed in § 63.13.

(ii) Within 60 days after the date of completing each CEMS performance evaluation (as defined in § 63.2), you must submit the results of the performance evaluation according to the method specified by either paragraph (b)(1) or (b)(2) of this section.

(A) For data collection of relative accuracy test audit (RATA) pollutants that are supported by the EPA's ERT as listed on the EPA's ERT Web site, you must submit the results of the performance evaluation to the CEDRI that is accessed through the EPA's CDX, unless the Administrator approves another approach. Performance evaluation data must be submitted in a file format generated through the use of the EPA's ERT. If you claim that some of the performance evaluation information being transmitted is CBI, you must submit a complete file generated through the use of the EPA's ERT, including information claimed to be CBI, on a compact disk or other commonly used electronic storage media (including, but not limited to, flash drives) by registered letter to the EPA. The compact disk shall be clearly marked as CBI and mailed to U.S. EPA/OAQPS/CORE CBI Office, Attention: WebFIRE Administrator, MD C404–02, 4930 Old Page Rd., Durham, NC 27703. The same ERT file with the CBI omitted must be submitted to the EPA via CDX as described earlier in this paragraph.

(B) For any performance evaluations with RATA pollutants that are not supported by the EPA's ERT as listed on the EPA's ERT Web site, you shall submit the results of the performance evaluation to the Administrator at the appropriate address listed in § 63.13.

(2) The results of a performance test shall include the purpose of the test; a brief process description; a complete unit description, including a description of feed streams and control devices; sampling site description; pollutants measured; description of sampling and analysis procedures and any modifications to standard procedures; quality assurance procedures; record of operating conditions, including operating parameters for which limits are being set, during the test; record of preparation of standards; record of calibrations; raw data sheets for field sampling; raw data sheets for field and laboratory analyses; chain-of-custody documentation; explanation of laboratory data qualifiers; example calculations of all applicable stack gas parameters, emission rates, percent reduction rates and analytical results, as applicable; and any other information required by the test method, a relevant standard, or the Administrator.

■ 12. Section 63.1629 is added to read as follows:

§ 63.1629 Who implements and enforces this subpart?

(a) This subpart can be implemented and enforced by the U.S. EPA, or a delegated authority such as the applicable state, local, or tribal agency. If the U.S. EPA Administrator has delegated authority to a state, local, or tribal agency, then that agency, in addition to the U.S. EPA, has the authority to implement and enforce this subpart. Contact the applicable U.S. EPA Regional Office to find out if this subpart is delegated to a 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 contained in paragraph (c) of this section are retained by the Administrator of U.S. EPA and cannot be transferred to the state, local, or tribal agency.

(c) The authorities that cannot be delegated to state, local, or tribal agencies are as specified in paragraphs (c)(1) through (c)(4) of this section.

(1) Approval of alternatives to requirements in §§ 63.1620 and 63.1621 and 63.1623 and 63.1624.

(2) Approval of major alternatives to test methods under § 63.7(e)(2)(ii) and (f), as defined in § 63.90 and as required in this subpart.

(3) Approval of major alternatives to monitoring under § 63.8(f), as defined in § 63.90 and as required in this subpart.

(4) Approval of major alternatives to recordkeeping and reporting under § 63.10(f), as defined in § 63.90 and as required in this subpart.

■ 13. Section 63.1650 is amended by:

■ a. Revising paragraph (d);

■ b. Removing and reserving paragraph (e)(1); and

■ c. Revising paragraph (e)(2) to read as follows:

§ 63.1650 Applicability and Compliance Dates.

* * * * *

(d) Table 1 to this subpart specifies the provisions of subpart A of this part that apply to owners and operators of ferroalloy production facilities subject to this subpart.

(e) * * *

(1) [Reserved]

(2) Each owner or operator of a new or reconstructed affected source that commences construction or reconstruction after August 4, 1998 and before October 6, 2014, must comply with the requirements of this subpart by May 20, 1999 or upon startup of operations, whichever is later.

14. Section 63.1652 is amended by adding paragraph (f) to read as follows:

§ 63.1652 Emission standards.

* * * * *

(f) At all times, you must operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator that 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.

■ 15. Section 63.1656 is amended by:

■ a. Adding paragraph (a)(6);

■ b. Revising paragraph (b)(7);

■ c. Revising paragraph (e)(1); and

■ d. Removing and reserving paragraph (e)(2)(ii) to read as follows:

§ 63.1656 Performance testing, test methods and compliance demonstrations.

(a) * * *

(6) You must conduct the performance tests specified in paragraph (c) of this section under such conditions as the Administrator specifies based on representative performance of the affected source for the period being tested. Upon request, you must make available to the Administrator such records as may be necessary to determine the conditions of performance tests.

(b) * * *

(7) Method 9 of Appendix A–4 of 40 CFR part 60 to determine opacity. ASTM D7520–09, ''Standard Test Method for Determining the Opacity of a Plume in the Outdoor Ambient Atmosphere'' may be used (incorporated by reference, see 40 CFR 63.14) with the following conditions:

(i) During the digital camera opacity technique (DCOT) certification procedure outlined in Section 9.2 of ASTM D7520–09, the owner or operator or the DCOT vendor must present the plumes in front of various backgrounds of color and contrast representing conditions anticipated during field use such as blue sky, trees and mixed backgrounds (clouds and/or a sparse tree stand).

(ii) The owner or operator must also have standard operating procedures in place including daily or other frequency quality checks to ensure the equipment is within manufacturing specifications as outlined in Section 8.1 of ASTM D7520–09.

(iii) The owner or operator must follow the recordkeeping 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.

(iv) The owner or operator 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 any one reading and the average error must not exceed 7.5 percent opacity.

(v) Use of this approved alternative does not provide or imply a certification or validation of any vendor's hardware or software. The onus to maintain and verify the certification and/or training of the DCOT camera, software and operator in accordance with ASTM D7520–09 and these requirements is on the facility, DCOT operator and DCOT vendor.

* * * * *

(e) * * *

(1) *Fugitive dust sources.* Failure to have a fugitive dust control plan or failure to report deviations from the plan and take necessary corrective action would be a violation of the general duty to ensure that fugitive dust sources are operated and maintained in a manner consistent with good air pollution control practices for minimizing emissions per § 63.1652(f).

(2) * * *

(ii) [Reserved]

* * * * *

■ 16. Section 63.1657 is amended by:

■ a. Revising paragraph (a)(6);

■ b. Revising paragraph (b)(3); and

■ c. Revising paragraph (c)(7) to read as follows:

§ 63.1657 Monitoring requirements.

(a) * * *

(6) Failure to monitor or failure to take corrective action under the requirements of paragraph (a) of this section would be a violation of the general duty to operate in a manner consistent with good air pollution control practices that minimizes emissions per § 63.1652(f).

(b) * * *

(3) Failure to monitor or failure to take corrective action under the requirements of paragraph (b) of this section would be a violation of the general duty to operate in a manner consistent with good air pollution control practices that minimizes emissions per § 63.1652(f).

(c) * * *

(7) Failure to monitor or failure to take corrective action under the requirements of paragraph (c) of this section would be a violation of the general duty to operate in a manner consistent with good air pollution control practices that minimizes emissions per § 63.1652(f).

■ 17. Section 63.1659 is amended by revising paragraph (a)(4) to read as follows:

§ 63.1659 Reporting Requirements.

(a) * * *

(4) *Reporting malfunctions.* If a malfunction occurred during the reporting period, the report must include the number, duration and a brief description for each type of malfunction which occurred during the reporting period and which caused or may have caused any applicable emission limitation to be exceeded. The report must also include a description of actions taken by an owner or operator during a malfunction of an affected source to minimize emissions in accordance with § 63.1652(f), including actions taken to correct a malfunction.

* * * * *

■ 18. Section 63.1660 is amended by:

■ a. Revising paragraphs (a)(2)(i) and (a)(2)(ii); and

■ b. Removing and reserving paragraphs (a)(2)(iv) and (a)(2)(v) to read as follows:

§ 63.1660 Recordkeeping Requirements.

(a) * * *

(2) * * *

(i) Records of the occurrence and duration of each malfunction of operation (*i.e.,* process equipment) or the air pollution control equipment and monitoring equipment;

(ii) Records of actions taken during periods of malfunction to minimize emissions in accordance with § 63.1652(f), including corrective actions to restore malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation;

* * * * *

(iv) [Reserved]

(v) [Reserved]

* * * * *

■ 19. Add Table 1 to the end of subpart XXX to read as follows:

TABLE 1 TO SUBPART XXX OF PART 63—GENERAL PROVISIONS APPLICABILITY TO SUBPART XXX

Reference	Applies to subpart XXX	Comment
63.1	Yes	
63.2	Yes	
63.3	Yes	
63.4	Yes	
63.5	Yes	
63.6(a), (b), (c)	Yes	
63.6(d)	No	Section reserved.
63.6(e)(1)(i)	No	See 63.1623(g) and 63.1652(f) for general duty requirement.
63.6(e)(1)(ii)	No	
63.6(e)(1)(iii)	Yes	
63.6(e)(2)	No	Section reserved.
63.6(e)(3)	No	
63.6(f)(1)	No	
6.6(f)(2)–(f)(3)	Yes	
63.6(g)	Yes	
63.6(h)(1)	No	
63.6(h)(2)–(h)(9)	Yes	
63.6(i)	Yes	
63.6(j)	Yes	
§ 63.7(a)–(d)	Yes	
§ 63.7(e)(1)	No	See 63.1625(a)(5) and 63.1656(a)(6)
§ 63.7(e)(2)–(e)(4)	Yes	
63.7(f), (g), (h)	Yes	
63.8(a)–(b)	Yes	
63.8(c)(1)(i)	No	See 63.1623(g) and 63.1652(f) for general duty requirement.
63.8(c)(1)(ii)	Yes	
63.8(c)(1)(iii)	No	
63.8(c)(2)–(d)(2)	Yes	
63.8(d)(3)	Yes, except for last sentence.	SSM plans are not required.
63.8(e)–(g)	Yes	
63.9(a),(b),(c),(e),(g),(h)(1)through (3), (h)(5) and (6), (i) and (j).	Yes	
63.9(f)	Yes	

TABLE 1 TO SUBPART XXX OF PART 63—GENERAL PROVISIONS APPLICABILITY TO SUBPART XXX—Continued

Reference	Applies to subpart XXX	Comment
63.9(h)(4)	No	Reserved
63.10 (a)	Yes	
63.10 (b)(1)	Yes	
63.10(b)(2)(i)	No	
63.10(b)(2)(ii)	No	See 63.1628 and 63.1660 for recordkeeping of (1) occurrence and duration and (2) actions taken during malfunction.
63.10(b)(2)(iii)	Yes	
63.10(b)(2)(iv)–(b)(2)(v)	No	
63.10(b)(2)(vi)–(b)(2)(xiv)	Yes	
63.10)(b)(3)	Yes	
63.10(c)(1)–(9)	Yes	
63.10(c)(10)–(11)	No	See 63.1628 and 63.1660 for malfunction recordkeeping requirements.
63.10(c)(12)–(c)(14)	Yes	
63.10(c)(15)	No	
63.10(d)(1)–(4)	Yes	
63.10(d)(5)	No	See 63.1628(d)(8) and 63.1659(a)(4) for malfunction reporting requirements.
63.10(e)–((f)	Yes	
63.11	No	Flares will not be used to comply with the emission limits
63.12 to 63.15	Yes	

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