

ENVIRONMENTAL PROTECTION AGENCY**40 CFR Part 63**

[EPA-HQ-OAR-2011-0344; FRL-9303-4]

RIN 2060-AQ68

National Emissions Standards for Hazardous Air Pollutants: Secondary Lead Smelting**AGENCY:** Environmental Protection Agency (EPA).**ACTION:** Proposed rule.

SUMMARY: EPA is proposing amendments to the national emissions standards for hazardous air pollutants for Secondary Lead Smelting to address the results of the residual risk and technology review that EPA is required to conduct by the Clean Air Act. These proposed amendments include revisions to the stack emissions limits for lead; revisions to the fugitive dust emissions control requirements; the addition of total hydrocarbons emissions limits for reverberatory, electric, and rotary furnaces; the addition of emissions limits and work practice requirements for dioxins and furans; and the modification and addition of testing and monitoring and related notification, recordkeeping, and reporting requirements. We are also proposing to revise provisions addressing periods of startup, shutdown, and malfunction to ensure that the rules are consistent with a recent court decision.

DATES: Comments must be received on or before July 5, 2011. Under the Paperwork Reduction Act, comments on the information collection provisions are best assured of having full effect if the Office of Management and Budget (OMB) receives a copy of your comments on or before June 20, 2011.

Public Hearing. If anyone contacts EPA requesting to speak at a public hearing by May 31, 2011, a public hearing will be held on June 3, 2011.

ADDRESSES: Submit your comments, identified by Docket ID Number EPA-HQ-OAR-2011-0344, by one of the following methods:

- <http://www.regulations.gov>: Follow the on-line instructions for submitting comments.
- *E-mail:* a-and-r-docket@epa.gov, Attention Docket ID Number EPA-HQ-OAR-2011-0344.
- *Fax:* (202) 566-9744, Attention Docket ID Number EPA-HQ-OAR-2011-0344.
- *Mail:* U.S. Postal Service, send comments to: EPA Docket Center, EPA West (Air Docket), Attention Docket ID

Number EPA-HQ-OAR-2011-0344, U.S. Environmental Protection Agency, Mailcode: 2822T, 1200 Pennsylvania Ave., 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 Delivery:* U.S. Environmental Protection Agency, EPA West (Air Docket), Room 3334, 1301 Constitution Ave., NW., Washington, DC 20004, Attention Docket ID Number EPA-HQ-OAR-2011-0344. 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 Number EPA-HQ-OAR-2011-0344. EPA's policy is that all comments received will be included in the public docket without change and may be made available on-line 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 <http://www.regulations.gov> or e-mail. The <http://www.regulations.gov> Web site is an "anonymous access" system, which means EPA will not know your identity or contact information unless you provide it in the body of your comment. If you send an e-mail comment directly to EPA without going through <http://www.regulations.gov>, your e-mail 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, 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 EPA cannot read your comment due to technical difficulties and cannot contact you for clarification, EPA may not be able to consider your comment. Electronic files should avoid the use of special characters, any form of encryption, and be free of any defects or viruses. For additional information about EPA's public docket, visit the EPA Docket Center homepage at <http://www.epa.gov/epahome/dockets.htm>.

Docket. EPA has established a docket for this rulemaking under Docket ID

Number EPA-HQ-OAR-2011-0344. All documents in the docket are listed in the <http://www.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 <http://www.regulations.gov> or in hard copy at the EPA Docket Center, EPA West, 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 a public hearing is held, it will begin at 10 a.m. on June 3, 2011 and will be held at EPA's campus in Research Triangle Park, North Carolina, or at an alternate facility nearby. Persons interested in presenting oral testimony or inquiring as to whether a public hearing is to be held should contact Ms. Virginia Hunt, Office of Air Quality Planning and Standards, Sector Policies and Programs Division, (D243-02), U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711; *telephone number:* (919) 541-0832.

FOR FURTHER INFORMATION CONTACT: For questions about this proposed action, contact Mr. Chuck French, Sector Policies and Programs Division (D243-02), Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711, telephone (919) 541-7912; *fax number:* (919) 541-5450; and *e-mail address:* french.chuck@epa.gov. For specific information regarding the risk modeling methodology, contact Ms. Elaine Manning, Health and Environmental Impacts Division (C539-02), Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711; telephone number: (919) 541-5499; *fax number:* (919) 541-0840; and *e-mail address:* manning.elaine@epa.gov.

For information about the applicability of the NESHAP to a particular entity, contact the appropriate person listed in Table 1 of this preamble.

TABLE 1—LIST OF EPA CONTACTS FOR THE NESHAP ADDRESSED IN THIS PROPOSED ACTION

NESHAP for:	OECA Contact ¹	OAQPS Contact ²
Secondary Lead Smelting	Maria Malave, (202) 564–7027 <i>malave.maria@epa.gov</i>	Chuck French, (919) 541–7912, <i>french.chuck@epa.gov</i>

¹ EPA Office of Enforcement and Compliance Assurance.

² EPA Office of Air Quality Planning and Standards.

SUPPLEMENTARY INFORMATION:

Preamble Acronyms and Abbreviations

Several acronyms and terms used to describe industrial processes, data inventories, and risk modeling are included in this preamble. While this may not be an exhaustive list, to ease the reading of this preamble and for reference purposes, the following terms and acronyms are defined here:

ADAF age-dependent adjustment factors
 AEGL acute exposure guideline levels
 AERMOD air dispersion model used by the HEM–3 model
 ANPRM advance notice of proposed rulemaking
 ATSDR Agency for Toxic Substances and Disease Registry
 BACT best available control technology
 BLDS bag leak detection system
 CAA Clean Air Act
 CBI Confidential Business Information
 CEMS continuous emissions monitoring system
 CFR Code of Federal Regulations
 CTE central tendency exposure
 D/F dioxins and furans
 EJ environmental justice
 EPA Environmental Protection Agency
 ERPG Emergency Response Planning Guidelines
 ERT Electronic Reporting Tool
 HAP hazardous air pollutants
 HEM–3 Human Exposure Model, Version 3
 HEPA high efficiency particulate air
 HHRAP Human Health Risk Assessment Protocols
 HI Hazard Index
 HON hazardous organic national emissions standards for hazardous air pollutants
 HQ Hazard Quotient
 ICR information collection request
 IRIS Integrated Risk Information System
 Km kilometer
 LAER lowest achievable emissions rate
 lb/yr pounds per year
 MACT maximum achievable control technology
 MACT Code Code within the NEI used to identify processes included in a source category
 MDL method detection level
 mg/acm milligrams per actual cubic meter
 mg/dscm milligrams per dry standard cubic meter
 mg/m³ milligrams per cubic meter
 MIR maximum individual risk
 MRL minimum risk level
 NAAQS National Ambient Air Quality Standard
 NAC/AEGL Committee National Advisory Committee for Acute Exposure Guideline Levels for Hazardous Substances

NAICS North American Industry Classification System
 NAS National Academy of Sciences
 NATA National Air Toxics Assessment
 NEI National Emissions Inventory
 NESHAP National Emissions Standards for Hazardous Air Pollutants
 NOAEL no observed adverse effects level
 NRC National Research Council
 NTTAA National Technology Transfer and Advancement Act
 O&M operation and maintenance
 OAQPS Office of Air Quality Planning and Standards
 ODW Office of Drinking Water
 OECA Office of Enforcement and Compliance Assurance
 OHEA Office of Health and Environmental Assessment
 OMB Office of Management and Budget
 PB–HAP hazardous air pollutants known to be persistent and bio-accumulative in the environment
 PM particulate matter
 POM polycyclic organic matter
 ppmv parts per million volume
 RACT reasonably available control technology
 RBLC RACT/BACT/LAERCclearinghouse
 REL reference exposure level
 RFA Regulatory Flexibility Act
 RfC reference concentration
 RfD reference dose
 RIA Regulatory Impact Analysis
 RME reasonable maximum exposure
 RTR residual risk and technology review
 SAB Science Advisory Board
 SBA Small Business Administration
 SCC Source Classification Codes
 SF3 2000 Census of Population and Housing Summary
 SIP State Implementation Plan
 SOP standard operating procedures
 SSM startup, shutdown, and malfunction
 TEF toxic equivalency factors
 TEQ toxic equivalency quotient
 THC total hydrocarbons
 TOSHI target organ-specific hazard index
 TPY tons per year
 TRIM Total Risk Integrated Modeling System
 TTN Technology Transfer Network
 UF uncertainty factor
 µ/m³ microgram per cubic meter
 UL upper limit
 UMRA Unfunded Mandates Reform Act
 UPL upper predictive limit
 URE unit risk estimate
 VOC volatile organic compounds
 VOHAP volatile organic hazardous air pollutants
 WESP wet electrostatic precipitator
 WHO World Health Organization
 WWW worldwide Web

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

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I. General Information

A. What is the statutory authority for this action?

Section 112 of the CAA establishes a two-stage regulatory process to address emissions of hazardous air pollutants (HAP) from stationary sources. In the first stage, after EPA has identified categories of sources emitting one or more of the HAP listed in CAA section 112(b), CAA section 112(d) calls for us to promulgate 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, these technology-based standards must reflect the maximum degree of emissions reductions of HAP 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 require the maximum degree of emissions reduction through the application of measures, processes, methods, systems, or techniques, including, but not limited to, measures that (A) reduce the volume of or eliminate pollutants through process changes, substitution of materials or other modifications; (B) enclose systems or processes to eliminate emissions; (C) capture or treat pollutants when released from a process, stack, storage, or fugitive emissions point; (D) are design, equipment, work practice, or operational standards (including requirements for operator training or certification); or (E) 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 EPA first determines either that, (A) a pollutant cannot be emitted through a conveyance designed and constructed to emit or capture the pollutants, or that any requirement for, or use of, such a

conveyance would be inconsistent with law; or (B) the application of measurement methodology to a particular class of sources is not practicable due to technological and economic limitations (CAA sections 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 floors for existing sources can be less stringent than floors for new sources, but they cannot be 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, we 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 emissions reductions, any non-air quality health and environmental impacts, and energy requirements.

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 8 years, under CAA section 112(d)(6). In conducting this review, EPA is not obliged to completely recalculate the prior MACT determination, and, in particular, is not obliged to recalculate the MACT floors. *NRDC v. EPA*, 529 F.3d 1077, 1084 (DC Cir., 2008).

The second stage in standard-setting focuses on reducing any remaining “residual” risk according to CAA section 112(f). This provision requires, first, that 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 EPA’s recommendations as to legislation regarding such remaining risk. EPA prepared and submitted this report (*Residual Risk Report to Congress*, EPA–453/R–99–001) in March 1999. Congress did not act in response to the report, thereby triggering EPA’s obligation under CAA section 112(f)(2) to analyze and address residual risk.

Section 112(f)(2) of the CAA requires us to determine, for source categories

subject to certain MACT standards, whether those emissions standards provide an ample margin of safety to protect public health. If the MACT standards that apply to a source category emitting a HAP that is “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,” 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 (CAA section 112(f)(2)(A)). This requirement is procedural. It mandates that EPA establish CAA section 112(f) residual risk standards if certain risk thresholds are not satisfied, but does not determine the level of those standards. *NRDC v. EPA*, 529 F. 3d at 1083. The second sentence of CAA section 112(f)(2) sets out the substantive requirements for residual risk standards: protection of public health with an ample margin of safety based on EPA’s interpretation of this standard in effect at the time of the Clean Air Act amendments. *Id.* This refers to the Benzene NESHAP, described in the next paragraph. EPA may adopt residual risk standards equal to existing MACT standards if EPA determines that the existing standards are sufficiently protective, even if (for example) excess cancer risks to a most exposed individual are not reduced to less than one-in-one million. *Id.* at 1083, (“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”). Section 112(f)(2) of the CAA further authorizes EPA to adopt more stringent standards, if necessary “to prevent, taking into consideration costs, energy, safety, and other relevant factors, an adverse environmental effect.”¹

As just noted, CAA section 112(f)(2) expressly preserves our use of the two-step process for developing standards to address any residual risk and our 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,*

¹ “Adverse environmental effect” is defined in CAA section 112(a)(7) 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.

Benzene Equipment Leaks, and Coke By-Product Recovery Plants (Benzene NESHAP) (54 FR 38044, September 14, 1989). The first step in this process is the determination of acceptable risk. The second step provides for an ample margin of safety to protect public health, which is the level at which the standards are set (unless a more stringent standard is necessary to prevent, taking into consideration costs, energy, safety, and other relevant factors, an adverse environmental effect).

The terms “individual most exposed,” “acceptable level,” and “ample margin of safety” are not specifically defined in the CAA. However, CAA section 112(f)(2)(B) preserves EPA’s interpretation set out in the Benzene NESHAP, and the court in *NRDC v. EPA* concluded that EPA’s interpretation of CAA section 112(f)(2) is a reasonable one. See *NRDC v. EPA*, 529 F.3d at 1083 (DC Cir. 2008), which says “[S]ubsection 112(f)(2)(B) expressly incorporates 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*, volume 1, p. 877 (Senate debate on Conference Report). We also notified Congress in the *Residual Risk Report to Congress* that we intended to use the Benzene NESHAP approach in making CAA section 112(f) residual risk determinations (EPA-453/R-99-001, p. ES-11).

In the Benzene NESHAP, we stated as an overall objective:

* * * in protecting public health with an ample margin of safety, we strive 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 facility would have if he or she were exposed to the maximum pollutant concentrations for 70 years.

The Agency also stated that, “The 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.” The Agency went on to conclude that “estimated incidence would be weighed along with other health risk information in judging

acceptability.” As explained more fully in our *Residual Risk Report to Congress*, EPA does not define “rigid line[s] of acceptability,” but rather considers broad objectives to be weighed with a series of other health measures and factors (EPA-453/R-99-001, p. ES-11). 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” (*Residual Risk Report to Congress*, p. 178, quoting the DC Circuit’s en banc *Vinyl Chloride* decision at 824 F.2d 1165) 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 1-in-10 thousand, that risk level is considered acceptable.” 54 FR 38045. We discussed the maximum individual lifetime cancer risk 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 acknowledge 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 maximum individual lifetime cancer risk as a metric for determining acceptability, we acknowledged in the 1989 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.

The Agency also explained in the 1989 Benzene NESHAP the following: “In establishing a presumption for MIR [maximum individual cancer risk], 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-kilometer (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-emissions of pollutants.” *Id.*

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 explained in the Benzene NESHAP, “[e]ven though the risks judged ‘acceptable’ by EPA in the first step of the *Vinyl Chloride* inquiry are already low, 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.” 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. 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 CAA section 112(f) (54 FR 38046).

B. Does this action apply to me?

The regulated industrial source category that is the subject of this proposal is listed in Table 2 of this preamble. Table 2 of this preamble is not intended to be exhaustive, but rather provides a guide for readers regarding the entities likely to be affected by this proposed action. These standards, once finalized, will be directly applicable to affected sources. Federal, State, local, and Tribal government entities are not affected by this proposed action. As defined in the source category listing report published by EPA in 1992, the Secondary Lead Smelting source category is defined as any facility at which lead-bearing scrap materials (including, but not limited to lead acid batteries) are recycled by smelting into elemental lead or lead alloys.² For clarification purposes, all references to lead emissions in this preamble mean “lead compounds” (which is a listed HAP) and all references to lead

² USEPA. Documentation for Developing the Initial Source Category List—Final Report, USEPA/OAQPS, EPA-450/3-91-030, July, 1992.

production mean elemental lead (which is not a listed HAP as provided under CAA section 112(b)(7)).

TABLE 2—NESHAP AND INDUSTRIAL SOURCE CATEGORIES AFFECTED BY THIS PROPOSED ACTION

Source category	NESHAP	NAICS code ¹	MACT code ²
Secondary Lead Smelting	Secondary Lead Smelting	331492	0205

¹ North American Industry Classification System.
² Maximum Achievable Control Technology.

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

In addition to being available in the docket, an electronic copy of this proposal will also be available on the World Wide Web (WWW) through the EPA’s Technology Transfer Network (TTN). Following signature by the EPA Administrator, a copy of this proposed action will be posted on the TTN’s policy and guidance page for newly proposed or promulgated rules at the following address: <http://www.epa.gov/ttn/atw/rrisk/rtrpg.html>. The TTN provides information and technology exchange in various areas of air pollution control.

Additional information is available on the residual risk and technology review (RTR) Web page at: <http://www.epa.gov/ttn/atw/rrisk/rtrpg.html>. This information includes source category descriptions and detailed emissions estimates and other data that were used as inputs to the risk assessments.

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

Submitting CBI. Do not submit information containing CBI to EPA through <http://www.regulations.gov> or e-mail. 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 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 comment that includes information claimed as CBI, a copy of the comment that does not contain the information claimed as CBI must be submitted for inclusion in the public docket. If you submit a CD-ROM 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 EPA’s electronic public docket without prior notice. Information marked as CBI will not be disclosed except in accordance with procedures set forth in 40 CFR part 2. Send or

deliver information identified as CBI only to the following address: Roberto Morales, OAQPS Document Control Officer (C404–02), Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711, Attention Docket ID Number EPA–HQ–OAR–2011–0344.

II. Background

A. Overview of the Source Category and MACT Standards

The NESHAP (or MACT rule) for the Secondary Lead Smelting source category was promulgated on June 13, 1997 (62 FR 32216) and codified at 40 CFR part 63, subpart X. As promulgated in 1997, the NESHAP applies to affected sources of HAP emissions at secondary lead smelters. The 1997 NESHAP (40 CFR 63.542) defines “secondary lead smelters” as “any facility at which lead-bearing scrap material, primarily, but not limited to, lead-acid batteries, is recycled into elemental lead or lead alloys by smelting.” The MACT rule for the Secondary Lead Smelting source category does not apply to primary lead smelters, lead remelters, or lead refiners.

Today, there are 14 secondary lead smelting facilities that are subject to the MACT rule. No new secondary lead smelters have been built in the last 20 years, and we anticipate no new secondary lead smelting facilities in the foreseeable future, although there is one facility currently in the process of expanding operations.

Lead is used to make various construction, medical, industrial and consumer products such as batteries, glass, x-ray protection gear and various fillers. The secondary lead smelting process consists of: (1) Pre-processing of lead bearing materials, (2) melting lead metal and reducing lead compounds to lead metal in the smelting furnace, and (3) refining and alloying the lead to customer specifications.

HAP are emitted from secondary lead smelting as process emissions, process fugitive emissions, and fugitive dust emissions. Process emissions are the exhaust gases from feed dryers and from blast, reverberatory, rotary, and electric

furnaces. The HAP in process emissions are primarily composed of metals (mostly lead compounds, but also some arsenic, cadmium, and other metals) and also may include organic compounds that result from incomplete combustion of coke that is charged to the smelting furnaces as a fuel or fluxing agent or from fuel natural gas and/or small amounts of plastics or other materials that get fed into the furnaces along with the lead bearing materials. Process fugitive emissions occur at various points during the smelting process (such as during charging and tapping of furnaces) and are composed primarily of metal HAP. Fugitive dust emissions result from the entrainment of HAP in ambient air due to material handling, vehicle traffic, wind erosion from storage piles, and other various activities. Fugitive dust emissions are composed of metal HAP only.

The MACT rule applies to process emissions from blast, reverberatory, rotary, and electric smelting furnaces, agglomerating furnaces, and dryers; process fugitive emissions from smelting furnace charging points, smelting furnace lead and slag taps, refining kettles, agglomerating furnace product taps, and dryer transition pieces; and fugitive dust emissions sources such as roadways, battery breaking areas, furnace charging and tapping areas, refining and casting areas, and material storage areas. For process sources, the NESHAP specifies numerical emissions limits for lead compounds (as a surrogate for metal HAP) for the following types of smelting furnaces: (1) Collocated reverberatory and blast furnaces (reverberatory/blast), (2) blast furnaces, and (3) reverberatory furnaces not collocated with blast furnaces, rotary furnaces, and electric furnaces. Lead compound emissions from all smelting furnace configurations are limited to an outlet concentration of 2.0 milligrams per dry standard cubic meter (mg/dscm) (0.00087 grains per dry standard cubic foot (gr/dscf)), 40 CFR 63.543(a). Total hydrocarbon (THC) emissions (as a surrogate for organic HAP) from existing and new collocated reverberatory/blast furnace

configurations are limited to an outlet concentration of 20 parts per million volume (ppmv) (expressed as propane) corrected to 4 percent carbon dioxide (CO₂) to account for dilution. THC emissions are limited to 360 ppmv (as propane) at 4 percent CO₂ from existing blast furnaces and 70 ppmv (as propane) at 4 percent CO₂ from new blast furnaces (40 CFR 63.543(c)). The NESHAP does not specify emissions limits for THC emissions from reverberatory furnaces not collocated with blast furnaces, rotary furnaces, and electric furnaces.

The 1997 NESHAP requires that process fugitive emissions sources be equipped with an enclosure hood meeting minimum face velocity requirements or be located in a total enclosure subject to general ventilation that maintains the building at negative pressure (40 CFR 63.543(b)). Ventilation air from the enclosure hoods and total enclosures is required to be conveyed to a control device. Lead emissions from these control devices are limited to 2.0 mg/dscm (0.00087 gr/dscf) (40 CFR 63.544(c)). Lead emissions for all dryer emissions vents and agglomerating furnace vents are limited to 2.0 mg/dscm (0.00087 gr/dscf) (40 CFR 63.544(d)). The 1997 NESHAP also requires the use of bag leak detection systems (BLDS) for continuous monitoring of baghouses in cases where a high efficiency particulate air (HEPA) filter was not used in series with a baghouse (40 CFR 63.548(c)(9)).

For fugitive dust sources, as defined in 40 CFR 63.545, the 1997 NESHAP requires that the smelting process and all control devices be operated at all times according to a standard operating procedures (SOP) manual developed by the facility. The SOP manual is required to describe, in detail, the measures used to control fugitive dust emissions from plant roadways, battery breaking areas, furnace areas, refining and casting areas, and material storage and handling areas.

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

In June 2010, EPA issued an information collection request (ICR), pursuant to CAA section 114, to six companies that own and operate the 14 secondary lead smelting facilities. The ICR requested available information regarding process equipment, control devices, point and fugitive emissions, practices used to control fugitive emissions, and other aspects of facility operations. The six companies completed the surveys for their facilities and submitted the responses to us in the fall of 2010. In addition to the ICR survey, each facility was asked to

submit reports for any emissions tests conducted in 2003 or later. We received lead emissions test data from all 14 facilities with some facilities submitting data for multiple years. Additionally, EPA requested that eight facilities conduct additional emissions tests in 2010 for certain HAP from specific processes that were considered representative of the industry. Pollutants tested included most HAP metals, dioxins and furans, and certain organic HAP. The results of these tests were submitted to EPA in the fall of 2010 and are available in the docket for this action.

III. Analyses Performed

In this section we describe the analyses performed to support the proposed decisions for the RTR for this source category.

A. Addressing Unregulated Emissions Sources

In the course of evaluating the Secondary Lead Smelting source category, we identified certain HAP for which we failed to establish emission standards in the original MACT. See *National Lime v. EPA*, 233 F. 3d 625, 634 (DC Cir. 2000) (EPA has “clear statutory obligation to set emissions standards for each listed HAP”). Specifically, we evaluated emissions standards for three HAP (or groups of HAP), described below, that are not specifically regulated in the existing 1997 MACT standard, or are only regulated for certain emissions points. As described below, for two of these groups of HAP (*i.e.*, organic HAP and dioxins and furans) we are proposing emissions limits pursuant to 112(d)(2) and 112(d)(3). For the other HAP (mercury compounds), we are proposing standards based on work practices pursuant to 112(h). The results and proposed decisions based on the analyses performed pursuant to CAA section 112(d)(2), 112(d)(3), and 112(h) are presented in Section IV.A of this preamble.

1. Organic HAP

EPA did not establish standards for organic HAP emitted from reverberatory furnaces not collocated with blast furnaces, rotary furnaces, and electric furnaces in the 1997 NESHAP. EPA is therefore proposing to set emissions limits for organic HAP emissions from these furnace configurations in today’s action based on emissions data received in response to the ICR.

2. Mercury

The 1997 NESHAP specified emissions limits for metal HAP (*e.g.*,

arsenic, cadmium, lead) in terms of a lead emissions limit (*i.e.*, lead is used as a surrogate for metal HAP). There is no explicit standard for mercury and we are therefore proposing a standard pursuant to section 112 (as described further in section IV.A of this preamble).

3. Dioxins and Furans

Lastly, with regard to dioxin and furan emissions, because the 1997 NESHAP did not include emissions limits, we are proposing emissions standards for dioxins and furans pursuant to CAA section 112(d)(3). We are also proposing work practices for dioxins and furans.

B. How did we estimate risks posed by the source category?

EPA conducted a risk assessment that provided estimates of the maximum individual cancer risk (MIR) posed by the HAP emissions from the 14 sources in the source category, the distribution of cancer risks within the exposed populations, total cancer incidence, estimates of the maximum target organ-specific hazard index (TOSHI) for chronic exposures to HAP with the potential to cause chronic non-cancer health effects, worst-case screening estimates of hazard quotients (HQ) for acute exposures to HAP with the potential to cause non-cancer health effects, and an evaluation of the potential for adverse environmental effects. In June of 2009, the EPA’s Science Advisory Board (SAB) conducted a formal peer review of our risk assessment methodologies in its review of the document entitled, “Risk and Technology Review (RTR) Assessment Methodologies”.³ We received the final SAB report on this review in May of 2010.⁴ Where appropriate, we have responded to the key messages from this review in developing the current risk assessment; we will be continuing our efforts to improve our assessments by incorporating updates based on the SAB recommendations as they are developed and become available. The risk assessment consisted of seven primary steps, as discussed below.

The docket for this rulemaking contains the following document, which provides more information on the risk

³ U.S. EPA, 2009. 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. EPA-452/R-09-006. <http://www.epa.gov/ttn/atw/rrisk/rtrpg.html>.

⁴ U.S. EPA, 2010. SAB’s Response to EPA’s RTR Risk Assessment Methodologies. [http://yosemite.epa.gov/sab/sabproduct.nsf/4AB3966E263D943A8525771F00668381/\\$File/EPA-SAB-10-007-unsigned.pdf](http://yosemite.epa.gov/sab/sabproduct.nsf/4AB3966E263D943A8525771F00668381/$File/EPA-SAB-10-007-unsigned.pdf).

assessment inputs and models: Draft Residual Risk Assessment for the Secondary Lead Smelting Source Category.

1. Establishing the Nature and Magnitude of Actual Emissions and Identifying the Emissions Release Characteristics

For each facility in the Secondary Lead Smelting source category, we compiled an emissions profile (including emissions estimates, stack parameters, and location data) based on the information provided by the industry in the ICR, the emissions test data, various calculations, and the NEI. The site-specific emissions profiles include annual estimates of process, process fugitive, and fugitive dust emissions for the 2008–2010 timeframe, as well as emissions release characteristics such as emissions release height, temperature, velocity, and location coordinates.

The primary risk assessment is based on estimates of the actual emissions (though we also analyzed allowable emissions and the potential risks due to allowable emissions). We received a substantial amount of emissions test data and other information that enabled us to derive estimates of stack emissions of certain HAP for all of the facilities. However, we did not have test data for all pollutants at all emissions points. Therefore, we estimated emissions of some pollutants from certain emissions points (for which we had no emissions data) using test data from similar source types with similar controls.

With regard to fugitive emissions, because they cannot be readily captured or directly measured, fugitive emissions are a more challenging emissions type to estimate. In 2010, as part of an information collection request (ICR), EPA asked the Secondary Lead industry to provide their best estimate of the emissions from fugitive sources (e.g., building openings, raw material storage piles, roadways, parking areas) at their facilities and to provide a description of the basis for the estimates (e.g., test data, emissions factors, mass balance calculations, engineering judgment). For our analysis of fugitive emissions for the source category, we first reviewed and evaluated the estimates of fugitive lead emissions that were submitted by each of the facilities in response to the 2010 ICR to determine the reliability and appropriateness of those estimates as an input to our risk analyses and other assessments. We concluded that there were significant gaps and incomplete documentation for a number of facilities, a large amount of variability in estimates between the facilities, and

various significant uncertainties. For example, five facilities did not provide any estimates of fugitive emissions, while a few other facilities provided emissions estimates that were quite incomplete. Thus, we developed estimates of fugitive emissions for all facilities in the source category based on a methodology described in the emissions development technical document (*Draft Development of the RTR Emissions Dataset for the Secondary Lead Smelting Source Category*) for this rulemaking, which is available in the docket. In this methodology, we began with estimates provided by one facility in the ICR which were well-documented and covered all the various fugitive emissions sources expected at these facilities. Using the ICR responses, other available information on fugitive emissions (including scientific literature), and various assumptions and calculations, we scaled these estimates to derive site-specific fugitive emissions estimates at each of the other 13 facilities. The estimates calculated using this methodology were used as inputs to the risk assessment modeling.

The results of the risk assessment modeling (which are described further in section IV below) indicated that the fugitive dust emissions were the largest contributor to the risks due to lead emissions. The impacts of fugitive emissions were generally considerably greater than the impacts due to stack emissions. Because of these impacts, and because of the difficulties and uncertainties associated with estimating fugitive emissions, we decided to do further analyses and review of the fugitive emissions estimates as a quality assurance check on the initial fugitive emissions estimates. Therefore, we consulted further with industry representatives, gathered additional information from the EPA's Toxics Release Inventory, evaluated the ICR responses further, and performed various other analyses, which led to the development of an alternative set of fugitive emissions estimates based on a slightly different methodology. The total fugitive estimates of lead for the industry calculated based on the alternative approach are within 10 percent of our initial estimates. We did not rerun the model with the alternative estimates because we know that the overall results would be quite similar and would not change our overall conclusions and decisions (described later in this notice). Further details on all the emissions data, calculations, estimates, and uncertainties, are in the emissions

technical document (*Draft Development of the RTR Emissions Dataset for the Secondary Lead Smelting Source Category*) which is available in the docket for this action. We are seeking comments on our emissions data and estimates, and the fugitive emissions estimation methodologies and any other potential appropriate methods or data that could be used to estimate fugitive emissions from these facilities.

2. Establishing the Relationship Between Actual Emissions and MACT-Allowed Emissions Levels

The emissions data in our data set are estimates of actual emissions on an annual basis for stacks and fugitives for the 2008–2010 timeframe. With most source categories, we generally find that “actual” emissions levels are lower than the emissions levels that a facility is allowed to emit under the MACT standards. The emissions levels allowed to be emitted by the MACT standards are referred to as the “MACT-allowable” emissions levels. This represents the highest emissions level that could be emitted by facilities without violating the MACT standards.

As we have discussed in prior residual risk and technology review rules, assessing the risks at the MACT-allowable level is inherently reasonable since these risks reflect the maximum level at which sources could emit while still complying with the MACT standards. However, 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 (54 FR 38044, September 14, 1989). It is reasonable to consider actual emissions because sources typically seek to perform better than required by emissions standards to provide an operational cushion to accommodate the variability in manufacturing processes and control device performance. Facilities' actual emissions may also be significantly lower than MACT-allowable emissions for other reasons such as State requirements, better performance of control devices than required by the MACT standards, or reduced production.

For the Secondary Lead Smelting source category, we evaluated actual and allowable emissions for both stack emissions and fugitive dust emissions. As described earlier in this section, the actual emissions data for this source category were compiled based on the ICR responses, available test data, various calculations, and the NEI. We estimated actual emissions for all HAP that we identified in the dataset. The

analysis of allowable emissions was largely focused on lead compound emissions, which we considered the most important HAP emitted from this source category based on our screening level risk assessment and the HAP for which we had the most data. However, we also considered allowable emissions for other HAP.

With regard to fugitive emissions, because there are no numerical emissions limits, and because all facilities are required to implement identical fugitive emissions control work-practices, we assume that the allowable fugitive emissions from this source category are equal to the actual emissions.

To estimate emissions at the MACT-allowable level from stacks (*e.g.*, process, process fugitive, and building vents), we estimated the emissions that would occur if facilities were continuously emitting lead at the maximum allowed by the existing MACT standard (*i.e.*, 2.0 mg/dscm) from all vents. We then compared these estimated allowable emissions to the estimated emissions using the actual stack test data for each facility. We realize that these estimates of allowable emissions are theoretical high-end estimates as facilities must maintain average emissions levels at some level below the MACT limit to ensure compliance with the standard at all times because of the day-to-day variability in emissions. Nevertheless, these high-end estimates of allowable emissions were adequate for us to estimate the magnitude of allowable emissions and the differences between the estimates of actual emissions and the MACT allowable emissions.

Based on this analysis, we conclude that all facilities are emitting lead at levels lower than allowable; however, the range of differences between actual and allowable is significant. For two facilities, the estimated actual emissions were only moderately lower than allowable (about 2–3 times lower). The majority of other facilities have estimated actual emissions in the range of 10 to 100 times lower than allowable. Finally, one facility, which has highly advanced controls, has estimated actual emissions of about 1,500 times below the MACT allowable emissions level.

We then developed a ratio of MACT-allowable to actual emissions for each facility in the source category. After developing these ratios, we applied them on a facility-by-facility basis to the maximum modeled ambient lead concentrations to estimate the maximum ambient concentrations that would occur if all stacks were emitting at maximum allowable levels. The ratios

were applied to stack emissions while leaving fugitive dust emissions at actual levels since, as described above, actual fugitive dust emissions were assumed to be equal to allowable fugitive dust emissions. The estimates of MACT-allowable emissions are described further in the technical document: *Draft Development of the RTR Emissions Dataset for the Secondary Lead Smelting Source Category*. The estimates of risks due to allowable emissions are summarized in Section IV.B of this preamble and described further in the draft risk report: *Draft Residual Risk Assessment for the Secondary Lead Smelting Source Category*.

3. Conducting Dispersion Modeling, Determining Inhalation Exposures, and Estimating 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 of the primary risk assessment activities listed above: (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 km of the modeled sources, and (3) estimating individual and population-level inhalation risks using the exposure estimates and quantitative dose-response information.

The dispersion model used by HEM–3 is AERMOD, which is one of EPA's preferred models for assessing pollutant concentrations from industrial facilities.⁵ 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 of hourly surface and upper air observations for 130 meteorological stations, selected to provide coverage of the United States and Puerto Rico. A second library, of United States Census Bureau census block⁶ internal point locations and populations, provides the basis of human exposure calculations based on the year 2000 U.S. Census. In addition, for each census block, the

⁵ 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).

⁶ A census block is the smallest geographic area for which census statistics are tabulated.

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 health benchmarks is used to estimate health risks. These risk factors and health benchmarks are the latest values recommended by 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 of the 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 the facilities as the cancer risk associated with a lifetime (70-year period) of 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) by its unit risk estimate (URE), which 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. In general, for residual risk assessments, we use URE values from 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 Environmental Protection Agency (CalEPA) URE values, where available. In cases where new, scientifically credible dose response values have been developed in a manner consistent with EPA guidelines and have undergone a peer review process similar to that used by EPA, we may use such dose-response values in place of, or in addition to, other values, if appropriate. For this review, URE values and their sources (*e.g.*, IRIS, CalEPA) can be found in Table 2.6–1(a) in the risk assessment document entitled, *Draft Residual Risk Assessment for the Secondary Lead Smelting Source Category*, which is available in the docket for this proposed rulemaking.

Incremental individual lifetime cancer risks associated with emissions from the 14 facilities in the source category were estimated 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 potential⁷) emitted by the modeled source. 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 these assessments by summing individual risks. A distance of 50 km is consistent with both the analysis supporting the 1989 Benzene NESHAP (54 FR 38044) 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 either the EPA RfC, defined as “an estimate (with uncertainty spanning perhaps an order of magnitude) of a continuous inhalation exposure to the human population (including sensitive subgroups) that is likely to be without an appreciable risk of deleterious effects during a lifetime,” or, in cases where an RfC is not available, the Agency for Toxic Substances and Disease Registry (ATSDR) chronic Minimal Risk Level (MRL) or the CalEPA Chronic Reference Exposure Level (REL). Notably, the REL is defined as “the concentration level at or below which no adverse health effects are anticipated for a specified exposure duration.”

Worst-case screening estimates of acute exposures and risks were also evaluated for each of the HAP at the point of highest off-site exposure for each facility (*i.e.*, not just the census block centroids) assuming that a person was located at this spot at a time when both the peak (hourly) emissions rate and worst-case hourly dispersion conditions occurred. In general, acute HQ values were calculated using best available, short-term dose-response values. These acute dose-response

values include REL, Acute Exposure Guideline Levels (AEGL), and Emergency Response Planning Guidelines (ERPG) for 1-hour exposure durations. Notably, for HAP emitted from this source category, REL values were the only such dose-response values available. 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.” REL values are based on the most sensitive, relevant, adverse health effect reported in the medical and toxicological literature. REL values are designed to protect the most sensitive individuals in the population by the inclusion of margins of safety. Since margins of safety are incorporated to address data gaps and uncertainties, exceeding the REL does not automatically indicate an adverse health impact.

To develop screening estimates of acute exposures, we first developed estimates of maximum hourly emissions rates by multiplying the average actual annual hourly emissions rates by a factor to cover routinely variable emissions. We chose the factor to use based on process knowledge and engineering judgment and with awareness of a Texas study of short-term emissions variability, which showed that most peak emissions events, in a heavily-industrialized 4-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 9.⁸

This analysis is provided in Appendix 4 of the *Draft Residual Risk Assessment for Secondary Lead Smelting* that is available in the docket for this action. Considering this analysis, unless specific process knowledge or data are available to provide an alternate value, to account for more than 99 percent of the peak hourly emissions, we generally apply the assumption to most source

categories that the maximum one-hour emissions rate from any source other than those resulting in fugitive dust emissions are 10 times the average annual hourly emissions rate for that source. We use a factor other than 10 in some cases if we have information that indicates that a different factor is appropriate for a particular source category. Moreover, the factor of 10 is not applied to fugitive dust sources because these emissions are minimized during the meteorological conditions associated with the worst-case short-term impacts (*i.e.*, during low-wind, stable atmospheric conditions) in these acute exposure screening assessments.

In cases where all worst-case acute HQ values from the screening step were less than or equal to 1, acute impacts were deemed negligible and no further analysis was performed. In the cases where any worst-case 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. 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. However, we recognize that having this level of data is rare, hence our use of the multiplier (*i.e.*, factor of 10) approach in our screening analysis. In the case of this source category, we had no further information on peak-to-mean emissions which could be used to refine the estimates. The only refinement that was made to the acute screening assessments was to ensure that the estimated worst-case HQ was not calculated at a location within the facility boundaries.

4. Conducting Multipathway Exposure and Risk Modeling

EPA evaluated the potential for significant human health risks due to exposures via routes other than inhalation (*i.e.*, multipathway exposures) and the potential for adverse environmental impacts in a three-step process. In the first step, we determined whether any facilities emitted any HAP known to be persistent and bio-accumulative in the environment (PB-HAP). There are 14 PB-HAP compounds or compound classes identified for this screening in EPA's *Air*

⁷ 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 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](http://yosemite.epa.gov/sab/sabproduct.nsf/214C6E915BB04E14852570CA007A682C/$File/ecadv02001.pdf).

⁸ See http://www.tceq.state.tx.us/compliance/field_ops/eeer/index.html or docket to access the source of these data.

Toxics Risk Assessment Library (available at http://www.epa.gov/ttn/fera/risk_atra_vol1.html).

Emissions of five PB-HAP were identified in the emissions dataset for the Secondary Lead Smelting source category, as follows: Lead compounds, cadmium compounds, POM, dioxin and furans, and mercury.⁹ The dataset is described in the emissions technical document (*Draft Development of the RTR Emissions Dataset for the Secondary Lead Smelting Source Category*) which is available in the docket for this action. As described in that document, lead emissions estimates are based on multiple emission stack tests conducted over multiple years, cadmium and dioxin and furans are based on emissions tests conducted in 2010. Mercury emissions estimates are based on test results in 2010 which included a large number of non-detects and conservative assumptions about non-detects, and the estimates for POM are based on reported estimates from the NEI or estimates provided by the companies in the ICR responses in 2010.

Emissions of cadmium compounds, POM, dioxin and furans and mercury were evaluated for potential non-inhalation risks and adverse environmental impacts using our recently developed screening scenario that was developed for use with the Total Risk Integrated Methodology (TRIM.FaTE) model. This screening scenario uses environmental media outputs from the peer-reviewed TRIM.FaTE to estimate the maximum potential ingestion risks for any specified emissions scenario by using a generic farming/fishing exposure scenario that simulates a subsistence environment. The screening scenario retains many of the ingestion and scenario inputs developed for EPA's Human Health Risk Assessment Protocols (HHRAP) for hazardous waste combustion facilities. In the development of the screening scenario, a sensitivity analysis was conducted to ensure that its key design parameters were established such that environmental media concentrations were not underestimated, and to also minimize the occurrence of false positives for human health endpoints. See Appendix 3 of the risk assessment

⁹Most of the emissions test results for mercury emissions for this industry were below detection limit. The emissions estimates used in the risk assessment are based on the assumption that all the non-detect test values were at the level of the detection limit. Therefore, these estimated emissions for mercury are clear overestimates. We conclude that the true amounts of emissions of mercury from this source category are much lower than shown in this assessment, but we are not able to quantify precisely how much lower.

document for a complete discussion of the development and testing of the screening scenario, as well as for the values of facility-level *de minimis* emissions rates developed for screening potentially significant multipathway impacts. For the purpose of developing *de minimis* emissions rates for our multipathway screening, we derived emissions levels at which the maximum human health risk could be 1-in-1 million for lifetime cancer risk, or exposures could potentially be above the reference dose for non-cancer effects, based on a conservative model plant analysis described in Appendix 3 of the risk assessment document.

For the secondary lead smelting source category, there were exceedances of *de minimis* emissions rates at multiple facilities for multiple PB-HAP, and thus a multipathway analysis was performed. Two facilities were chosen as case study analyses to assess potential multipathway risks for mercury, cadmium, POM, and dioxins and furans. The selection criteria for modeling these two facilities included emissions rates of PB-HAPs, proximity to water bodies, proximity to farmland, average rainfall, average wind speed and direction, smelting furnace type, local change in elevation, and geographic representativeness of sites throughout the U.S. As a result of our selection process, we believe the multipathway risks associated with these two facilities are in the upper end of the potential for multipathway risks from the source category. Since the modeling used in these case study assessments utilize site specific parameters to describe naturally occurring physical, chemical and biological processes, we believe that the multimedia concentrations of PB-HAPs generated in this analysis are unbiased estimates of the true impacts.

In general, results of this assessment were designed to characterize multipathway risks associated with high end consumption of PB-HAP predominantly from contaminated food sources. Thus, multipathway exposure and risk estimates were calculated for two basic scenarios, both of which are expected to give rise to high-end exposures and risks. The farmer scenario involves an individual living on a farm homestead in the vicinity of a PB-HAP source who consumes contaminated produce grown on the farm, as well as contaminated meat and animal products raised on the farm. The farming scenario also accounts for incidental ingestion of contaminated surface soil at the location of the farm homestead. The recreational fisher scenario involves an individual who regularly consumes fish caught in

freshwater lakes in the vicinity of a PB-HAP source. In the fishing scenario, in addition to the characterization of exposure and risks across the broad population of recreational anglers, exposures were also calculated for three subpopulations of recreational anglers (Hispanic, Laotian, and Vietnamese descent) who have higher rates of fish consumption.¹⁰ Furthermore, in order to more fully characterize the modeled potential multipathway risks that may be associated with high-end consumption of PB-HAP contaminated food, we present results based on two ingestion exposure scenarios: (1) A reasonable maximum exposure (RME) scenario that, for example, utilizes 90th percentile ingestion rates for farmers, recreational anglers, and the three subpopulations of recreational anglers (e.g., ingestion rates specific to Laotian recreational anglers); and (2) a central tendency exposure (CTE) scenario that, for example, utilizes mean ingestion rates for the groups just described. We provide results from both scenarios to illustrate the range of potential modeled exposures and risks that may exist in the high-end of the complete distribution of potential multipathway risks for this source category.

In evaluating the potential air-related multipathway risks from the emissions of lead compounds, rather than developing a *de minimis* emissions rate, we compared its maximum modeled 3-month average atmospheric lead concentration at any off-site location with the current primary National Ambient Air Quality Standard (NAAQS) for lead (promulgated in 2008), which is set at a level of 0.15 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) based on rolling 3-month periods with a not-to-be-exceeded level for any 3-month rolling average, and which will require attainment by 2016 (73 FR 66964). Notably, in making these comparisons, we estimated maximum rolling 3-month ambient lead concentrations taking into account all of the elements of the NAAQS for lead. That is, our estimated 3-month lead concentrations are

¹⁰In both scenarios, exposure via drinking water was not considered because it is unlikely that humans would use surface waters as a drinking water source. Groundwater, which is a likely source of drinking water, also was not included in the exposure scenarios because contamination of groundwater aquifers by air deposition sources was not expected to be significant. For dioxin, exposure via breast milk was considered in the farming scenario as well as the recreational fishing scenario, but not for the three recreational fishing subpopulations (Hispanic, Laotian, and Vietnamese descent) since subpopulation ingestion rates were only applicable to adult males. The breast milk pathway was not considered with respect to mercury exposure due to a current lack of data regarding this pathway.

calculated in a manner that is consistent with the indicator, averaging time, and form of the lead NAAQS, and those estimates are compared to the level of the lead NAAQS (0.15 $\mu\text{g}/\text{m}^3$).

The NAAQS value, a public health policy judgment, incorporated the Agency's most recent health evaluation of air effects of lead exposure for the purposes of setting a national standard. In setting this value, the Administrator promulgated a standard that was requisite to protect public health with an adequate margin of safety. That standard applies everywhere, under all circumstances, regardless of an individual's location, exposure patterns, or health circumstances. We consider values below the level of the primary NAAQS to protect against multipathway risks because, as mentioned above, the primary NAAQS is set so as to protect public health with an adequate margin of safety. However, ambient air lead concentrations above the NAAQS are considered to pose the potential for increased risk to public health. We consider this assessment—comparing modeled concentrations to the level of the NAAQS—to be a refined analysis given: (1) The numerous health studies, detailed risk and exposure analyses, and level of external peer and public review that went into the development of the primary NAAQS for lead, combined with: (2) the site-specific dispersion modeling performed in the risk assessment to develop ambient concentration estimates from the 14 secondary lead smelter facilities addressed in this proposed rule. It should be noted, however, that this comparison to the NAAQS for lead does not account for possible population exposures to lead from sources other than the one being modeled; for example, via consumption of water from contaminated local sources or ingestion of contaminated locally grown food. Nevertheless, the Administrator judged that the primary NAAQS would protect, with an adequate margin of safety, the health of children and other at-risk populations against an array of adverse health effects, most notably including neurological effects, particularly neurobehavioral and neurocognitive effects, in children (73 FR 67007). The Administrator, in setting the standard, also recognized that no evidence of a risk-based bright line indicated a single appropriate level. Instead, a collection of scientific evidence and other information was used to select the standard from a range of reasonable values (73 FR 67006).

We further note that comparing ambient lead concentrations to the NAAQS for lead, considering the level,

averaging time, form and indicator of the lead NAAQS, also informs whether there is the potential for adverse environmental effects. This is because the secondary lead NAAQS, which has the same averaging time, form, and level as the primary standard, was set to protect the public welfare which includes among other things soils, water, crops, vegetation and wildlife (CAA section 302(h)). Thus, ambient lead concentrations above the NAAQS for lead also indicate the potential for adverse environmental effects (73 FR 67007 to 67012). For additional information on the multipathway analysis approach, see the residual risk documentation as referenced in Section III.A of this preamble. EPA solicits comment generally on the modeling approach used herein to assess air-related lead risks, and specifically on the use of the lead NAAQS in this analytical construct.

5. Assessing Risks Considering Emissions Control Options

In addition to assessing baseline inhalation risks and screening for potential multipathway risks, we also estimated risks considering the potential emissions reductions that would be achieved by the main control options under consideration. The expected emissions reductions were applied to the specific HAP and emissions points in the source category dataset to develop corresponding estimates of risk reductions. More information regarding the risks after control can be found in the risk assessment document: *Draft Residual Risk Assessment for the Secondary Lead Smelting Source Category*, which is available in the docket for this action.

6. Conducting Other Risk-Related Analyses, Including Facility-Wide Assessments and Demographic Analyses

a. Facility-Wide Risk

To put the source category risks in context, for our residual risk review, we also 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. In this rulemaking, for the Secondary Lead Smelting source category, there are no other significant HAP emissions sources present. Thus, there was no need to perform a separate facility wide risk assessment.

b. Demographic Analysis

To identify specific groups that may be affected by this rulemaking, EPA conducted demographic analyses. These analyses provide information about the percentages of different social, demographic, and economic groups within the populations subjected to potential HAP-related cancer and non-cancer risks from the facilities in this source category.

For the demographic analyses, we focus on the populations within 50 km of any facility with emissions sources subject to the MACT standard (identical to the risk assessment). Based on the emissions for the source category or the facility, we then identified the populations that are estimated to have exposures to HAP which result in: (1) Cancer risks of 1-in-1 million or greater; (2) non-cancer HI of 1 or greater; and/or (3) ambient lead concentrations above the level of the NAAQS for lead. We compare the percentages of particular demographic groups within the focused populations to the total percentages of those demographic groups nationwide. The results, including other risk metrics, such as average risks for the exposed populations, are documented in a technical report in the docket for the source category covered in this proposal.¹¹

The basis for the risk estimates used in the demographic analyses for this source category was the modeling results based on actual emissions levels obtained from the HEM-3 model described above. The risk estimates for each census block were linked to a database of information from the 2000 decennial census that includes data on race and ethnicity, age distributions, poverty status, household incomes, and education level. The Census Department Landview® database was the source of the data on race and ethnicity, and the data on age distributions, poverty status, household incomes, and education level were obtained from the 2000 Census of Population and Housing Summary File 3 (SF3) Long Form. While race and ethnicity census data are available at the census block level, the age and income census data are only available at the census block group level (which includes an average of 26 blocks or an average of 1,350 people). Where census data are available at the block group level but not the block level, we assumed that all census blocks within the block group have the same distribution of ages and incomes as the block group.

¹¹ Risk and Technology Review—Analysis of Socio-Economic Factors for Populations Living Near Primary Lead Smelting Operations.

As noted above, we focused the analysis on those census blocks where source category risk results show: (1) Estimated lifetime inhalation cancer risks above 1-in-1 million; (2) chronic non-cancer indices above 1; and/or (3) census blocks where estimated ambient lead concentrations were above the level of the lead NAAQS. For each of these cases, we determined the relative percentage of different racial and ethnic groups, different age groups, adults with and without a high school diploma, people living in households below the national median income, and people living below the poverty line within those census blocks.

The specific census population categories included:

- Total population
- White
- African American (or Black)
- Native Americans
- Other races and multiracial
- Hispanic or Latino
- People living below the poverty line
- Children 18 years of age and under
- Adults 19 to 64 years of age
- Adults 65 years of age and over
- Adults without a high school diploma.

It should be noted that these categories overlap in some instances, resulting in some populations being counted in more than one category (e.g., other races and multiracial and Hispanic). In addition, while not a specific census population category, we also examined risks to “Minorities,” a classification that is defined for these purposes as all race population categories except white.

The methodology and the results of the demographic analyses for this source category are included in the technical report available in the docket for this action (*Risk and Technology Review—Analysis of Socio-Economic Factors for Populations Living near Secondary Lead Smelting Operations*).

7. Considering Uncertainties in Risk Assessment

Uncertainty and the potential for bias are inherent in all risk assessments, including those performed for the source category addressed in this proposal. Although uncertainty exists, we believe the approach that we took, which used conservative tools and assumptions to bridge data gaps, ensures that our decisions are health-protective. A brief discussion of the uncertainties in the emissions dataset, dispersion modeling, inhalation exposure estimates, dose-response relationships, multipathway and environmental impacts analyses, and demographics analysis follows below. A

more thorough discussion of these uncertainties is included in the risk assessment documentation (*Draft Residual Risk Assessment for the Secondary Lead Smelting Category*) available in the docket for this action.

a. Uncertainties in the Emissions Dataset

Although the development of the RTR 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, whether and to what extent errors were made in estimating emissions values, and other factors. The estimates of stack emissions are largely based on actual emissions test data, and, therefore, we have a relatively high degree of confidence in those estimates. With regard to fugitive emissions, those estimates are largely based on engineering calculations and application of various assumptions, and are therefore considered less certain relative to the stack emissions estimates. Nevertheless, we believe the fugitive estimates we derived for these facilities and used in our analyses are reasonable estimates of the actual fugitive emissions from these facilities partly due to the findings that the available ambient monitoring data (which are described in the document *Draft Summary of the Ambient Lead Monitoring Data near Secondary Lead Smelting Facilities*, available in the docket) indicate that measured levels of lead in ambient air near these facilities are generally similar in magnitude (e.g., generally within a factor of 2) to the modeled estimates (which are shown in the *Draft Residual Risk Assessment for the Secondary Lead Smelting Source Category*, which is available in the docket).

The emissions estimates for stacks considered in this analysis are hourly emissions rates primarily extracted from test reports and extrapolated to an annual total based on the hours of operation of each facility and may not reflect short-term fluctuations during the course of a year or variations from year to year. The estimates of peak hourly emissions rates from stacks for the acute effects screening assessment were based on multiplication factors applied to the hourly emissions rates (the default factor of 10 was used for Secondary Lead Smelting for sources other than fugitive dust) which are intended to account for emissions fluctuations due to normal facility operations.

There is an unquantified level of uncertainty regarding the emissions estimates for acute impacts of fugitive dusts. The current set of assumptions used in deriving the worst-case acute impact estimate for fugitive dusts assumes the average hourly emission level (annual emissions divided by 8760 hours per year) to occur at the default worst-case meteorological conditions (low winds with a stable atmosphere). It is acknowledged that the combination of average emissions during low winds would be an overestimate of the fugitive dust emission rate during those low wind periods. Therefore, for fugitive dusts, the worst case meteorology may not be the same as for other process emissions, and the level of hourly fugitive dust emissions during this alternate worst-case condition is unknown.

We further note that there is additional uncertainty with respect to emissions of mercury. As previously noted, most of the mercury emissions test results for this industry were below detection limit. The emissions estimates utilized in the risk assessment are based on the health-protective assumption that all the non-detect test values were at the level of the detection limit. Therefore, these estimated emissions for mercury are clear overestimates. We conclude that the true amounts of emissions of mercury from this source category are much lower than those provided in the technical documents supporting today's proposed rule, but we are not able to quantify precisely how much lower.

b. Uncertainties in Dispersion Modeling

Although the analysis employed EPA's recommended regulatory dispersion model, AERMOD, we recognize that there is uncertainty in ambient concentration estimates associated with any model, including AERMOD. In circumstances where we had to choose between various model options, where possible, we selected model options (e.g., rural/urban, plume depletion, chemistry) that provided an overestimate of ambient concentrations of the HAP rather than an underestimate. However, because of practicality and data limitation reasons, some factors (e.g., building downwash) have the potential in some situations to overestimate or underestimate ambient impacts. Despite these uncertainties, we believe that at off-site locations and census block centroids, the approach considered in the dispersion modeling analysis should generally yield overestimates of ambient HAP concentrations.

Furthermore, as noted previously, there is a level of uncertainty in the

conditions leading to worst-case emissions for fugitive dusts. However, in the absence of better information regarding actual short-term impacts from fugitive dust sources, the combination of average hourly emission level and worst-case meteorology was assumed to be useful for deriving protective acute impact estimates.

c. Uncertainties in Inhalation Exposure

The effects of human mobility on exposures were not included in the assessment. Specifically, short-term mobility and long-term mobility between census blocks in the modeling domain were not considered.¹² As a result, this simplification will likely bias the assessment toward overestimating the highest exposures. 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 for any one individual, but is an unbiased estimate of average risk and incidence.

The assessments evaluate the projected 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 emissions 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 United States 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 rare cases, where a facility maintains or increases its emissions levels beyond 70 years, residents live beyond 70 years at the same location, and the residents spend most of their days at that location, then the risks

¹² Short-term mobility is movement from one microenvironment 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.

could potentially be underestimated. Annual cancer incidence estimates from exposures to emissions from these sources would not be affected by uncertainty in the length of time emissions sources operate.

The exposure estimates used in these analyses assume chronic exposures to ambient 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, these levels are typically lower. This factor has the potential to result in an overstatement of 25 to 30 percent of exposures for some HAP.¹³

In addition to the uncertainties highlighted above, there are several factors specific to the acute exposure assessment 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 human activity patterns. In this assessment, we assume that individuals remain for 1 hour at the point of maximum ambient concentration as determined by the co-occurrence of peak emissions and worst-case meteorological conditions. These assumptions would tend to be worst-case actual exposures since it is unlikely that a person would be located at the point of maximum exposure during the time of worst-case impact.

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 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*

¹³ U.S. EPA. *National-Scale Air Toxics Assessment* for 1996. (EPA 453/R-01-003; January 2001; page 85.)

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 documentation 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 true value of a quantity" (although this is usually not a true statistical confidence limit).¹⁴ In some circumstances, the true risk could be as low as zero; however, in other circumstances the risk could be greater.¹⁵ 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, 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 reference (RfC and 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,¹⁶ *e.g.*, factors

¹⁴ IRIS glossary (http://www.epa.gov/NCEA/iris/help_gloss.htm).

¹⁵ 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.

¹⁶ 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*

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. 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).

As further discussed below, there is no RfD or other comparable chronic health benchmark value for lead compounds. Thus, to address multipathway human health and environmental risks associated with emissions of lead from this facility, ambient lead concentrations were compared to the NAAQS for lead. In developing the NAAQS for lead, EPA considered human health evidence reporting adverse health effects associated with lead exposure, as well as an EPA-conducted multipathway risk assessment that applied models to estimate human exposures to air-related lead and the associated risk (73 FR 66979). EPA also explicitly considered the uncertainties associated with both the human health evidence and the exposure and risk analyses when developing the NAAQS for lead. For example, EPA considered uncertainties in the relationship between ambient air lead and blood lead levels (73 FR 66974), as well as uncertainties between blood lead levels and loss of IQ points in children (73 FR 66981).

In considering the evidence and risk analyses and their associated uncertainties, EPA found that there is no evidence- or risk-based bright line that indicates a single appropriate level. EPA noted there is a collection of scientific evidence and judgments and other information, including information about the uncertainties inherent in many relevant factors, which needs to be considered together in making the public health policy judgment and in selecting a standard level from a range of reasonable values (73 FR 66998). In so doing, EPA decided that a level for the primary lead standard of 0.15 $\mu\text{g}/\text{m}^3$, in combination with the specified choice of indicator, averaging time, and form, is requisite to protect public health, including the health of sensitive groups, with an adequate margin of safety (73 FR 67006). A thorough discussion of the health evidence, risk and exposure analyses, and their associated uncertainties can be found in EPA’s final rule revising the lead NAAQS (73 FR 66970–66981, November 12, 2008).

We also note the uncertainties associated with the health-based (*i.e.*, primary) NAAQS are likely less than the uncertainties associated with dose-response values developed for many of the other HAP, particularly those HAP for which no human health data exist.

We also note that because of the multipathway, multi-media impacts of lead, the risk assessment supporting the NAAQS considered direct inhalation exposures and indirect air-related multipathway exposures from industrial sources like primary and secondary lead smelting operations. It also considered background lead exposures from other sources (like contaminated drinking water and exposure to lead-based paints). In revising the NAAQS for lead, EPA placed more weight on the evidence-based framework and less weight on the results from the risk assessment, although the risk estimates were found to be roughly consistent with and generally supportive of the evidence-based framework applied in the NAAQS determination (73 FR 67004). Thus, when revising the NAAQS for lead to protect public health with an adequate margin of safety, EPA considered both the health evidence and the risk assessment, albeit to different extents.

In addition to the uncertainties discussed above with respect to chronic, cancer, and the lead NAAQS reference values, there are also uncertainties associated with acute reference values. 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 peer-reviewed reference values for cancer and non-cancer effects for all pollutants emitted by the sources included in this assessment, some hazardous air pollutants continue to have no peer-reviewed reference values for cancer or chronic non-cancer or acute effects. Since exposures to these pollutants cannot be included in a quantitative risk estimate, an understatement of risk for these pollutants at environmental exposure levels is possible.

Additionally, chronic reference values for several of the compounds included in this assessment are currently under EPA IRIS review (*e.g.*, cadmium and nickel), and revised assessments may

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>.

determine that these pollutants are more or less potent than the current value. We may re-evaluate residual risks for the final rulemaking if, as a result of these reviews, a dose-response metric changes enough to indicate that the risk assessment supporting this notice may significantly understate or overstate human health risk.

e. Uncertainties in the Multipathway and Environmental Impacts Assessment

For the secondary lead smelting source category, two facilities were chosen as case study analyses to assess potential multipathway risks for mercury, cadmium, POM, and dioxins and furans. The selection criteria for modeling these two facilities included emissions rates of PB-HAPs, proximity to water bodies, proximity to farmland, average rainfall, average wind speed and direction, smelting furnace type, local change in elevation, and geographic representativeness of sites throughout the U.S. However, there is uncertainty as to whether these two facilities represent the highest potential for multipathway human health risks from the source category.

Since the modeling used in these case study assessments utilize site specific parameters to describe naturally occurring physical, chemical and biological processes, we believe that the multimedia concentrations of PB-HAPs generated in this analysis are unbiased estimates of the true impacts.

With respect to the risk estimates generated from this analysis, we present results based on two ingestion exposure scenarios: the RME and CTE scenarios. As noted above, we believe that these scenarios illustrate the range of potential modeled exposures and risks that may exist in the high-end of the complete distribution of potential multipathway risks for this source category.

We further note that high-end fisher populations could display considerable variability both in terms of the degree to which they frequent specific water bodies or watersheds and the degree to which they target specific types of fish (or at least sizes of fish). Both of these factors can impact estimates of exposure. If a fisher population distributes their activity across a range of water bodies and harvests a variety of fish species (and sizes) than the distribution of exposure and risk across that population will be smaller compared with a population that focuses activity at individual water bodies and tends to focus on larger fish.

To estimate potential high-end multipathway exposures and risks, in addition to utilizing fish consumption

rate data for the general U.S. population of recreational anglers,¹⁷ we used fish consumption information for distinct fisher subpopulations that are known to have higher fish consumption rates. The data were obtained from Shilling, *et al.* (2010).¹⁸ In this publication, the authors provide fish consumption information for different ethnic groups including Hispanics, Laotians, and Vietnamese surveyed in California's Central Valley Delta based on sample sizes of 45, 33, and 30, respectively. We note that there is uncertainty based on the limited sample sizes and in the extrapolation of these fish consumption rates to other parts of the United States. Further discussion of these values is provided in the risk assessment supporting documents. We request comment on the use of these data to support the RME analysis.

A more detailed discussion of the multipathway analysis and its associated uncertainties is presented in section 5.3 of the document Human Health Multipathway Residual Risk Assessment for the Secondary Lead Smelting Source Category, which can be found in the docket for the proposed rule.

f. Uncertainties in the Demographic Analysis

Our analysis of the distribution of risks across various demographic groups is subject to uncertainty associated with the extrapolation of census-block group data (*e.g.*, income level and education level) down to the census block level.

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

In evaluating and developing standards under section 112(f)(2), as discussed in Section I.A of this preamble, we apply a two-step process to address residual risk. In the first step, 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) ¹⁹ of approximately 1-in-10 thousand [*i.e.*, 100-in-1 million]" (54 FR 38045). In the second step of the

¹⁷ Data for the general U.S. population of recreational anglers was obtained from: EPA 2002, "Estimated Per Capita Fish Consumption in the United States, Office of Water, Office of Science and Technology, Washington, DC, EPA-821-G-02-003. August 2002.

¹⁸ Shilling, *et al.* 2010 is available in the docket for this rulemaking.

¹⁹ 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.

process, EPA sets the standard at a level that provides an ample margin of safety "in consideration of all health information, including the number of persons at risk levels higher than approximately 1-in-1 million, as well as other relevant factors, including costs and economic impacts, technological feasibility, and other factors relevant to each particular decision" (*Id.*)

In past residual risk actions, EPA has presented and considered a number of human health risk metrics associated with emissions from the category under review, including: The MIR; the numbers of persons in various risk ranges; cancer incidence; the maximum non-cancer hazard index (HI); and the maximum acute non-cancer hazard (72 FR 25138, May 3, 2007; 71 FR 42724, July 27, 2006). In our most recent proposals (75 FR 65068, October 21, 2010 and 75 FR 80220, December 21, 2010), EPA also presented and considered additional measures of health information, such as estimates of the risks associated with the maximum level of emissions which might be allowed by the current MACT standards (see, *e.g.*, 75 FR 65068, October 21, 2010 and 75 FR 80220, December 21, 2010). EPA also discussed and considered risk estimation uncertainties. EPA is providing this same type of information in support of the proposed actions described in this **Federal Register** notice.

The Agency is considering all available health information to inform our determinations of risk acceptability and ample margin of safety under CAA section 112(f). Specifically, 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). Similarly, with regard to making the ample margin of safety determination, as stated in the Benzene NESHAP "[in the ample margin decision, 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 Agency acknowledges that the Benzene NESHAP provides flexibility regarding what factors EPA might consider in making determinations and how these factors might be weighed for each source category. In responding to

comment on our policy under the Benzene NESHAP, EPA explained that: “The 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’” (54 FR at 38057).

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 1-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, 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).

EPA wishes to point out that certain health information has not been considered to date in making residual risk determinations. In assessing risks to populations in the vicinity of the facilities in each category, we present estimates of risk associated with HAP emissions from the source category alone (source category risk estimates),

and generally we have also assessed risks due to HAP emissions from the entire facility at which the covered source category is located (facility-wide risk estimates). We have not attempted to characterize the risks associated with all HAP emissions impacting the populations living near the sources in these categories. That is, 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. This is particularly important when assessing non-cancer risks, where pollutant-specific exposure health reference levels (*e.g.*, Reference Concentrations (RfCs)) are based on the assumption that thresholds exist for adverse health effects. For example, the 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 EPA SAB advised us “* * * 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.”²⁰

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. At this point, we believe that such estimates of total HAP risks will have significantly greater associated

uncertainties than for the source category or facility-wide estimates, and hence would compound the uncertainty in any such comparison. This is because we have not conducted a detailed technical review of HAP emissions data for source categories and facilities that have not previously undergone an RTR review or are not currently undergoing such review. We are requesting comment on whether and how best to estimate and evaluate total HAP exposure in our assessments, and, in particular, on whether and how it might be appropriate to use information from EPA’s National Air Toxics Assessment (NATA) to support such estimates. We are also seeking comment on how best to consider various types and scales of risk estimates when making our acceptability and ample margin of safety determinations under CAA section 112(f). Additionally, we are seeking comments and recommendations for any other comparative measures that may be useful in the assessment of the distribution of HAP risks across potentially affected demographic groups.

D. 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 1997 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 regulation to require any of the identified developments.

Based on our analyses of the data and information collected by the 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. For the purpose of 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 1997 NESHAP.
- Any improvements in add-on control technology or other equipment (that were identified and considered during development of the 1997

²⁰ 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](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.

NESHAP) that could result in significant additional emissions reduction.

- Any work practice or operational procedure that was not identified or considered during development of the 1997 NESHAP.

- 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 1997 NESHAP.

In addition to reviewing the practices, processes, or control technologies that were not considered at the time we developed the 1997 NESHAP, we reviewed a variety of data sources in our evaluation of whether there were additional practices, processes, or controls to consider for the secondary lead smelting industry. Among the data sources we reviewed were the NESHAP for various industries that were promulgated after the 1997 NESHAP.

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 possibly be applied to emissions sources in the Secondary Lead Smelting source category, as well as the costs, non-air impacts, and energy implications associated with the use of these technologies.

We also consulted EPA's RACT/BACT/LAER Clearinghouse (RBLC) to identify potential technology advances. Control technologies, classified as RACT (Reasonably Available Control Technology), BACT (Best Available Control Technology), or LAER (Lowest Achievable Emissions Rate) apply to stationary sources depending on whether the sources are existing or new, and on the size, age, and location of the facility. BACT and LAER (and sometimes RACT) are determined on a case-by-case basis, usually by State or local permitting agencies. EPA established the RBLC to provide a central database of air pollution technology information (including technologies required in source-specific permits) to promote the sharing of information among permitting agencies and to aid in identifying future possible control technology options that might apply broadly to numerous sources within a category or apply only on a source-by-source basis. The RBLC contains over 5,000 air pollution control permit determinations that can help identify appropriate technologies to mitigate many air pollutant emissions streams. We searched this database to determine whether it contained any practices, processes, or control technologies for the types of processes

covered by the Secondary Lead Smelting MACT.

Additionally, we requested information from facilities regarding developments in practices, processes, or control technology. Finally, we reviewed other information sources, such as State or local permitting agency databases and industry-supported databases.

E. What other issues are we addressing in this proposal?

In addition to the analyses described above, we also reviewed other aspects of the MACT standards for possible revision as appropriate and necessary. Based on this review we have identified aspects of the MACT standards that we believe need revision.

This includes proposing revisions to the startup, shutdown, and malfunction (SSM) provisions of the MACT rule in order to ensure that they are consistent with a recent court decision in *Sierra Club v. EPA*, 551 F.3d 1019 (DC Cir. 2008). In addition, we are proposing other various minor changes with regards to editorial errors and other revisions to promote the use of plain language. The analyses and proposed decisions for these actions are presented in Section IV.E of this preamble.

IV. Analyses Results and Proposed Decisions

This section of the preamble provides the results of our RTR for the Secondary Lead Smelting source category and our proposed decisions concerning changes to the 1997 NESHAP.

A. What are the results of our analyses and proposed decisions regarding unregulated emissions sources?

1. Organic HAP

As discussed in Section III.A of this preamble, we evaluated emissions limits for organic HAP for reverberatory furnaces not collocated with blast furnaces, rotary furnaces, and electric furnaces. Section 112(d)(3)(B) of the CAA requires that the MACT standards for existing sources be at least as stringent as the average emissions limitation achieved by the best performing five sources (for which the Administrator has or could reasonably obtain emissions information) in a category with fewer than 30 sources. The Secondary Lead Smelting source category consists of fewer than 30 sources. Where, as here, there are less than 30 sources, we base the MACT floor limit on the average emissions limitation achieved by those sources for which we have data.

EPA must exercise its judgment, based on an evaluation of the relevant

factors and available data, to determine the level of emissions control that has been achieved by the best performing sources under variable conditions. It is recognized in the case law that EPA may consider variability in estimating the degree of emissions reduction achieved by best-performing sources and in setting MACT floors. See *Mossville Env't'l Action Now v. EPA*, 370 F.3d 1232, 1241–42 (DC Cir 2004) (holding EPA may consider emissions variability in estimating performance achieved by best-performing sources and may set the floor at a level that a best-performing source can expect to meet “every day and under all operating conditions”). More details on how we calculate MACT floors and how we account for variability are described in the *Draft MACT Floor Analysis for the Secondary Lead Smelting Source Category* which is available in the docket for this proposed action.

With regard to the evaluation of potential MACT limits for organic HAP from this source category, consistent with the explanation presented in the proposal of the 1997 NESHAP (NESHAP for Secondary Lead Smelting, Proposed Rule, June 9, 1994, 59 FR 63941) for this source category describing the appropriateness of THC as a surrogate for organic HAP, we continue to consider THC as an appropriate surrogate for non-dioxin organic HAP in the proposed amendments to the NESHAP in today's action. Based on our data, there are currently only two reverberatory furnaces not collocated with a blast furnace, one rotary furnace, and two reverberatory furnaces mixed with electric furnaces (*i.e.*, two reverberatory furnaces whose exhaust are mixed with the exhaust of an electric furnace prior to atmospheric release) operating in this source category. Based on analysis of emissions data and furnace operating characteristics (as discussed further below), we believe it is appropriate to set one THC limit that will apply to reverberatory furnaces not collocated with a blast furnace and reverberatory furnaces mixed with electric furnaces, because of generally similar (and low) potential for organic HAP emissions from both furnace types. We are proposing a separate THC emissions limit for rotary furnaces.

We received THC emissions data for one reverberatory furnace not collocated with a blast furnace and one reverberatory furnace mixed with an electric furnace, and one rotary furnace. Therefore, for each of these furnace configurations, we have emissions data from at least half the units. We are soliciting emissions data for the

operating affected sources for which we don't have data. Based on the data that we have, we conducted a MACT Floor analysis.

As discussed above, the MACT floor limit is calculated based on the average performance of the units plus an amount to account for these units' variability. To account for variability in the operation and emissions, the stack test data were used to calculate the 99 percent upper predictive limit (UPL) for reverberatory furnaces not collocated with a blast furnace and reverberatory furnaces mixed with electric furnaces. For rotary furnaces, because we have only one test with two successful test runs, we considered both the 99 percent UPL and the 99 percent upper limit (UL) to account for variability in the emissions data. Our consideration of variability is explained in more detail in the technical document for this action: *Draft MACT Floor Analysis for the Secondary Lead Smelting Source Category, which is available in the docket for this action.*

The 99 percent UPL for exhaust THC concentrations from existing reverberatory furnaces not collocated with a blast furnace and reverberatory furnaces mixed with electric furnaces is 12 ppmv (expressed as propane) corrected to 4 percent CO₂ to account for dilution. Consistent with CAA section 112(d)(3), the MACT floor for new sources cannot be less stringent than the emissions control that is achieved in practice by the best-controlled similar source. The 99 percent UPL for exhaust THC concentrations from the best-performing affected source was calculated as 12 ppmv (expressed as propane) corrected to 4 percent CO₂.

We are also proposing a THC MACT limit for rotary furnaces. As mentioned previously, there is only one operating rotary furnace in the U.S. We received test data for this unit; however, it included only two successful test runs. The average of the two emissions test runs was 257 ppmv (expressed as propane and adjusted to 4 percent CO₂), and the highest of the two test runs was 292 ppmv (expressed as propane and adjusted to 4 percent CO₂). Using the 99 percent UPL approach, we calculated a MACT floor of 1700 ppmv, which is 6.6 times higher than the average. By using the 99 percent UL approach, we calculated a MACT floor of 610 ppmv (expressed as propane and adjusted to 4 percent CO₂) applicable to new and existing affected sources, which is 2.4 times higher than the average. Because of very limited emissions data, our statistical analysis does not clearly indicate whether the UPL or UL is a

better measure of the typical variability in performance of the unit. However, because the 99 percent UL approach resulted in a MACT floor that is more within the range of typical variability we expect when calculating MACT floors for various source categories and emissions points, the emissions limit calculated using the 99 percent UL was chosen as the proposed THC MACT floor for rotary furnaces in this action. However, we seek comments on this issue.

We considered beyond-the-floor options for THC standards for all of these furnace configurations, as required by section 112(d)(2) of the Act. However, we decided not to propose any limits based on the beyond the floor analyses for THC because of the costs, potential disadvantages of these additional controls (including increases in CO₂ and NO_x emissions), and non-air environmental impacts and adverse energy implications associated with use of these additional controls. The beyond-the-floor analysis is presented in the technical documentation for this action (*Draft MACT Floor Analysis for the Secondary Lead Smelting Source Category*). In summary, we are proposing that new and existing reverberatory furnaces not collocated with a blast furnace and reverberatory furnaces mixed with electric furnaces be subject to a THC concentration limit of 12 ppmv (expressed as propane) corrected to 4 percent CO₂. Additionally, we are proposing that both new and existing rotary furnaces be subject to a THC concentration limit of 610 ppmv (expressed as propane) corrected to 4 percent CO₂.

We propose that compliance with all the proposed THC limits will be demonstrated by annual performance tests, and that continuous monitoring of temperatures of control devices (*e.g.*, afterburners) and/or furnaces (*e.g.*, reverberatory furnaces) will be required as parametric monitoring to ensure continuous compliance with the THC limits.

No changes are being considered in this action for the THC limits for blast and collocated blast and reverberatory furnaces established in the 1997 NESHAP.

2. Dioxin and Furans

As mentioned previously, the 1997 NESHAP does not include emissions limits for dioxins and furans. Therefore, pursuant to CAA section 112(d)(3), we are proposing to revise the 1997 NESHAP to include emission limits for dioxins and furans. The form of these proposed standards are in the form of toxic equivalency quotient (TEQ)

concentration limits (*i.e.*, prorating the amount of total dioxins and furans allowed to the most toxic species of dioxin). For more information on the TEQ approach to calculating dioxin and furan emissions see the dioxin emissions guidance available at: <http://www.epa.gov/raf/hhtefguidance/>.

Because the formation of dioxins and furans is highly temperature dependent, and because the potential for dioxin and furan emissions varies considerably among different furnace types and configurations, EPA is proposing separate limits for each of the following furnace configurations: (1) Reverberatory furnaces not collocated with blast furnaces and reverberatory furnaces where the exhaust gases are mixed with the exhaust from electric furnaces; (2) blast furnaces; (3) collocated blast and reverberatory furnaces; and (4) rotary furnaces. A detailed analysis and documentation of the MACT floor calculations can be found in the technical document for this action: *Draft MACT Floor Analysis for the Secondary Lead Smelting Source Category*.

Based on the emissions data and furnace operating temperatures reported in ICR surveys, EPA is proposing a single TEQ emissions limit that will apply to reverberatory furnaces not collocated with a blast furnace and to reverberatory furnaces where the exhaust gases are mixed with electric furnaces. There are seven sources of this type in the industry. We received emissions data for two such affected sources. We are soliciting data for the affected sources of this type for which we don't have emissions data. The MACT floor emissions limit for this affected source was calculated based on the average of the two emissions tests plus variability (based on the 99 percent UPL). The 99 percent UPL for exhaust TEQ concentrations from the affected sources is 0.20 nanograms per dry standard cubic meter (ng/dscm) of TEQ corrected to 7 percent oxygen (O₂) to account for dilution. The 99 percent UPL calculated for new affected sources is 0.10 ng/dscm corrected to 7 percent O₂.

With regard to blast furnaces, there are nine sources of this type in the industry. We received dioxin and furan emissions data for two affected sources. Using the data from these two sources, we calculated that the 99 percent UPL for exhaust TEQ concentrations from blast furnaces is 170 ng/dscm at 7 percent O₂. For new blast furnaces, the 99 percent UPL is 10 ng/dscm at 7 percent O₂. We acknowledge the large difference between the performance of the two affected sources for which we

have data but have not identified a technical basis for the difference. We are soliciting information that may explain these differences and other comments on this topic, including comments regarding the calculation of MACT floor limits for these sources. Additionally, we are soliciting data for the seven affected sources of this type for which we don't have emissions test data.

There are five collocated blast and reverberatory furnaces in the industry. We received emissions test data for one of the affected sources. The calculated 99 percent UPL is 0.5 ng/dscm at 7 percent O₂ and would apply to both new and existing collocated blast and reverberatory furnaces. We are soliciting data for the remaining four affected sources for which we don't have emissions data.

As previously noted, there is only one rotary furnace currently in operation and we received emissions data for this source. Similar to THC emissions, we have only two emissions test runs for this unit. For the same reasons explained above for THC, we developed a MACT floor limit of 1.0 ng/dscm of TEQ corrected to 7 percent O₂ based on the 99 percent UL, as opposed to the UPL. Thus, an emissions limit based on the MACT floor for existing and new rotary furnaces would be 1.0 ng/dscm of TEQ corrected to 7 percent O₂.

We then considered beyond-the-floor options to further reduce emissions of dioxins and furans, especially from blast furnaces since blast furnaces have higher emissions compared to the other furnace types. The options considered, included an option based on setting a MACT limit for existing sources based on the performance of the best performing source (*i.e.*, based upon the test data used to calculate the MACT floor for new sources) such that the MACT limit for existing sources would be the same as the MACT limit for new sources (*i.e.*, 10 ng/dscm). However, since we are uncertain about the performance of the other blast furnaces and whether it would be feasible for them to meet a limit of 10 ng/dscm and what the costs would be, we are not proposing MACT limits for existing blast furnaces based on this one set of data in today's action. We do have data for two other blast furnaces that are not controlled with reverberatory furnaces, but because of the configuration of the stacks (blast furnace off-gas is mixed with reverberatory furnace off-gas), we were unable to determine the amount of dioxin that originated from the blast furnace alone compared to the dioxin that was due to the reverberatory furnace. Therefore, these data were not used in the calculation of the blast

furnace MACT limits. However, we note that the dioxin concentrations emitted from these sources was in the range of the better performing of the two blast furnaces that were used in the calculations of the MACT Floor. Nevertheless, we are seeking comments as to whether it would be appropriate to establish a MACT limit based upon the data from the one better performing blast furnace or if it would be appropriate to use the data from the mixed sources to determine a MACT limit for Blast furnaces. A MACT limit based upon the data from the one better performing blast furnace (using the 3 test results and applying the 99 percent UPL) would be 10 ng/dscm. We are seeking comments on whether this limit, or some other limit, would be appropriate for Blast Furnaces.

The key conditions typically associated with determining the extent of dioxin and furan formation are combustion efficiency, complex organic fuels, particulate concentration in the flue gas, time in a critical temperature window of approximately 250 to 450 degrees C, and the amount of chlorine present. Increased chlorine concentrations in the furnace feed can increase the dioxin formation. The blast furnaces tested have higher emissions of dioxins and furans than other furnace types. We believe this is because these furnaces are designed to operate at lower temperatures, and these operating temperatures can lead to dioxin formation. Controls for dioxins and furans once they have formed include a high temperature oxidation with quick quenching of the off-gases, or activated carbon injection followed by fabric filtration. Fabric filtration alone has also been demonstrated to provide significant control of dioxins and furans, and because improvements are expected in the performance of fabric filters as a result of standards being proposed for lead in today's action, it is anticipated that some additional reduction in dioxin emissions may occur as a co-benefit of the proposed lower limits for lead. Nevertheless, we are seeking data and information on dioxin emissions from blast furnaces, possible control options, factors that affect dioxin formation and other related information to inform the development of appropriate standards for dioxin and furan emissions from these sources.

As described below, we are also proposing a work practice standard to prevent plastics (which are complex organics and may contain chlorine) from entering furnaces as a beyond-the-floor option. We also considered an option that involves installation of additional afterburner capacity at the facilities

operating blast furnaces. This option would include operating the currently installed afterburners at high temperatures and with sufficient residence time to destroy dioxins, or installation of new or additional afterburner capacity with this capability. Based on the current level of performance identified in the ICR surveys, we believe that this option would require four facilities to install afterburner capacity at their facility in order to operate the units at these conditions. The estimated total capital cost for the additional controls is \$5.9 million, with a total annualized cost of \$2.9 million. We estimate that TEQ emissions would be reduced by roughly 28 grams per year (and organic HAP emissions by 200 tons per year) resulting in a total estimated cost effectiveness of \$103,600 per gram of dioxin TEQ and \$14,500 per ton organic HAP (see: *Draft MACT Floor Analysis for the Secondary Lead Smelting Source Category* for more details).

In light of the costs of these additional controls and since these controls would have some disadvantages, including causing increases in CO₂ and NO_x (oxides of nitrogen) emissions and increased fuel use, and given the uncertainties regarding how effective these controls would be, we are not proposing more stringent numerical emissions limits based on this beyond-the-floor analysis. Nevertheless, we are seeking data and information on dioxin and furan emissions from blast furnaces and the costs and feasibility of additional controls and emissions reductions, including the beyond-the-floor options described above.

Based on all the analyses described above, under CAA section 112(d)(3), we are proposing to revise the 1997 NESHAP for this source category to include the following emissions limits for dioxins and furans:

- For reverberatory furnaces not collocated with blast furnaces and reverberatory furnaces where the exhaust gases are mixed with electric furnaces, we are proposing emissions limits of 0.20 ng/dscm at 7 percent O₂ and 0.1 ng/dscm at 7 percent O₂ for existing and new affected sources, respectively.
- For blast furnaces, we are proposing emissions limits of 170 ng/dscm at 7 percent O₂ and 10 ng/dscm at 7 percent O₂ for existing and new sources, respectively.
- For collocated blast and reverberatory furnaces, we are proposing an emissions limit of 0.5 ng/dscm at 7 percent O₂ for both new and existing sources.
- For rotary furnaces, we are proposing an emissions limit of 1.0 ng/dscm at 7 percent O₂ for both new and existing sources.

Compliance with the TEQ limits will be demonstrated through an initial

compliance test followed by a compliance test at least once every 5 years. The TEQ emissions will be calculated using the toxic equivalency factors (TEF) outlined by the World Health Organization (WHO) in 2005 (available at Web site: <http://www.epa.gov/raf/hhtefguidance/>). Additionally, we are proposing that facilities must establish limits for the furnace exhaust temperature or afterburner operating temperature during the initial performance test. These temperatures must be maintained and monitored continuously between compliance tests to ensure that the controls are working properly to limit dioxin and furan emissions.

In addition to the emissions limits described above, we are proposing that each facility must operate a process to separate plastic battery casing material prior to introducing feed into a blast furnace. Separation of plastic materials prior to the furnace will limit the organic component in the feed material, minimizing the formation of organic HAP, including dioxins and furans. It is our understanding that all facilities currently have a plastics separation process (that they implement on a voluntary basis) so this proposed requirement results in very minimal additional costs to the industry, if any. We are proposing this as a requirement (*i.e.*, propose to convert this from a voluntary activity to a regulatory requirement) to ensure that facilities continue to implement the separation process to help minimize formation of dioxins and furans. Moreover, we considered proposing a minimum percent of plastics separation requirement (such as ensuring that a minimum of 95 percent of total plastics are separated from the scrap materials before being fed to furnaces). However, we did not have sufficient data to determine an appropriate specific percent. Nevertheless, we are seeking data and comments regarding the percent separation that can be achieved by the available processes and the potential to establish such a minimum percent separation requirement. Moreover, we are seeking information and comments on the various types of plastics separation processes and equipment used, and the relative feasibility and effectiveness of those processes and equipment. We are also seeking comments and information on potential methods to improve overall plastics separation, or methods to improve separation of certain types of plastics that may have higher potential for dioxin formation (*e.g.*, chlorinated plastics). Finally, we are seeking

information on appropriate recordkeeping and reporting requirements for these proposed work practices.

3. Mercury Emissions

Based on the emissions test data received under the ICR, we considered proposing an emissions limit for mercury under CAA section 112(d)(3). However, after careful review of the data from the ICR, we have decided not to propose a numerical limit for mercury. We found that the measured stack concentrations of mercury were consistently below the detection levels of the EPA test methods (52 out of 76 total test runs for mercury contained data below the detection limit, or 68 percent of the entire data set). Consequently, EPA considers it impracticable to reliably measure mercury emissions from these units.

We instead considered work practice standards under 112(h) for mercury emissions from this category. The difficulties with accurate measurements at the levels encountered from secondary lead smelters makes a measured standard technologically impracticable, and possibly economically impracticable as well (there appears to be no reliable way to measure compliance at such low levels even with the most carefully conducted tests). Given the factors described above, we conclude it is appropriate to consider work practice standards under 112(h) for mercury rather than numerical emissions limits under Section 112(d)(3).

Therefore, we considered establishing work practice standards under CAA section 112(h) to minimize the potential for mercury emissions. Based on information submitted under the ICR, all facilities have baghouses to control lead and other particulate matter (PM) emissions. These control devices are very effective at controlling non-volatile HAP metals (*e.g.*, a well performing baghouse captures more than 99 percent of lead emissions). These devices do not capture mercury as efficiently as the non-volatile metals. However, available data from other industries (such as coal-fired power plants) indicate that baghouses do provide some level of mercury control. For example, emissions data from coal-fired power plants suggest that baghouses can capture approximately 50 to 90 percent of mercury emissions depending on the speciation of the mercury compounds and other factors. (Reference: "Control of Mercury Emissions from Coal Fired Electric Utility Boilers: An Update." National Risk Management Research Laboratory, Office of Research and

Development, U.S. EPA. February 18, 2005, available at: <http://www.epa.gov/ttn/atw/utility/utiltoxpg.html>).

Therefore, we are proposing that facilities must have continuous operation of a BLDS with a detection level of 1.0 mg/dscm for PM to ensure their baghouses are working properly as a work practice to limit mercury emissions. This is the same requirement proposed for lead emissions monitoring in this rulemaking under CAA sections 112(f)(2) and 112(d)(6), and will therefore pose no additional burden to the industry. Further, the proposed stack standards for lead will also adequately control mercury such that no further standard is necessary. The standard would be implemented continuously for all metals by the BLDS measurement.

Nevertheless, we also investigated the feasibility of additional work practices to determine if there were other cost-effective pollution prevention measures that could be applied to this industry to further minimize mercury emissions such as source separation approaches. Based on available information, analyses, and discussion with industry, we understand that the vast majority of input materials have very low mercury content (*e.g.*, lead acid batteries). However, we also understand that other types of scrap such as industrial batteries, various construction materials, and other scrap materials are occasionally processed in these furnaces materials. To ensure that mercury-bearing materials are not included in such scrap, we considered proposing that facilities inspect their input scrap materials daily to ensure that mercury-bearing materials are not fed to the furnaces. However, we are not aware of any identifiable or recoverable sources of mercury in the scrap fed to secondary lead smelters and we are also concerned that such work practices could be infeasible. Therefore, we are not proposing such a standard in today's action. However, we are soliciting comments on the appropriateness and feasibility of implementing such a work practice standard for mercury. We are also interested in information regarding any other pollution prevention practices for mercury that may be feasible or appropriate for this source category.

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

As described above, for the Secondary Lead Smelting source category, we conducted an inhalation risk assessment for all HAP emitted. We also conducted multipathway analyses for cadmium, dioxins and furans, mercury, and POM, as well as air-related multipathway

analyses for lead. With respect to lead, we used the recently promulgated lead NAAQS to evaluate the potential for air-related multipathway and environmental effects. Furthermore, we conducted a demographic analysis of population risks. Details of the risk assessments and additional analyses can be found in the residual risk documentation referenced in Section

III.B of this preamble, which is available in the docket for this action. The Agency considered the available health information—the MIR; the numbers of persons in various risk ranges; cancer incidence; the maximum non-cancer hazard index (HI); the maximum acute non-cancer hazard; the extent of non-cancer risks; the potential for adverse environmental effects; and distribution

of risks in the exposed population (54 FR 38044, September 14, 1989)—in developing the proposed CAA section 112(f)(2) standards for the Secondary Lead source category.

1. Inhalation Risk Assessment Results

Table 3 of this preamble provides an overall summary of the results of the inhalation risk assessment.

TABLE 3—SECONDARY LEAD SMELTING INHALATION RISK ASSESSMENT RESULTS

Maximum individual cancer risk (in 1 million) ¹		Estimated population at increased risk of cancer ≥1-in-1 million	Estimated annual cancer incidence (cases per year)	Maximum chronic non-cancer TOSHI ²		Maximum screening acute non-cancer HQ ³
Based on actual emissions level	Based on allowable emissions level			Based on actual emissions level	Based on allowable emissions level	
50	200	128,000	0.02	0.6	3	30

¹ Estimated maximum individual excess lifetime cancer risk due to HAP emissions from the source category.

² Maximum TOSHI. The target organ with the highest TOSHI for the Secondary Lead Smelting source category is the kidney.

³ The maximum HQ acute value of 30, driven by emissions of arsenic, is based on the only available acute dose-response value available for arsenic, which is the REL. See Section III.B of this preamble for explanation of acute dose-response values.

The results of the chronic inhalation cancer risk assessment indicate that, based on estimates of current actual emissions, the maximum individual lifetime cancer risk (MIR) could be up to 50-in-1 million, with fugitive dust emissions of arsenic, and to a lesser extent fugitive dust emissions of cadmium (see below), driving these risks. The total estimated cancer incidence from this source category based on actual emission levels is 0.02 excess cancer cases per year or one case in every 50 years, with emissions of arsenic and cadmium contributing 73 percent and 15 percent respectively, to this cancer incidence. In addition, we note that approximately 1,500 people are estimated to have cancer risks greater than 10-in-1 million, and approximately 128,000 people are estimated to have risks greater than 1-in-1 million. When considering the risks associated with MACT-allowable emissions, the MIR could be up to 200-in-1 million.

The maximum modeled chronic non-cancer TOSHI value is 0.6 based on actual emissions, driven primarily by fugitive dust emissions of arsenic. When considering MACT allowable emissions, the maximum chronic non-cancer TOSHI value could be up to 3.

Based on using the acute REL to assess possible acute non-cancer effects due to emissions of arsenic, our screening analysis estimates that the maximum acute HQ value for a facility in this source category could be up to 30. Moreover, this analysis estimates that acute HQ values could exceed a

value of 1 at nine facilities.²¹ These exceedances are mainly due to fugitive emissions at most of these nine facilities. However, stack emissions, while generally not the principle driver of maximum acute HQ values greater than 1, contribute about 90 percent of the risk at the facility which has the maximum acute HQ screening value of 30. We note that the California REL is the only acute value available, and we request comments on the use of this value as well as comments on the existence of other peer reviewed values that may be used to inform acute risks.

In summary, the analysis indicates that arsenic and cadmium emissions pose risks to public health due to inhalation exposures resulting from both fugitive and stack emissions (see above). Lead and dioxin and furan emissions also pose risks to public health, but these HAP are assessed separately as part of multipathway assessments described below. Based on our risk assessment, no other HAP were identified as contributing significant risks.

With respect to the potential for adverse environmental effects from non PB–HAP, we note that that there is a lack of information about specific adverse environmental effects occurring at a given concentration of HAP for this source category. However, given that all chronic non-cancer HQ values considering actual emissions are less

than 1 using human health reference values, we believe that it is unlikely that adverse environmental effects would occur at the actual HAP concentrations estimated in our human health risk assessment.

2. Multipathway Risk Assessments and Results

As noted above, in evaluating the potential for multipathway effects from emissions of lead, we compared modeled maximum 3-month rolling average lead concentrations (based on estimates of actual emissions) with the lead NAAQS. Results of this analysis indicate that, if current emission levels continue, the lead NAAQS could be exceeded at 12 of the 14 facilities and that nine facilities could have ambient levels that are at least 2–3 times above the NAAQS, largely due to actual fugitive dust emissions. Moreover, available ambient monitoring data for lead confirms that ambient air concentrations of lead are well above the lead NAAQS near seven of these facilities. As described in the technical document *Draft Summary of Ambient Lead Monitoring Data near Secondary Lead Smelting Facilities*, which is available the docket, the measured ambient levels (for 3-month maximum rolling concentrations) for year 2010 range from 1.00 to 0.26 µg/m³ for the seven facilities, and for year 2008, the measured values were up to 2.49 µg/m³.

When considering actual stack emissions only (*i.e.*, in the theoretical absence of fugitive dust emissions), we estimate that one facility would be about 3 times above the NAAQS. Moreover, we estimate that the risks

²¹ Individual facility acute HQ values for all facilities can be found in Appendix 5, Table 3, of the risk assessment document that is included in the docket for this proposed rulemaking. Acute HQ values exceeding a value of 1 were as follows: 2, 2, 2, 3, 4, 5, 6, 20 and 30.

associated with MACT-allowable stack emissions would be significantly higher. For example, we estimate that based on MACT-allowable emissions from stacks alone (not including fugitive dust emissions), the ambient lead concentrations could be about 10 times above the NAAQS at two facilities.

Considering the results presented above, fugitive dust emissions, and to a lesser extent emissions from stacks, resulted in modeled lead concentrations above the NAAQS. We also note when considering all emissions (*i.e.*, stack and fugitive dust emissions), our analysis indicates that maximum off-site 3-month rolling average lead concentrations could be up to 20 times the lead NAAQS near one facility's fence line.²²

To evaluate the potential for adverse environmental effects from lead, we compared modeled maximum 3-month rolling average lead ambient air concentrations with the current secondary lead NAAQS, which is identical to the primary, public health-based standard (see Section III.B.3 of this preamble). Thus, our analyses discussed above also indicate the potential for adverse environmental effects from emissions of lead.

As noted above (section III.B.4), based on a multipathway screening analysis for emissions of non-lead PB-HAP from this source category, emissions of cadmium, dioxins and furans, and POM were all above the *de minimis* emissions rates that suggest the potential for non-negligible (*i.e.*, greater than 1-in-1 million cancer risk or greater than a noncancer hazard quotient of 1) risk of adverse health effects from multipathway exposures.²³ With regard to mercury, emissions are quite low for this category. In fact, most emissions tests for mercury for this source category were below MDL. Nevertheless, using conservative worst-case assumptions (*e.g.*, assuming all non-detects for mercury were equal to the detection

limit, as described in Sections IV.A and IV.B of this preamble), we estimated that mercury emissions could be above the *de minimis* emissions rates described above (see Section III.B of this preamble).

As a result of this conservative screening analysis, we performed two detailed case study multipathway analyses for these four PB-HAP in areas near the Frisco Recycling (Frisco, TX) and Revere Smelting & Refining (Middletown, NY) facilities.²⁴ Moreover, as previously mentioned above (section III.B.4), in order to more fully characterize the potential multipathway risks associated with high end consumption of PB-HAP contaminated food, we present results based on RME and CTE scenarios. The RME scenario utilizes 90th percentile ingestion rates for farmers, recreational anglers, and for three subpopulations of recreational anglers) who have higher rates of fish consumption (Hispanic, Laotian, and Vietnamese descent), while the CTE scenario utilizes mean ingestion rates for each of these groups. We provide results from both scenarios to illustrate the range of potential modeled exposures and risks that may exist in the high-end of the complete distribution of potential multipathway risks for this source category.

Considering the RME scenario, results of this analysis estimate the MIR for dioxin to be 30 in a million (based on Laotian anglers near the Frisco, TX facility). Using the CTE scenario, the maximum individual cancer risk from dioxins is estimated to be 6 in a million (also for Laotian anglers near the Frisco, TX facility). We note that, for the entire distribution of recreational anglers, the individual risk estimates for the CTE and RME scenarios ranged from 3 to 7 in a million. Considering both exposure scenarios, the MIR for POM was less than 1 in a million. With respect to chronic noncancer risk, in both case

studies, using both exposure scenarios, we did not estimate chronic HQ values greater than 1 for dioxin, mercury (even using the conservative emission assumptions just mentioned above) or cadmium. Detailed methods and results of the multipathway analysis are presented in the document Human Health Multipathway Residual Risk Assessment for the Secondary Lead Smelting Source Category, which can be found in the docket for the proposed rule.

With respect to the potential for adverse environmental effects from the non-lead PB-HAP included in the case study multipathway assessments described above (*i.e.*, multipathway assessment for cadmium, dioxins and furans, POM, and mercury), similar to non PB-HAP, there is a lack of information about specific adverse environmental effects occurring at a given concentration for these pollutants. However, given that the multipathway assessments for these pollutants estimated that all chronic non-cancer HQ values are less than 1 using human health reference values, we believe that it is unlikely that adverse environmental effects would occur at the PB-HAP concentrations estimated in the multipathway assessment.

3. Facility-Wide Risk Assessment Results

For this source category, there are no other significant HAP emissions sources present. All significant HAP sources have been included in the source category risk analysis. Therefore, we conclude that the facility-wide risk is essentially the same as the source category risk and that no separate facility-wide analysis is necessary.

4. Demographic Risk Analysis Results

To identify specific groups that may be affected by this rulemaking, EPA conducted demographic analyses. These analyses provide information about the demographic makeup of populations with: (1) Estimated cancer risks at or above 1-in-1 million; and (2) estimated ambient air lead concentrations above the NAAQS for lead. Results are summarized in Table 4 of this preamble and are based on modeling using estimated actual emissions levels for the populations living within 50 km of any secondary lead smelting facility.

²² Secondary lead smelting modeled ambient lead concentrations for all facilities can be found in Table 3.2–3 of the risk assessment document that is included in the docket for this proposed rulemaking. Facilities with modeled ambient lead concentrations exceeding the NAAQS did so by 23, 19, 10, 6, 5, 4, 4, 3, 3, 1.5, 1.4 and 1.3 fold.

²³ For facilities in this source category: Cadmium, BaP, dioxins and furans, and mercury estimated emission rates were up to about 8, 24, 23,000, and 4 times above their respective *de minimis* emissions rates.

²⁴ As previously noted above, the reasons that EPA selected these two facilities for analysis are described in detail in section 2.5.1 of the document Human Health Multipathway Residual Risk Assessment for the Secondary Lead Smelting Source Category, which can be found in the docket for the proposed rule. The selection criteria for modeling these two facilities included emissions rates of PB-HAPs, proximity to water bodies, proximity to farmland, average rainfall, average wind speed and direction, smelting furnace type, local change in elevation, and geographic representativeness of sites throughout the U.S.

TABLE 4—SECONDARY LEAD SMELTING DEMOGRAPHIC RISK ANALYSIS RESULTS

Population	Nationwide	Population with cancer risk greater than 1-in-1 million	Population with ambient air lead concentrations exceeding the NAAQS
Total population	285,000,000	128,000	500
Race by percent			
White	75	58	94
All Other Races	25	42	6
Race by percent			
White	75	58	94
African American	12	7	2
Native American	0.9	0.8	0.6
Other and Multiracial	12	34	3
Ethnicity by percent			
Hispanic	14	56	5
Non-Hispanic	86	44	95
Income by percent			
Below poverty level	13	22	10
Above poverty level	87	78	90
Children			
Children, Ages 0–18	27	32	26

Results of the cancer risk assessment indicate that there are approximately 128,000 people exposed to a cancer risk greater than 1-in-1 million. For informational purposes, it can further be determined that about 42 percent of this population can be classified as a minority (listed as “all Other Races” in the table), which is above the national percentage of 25 percent. More specifically, this analysis estimates a greater percentage of this population is “Hispanic” (56 percent) and “Other and Multiracial” (34 percent) when compared to the corresponding national percentages (14 percent and 12 percent, respectively). We also note that in the cancer demographics analysis there is a larger percentage of individuals “Below Poverty Level” (22 percent) when compared to the national percentage (13 percent). In contrast, this analysis estimates the percentage of those classified as “African American” (7 percent) and “Native American” (0.8 percent) to be below corresponding national percentages (12 and 0.9 percent, respectively).

With respect to lead, the risk analysis estimates that 500 people are living in areas around this source category with modeled ambient air lead concentrations above the NAAQS for lead. The lead demographics analysis

estimates that about 6 percent of this population can be classified as a minority (listed as “all Other Races” in the table). Moreover, all minority or below the poverty level populations considered in the demographics analysis for lead are below the corresponding national percentages for these groups.

Moreover, given the extent to which lead may impact children’s health, we further note that our demographic analysis doesn’t indicate the presence of a higher percentage of children than one would normally expect around facilities in this source category. The national percentage of people who are children 18 years and younger is 27 percent; the percentage of people who are children 18 years or younger living near secondary lead smelting facilities who are estimated to be exposed to lead concentrations above the lead NAAQS is 26 percent (see *Risk and Technology Review—Analysis of Socio-Economic Factors for Populations Living Near Secondary Lead Smelting Facilities* in the docket for this proposed rulemaking).

C. What are our proposed decisions based on risk acceptability and ample margin of safety?

1. Risk Acceptability

As noted in Section III.C of this preamble, we weigh all health risk factors in our risk acceptability determination, including cancer risks to the individual most exposed, risk estimation uncertainty, and other health information, including population risks and risks for non-cancer health effects. The following sections discuss our decisions on risk acceptability based on three analyses: (1) Comparison of modeled ambient lead concentrations with the lead NAAQS, (2) the inhalation risk assessment, and (3) the multipathway risk assessment.

a. Comparison of Modeled Ambient Lead Concentrations With the Lead NAAQS

With regard to lead emissions, because ambient air lead concentrations resulting from current emissions from nine facilities were estimated to be well above the lead NAAQS, the risks associated with lead emissions from this source category are judged to be unacceptable. Based on our modeling analysis, we estimate that ambient air lead concentrations near the facility boundary resulting from actual

emissions from one of these facilities could be as high as 20 times above the lead NAAQS, due primarily to fugitive dust emissions. Additionally, approximately 500 individuals could be exposed to three-month-rolling average lead concentrations in excess of the NAAQS due to emissions from this source category. Moreover, we estimate that the risks would be significantly higher based on MACT-allowable emissions of lead from this source category. Exposure to levels this much in excess of a primary NAAQS raises obvious issues of adequacy of protection afforded by the current MACT standard. Among other things, the lead NAAQS was set to “provide increased protection for children and other at-risk populations against an array of adverse health effects, most notably including neurological effects in children, including neurocognitive and neurobehavioral effects” (73 FR 67007). EPA is thus proposing that these ambient lead levels need to be reduced to provide protection to public health with an ample margin of safety.

b. Inhalation Risk Assessment

Based on the inhalation risk assessment, we estimate that the cancer risks to the individual most exposed could be as high as 50-in-1 million due to actual emissions and as high as 200-in-1 million due to MACT-allowable emissions, mainly due to arsenic stack emissions and, to a lesser extent, cadmium emissions. We estimate that the incidence of cancer based on actual emissions is 0.02 excess cancer cases per year, or one case every 50 years. Based on these results, we conclude that the cancer risks due to MACT-allowable emissions from this source category are unacceptable. The cancer risks due to actual emissions are below 100-in-1 million and population risks are relatively low. Therefore, cancer risks due to actual emissions are considered acceptable.

With respect to potential acute non-cancer health risks, we estimate that, based on our screening analysis, the worst-case HQ value could be up to 30 (based on the REL) at one facility, due primarily to arsenic emissions. Additionally, we estimated that nine facilities had potential worst-case HQs greater than 1 in our screening analysis, also due primarily to arsenic emissions. These results suggest that arsenic emissions have the potential to cause acute non-cancer health effects. However, the worst-case nature of our acute screening assessment suggests that the potential for these effects carries a relatively low probability of occurrence.

Nevertheless, we seek comments regarding this conclusion.

c. Multipathway Risk Assessment

Based on our multipathway risk assessment, we estimate that the MIR for cancer using a reasonable maximum or a central tendency exposure scenario (see above) could be up to 30-in-1 million and 6-in-1 million respectively, due to actual emissions of dioxins and furans. Because the MIR is less than the 100-in-1 million threshold, we conclude that the risks due to actual dioxin and furan emissions are acceptable. Because emissions of other HAP (*i.e.*, cadmium and POM) analyzed in the multipathway risk assessments did not result in MIRs above 1-in-1 million, we also conclude that the risks due to emissions of these HAP are acceptable.

d. Summary of Conclusions

In summary, we conclude that, based on our lead NAAQS analysis, the risks due to lead emissions under the MACT standard for this source category are unacceptable. Based on the inhalation risk assessment, we conclude that cancer risks associated with MACT-allowable emissions from this source category are unacceptable, primarily due to arsenic emissions from stacks, and to a lesser extent cadmium emissions. The cancer risks associated with actual emissions from this source category were determined to be acceptable, but will be investigated further in the ample margin of safety analysis because the risks are greater than 1-in-1 million, primarily due to fugitive emissions of arsenic and cadmium.

We will also evaluate the arsenic emissions further under the ample margin of safety because of the potential for acute non-cancer risks. Lastly, the risks from emissions of all HAP considered in the multipathway assessment are acceptable. Nevertheless, as described in section 2 below, we evaluate the HAP further under the ample margin of safety analysis.

2. Proposed Controls and Analysis of the Resulting Risk

a. Allowable Stack Emissions

In order to ensure that the risks associated with MACT-allowable stack emissions from this source category are acceptable, the MIR, resulting primarily from allowable stack emissions of arsenic, would need to be reduced by at least a factor of 2 (*i.e.*, from 200-in-1 million to 100-in-1 million or lower). Also, based on our analyses, MACT allowable emissions of lead from stacks alone (not including fugitive dust emissions) could result in ambient lead

concentrations about 10 times above the NAAQS for two facilities. Because the controls for stack emissions of arsenic are the same as those for lead, and because the relationship between emissions and the MIR and ambient air lead concentrations is predominantly linear, we estimated that the current stack lead concentration limit would need to be reduced by approximately an order of magnitude to ensure acceptable risk from MACT-allowable emissions of lead and arsenic from this source category. Therefore, we considered lowering the existing lead concentration limit by an order of magnitude (*i.e.*, from 2.0 mg/dscm to 0.2 mg/dscm) for all stacks. We also considered different forms of a revised lead emissions limit that would achieve similar reductions in MACT-allowable emissions. However, based on a combination of data analysis, evaluation of each facility's processes, and communication with the industry, we have determined that a concentration-based limit continues to be the most appropriate form for this source category.

We also evaluated an approach that would implement a facility-wide, flow-weighted average lead concentration limit of 0.20 mg/dscm with a maximum concentration limit of 1.0 mg/dscm for any individual stack. For the 0.2 mg/dscm flow-weighted average limit, facilities would assign a weighting factor to the measured lead concentrations of each stack based on the exhaust flow rates of each control device. The sum of all the flow-weighted concentrations at each stack within a facility would then be calculated and compared to the proposed limit to demonstrate compliance. A limit in this form would ensure that the risks associated with MACT-allowable stack emissions of lead and arsenic from this source category are acceptable, and that the rule provides an ample margin of safety, while providing flexibility to the facilities in determining the most efficient approach to achieve the necessary reductions. Proposing a maximum concentration limit of 1.0 mg/dscm for any individual stack will also ensure that stack emissions of lead from any one stack in this source category will not result in exceedances of the lead NAAQS. Furthermore, our analysis of available control technologies, presented in Section IV.D of this preamble, confirms that this is a technologically feasible standard.

For these reasons, under the authority of CAA section 112(f)(2), we are proposing a facility-wide, flow-weighted average lead concentration limit of 0.20 mg/dscm to cover all stacks in this

source category. We are also proposing a maximum lead concentration limit of 1.0 mg/dscm to apply to any individual stack at existing facilities. For new sources, we are proposing that a limit of 0.20 mg/dscm applies to all individual stacks at the facility. As in the existing MACT standard, compliance for existing sources will be demonstrated by annual stack testing and installation and operation of BLDSs for both new and existing sources.

We are also proposing that new affected sources would be required to demonstrate compliance using a lead continuous emissions monitoring systems (CEMS).²⁵ However, since the Agency has not finalized the performance specification for the use of these instruments, we are deferring the effective date of the requirement to install, calibrate, maintain and operate lead CEMS until these actions can be completed. The lead CEMS installation deadline will be established through future rulemaking, along with other pertinent requirements. In the event operations commence at a new affected source prior to promulgation of the performance specification, compliance would be demonstrated through annual stack testing and installation of a BLDS until promulgation of the lead CEMS performance specification. With regard to existing sources, we considered the possibility of proposing CEMs as the method to demonstrate compliance with the MACT limits. However, since the Agency has not yet finalized the performance specification for this method and since the costs could be high for applying this technology to multiple stacks, we are not proposing a requirement for CEMs for existing sources. However, we are allowing the option of a CEMS in lieu of annual stack tests for lead for existing sources in this industry when the technology is available and the EPA has established performance specifications. We are seeking comments and information on the feasibility of applying this technology for monitoring lead emissions from these sources and the potential to require CEMs on existing sources in this source category. Nevertheless, depending on comments received and other factors we may

²⁵ We do not believe that use of a lead CEM to meet the flow-weighted average of 0.2 mg/dscm poses issues of feasibility, even though our present data for the source data comes from stack tests rather than continuous measurements. This is because so many sources are achieving levels considerably less than 0.2 mg/dscm in their performance tests. (See "Summary of the Technology Review for Secondary Lead Smelters", which is available in the docket.)

consider requiring CEMs for existing sources in the future, if appropriate.

b. Fugitive Dust Emissions

As described in Section IV.C.1 of this preamble, we have determined that fugitive dust emissions must be reduced such that ambient lead concentrations near the facility boundaries are below the lead NAAQS (*i.e.*, 0.15 mg/dscm). Based on our review of information submitted in the ICR, we have identified a combination of specific fugitive control measures that are generally able to achieve lead concentrations near the boundaries of facilities that are below the lead NAAQS (see *Draft Technology Review for the Secondary Lead Smelting Source Category*). These controls include total enclosure of process fugitive emissions sources and material storage and handling areas and implementation of a list of prescribed work practices to further limit the formation of fugitive dust in other areas of the facilities. Examples of these prescribed work practices include: Pavement of all grounds on the facility or sufficient groundcover to prevent wind-blown dust, monthly cleaning of building rooftops, timely cleaning of any accidental releases, inspection of battery storage areas outside of enclosures for broken batteries, and performance of maintenance on equipment that may be contaminated with lead inside total enclosures. Our analysis indicates that these controls are necessary to ensure that three-month rolling average lead concentrations near the boundaries at all facilities in this source category do not exceed the lead NAAQS. Furthermore, our analysis of available control technologies in Section IV.D of this preamble confirms that this is a technologically feasible standard for this source category.

For the reasons described above, we are proposing under CAA section 112(f)(2) that each facility must totally enclose the following emissions sources and operate the total enclosure under negative pressure:

- (1) Smelting furnaces;
- (2) Smelting furnace charging areas;
- (3) Lead taps, slag taps, and molds during tapping;
- (4) Battery breakers;
- (5) Refining kettles, casting areas;
- (6) Dryers;
- (7) Agglomerating furnaces and agglomerating furnace product taps;
- (8) Material handling areas for any lead bearing materials (drosses, slag, other raw materials), excluding areas where unbroken lead acid batteries and finished lead products are stored; and

(9) Areas where dust from fabric filters, sweepings or used fabric filters are handled or processed.

The ventilation air from the total enclosures must be conveyed to a control device. We are also proposing that the emissions from the enclosure control devices will be subject to the proposed stack lead emissions limits described in this section.

In addition, we are proposing that facilities must implement the following fugitive control work practices: Pavement cleaning and vehicle washing; cleaning of building rooftops on a regular schedule (*e.g.*, at least once per month); cleaning of all affected areas after accidental releases; inspection of the battery storage areas for broken batteries; performance of maintenance activities inside enclosures; and transport of lead bearing material in closed systems. Additionally, each facility will be required to prepare, and at all times operate according to, a SOP manual that describes in detail how the additional work practices will be implemented.

We acknowledge that there may be other control measures and alternative approaches that we have not identified that are effective in reducing fugitive dust emissions at other facilities. Therefore, as an alternative to the requirement for full enclosure, we are proposing under CAA section 112(f)(2) that facilities may choose to implement the work practices, maintain partial enclosures and enclosure hoods as the 1997 NESHAP requires, prepare an SOP as described above and establish an ambient air monitoring network to ensure that lead concentrations in air near the facility boundaries remain at or below 0.15 $\mu\text{g}/\text{m}^3$ based on 3-month rolling averages (the level and averaging time of the lead NAAQS). The monitoring plan must include a minimum of two monitoring sites that are placed in locations that are most likely to capture measurements of the maximum concentrations at or near the facility boundaries. For example, at least one monitor must be placed in the predominant downwind direction from main emissions sources based on historical weather patterns in the area. This alternative regulatory requirement based on partial enclosures, work practices plus monitoring lead concentrations in air would provide flexibility to facilities in determining the within-facility sources that should be enclosed and vented to a control device that are most effective for reducing fugitive emissions at their facilities. These proposed requirements will ensure that the risks associated with fugitive lead emissions from this

source category are acceptable. Nevertheless, we are seeking comments on this proposed alternative requirement, including whether two monitors would be sufficient or if more monitors may be warranted.

If this alternative approach is chosen by the facility, the work practices and SOP along with the lead concentration in air monitoring would be established as the enforceable requirements to address fugitive emissions under the NESHAP. For both new and existing facilities, compliance with the lead concentration in air monitoring component would be demonstrated based on rolling 3-month average concentrations as measured by the lead compliance monitoring devices, consistent with the averaging time of the lead NAAQS (see documentation for EPA's Lead NAAQS, available at: <http://www.epa.gov/ttnnaqs/standards/pb>). We are proposing that approval by EPA is required for each source electing to comply by means of this alternative approach that includes a monitoring network plus work practices rather than compliance based on full enclosure plus work practices. Thus, the proposed alternative requires development of a monitoring plan for approval by the Administrator that includes the minimum sampling and analysis methods and compliance demonstration criteria. Under this alternative, facilities would also be required to provide a work practice SOP manual to the Administrator.²⁶

As part of this alternative, we are also proposing a provision that would allow for reduced monitoring if the facility demonstrates ambient lead concentrations less than 50 percent of the ambient lead concentration limit for three consecutive years at each monitor. We propose that a revised monitoring plan may be submitted (for review and possible approval by the Administrator) to reduce the sampling and analysis frequency if all of the 3-month rolling average concentrations at each monitor are less than 50 percent of the limit of 0.15 $\mu\text{g}/\text{m}^3$ over a 3-year period. The monitoring requirements discussed above were designed to allow for flexibility, prevention of redundant requirements, and also to provide consistency with current monitoring

programs that may be required at some of the facilities in this source category.

c. Risks Considering Proposed Control Options

We conducted an assessment to estimate the risks based on a post-control scenario reflecting the proposed requirements for stack and fugitive emissions described above. (Details are provided in the Draft Risk Assessment report which is available in the docket for this action). Based on that modeling assessment, we estimated that the ambient lead concentrations would be at or below the lead NAAQS for all facilities once this rule is fully implemented, except for possibly one facility in California. Our modeling analysis indicated that this one facility in California may still be above the lead NAAQS after controls. Therefore, we gathered additional information and did further evaluation of this facility. Based on communications with the company, it is our understanding that the facility is currently constructing an additional enclosure of certain equipment (e.g., baghouse row, abatement equipment, and slurry tanks) that we had not included in our post-control scenario. Moreover, it is our understanding that the company has recently implemented, or is currently implementing, other measures (e.g., repaired asphalt and additional cleaning of road surfaces) that will significantly reduce their fugitive emissions further as part of their efforts to comply with a California State regulation (reference: based on verbal communications during meeting with Exide Corporation on February 23, 2011, in RTP, NC; and a phone conversation on April 25, 2011). The California regulation has a compliance deadline of late 2011 and requires that ambient concentrations of lead near this facility remain at or below 0.15 $\mu\text{g}/\text{m}^3$ per 3-month rolling averages. Therefore, we conclude that this facility will achieve levels at or below the NAAQS.

In summary, we are proposing that the MACT standard, with the changes we are proposing under the CAA section 112(f)(2) residual risk review, will reduce risks from fugitive lead emissions to an acceptable level.

Our analysis indicates that the MIR for cancer due to inhalation exposure associated with actual emissions from this source category would be reduced from 50-in-1 million to 10-in-1 million as a result of the actions proposed under 112(f)(2), while the MIR from MACT-allowable emissions would be reduced from 200-in-1 million to 10-in-1 million. The cancer incidence rate will be reduced from 0.02 to 0.01. Furthermore, the maximum worst-case screening

acute HQ value will be reduced from potentially as high as 30 to less than or equal to 5. Based on these metrics, the actions proposed above under CAA section 112(f)(2) ensure acceptable risks from actual and MACT-allowable stack emissions of all HAP for this source category.

3. Ample Margin of Safety

Under the ample margin of safety analysis, we 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, will reduce the MIR associated with arsenic and cadmium from 200-in-1 to 10-in-1 million for MACT-allowable emissions and from 50-in-1 to 10-in-1 million for actual emissions. The cancer incidence will be reduced from 0.02 to 0.01 and the maximum acute HQ value will be reduced from potentially up to 30 to less than or equal to 5. Although these risks are considered acceptable based on the 100-in-1 million threshold established in the Benzene NESHAP, the MIR remains greater than 1-in-1 million, due primarily to fugitive emissions of arsenic and cadmium. Also, the maximum acute non-cancer HQ could be up to 5. Our ample margin of safety analysis is provided below. We have performed these analyses for emissions sources of the following five groups of HAP for which standards were proposed in today's action: (1) Arsenic and cadmium, (2) lead compounds, (3) dioxins and furans, (4) organic HAP, and (5) mercury compounds. The results of these analyses are presented in the following sections.

a. Arsenic and Cadmium Emissions

Because the estimated MIR of 10-in-1 million remaining after implementation of our proposed revisions to the MACT standard is driven primarily by fugitive emissions of arsenic and cadmium, we performed an ample margin of safety analysis on these emissions. Based on our research and analyses, we have not identified any feasible control options beyond what we are requiring in our proposed standards for fugitive emissions sources described above, and are therefore not proposing additional fugitive controls based on our ample margin of safety analysis. Nevertheless, we are soliciting comments and information regarding additional fugitive control measures, work

²⁶ The proposed lead concentration in air alternative appears to be an "emissions standard", as required by section 112(f)(2), since it "limits the quantity, rate, or concentration" of lead—to the level of the NAAQS at a location of maximum exposure—albeit compliance with the standard is measured by means of ambient monitoring. CAA section 302(k). Nonetheless, EPA solicits comment on this issue.

practices that may be available and their feasibility in further reducing fugitive emissions of metal HAP, or additional monitoring that may be warranted to ensure adequate control of fugitive emissions.

We also conducted additional analyses to determine whether reductions in stack emissions of arsenic and cadmium emissions beyond those required by our proposed standards are appropriate and necessary to provide an ample margin of safety. We identified one control technology that could achieve reductions beyond those that will occur due to the actions we are proposing under CAA section 112(f)(2), which are described above. The device is a wet electrostatic precipitator (WESP) that provides an estimated lead control efficiency of greater than 99 percent on the outlet of the baghouse. The combination of the baghouses with the WESP achieves greater than 99.99 percent control efficiency (see: *Wet Electrostatic Precipitator (WESP) Control for Meeting Metals Emissions Standards*). This technology is currently used at one facility in California. However, this control configuration is quite expensive. We estimated that installing a WESP at the other 13 facilities would result in total capital costs to the industry of \$400 million and a total annualized cost of \$55 million. We estimate that the cost-effectiveness would be about \$4.0 million per ton of reductions in metal HAP emissions (mainly lead compounds). A detailed analysis of the costs associated with the WESP unit can be found in the technical document for this action available in the docket (see *Draft Cost Impacts of the Revised NESHAP for the Secondary Lead Smelting Source Category*). Stack emissions of arsenic and cadmium do not appreciably contribute to the 10-in-1 million cancer risks remaining after implementation of the proposed revisions. Moreover, we conclude that the likelihood of significant noncancer effects due to arsenic emissions (after the proposed controls described above are in place) is very low because the maximum acute noncancer HQ (which could be as high as 5) is based on a very conservative analysis using some worst case assumptions. Furthermore, the costs for these additional controls are high. Therefore, we are not proposing a requirement for the installation of a WESP under this ample margin of safety analysis.

b. Lead Emissions

With regard to emissions of lead, by lowering the facility-wide emissions limit to a flow-weighted average of 0.20 mg/dscm, limiting the emissions from

any one stack to no more than 1.0 mg/dscm, and requiring facilities to either fully enclose their facility and implement comprehensive fugitive work practices or implement comprehensive fugitive work practices and lead air monitoring, we conclude that the actual and MACT-allowable lead emissions from this source category would be reduced to the point that they would not result in off-site concentrations above the NAAQS. Moreover, we have not identified any further feasible and cost-effective controls. See Section IV.C.2.a of this preamble explaining that adding a wet electrostatic precipitator as supplementary HAP metal control would be excessively costly and not cost-effective. Moreover, as described above, we have not identified other measures (beyond those proposed above) to further reduce fugitive emissions. Thus, we are proposing that revisions to the MACT standard that we are proposing under CAA section 112(f)(2), as described above, will provide an ample margin of safety with regard to emissions of lead from this source category.

c. Dioxin and Furan Emissions

With regard to dioxin and furan emissions, as outlined in Section IV.A of this preamble, we are proposing various emissions limits under CAA section 112(d)(3). Results of the multipathway risk assessment indicate that the cancer MIR associated with dioxin and furan emissions is 30-in-1 million, less than the acceptability threshold of 100-in-1 million. However, because the MIR is greater than 1-in-1 million, we are required to investigate whether reductions in emissions of dioxins and furans beyond that required in the limits we are proposing under CAA section 112(d)(3) are needed to provide an ample margin of safety to the public.

We identified one option to reduce emissions of dioxins and furans beyond that required by the limits proposed in today's action. This option is the installation of additional afterburner capacity at the facilities operating blast furnaces. We evaluated this option because of the higher potential of formation of dioxins and furans in the blast furnace exhaust due to its relatively cooler exit temperature. This option would include operating the currently installed afterburners at a temperature of 1600 °F with a residence time of 2.5 seconds, or installation of new or additional afterburner capacity with this capability. Based on the current level of performance identified in the ICR surveys, we believe that this option would require four facilities to

install additional afterburner capacity or install new afterburners at their facility in order to operate the units at these conditions. The estimated total capital cost for the additional controls is \$5.9 million, with a total annualized cost of \$2.9 million. Based on an estimated control efficiency of 98 percent, TEQ emissions would be reduced by an estimated 28 grams per year and organic HAP emissions by 200 tons per year (see *Draft Cost Impacts of the Revised NESHAP for the Secondary Lead Smelting Source Category* for a detailed analysis). However, this option would result in increases of NO_x and CO₂ emissions. Considering the costs associated with this option, the potential for increased emissions of NO_x and CO₂, and the fact that risks associated with emissions of dioxins and furans are clearly less than 100-in-1 million, we are not proposing this option as part of our ample margin of safety analysis. We also considered various beyond the floor options for establishing MACT limits for dioxins and furans under the Section 112(d)(3) review (as described in section IV.A.2), but we are not proposing any of those options in this action for the reasons described in that section.

d. Organic HAP Emissions

With regard to organic HAP (other than dioxins and furans), we estimate that actual emissions do not result in a cancer risk above 1-in-1 million at any facilities in this source category. Given that actual emissions from blast furnaces do not result in a cancer risk above 1-in-1 million in this source category, and that the actual THC emissions modeled from blast furnaces were at levels close to the allowable emissions, we conclude that the cancer risk associated with actual and allowable emissions of organic HAP from all other furnace types are not likely to be greater than 1-in-1 million since the THC limit for blast furnaces is considerably higher than for other furnace types. The one exception is for rotary furnaces, for which we are proposing a THC limit (*i.e.*, 610 ppmv) in today's action that is higher than the limit in the 1997 NESHAP for blast furnaces (*i.e.*, 360 ppmv). Based on our risk assessment, we estimate that the highest possible MIR due to allowable organic HAP emissions from the one rotary furnace in operation today would be 2-in-1 million (given the proposed emissions limits in today's action). This is based on the conservative assumption that this rotary furnace will continuously emit THC at exactly 610 ppmv, which is a highly unlikely scenario. Additionally, emissions of

organic HAP from this source category do not appreciably contribute to any chronic-non cancer risk. For these reasons, we are proposing that the MACT standards for organic HAP, as proposed in today's action, provide an ample margin of safety.

e. Mercury Emissions

Lastly, with regard to mercury emissions from this source category, our risk assessment indicates that, even based on our highly conservative estimates of mercury emissions (see Section III.B.7 of this preamble for further discussion on the conservative nature of our mercury emissions estimates), emissions of mercury did not appreciably contribute to risk based on both the inhalation and multipathway risk analyses. Given that the work practice standard proposed in today's action for mercury is based on actual performance of the industry, we are proposing that these standards provide an ample margin of safety with regards to risk from mercury emissions from this source category.

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

Based on our technology review, we determined that there have been advances in emissions control measures since the Secondary Lead Smelting NESHAP was originally promulgated in 1997. Since promulgation, we estimate that industry-wide metal HAP emissions (including lead) from process and process fugitive sources have been reduced by approximately 80 percent. As a result, and due to other factors, actual lead emissions from process and process fugitive sources at most secondary lead smelting facilities are significantly lower than are allowed under the 1997 NESHAP.

Based on our technology review, we believe that the reductions in metal HAP emissions since promulgation of the 1997 NESHAP are mainly directly related to improvements in two areas: (1) Improvements in fabric filter control technology (e.g., improved bag materials, replacement of older baghouses) and (2) total enclosure of process fugitive emissions sources and raw material storage and handling areas and improvements in emissions controls and work practices for fugitive dust emissions sources. Additional reductions have been achieved due to the use of a WESP at one facility and also HEPA filters in some cases. The results of our analyses and our proposed decisions for these areas under CAA section 112(d)(6) are presented in the following sections. Additional details

regarding these analyses can be found in the following technical document for this action which is available in the docket: *Draft Technology Review for the Secondary Lead Smelting Source Category*.

1. Fabric Filter Improvements

The improvements in fabric filter control technology are reflected in the emissions test data collected under the ICR. The emissions limit for lead under the 1997 NESHAP is a concentration-based limit of 2.0 mg/dscm applicable to all stacks whether they are classified as process, process fugitives, or building or enclosure ventilation systems. Based on our analysis of survey responses and test data collected under the ICR, this industry primarily uses fabric filters to control emissions of lead and other metal HAP, and the vast majority of sources affected by the current lead limit are achieving lead concentrations at control device outlets that are far below the current limit (see: *Draft Technology Review for the Secondary Lead Smelting Source Category*). Several facilities have also installed HEPA filters downstream of their fabric filters that have an estimated 99.97 percent add-on control efficiency for particles with an aerodynamic diameter of 0.3 microns. More than 95 percent of all sources reported lead concentrations (coming out of the stacks after the control devices) that are less than half of the current limit, with several sources achieving lead concentrations that are two to three orders of magnitude lower than the current limit. Based on the available data, the average lead outlet concentration of all affected sources in this source category is 0.16 mg/dscm, with a median of 0.04 mg/dscm. Based on these data, we believe that developments in practices, processes, and control technologies warrant revisions to the 1997 NESHAP to reflect emissions levels achieved in practice. Our analysis of emissions data provided in the ICR indicates that stacks equipped with a well-performing fabric filter can achieve exhaust lead concentrations of less than 0.20 mg/dscm (see: *Draft Technology Review for the Secondary Lead Smelting Source Category*). In fact, of the 93 stacks identified in the ICR that are controlled using a baghouse, 74 reported average lead concentrations of less than 0.20 mg/dscm. Based on these data, we considered the costs and feasibility of revising the emissions limit down to 0.20 mg/dscm as a facility-wide, flow-weighted average, identical to the limit proposed under CAA section 112(f)(2) in today's action. We estimate that if we proposed such a limit, two of the 14

facilities would be required to replace one of their large old baghouses with a newer, more efficient baghouse in order to comply. We estimate that this would result in about 5.9 tons of reductions of metal HAP emissions. We estimate that the total capital costs would be about \$7.6 million with annualized costs of \$1.7 million and cost-effectiveness of \$0.3 million per ton of metal HAP (or \$150 per pound of metal HAP). As a co-benefit to implementation of this revised standard, we estimate reductions of 56 tons of PM at a cost-effectiveness of \$30,000 per ton of PM. We do not anticipate additional energy use associated with this revised limit, as only replacement baghouses, as opposed to new units, are anticipated. Furthermore, we do not anticipate any adverse non-air environmental impacts associated with the implementation of this revised limit.²⁷

For the reasons described above, under the authority of CAA section 112(d)(6), we are proposing a facility-wide, flow-weighted average lead concentration limit of 0.20 mg/dscm to cover all stacks. Additionally, because 89 of the 93 stacks identified in the ICR that are controlled using a baghouse are achieving lead concentrations below 1.0 mg/dscm, we conclude that this level of emissions is technologically feasible and demonstrated, therefore we are also proposing a maximum lead concentration limit of 1.0 mg/dscm to apply to any individual stack at existing facilities. For new sources, we are proposing that the 0.20 mg/dscm limit applies to all individual stacks at the facility. Consistent with the standards proposed under CAA section 112(f)(2) in today's action, compliance for existing sources will be demonstrated either by annual stack testing and installation and operation of BLDS or by use of a lead CEMS once performance specifications have been promulgated. New affected sources would be required to demonstrate compliance using a lead CEMS, pending promulgation of the lead CEMS performance specifications. Any new affected sources commencing operations prior to promulgation of the performance specifications may demonstrate compliance through annual stack testing and operation of a BLDS until the CEMS performance specifications are promulgated.

We believe that these proposed revisions, identical to those proposed under CAA section 112(f)(2), are cost-effective revisions that reflect the level

²⁷ As explained in section C above, we conclude that requiring an additional wet electrostatic precipitator as a form of supplementary metal control at all facilities would be excessively costly and not cost effective.

of control achievable in practice by a well performing fabric filter.

2. Total Enclosure of Process Fugitive Sources and Raw Material Storage and Handling Areas and Work Practices for Fugitive Dust Sources

Facilities have achieved some of their reductions since 1997 through total enclosure of process fugitive emissions sources and material storage and handling areas. Based on responses to the ICR survey, the process fugitive emissions sources regulated under the 1997 NESHAP are totally enclosed and vented to a control device at seven of the 14 existing facilities. Additionally, an eighth facility has a current project to install total enclosures and associated control devices for their process fugitive emissions sources. This level of enclosure is well beyond the requirements of the 1997 NESHAP that provides facilities the option of using negative pressure hoods to capture process fugitive emissions and route them to a control device. The other six facilities have some degree of enclosure, but the extent of enclosure among these six facilities varies considerably. With regard to material storage and handling areas, the ICR surveys indicate that all of the facilities with process fugitive emissions sources in total enclosures have enclosed the storage areas for all lead-bearing materials such as processed raw materials and slag.

The information and data collected under the ICR also indicate that at least four facilities conduct work practices beyond those required in the 1997 NESHAP to further limit the formation of fugitive dust from material handling operations and re-entrainment of lead dust deposited within the facility fence line. Examples of these work practices include: pavement of all grounds on the facility, monthly cleaning of building rooftops, timely cleaning of any accidental releases, inspection of battery storage areas outside of enclosures for broken batteries, and performance of maintenance on equipment that may be contaminated with lead inside total enclosures.

We estimate that for the six facilities to implement total enclosures with negative pressure ventilation to their process fugitive emissions sources, the total capital cost would be about \$40 million (about \$6.7 million per facility) with total annualized costs of about \$6.4 million (or about \$1.1 million per facility). These controls would achieve an estimated 5.3 tons reduction of metal HAP (mainly lead compounds, but also arsenic, and cadmium). Additionally, as a co-benefit, these controls would achieve an estimated 58 tons reduction

of PM at a cost effectiveness of \$100,000 per ton of PM. We do anticipate approximately 23 million kilowatt hours (KWH) of additional energy use associated with the operation of additional baghouses controlling the building ventilation systems. However, we do not anticipate any adverse non-air environmental impacts associated with the implementation of these potential controls. Additionally, for ten facilities to implement the additional fugitive control work practices mentioned above, we estimate no capital cost and a total annualized cost of about \$3.0 million (about \$0.2 million per facility). These work practices would achieve an estimated 4.2 tons reduction of metal HAP (mainly lead, arsenic, and cadmium). Additionally, as a co-benefit, these work practices would achieve an estimated 46 tons reduction of PM at a cost-effectiveness of \$100,000 per ton of PM. The total cost effectiveness of implementing total enclosures with negative pressure ventilation as well as additional fugitive emissions control work practices is estimated at \$1.0 million per ton of metal HAP (or \$500 per pound of metal HAP). Because the primary HAP reduced are lead compounds, arsenic, and cadmium, and given the co-benefit PM reductions, we believe that these costs and cost-effectiveness values are reasonable.

Therefore, for the reasons described above, we are proposing under CAA section 112(d)(6) that each facility must totally enclose the following emissions sources and operate the total enclosure under negative pressure:

- (1) Smelting furnaces.
- (2) Smelting furnace charging areas.
- (3) Lead taps, slag taps, and molds during tapping.
- (4) Battery breakers.
- (5) Refining kettles, casting areas.
- (6) Dryers.
- (7) Agglomerating furnaces and agglomerating furnace product taps.
- (8) Material handling areas for any lead bearing materials (drosses, slag, other raw materials), excluding areas where unbroken lead acid batteries and finished lead products are stored.
- (9) Areas where dust from fabric filters, sweepings or used fabric filters are handled or processed.

The ventilation air from the total enclosures must be conveyed to a control device. We are also proposing that the emissions from the enclosure control devices be subject to the proposed stack lead emissions limits proposed in Section IV.D.1 of this preamble and also previously under CAA section 112(f)(2).

Additionally, we are proposing under CAA section 112(d)(6) that each facility must implement the following fugitive control work practices: pavement cleaning and vehicle washing; cleaning of building rooftops on a regular (e.g., at least once per month) schedule; cleaning of all affected areas after accidental releases; inspection of the battery storage areas for broken batteries; performance of maintenance activities inside enclosures; and transport of lead bearing material in closed systems.

For both new and existing facilities, compliance with the total enclosure and work practice requirements described above would require construction of total enclosures (where they do not already exist) capable of being operated under negative pressure and venting of the enclosure exhaust to a control device. Additionally, each facility would be required to prepare, and at all times operate according to, a SOP manual that describes in detail how the additional work practices will be implemented. We believe this standard, identical to that proposed under CAA section 112(f)(2), is a cost-effective control option that reflects the level of fugitive control achieved in practice by several facilities in this source category.

3. Alternative Compliance Option for Fugitive Dust Emissions Under CAA Section 112(d)(6)

Similar to the previous discussion regarding the fugitive emissions limits proposed in under CAA section 112(f)(2), we acknowledge that there may be other control measures that we have not identified that are effective in reducing fugitive dust emissions at other facilities. Therefore, as an alternative to the requirements for full enclosure, we are proposing under CAA section 112(d)(6) that facilities may choose to implement comprehensive fugitive control work practices, maintain the partial enclosures and enclosure hoods required in the 1997 NESHAP, plus establish an air monitoring network, similar to that required in the lead NAAQS, to ensure that fugitive emissions are minimized and that lead concentrations in air near the facility boundaries remain at or below 0.15 $\mu\text{g}/\text{m}^3$ based on 3-month rolling averages. This compliance alternative is identical to that proposed under CAA section 112(f)(2). The implementation of this proposed alternative is thus identical and is presented in Section IV.C of this preamble.

For facilities that choose the alternative compliance option for fugitive dust emissions and do not

install total enclosures, we are proposing to keep the requirements for enclosure hoods and partial enclosures specified in the 1997 NESHAP in order to ensure a level of containment for process fugitive emissions. We are seeking comment on other control measures that should be prescribed for facilities that choose the alternative compliance option.

E. What other actions are we proposing?

1. Startup, Shutdown, Malfunction

The United States Court of Appeals for the District of Columbia Circuit vacated portions of two provisions in EPA's CAA section 112 regulations governing the emissions of HAP during periods of startup, shutdown, and malfunction (SSM). *Sierra Club v. EPA*, 551 F.3d 1019 (DC Cir. 2008), *cert. denied*, 130 S. Ct. 1735 (U.S. 2010). Specifically, the Court vacated the SSM exemption contained in 40 CFR 63.6(f)(1) and 40 CFR 63.6(h)(1), that are part of a regulation, commonly referred to as the "General Provisions Rule," that EPA promulgated under CAA section 112. When incorporated into CAA section 112(d) regulations for specific source categories, these two provisions exempt sources from the requirement to comply with the otherwise applicable CAA section 112(d) emissions standard during periods of SSM.

We are proposing the elimination of the SSM exemption in this rule. Consistent with *Sierra Club v. EPA*, EPA is proposing standards in this rule that apply at all times. We are also proposing several revisions to Table 1 to subpart X of part 63 (the General Provisions Applicability table). For example, we are proposing to eliminate the incorporation of the General Provisions' requirement that the source develop an SSM plan. We also are proposing to eliminate or revise certain recordkeeping and reporting that related to the SSM exemption. EPA has attempted to ensure that we have not included in the proposed regulatory language any provisions that are inappropriate, unnecessary, or redundant in the absence of the SSM exemption. We are specifically seeking comment on whether there are any such provisions that we have inadvertently incorporated or overlooked.

In proposing the standards in this rule, EPA has taken into account startup and shutdown periods and, for the reasons explained below, has not proposed different standards for those periods.

Information on periods of startup and shutdown received from the industry in the ICR indicate that emissions during

these periods do not increase. Control devices such as afterburners for organics and dioxin control and baghouses for lead and metal HAP particulate control are started up before the process units, and are operational during the shutdown phase of a process. Therefore, no increase in emissions is expected during these periods. Enclosures and work practices for fugitive emissions will be in place at all times. Therefore, separate standards for periods of startup and shutdown are not being proposed.

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). EPA has determined that CAA section 112 does not require that emissions that occur during periods of malfunction be factored into development of CAA section 112 standards. Under CAA section 112, emissions standards for new sources must be no less stringent than the level "achieved" by the best controlled similar source and for existing sources generally must be no less stringent than the average emissions limitation "achieved" by the best performing 12 percent of sources in the category. There is nothing in CAA section 112 that directs the Agency to consider malfunctions in determining the level "achieved" by the best performing or best controlled sources when setting emissions standards. Moreover, while EPA accounts for variability in setting emissions standards consistent with the CAA section 112 case law, nothing in that case law requires the Agency to consider malfunctions as part of that analysis. Section 112 of the CAA uses the concept of "best controlled" and "best performing" unit in defining the level of stringency that CAA section 112 performance standards must meet.

Applying the concept of "best controlled" or "best performing" to a unit that is malfunctioning presents significant difficulties, as malfunctions are sudden and unexpected events.

Further, accounting for malfunctions 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 (DC Cir. 1999) (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 (DC 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, the goal of a best controlled or best performing source is to operate in such a way as to avoid malfunctions of the source and accounting for malfunctions could lead to standards that are significantly less stringent than levels that are achieved by a well-performing non-malfunctioning source. EPA's approach to malfunctions is consistent with CAA 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(d) standards as a result of a malfunction event, 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. EPA would also consider whether the source's failure to comply with the CAA section 112(d) standard was, in fact, "sudden, infrequent, not reasonably preventable" and was not instead "caused in part by poor maintenance or careless operation" 40 CFR 63.2 (definition of malfunction).

Finally, EPA recognizes that even equipment that is properly designed and maintained can sometimes fail and that such failure can sometimes cause an exceedance of the relevant emissions standard. (See, e.g., State Implementation Plans: Policy Regarding Excessive Emissions During Malfunctions, Startup, and Shutdown (Sept. 20, 1999); Policy on Excess Emissions During Startup, Shutdown, Maintenance, and Malfunctions (Feb. 15, 1983)). EPA is therefore proposing to add to the final rule an affirmative defense to civil penalties for

exceedances of emissions limits that are caused by malfunctions. See 40 CFR 63.542 (defining "affirmative defense" to mean, in the context of an enforcement proceeding, a response or defense put forward by a defendant, regarding which the defendant has the burden of proof, and the merits of which are evaluated independently and objectively in a judicial or administrative proceeding). We also are proposing other regulatory provisions to specify the elements that are necessary to establish this affirmative defense; the source must prove by a preponderance of the evidence that it has met all of the elements set forth in 40 CFR 63.552 (40 CFR 22.24). The criteria ensure that the affirmative defense is available only where the event that causes an exceedance of the emissions limit meets the narrow definition of malfunction in 40 CFR 63.2 (sudden, infrequent, not reasonable preventable and not caused by poor maintenance and or careless operation). For example, to successfully assert the affirmative defense, the source must prove by a preponderance of the evidence that excess emissions "[w]ere caused by a sudden, infrequent, and unavoidable failure of air pollution control and monitoring equipment, process equipment, or a process to operate in a normal or usual manner * * *". The criteria also are designed to ensure that steps are taken to correct the malfunction, to minimize emissions in accordance with 40 CFR 63.543(j) and to prevent future malfunctions. For example, the source must prove by a preponderance of the evidence that "[r]epairs were made as expeditiously as possible when the applicable emissions limitations were being exceeded * * *" and that "[a]ll possible steps were taken to minimize the impact of the excess emissions on ambient air quality, the environment and human health * * *". In any judicial or administrative proceeding, the Administrator may challenge the assertion of the affirmative defense and, if the respondent has not met its burden of proving all of the requirements in the affirmative defense, appropriate penalties may be assessed in accordance with CAA section 113 (see also 40 CFR 22.77).

Specifically, we are proposing the following changes to the rule.

Added general duty requirements in 40 CFR 63.543(j) to replace General Provision requirements that reference vacated SSM provisions.

Added replacement language that eliminates the reference to SSM exemptions applicable to performance tests in 40 CFR 63.543(i).

Added paragraphs in 40 CFR 63.550(d) requiring the reporting of

malfunctions as part of the affirmative defense provisions.

Added paragraphs in 40 CFR 63.550(c) requiring the keeping of certain records during malfunctions as part of the affirmative defense provisions.

Revised Table 1 to subpart X of part 63 to reflect changes in the applicability of the General Provisions to this subpart resulting from a court vacatur of certain SSM requirements in the General Provisions.

2. Electronic Reporting

EPA must have performance test data to conduct effective reviews of CAA sections 112 and 129 standards, as well as for many other purposes including compliance determinations, emissions factor development, and annual emissions rate determinations. In conducting these required reviews, EPA has found it ineffective and time consuming, not only for us, but also for regulatory agencies and source owners and operators, to locate, collect, and submit performance test data because of varied locations for data storage and varied data storage methods. In recent years, though, stack testing firms have typically collected performance test data in electronic format, making it possible to move to an electronic data submittal system that would increase the ease and efficiency of data submittal and improve data accessibility.

Through this proposal EPA is presenting a step to increase the ease and efficiency of data submittal and improve data accessibility. Specifically, EPA is proposing that owners and operators of Secondary Lead Smelting facilities submit electronic copies of required performance test reports to EPA's WebFIRE database. The WebFIRE database was constructed to store performance test data for use in developing emissions factors. A description of the WebFIRE database is available at <http://cfpub.epa.gov/oarweb/index.cfm?action=fire.main>.

As proposed above, data entry would be through an electronic emissions test report structure called the Electronic Reporting Tool. The ERT would be able to transmit the electronic report through EPA's Central Data Exchange network for storage in the WebFIRE database making submittal of data very straightforward and easy. A description of the ERT can be found at http://www.epa.gov/ttn/chief/ert/ert_tool.html.

The proposal to submit performance test data electronically to EPA would apply only to those performance tests conducted using test methods that will be supported by the ERT. The ERT contains a specific electronic data entry

form for most of the commonly used EPA reference methods. A listing of the pollutants and test methods supported by the ERT is available at http://www.epa.gov/ttn/chief/ert/ert_tool.html. We believe that industry would benefit from this proposed approach to electronic data submittal. Having these data, EPA would be able to develop improved emissions factors, make fewer information requests, and promulgate better regulations.

One major advantage of the proposed submittal of performance test data through the ERT is a standardized method to compile and store much of the documentation required to be reported by this rule. Another advantage is that the ERT clearly states what testing information would be required. Another important proposed benefit of submitting these data to EPA at the time the source test is conducted is that it should substantially reduce the effort involved in data collection activities in the future. When EPA has performance test data in hand, there will likely be fewer or less substantial data collection requests in conjunction with prospective required residual risk assessments or technology reviews. This would result in a reduced burden on both affected facilities (in terms of reduced manpower to respond to data collection requests) and EPA (in terms of preparing and distributing data collection requests and assessing the results).

State, local, and Tribal agencies could also benefit from more streamlined and accurate review of electronic data submitted to them. The ERT would allow for an electronic review process rather than a manual data assessment making review and evaluation of the source provided data and calculations easier and more efficient. Finally, another benefit of the proposed data submittal to WebFIRE electronically is that these data would greatly improve the overall quality of existing and new emissions factors by supplementing the pool of emissions test data for establishing emissions factors and by ensuring that the factors are more representative of current industry operational procedures. A common complaint heard from industry and regulators is that emissions factors are outdated or not representative of a particular source category. With timely receipt and incorporation of data from most performance tests, EPA would be able to ensure that emissions factors, when updated, represent the most current range of operational practices. In summary, in addition to supporting regulation development, control strategy development, and other air pollution

control activities, having an electronic database populated with performance test data would save industry, state, local, Tribal agencies, and EPA significant time, money, and effort while also improving the quality of emissions inventories and, as a result, air quality regulations.

Records must be maintained in a form suitable and readily available for expeditious review, according to 63.10(b)(1). Electronic recordkeeping and reporting is available for many records, and is the form considered most suitable for expeditious review if available. Electronic recordkeeping and reporting is encouraged in this proposal and some records and reports are required to be kept in electronic format. Records required to be maintained electronically include the output of continuous monitors and the output of the bag leak detection systems. Additionally, standard operating procedures for the bag leak detection system and fugitive emissions control are required to be submitted to the Administrator for approval in electronic format.

3. Other Changes

The following lists additional minor changes to the NESHAP we are proposing. This list includes proposed rule changes that address editorial corrections and plain language revisions:

- Revise the definition for collocated blast and reverberatory furnaces to apply to systems “where the vent streams of the furnaces are mixed before cooling”. This proposed revision clarifies the intent of the original definition which was to establish the conditions under which a reverberatory furnace stream would control the emissions of a blast furnace stream.

- Add a definition for “maintenance activity.” This definition is necessary for the proposed work practice requirement concerning fugitive emissions during maintenance activities that could generate lead dust.

- Delete definitions no longer referenced in the proposed NESHAP.

- Eliminate the exemption for areas used exclusively for the storage of blast furnace slag from the raw materials storage area definition.

- Change the title of 40 CFR 63.543 (“Standards for process sources”) to “What are my standards for atmospheric vents?”. This change is being made to better reflect the description of the proposed standards in this section.

- Change the title of 40 CFR 63.544 (“Standards for process fugitive sources”) to “What are my process enclosure standards?” to better reflect the description of the proposed requirements for enclosure of sources of process fugitive emissions.

- Eliminate the provision in 40 CFR 63.544(f) allowing up to 24 months to

conduct a compliance test for lead if the previous test was less than 1.0 mg/dscm. We do not believe a reduced testing frequency is appropriate considering the proposed changes to the existing standard, and the proposed requirement to calculate a flow-weighted average on an annual basis.

- Add a requirement to conduct a performance test for THC on the same schedule as the stack test for lead. The 1997 NESHAP requires an initial test for THC, but does not require periodic testing. We are proposing that a performance test for total hydrocarbon be conducted on the same schedule as the stack test for lead. This proposed requirement will ensure any changes in operation that could affect the organic HAP content of the furnace vents are monitored on a routine basis.

- Consolidate the requirements for atmospheric vents to be conveyed to a control device into one section of the rule (40 CFR 63.543(f)).

- Clarify the requirements for plant roadway cleaning in 40 CFR 63.545 to specify equipment requirements for the mobile vacuum sweeper.

- Clarify the requirement to wash vehicles at the exit of a material storage area by specifying that the wash must include washing of tires, undercarriage and exterior surface of the vehicle followed by an inspection.

- Accompanying edits are being proposed for the standard operating procedures for baghouses in 40 CFR 63.548 and for control of fugitive emissions in 40 CFR 63.545 to reflect the proposed changes described for baghouses, enclosures and work practices for control of fugitive emissions.

- Update the monitoring requirements for building differential pressure to reflect the requirements for the pressure monitor to have the capability of detecting 0.01 mm Hg and to continuously record pressure readings.

- Update the recordkeeping and reporting sections to reflect the new monitoring requirements and monitoring options described above.

- Update the compliance dates to include the anticipated dates the proposed requirements will become effective.

- Added the requirement in 40 CFR 63.548(l) for new or modified sources to install a CEMS for measuring lead emissions when performance specifications for lead CEMS are promulgated.

- Included provisions for existing sources to use a CEMS instead of operating a BLDS and performing annual stack tests.

F. What is the relationship of the Secondary Lead Smelting standards proposed in today's action and implementation of the lead NAAQS?

Although EPA's obligation to conduct technology reviews and risk analyses for the secondary lead smelting source category is independent of the process of developing, revising, and implementing the National Ambient Air Quality Standard (NAAQS) for lead, EPA is interested in harmonizing these separate regulatory processes to the

extent possible. EPA revised the primary NAAQS for lead in 2008. See 73 FR 66,964 (Nov. 12, 2008); see also *Coalition of Battery Recyclers v. EPA*, 604 F. 3d 613 (DC Cir. 2010) (upholding those standards). EPA designated 16 areas as non-attainment for the lead NAAQS, effective December 21, 2010, 75 FR 71,033 (November 22, 2010). EPA intends to complete designations for remaining areas of the country for the lead NAAQS in October, 2011, effective December 31, 2011. States have 18 months following a nonattainment designation for lead to submit a State Implementation Plan (SIP) demonstrating how the area will timely attain the NAAQS. See CAA section 191(a). Accordingly, attainment SIPs for lead will be due by July 2012 for areas designated in 2010 and July 2013 for areas designated in 2011. States are required to attain the standard as expeditiously as practicable, but no later than 5 years following a nonattainment designation (*i.e.*, Dec. 31, 2015 or 2016, respectively). As part of the attainment demonstration, SIPs may consider regulatory controls which have been adopted as of the date the SIP is submitted and will achieve timely reductions for attaining the standard.

The standards proposed in this rule would likely harmonize with this implementation schedule both procedurally and substantively. Pursuant to consent decree, EPA is obligated to promulgate the final NESHAP rule by December 31, 2011. Assuming EPA adopts the proposed standards and the rule is published in the **Federal Register** in early 2012, the standards would become effective in early 2012, with a compliance date of March 2014 (assuming a two year compliance date is necessary to allow sufficient time for the controls to be adopted). This schedule should allow for states to take any controls required under the NESHAP rule into consideration for attainment planning purposes.

As described above, EPA is proposing standards either predicated on individual sources emitting lead at levels that would result in ambient concentrations less than the primary lead NAAQS (the proposed stack standards), or (in the case of the alternative to enclosure standards for lead) actually demonstrating that source emissions do not exceed the primary lead NAAQS at a point of maximum projected concentration. EPA anticipates that, at least in areas where nonattainment is attributable to single sources that are subject to this rule, if the proposed controls are sufficient to attain the NAAQS by the attainment

deadline, then adoption of additional controls in the SIP for the area would not be necessary.

EPA solicits comments on the interplay between implementation of the primary lead NAAQS and the proposed standards in today's action and steps EPA might permissibly take to harmonize the two regulatory processes.

G. Compliance Dates

We are proposing that facilities must comply with all the requirements in this action (which are being proposed under CAA sections 112(d)(2), 112(d)(3), 112(d)(6), 112(f)(2), and 112(h) for all affected sources), no later than two years after the effective date of this rule. Under section 63.6(i)(4)(ii), "the owner or operator of an existing source unable to comply with a relevant standard established * * * pursuant to section 112(f) * * * may request that the Administrator grant an extension allowing the source up to 2 years after the standard's effective date to comply with the standard." The rule further specifies a written application for such a request. Here, EPA is already fully aware of the steps needed for each source to comply with the proposed standards and to reasonably estimate the amount of time it will take each source to do so. We believe that the two year extension would be warranted in all cases for sources needing to upgrade current practice. This includes the time needed to: Construct required enclosures and install associated control devices for fugitive sources; purchase, install and test replacement bags, or if the facility decides to replace an existing baghouse or add a new baghouse in series with an existing baghouse, seek bids, select a vendor, install and test the new equipment; prepare and submit the required monitoring plan to monitor lead concentrations in air; and, purchase, install and conduct quality assurance and quality control measures on compliance monitoring equipment (see *Estimated Time Needed to Achieve Compliance with The Proposed Revisions to the MACT standard for Secondary Lead Smelters*, which is available in the docket for this proposed action). EPA believes it reasonable to interpret section 63.6(i)(4)(ii) to allow this plenary finding, rather than utilizing a facility-by-facility application process, when the facts are already known and a category-wide adjudication is therefore possible. In addition, utilizing this process allows for public comment on the issue which would not be possible if a case-by-case application process with a 90-day window for completion were used.

V. Summary of Cost, Environmental, and Economic Impacts

A. What are the affected sources?

We anticipate that the 14 secondary lead smelting facilities currently operating in the United States will be affected by these proposed amendments. No new facilities are expected to be constructed in the foreseeable future; however, one facility is currently undergoing an expansion.

B. What are the air quality impacts?

EPA estimated the emissions reductions that are expected to result from the proposed amendments to the 1997 NESHAP compared to the 2009 baseline emissions estimates. A detailed documentation of the analysis can be found in:

Draft Cost Impacts of the Revised NESHAP for the Secondary Lead Smelting Source Category

Emissions of lead and arsenic from secondary lead smelters have declined over the last 15 years as a result of Federal rules, state rules and on the industry's own initiative. The current proposal would cut lead and arsenic emissions by 63 percent from their current levels, for a total reduction of more than 95% over that last 15 years. Under the proposed emissions limit for lead, we estimated that the lead emissions reductions would be 9,400 lb/yr from process and process fugitive sources and 17,200 lb/yr from fugitive dust sources. The expected reduction in total metal HAP is 11,800 lb/yr from process and process fugitive sources and 19,000 lb/yr from fugitive dust sources. We estimate that these controls will also reduce emissions of PM by 319,000 lb/yr.

Based on the emissions data available to the EPA, we believe that all facilities will be able to comply with the proposed emissions limits for THC and dioxins and furans without additional controls. However, we expect that some emissions reductions will occur due to increased temperatures of afterburners and from improved work practices. Nevertheless, it is quite difficult to estimate accurate reductions from these actions, and therefore, we are not providing estimates of reductions for THC and dioxin and furans.

C. What are the cost impacts?

Under the proposed amendments, secondary lead smelting facilities are expected to incur capital costs for the following types of control measures: Replacement of existing baghouses with new, higher-performing baghouses, replacement of bags in existing

baghouses with better-performing materials, construction of new enclosures for processes not currently enclosed, modification of partially-enclosed structures to meet the requirements of total enclosure, and installation of BLDS on baghouses that are not currently equipped with these systems.

The capital costs for each facility were estimated based on the number and types of upgrades required. Each facility was evaluated for its ability to meet the proposed limits for lead emissions, THC emissions, dioxin and furan emissions, and proposed fugitive dust emissions requirements. The memorandum *Cost Impacts of the Revised NESHAP for the Secondary Lead Smelting Source Category* includes a complete description of the cost estimate methods used for this analysis and is available in the docket.

The majority of the capital costs estimated for compliance with the amendments proposed in this action are for purchasing new enclosures and the associated control devices that would be required for these enclosures. Although the proposed amendments would provide the alternative option to install monitors at or near the property boundary to demonstrate compliance with the enclosure requirements, we assumed that each facility would need to install enclosures for each of the processes described in proposed 40 CFR 63.544 if the facility did not already have the required enclosures. For each facility, we estimated the square footage of new enclosures required based on the size of enclosures currently in place compared to facilities that we considered to be totally enclosed with a similar production capacity. We further assumed that the facilities that required a substantial degree of new enclosure would re-configure their facility, particularly the storage areas, to reduce their footprint.

Based on our analysis of the facility configurations, seven facilities were considered to be totally enclosed. Another facility is currently installing enclosure structures and equipment that we anticipate will meet the proposed requirements. Consequently, capital costs were not estimated for these eight facilities. The remaining six facilities will require new building installations, thereby incurring capital costs.

Typical enclosure costs were estimated using information and algorithms from the Permanent Total Enclosures chapter in the EPA Air Pollution Control Cost Manual. New baghouse costs were estimated using a model based primarily on the cost information for recent baghouse

installations submitted by facilities in the ICR survey. The total capital cost estimate for the enclosures, the ductwork system, and control devices at the six facilities is approximately \$40 million, at an annualized cost of \$6.6 million in 2009 dollars (an average of about \$1.1 million per facility).

We also estimated annual costs for the work practices proposed in this action. Based on the ICR survey information, we estimated that additional costs would be required to implement the work practices at 10 of the 14 existing facilities. The total annual costs to implement the proposed fugitive emissions work practices are approximately \$3 million per year.

For compliance with the stack lead concentration limit, we compared each stack emissions point's lead concentration (reported under the ICR) to the proposed requirement of 1.0 mg/dscm of lead for any one stack. If the reported concentration was over 1.0 mg/dscm, we assumed that the corresponding facility would either upgrade the baghouse with new bags and additional maintenance or completely replace the baghouse, depending on the age of the unit. If the baghouse was less than 10 years old and the lead concentration in the outlet was not appreciably over the proposed

standard, we assumed that the baghouse could be upgraded for minimal capital. If the baghouse was more than 10 years old and the lead concentration was appreciably over the proposed standard, we assumed the baghouse would be replaced. We then compared each facility's emissions with the proposed flow-weighted, facility-wide concentration limit of 0.20 mg/dscm using the assumption that baghouses needing replacement based on the 1.0 mg/dscm individual stack limit would be replaced with units that performed at least as well as the average baghouse identified in our data set. We estimated that three baghouses would need to be replaced based on these analyses. To estimate costs, we used a model based primarily on the cost information submitted in the ICR for recent baghouse installations in this industry. We assumed an increase in maintenance cost based on more frequent bag changes (from once every 5 years to once every 2 years). The total capital cost for three new baghouses at two facilities is estimated to be approximately \$7.6 million, and total annual costs were estimated to be approximately \$1.7 million.

New limits for THC are being proposed for reverberatory, electric, and

rotary furnaces. Dioxin and furan limits are being proposed for all furnaces. We anticipate all operating affected units will be able to meet the proposed limits without installing additional controls, however, we have estimated additional costs of \$260,000 per year for facilities to increase the temperature of their existing afterburners to ensure continuous compliance with the proposed standards.

The estimated costs for the proposed change to the monitoring requirements for baghouses, including installation of seven new BLDS for existing baghouses, is \$230,000 of capital cost and \$84,000 total annualized cost. The capital cost estimated for additional differential pressure monitors for total enclosures is \$97,000. The cost for all additional monitoring and recordkeeping requirements, including the baghouse monitoring proposed, is estimated at \$1,016,000.

The total annualized costs for the proposed rule are estimated at \$12.6 million (2009 dollars). Table 5 provides a summary of the estimated costs and emissions reductions associated with the proposed amendments to the Secondary Lead Smelting NESHAP presented in today's action.

TABLE 5—ESTIMATED COSTS AND REDUCTIONS FOR THE PROPOSED STANDARDS IN THIS ACTION

Proposed amendment	Estimated capital cost (\$MM)	Estimated annual cost (\$MM)	Total HAP emissions reductions (tons per year)	Cost effectiveness in \$ per ton total HAP reduction (and in \$ per pound)
Revised stack lead emissions limit	7.6	1.7	5.9 (of metal HAP)	\$0.3 MM per ton. (\$150 per pound).
Total enclosure of fugitive emissions sources	40	6.6	5.5 (of metal HAP)	\$1.2 MM per ton. (\$600 per pound).
Fugitive control work practices	0	3.0	4.0 (of metal HAP)	\$0.8 MM per ton. (\$400 per pound).
THC and D/F concentration limits	0	0.3	130.0	\$0.01 MM per ton.
Additional testing and monitoring	0.3	1.0	N/A	N/A.

¹ Based on total organic HAP.

D. What are the economic impacts?

We performed an economic impact analysis for secondary lead consumers and producers nationally using the annual compliance costs estimated for this proposed rule. The impacts to producers affected by this proposed rule are annualized costs of less than 0.9 percent of their revenues using the most current year available for revenue data. Prices and output for secondary lead should increase by no more than the impact on cost to revenues for producers, thus secondary lead prices should increase by less than 0.9 percent.

Hence, the overall economic impact of this proposed rule should be low on the affected industry and its consumers. For more information, please refer to the Economic Impact Analysis for this proposed rulemaking that is available in the public docket.

E. What are the benefits?

The estimated reductions in lead emissions to meet the 2008 NAAQS standards that will be achieved by this proposed rule would provide benefits to public health, although we have not made a detailed quantitative assessment of them. For example, as described in

the EPA's 2008 Regulatory Impact Analysis (RIA) that was completed for the lead NAAQS (which is available in the docket for this action and also on the EPA's Web site) populations aged less than age 7 would receive significant benefits from reductions in lead exposure (in the form of averted IQ loss among children less than 7 years of age).

As noted in that RIA, there were also several other lead-related health effects that EPA was unable to quantify—particularly among adults. These potential impacts included hypertension, non-fatal strokes,

reproductive effects and premature mortality, among others.

When viewed in this context, the reductions in concentrations of ambient lead that would be achieved with this proposed RTR for secondary lead smelters are expected to provide significant benefits to both children and adult populations, but these benefits cannot be quantified due to resource and data limitations.

In addition to the benefits likely to be achieved for lead reductions, we also estimate that this proposed RTR rule will achieve about 48 to 76 tons reductions in PM 2.5 emissions as a co-benefit of the HAP reductions. These PM 2.5 reductions would result in an average of about \$8.6 to \$13.6 million in benefits per year. Finally, the proposed rule will provide human health benefits through reductions in arsenic and cadmium emissions. We estimate that cancer cases from these emissions

would be reduced from 0.02 per year to 0.01 per year.

VI. Request for Comments

We are soliciting comments on all aspects of this proposed action. In addition to general comments on this proposed action, we are also interested in any additional data that may help to reduce the uncertainties inherent in the risk assessments and other analyses. We are specifically interested in receiving corrections to the site-specific emissions profiles used for risk modeling. Such data should include supporting documentation in sufficient detail to allow characterization of the quality and representativeness of the data or information. Section VII of this preamble provides more information on submitting data.

VII. Submitting Data Corrections

The site-specific emissions profiles used in the source category risk and

demographic analyses 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 facility included 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 Web page, complete the following steps:

1. Within this downloaded file, enter suggested revisions to the data fields appropriate for that information. The data fields that may be revised include the following:

Data element	Definition
Control Measure	Are control measures in place? (yes or no)
Control Measure Comment	Select control measure from list provided, and briefly describe the control measure.
Delete	Indicate here if the facility or record should be deleted.
Delete Comment	Describes the reason for deletion.
Emissions Calculation Method Code for Revised Emissions	Code description of the method used to derive emissions. For example, GEM, material balance, stack test, etc.
Emissions Process Group	Enter the general type of emissions process associated with the specified emissions point.
Fugitive Angle	Enter release angle (clockwise from true North); orientation of the y-dimension relative to true North, measured positive for clockwise starting at 0 degrees (maximum 89 degrees).
Fugitive Length	Enter dimension of the source in the east-west (x-) direction, commonly referred to as length (ft).
Fugitive Width	Enter dimension of the source in the north-south (y-) direction, commonly referred to as width (ft).
Malfunction Emissions	Enter total annual emissions due to malfunctions (tpy).
Malfunction Emissions Max Hourly	Enter maximum hourly malfunction emissions here (lb/hr).
North American Datum	Enter datum for latitude/longitude coordinates (NAD27 or NAD83); if left blank, NAD83 is assumed.
Process Comment	Enter general comments about process sources of emissions.
REVISED Address	Enter revised physical street address for MACT facility here.
REVISED City	Enter revised city name here.
REVISED County Name	Enter revised county name here.
REVISED Emissions Release Point Type	Enter revised Emissions Release Point Type here.
REVISED End Date	Enter revised End Date here.
REVISED Exit Gas Flow Rate	Enter revised Exit Gas Flowrate here (ft ³ /sec).
REVISED Exit Gas Temperature	Enter revised Exit Gas Temperature here (F).
REVISED Exit Gas Velocity	Enter revised Exit Gas Velocity here (ft/sec).
REVISED Facility Category Code	Enter revised Facility Category Code here, which indicates whether facility is a major or area source.
REVISED Facility Name	Enter revised Facility Name here.
REVISED Facility Registry Identifier	Enter revised Facility Registry Identifier here, which is an ID assigned by the EPA Facility Registry System.
REVISED HAP Emissions Performance Level Code	Enter revised HAP Emissions Performance Level here.
REVISED Latitude	Enter revised Latitude here (decimal degrees).
REVISED Longitude	Enter revised Longitude here (decimal degrees).
REVISED MACT Code	Enter revised MACT Code here.
REVISED Pollutant Code	Enter revised Pollutant Code here.
REVISED Routine Emissions	Enter revised routine emissions value here (tpy).
REVISED SCC Code	Enter revised SCC Code here.
REVISED Stack Diameter	Enter revised Stack Diameter here (ft).
REVISED Stack Height	Enter revised Stack Height here (ft).
REVISED Start Date	Enter revised Start Date here.
REVISED State	Enter revised State here.
REVISED Tribal Code	Enter revised Tribal Code here.
REVISED Zip Code	Enter revised Zip Code here.

Data element	Definition
Shutdown Emissions	Enter total annual emissions due to shutdown events (tpy).
Shutdown Emissions Max Hourly	Enter maximum hourly shutdown emissions here (lb/hr).
Stack Comment	Enter general comments about emissions release points.
Startup Emissions	Enter total annual emissions due to startup events (tpy).
Startup Emissions Max Hourly	Enter maximum hourly startup emissions here (lb/hr).
Year Closed	Enter date facility stopped operations.

2. Fill in the commenter information fields for each suggested revision (*i.e.*, commenter name, commenter organization, commenter e-mail address, commenter phone number, and revision comments).

3. Gather documentation for any suggested emissions revisions (*e.g.*, performance test reports, material balance calculations).

4. Send the entire downloaded file with suggested revisions in Microsoft® Access format and all accompanying documentation to Docket ID Number EPA-HQ-OAR-2011-0344 (through one of the methods described in the **ADDRESSES** section of this preamble). To expedite review of the revisions, it would also be helpful if you submitted a copy of your revisions to the EPA directly at RTR@epa.gov in addition to submitting them to the docket.

5. If you are providing comments on a facility, you need only submit one file for that facility, which 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® Access files, which are provided on the RTR Web Page at: <http://www.epa.gov/ttn/atw/risk/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, 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 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 EPA has been assigned EPA ICR number 1856.07. The information collection requirements are not enforceable until OMB approves them. The information requirements are based on notification, recordkeeping, and reporting requirements in the NESHAP General Provisions (40 CFR part 63, subpart A), which are mandatory for all operators subject to national emissions standards. These recordkeeping and reporting requirements are specifically authorized by CAA section 114 (42 U.S.C. 7414). All information submitted to EPA pursuant to the recordkeeping and reporting requirements for which a claim of confidentiality is made is safeguarded according to Agency policies set forth in 40 CFR part 2, subpart B.

We are proposing new paperwork requirements to the Secondary Lead Smelting source category in the form of increased frequency for stack testing as described in 40 CFR 63.540(f)–(h). More specifically, we are proposing the elimination of the provisions allowing reduced stack testing for lead and the addition of annual stack testing for THC and stack testing every 5 years for dioxins and furans. In conjunction with setting THC limits for reverberatory, electric, and rotary furnaces, additional monitoring and recordkeeping is required for furnace outlet temperature on these units. We believe temperature monitors currently exist in these locations and that the facilities will not incur a capital cost due to this requirement. Additionally, increased monitoring is required for demonstrating negative pressure in all total enclosures if this compliance option is selected. If the lead concentration in air limit is chosen, additional monitoring and recordkeeping will be required. Bag leak detection monitors will be required for HEPA filtration systems where no BLDS are currently installed. We estimate a total of seven new BLDS will be required as a result of this proposed rule at an estimated capital cost of \$230,000.

For this proposed rule, EPA is adding affirmative defense to the estimate of burden in the ICR. To provide the public with an estimate of the relative magnitude of the burden associated

with an assertion of the affirmative defense position adopted by a source, EPA has provided administrative adjustments to this ICR to show what the notification, recordkeeping and reporting requirements associated with the assertion of the affirmative defense might entail. EPA's estimate for the required notification, reports and records for any individual incident, including the root cause analysis, totals \$3,141 and is based on the time and effort required of a source to review relevant data, interview plant employees, and document the events surrounding a malfunction that has caused an exceedance of an emissions limit. The estimate also includes time to produce and retain the record and reports for submission to EPA. EPA provides this illustrative estimate of this burden because these costs are only incurred if there has been a violation and a source chooses to take advantage of the affirmative defense.

Given the variety of circumstances under which malfunctions could occur, as well as differences among sources' operation and maintenance practices, we cannot reliably predict the severity and frequency of malfunction-related excess emissions events for a particular source. It is important to note that EPA has no basis currently for estimating the number of malfunctions that would qualify for an affirmative defense. Current historical records would be an inappropriate basis, as source owners or operators previously operated their facilities in recognition that they were exempt from the requirement to comply with emissions standards during malfunctions. Of the number of excess emissions events reported by source operators, only a small number would be expected to result from a malfunction (based on the definition above), and only a subset of excess emissions caused by malfunctions would result in the source choosing to assert the affirmative defense. Thus we believe the number of instances in which source operators might be expected to avail themselves of the affirmative defense will be extremely small. For this reason, we estimate no more than 2 or 3 such occurrences for all sources subject to subpart X over the 3-year period covered by this ICR. We expect to gather

information on such events in the future and will revise this estimate as better information becomes available. We estimate 14 regulated entities are currently subject to subpart X and will be subject to all proposed standards. The annual monitoring, reporting, and recordkeeping burden for this collection (averaged over the first 3 years after the effective date of the standards) for these amendments to subpart X (Secondary Lead Smelting) is estimated to be \$1.01 million per year. This includes 4,200 labor hours per year at a total labor cost of \$330,000 per year, and total non-labor capital and operation and maintenance (O&M) costs of \$690,000 per year. This estimate includes performance tests, notifications, reporting, and recordkeeping associated with the new requirements for front-end process vents and back-end process 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 1,300 hours per year at a total labor cost of \$67,000 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 EPA's regulations in 40 CFR are listed in 40 CFR part 9. When these ICRs are approved by OMB, the Agency will publish a technical amendment to 40 CFR part 9 in the **Federal Register** to display the OMB control numbers for the approved information collection requirements contained in the final rules.

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, EPA has established a public docket for this rule, which includes this ICR, under Docket ID number EPA-HQ-OAR-2011-0344. Submit any comments related to the ICR to EPA and OMB. See the **ADDRESSES** section at the beginning of this notice for where to submit comments to 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 EPA. Since OMB is required to make a decision concerning the ICR between 30 and 60 days after May 19, 2011, a comment to OMB is best assured of having its full effect if OMB receives it by June 20, 2011. 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 proposed 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 331419 (*i.e.*, Secondary Smelting and Refining of Nonferrous Metal (except copper and aluminum)), the SBA small business size standard is 750 employees according to the SBA small business standards definitions. We have estimated the cost impacts and have determined that the impacts do not constitute a significant economic impact on a substantial number of small entities (see: *Small Business Analysis for the Secondary Lead Smelting Source Category*, which is available in the docket for this proposed rule). After considering the economic impacts of today's proposed rule on small entities, I certify that this action will not have a significant economic impact on a substantial number of small entities. One of the six parent companies affected is considered a small entity per the definition provided in this section. However, we estimate that this proposed action will not have a significant economic impact on that company. The impact of this proposed action on this company will be an annualized compliance cost of less than one percent of its revenues. (See: *Small Business Analysis for the Secondary Lead Smelting Source Category*). All other affected parent companies are not small businesses according to the SBA small business size standard for the affected NAICS code (NAICS 331419). Although this proposed rule will not have a significant economic impact on a substantial number of small entities, EPA nonetheless has tried to reduce the

impact of this rule on small entities. To reduce the impacts, we are proposing an alternative option to enclosure standards to address fugitive emissions in order to allow companies flexibility on how best to minimize fugitive emissions at their facilities most efficiently. Moreover, we are proposing stack limits that are based on a weighted average approach (as described in Sections V.C and V.D of this preamble) and have been established at the least stringent levels that we estimate will still result in acceptable risks to public health. Thus, the proposed stack limits are based on the least costly approach that will still provide an ample margin of safety for human health and the environment. In addition, the proposed compliance testing requirements were established in a way that minimizes the costs for testing and reporting while still providing the Agency the necessary information needed to ensure continuous compliance with the proposed standards. For more information, please refer to the small business analysis that is in the docket. We continue to be interested in the potential impacts of the proposed rule on small entities and welcome comments on issues related to such impacts.

D. Unfunded Mandates Reform Act

This proposed rule 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 proposed rule 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. The proposed rule imposes no enforceable duties on any State, local or Tribal governments or the private sector. Thus, this proposed rule is not subject to the requirements of sections 202 or 205 of the UMRA.

This proposed 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 because it contains no requirements that apply to such governments nor does it impose obligations upon them.

E. Executive Order 13132: Federalism

This proposed rule 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 proposed rule will supersede State regulations. Thus, Executive Order 13132 does not apply to this proposed rule.

In the spirit of Executive Order 13132, and consistent with EPA policy to promote communications between EPA and State and local governments, EPA specifically solicits comment on this proposed rule from State and local officials.

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

This proposed rule 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.

EPA specifically solicits additional comment on this proposed action from Tribal officials.

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

This proposed rule is not subject to Executive Order 13045 (62 FR 19885, April 23, 1997) because it is not economically significant as defined in Executive Order 12866. However, the Agency does believe there is a disproportionate risk to children due to current emissions of lead from this source category. Modeled ambient air lead concentrations from about 10 of the 14 facilities in this source category are in excess of the NAAQS for lead, which was set to “provide increased protection for children and other at-risk populations against an array of adverse health effects, most notably including neurological effects in children, including neurocognitive and neurobehavioral effects” (73 FR 67007). However, the control measures proposed in this notice will result in lead concentration levels at or below the lead NAAQS at all facilities, thereby mitigating the risk of adverse health effects to children.

The public is invited to submit comments or identify peer-reviewed studies and data that assess effects of early life exposure to lead, arsenic, or cadmium.

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, “Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use” (66 FR 28355, May 22, 2001), because it is not likely to have significant adverse effect on the supply, distribution, or use of energy. This action will not create any new requirements and therefore no additional costs for sources in 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 (15 U.S.C. 272 note), directs 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, business practices) that are developed or adopted by voluntary consensus standards bodies. NTTAA directs EPA to provide Congress, through OMB, explanations when the Agency decides not to use available and applicable VCS.

This proposed rulemaking involves technical standards. EPA proposes to use ASME PTC 19.10–1981, “Flue and Exhaust Gas Analyses,” for its manual methods of measuring the oxygen or carbon dioxide content of the exhaust gas. These parts of ASME PTC 19.10–1981 are acceptable alternatives to EPA Method 3B. This standard is available from the American Society of Mechanical Engineers (ASME), Three Park Avenue, New York, NY 10016–5990 and ASTM D6420–99 (2004) as an acceptable alternative to EPA Method 18. EPA has also decided to use EPA Methods 1, 2, 3, 3A, 3B, 4, 5D, 23, a Procedure in Subpart X to measure doorway in-draft, and a method for measuring lead in ambient air (i.e., 40 CFR Part 50 Appendix G). Although the Agency has identified 16 VCS as being potentially applicable to these methods cited in this rule, we have decided not to use these standards in this proposed rulemaking. The use of these VCS would have been impractical because they do not meet the objectives of the standards cited in this rule. The search and review results are in the docket for this proposed rule.

EPA welcomes comments on this aspect of this proposed rulemaking and, specifically, invites the public to identify potentially-applicable voluntary consensus standards and to explain why such standards should be used in this regulation.

Under section 63.7(f) and section 63.8(f) of Subpart A of the General Provisions, a source may apply to 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.

To examine the potential for any environmental justice issues that might be associated with each source category, we evaluated the distributions of HAP-related cancer and non-cancer risks across different social, demographic, and economic groups within the populations living near the facilities where these source categories are located. The methods used to conduct demographic analyses for this rule are described in Section III.B of this preamble. The development of demographic analyses to inform the consideration of environmental justice issues in EPA rulemakings is an evolving science. EPA offers the demographic analyses in today’s proposed rulemaking as examples of how such analyses might be developed to inform such consideration, and invites public comment on the approaches used and the interpretations made from the results, with the hope that this will support the refinement and improve utility of such analyses.

In the case of Secondary Lead Smelting, we focused on populations within 50 km of the 14 facilities in this source category with emissions sources subject to the MACT standard. More specifically, for these populations we evaluated exposures to HAP that could result in cancer risks of 1-in-1 million or greater, or population exposures to

ambient air lead concentrations above the level of the NAAQS for lead. We compared the percentages of particular demographic groups within the focused populations to the total percentages of those demographic groups nationwide. The results of this analysis are documented in Section IV of this preamble (see Table 4 of this preamble), as well as in a technical report located in the docket for this proposed rulemaking.

As described in Section IV of this preamble, with regard to cancer risks, there are some potential disproportionate impacts to some minority populations due to emissions of arsenic and cadmium from this source category. However, with regard to lead, the analysis does not indicate significant disproportionate impacts. Nevertheless, the proposed actions in today's notice will significantly decrease the risks due to HAP emissions from this source category and mitigate any disproportionate risks due to those emissions.

List of Subjects in 40 CFR Part 63

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

Dated: April 29, 2011.

Lisa P. Jackson,
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. Part 63 is amended by revising subpart X to read as follows:

Subpart X—National Emission Standards for Hazardous Air Pollutants From Secondary Lead Smelting

Sec.

- 63.541 Applicability.
- 63.542 Definitions.
- 63.543 What are my standards for process vents?
- 63.544 What are my process enclosure standards?
- 63.545 What are my standards for fugitive dust sources?
- 63.546 Compliance dates.
- 63.547 Test methods.
- 63.548 Monitoring requirements.
- 63.549 Notification requirements.
- 63.550 Recordkeeping and reporting requirements.
- 63.551 Implementation and enforcement.
- 63.552 Affirmative Defense for Exceedance of Emissions Limit During Malfunction.

- Table 1 to Subpart X of Part 63—General Provisions Applicability to Subpart X
- Table 2 to Subpart X of Part 63—Emissions Limits for Secondary Lead Smelting Furnaces
- Table 3 to Subpart X of Part 60—Toxic Equivalency Factors

Subpart X—National Emission Standards for Hazardous Air Pollutants From Secondary Lead Smelting

§ 63.541 Applicability.

(a) You are subject to this subpart if you own or operate any of the following equipment or processes at a secondary lead smelter: Blast, reverberatory, rotary, and electric furnaces; refining kettles; agglomerating furnaces; dryers; process fugitive emissions sources; and fugitive dust sources. The provisions of this subpart do not apply to primary lead smelters, lead refiners, or lead remelters.

(b) Table 1 to this subpart specifies the provisions of subpart A of this part that apply to owners and operators of secondary lead smelters subject to this subpart.

(c) 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.

(d) Emissions standards in this subpart apply at all times.

§ 63.542 Definitions.

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

Affirmative defense means, in the context of an enforcement proceeding, a response or defense put forward by a defendant, regarding which the defendant has the burden of proof, and the merits of which are independently and objectively evaluated in a judicial or administrative proceeding.

Agglomerating furnace means a furnace used to melt into a solid mass flue dust that is collected from a baghouse.

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

Battery breaking area means the plant location at which lead-acid batteries are broken, crushed, or disassembled and separated into components.

Blast furnace means a smelting furnace consisting of a vertical cylinder atop a crucible, into which lead-bearing charge materials are introduced at the

top of the furnace and combustion air is introduced through tuyeres at the bottom of the cylinder, and that uses coke as a fuel source and that is operated at such a temperature in the combustion zone (greater than 980 °C) that lead compounds are chemically reduced to elemental lead metal.

Blast furnace charging location means the physical opening through which raw materials are introduced into a blast furnace.

Collocated blast furnace and reverberatory furnace means operation at the same location of a blast furnace and a reverberatory furnace where the vent streams of the furnaces are mixed before cooling, with the volumetric flow rate discharged from the blast furnace being equal to or less than that discharged from the reverberatory furnace.

Dryer means a chamber that is heated and that is used to remove moisture from lead-bearing materials before they are charged to a smelting furnace.

Dryer transition equipment means the junction between a dryer and the charge hopper or conveyor, or the junction between the dryer and the smelting furnace feed chute or hopper located at the ends of the dryer.

Electric furnace means a smelting furnace consisting of a vessel into which reverberatory furnace slag is introduced and that uses electrical energy to heat the reverberatory furnace slag to such a temperature (greater than 980 °C) that lead compounds are reduced to elemental lead metal.

Enclosure hood means a hood that covers a process fugitive emission source on the top and on all sides, with openings only for access to introduce or remove materials to or from the source and through which an induced flow of air is ventilated.

Fugitive dust source means a stationary source of hazardous air pollutant emissions at a secondary lead smelter that is not associated with a specific process or process fugitive vent or stack. Fugitive dust sources include, but are not limited to, roadways, storage piles, materials handling transfer points, materials transport areas, storage areas, process areas, and buildings.

Furnace and refining/casting area means any area of a secondary lead smelter in which:

- (1) Smelting furnaces are located; or
- (2) Refining operations occur; or
- (3) Casting operations occur.

Lead alloy means an alloy in which the predominant component is lead.

Maintenance activity means any of the following routine maintenance and repair activities that generate fugitive lead dust:

(1) Replacement or repair of refractory, filter bags, or any internal or external part of equipment used to process, handle or control lead-containing materials.

(2) Replacement of any duct section used to convey lead-containing exhaust.

(3) Metal cutting or welding that penetrates the metal structure of any equipment, and its associated components, used to process lead-containing material such that lead dust within the internal structure or its components can become fugitive lead dust.

(4) Resurfacing, repair or removal of ground, pavement, concrete, or asphalt.

Materials storage and handling area means any area of a secondary lead smelter in which lead-bearing materials (including, but not limited to, broken battery components, reverberatory furnace slag, flue dust, and dross) are stored or handled between process steps including, but not limited to, areas in which materials are stored in piles, bins, or tubs, and areas in which material is prepared for charging to a smelting furnace.

Partial enclosure means a structure comprised of walls or partitions on at least three sides or three-quarters of the perimeter surrounding stored materials or process equipment to prevent the entrainment of particulate matter into the air.

Pavement cleaning means the use of vacuum equipment, water sprays, or a combination thereof to remove dust or other accumulated material from the paved areas of a secondary lead smelter.

Plant roadway means any area of a secondary lead smelter that is subject to vehicle traffic, including traffic by forklifts, front-end loaders, or vehicles carrying whole batteries or cast lead ingots. Excluded from this definition are employee and visitor parking areas, provided they are not subject to traffic by vehicles carrying lead-bearing materials.

Pressurized dryer breaching seal means a seal system connecting the

dryer transition pieces which is maintained at a higher pressure than the inside of the dryer.

Process fugitive emissions source means a source of hazardous air pollutant emissions at a secondary lead smelter that is associated with lead smelting or refining, but is not the primary exhaust stream from a smelting furnace, and is not a fugitive dust source. Process fugitive sources include, but are not limited to, smelting furnace charging points, smelting furnace lead and slag taps, refining kettles, agglomerating furnaces, and drying kiln transition pieces.

Process vent means furnace vents, dryer vents, agglomeration furnace vents, vents from battery breakers, building vents, and any ventilation system controlling lead emissions.

Refining kettle means an open-top vessel that is constructed of cast iron or steel and is indirectly heated from below and contains molten lead for the purpose of refining and alloying the lead. Included are pot furnaces, receiving kettles, and holding kettles.

Reverberatory furnace means a refractory-lined furnace that uses one or more flames to heat the walls and roof of the furnace and lead-bearing scrap to such a temperature (greater than 980 °C) that lead compounds are chemically reduced to elemental lead metal.

Rotary furnace (also known as a rotary reverberatory furnace) means a furnace consisting of a refractory-lined chamber that rotates about a horizontal axis and that uses one or more flames to heat the walls of the furnace and lead-bearing scrap to such a temperature (greater than 980 °C) that lead compounds are chemically reduced to elemental lead metal.

Secondary lead smelter means any facility at which lead-bearing scrap material, primarily, but not limited to, lead-acid batteries, is recycled into elemental lead or lead alloys by smelting.

Smelting means the chemical reduction of lead compounds to

elemental lead or lead alloys through processing in high-temperature (greater than 980 °C) furnaces including, but not limited to, blast furnaces, reverberatory furnaces, rotary furnaces, and electric furnaces.

Total enclosure means a roofed and walled structure with limited openings to allow access and egress for people and vehicles that meets the requirements of § 265.1101(a)(1), (a)(2)(i), and (c)(1)(i).

Vehicle wash means a device for removing dust and other accumulated material from the wheels, body, and underside of a vehicle to prevent the inadvertent transfer of lead contaminated material to another area of a secondary lead smelter or to public roadways.

Wet suppression means the use of water, water combined with a chemical surfactant, or a chemical binding agent to prevent the entrainment of dust into the air from fugitive dust sources.

§ 63.543 What are my standards for process vents?

(a) You must maintain the concentration of lead compounds in any process vent gas at or below 1.0 milligrams of lead per dry standard cubic meter (0.00043 grains of lead per dry standard cubic foot). You must maintain the flow-weighted average concentration of lead compounds in vent gases from a secondary lead facility at or below 0.20 milligrams of lead per dry standard cubic meter (0.000087 grains of lead per dry standard cubic foot).

(1) You must demonstrate compliance with the flow weighted average emissions limit on a 12-month rolling average basis, calculated monthly.

(2) Until 12 monthly weighted average emissions rates have been accumulated, calculate only the monthly average weighted emissions rate.

(3) You must use Equation 1 of this section to calculate the flow-weighted average concentration of lead compounds from process vents:

$$C_{FWA} = \frac{\sum_{i=1}^n F_i \times C_i}{\sum_i F_i} \quad (\text{Eq. 1})$$

Where:

C_{FWA} = Flow-weighted average concentration of all process vents.

n = Number of process vents.

F_i = Flow rate from process vent i in dry standard cubic feet per minute, as measured during the most recent compliance test.

C_i = Concentration of lead in process vent i , as measured during the most recent compliance test.

(4) Each month, you must use the concentration of lead and flow rate obtained during the most recent compliance test performed prior to or during that month to perform the calculation.

(5) If a continuous emissions monitoring system (CEMS) is used to measure the concentration of lead in a

vent, the monthly average lead concentration and monthly average flow must be used rather than the most recent compliance test data.

(b) You must meet the applicable emissions limits for total hydrocarbons and dioxins and furans from furnace sources specified in Table 2 of this subpart.

(c) If you combine furnace emissions from multiple types of furnaces and these furnaces do not meet the definition of collocated blast and reverberatory furnaces, you must calculate your emissions limit for the combined furnace stream using Equation 2.

$$C_{EL} = \frac{\sum_{i=1}^n F_i \times C_{ELi}}{\sum_i F_i} \quad (\text{Eq. 2})$$

Where:

C_{EL} = Flow-weighted average emissions limit (concentration) of combined furnace vents.

n = Number of furnace vents.

F_i = Flow rate from furnace vent i in dry standard cubic feet per minute.

C_{ELi} = Emissions limit (concentration) of lead in furnace vent i as specified in Table 2 of this subpart.

(d) If you combine furnace emissions with the furnace charging process fugitive emissions and discharge them to the atmosphere through a common emissions point, you must demonstrate compliance with the applicable total hydrocarbons concentration limit specified in paragraph (b) of this section at a location downstream from the point at which the two emissions streams are combined.

(e) If you do not combine the furnace charging process fugitive emissions with the furnace process emissions, and discharge such emissions to the atmosphere through separate emissions points, you must maintain the total hydrocarbons concentration in the exhaust gas at or below 20 parts per million by volume, expressed as propane.

(f) Following the initial performance or compliance test to demonstrate compliance with the lead emissions limits specified in paragraph (a) of this section, you must conduct an annual performance test for lead compounds from each process vent (no later than 12 calendar months following the previous compliance test), unless you install and operate a CEMS and continuous emissions rate monitoring system meeting the requirements of § 63.548(m).

(g) Following the initial performance or compliance test to demonstrate compliance with the total hydrocarbons emissions limits in paragraphs (b) and (e) of this section, you must conduct an

annual performance test for total hydrocarbons emissions from each process vent (no later than 12 calendar months following the previous compliance test).

(h) Following the initial performance or compliance test to demonstrate compliance with the dioxins and furans emissions limits specified in paragraph (b) of this section, you must conduct a performance test for dioxins and furans emissions at least once every 5 years following the previous compliance test.

(i) You must conduct the performance tests specified in paragraphs (f) through (h) 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.

(j) 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.

(k) In addition to complying with the applicable emissions limits for dioxins and furans listed in Table 2 to this subpart, you must operate a process to separate plastic battery casing materials prior to introducing feed into a blast furnace.

§ 63.544 What are my process enclosure standards?

(a) Except as provided in paragraph (d) of this section, you must locate the fugitive emissions sources listed in paragraphs (a)(1) through (a)(9) of this section in a total enclosure that is maintained at negative pressure at all times. The total enclosure must meet the requirements specified in paragraphs (b)(1) and (b)(2) of this section.

- (1) Smelting furnaces.
- (2) Smelting furnace charging areas.
- (3) Lead taps, slag taps, and molds during tapping.
- (4) Battery breakers.
- (5) Refining kettles, casting areas.
- (6) Dryers.
- (7) Agglomerating furnaces and agglomerating furnace product taps.
- (8) Material handling areas for any lead bearing materials (drosses, slag, other raw materials), excluding areas where unbroken lead acid batteries and finished lead products are stored.

(9) Areas where dust from fabric filters, sweepings or used fabric filters are handled or processed.

(b) You must construct and operate total enclosures for the sources listed in paragraph (a) of this section as specified in paragraphs (b)(1) and (b)(2) of this section.

(1) You must ventilate the total enclosure continuously to ensure negative pressure values of at least 0.02 mm of mercury (0.011 inches of water).

(2) You must maintain the in-draft velocity of the total enclosure at greater than or equal to 300 feet per minute at any opening including, but not limited to, vents, windows, passages, doorways, bay doors and roll-ups doors.

(c) You must inspect enclosures and facility structures that contain any lead-bearing materials at least once per month. You must repair any gaps, breaks, separations, leak points or other

possible routes for emissions of lead to the atmosphere within 72 hours of identification unless you obtain approval for an extension from the Administrator before the repair period is exceeded.

(d) As an alternative to the requirements specified in paragraphs (a) through (c) of this section, you can elect to demonstrate compliance by meeting the requirements of (d)(1) through (d)(4) of this section.

(1) You must install compliance monitors on or near the plant property boundary, at locations approved by the Administrator, to demonstrate that the lead concentration in air is at all times maintained below a 3-month rolling average value of 0.15 $\mu\text{g}/\text{m}^3$ at each monitor. This must include at least two such monitors and at least one of these monitors must be in a location that is expected to have the highest air concentrations at or near the facility boundary based on ambient dispersion modeling or other methods approved by the Administrator.

(2) You must control the process fugitive emission sources listed in paragraphs (d)(2)(i) through (d)(2)(vi) of this section in accordance with the equipment and operational standards presented in paragraphs (d)(3) through (d)(8) of this section.

(i) Smelting furnace and dryer charging hoppers, chutes, and skip hoists.

(ii) Smelting furnace lead taps, and molds during tapping.

(iii) Smelting furnace slag taps, and molds during tapping.

(iv) Refining kettles.

(v) Dryer transition pieces.

(vi) Agglomerating furnace product taps.

(3) Process fugitive emission sources must be equipped with an enclosure hood meeting the requirements of (d)(3)(i), (d)(3)(ii), or (d)(3)(iii) of this section.

(i) All process fugitive enclosure hoods except those specified for refining kettles and dryer transition pieces must be ventilated to maintain a face velocity of at least 90 meters per minute (300 feet per minute) at all hood openings.

(ii) Process fugitive enclosure hoods required for refining kettles must be ventilated to maintain a face velocity of at least 75 meters per minute (250 feet per minute).

(iii) Process fugitive enclosure hoods required over dryer transition pieces must be ventilated to maintain a face velocity of at least 110 meters per minute (350 feet per minute).

(iv) Ventilation air from all enclosure hoods must be conveyed to a control

device meeting the applicable requirements of § 63.543.

(4) As an alternative to paragraph (d)(3)(iii) of this section, you may elect to control the process fugitive emissions from dryer transition pieces by installing and operating pressurized dryer breaching seals at each transition piece.

(5) For the battery breaking area, partial enclosure of storage piles, wet suppression applied to storage piles with sufficient frequency and quantity to prevent the formation of dust, and pavement cleaning twice per day.

(6) For the furnace area, partial enclosure and pavement cleaning twice per day.

(7) For the refining and casting area, partial enclosure and pavement cleaning twice per day.

(8) For the materials storage and handling area, partial enclosure of storage piles, wet suppression applied to storage piles with sufficient frequency and quantity to prevent the formation of dust.

§ 63.545 What are my standards for fugitive dust sources?

(a) You must prepare, and at all times operate according to, a standard operating procedures manual that describes in detail the measures that will be put in place and implemented to control the fugitive dust emissions from the sources listed in paragraphs (a)(1) through (a)(8) of this section.

(1) Plant roadways.

(2) Plant buildings.

(3) Plant building exteriors.

(4) Accidental releases.

(5) Battery storage area.

(6) Equipment maintenance areas.

(7) Material storage areas.

(8) Material handling areas.

(b) You must submit the standard operating procedures manual to the Administrator or delegated authority for review and approval.

(c) The controls specified in the standard operating procedures manual must at a minimum include the requirements specified in paragraphs (c)(1) through (c)(8) of this section, unless you satisfy the requirements specified in paragraph (f) of this section.

(1) *Cleaning.* Where a cleaning practice is specified, you must clean by wet wash or a vacuum equipped with a filter rated by the manufacturer to achieve 99.97 percent capture efficiency for 0.3 micron particles in a manner that does not generate fugitive lead dust.

(2) *Plant roadways and paved areas.* You must pave all areas subject to vehicle traffic and you must clean the pavement twice per day, except on days when natural precipitation makes

cleaning unnecessary or when sand or a similar material has been spread on plant roadways to provide traction on ice or snow. If you use a mobile vacuum sweeper for pavement cleaning, the sweeper must meet the requirements specified in paragraphs (c)(2)(i) or (c)(2)(ii) of this section.

(i) If the vacuum sweeper uses water flushing followed by sweeping, the water flush must use a minimum application of 0.48 gallons of water per square yard of pavement cleaned.

(ii) The vacuum sweeper must be equipped with a filter rated by the manufacturer to achieve a capture efficiency of 99.97 for 0.3 micron particles.

(3) *Plant building exterior.* For all buildings that house areas associated with storage, handling, or processing of lead bearing materials, you must perform a monthly cleaning of building rooftops on structures that are less than 45 feet in height and quarterly cleaning of buildings that are greater than 45 feet in height.

(4) *Accidental releases.* You must initiate cleaning of all affected areas within one hour after any accidental release of lead dust.

(5) *Battery storage areas.* You must inspect any unenclosed battery storage areas twice each day and immediately move any broken batteries identified to an enclosure. You must clean residue from broken batteries within one hour of identification.

(6) *Materials storage and handling areas.* You must wash each vehicle at each exit of the material storage and handling areas. The vehicle wash must include washing of tires, undercarriage and exterior surface of the vehicle followed by vehicle inspection. You must collect all wash water and store the wash water in a container that is not open to the atmosphere if the wash water is not immediately sent to treatment.

(7) *Equipment maintenance.* You must perform all maintenance activities for any equipment potentially contaminated with lead bearing material or lead dust inside an enclosure maintained at negative pressure. You must conduct any maintenance activity that cannot be conducted in a negative pressure enclosure due to physical constraints or safety issues inside a partial or temporary enclosure and use wet suppression and/or a vacuum system equipped with a filter rated by the manufacturer to achieve a capture efficiency of 99.97 percent for 0.3 micron particles.

(8) *Material transport.* You must transport all lead bearing materials including, but not limited to, furnace

charging material, baghouse dust, slag and any material generated from cleaning activities, capable of generating any amount of fugitive lead dust within closed conveyor systems or in sealed, leak-proof containers unless the transport activities are contained within an enclosure.

(d) Your standard operating procedures manual must specify that records be maintained of all pavement cleaning, vehicle washing, wet suppression, exterior building cleaning, and battery storage inspection activities performed to control fugitive dust emissions.

(e) You must pave all grounds on the facility or plant groundcover sufficient to prevent wind-blown dust. You may use dust suppressants on unpaved areas that will not support a groundcover (e.g., roadway shoulders, steep slopes).

(f) As an alternative to the requirements specified in paragraphs (c)(1) through (c)(8) of this section, you can demonstrate to the Administrator (or delegated State, local, or Tribal authority) that an alternative measure(s) is equivalent or better than a practice(s) described in paragraphs (c)(1) through (c)(8) of this section.

§ 63.546 Compliance dates.

(a) For affected sources that commenced construction or reconstruction on or before May 19, 2011, you must demonstrate compliance with the requirements of this subpart no later than [DATE TWO YEARS AFTER THE DATE OF PUBLICATION OF THE FINAL RULE IN THE FEDERAL REGISTER].

(b) For affected sources that commenced construction or reconstruction after May 19, 2011, you must demonstrate compliance with the requirements of this subpart by [DATE TWO YEARS AFTER THE DATE OF PUBLICATION OF THE FINAL RULE IN THE FEDERAL REGISTER] or upon startup of operations, whichever is later.

§ 63.547 Test methods.

(a) You must use the test methods from appendix A of part 60 as listed in paragraphs (a)(1) through (a)(5) of this section to determine compliance with the emissions standards for lead compounds specified in § 63.543(a).

(1) EPA Method 1 at 40 CFR part 60, appendix A-1 to select the sampling port location and the number of traverse points.

(2) EPA Method 2 at 40 CFR part 60, appendix A-1 or EPA Method 5D at 40 CFR part 60, appendix A-3, section 8.3 for positive pressure fabric filters, to measure volumetric flow rate.

(3) EPA Method 3, 3A, or 3B at 40 CFR part 60, appendix A-2 to determine the dry molecular weight of the stack gas.

(4) EPA Method 4 at 40 CFR part 60, appendix A-3 to determine moisture content of the stack gas.

(5) EPA Method 29 at 40 CFR part 60, appendix A-8 to determine compliance with the lead compound emissions standards. The minimum sample volume must be 2.0 dry standard cubic meters (70 dry standard cubic feet) for each run. You must perform three test runs and you must determine compliance using the average of the three runs.

(b) You must use the following test methods in appendix A of part 60 listed in paragraphs (b)(1) through (b)(4) of this section, as specified, to determine compliance with the emissions standards for total hydrocarbons specified in § 63.543(b) and (e).

(1) EPA Method 1 at 40 CFR part 60, appendix A-1 to select the sampling port location and number of traverse points.

(2) The Single Point Integrated Sampling and Analytical Procedure of Method 3B to measure the carbon dioxide content of the stack gases when using either EPA Method 3A or 3B at 40 CFR part 60, appendix A-2.

(3) EPA Method 4 at 40 CFR part 60, appendix A-3 to measure moisture content of the stack gases.

(4) EPA Method 25A at 40 CFR part 60, appendix A-7 to measure total hydrocarbons emissions. The minimum sampling time must be 1 hour for each run. You must perform a minimum of three test runs. You must calculate a 1-hour average total hydrocarbons concentration for each run and use the average of the three 1-hour averages to determine compliance.

(c) You must correct the measured total hydrocarbons concentrations to 4 percent carbon dioxide as specified in paragraphs (c)(1) through (c)(3) of this section.

(1) If the measured percent carbon dioxide is greater than 0.4 percent in each compliance test, you must determine the correction factor using Equation (2) of this section.

$$F = \frac{4.0}{CO_2} \quad (\text{Eq. 2})$$

Where:

F = Correction factor (no units).

CO₂ = Percent carbon dioxide measured using EPA Method 3A or 3B at 40 CFR part 60, appendix A-2, where the measured carbon dioxide is greater than 0.4 percent.

(2) If the measured percent carbon dioxide is equal to or less than 0.4 percent, you must use a correction factor (F) of 10.

(3) You must determine the corrected total hydrocarbons concentration by multiplying the measured total hydrocarbons concentration by the correction factor (F) determined for each compliance test.

(d) You must use the following test methods in appendix A of part 60 listed in paragraphs (d)(1) through (d)(5) of this section, as specified, to determine compliance with the emissions standards for dioxins and furans specified in § 63.543(b).

(1) EPA Method 1 at 40 CFR part 60, appendix A-1 to select the sampling port location and the number of traverse points.

(2) EPA Method 2 at 40 CFR part 60, appendix A-1 or EPA Method 5D at 40 CFR part 60, appendix A-3, section 8.3 for positive pressure fabric filters to measure volumetric flow rate.

(3) EPA Method 3A or 3B at 40 CFR part 60, appendix A-2 to determine the oxygen and carbon dioxide concentrations of the stack gas.

(4) EPA Method 4 at 40 CFR part 60, appendix A-3 to determine moisture content of the stack gas.

(5) EPA Method 23 at 40 CFR part 60, appendix A-7 to determine the dioxins and furans concentration.

(e) You must determine the dioxins and furans toxic equivalency by following the procedures in paragraphs (e)(1) through (e)(3) of this section.

(1) Measure the concentration of each dioxins and furans congener shown in Table 3 of this subpart using EPA Method 23 at 40 CFR part 60, appendix A-7. You must correct the concentration of dioxins and furans in terms of toxic equivalency to 7 percent O₂ using Equation (3) of this section.

$$C_{adj} = \frac{C_{meas}(20.9 - 7)}{(20.9 - \%O_2)} \quad (\text{Eq. 3})$$

Where:

C_{adj} = Dioxins and furans concentration adjusted to 7 percent oxygen.

C_{meas} = Dioxins and furans concentration measured in nanograms per dry standard cubic meter.

$(20.9 - 7)$ = 20.9 percent oxygen - 7 percent oxygen (defined oxygen correction basis).

20.9 = Oxygen concentration in air, percent.

%O₂ = Oxygen concentration measured on a dry basis, percent.

(2) For each dioxins and furans congener measured as specified in paragraph (e)(1) of this section, multiply the congener concentration by its corresponding toxic equivalency factor specified in Table 3 to this subpart.

(3) Sum the values calculated as specified in paragraph (e)(2) of this section to obtain the total concentration of dioxins and furans emitted in terms of toxic equivalency.

(f) You must determine compliance with the doorway in-draft requirement for enclosed buildings in § 63.544(b) using the procedures specified in paragraphs (f)(1) through (f)(3) of this section.

(1) You must use a propeller anemometer or equivalent device meeting the requirements of paragraphs (f)(1)(i) through (f)(1)(iii) of this section.

(i) The propeller of the anemometer must be made of a material of uniform density and must be properly balanced to optimize performance.

(ii) The measurement range of the anemometer must extend to at least 300 meters per minute (1,000 feet per minute).

(iii) A known relationship must exist between the anemometer signal output and air velocity, and the anemometer must be equipped with a suitable readout system.

(2) You must determine the doorway in-draft by placing the anemometer in the plane of the doorway opening near its center.

(3) You must demonstrate the doorway in-draft for each doorway that is open during normal operation with all other doorways remaining in the position they are in during normal operation.

(g) If you comply with the requirements specified in § 63.544(d)(1), you must use the EPA method at 40 CFR part 50, appendix G to measure the concentration of lead in air.

(h) If you comply with the requirements specified in § 63.544(d)(2) and (d)(3) for enclosure hoods, you must determine compliance with the face velocity requirements by using the test methods in paragraph (h)(1) or (h)(2) of this section.

(1) Calculate face velocity using the procedures in paragraphs (h)(1)(i) through (h)(1)(iv) of this section.

(i) Method 1 at 40 CFR part 60, appendix A-1 must be used to select the sampling port location in the duct leading from the process fugitive enclosure hood to the control device.

(ii) Method 2 at 40 CFR part 60, appendix A-1 must be used to measure the volumetric flow rate in the duct from the process fugitive enclosure hood to the control device.

(iii) The face area of the hood must be determined from measurement of the hood. If the hood has access doors, then the face area must be determined with the access doors in the position they are in during normal operating conditions.

(iv) Face velocity must be determined by dividing the volumetric flow rate as determined in paragraph (h)(1)(ii) of this section by the total face area for the hood determined in paragraph (h)(2)(iii) of this section.

(2) The face velocity may be measured directly using the procedures in paragraphs (h)(2)(i) through (h)(2)(v) of this section.

(i) A propeller anemometer or equivalent device must be used to measure hood face velocity.

(ii) The propeller of the anemometer must be made of a material of uniform density and must be properly balanced to optimize performance.

(iii) The measurement range of the anemometer must extend to at least 300 meters per minute (1,000 feet per minute).

(iv) A known relationship must exist between the anemometer signal output and air velocity, and the anemometer must be equipped with a suitable readout system.

(v) Hood face velocity must be determined for each hood open during normal operation by placing the anemometer in the plane of the hood opening. Access doors must be positioned consistent with normal operation.

§ 63.548 Monitoring requirements.

(a) 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 fugitive dust emissions from any source subject to the lead emissions standards in §§ 63.543, 63.544, and 63.545, including those used to control emissions from building ventilation.

(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) 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) through (c)(9) of this section.

(1) Daily monitoring of pressure drop across each baghouse cell.

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

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

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

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

(6) Monthly check of bag tension on reverse air and shaker-type baghouses. Such checks are not required for shaker-type baghouses using self-tensioning (spring loaded) devices.

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

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

(9) Continuous operation of a bag leak detection system, unless a system meeting the requirements of paragraph (m) of this section, for a CEMS and continuous emissions rate monitoring system is installed for monitoring the concentration of lead.

(d) 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.

(e) The bag leak detection system required by paragraph (c)(9) of this section, must meet the specification and requirements of paragraphs (e)(1) through (e)(8) of this section.

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

(2) The bag leak detection system sensor must provide output of relative particulate matter loadings.

(3) 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.

(4) 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.

(5) 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.

(6) 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.

(7) For negative pressure, induced air baghouses, and positive pressure baghouses that are discharged to the atmosphere through a stack, you must install the bag leak detector downstream of the baghouse and upstream of any wet acid gas scrubber.

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

(f) 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 (f)(1) and (f)(2) of this section.

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

(2) 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 (f)(2)(i) through (f)(2)(vi) of this section.

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

(ii) Sealing off defective bags or filter media.

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

(iv) Sealing off a defective baghouse compartment.

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

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

(g) If you use a wet scrubber to control particulate matter and metal hazardous air pollutant emissions from an affected source to demonstrate continuous compliance with the emissions standards, you must monitor and record the pressure drop and water flow rate of the wet scrubber during the initial performance or compliance test conducted to demonstrate compliance with the lead emissions limit under § 63.543(a). Thereafter, you must monitor and record the pressure drop and water flow rate values at least once every hour and you must maintain the pressure drop and water flow rate at levels no lower than 30 percent below the pressure drop and water flow rate measured during the initial performance or compliance test.

(h) You must comply with the requirements specified in paragraphs (h)(1) through (h)(5) of this section to demonstrate continuous compliance with the total hydrocarbons and dioxins and furans emissions standards.

(1) Continuous temperature monitoring. You must install, calibrate, maintain, and continuously operate a device to monitor and record the temperature of the afterburner or furnace exhaust streams consistent with the requirements for continuous monitoring systems in subpart A of this part.

(2) Prior to or in conjunction with the initial performance or compliance test to determine compliance with § 63.543(b), you must conduct a performance evaluation for the temperature monitoring device according to § 63.8(e). The definitions, installation specifications, test procedures, and data reduction procedures for determining calibration drift, relative accuracy, and reporting described in Performance Specification 2, 40 CFR part 60, appendix B, sections 2, 3, 5, 7, 8, 9, and 10 must be used to

conduct the evaluation. The temperature monitoring device must meet the following performance and equipment specifications:

(i) The recorder response range must include zero and 1.5 times the average temperature identified in paragraph (h)(3) of this section.

(ii) The monitoring system calibration drift must not exceed 2 percent of 1.5 times the average temperature identified in paragraph (h)(3) of this section.

(iii) The monitoring system relative accuracy must not exceed 20 percent.

(iv) The reference method must be a National Institute of Standards and Technology calibrated reference thermocouple-potentiometer system or an alternate reference, subject to the approval of the Administrator.

(3) You must monitor and record the temperature of the afterburner or the furnace exhaust streams every 15 minutes during the initial performance or compliance test for total hydrocarbons and dioxins and furans and determine an arithmetic average for the recorded temperature measurements.

(4) To demonstrate continuous compliance with the standards for total hydrocarbons and dioxins and furans, you must maintain an afterburner or exhaust temperature such that the average temperature in any 3-hour period does not fall more than 28 °C (50 °F) below the average established in paragraph (h)(3) of this section.

(i) You must install, operate, and maintain a digital differential pressure monitoring system to continuously monitor each total enclosure as described in paragraphs (i)(1) through (i)(6) of this section.

(1) You must install and maintain a minimum of one building digital differential pressure monitoring system at each of the following three walls in each total enclosure that has a total ground surface area of 10,000 square feet or more:

(i) The leeward wall.

(ii) The windward wall.

(iii) An exterior wall that connects the leeward and windward wall at a location defined by the intersection of a perpendicular line between a point on the connecting wall and a point on its furthest opposite exterior wall, and intersecting within plus or minus ten meters of the midpoint of a straight line between the two other monitors specified. The midpoint monitor must not be located on the same wall as either of the other two monitors.

(2) You must install and maintain a minimum of one building digital differential pressure monitoring system at the leeward wall of each total

enclosure that has a total ground surface area of less than 10,000 square feet.

(3) The digital differential pressure monitoring systems must be certified by the manufacturer to be capable of measuring and displaying negative pressure in the range of 0.01 to 0.2 mm mercury (0.005 to 0.11 inches of water) with a minimum accuracy of plus or minus 0.001 mm mercury (0.0005 inches of water).

(4) You must equip each digital differential pressure monitoring system with a continuous recorder.

(5) You must calibrate each digital differential pressure monitoring system in accordance with manufacturer's specifications at least once every 12 calendar months or more frequently if recommended by the manufacturer.

(6) You must equip the digital differential pressure monitoring system with a backup, uninterruptible power supply to ensure continuous operation of the monitoring system during a power outage.

(j) You must monitor the doorway in-draft velocity at each building opening once per day to demonstrate continuous compliance with the in-draft requirements in § 63.544(b)(2).

(k) If you comply with the requirements specified in § 63.544(d), you must comply with the requirements specified in paragraphs (k)(1) through (3) of this section.

(1) You must install, operate and maintain a continuous monitoring system for the measurement of lead compound concentrations in air as specified in paragraphs (k)(1)(i) through (k)(1)(v) of this section.

(i) You must operate a minimum of two compliance monitors sufficient in location and frequency of sample collection to detect expected maximum concentrations of lead compounds in air due to emissions from the affected source(s) in accordance with a written plan as described in paragraph (k)(1)(ii) of this section and approved by the Administrator. The plan must include descriptions of the sampling and analytical methods used. The plan may take into consideration existing monitoring being conducted under a State monitoring plan in accordance with 40 CFR part 58. At least one 24-hour sample must be collected from each monitor every 6 days except during periods or seasons exempted by the Administrator.

(ii) You must submit a written plan describing and explaining the basis for the design and adequacy of the compliance monitoring network, the sampling, analytical, and quality assurance procedures, and any other related procedures, and the justification

for any seasonal, background, or other data adjustments within 45 days after the effective date of this subpart.

(iii) The Administrator at any time may require changes in, or expansion of, the monitoring program, including additional sampling and, more frequent sampling, revisions to the analytical protocols and network design.

(iv) If all rolling 3-month average concentrations of lead in air measured by the compliance monitoring system are less than 50 percent of the lead concentration limits specified in § 63.544(d)(1) for 3 consecutive years, you may submit a proposed revised plan to reduce the monitoring sampling and analysis frequency to the Administrator for review. If approved by the Administrator, you may adjust your monitoring accordingly.

(v) For any subsequent period, if any rolling 3-month average lead concentration in air measured at any monitor in the monitoring system exceeds 50 percent of the concentration limits specified in § 63.544(d)(1), you must resume monitoring pursuant to paragraph (k)(1)(i) of this section at all monitors until another 3 consecutive years of lead concentration measurements is demonstrated to be less than 50 percent of the lead concentration limits specified in § 63.544(d)(1).

(2) You must monitor the enclosure hood face velocity at each hood once per week to demonstrate continuous compliance with the in-draft requirements in § 63.544(d)(3).

(3) If you use pressurized dryer breaching seals in order to comply with the requirements of § 63.544(d)(4), you must equip each seal with an alarm that will "sound" or "go off" if the pressurized dryer breaching seal malfunctions.

(l) All new or modified sources subject to the requirements under § 63.543 must install, calibrate, maintain, and operate a CEMS for measuring lead emissions and a continuous emissions rate monitoring system subject to Performance Specification 6 of appendix B to part 60 of this chapter. You must comply with the requirements for CEMS and continuous emissions rate monitoring system specified in paragraph (m) of this section.

(1) Sources subject to the emissions limits for lead compounds under § 63.543(a) must install a CEMS for measuring lead emissions within 180 days of promulgation of performance specifications for lead CEMS.

(2) Prior to promulgation of performance specifications for CEMS used to measure lead concentrations,

you must use the procedure described in § 63.543(a)(1) through (a)(4) to determine compliance.

(m) If a CEMS is used to measure lead emissions, you must install a continuous emissions rate monitoring system with a sensor in a location that provides representative measurement of the exhaust gas flow rate at the sampling location of the CEMS used to measure lead emissions, taking into account the manufacturer's recommendations. The flow rate sensor is that portion of the system that senses the volumetric flow rate and generates an output proportional to that flow rate.

(1) The continuous emissions rate monitoring system must be designed to measure the exhaust gas flow rate over a range that extends from a value of at least 20 percent less than the lowest expected exhaust flow rate to a value of at least 20 percent greater than the highest expected exhaust gas flow rate.

(2) The continuous emissions rate monitoring system must be equipped with a data acquisition and recording system that is capable of recording values over the entire range specified in paragraph (m)(1) of this section.

(3) You must perform an initial relative accuracy test of the continuous emissions rate monitoring system in accordance with the applicable Performance Specification in appendix B to part 60 of this chapter.

(4) You must operate the continuous emissions rate monitoring system and record data during all periods of operation of the affected facility including periods of startup, shutdown, and malfunction, 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, calibration checks and required zero and span adjustments.

(5) You must calculate the average lead concentration and flow rate monthly to determine compliance with § 63.543(a).

(6) When the continuous emissions rate monitoring system is unable to provide quality assured data, the following apply:

(i) When data are not available for periods of up to 48 hours, the highest recorded hourly emissions rate from the previous 24 hours must be used.

(ii) When data are not available for 48 or more hours, the maximum daily emissions rate based on the previous 30 days must be used.

§ 63.549 Notification requirements.

(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) You must submit the fugitive dust control standard operating procedures manual required under § 63.545(a) and the standard operating procedures manual for baghouses required under § 63.548(a) to the Administrator or delegated authority along with a notification that the smelter is seeking review and approval of these plans and procedures. You must submit this notification no later than [DATE ONE YEAR AFTER PUBLICATION OF THE FINAL RULE IN THE FEDERAL REGISTER]. For sources that commenced construction or reconstruction after [INSERT THE DATE OF PUBLICATION OF THE FINAL RULE IN THE FEDERAL REGISTER], you must submit this notification no later than 180 days before startup of the constructed or reconstructed secondary lead smelter, but no sooner than [DATE OF PUBLICATION OF THE FINAL RULE IN THE FEDERAL REGISTER]. For an affected source that has received a construction permit from the Administrator or delegated authority on or before [INSERT DATE OF PUBLICATION OF THE FINAL RULE IN THE FEDERAL REGISTER], you must submit this notification no later than [DATE ONE YEAR AFTER PUBLICATION OF THE FINAL RULE IN THE FEDERAL REGISTER].

§ 63.550 Recordkeeping and reporting requirements.

(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 2 years after the date of occurrence, measurement, maintenance, corrective action, report, or record, according to § 63.10(b)(1).

(b) The standard operating procedures manuals required in § 63.545(a) and § 63.548(a) 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.

(c) You must maintain for a period of 5 years, records of the information listed in paragraphs (c)(1) through (c)(15) 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 § 63.548(c) as part of the practices described in the standard operating procedures manual for baghouses required under § 63.548(a).

(4) Electronic records of the pressure drop and water flow rate values for wet scrubbers used to control metal hazardous air pollutant emissions from process fugitive sources as required in § 63.548(g).

(5) Electronic records of the output from the continuous temperature monitor required in § 63.548(h)(1), and an identification of periods when the 3-hour average temperature fell below the minimum established under § 63.548(h)(3), and an explanation of the corrective actions taken.

(6) Electronic records of the continuous pressure monitors for total enclosures required in § 63.548(i), and an identification of periods when the pressure was not maintained as required in § 63.544(b)(1).

(7) Records of the daily measurements of doorway in-draft velocity required in § 63.548(j), and an identification of the periods when the velocity was not maintained as required in § 63.544(b)(2).

(8) Records of the inspections of facility enclosures required in § 63.544(c).

(9) Records of all cleaning and inspections required as part of the practices described in the standard operating procedures manual required under § 63.545(a) for the control of fugitive dust emissions.

(10) Records of the compliance monitoring required in § 63.548(k)(1), if applicable.

(11) Records of the face velocity measurements required in § 63.548(k)(2), if applicable, and an identification of periods when the face velocity was not maintained as required in § 63.544(d)(2) and (d)(3).

(12) Records of the dryer breaching seal alarms required in § 63.548(k)(3).

(13) Electronic records of the output of any CEMS installed to monitor lead emissions meeting the requirements of § 63.548(m).

(14) Records of the occurrence and duration of each malfunction of operation (*i.e.*, process equipment) or

the air pollution control equipment and monitoring equipment.

(15) Records of actions taken during periods of malfunction to minimize emissions in accordance with § 63.543(j), including corrective actions to restore malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation.

(d) 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 frequent 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.

(e) In addition to the information required under the applicable sections of § 63.10, you must include in the reports required under paragraph (d) of this section the information specified in paragraphs (e)(1) through (e)(14) of this section.

(1) Records of the concentration of lead in each process vent, and records of the rolling 12-month flow-weighted average concentration of lead compounds in vent gases calculated monthly as required in § 63.543(a).

(2) Records of all alarms from the bag leak detection system specified in § 63.548.

(3) A description of the procedures taken following each bag leak detection system alarm pursuant to § 63.548(f)(1) and (2).

(4) A summary of the records maintained as part of the practices described in the standard operating procedures manual for baghouses required under § 63.548(a), including an explanation of the periods when the procedures were not followed and the corrective actions taken.

(5) An identification of the periods when the pressure drop and water flow rate of wet scrubbers used to control process fugitive sources dropped below the levels established in § 63.548(g), and an explanation of the corrective actions taken.

(6) Records of the temperature monitor output, in 3-hour block averages, for those periods when the temperature monitored pursuant to § 63.548(h) fell below the level established in § 63.548(h)(4).

(7) Certification that the plastic separation process for battery breakers required in § 63.543(k) was operated at all times the battery breaker was in service.

(8) Records of periods when the pressure was not maintained as required in § 63.544(b)(1), or the in-draft velocity was not maintained as required in § 63.544(b)(2).

(9) 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 § 63.543(j), including actions taken to correct a malfunction.

(10) A summary of the fugitive dust control measures performed during the required reporting period, including an explanation of the periods when the procedures outlined in the standard operating procedures manual pursuant to § 63.545(a) were not followed and the corrective actions taken. The reports must not contain copies of the daily records required to demonstrate compliance with the requirements of the standard operating procedures manuals required under § 63.545(a).

(11) If you comply with the requirements in § 63.544(d)(1), you must provide records of all results of air monitoring required in § 63.548(k)(1).

(12) Records of periods when the enclosure hood face velocity was not maintained as required in § 63.544(d)(3).

(13) Records of the dryer seal breaching alarms required in § 63.548(k)(3).

(14) You must submit records pursuant to paragraphs (e)(14)(i) through (iii) of this section.

(i) As of January 1, 2012 and within 60 days after the date of completing each performance test, as defined in § 63.2 and as required in this subpart, you must submit performance test data, except opacity data, electronically to EPA's Central Data Exchange by using the Electronic Reporting Tool (see http://www.epa.gov/ttn/chief/ert/ert_tool.html/). Only data collected using test methods compatible with the Electronic Reporting Tool are subject to this requirement to be submitted electronically into EPA's WebFIRE database.

(ii) Within 60 days after the date of completing each CEMS performance evaluation test, as defined in § 63.2 and required by this subpart, you must submit the relative accuracy test audit data electronically into EPA's Central Data Exchange by using the Electronic Reporting Tool as mentioned in paragraph (e)(14)(i) of this section. Only

data collected using test methods compatible with the Electronic Reporting Tool are subject to this requirement to be submitted electronically into EPA's WebFIRE database.

(iii) All reports required by this subpart not subject to the requirements in paragraphs (e)(14)(i) and (ii) of this section must be sent to the Administrator at the appropriate address listed in § 63.13. The Administrator or the delegated authority may request a report in any form suitable for the specific case (e.g., by electronic media such as Excel spreadsheet, on CD or hard copy). The Administrator retains the right to require submittal of reports subject to paragraphs (e)(14)(i) and (ii) of this section in paper format.

§ 63.551 Implementation and enforcement.

(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 the requirements in §§ 63.541, 63.543 through 63.544, § 63.545, and § 63.546.

(2) Approval of major alternatives to test methods for 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.

§ 63.552 Affirmative defense for exceedance of emissions limit during malfunction.

In response to an action to enforce the standards set forth in this subpart, you

may assert an affirmative defense to a claim for civil penalties for exceedances of such standards that are caused by malfunction, as defined at § 63.2.

Appropriate penalties may be assessed, however, if you fail to meet your burden of proving all of the requirements in the affirmative defense. The affirmative defense shall not be available for claims for injunctive relief.

(a) *Affirmative defense.* To establish the affirmative defense in any action to enforce such a limit, you must timely meet the notification requirements in paragraph (b) of this section, and must prove by a preponderance of evidence that:

(1) The excess emissions:

(i) Were caused by a sudden, infrequent, and unavoidable failure of air pollution control and monitoring equipment, process equipment, or a process to operate in a normal or usual manner.

(ii) Could not have been prevented through careful planning, proper design or better operation and maintenance practices.

(iii) Did not stem from any activity or event that could have been foreseen and avoided, or planned for.

(iv) Were not part of a recurring pattern indicative of inadequate design, operation, or maintenance.

(2) Repairs were made as expeditiously as possible when the applicable emissions limitations were being exceeded. Off-shift and overtime labor were used, to the extent practicable to make these repairs.

(3) The frequency, amount and duration of the excess emissions (including any bypass) were minimized to the maximum extent practicable during periods of such emissions.

(4) If the excess emissions resulted from a bypass of control equipment or a process, then the bypass was unavoidable to prevent loss of life, personal injury, or severe property damage.

(5) All possible steps were taken to minimize the impact of the excess emissions on ambient air quality, the environment and human health.

(6) All emissions monitoring and control systems were kept in operation if at all possible, consistent with safety and good air pollution control practices.

(7) All of the actions in response to the excess emissions were documented by properly signed, contemporaneous operating logs.

(8) At all times, the affected source was operated in a manner consistent with good practices for minimizing emissions.

(9) A written root cause analysis has been prepared, the purpose of which is

to determine, correct, and eliminate the primary causes of the malfunction and the excess emissions resulting from the malfunction event at issue. The analysis shall also specify, using best monitoring methods and engineering judgment, the amount of excess emissions that were the result of the malfunction.

(b) *Notification.* The owner or operator of the affected source experiencing an exceedance of its emissions limit(s) during a malfunction, shall notify the Administrator by

telephone or facsimile transmission as soon as possible, but no later than two business days after the initial occurrence of the malfunction, it wishes to avail itself of an affirmative defense to civil penalties for that malfunction. The owner or operator seeking to assert an affirmative defense, shall also submit a written report to the Administrator within 45 days of the initial occurrence of the exceedance of the standard in this subpart to demonstrate, with all necessary supporting documentation,

that it has met the requirements set forth in paragraph (a) of this section. The owner or operator may seek an extension of this deadline for up to 30 additional days by submitting a written request to the Administrator before the expiration of the 45 day period. Until a request for an extension has been approved by the Administrator, the owner or operator is subject to the requirement to submit such report within 45 days of the initial occurrence of the exceedance.

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

Reference	Applies to subpart X	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 63.543(j) 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.	
63.6(g)	Yes.	
63.6(h)	No	No opacity limits in rule.
63.6(i)	Yes.	
63.6(j)	Yes.	
§ 63.7(a)–(d)	Yes.	
§ 63.7(e)(1)	No	See 63.543(i).
§ 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 63.543(j) 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	
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)	No.	
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 63.550 for recordkeeping of occurrence and duration of malfunctions and recordkeeping of 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 63.550 for recordkeeping of malfunctions.
63.10(c)(12)–(c)(14)	Yes.	
63.10(c)(15)	No.	
63.10(d)(1)–(4)	Yes.	
63.10(d)(5)	No	See 63.550(c)(7) for reporting of malfunctions.
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.	

TABLE 2 TO SUBPART X OF PART 63—EMISSIONS LIMITS FOR SECONDARY LEAD SMELTING FURNACES

For vents from these processes	You must meet the following emissions limits	
	Total hydrocarbon ppm by volume expressed as propane corrected to 4 percent carbon dioxide	Dioxin and furan (dioxins and furans) nanograms/dscm expressed as TEQ corrected to 7 percent O ₂
Collocated blast and reverberatory furnace	20 ppmv	0.50 ng/dscm.
Collocated blast and reverberatory furnace when the Reverberatory furnace is not operating	360 ppmv	170 ng/dscm.
Collocated blast and reverberatory furnace that commence construction after June 9, 1994	20 ppmv	0.50 ng/dscm.
Collocated blast and reverberatory furnace that commence construction after [INSERT DATE 24 MONTHS AFTER PUBLICATION OF THE FINAL RULE IN THE FEDERAL REGISTER].	20 ppmv	0.50 ng/dscm.
Blast furnace	360 ppmv	170 ng/dscm.
Blast furnaces that commence construction or reconstruction after June 9, 1994	70 ppmv	10 ng/dscm.
Reverberatory and electric furnace	12 ppmv	0.20 ng/dscm.
Reverberatory and electric furnace that commence construction or reconstruction after [INSERT DATE 24 MONTHS AFTER PUBLICATION OF THE FINAL RULE IN THE FEDERAL REGISTER].	12 ppmv	0.10 ng/dscm.
Rotary furnaces	610 ppmv	1.0 ng/dscm.
Rotary Furnaces that commence construction or reconstruction after [INSERT DATE 24 MONTHS AFTER PUBLICATION OF THE FINAL RULE IN THE FEDERAL REGISTER].	610 ppmv	1.0 ng/dscm.

TABLE 3 TO SUBPART X OF PART 60—TOXIC EQUIVALENCY FACTORS

Dioxin/Furan congener	Toxic equivalency factor
2,3,7,8-tetrachlorinated dibenzo-p-dioxin	1
1,2,3,7,8-pentachlorinated dibenzo-p-dioxin	0.5
1,2,3,4,7,8-hexachlorinated dibenzo-p-dioxin	0.1
1,2,3,7,8,9-hexachlorinated dibenzo-p-dioxin	0.1
1,2,3,6,7,8-hexachlorinated dibenzo-p-dioxin	0.1
1,2,3,4,6,7,8-heptachlorinated dibenzo-p-dioxin	0.01
octachlorinated dibenzo-p-dioxin	0.001
2,3,7,8-tetrachlorinated dibenzofuran	0.1
2,3,4,7,8-pentachlorinated dibenzofuran	0.05
1,2,3,7,8-pentachlorinated dibenzofuran	0.5
1,2,3,4,7,8-hexachlorinated dibenzofuran	0.1
1,2,3,6,7,8-hexachlorinated dibenzofuran	0.1
1,2,3,7,8,9-hexachlorinated dibenzofuran	0.1

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