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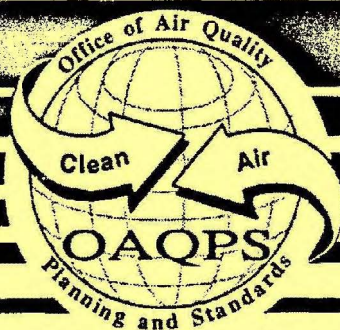
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# **SECONDARY LEAD SMELTING BACKGROUND INFORMATION DOCUMENT FOR PROMULGATED STANDARDS**

## **NESHAP**



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## 1.0 SUMMARY

On June 9, 1994, the Environmental Protection Agency (EPA) proposed national emission standards for hazardous air pollutants (NESHAP) for secondary lead smelters in the Federal Register (59 FR 29750) under authority of Section 112 of the Clean Air Act (the Act). Public comments were requested on the proposal in the Federal Register. There were 31 commenters composed primarily of secondary lead smelters and their trade associations, State and local air pollution agencies, equipment vendors, and environmental organizations.

Additional comments were requested in a supplemental notice announcing the availability of additional data and the EPA's plans to withdraw the proposed hydrochloric acid/chlorine ( $\text{HCl}/\text{Cl}_2$ ) emission standards (60 FR 19556, April 19, 1995). The comments that were submitted on the supplemental notice, along with responses to these comments, are summarized in Appendix A of this document. The summary of all comments and responses serves as the basis for the revisions made to the standard between proposal and promulgation.

Section 1.1 of this chapter summarizes the changes made in the rule since proposal. Section 1.2 summarizes the impacts of the final standards. Chapter 2.0 of this document provides a detailed summary of all the comments received on the June 9, 1994 proposal and the EPA's responses to those comments.

## 1.1 SUMMARY OF CHANGES SINCE PROPOSAL

Substantial changes have been made to the NESHAP in response to public comments and additional analyses since proposal. The major changes are summarized below.

### 1.1.1 Applicability

The applicability of the rule has been clarified by adding a statement that the rule does not apply to primary lead smelters, lead refiners, and lead remelters.

### 1.1.2 Standards for Process Sources

A provision has been added to the organic HAP emission standards for process sources that will allow owners and operators of collocated reverberatory and blast furnaces to comply with the total hydrocarbon (THC) emission limits for blast furnaces when the reverberatory furnace is not operating. These limits are 70 parts per million by volume (ppmv) THC, as propane, for new blast furnaces and 360 ppmv for existing blast furnaces.

The HCl/Cl<sub>2</sub> emission standards for process sources have been withdrawn. There have been no changes to the metal hazardous air pollutant (HAP) emission standards since proposal.

### 1.1.3 Standards for Process Fugitive Sources

The annual lead performance test requirement for process fugitive sources has been removed as a result of changes in the monitoring requirements. Face-velocity requirements for process fugitive enclosure hoods, except for those controlling dryer transition pieces and refining kettles, have been changed from 350 feet per minute (fpm) to 300 fpm. The volumetric flow rate requirement for refining kettle enclosure hoods has been deleted.

Process fugitive sources located in enclosed buildings have been exempted from the enclosure hood requirements if the building is ventilated to achieve an air velocity of 250 fpm at building doorways and the building is ventilated to a control device. Emissions from the building ventilation

control devices must comply with a lead emission limit of 2.0 milligrams per dry standard cubic meter (mg/dscm).

The rule has been clarified to indicate that the exhaust from dryers and agglomerating furnaces must also comply with the lead emission limit of 2.0 mg/dscm.

#### 1.1.4 Standards for Fugitive Dust Sources

The annual lead performance test requirement for fugitive dust sources that are enclosed and vented to control devices has been removed as a result of changes in the monitoring requirements. The rule has been clarified to indicate that structures meeting Resource Conservation and Recovery Act (RCRA) containment building standards satisfy the requirements for total enclosures specified in the standards for fugitive dust sources.

#### 1.1.5 Test Methods and Schedule

Velometers have been added as an alternate method for determining face velocities of process fugitive enclosure hoods and of doorway air velocity for building enclosures.

#### 1.1.6 Monitoring Requirements

The requirement for a continuous opacity monitor (COM) on all process source baghouses to monitor compliance with the metal HAP lead emission standard has been withdrawn. All process, process fugitive, and building ventilation baghouses must now undergo regular inspection and maintenance procedures specified in a standard operating procedures (SOP) manual. The procedures must include a bag leak detection system and an alarm to indicate baghouse failures. The SOP must also have a corrective action plan for responding to the alarms.

The HCl/Cl<sub>2</sub> monitoring requirements have been withdrawn because the HCl/Cl<sub>2</sub> emission standards have been removed.

### 1.2 SUMMARY OF IMPACTS OF PROMULGATED ACTION

The EPA has revised the estimated emission reductions and cost impacts of the rule since proposal. One facility was incorrectly identified at proposal as employing gas stream blending. The estimated organic HAP emission reduction was revised from 1,220 megagrams per year (Mg/yr) to 1,230 Mg/yr

to reflect these updated baseline conditions. The estimated metal HAP reductions remain at 53 Mg/yr. Although the EPA plans to withdraw the HCl/Cl<sub>2</sub> emission standards, HCl/Cl<sub>2</sub> emissions are expected to decrease due to the decline of polyvinyl chloride (PVC) plastic in battery feedstock because PVC is no longer used in lead-acid batteries.

The total cost estimate for the promulgated rule only includes costs resulting from controlling organic and metal HAP emissions. The estimated cost of controlling organic HAP's was revised to account for additional costs associated with gas stream blending because these costs were previously under-estimated. The previous estimated capital costs of reducing organic HAP emissions under the proposed standards were \$1,100,000 and the estimated annual costs were \$620,000. The revised capital cost for organic HAP's is \$3,300,000 and the revised annual cost is \$1,700,000. The total estimated cost of reducing metal HAP emissions has not changed since proposal. There will be not costs associated with reducing HCl/Cl<sub>2</sub> emissions.

The total estimated emissions reduction for both metal and organic HAP's is 1,283 Mg/yr at an annual cost of \$1,860,000 for a cost effectiveness of \$1,450 per Mg of HAP. There is no expected change in the overall economic impact of the rule since proposal.

Since proposal, the EPA has also revised the estimated increase in annual energy consumption. The increase in energy consumed by the controls needed to meet the final emission standards is estimated to be 180 million cubic feet per year of natural gas. The increased annual natural gas consumption estimated at proposal was 130 million cubic feet. The change in natural gas consumption is due to a revised analysis of the costs and equipment needed to perform gas stream blending to control organic HAP emissions from reverberatory/blast furnace smelters.

There have been no other changes in the impacts estimated at proposal.

## 2.0 SUMMARY OF PUBLIC COMMENTS

A total of 31 letters commenting on the proposed standard and the Background Information Document (BID) for the proposed standard were received. There were no requests to hold a public hearing on the proposed standard. A list of commenters, their affiliations, and the EPA docket item number assigned to their correspondence is given in table 2-1.

For the purpose of orderly presentation, the comments have been categorized under the following sections and topics:

- 2.1 Area Source Finding
- 2.2 Applicability
- 2.3 Standards for Process Emission Sources
- 2.4 Standards for Process Fugitive Sources
- 2.5 Standards for Fugitive Dust Sources
- 2.6 Test Methods and Schedule
- 2.7 Monitoring Requirements
- 2.8 Recordkeeping and Reporting Requirements
- 2.9 Interaction With Other Rules
- 2.10 Miscellaneous



TABLE 2-1. LIST OF COMMENTERS ON PROPOSED NATIONAL EMISSION  
STANDARDS FOR HAZARDOUS AIR POLLUTANTS FOR  
SECONDARY LEAD SMELTERS

<u>Docket Item Number<sup>a</sup></u>	<u>Commenter and Affiliation</u>
IV-D-01	Robert N. Steinwurtzel, Stephen E. Roady Association of Battery Recyclers
IV-D-02	Kathryn Grandfield Sierra Club, Ozark Chapter
IV-D-03	Neil J. Carmen Sierra Club, Lone Star Chapter
IV-D-04	Robert H. Colby, Donald F. Theiler State and Territorial Air Pollution Program Administrators/Association of Local Air Pollution Control Officials
IV-D-05	Michael J. Wax Institute of Clean Air Companies
IV-D-06	Robert H. Collom, Jr. Georgia Department of Natural Resources
IV-D-07	Richard Thompson GNB Battery Technologies
IV-D-08	Chris F. Erichson Erichson Company, Inc.
IV-D-09	Langley A. Spurlock Chemical Manufacturers Association
IV-D-10	Nancy D. Chick Colorado Department of Public Health and Environment
IV-D-11	Jerome F. Smith, Jeffrey T. Miller, Edwin H. Seeger Lead Industries Association
IV-D-12	Mark L. Mullin Markair, Inc.
IV-D-13	Gerald Dubinski Battery Council International
IV-D-14	Gerald A. Dumas, Lynn L. Bergeson, Ann Classon RSR Corporation
IV-D-15	Wayne H. Leipold Cyprus Miami Mining Corporation
IV-D-16	Krishna Parameswaram ASARCO, Incorporated
IV-D-17	John B. Simonieg Process Materials and Equipment Corporation
IV-D-18	Asa Reed, Jr. Private Citizen

TABLE 2-1. LIST OF COMMENTERS ON PROPOSED NATIONAL EMISSION  
STANDARDS FOR HAZARDOUS AIR POLLUTANTS FOR  
SECONDARY LEAD SMELTERS (CONTINUED)

<u>Docket Item Number<sup>a</sup></u>	<u>Commenter and Affiliation</u>
IV-D-19	Jerry O. Schuehler Private Citizen
IV-D-20	Patricia Leyden South Coast Air Quality Management District
IV-D-21	Robert J. Marzoli United Process Control, Inc.
IV-D-22	Milton Feldstein Bay Area Air Quality Management District
IV-D-23	Thomas Kruzen Ozark Riverkeepers Network
IV-D-24	Kazie Perkins Private Citizen
IV-D-25	Ray L. Williams Shamrock Control and Equipment, Inc.
IV-D-26	Rick Tacelli, Chris Reiner Auburn International, Inc.
IV-D-27	John J. Rigby National Automotive Radiator Service Association
IV-D-28	John B. Blatz The Dexter Corporation
IV-D-29	Troy A. Greiss East Penn Manufacturing Co., Inc.
IV-D-30	Glen E. Hasse Schuylkill Metals Corporation
IV-D-31	J. T. Healy Midwesco Filter Resources, Inc.

<sup>a</sup>The docket number for this project is A-92-43. Dockets are on file at Air and Radiation Docket and Information Center (6102), U. S. Environmental Protection Agency, 401 M Street, S.W., Washington, DC 20460.

NOTE: Three of the 31 commenters endorsed letters submitted by other commenters. Commenter IV-D-07 endorsed the letters submitted by IV-D-01, IV-D-11, and IV-D-13. Commenter IV-D-13 endorsed comments by IV-D-11. Commenter IV-D-15 endorsed comments by IV-D-16.

## 2.1 AREA SOURCE FINDING

Thirteen commenters (IV-D-01, IV-D-02, IV-D-03, IV-D-04, IV-D-07, IV-D-09, IV-D-10, IV-D-11, IV-D-13, IV-D-14, IV-D-18, IV-D-22, and IV-D-30) commented on the EPA's decision to regulate area source secondary lead smelters under the same standards as major secondary lead smelters. Six commenters agreed with the EPA's decision and these comments are discussed below.

Seven commenters (IV-D-01, IV-D-07, IV-D-09, IV-D-11, IV-D-13, IV-D-14, and IV-D-30) disagreed with the EPA's finding that secondary lead smelter area sources should be regulated by maximum achievable control technology (MACT) standards. The specific arguments against the EPA's finding are presented in the following subsections.

Comment: Six commenters (IV-D-02, IV-D-03, IV-D-04, IV-D-10, IV-D-18, and IV-D-22) agreed with the EPA's finding that area source secondary lead smelters should be listed and regulated by MACT standards. Two commenters (IV-D-02 and IV-D-04) agreed that area source smelters could be a threat to public health. One commenter (IV-D-10) wrote that experience has shown that small lead operations may still have an adverse impact on air quality in the surrounding area. Another commenter (IV-D-22) wrote that substantial data about the serious impacts of low-level lead exposure indicate that regulation of area sources is warranted. One commenter (IV-D-04) agreed that there is no technical reason why area source smelters cannot achieve the same control level as major source smelters.

Response: The EPA agrees that area source smelters present a threat of adverse health effects warranting both listing and MACT standards and has received no new data to indicate that the proposal to regulate area sources should be revised. In particular, the area sources emit some of the more dangerous hazardous air pollutants (HAP's): lead, arsenic, and 1,3-butadiene. As set out in the preamble, baseline emission levels from these area smelters are capable

of posing substantial adverse health effects. With respect to the EPA's decision to impose standards based on MACT rather than GACT for these area sources, MACT is available at reasonable cost and, moreover, is based on technology that is already installed, with minor exceptions, at all area sources. The EPA, therefore, sees no reasonable justification for a lesser degree of control.

In addition, the EPA believes that a failure to regulate all secondary lead smelters would be inconsistent with the principles set forth in Executive Order No. 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations. Some secondary lead smelters are surrounded by either minority or low-income populations. In the past, some secondary lead smelters have had significant adverse impacts on these communities (see docket item IV-J-2). Therefore, the EPA believes that it is important to regulate all secondary lead smelters under MACT standards to help protect these communities.

#### 2.1.1 Exposure Modeling And Risk Assessment

Comment: One commenter (IV-D-03) supported the area source finding, but recommended that the EPA use cumulative emission reviews and dispersion modeling to evaluate the adverse health effects of secondary lead smelters. The same commenter also asked the EPA to consider the cumulative impacts of secondary lead smelters and other stationary emission sources on large population centers when evaluating the impact of secondary lead smelters that are area sources.

Response: Under section 112 of the Clean Air Act (the Act), Congress has directed the EPA to consider the impacts from specified source categories of hazardous air pollutants (e.g., secondary lead smelters). Although the EPA believes that the cumulative impact of other sources of lead compound emissions is important, such assessments are beyond the scope and intent of this rulemaking. Consequently, the subject analyses were restricted to the impacts of the area sources within the secondary lead smelter source category.

Comment: One commenter (IV-D-30) wrote that the EPA based the area source finding on an analysis of only six of the seven smelters, which is too small a sample to use for regulating an entire industry.

Response: The EPA estimates that six smelters are area sources and one smelter is near the emission threshold to qualify as an area source. The area source finding was based on an analysis of all seven of these smelters. The EPA estimates that the remaining 16 smelters are all major sources, which the Act requires to be regulated by MACT standards. The decision to regulate area sources and to regulate by MACT standards only affects those smelters that may qualify as area sources. Therefore, the area source finding was based on the entire population of affected smelters.

Comment: Several commenters (IV-D-07, IV-D-11, IV-D-13, IV-D-14, and IV-D-30) wrote that the EPA overstated the risk associated with area source smelters. The commenters stated that the EPA should not have based the estimate of the number of individuals exposed to secondary lead smelter emissions from area sources by selecting a 50-kilometer (km) (31-mile) radius around each smelter in order to define the affected population.

One commenter (IV-D-07) suggested that the maximum radius of influence around each smelter should have only been 5 to 8 km (3 to 5 miles). Another commenter (IV-D-11) noted that another EPA study of lead exposure treated individuals living beyond 2.25 to 5 miles from the source as members of the nonexposed control group.

Response: In the proposal preamble, the EPA stated that approximately 17.6 million people reside within 50 km (31 miles) of the seven secondary lead smelters that are considered area sources, and that these people are considered by the EPA to be exposed to HAP emissions from these smelters. This 50-km (31-mile) radius, however, does not necessarily represent the extent of the area that is affected by smelter

emissions. In fact, it only designates the limits of the area around each smelter in which the effects of the smelter were modeled. The EPA agrees with the commenters that smelter emissions and impacts from smelter emissions are minimal, if at all detectable, at a distance of 50 km from each smelter.

The EPA also agrees that only individuals located at shorter distances are likely to be adversely affected by smelter emissions. However, the radius of influence around each smelter must be determined on a case-by-case basis using site-specific information. Therefore, it cannot be assumed that the maximum radius of influence around each smelter is 5 to 8 km (3 to 5 miles). The study referred to by the commenter (IV-D-11) was for only one smelter and analyzed only exposure to lead emissions. In contrast, the analysis conducted for this area source finding analyzed the effects of 14 pollutants found in smelter emissions (10 of which are potential carcinogens) and was performed for each area source smelter.

Comment: One commenter (IV-D-14) wrote that the record did not support or demonstrate how the EPA arrived at the estimate that 250 individuals are exposed to lead levels in excess of the lead national ambient air quality standard (NAAQS) of 1.5 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ).

Another commenter (IV-D-30) noted that there are no residents inside the fenceline of secondary lead smelters and all residents outside smelters are exposed to less than  $1.5 \mu\text{g}/\text{m}^3$  of pollutants. The same commenter estimated that the organic pollutants emitted by secondary lead smelters will be at concentrations below  $1 \mu\text{g}/\text{m}^3$  at the fenceline and probably at undetectable levels beyond the fenceline.

Response: The procedures and raw data used in the adverse health effects finding are found in docket item II-B-33 of Docket No. A-92-43. In these procedures, each area source was modeled using site-specific data and the Human Exposure Model (HEM). Meteorological data were taken from the nearest airport to each facility and population data were

taken from the 1990 census. Exposures were calculated for population centroids rather than only at the fenceline of each source because the latter tends to overestimate risks. Modeling was performed for six smelters that would qualify as area sources and one smelter that is near the borderline between an area and a major source.

The EPA disagrees with the second commenter's (IV-D-30) assertion that all residents living outside the smelter fenceline are exposed to pollutants at concentrations below  $1.5 \mu\text{g}/\text{m}^3$ . The EPA's modeling analysis indicated that about 250 individuals are exposed to ambient lead levels greater than  $1.5 \mu\text{g}/\text{m}^3$ . Moreover, several secondary lead smelters are associated with lead nonattainment areas (56 FR 56694, November 6, 1991) and, therefore, contribute to lead exposures greater than  $1.5 \mu\text{g}/\text{m}^3$ . Two of these smelters are area sources.

The commenter (IV-D-30) provided no data or analyses to support the conclusion that organic pollutants emitted by smelters would be at undetectable levels beyond the fenceline of a smelter. The EPA agrees that the pollutant concentrations are low, but the EPA model indicates that they present a risk at these levels. This modelling analysis is fully described in docket item II-B-33.

Comment: Two commenters disagreed with the risk estimates used in the EPA's risk assessment for some of the organic pollutants. One commenter (IV-D-30) noted that the unit risk estimate (URE) used by the EPA to estimate cancer risks represents the risk to a hypothetical individual continuously exposed throughout his/her lifetime to a pollutant concentration of  $1 \mu\text{g}/\text{m}^3$ . However, the ambient concentrations of pollutants for which there are URE's are not presented in the risk assessment found in the preamble.

Another commenter (IV-D-09) wrote that the upper-bound cancer risk estimate for 1,3-butadiene used by the EPA in the risk assessment for area sources is overstated by several orders of magnitude. The original 1985 risk assessment for

1,3-butadiene was based on studies using the B6C3F1 mouse, which does not provide an appropriate model for human cancer risk assessment, according to more recent data.

One commenter (IV-D-30) noted that other than lead and 2,3,7,8-tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD), the pollutants used in the EPA's risk assessment were only measured upstream of the smelters' control equipment during the EPA's testing program at secondary lead smelters.

Response: Summary concentrations for each area source smelter and aggregated concentrations for the area sources are in the docket (see docket item II-B-33). The conclusions for this area source finding were based not only on 1,3-butadiene, but on the mixture of HAP's emitted. The EPA is aware of the recent data concerning the potency of 1,3-butadiene. The studies are being reviewed. Until the reviews have been completed, the EPA is using the value found on the EPA's Integrated Risk Information System (IRIS).

During the EPA's testing program, uncontrolled metal and organic HAP emissions were measured simultaneously with uncontrolled and controlled lead and total hydrocarbon (THC) emissions. The EPA used lead as a surrogate to predict metal HAP emissions and THC as a surrogate for organic HAP's. As described in docket item II-B-32, the thermal destruction of organic HAP's is very closely correlated with the destruction of THC. The metal and organic HAP emissions used in the EPA's risk assessment were estimated from the controlled lead and THC emissions and the relative amounts of individual metal and organic HAP's and their surrogates measured in the uncontrolled emissions.

Comment: Five commenters (IV-D-01, IV-D-11, IV-D-13, IV-D-14, and IV-D-30) presented data to refute the need to regulate area sources. One commenter (IV-D-01) noted that data are available indicating that lead exposures, based on blood lead levels sampled in the period from 1988 to 1991, have declined substantially compared to similar data from 1976 to 1980. The frequency of blood lead levels greater than



10 micrograms per deciliter have declined from 77.8 percent to 4.3 percent in the decade between the two studies.

Four commenters (IV-D-11, IV-D-13, IV-D-14, and IV-D-30) noted that studies of children living near secondary lead smelters found the children's blood lead levels to be within the range considered normal by the Centers for Disease Control. One commenter (IV-D-30) noted that emissions testing by the EPA demonstrate that secondary lead smelter emissions are less than the NAAQS. The commenters concluded that these studies demonstrate that smelters that are in compliance with the NAAQS do not pose a threat to public health.

Response: The EPA agrees with the commenters that a great deal of progress has been made toward reducing the general public's exposure to lead. However, there is still concern about current blood lead levels and the risks presented from atmospheric lead deposition. The former sites of two smelters--Interstate Lead Company in Leeds, Alabama and Dixie Metals in Dallas, Texas--have required Federal clean-up action under the Comprehensive Environmental Response, Compensation, and Liability Act, also known as "Superfund." These actions were required because of lead deposition onto the soils surrounding these sites. The lead came from air emission sources that will be regulated by this rule.

In addition, lead exposure was only one component of the EPA's evaluation of area sources. The decision to regulate area sources was also based on an assessment of the effects of all smelter emissions, including metal HAP's and organic HAP's. The maximum lifetime individual cancer risk resulting from exposure to arsenic and 1,3-butadiene are of particular concern.

The EPA disagrees with the commenter (IV-D-30) that EPA emissions testing demonstrates that secondary lead smelter emissions are less than the NAAQS. The EPA's testing program measured stack emissions but performed no ambient monitoring. Ambient monitoring to determine compliance with the NAAQS lead concentration is performed at a facility's fence line.

Moreover, several secondary lead smelters are located in lead nonattainment areas and at least two of these smelters are area sources.

Comment: Three commenters (IV-D-11, IV-D-13, and IV-D-14) argued that if individuals are exposed to lead levels above the NAAQS for lead, the EPA should not use a lack of enforcement of the lead NAAQS as a reason to regulate area source smelters under a MACT standard. One commenter (IV-D-13) recommended that the EPA take additional action on the enforcement of the NAAQS directly, rather than imposing a new set of requirements that would have the indirect effect of controlling the NAAQS.

Response: The NAAQS for lead was used as one of several health-effects benchmark for quantifying exposure to lead emissions from lead smelters. The EPA's analysis indicates that, even in areas where the NAAQS is achieved, area sources present a threat to public health. The purpose of the rule is to require technology-based emission limits (considering costs and other factors) on smelters that present a threat of adverse effects to public health. The EPA has determined that MACT standards are appropriate.

The comparison of ambient lead concentrations to the lead NAAQS was part of the overall analysis of adverse health effects from area smelters and was not intended to identify enforcement or compliance problems with the lead NAAQS. The goal of the rule is not to achieve compliance with the lead NAAQS. The rule, however, should achieve a significant reduction in ambient lead concentrations by reducing metal HAP emissions from (in particular) process fugitive and fugitive dust sources.

#### 2.1.2 Impacts

Comment: One commenter (IV-D-07) wrote that the EPA underestimated the economic impacts of regulating area source smelters under a MACT standard. The actual number of smelters that would qualify as area sources, and would otherwise be

exempt from the MACT standards, is greater than the number of smelters estimated by the EPA.

The same commenter (IV-D-07) noted that regulating area sources would require all smelters to apply for Title V operating permits, even if they are area sources and already have the equivalent of MACT controls. This impact was not considered by the EPA in deciding whether to regulate area sources.

Response: The EPA's estimate of the number of area source smelters is based on estimated HAP emissions from smelting furnace, process fugitive, and fugitive dust emission sources. The procedure used by the EPA for estimating these emissions is described in the proposal BID. The EPA has reviewed these emission estimates and continues to believe that the estimate is accurate. The commenter provided no estimate of the number of smelters that would qualify as area sources nor any technical basis for the comment that more than seven smelters would qualify as area sources.

Secondary lead smelters are subject to Federal new source performance standards (NSPS) for secondary lead smelters [40 Code of Federal Regulations (CFR) 60, subpart L] that would also require them to obtain Title V operating permits. Therefore, there is no additional impact arising from the Title V operating permits application procedure.

#### 2.1.3 Legal Issues

Comment: One commenter (IV-D-14) wrote that the EPA has asserted only that area source secondary lead smelters may present a threat of adverse health effects and has not satisfied the criteria in section 112(c)(3) of the Act that area sources must be found to actually present a threat. The same commenter also claimed that the EPA has not demonstrated that any secondary lead smelters are area sources. However, the same commenter agreed that if any secondary lead smelters are area sources, they would be underregulated pursuant to current regulations under the Act.

Three commenters (IV-D-07, IV-D-13, and IV-D-30) wrote that area source smelters should not be regulated because the estimated adverse health and environmental impacts associated with the area sources are below the criteria that the Administrator has used to designate other categories of area sources for regulation. Another commenter (IV-D-11) noted that the EPA's estimate of 0.1 cancer incidence per year traceable to emissions from all of the smelters that were modeled represents a risk of about 1 in 2.5 million and that this is below the 1-in-1-million de minimis level established in section 112(c)(9)(B)(i) of the Act.

Response: Section 112(c)(3) does not require that actual adverse health and environmental effects be demonstrated to justify a listing determination. The statute states that the EPA shall list each category of area sources that the EPA "finds presents a threat of adverse effects to human health or the environment....warranting regulation under this section" (i.e., under technology-based standards). The reference to "threat" is a clear indication that potential harms can be considered, because threats include potential occurrences. For this commenter to be correct, the Act would have to be worded "finds has caused adverse effects."

The EPA agrees that the estimated carcinogenic effects of these area sources are somewhat below the criteria the Administrator has used to designate other categories of area sources for regulation at the time of the proposal. However, the EPA estimates that the upper-bound maximum individual lifetime cancer risk associated with any one of the area source smelters ranges from 4 in 10,000 to 1 in 1,000 (59 FR 29755, June 9, 1994). This risk estimate does not include exposure to lead, which is a B2 carcinogen, and is well above the 1-in-1 million threshold found in section 112(c)(9) of the Act. Therefore, the Administrator has concluded that consideration of all potential health risks associated with these area sources warranted regulation of these sources. The commenters have provided no information to

change the EPA's conclusions about the level of risk exposure from the seven sources.

The commenter's (IV-D-11) probability estimate of 1-in-2.5 million for the level of risk exposure is incorrect. As described in the previous paragraph, the EPA's estimates of the lifetime cancer risks is well above the threshold found in section 112(c)(9) of the Act.

## 2.2 APPLICABILITY

Nine commenters (IV-D-02, IV-D-03, IV-D-04, IV-D-07, IV-D-10, IV-D-16, IV-D-22, IV-D-28, and IV-D-30) commented on the selection and definition of the source category and the selection of the regulated pollutants.

### 2.2.1 General

Comment: Two commenters (IV-D-22 and IV-D-28) requested clarification on the applicability of the standard. One commenter (IV-D-28) requested that the applicability of the rule be clarified by adding a statement that the rule does not apply to primary lead smelters, lead refiners, and lead remelters. The commenter also requested that the definitions of the smelting furnaces be revised to indicate that they are furnaces operating at temperatures greater than 980 °C (1800 °F). Another commenter (IV-D-22) requested that the applicability section of the proposed rule be clarified to indicate whether it applies to recyclers of lead and lead compounds from lead-acid batteries only or to recyclers of all scrap lead and lead compounds, including those from lead-acid batteries. The commenter believes that the first interpretation is implied by the proposed rule.

Response: The EPA agrees that the recommended changes would clarify the applicability of the rule and has incorporated them into the final rule. The language of the rule has also been revised to clarify that the rule applies to recyclers of all scrap lead and lead compounds, including, but not limited to, material from lead-acid batteries.

Comment: One commenter (IV-D-22) requested that the EPA establish low-usage thresholds that would exempt facilities

that only melt or remelt less than 400 tons per year of pure (soft) lead or less than 200 tons per year of hard lead.

Response: The rule will be revised to clarify that it does not apply to lead remelters and refiners and only applies to lead smelters that operate smelting furnaces. The EPA is not aware of any lead smelters that would be subject to this rule with a capacity less than 10,000 tons per year. Therefore, the low usage thresholds recommended by the commenter are not necessary.

Comment: One commenter (IV-D-07) requested a clarification on how the proposed standards would apply to feed dryers. The commenter indicated that, contrary to statements in the preamble, the exhaust from feed dryers is not necessarily drawn directly into the reverberatory furnaces. At two facilities operated by the commenter, the dryer exhaust is handled through separate baghouse and ventilation systems. The commenter requested clarification of the implications of this arrangement with regard to the applicability of the proposed standards.

Response: The feed dryer exhausts are subject to the lead emission standard of 2.0 mg/dscm and are considered a process fugitive emission stream. The EPA has revised the rule to clarify that all other sources, including feed dryers and other smelting furnace types, shall meet a lead emission standard of 2.0 mg/dscm.

Comment: One commenter (IV-D-16) requested clarification on how the EPA would apply MACT to new pyrometallurgical and hydrometallurgical/electrowinning technologies.

Response: The final MACT standards do not apply to new smelting or electrowinning technologies alluded to by the commenter. The EPA does not have sufficient information on these technologies to establish emission standards under these national emission standards for hazardous air pollutants (NESHAP) [i.e., sections 112(c) and (d) of the Act] at this time. New sources using new technology may be evaluated for regulation at a later date if they emerge. In addition, any

new source using either of these technologies that is a major source would be subject to section 112(g), which requires newly constructed major HAP emission sources to install MACT. The MACT for each new smelter not covered by this rule would be determined on a case-by-case basis if no applicable emission standards exist when and if a new technology is commercialized in the United States.

#### 2.2.2 Selection Of The Source Category

Comment: Two commenters (IV-D-04 and IV-D-10) stated that additional sources should be evaluated for inclusion as sources subject to the proposed standards. One commenter (IV-D-04) requested that scrap lead smelters and lead refiners be evaluated to determine whether MACT standards are appropriate for these sources. Another commenter (IV-D-10) requested that other sources of lead emissions, such as lead refiners and lead oxide production facilities, be considered for inclusion in the source category subject to the proposed regulation because the production of lead compounds, including lead oxide, is not included elsewhere on the source category list.

Response: Scrap lead smelters are subject to this rule, but lead remelters, lead refiners, and lead oxide production facilities are not. These are different processes and have substantially less emissions than secondary lead smelters. The EPA possesses no information on lead remelters and lead oxide manufacturers that would support their listing as categories of major sources for regulation under section 112.

Comment: One commenter (IV-D-30) argued that regulation of the primary lead smelting industry should be a higher priority of the EPA than regulating secondary lead smelters. According to the commenter, the secondary lead industry emits less than 20 tons per year of lead, but the primary lead industry emits approximately 300 tons per year of lead and is not in compliance with the lead NAAQS. According to the commenter, regulation of the secondary lead industry prior to regulation of the primary lead industry puts the secondary

lead industry at an unfair competitive disadvantage. However, no data were provided to support these statements.

Response: The primary lead smelting industry is scheduled for regulation by MACT standards by the statutory deadline of November 15, 1997.

### 2.2.3 Selection Of Pollutants

Comment: Two commenters (IV-D-01 and IV-D-16) discussed the surrogate pollutants selected by the EPA for organic HAP's and metal HAP's. One commenter (IV-D-01) supported the EPA's decision to use THC as a surrogate for organic HAP emissions. Another commenter (IV-D-16) requested that the EPA reconsider its decision to establish an emission standard for lead rather than particulate matter (PM) as a surrogate for metal HAP's. The commenter stated that because baghouses are the MACT for metal HAP control and because baghouses control PM without discriminating among PM species, it may be more appropriate to establish a limit for PM rather than lead. The commenter also noted that the EPA test data indicate that the ratio of lead to PM is variable and lead emissions may vary with no variation in the efficiency of the baghouse in controlling PM.

Response: As stated in the proposal preamble (59 FR 29761), the EPA evaluated both PM and lead as surrogates for all metal HAP's for which emission standards would be established. The EPA found that compounds of lead are the most prevalent metal HAP in secondary lead smelter emissions. The EPA also found that lead is concentrated with other metal HAP's in the smallest and most difficult to control size fraction of PM from smelters. In addition, it was determined that there is a stronger correlation of metal HAP emissions with lead emissions than with PM emissions. No data have been received since proposal that would change any of these conclusions.

The EPA agrees that the ratio of lead to PM is variable and lead emissions may vary with no variation in control efficiency for PM. The EPA is therefore establishing a limit for lead to ensure that controls are designed and operated to



achieve effective control of lead compounds and other metal HAP's that are found in the smallest size fractions of PM, regardless of the overall control efficiency of PM. The EPA is not changing its decision to select lead as a surrogate for other metal HAP's.

Comment: Three commenters (IV-D-02, IV-D-03, and IV-D-10) discussed the exclusion of dioxins/furans from the standards. Two commenters (IV-D-02 and IV-D-03) disagreed with the Agency's decision not to regulate these emissions from secondary lead smelters. Both commenters requested that a zero-discharge limit on dioxin/furan emissions be established. The second commenter (IV-D-03) based this request on the assertion that the EPA's Draft Reassessment of the Health Effects of Dioxins and Furans (59 FR 46980) indicated that a zero-discharge level to dioxin/furan emissions.

Another commenter (IV-D-10) stated that it was not possible to comment on the need to regulate dioxin/furan emissions because it appeared from the preamble that the EPA had not adequately evaluated these pollutants. The commenter pointed out, however, that the intent of section 112 of the Act is to analyze all listed HAP's from major sources and that the EPA could not arbitrarily decide to postpone regulation of dioxin/furan emissions until after the residual risk from the source category has been evaluated. The commenter added that there would be less concern about dioxin/furan emissions if the proposed standards for organic HAP emissions from blast furnaces represented controls above the MACT floor.

Response: A zero-discharge limit for any pollutant is not achievable. The EPA routinely establishes emission standards for nonthreshold pollutants. However, the EPA's data indicate an emission standard for dioxins/furans would have no benefit.

The EPA measured dioxin/furan emissions during the EPA testing programs. The dioxin/furan emissions measured from these sources were much lower than the emissions measured from

other source categories, such as municipal waste combustors and medical waste incinerators. The concentrations measured at secondary lead smelters are significantly lower than the dioxin concentrations in the emissions from the best controlled municipal waste combustors and medical waste incinerators.

Although the EPA believes that the controls necessary to meet the organic HAP emission limitations in the rule will also reduce dioxin/furan emissions, the Agency does not have sufficient data to link emission levels to specific control technologies. No technology specifically for dioxin/furan emission control is in use in the secondary lead smelting industry. Therefore, the EPA has no technical basis to regulate dioxin/furan emissions from this source category beyond that achieved for the organic HAP's in general through the surrogate THC emission limit.

### 2.3 STANDARDS FOR PROCESS EMISSION SOURCES

Many comments were received on the proposed emission standards for process emission sources. These were grouped into comments on the MACT floor regulatory interpretation and the selection of emission standards for metal HAP's, organic HAP's, and hydrochloric acid/chlorine (HCl/Cl<sub>2</sub>). Comments on the determination of the MACT floors for each pollutant class are discussed within the respective subsections.

#### 2.3.1 MACT Floor Regulatory Interpretation

Comment: One commenter (IV-D-01) stated that the EPA did not have enough emissions data to select MACT floor emission standards for organic HAP's and HCl/Cl<sub>2</sub> emissions. Specifically, the commenter asserts that section 112(d) of the Act mandates the use of data from the 5 best-performing sources in the category or subcategory where, as with secondary lead smelters, there are less than 30 sources. The commenter noted that the EPA does not have data from a sufficient number of smelters to meet this criterion for organic HAP's or HCl/Cl<sub>2</sub>. The commenter requested that the EPA obtain data from more facilities before proposing MACT

standards for the secondary lead industry for these pollutants.

One commenter (IV-D-22) objected to the EPA's interpretation of section 112(d) of the Act and the approach used for the selection of the existing source MACT floor. The EPA ranked the control technologies, selected the median control technology in use at the five best-performing facilities, and then determined an achievable emission limitation for sources using that technology. According to the commenter, this interpretation is inconsistent with the language of the Act, which supposes a ranking based on control technology only for new sources and a ranking based on emission limitation for existing sources. Furthermore, the commenter noted that, in some cases, the EPA appeared to have selected the highest (i.e., least stringent) observed emission level as the proposed emission limit in order to guarantee that it was continuously achievable by the majority of sources.

Response: Contrary to what is implied by the commenters, the Act has no minimum data requirements for setting MACT floors. Section 112(d)(3)(B) requires that emission standards shall be no less stringent than "the average emission limitation achieved by the best performing 5 sources (for which the Administrator has or could reasonably obtain emissions information) in the category or subcategory for categories or subcategories with fewer than 30 sources."

The Act sets statutory deadlines for MACT standards and vests in the Administrator the discretionary authority to determine the MACT floors based on the best data and information reasonably available within these time frames. The approach for determining the "average emission limitation" will vary based on the amount of data available within the time frame of the statutory deadlines set for the MACT standards in addition to other pragmatic considerations. Based on the amount of data available for secondary lead

smelters, the EPA used the following procedure to meet the requirements of the Act:

- (1) The industry was surveyed to identify the types of control technologies being used.
- (2) The control technology used by the median of the best-performing five sources was selected as the floor.
- (3) The available emissions data from well-operated and maintained facilities were then used to identify an achievable emission standard for each such technology to represent a MACT floor.

In cases where there were limited data on the performance of a MACT control, the EPA selected the data representing the least-stringent emission level as the achievable emission standard for a properly designed and operated technology in order to account for normal variability in the performance of that technology. For discussions of how variability was evaluated, refer to the individual sections on selection of emission limits in the proposal preamble and in this BID.

#### 2.3.2 Rationale For Metal HAP Emission Standards

Eleven commenters (IV-D-02, IV-D-04, IV-D-05, IV-D-10, IV-D-14, IV-D-15, IV-D-16, IV-D-20, IV-D-22, IV-D-24, and IV-D-30) commented on the proposed emission standards to control metal HAP emissions from process sources.

##### 2.3.2.1 Selection of MACT Floor for Metal HAP's.

Comment: Two commenters (IV-D-04 and IV-D-20) commented on the EPA's selection of MACT for the control of metal HAP's. The first commenter (IV-D-04) requested that the EPA evaluate differences in baghouse design, operating parameters, and filter media to determine if any of these are correlated with differences in metal HAP emission rates. The commenter also asked the EPA to evaluate the use of high efficiency particulate arrestor (HEPA) filters in establishing the MACT floor and new source MACT. The commenter noted that HEPA filters are in use at battery manufacturing plants and

requested that the EPA consider whether this technology could be transferred to secondary lead smelters.

The second commenter (IV-D-20) also requested that the EPA evaluate baghouse configuration, including the bag material and whether the baghouse was fitted with a spark arrestor, in determining the MACT floor for the control of metal HAP's. The commenter recommended that the proposed standard require spark arrestors to minimize the potential for burning holes in the filter bags.

Response: The EPA collected lead emissions data from nearly all secondary lead smelters and these data represented a diversity of baghouse designs, operating parameters, and filter media. Within the performance range represented by well operated and maintained baghouses, no correlations could be established between any of these variables and baghouse performance, as measured by controlled lead concentrations.

Several secondary lead smelters have HEPA filters following the sanitary baghouses that control building ventilation exhausts. The concentration of lead in exhaust from these units is not significantly different from the lead concentration from other sources controlled by a fabric filter baghouse alone (see docket item II-B-8). In addition, no secondary lead smelters are using HEPA filters to control metal HAP emissions from process emission sources.

The EPA agrees that spark arrestors can facilitate baghouse maintenance and improve bag life by minimizing the potential for holes in bags. However, spark arrestors will not affect the achievable emission levels of a baghouse. The monitoring requirements in the rule are designed to detect bag failures from sparks or any other cause. The emission standards and monitoring requirements also have the flexibility to allow the use of spark arrestors or any other strategy for maintaining bag integrity. A requirement for spark arrestors on all secondary lead smelters would undermine this flexibility, would be unreasonable, and would contradict

the Act's antipathy to equipment standards when numerical emission standards are available.

2.3.2.2 Selection of the Lead Emission Limit. Eleven commenters (IV-D-02, IV-D-04, IV-D-05, IV-D-10, IV-D-14, IV-D-15, IV-D-16, IV-D-20, IV-D-22, IV-D-24, and IV-D-30) commented on the proposed lead limit of 2.0 mg/dscm [0.00087 grains per dry standard cubic foot (gr/dscf)].

Comment: Three commenters (IV-D-02, IV-D-05, and IV-D-15) supported the proposed emission limit of 2.0 mg/dscm (0.00087 gr/dscf). One commenter (IV-D-05) noted that controls are widely available that can reduce emissions to levels below the proposed standard. Another commenter (IV-D-24) requested that the lead emission limit should be no less stringent than the limits for primary lead smelters and that the EPA should be aiming for zero lead discharge.

Response: The EPA agrees that technologies are available to reduce emissions to levels that are required by the proposed standards. The EPA evaluated the controls available in the industry and based the proposed rule on the best technologies that are available. Zero lead discharge is not achievable with current smelting or emissions control technology.

Primary lead smelters are subject to another rule-making activity and that rule will be based on the technology demonstrated for that industry.

Comment: Five commenters (IV-D-04, IV-D-10, IV-D-20, IV-D-22, and IV-D-24) commented that the lead emission limit should be lower than the proposed limit of 2.0 mg/dscm. Four of these commenters (IV-D-04, IV-D-10, IV-D-20, and IV-D-22) stated that the proposed lead emission limit was too high because the EPA did not base it on the average emission limitation achieved by the five best-performing sources, as required by section 112(d) of the Act. According to one commenter (IV-D-10), the EPA did not follow this guidance in establishing the proposed lead emission limits because the EPA evaluated data from all 23 secondary lead smelters.

One commenter (IV-D-20) noted that the average lead emission level of the top five emission tests presented in the supporting documents is less than 1.0 mg/dscm (0.00044 gr/dscf). This commenter also noted that data from two local secondary lead smelters indicate that emissions below 0.4 mg/dscm (0.0002 gr/dscf) are consistently achievable and that these smelters should serve as the basis for the MACT lead emission limit for new sources. The commenter requested that the EPA establish a lead emission limit for new sources no higher than 0.5 mg/dscm (0.0002 gr/dscf) and no higher than 1.0 mg/dscm (0.00044 gr/dscf) for existing sources.

One commenter (IV-D-10) believed that compliance data from only the five best-performing sources should be considered in determining an achievable emission level. According to the commenter, this data should be sufficient to establish emission limits because they were obtained from tests required to demonstrate compliance. The commenter asserted that the EPA had made an arbitrary decision on averaging times and had violated EPA guidance on emissions testing because the EPA had not used the performance of only the five best-performing sources to develop emission standards that were continuously achievable.

Response: All smelting furnaces use baghouses to control metal HAP emissions. The EPA evaluated different parameters of baghouse design and operation and could not find differences in performance that could be correlated with these differences at the emission concentrations observed. All of the baghouses evaluated with lead emissions below 2.0 mg/dscm were determined by the EPA to be well-designed and well-operated (see docket item II-B-32). The EPA determined, however, that a well-designed and well-operated baghouse will show variable performance over time, and that this variability cannot be predicted. The EPA also determined that a limit more stringent than 2.0 mg/dscm was not achievable on a continuous basis with this technology in this source category. For example, some sources showed higher emissions when tested

by the EPA than indicated by compliance data collected before EPA testing (see docket item II-B-32). Because of this variability, the best five emissions tests do not represent the long-term performance of baghouses. Therefore, the lead emission limit was set at a level that was determined to be representative of the performance of well-designed and well-operated baghouse control technology, considering normal variability in performance.

Comment: One commenter (IV-D-20) stated that the proposed lead emission limit is not protective of public health. The commenter noted that process sources are the largest sources of metal HAP emissions and that the EPA should propose standards that achieve a reduction in metal HAP emissions from process sources. The commenter noted that the lead emission limit for lead-acid battery plants is 1.0 mg/dscm (0.00044 gr/dscm) -- one-half the proposed emission limit of 2.0 mg/dscm (0.00087 gr/dscf). The commenter stated that an emission limit that is twice as high as the NSPS emission limit for another lead source is not sound public policy.

The same commenter (IV-D-20) also asserted that the proposed lead emission limit would result in violations of the 1.5  $\mu\text{g}/\text{m}^3$  State and Federal ambient air quality standard for lead.

One commenter (IV-D-22) noted that if the proposed lead limit of 2.0 mg/dscm (0.00087 gr/dscf) represents the average emission limitation achieved in practice by the five best-performing sources in the category, then it cannot also represent the best control level of all sources (i.e., MACT for existing sources cannot be the same as MACT for new sources under these circumstances). The same commenter also noted that the limit should be more stringent than 2.0 mg/dscm if it is achievable and cost-effective; it should not be a level that all sources can "comfortably" achieve.

Response: The commenter (IV-D-20) provided no technical basis or analysis for the comment that the proposed lead



emission limits would lead to violations of ambient air quality standards of  $1.5 \mu\text{g}/\text{m}^3$ . All sources currently operate with MACT for control of metal HAP emissions and, in any case, process sources are not the largest source of secondary lead metal HAP emissions. According to the estimated baseline emissions presented in table 4-3 of the proposal BID, actual metal HAP emissions from process sources are less than 20 percent of both process fugitive and fugitive dust emissions, on an industry-wide basis. The EPA also believes that process fugitive and fugitive dust emissions play a larger role in violations of ambient air standards than stack emissions because they are ground-level emissions. The final rule will also regulate process fugitive and fugitive dust emissions.

Lead-acid battery manufacturing is not comparable to secondary lead smelting, so that the NSPS for lead-acid battery manufacturing cannot be compared to the secondary lead smelter NESHAP. The sources at lead-acid battery manufacturing plants that are subject to the  $1.0 \text{ mg}/\text{dscm}$  emission limit are relatively low-temperature sources (grid casting, paste mixing, and assembly operations) with inherently lower lead emissions. The lead-emitting sources at secondary lead smelters are considerably different from those at lead-acid battery plants. Lead reclamation at lead-acid battery plants is performed in melting pots similar to the refining kettles found at secondary lead smelters and is the only comparable emission source. However, the NSPS lead limit for these lead reclamation facilities is  $4.5 \text{ mg}/\text{dscm}$ , which is more than twice as high as the final NESHAP lead limit for all sources at secondary lead smelters.

The EPA disagrees that MACT for existing sources cannot be the same as MACT for new sources. The technology on which both new and existing source MACT is based is identical. In this case, all secondary lead smelters use the same metal HAP control technology and differences in performance below  $2.0 \text{ mg}/\text{dscm}$  lead emissions cannot be correlated with

differences in baghouse design or operation. The EPA also determined that a limit more stringent than 2.0 mg/dscm was not achievable on a continuous basis with this technology in this source category. In such a situation, where there are no discernable differences in performance, the performance of the best source is no different from the average performance of the "top" five sources; the performance is the same once normal variability is taken into account. Based on the monitoring data collected during the EPA test program and a comparison of the EPA data to compliance data, the EPA believes that the lead emission limit is characteristic of only well-operated and well-maintained baghouses (see docket item II-B-32). Furthermore, owners and operators of secondary lead smelters will have to perform regular baghouse inspections and maintenance to maintain compliance with the standard.

Comment: One commenter (IV-D-22) recommended that the EPA include an alternative percent control limit (99-percent reduction) for the lead emission limit to minimize conflicts with the California Air Toxic Control Measure (ATCM).

Response: There is no conflict between the secondary lead NESHAP and the California ATCM. The MACT controls necessary to meet the proposed emission limit are capable of achieving a 99-percent reduction. The ATCM, however, also requires measurement of lead emissions at the control device inlet as well as the outlet in order to calculate the percent emission reduction.

Comment: Three commenters (IV-D-15, IV-D-16, and IV-D-30) recommended that the lead emission limit should be less stringent than the proposed limit of 2.0 mg/dscm (0.00087 gr/dscf).

One commenter (IV-D-15) stated that although the text of the proposal specifically states that this is a lead limit, many people may infer that this is an attainable limit for total emissions from baghouses, even though it is 1/25 of the 50-mg/dscm (0.022-gr/dscf) PM emission limit in the NSPS for

secondary lead smelters. The same commenter added that the limit is so low that EPA reference Method 12 may not be able to accurately measure emissions at these levels and very long sampling times may be required to measure emissions.

Response: The EPA does not believe that there should be any confusion between the lead compound emission limits in the NESHAP and the PM emission limits found in any other applicable rules. The rule is clear that the emission standards are for lead compounds, as measured by EPA Method 12. The data available to the EPA, including compliance data and EPA test data, indicate that lead compound emissions below 2.0 mg/dscm can be accurately measured using the sampling times prescribed in EPA reference Method 12.

Comment: One commenter (IV-D-16) stated that the data do not support the proposed lead emission limit of 2.0 mg/dscm (0.00087 gr/dscf) and do not support the conclusion that the proposed limit is continuously achievable (emphasis added by commenter). The commenter claimed that a single run during a test of a baghouse at East Penn Manufacturing Company in which the lead concentration was 3.3 mg/dscm was treated as an outlier and ignored, although the baghouse appeared to be operating normally. The commenter noted that the grain loading at this baghouse's inlet was lower than average but the outlet lead concentration was the highest measured, even though one would expect the outlet concentration to be also lower than average.

The same commenter (IV-D-16) also noted that the preamble states that a baghouse with a good inspection and maintenance program "may still emit, on average, an emission stream with an opacity of 5 or 10 percent," and that such an opacity would correspond to a lead emission rate of 20 mg/dscm, 10 times higher than the proposed emission limit. The commenter stated that the EPA is indicating that 10-fold exceedances of the standard can occur despite the application of MACT controls.

Response: Compliance with the lead emission standards will be based on the average lead emissions measured during

three runs rather than individual runs. The average of the three runs at the East Penn baghouse in question was 1.8 mg/dscm and this source would have been in compliance with the proposed 2.0 mg/dscm lead limit. However, the high variability in lead emissions from this baghouse suggested by the single run at 3.3 mg/dscm was not typical of the variability observed at other baghouses tested by the EPA. The lead emissions measured in the remaining two runs of that test were 1.5 and 0.7 mg/dscm. In addition, this baghouse had a substantially lower inlet PM grain loading (8.4 mg/dscm compared to 30.5 to 104 mg/dscm) and lead removal efficiency (70 percent compared to 85 to 99 percent) than the other baghouses tested. The EPA believes that the lower performance was associated with the lower inlet grain loading observed at this baghouse compared to others tested by the EPA (see docket item II-B-32).

Contrary to the statements by the commenter (IV-D-16), baghouse efficiency increases as the inlet concentration of PM increases. This is because baghouses rely on the layer of PM that collects on the dirty side of the filter bags (known as a filter cake) to enhance filtration. A lower inlet grain loading means that it will take longer for the filter cake to accumulate after a cleaning cycle and baghouse performance will be more variable. Therefore, the commenter is incorrect in stating that the outlet concentration should also be lower when the inlet concentration is lower.

The statement in the preamble that a baghouse with a good inspection/maintenance program may still emit 5 or 10 percent opacity was based on the assumption that the baghouse was not fitted with a continuous opacity monitor (COM) or bag leak detector and that opacity was only monitored by visual observation, which has a lower detection threshold of 5 percent opacity. The EPA agrees that without good operation and maintenance, exceedances of the standard can occur despite the application of MACT controls. Therefore, aggressive monitoring coupled with a comprehensive inspection and

maintenance program is required by the standard to continuously achieve maximum performance from those controls consistent with the proposed lead emission limit.

Comment: Another commenter (IV-D-30) commented that the proposed lead standard represents a significant tightening of the current NSPS PM standard for secondary lead smelters (40 CFR 60 subpart L). The current PM standard of 0.022 gr/dscf represents a lead emission concentration of 0.0055 gr/dscf, based on the assumption that 25 percent of PM is lead. The proposed lead standard, therefore, represents an 85-percent reduction in lead emissions compared to the existing NSPS, according to the commenter. To meet the proposed lead standard, smelters will also need to reduce PM emissions to levels significantly below the level required by the NSPS.

Response: The NSPS PM limit, established in 1974, is based on the use of a venturi-type scrubber to control PM emissions from process sources (see docket item II-A-32). All secondary lead smelters are now using baghouses to control PM and metal HAP emissions, and these are substantially more effective than venturi scrubbers. Consequently, the NESHAP lead limit reflects the use of the improved control technology.

### 2.3.3 Rationale For Organic HAP Emission Standards

Eleven commenters (IV-D-01, IV-D-02, IV-D-03, IV-D-05, IV-D-07, IV-D-10, IV-D-18, IV-D-20, IV-D-22, IV-D-23, and IV-D-24) commented on the proposed emission standards to control organic HAP emissions from process sources.

#### 2.3.3.1 Selection of MACT Floor for Organic HAP's.

Three commenters (IV-D-01, IV-D-03 and IV-D-22) objected to the method of establishing the MACT floor.

Comment: One commenter (IV-D-01) stated that the EPA did not have enough emissions data to select MACT floor emission limits for organic HAP's. Specifically, the commenter noted that the EPA only has emissions data from a single test at each of the smelter configurations subject to the proposed

organic HAP emission standards. The commenter requested that the EPA obtain data from more facilities before proposing MACT standards for the secondary lead industry.

Response: The EPA evaluated the control technology in use at each smelter and determined the floor technology for each furnace combination. The EPA then sponsored a testing program to collect emissions data from six different smelters to characterize the performance of the organic HAP controls identified as MACT for each furnace configuration. The sources tested by the EPA were representative of the smelters in each furnace combination and the data were collected under normal operating conditions. Therefore, the EPA does not believe that it is necessary to collect any additional emissions data. No additional data were submitted during the public comment period to refute the proposition that the proposed standards are achievable.

Comment: One commenter (IV-D-03) recommended that the EPA determine a single MACT floor for all smelter types and not differentiate among smelting furnace configurations. The commenter recommended that blast furnaces be allowed additional time (6 months to 1 year) to comply with emission standards under a single MACT floor because of the greater cost associated with controlling organic HAP emissions from these furnaces.

Another commenter (IV-D-22) also disagreed with the EPA's decision to establish separate new source MACT for each furnace configuration. The commenter requested that the EPA consider requiring new secondary lead smelters to install a particular furnace configuration as new source MACT because there is an environmental advantage to using some furnace configurations over others, according to the commenter.

Response: Section 112(d)(1) of the Act gives the Administrator the authority to distinguish among classes, types, and sizes of sources within a category when establishing standards. The EPA established separate MACT emission standards for each furnace configuration because

smelting furnaces differ substantially, based on configuration, in both emission profile and quantity and achievable control levels for organic HAP's. Separate MACT floors were also established because different furnace types serve different purposes in the secondary lead smelting industry.

The EPA agrees that some furnace types have lower organic HAP emissions potential than other types. However, establishing a single floor that did not differentiate among furnace types would effectively prohibit blast furnace operation because blast furnaces have a higher organic HAP emissions potential than other furnace types. Blast furnaces are needed because they account for a significant fraction of total secondary lead production and account for nearly all the hard lead produced by secondary lead smelters. Hard lead accounts for 40 percent of the lead used in lead-acid batteries. A smelter is planned for the future that will use collocated reverberatory and rotary furnaces; the rotary furnace will be used in place of a blast furnace to process reverberatory furnace slag, but this configuration has yet to be demonstrated. Standards cannot be established that prohibit a technology unless an equally viable alternative exists at a reasonable cost; this is not the case with blast furnaces. Therefore, the EPA will not establish a single new source MACT or emission standards that would effectively prohibit the use of blast furnaces.

Comment: One commenter (IV-D-01) asserted that the blast furnace tested by the EPA represented the best-controlled facility rather than the median of the top five because the afterburner controlling the blast furnace had the longest residence time of those known to the EPA. Therefore, this facility should not have been used to establish the MACT floor for existing blast furnaces.

The same commenter also contended that the EPA underestimated the cost impact of blast furnace controls above the MACT floor because the EPA only accounted for added fuel

costs. According to the commenter, the EPA did not account for additional gas-stream cooling nor the replacement of existing equipment with equipment made of materials designed to withstand higher operating and gas-stream temperatures. The commenter requested that the EPA reevaluate the cost estimates for the blast furnace controls.

Response: Residence time is not the only variable that determines afterburner performance; other important variables are temperature and mixing (turbulence). For example, data available to the EPA from other industries demonstrate that an afterburner with a fixed temperature and residence time can achieve a range of 70- to 99-percent efficiency by varying mixing alone (see docket item II-B-31). The EPA has temperature and residence time data for several blast furnace facilities controlled by afterburners, but no data on mixing. In the absence of information on mixing, it is difficult to precisely identify the best performer and the median of the top five performers. Therefore, the EPA relied on temperature, residence time, and performance data to select the best controlled source and the median of the top five.

One blast furnace was controlled by an afterburner at 870 °C (1600 °F) with a residence time of 1.5 seconds (see docket item II-D-4). No other sources exceeded this temperature. Therefore, this source was selected as new source MACT because it appears to be the best-controlled facility. Data on the performance of afterburners from a spectrum of industries controlled by afterburners indicate that this source should be able to achieve 98 percent control of THC (see docket item II-B-31).

The afterburner at Schuylkill Metals Corporation was operated at 700 °C (1300 °F) and 2.5 seconds residence time (see docket item II-D-7). The blast furnace at Schuylkill Metals was selected for testing because it was considered to be the median of the five best-controlled blast furnace smelters. During testing, the afterburner achieved 85 percent control of THC. Because this is less than the predicted



performance of the best-controlled facility, it cannot also represent new source MACT. The Schuylkill facility, however, is believed by the EPA to represent the existing source MACT floor based on temperature, residence time, and demonstrated performance. Because of the high incremental costs associated with replacing many existing afterburners, the EPA decided not to establish standards for blast furnaces above the MACT floor.

In estimating cost impacts for blast furnaces controlled by afterburners, it was assumed that the temperature of a pre-existing afterburner could not be increased above the reported operating temperature by more than 100 °C (180 °F). If the temperature of an existing afterburner had to be increased by more than 100 °C to meet the MACT floor or a control level above the floor, it was assumed that the afterburner would need to be replaced. The cost to install a new afterburner where none previously existed or to replace an existing afterburner included the costs for additional gas-stream cooling and more heat-resistant materials. These costs, along with added fuel costs, were considered at proposal and are included in the cost estimates presented in chapter 6 of the proposal BID. The EPA continues to believe that all relevant control costs were included in the control cost estimates for blast furnaces.

Comment: One commenter (IV-D-07) contended that the EPA has overestimated the number of reverberatory/blast furnace facilities that perform gas-stream blending to control emissions from collocated reverberatory and blast furnaces. The commenter was aware of only three facilities that perform gas-stream blending and that one facility was incorrectly identified by the EPA in the proposal BID as performing gas-stream blending.

The same commenter (IV-D-07) noted that gas-stream blending would restrict blast furnace operation to periods when the reverberatory furnace is also operating. The commenter also noted that each facility would need a back-up

afterburner to control the blast furnace when the reverberatory furnace was not operating. Furthermore, the proposed standards would require the blast furnace to be controlled to levels more stringent than those required for new blast furnaces at blast furnace-only smelters.

Two commenters (IV-D-01 and IV-D-07) commented that the EPA underestimated the costs of installing gas-stream blending at existing reverberatory/blast furnace facilities because installation would require extensive reworking of the ventilation and control systems for the furnaces. One commenter (IV-D-07) also noted that gas-stream blending makes it more difficult to control the draft on each furnace and that it may result in greater fugitive emissions from each furnace. The ventilation system at the commenter's facility is designed so that each furnace can be independently operated and controlled and gas-stream blending would not be adopted regardless of the outcome of the rulemaking, according to the commenter.

Response: The EPA agrees that it incorrectly identified one smelter (facility No. 14 in the proposal BID) as performing gas-stream blending. Three facilities perform gas-stream blending. One of these smelters operates two reverberatory and two blast furnaces. The updated information, however, does not affect the MACT selection for new and existing reverberatory/blast furnace smelters. The best performing smelter and the median of the top 5 smelters both employ gas-stream blending.

The final rule will allow that during periods when the reverberatory furnace is not operating, facilities with collocated furnaces may achieve the same THC standards as new and existing blast furnaces at blast furnace-only smelters. This will include separate emission tests and monitoring requirements to demonstrate compliance with the THC standards while operating only the blast furnace.

Gas-stream blending has already been demonstrated in the industry with no apparent problems in controlling process

fugitive emissions. Nonetheless, the proposed rule does not require the use of any specific technology to control emissions; smelters may use whatever technology they choose in order to meet the emission standards.

The cost of installing gas-stream blending has been re-evaluated since proposal by including the cost of additional ductwork, a refractory-lined mixing chamber/afterburner, a larger cooling system, and increased baghouse capacity. The revised annual cost to perform gas-stream blending for an individual smelter ranges from \$120,000 to \$350,000, depending on whether a completely new baghouse is required. The revised total annual cost for the industry to perform gas-stream blending is \$1.16 million (see docket item IV-B-3). The revised cost-effectiveness estimate for the organic HAP reduction for the entire industry. The estimate presented at proposal was \$510 per Mg of organic HAP's. However, these increased costs will not affect the economic impacts of the standards.

2.3.3.2 Selection of the THC Emission Limit. Nine commenters (IV-D-01, IV-D-02, IV-D-03, IV-D-05, IV-D-07, IV-D-10, IV-D-18, IV-D-20, and IV-D-24) commented on the selection of the proposed THC standards for process sources.

Comment: Two commenters (IV-D-05 and IV-D-20) supported the EPA's proposed THC emission limits. The first commenter (IV-D-05) stated that controls are widely available that can reduce smelter THC emissions to below the limits in the proposed standards, but did not provide any data to support this statement.

Two commenters (IV-D-02, IV-D-24) requested that all smelter types be required to meet the same THC emission limit of 20 parts per million by volume (ppmv) and that higher limits for blast furnaces or exceptions for "obsolete" furnace types should not be allowed.

Response: Differences in furnace types preclude a uniform THC standard. Blast furnaces are not considered an

obsolete furnace type; they are the only type that can be operated independently of other furnace types on an economical basis at a one-furnace smelter. Blast furnaces also account for a significant fraction of total secondary lead production and for nearly all of the hard lead produced by secondary lead smelters. Cost-effective controls are not available for blast furnaces and rotary furnaces that will allow them to meet the 20-ppmv THC limit that is achievable for reverberatory/blast furnace smelters.

Comment: One commenter (IV-D-01) commented that the proposed standards for existing and new blast furnace-only facilities and reverberatory/blast furnace smelters are not based on a sufficient quantity of data and requested that the EPA collect more data prior to setting emission limits. The proposed emission limits are based on a single test consisting of two or three runs and, according to the commenter, this single test was not adequate to represent normal variation in emissions. The commenter also noted that the EPA has no emissions data representing MACT for new blast furnaces and has based the proposed emission limit on data from other industries.

Response: The proposed THC emission limit for existing blast furnaces was based on THC emission measurements at a blast furnace smelter with MACT floor controls. The test consisted of two 3-hour THC emission measurements. The average THC concentrations during the two 3-hour runs were 300 ppmv and 360 ppmv. The THC emissions were measured by a continuous emission monitor and were recorded as a series of one-minute averages. In both runs, emissions fluctuated up and down several times per hour. Each run represented several furnace charging and tapping cycles and there were no differences in furnace or control device operation between the two runs. In order to account for the variation in average THC concentration, the higher 3-hour average emission concentration was selected as the proposed emission limit. Furthermore, the 3-hour average format of the THC emission

standards minimizes the effects of variations in emissions at a single facility.

The proposed THC emission limit for reverberatory/blast furnace smelters was also based on THC emission measurements at a smelter with MACT floor controls. The test consisted of three 3-hour runs. The average THC concentration during each run was 3, 5, and 20 ppmv; there were no differences in furnace or control device operation among the three runs and the variation among the three runs is not significant at these low THC concentrations. The highest 3-hour average THC concentration was selected as the proposed emission limit to account for variation in emissions. No data have been received since proposal to indicate that the blast furnace or reverberatory/blast furnace THC emission limits are not achievable.

The Administrator used all available information to develop the proposed THC emission limits for existing and new blast furnace-only smelters. The Act does not necessarily restrict the establishment of MACT emission levels to the documented performance of plants within the regulated industry. The Act allows the Administrator to exercise judgement and consider the performance of technologies in use at similar emission sources. Because no emissions data were available from the facility that represented new source MACT, the Administrator considered the documented performance of afterburners on similar gas streams.

At the facility representing new source MACT, data were available on the temperature and residence time of the afterburner. Other EPA studies from a broad spectrum of industries with gas streams of similar characteristics indicate that this afterburner is capable of 98-percent efficiency. This is equal to a controlled THC concentration of 70 ppmv, based on an uncontrolled concentration of 3,500 ppmv. The 3,500-ppmv uncontrolled concentration is based on uncontrolled THC concentrations measured by the EPA at the outlets to two blast furnaces. No new data have been

submitted to indicate that the proposed limits are not achievable.

Comment: Three commenters (IV-D-03, IV-D-10 and IV-D-18) recommended that the emission standards for existing blast furnaces be the same as for new blast furnaces. One of these commenters (IV-D-03) claimed that the current proposal would allow existing blast furnace smelters to emit excess organic HAP emissions of 1.34 million pounds. The second commenter (IV-D-10) noted that only two additional facilities would be impacted if the same standards were adopted for new and existing sources and that this does not appear to be a significant economic impact on a national basis.

Response: The EPA considered proposing the same emission limits for new and existing source blast furnaces, but determined that the incremental control costs for existing sources would be prohibitive. If existing sources were required to meet the same THC emission limits as new sources, all but one blast furnace smelter would need to install new afterburners. The annual organic HAP control costs for blast furnace smelters would triple from \$580,000 to \$1.7 million on a national basis, but the organic HAP emission reduction achieved would only increase by 20 percent, from 580 megagrams per year (Mg/yr) to 690 Mg/yr. This represents a high incremental cost effectiveness of over \$10,000 per Mg of organic HAP.

Based on the estimated impacts on operating smelters and the high incremental costs, the EPA decided not to propose more stringent standards for existing blast furnaces. No information has been received since proposal indicating that these impacts have been estimated incorrectly. In addition, no data or analysis were provided by the commenter to support the claim of excess organic HAP emissions of 1.34 million pounds. Therefore, the EPA is not revising the proposed THC standards for existing blast furnaces.

#### 2.3.3.3 Plastic Removal to Control Organic HAP Emissions.

Comment: Four commenters (IV-D-02, IV-D-03, IV-D-23, and IV-D-24) recommended that the EPA require smelters to remove polyvinyl chloride (PVC) plastic from the feed material prior to incineration to control organic HAP and dioxin/furan emissions. One commenter (IV-D-02) acknowledged that this would be an added cost to the smelters but that it was necessary to protect public health. Another commenter (IV-D-23) suggested that the EPA offer an incentive to the first battery manufacturer or secondary lead smelter to devise a way to remove plastics from the feed material.

Response: The PVC plastic in battery cell separators is the primary source of chlorinated hydrocarbons in the furnace feed. PVC separators have already been replaced with non-PVC technology by battery manufacturers. Consequently, emissions of HCl/Cl<sub>2</sub> are expected to decrease in the future. No other significant sources of chlorine have been identified in typical secondary lead smelter feed material.

#### 2.3.4 Rationale For Total Chloride Emission Standards

Six commenters (IV-D-01, IV-D-07, IV-D-14, IV-D-18, IV-D-22, and IV-D-30) commented on the proposed emission standard to control HCl/Cl<sub>2</sub> emissions from process sources.

Comment: One commenter (IV-D-14) requested that the EPA withdraw the proposed standards for HCl/Cl<sub>2</sub> emissions. The commenter stated that PVC plastic separators in lead-acid batteries, the cause of these emissions, are being phased out and will disappear from the feed stock to secondary lead smelters by the time the standard would become effective. Therefore, requiring controls at this time would not be cost-effective. The commenter also requested that a public notice be published and a public comment period be allowed before the EPA promulgates any requirements for alternative methods for achieving the MACT standards.

Response: In the preamble for the proposed standards, the EPA stated, "All smelting furnaces that process broken

batteries are potential sources of HCl and Cl<sub>2</sub> emissions. Many used lead-acid batteries contain polyvinyl chloride (PVC) plastic separators between the battery grids, although the use of PVC plastic as a separator material has been discontinued by most battery manufacturers" (59 FR 29754).

Information gathered since proposal indicate that the number of lead-acid batteries in the scrap inventory that contain PVC plastic separators has declined from approximately 1 percent of the total available scrap in 1990 to less than 0.1 percent in 1994 (see docket item IV-D-34). This trend is expected to continue because PVC separators are no longer manufactured in the United States. No other sources of chlorides have been identified in the feed stocks to the smelting furnaces. Consequently, the EPA also expects emissions of HCl and Cl<sub>2</sub> to follow a similar decline.

The EPA estimates that by the 1997 compliance date, the amount of PVC in the battery scrap inventory will be reduced to a point such that HCl/Cl<sub>2</sub> emissions will be no more than 10 percent of the emissions measured in the EPA's 1992 testing program. Furthermore, HCl/Cl<sub>2</sub> emissions are expected to continue to decline after this date as the amount of PVC in the scrap inventory continues to decline. In light of this new information, the EPA has determined that establishing HCl/Cl<sub>2</sub> emission standards and monitoring requirements would not be cost effective and would achieve little, if any, environmental benefits. In essence, the elimination of PVC plastic separators has resulted in maximum available reduction of HCl/Cl<sub>2</sub> emissions. Therefore, the EPA has withdrawn the HCl/Cl<sub>2</sub> emission standards and associated monitoring requirements and they are not included in the final rule.

The EPA published a notice in the Federal Register announcing the availability of this new information and requesting public comment. This notice also indicated that the EPA was considering withdrawing the HCl/Cl<sub>2</sub> emission standards and monitoring requirements. A summary of the



public comments received and the EPA's response to those comments are presented in appendix A of this BID.

2.3.4.1 Selection of MACT. Six commenters (IV-D-01, IV-D-07, IV-D-14, IV-D-18, IV-D-22, and IV-D-30) commented on the selection of MACT to control HCl/Cl<sub>2</sub> emissions.

Comment: One commenter (IV-D-18) stated that the use of fluxing agents for the control of HCl/Cl<sub>2</sub> is satisfactory if periodic sampling of the exhaust stream verifies the effectiveness of the control method and the total life-cycle environmental risk of the process was not increased.

Another commenter (IV-D-22) commented that the EPA should re-examine the proposed MACT for HCl/Cl<sub>2</sub> control for new sources. The commenter noted that 99.9-percent control of acid gases from hazardous waste incinerators is routinely achieved and should be considered in the development of MACT emission standards for new sources on the basis that this constitutes control of a similar source.

Response: For the reasons discussed in section 2.3.4, the EPA has withdrawn the HCl/Cl<sub>2</sub> emission standards and monitoring requirements. Nevertheless, at proposal the EPA evaluated the non-air environmental impacts associated with fluxing and found them to be negligible; therefore, the total life-cycle environmental risk of the fluxing process probably would not be increased.

During the EPA testing program, both fluxing and wet scrubbers achieved emission levels representing greater than 99 percent control of HCl/Cl<sub>2</sub>. However, the EPA test method used to measure HCl and Cl<sub>2</sub> emissions has some uncertainty at low emission levels, i.e., below 30 mg/dscm for total chlorides. Given the uncertainty in the test methods available for measuring HCl/Cl<sub>2</sub> emissions, there is probably no significant difference in performance indicated by the 99.9-percent control observed at the hazardous waste incinerator and the greater than 99-percent control observed at secondary lead smelters.

Comment: Three commenters (IV-D-01, IV-D-14, and IV-D-30) questioned whether the EPA had sufficient data to conclude that control of HCl/Cl<sub>2</sub> emissions from reverberatory furnaces through fluxing is feasible. One commenter (IV-D-01) commented that the EPA did not have enough data to conclude that fluxing in reverberatory furnaces could be based on the use of fluxing in rotary furnaces. The same commenter also noted that the question of whether fluxing can consistently remove HCl from the exhaust stream at the proposed levels is unresolved.

Four commenters (IV-D-01, IV-D-07, IV-D-14, and IV-D-30) stated that improper fluxing can interfere with efficient furnace operation and lead production. One commenter (IV-D-01) added that the addition of too much flux, especially limestone, can reduce the efficiency of the furnace over time and that the addition of soda ash is also problematic because of the risk of an explosive reaction. Another commenter (IV-D-07) added that the metallurgical consequences of fluxing makes this infeasible for the control of HCl/Cl<sub>2</sub>.

One commenter (IV-D-01) stated that it is the experience of secondary lead smelters that the amount of chlorides available to be emitted is variable among smelters and over time. The same commenter also contended that the EPA did not account for differences in furnace configuration, feed materials, fluxing materials, and material handling. According to the commenter, the EPA also did not account for the fact that fluxing agents are inherent in some feed stocks. The commenter requested that the EPA consider these variables before proposing HCl/Cl<sub>2</sub> emission standards.

Response: The EPA measured HCl/Cl<sub>2</sub> emissions from all furnace types in use today and these data indicated that the addition of fluxing agents to the feed material could be an effective control of HCl/Cl<sub>2</sub> emissions. These tests included a test at a reverberatory furnace. During this test, fluxing agents were added to the furnace charge materials in the form

of powdered soda ash in varying amounts. As the amount of fluxing increased, HCl/Cl<sub>2</sub> emissions were found to decrease. These data were used to establish that fluxing is an effective HCl/Cl<sub>2</sub> control for reverberatory furnaces. The data available indicated that the proposed emission levels could be achieved through fluxing. If fluxing agents are inherent in some feedstocks, then not as much additional fluxing materials will need to be added to achieve compliance with the proposed standards.

All of the data obtained by the EPA indicating that fluxing can control HCl/Cl<sub>2</sub> emissions were obtained during periods of normal furnace operation and, therefore, represent demonstrated control technology. No other data were provided to indicate how normal levels of fluxing can interfere with furnace operation or efficiency. In addition, no information or data were provided to explain how an explosive reaction may occur from the addition of soda ash to a furnace; soda ash is a commonly used fluxing agent.

However, other data obtained by the EPA since proposal indicate that the method by which the fluxing agents are added to the feed material may be an important factor in determining the success of fluxing. The operators of a blast furnace smelter measured HCl emissions during normal furnace operation and at elevated levels of fluxing and observed no significant HCl emissions control (see docket item IV-D-33). At this smelter, flux was added to the blast furnace in the form of limestone gravel. At the blast furnace tested by the EPA, powdered fluxing agents were mixed with flue dust before charging the flue dust back to the furnace. The flue dust contains chlorides that are recycled to the furnace before being emitted as HCl. The EPA believes that the close physical association between the chlorides in the flue dust and the fluxing agents at the smelter tested by the EPA resulted in greater HCl control compared to the other blast furnace smelter. The EPA is not aware of any other blast

furnace smelters that combine flue dust and fluxing agents in the same manner as at the smelter tested by the EPA.

The HCl/Cl<sub>2</sub> data obtained since proposal indicate that blast-furnace smelters would need to either install a new flue dust and flux handling system or install a wet acid gas scrubber in order to meet the proposed HCl/Cl<sub>2</sub> emission standards. The cost and economic impacts of either option would be significantly greater than those estimated at proposal. The estimated annual cost of a wet scrubber is about \$850,000 for a single smelter and seven blast furnace smelters would be affected. The cost impact of a new flue dust and flux handling system would be less but would still be significant.

In any case, as discussed in section 2.3.4, the EPA is not promulgating the HCl/Cl<sub>2</sub> emission standards and monitoring requirements.

Comment: One commenter (IV-D-01) pointed out that desulfurization and dechlorination of the feed material is not a feasible HCl/Cl<sub>2</sub> control option for blast furnaces because finely divided materials (necessary for desulfurization and dechlorination) cannot be fed into blast furnaces.

Response: Data collected by the EPA indicated that certain fluxing practices could potentially control HCl/Cl<sub>2</sub> emissions from blast furnaces and dechlorination would not be necessary. However, as discussed in section 2.3.4, the EPA is not promulgating the proposed HCl/Cl<sub>2</sub> emission standards and monitoring requirements.

#### 2.3.4.2 Selection of Emission Limits.

Comment: Three commenters (IV-D-02, IV-D-05, and IV-D-20) supported the proposed HCl/Cl<sub>2</sub> emission limit of 15 mg/dscm. One commenter (IV-D-05) noted that controls are widely available that can reduce HCl/Cl<sub>2</sub> emissions to levels below the limits specified in the proposed standards. Another commenter (IV-D-20) noted that a test at the scrubber outlet of a smelter located in California's South Coast Air Quality

Management District (SCAQMD) showed that HCl emissions were below detectable levels.

Response: No data were provided to support the claim that controls are widely available to reduce HCl/Cl<sub>2</sub> emissions from secondary lead smelters to levels below the limits specified in the standards. As discussed in section 2.3.4, the EPA has withdrawn the proposed HCl/Cl<sub>2</sub> emission standards because of the decrease in HCl/Cl<sub>2</sub> emissions arising from the decrease of PVC in the battery scrap inventory. Consequently, requiring HCl/Cl<sub>2</sub> emissions controls would achieve little, if any, environmental benefit. Furthermore, the test methods available to measure HCl and Cl<sub>2</sub> emissions have some uncertainty, specifically a negative bias, at emission levels below 30 mg/dscm for total chlorides; therefore, the emissions from the smelter in the SCAQMD may not have been as low as indicated by the test results.

Comment: One commenter (IV-D-01) contended that the proposed emission limit of 15 mg/dscm is too stringent and is based on limited testing at only two facilities. The commenter added that sufficient data are not available to demonstrate that the limit can be met on a continuous basis by all furnace types using the MACT controls on which the EPA based its cost and economic impact estimates. For these reasons, the commenter proposed that the HCl/Cl<sub>2</sub> emission limit be increased to 50 mg/dscm. No data were submitted to support the commenter's proposed HCl/Cl<sub>2</sub> emission limit of 50 mg/dscm.

Response: The EPA measured HCl/Cl<sub>2</sub> emissions at four secondary lead smelters and these tests represented all furnace types. Three test runs lasting a minimum of one hour per run were conducted at each source. The data collected by the EPA indicated that fluxing practices could potentially control HCl/Cl<sub>2</sub> emissions and that control could be achieved continuously. However, as discussed above in this section, data obtained by the EPA since proposal indicate that fluxing may not adequately control HCl/Cl<sub>2</sub> in all cases, depending on

how the flux is added to the furnace. Regardless, as discussed in section 2.3.4, the EPA plans to withdraw the proposed HCl/Cl<sub>2</sub> emission standards.

#### 2.3.4.3 Cost Impacts.

Comment: Four commenters (IV-D-01, IV-D-07, IV-D-14, and IV-D-30) stated that the EPA underestimated the cost impacts of the proposed HCl/Cl<sub>2</sub> emission standards because more facilities than predicted by the EPA would need to install scrubbers. They commented that the EPA's cost impact estimates are based on fluxing, but the ability of facilities to use fluxing rather than scrubbers to control HCl/Cl<sub>2</sub> emissions has been overestimated by the EPA.

The same commenters noted that the EPA's data indicate that the cost of scrubbers would be prohibitive, with capital costs of \$1.7 million and annual costs of \$850,000 at a typical smelter operating a reverberatory furnace. The commenters also pointed out that the scrubbers would only be useful for a few years because HCl/Cl<sub>2</sub> emissions would decline anyway from the phase-out of PVC separators in lead-acid batteries.

Response: As discussed in 2.3.4.2, data initially collected by the EPA indicated that certain fluxing practices could potentially control HCl/Cl<sub>2</sub> emissions on all furnace types. Subsequent data has indicated that such control may not be effective in all cases depending on how the flux is added to the furnace. The EPA agrees that scrubbers would be a more costly control option than fluxing if they were necessary. However, for the reasons described in section 2.3.4, the EPA is not promulgating the HCl/Cl<sub>2</sub> emission standards.

#### 2.3.4.4 Other Impacts.

Comment: Two commenters (IV-D-07 and IV-D-14) claimed that the EPA underestimated the water quality impacts of the proposed standards. They both argued that more smelters than estimated by the EPA would install scrubbers that would generate wastewater streams.

The second commenter (IV-D-14) also noted that both scrubbers and fluxing would have other significant adverse environmental impacts that would offset the benefits of controlling HCl/Cl<sub>2</sub> emissions. According to the commenter, both options would result in large amounts of solid waste, either scrubber sludge or slag, that could only be landfilled. Large amounts of energy would also be needed to operate the scrubber, treat the blowdown, and haul the solid waste to a landfill. Fluxing would increase the energy needed to operate the furnace because furnaces would be less efficient. The commenter noted that the EPA is required to consider non-air quality health and environmental impacts under section 112 of the Act and cross-media impacts under the Pollution Prevention Act of 1990 and the EPA's own Pollution Prevention Strategy.

\_\_\_\_\_ melters than estimated at proposal would need to install scrubbers in order to meet the proposed HCl/Cl<sub>2</sub> emission limits. Data obtained since proposal indicate that fluxing as an HCl/Cl<sub>2</sub> control may not be as effective as estimated at proposal. Therefore, the water consumption, wastewater treatment, and scrubber sludge disposal impacts would be greater than estimated at proposal. However, as described in section 2.3.4, the EPA is not promulgating the HCl/Cl<sub>2</sub> emission standards and these impacts would not occur under the final rule.

#### 2.4 STANDARDS FOR PROCESS FUGITIVE SOURCES

Six commenters (IV-D-01, IV-D-02, IV-D-03, IV-D-07, IV-D-20, and IV-D-30) commented on the proposed emission standards for process fugitive sources. Two commenters (IV-D-02 and IV-D-20) supported the EPA's proposed standards for process fugitive sources without further elaboration. One commenter (IV-D-03) supported the EPA's determination of MACT for process fugitive sources to control metal HAP and organic HAP emissions. The remaining comments on the proposed process fugitive emission standards are summarized in the following sections.

#### 2.4.1 Identification Of MACT Floor for Process Fugitive Sources

Comment: One commenter (IV-D-14) disagreed with the approach the EPA used to develop the MACT floor for control of process fugitive emissions, in particular the EPA's reliance on the Cooperative Assessment Program Manual for the Secondary Lead Industry (CAP Manual). According to the commenter, the EPA has not demonstrated that the CAP Manual specifications establish the MACT floor. The commenter noted that the CAP Manual was developed in 1983 to ensure workplace safety and was never officially issued by the Occupational Safety and Health Administration (OSHA). The commenter also asserted that the EPA has not demonstrated that the CAP Manual specifications are still state of the art and whether there is a correlation between workplace emissions and ambient emissions. The commenter also asserted that it is inappropriate to develop standards for ambient air emissions based on control methods that were developed for the workplace.

The same commenter (IV-D-14) also argued that the EPA has not demonstrated that the proposed specifications reflect the performance at the five best-controlled secondary lead smelters. The commenter noted that the EPA measured face velocities at only one smelter and assumed that all other smelters were comparable.

Response: The basis for the process fugitive sources MACT floor is not the CAP Manual. The CAP Manual was intended only as a reference document for descriptions of commonly applied practices; other references, such as the Industrial Ventilation Manual, recommend similar practices. The EPA measured face velocity at several sources at one smelter as an indicator of process fugitive hood control performance (see docket item IV-A-2). The face velocities were 300 feet per minute (fpm) at the slag tap hood, 330 fpm at the refining kettle hood, and 1,000 fpm at the drying kiln transition piece hood. Because the face velocity at the slag tap of 300 fpm



was less than the proposed velocity of 350 fpm, the final rule will require a face velocity of 300 fpm for slag and lead tap hoods, furnace charging hoods, and agglomerating furnace hoods. However, the required face velocity for the drying kiln transition piece hood will remain at 350 fpm because this face velocity has been demonstrated to be achievable. The face velocity recommended for these types of sources by the Industrial Ventilation Manual is 200 to 500 fpm.

It was not necessary to conduct measurements at more than one smelter because all smelters have similar hood configurations and baghouse capacity dedicated to controlling process fugitive emissions, after accounting for differences in smelter size. Therefore, all smelters have the capacity to achieve similar face velocities to those at the smelter tested by the EPA.

#### 2.4.2 Selection of the Lead Emission Limit for Process Fugitive Sources

Comment: One commenter (IV-D-30) argued that emission standards for process fugitive sources would be redundant because OSHA already requires lead-in-air and personnel monitoring.

Response: The lead-in-air and personnel monitoring required by OSHA are intended to minimize worker exposure to lead emissions. The proposed process fugitive emission standards, on the other hand, are intended to minimize metal HAP emissions to the ambient air. These are separate objectives and separate exposure pathways. To illustrate, OSHA regulations contain no emission limit on captured process fugitive emissions that are vented to the atmosphere. By contrast, the NESHAP imposes a lead emission limit of 2.0 mg/dscm on process fugitive emissions.

#### 2.4.3 Selection of Equipment Standards

Comment: Two commenters (IV-D-07 and IV-D-14) requested that the proposed hood requirements for process fugitive emission sources be waived for smelters that have all process equipment located in buildings that are ventilated to a

control device. Additional regulation of hood performance is unnecessary in these situations, according to the commenters.

Response: The EPA agrees and those sources with all process equipment in controlled buildings are not subject to the hood requirements in the final rule. However, as an alternative, the EPA has established a doorway velocity requirement (250 fpm) for buildings ventilated to a control device and a lead emission limit (2.0 mg/dscm) for the control device. These requirements are necessary to ensure that the building represents control equivalent to a hood ventilated to a baghouse. The doorway velocity required in the final rule has been confirmed by measurements at a smelter with a representative enclosure and ventilation system (see docket item IV-A-2).

Comment: One commenter (IV-D-07) stated that hood face velocity requirements of 150 fpm for refining kettle hoods and 250 fpm for all other process fugitive source hoods are adequate and effective in minimizing fugitive emissions. Consequently, the commenter requested that the EPA revise the proposed hood velocity requirements (250 fpm and 350 fpm, respectively) for these sources.

Three commenters (IV-D-01, IV-D-07, and IV-D-14) requested that the EPA withdraw the proposed volumetric flow rate requirement for refining kettles. Two of the commenters (IV-D-01 and IV-D-07) pointed out that current hood designs are able to effectively control emissions at lower volumetric flow rates than specified in the proposed rule.

One commenter (IV-D-14) argued that both the volumetric flow rate and the face velocity requirements are not feasible and would compromise the refining process. According to the commenter, these rates would pull heat away from the kettle and cause solids to form on the surface of the molten lead; these solids would compromise the refining process and contribute to fugitive dust emissions. The commenter also noted that the EPA has not demonstrated that the proposed requirements could be continuously maintained because

ventilation rate varies greatly as a result of opening and closing the hood doors during the refining process.

Response: The hood velocity requirements proposed by the EPA provide greater control than those proposed by the commenters (IV-D-01 and IV-D-07). The Industrial Ventilation Manual also states that these velocities are adequate and achievable.

The EPA agrees that face velocity is the only relevant factor in a total-enclosure-type hood. Therefore, the volumetric flow rate requirement for refining kettles have been deleted; however, the face velocity requirement have not changed. The specified face velocity has been demonstrated with no adverse effects on the refining process.

The initial face velocity determination must be made with all access doors open and will, therefore, measure the minimum face velocity that a smelter will achieve; subsequent face velocity should be greater since not all doors will be open at one time. Thereafter, the smelter should be in compliance under all operating conditions.

## 2.5 STANDARDS FOR FUGITIVE DUST SOURCES

Six commenters (IV-D-02, IV-D-04, IV-D-10, IV-D-14, IV-D-15, and IV-D-30) commented on the proposed emission standards for fugitive dust sources.

### 2.5.1 Selection Of MACT for Fugitive Dust Sources

Comment: One commenter (IV-D-15) was concerned with the selection of total enclosure and ventilation to a baghouse as an equivalent MACT for controlling fugitive dust sources. The commenter noted that enclosures for high-temperature sources, such as those found at smelters, require many more air exchanges than recommended by the American Society of Heating, Refrigeration, and Air Conditioning Engineers to maintain reasonable temperatures in the workplace. This requires larger fans and control devices with higher capital and operating costs. The commenter noted that the EPA needs to account for this factor if the cost of this alternative is estimated.

Response: Total enclosures with reasonable workplace temperatures have been demonstrated in all climates. The standard does not specify the use of total enclosures as the only control option. Rather, the NESHAP provides the total enclosure option as an equivalent MACT alternative to a partial-enclosure option. The cost estimates for this standard are based on the least-cost alternative (i.e., partial enclosure and good housekeeping).

Comment: The same commenter (IV-D-15) agreed with the EPA's finding that the use of dust suppressants or sealers on storage piles is often a viable fugitive dust control, but pointed out that the chemicals added must be compatible with the process chemistry. This factor may require the use of more expensive dust suppressants.

Response: Facilities may comply with the standard using water; alternatively, they may use chemical suppressants compatible with their production processes. The suppressant costs are based on water usage and include runoff collection and treatment. Increased costs from using more expensive chemicals would be offset by savings from decreased water usage and treatment. However, the standard does not specify a particular dust suppressant and facilities may use water if they prefer.

Comment: Another commenter (IV-D-10) disagreed with the EPA's determination that partial enclosures coupled with pavement cleaning are as effective as total enclosures ventilated to baghouses for the control of fugitive dust emissions. The commenter recommended that, at a minimum, total enclosures ventilated to a baghouse represent new source MACT.

Response: No data have been provided to indicate that total enclosures vented to baghouses are more effective than partial enclosures coupled with good housekeeping and pavement cleaning. The EPA conducted a technical analysis of fugitive dust control measures at smelters (see docket item II-B-28). It concluded that partial enclosures with appropriate wetting

and pavement cleaning cost less and are as effective as total enclosures in controlling fugitive dust emissions when coupled with monitoring and recordkeeping to ensure that these activities are performed.

Comment: One commenter (IV-D-02) supported the proposed standards to control fugitive dust emissions but requested that the standard operating procedures (SOP) manual be made available for public review and comment, in addition to review by the EPA.

Another commenter (IV-D-10) also supported the requirement for sources to develop an SOP manual to control fugitive dust. However, the commenter requested that the EPA establish minimum standards of acceptability to guide States when reviewing these plans, such as frequency of pavement cleaning and compliance deadlines for paving fugitive dust areas.

Response: The SOP manual will be available for public review and comment during the Title V permitting process that each facility must undergo. Each facility must demonstrate compliance with all provisions of the rule, including the requirement to pave all traffic areas, within two years of publication of the final rule.

The proposed rule specifies the minimum frequency of pavement cleaning (twice per day). The final rule specifies that the storage piles (including the active face) be kept sufficiently moist to prevent the formation of dust.

#### 2.5.2 Selection Of Fugitive Dust Control Standards

Comment: One commenter (IV-D-04) recommended that the required frequency of pavement cleaning should be equal to the frequency of pavement cleaning at the best-performing sources. In addition, the commenter requested that all vacuuming equipment be fitted with HEPA filters to avoid re-emitting metal HAP's.

Response: The minimum frequency of pavement cleaning specified in the rule (twice per day for all areas) is equal to that achieved at the best-performing sources, according to

the MACT definition in the Act. The rule allows pavement cleaning equipment to be chosen by the facility; emissions from that equipment would be addressed during the SOP approval and Title V operating permit application process, which provides for public comment. The SOP would be approved only after demonstrating that MACT fugitive emission control measures have been included.

Comment: One commenter (IV-D-14) requested that the EPA exempt from the proposed fugitive dust control requirements those areas that are subject to tertiary air controls under the Resource Conservation and Recovery Act (RCRA) subpart DD containment building standards in order to prevent inconsistent regulation of these areas.

The same commenter also requested that the EPA allow smelters with all fugitive dust sources enclosed in buildings ventilated to baghouses followed by HEPA filters to demonstrate compliance with the proposed lead emission limits through alternative means, such as certifying that the HEPA filters are properly functioning. The commenter argued that the proposed requirement for annual stack testing would have no benefit at these facilities because emissions are below detectable levels.

Response: In the revised rule, the EPA has included an alternative means of compliance for those areas that are subject to tertiary air controls under RCRA subpart DD containment building standards because these controls are equivalent to the MACT level of control.

The EPA data indicate that sources controlled by HEPA filters have measurable lead emissions; however, lead emissions below detectable levels would indicate compliance with the lead emission limit. The final standards do not require an annual lead test. However, each baghouse must be fitted with a continuous particulate monitor. (See section 2.7 of this BID for more information on the final metal HAP monitoring requirements.)

Comment: One commenter (IV-D-30) questioned the need to establish emission standards for fugitive dust sources because OSHA standards already require extensive personnel lead-in-air workplace monitoring and ambient lead concentrations are regulated and monitored under the lead NAAQS.

Response: The NAAQS monitoring requirements are only intended to ensure compliance with ambient air quality standards. The Act specifies that NESHAP require MACT, regardless of specific ambient air levels. Compliance with OSHA standards would not demonstrate that MACT emission levels are being achieved because OSHA does not specify emission standards for ventilation systems, nor guard against emissions to ambient environment. Furthermore, the NESHAP also controls all metal HAP's but the NAAQS only regulates lead.

## 2.6 TEST METHODS AND SCHEDULE

Nine commenters (IV-D-01, IV-D-03, IV-D-06, IV-D-07, IV-D-14, IV-D-15, IV-D-22, IV-D-29, and IV-D-30) submitted comments on the proposed test methods and schedule. Comments requesting clarification or additional information for the tests for all classes of pollutants are discussed below. Comments applicable to the tests for each class of pollutants are presented in the following sections.

Comment: One commenter (IV-D-06) requested that whenever Method 3 is designated as an applicable test method, the EPA change the term "gas analysis" to "gas analysis for the determination of dry molecular weight" to more accurately convey the intent of the requirement.

One commenter (IV-D-06) recommended that the EPA present the conversions required in § 64.547(d) of the proposed rule for correction to 4 percent carbon dioxide in a mathematical form rather than a text form in order to avoid confusion.

One commenter (IV-D-22) requested that the EPA provide a simple procedure for adjusting test methods currently used to demonstrate compliance with existing State or local standards in lieu of requiring EPA test methods. The commenter stated that this measure would save facilities the expenditures

required for additionally conducting the EPA test methods. The commenter also cited an existing State PM test method (California Air Resources Board Method 5) that could be modified to measure lead at a cost savings of \$2,000 to \$3,500 per test. The same commenter also asked that the proposed rule "include standard methods of calculation for determining emission stream content (for example, total hydrogen chloride, chlorine, or hydrocarbon)."

Response: The EPA agrees that the term "gas analysis" should be changed to "gas analysis for the determination of dry molecular weight" and has made this change in the final rule. The EPA has also added the conversions for the correction to a constant carbon dioxide concentration in a mathematical form, as well as in a text form. However, methods for determining emission stream contents are already included in the Code of Federal Regulations under the applicable test methods (i.e., Method 25A for THC and Method 26 for HCl and Cl<sub>2</sub>). In addition, as discussed in section 2.3.4, the HCl/Cl<sub>2</sub> emission standards have been withdrawn.

The general testing requirements contained in the General Provisions allow for the use of an alternative test method provided that the method is validated according to the procedures in EPA Method 301. Section 63.7 of the General Provisions (40 CFR 63) specifies the procedures for obtaining approval for the use of an alternative test method.

#### 2.6.1 Lead and Metal HAP's

Comment: One commenter (IV-D-06) asked that the EPA delete the references to Method 12 in § 63.543(a), 63.544(d), and 63.545(e) because it is already prescribed in the applicable test method in § 63.547(a). This commenter also requested that the EPA correct reference to § 63.545(f) to § 63.545(e) in the first sentence of § 63.547(a) because § 63.545(e) is the paragraph that contains the statement of the emissions standard.



Response: The EPA agrees and has made the requested changes where they are still applicable in the revised rule.

Comment: One commenter (IV-D-15) stated that Method 12 may not be accurate or may require very long sampling times at the proposed lead emission limit of 2.0 mg/dscm. The commenter, however, did not make any specific recommendations for changing the standards.

Response: The EPA test data and compliance data indicate that reference Method 12 accurately measures lead emissions below 2.0 mg/dscm using the sampling times prescribed in the method.

Comment: Five commenters (IV-D-01, IV-D-03, IV-D-14, IV-D-29, and IV-D-30) submitted comments on the need for an annual lead compliance test.

One commenter (IV-D-03) supported the proposed requirement for annual compliance tests of lead emissions for process fugitive and fugitive dust sources. Another commenter (IV-D-30) requested that the EPA waive the proposed annual compliance test requirement for lead; the testing costs could not be justified because the lead NAAQS requires the facility to continuously monitor ambient lead concentrations.

Two commenters (IV-D-01 and IV-D-29) requested that the EPA waive the annual compliance test requirement under certain circumstances. One commenter (IV-D-29) recommended that the EPA waive the annual compliance test requirement for sources that demonstrate both (1) control device effectiveness by complying with the proposed COM requirements; and (2) no significant changes in lead air concentrations from the data collected and reported under NAAQS. The other commenter (IV-D-01) proposed that sources could conduct the compliance test every 2 years if previous tests demonstrated compliance at a level less than half of the lead standard.

Response: The NAAQS monitoring requirements are intended to ensure compliance with ambient air quality standards; NAAQS monitoring cannot demonstrate compliance with numerical MACT emission limits.

The proposed rule would have required an annual lead compliance test for process fugitive sources, but not for process sources. For process sources, the proposed rule would have required the use of a COM to monitor compliance with a site-specific opacity limit. However, based on comments received on the proposed monitoring requirements and described in section 2.7, the final rule requires bag leak detection systems for all baghouses controlling process, process fugitive, and fugitive dust sources. Continuous opacity monitors have been removed as a monitoring option in the final rule because they only provide a limited measure of process source baghouse performance and do not have the sensitivity to indicate the performance of process fugitive or fugitive dust baghouses. In contrast, the more sensitive bag leak detection systems provide a continuous measure of baghouse performance for both process and process fugitive sources. The final rule also requires owners and operators to take specific corrective actions if the bag leak detection system indicates any degradation in baghouse performance. The EPA has withdrawn the annual lead test requirement because the final monitoring requirements are sufficient to detect and correct any degradation in baghouse performance. Therefore, the benefits of annual lead compliance tests would be very limited.

Lead emissions below 2.0 mg/dscm, the lead standard, tend to be variable. If the EPA tests and compliance data from secondary lead smelters had indicated that emissions significantly below this level could be achieved on a consistent basis, then a lower emission standard would have been established, rather than allowing smelters to skip compliance tests.

#### 2.6.2 THC and Organic HAP's

Comment: One commenter (IV-D-06) requested that the EPA designate Method 1 in § 63.547(c)(1) of the rule as an applicable method for selection of the sample location when no traverse sample points are needed (i.e., when only a single

sample point is needed) when determining compliance with the THC emission limits in § 63.543(c), (d), and (e).

Response: The EPA agrees with the commenter and has made the requested change in the revised rule.

Comment: One commenter (IV-D-06) asked the EPA to include a procedure or equation in § 63.547(c)(5) of the rule to convert the concentration of total hydrocarbon expressed as propane to units of kilograms per hour using the gas flow rate determined in § 63.547(c)(2).

Response: The EPA reference test methods provide all the information that someone familiar with the methods would need to calculate the THC emission rate in kilograms per hour. Consequently, the EPA did not include the conversion procedure in the rule, as it provides no additional benefit.

#### 2.3.3 HCl/Cl<sub>2</sub> Emissions

Comment: One commenter (IV-D-06) recommended that the equation for calculating total HCl/Cl<sub>2</sub> emissions in § 63.547(b)(5) of the proposed rule be numbered and include a conversion factor for English units as well as metric units.

Response: The EPA agrees that numbering the equations would clarify the rule and this will be done for the equations in the final rule. The EPA also agrees that providing equivalent english units would facilitate calculating total HCl/Cl<sub>2</sub> emissions. However, as discussed in section 2.3.4, the EPA is not promulgating the HCl/Cl<sub>2</sub> emission standards.

Comment: Two commenters (IV-D-01, IV-D-07) asked that the EPA allow for testing by Method 26 instead of Method 26A for configurations that do not have a wet scrubber. They stated that Method 26A, which costs more than Method 26, is not needed for these configurations because of the absence of wet scrubber mist emissions.

Response: The EPA agrees that Method 26 is an appropriate test method in the absence of wet scrubber mist emissions. However, as discussed in section 2.3.4, the EPA is not promulgating the HCl/Cl<sub>2</sub> emission standards and an HCl test method (i.e., Method 26) is, therefore, not required.

#### 2.6.4 Face Velocity

Comment: Two commenters (IV-D-01 and IV-D-07) requested that the EPA allow the use of velometers at hood face openings as an alternate method for determining face velocities. They stated that accessing the ductwork for hoods for velocity testing using the proposed method (Method 2) may be difficult at some facilities. One commenter (IV-D-07) stated that kettle ventilation systems are often installed in close quarters with many bends and transitions in the duct that preclude locating a test port that meets the spacing requirements of Method 2. One commenter (IV-D-01) added that the proposed method is more expensive than velometers. No information was given by either commenter on the relative accuracy of velometers compared to the proposed method.

Response: The EPA agrees to allow the use of velometers as an alternate method for determining face velocities and has incorporated these changes in the final rule. The specifications for anemometers (velometers) were adapted from EPA Reference Method 14 (40 CFR 60, appendix A). The general testing requirements contained in § 63.7 of the General Provisions also specify procedures for applying for the use of an alternative test method.

#### 2.7 MONITORING REQUIREMENTS

Many comments were received on the proposed monitoring requirements. Several commenters supported a policy that continuous emission monitors (CEM's) be required whenever possible; these comments are discussed in more detail in the following paragraphs. Other comments related specifically to the proposed monitoring requirements for metal HAP's, organic HAP's, and HCl/Cl<sub>2</sub>; these comments are discussed in subsections for each pollutant class.

Comment: Four commenters (IV-D-02, IV-D-03, IV-D-05, and IV-D-23) supported the use of CEM's in general and requested that they be required for monitoring all emission sources at secondary lead smelters. One commenter (IV-D-03) stated that CEM's are needed on stationary sources because they are more

likely to detect air quality violations than do on-site inspections. This commenter and two others (IV-D-02 and IV-D-23) claimed that smelters' self-reported emissions are not credible and, consequently, CEM's should be required. Another commenter (IV-D-05) stated that CEM's are widely available for demonstrating compliance with the proposed standards; however, no further information was provided.

Response: The EPA's selection of the enhanced monitoring requirements was determined by examining a hierarchy of monitoring options available for specific processes, pollutants, and control equipment. The options ranged from continuously monitoring the emissions of a specific pollutant or pollutant class (the most accurate monitoring alternative) to the continuous monitoring of a related process or control device parameter. Each option was evaluated relative to its technical feasibility, cost, ease of implementation, and relevance to the associated process emission limit or control device for this industry. The EPA then selected the most appropriate monitoring option that was available, technically feasible, and cost-effective for a specific application. Although the EPA agrees that CEM's provide effective monitoring alternatives when they meet these three criteria, CEM's are not available at a reasonable cost for the pollutant classes regulated by this NESHAP for this industry. Therefore, the proposed rule did not require CEM's as the only monitoring option and included alternative monitoring requirements. The EPA proposed several monitoring options for organic HAP's and HCl/Cl<sub>2</sub>, including CEM's.

In order to ensure accurate self-reported emissions, the Act provides for civil and criminal penalties for falsifying records (42 USC 7413). Enforcement of the Act is also strengthened by provisions for noncompliance penalties (40 CFR part 66) and citizen suits (40 CFR part 54). These penalties, combined with stringent recordkeeping and reporting requirements, will deter operators from falsifying monitoring reports.

### 2.7.1 Metal HAP Monitoring Options

At proposal, the EPA had concluded there are no CEM's for metal HAP's or for lead, the proposed metal HAP surrogate. Therefore, the EPA proposed that each smelter operate and maintain a COM in each stack or duct that receives controlled smelting furnace process emissions. During the initial lead compliance test, the COM would be used to monitor and record the opacity of the smelting furnace exhaust reduced to 6-minute averages. Thereafter, the owner or operator would be required to maintain a 6-minute average opacity not more than 2 percent opacity above the maximum 6-minute average opacity recorded during the initial lead compliance test. A 2 percent opacity difference was added to allow for normal instrument drift. Exceeding this site-specific opacity limit would constitute a violation of the 2.0 mg/dscm emission standard for lead compounds.

Many comments were received on the proposed metal HAP monitoring requirements. These are discussed in detail in the following paragraphs.

Comment: Twenty commenters (IV-D-01, IV-D-02, IV-D-03, IV-D-04, IV-D-07, IV-D-08, IV-D-10, IV-D-12, IV-D-14, IV-D-15, IV-D-16, IV-D-17, IV-D-18, IV-D-19, IV-D-20, IV-D-21, IV-D-22, IV-D-26, IV-D-29, and IV-D-31) provided comments on the use of an opacity standard to monitor metal HAP emissions from process sources.

Four commenters (IV-D-02, IV-D-03, IV-D-10, and IV-D-18) supported the proposed opacity requirements to monitor process emissions. One commenter (IV-D-02) stated that COM's are essential for ensuring smelters' compliance with the proposed lead standard. A second commenter (IV-D-10) stated that small sources may have inadequate procedures for baghouse maintenance and that the use of COM's will enable immediate detection of baghouse problems. One commenter (IV-D-03) supported the proposed COM requirement if the opacity limits are kept below 5 to 10 percent. This commenter stated that COM's provide greater assurance of compliance with the metal

HAP standard than do baghouse inspection and maintenance programs. One commenter (IV-D-18) supported the use of COM's as long as the EPA demonstrates that the selected opacity level will ensure that HAP emissions are below the level of toxicological risk concern to the local populace and environment.

One commenter (IV-D-04) supported the proposed requirement for COM's for process sources; however, instead of the site-specific opacity compliance determination specified in the proposed rule, the commenter requested an upper opacity compliance limit of 5 percent based on a 6-minute average. The commenter argued that this standard would be more equitable because most smelters can currently meet a 3-percent, 6-minute average limit coupled with an additional 2 percent allowance for drift.

Twelve commenters (IV-D-01, IV-D-07, IV-D-08, IV-D-12, IV-D-14, IV-D-15, IV-D-16, IV-D-19, IV-D-21, IV-D-22, IV-D-26, and IV-D-31) stated that COM's cannot be used to demonstrate or monitor compliance with a numerical metal HAP emission limit. Nine commenters (IV-D-07, IV-D-08, IV-D-12, IV-D-14, IV-D-16, IV-D-21, IV-D-22, IV-D-26, and IV-D-31) objected to the proposed opacity monitoring requirements for process baghouses because the EPA failed to demonstrate that lead, PM, and opacity are correlated. Another commenter (IV-D-22) stated that if the EPA cannot show this relationship, a COM will not demonstrate compliance with the lead standard; therefore, the commenter requested that the standard be written in terms of particulate emissions rather than lead. One commenter (IV-D-14) stated that the relationship of PM to opacity is imprecise because particulate size and shape, which affect the opacity reading, vary with furnace feed material and operating conditions. All nine commenters stated that COM's would be particularly insensitive to low PM concentration levels, such as those associated with the proposed lead standard.

Thirteen commenters (IV-D-01, IV-D-07, IV-D-08, IV-D-12, IV-D-14, IV-D-16, IV-D-17, IV-D-19, IV-D-20, IV-D-21, IV-D-26, IV-D-29, and IV-D-31) recommended that the metal HAP monitoring requirements allow for alternatives to COM's to monitor baghouse performance, including bag leak detection systems (such as tribo-electric devices and light backscattering devices), pressure drop monitors, and systematic baghouse inspection and maintenance programs. The commenters stated that other monitoring systems, such as bag leak detection devices, are more accurate and reliable than COM's, can be used to indicate which baghouse cell is leaking, and are easier than COM's to keep properly calibrated. These commenters also indicated that other systems are less costly than COM's, both in capital costs and operating costs.

One commenter (IV-D-26) reported that a baghouse leak detection system would have an initial cost of \$7,000 to \$14,000 and negligible maintenance costs. At proposal, the estimated initial cost of a COM was \$37,000 and annual operating costs, including operation, maintenance, and recordkeeping and reporting, were \$16,500.

One commenter (IV-D-16) stated that section 114 of the Act does not require the EPA to establish a numerical emission limit that must be monitored on a continuous basis. The commenter added that section 112 of the Act allows for the use of work practice (non-numerical) standards. Therefore, according to the commenter, there is no need for the EPA to establish a numerical opacity limit that can be used as a surrogate to demonstrate continuous compliance with the lead emission standard. Furthermore, the requirements of the Act can be met by establishing work practice standards for process baghouses similar to those proposed for process fugitive baghouses, according to the commenter.



Response: At proposal, the EPA had concluded that COM's alone would be sufficient to monitor compliance with the lead emission standard. Based on further analysis and information received from public comments, the EPA now agrees that COM's cannot be used to monitor compliance with a lead emission standard for this industry and that opacity can only be used as a gross indicator of baghouse performance. The EPA also agrees that better bag leak detection systems are available and effective for monitoring baghouse performance. The EPA recognizes that these bag leak detection systems have lower capital and operating costs than COM's. The EPA also recognizes that work practice standards based on baghouse inspection and maintenance programs are also applicable to process baghouses and are consistent with the requirements of the Act.

Bag leak detection systems, such as tribo-electric and light back scattering devices, can be used to monitor baghouse performance by indicating bag leaks or tears. Because bag leak detection systems are more sensitive than COM's, they can detect the onset of bag degradation prior to gross baghouse failures (e.g., torn bags) and can identify the specific baghouse cells in which a problem exists. Baghouse inspection and maintenance programs can further improve baghouse performance by ensuring proper baghouse operation. These programs include monitoring of pressure drop across cells as well as inspecting bags and other baghouse components for early identification of any required maintenance. For these reasons, the EPA has revised the metal HAP monitoring requirements for process baghouses.

The final metal HAP monitoring requirements are use of a bag leak detection system coupled with a comprehensive baghouse inspection and maintenance work-practice standard to ensure that the baghouse is operating properly to control metal HAP emissions. Because COM's provide a less accurate measure of baghouse performance than bag leak detection systems, they have been removed from the monitoring

provisions. There should be no significant added burden from the inspection and maintenance requirements because nearly all secondary lead smelters already perform regular baghouse inspections; there will be minor added burden for recordkeeping and reporting to ensure that inspection and maintenance is being performed.

The EPA agrees that the ratios of metal HAP's to lead and lead to PM are variable; however, EPA data indicate that metal HAP, lead, and PM emissions are positively correlated (i.e., increases in emissions of one are associated with increases in emissions of the others). In addition, lead is a surrogate for metal HAP's because metal HAP emissions are more closely correlated with lead emissions than with PM emissions. Therefore, the metal HAP emission standard for process sources remains in terms of lead emissions.

The EPA agrees that opacity readings and lead concentrations may not be closely correlated and that COM's cannot be used to demonstrate or monitor compliance with a numerical metal HAP emission limit for this industry. Although the EPA still believes that opacity may be used as an indicator of gross baghouse performance, the EPA has determined from information collected since proposal that bag leak detection systems may be used as a more reliable indicator of baghouse performance. When used in conjunction with a baghouse inspection and maintenance program, a leak detector can ensure that a baghouse is achieving a consistent level of performance on a continuous basis.

The Agency is currently reviewing the state-of-the-art for PM CEMs. It appears that other devices using the same analytical techniques as the bag leak detectors, i.e., triboelectric and light scattering, can be calibrated to measure PM emissions continuously. The Agency is currently studying the technical feasibility of these PM CEMs. This study is not yet complete, so the use of a PM CEM cannot be mandated at this time. However, using these types of devices as bag leak detectors appear to be the next logical step for

the Agency to take in its possible movement toward the use of PM CEMs.

Comment: Six commenters (IV-D-01, IV-D-07, IV-D-08, IV-D-12, IV-D-16, and IV-D-19) stated that the objective of the proposed opacity monitoring requirement for process sources was unclear. They requested that the EPA clarify whether it was to (1) demonstrate compliance with the metal HAP standard or (2) ensure proper baghouse functioning.

Response: At proposal, the EPA had concluded that COM's could be used to demonstrate compliance with a metal HAP emission standard by establishing a site-specific opacity limit during the initial lead compliance test. However, based on information collected from public comments and further analysis since proposal, it is apparent that COM's cannot be used in that capacity for this industry. The correlation among lead concentration, PM concentration, and opacity is not strong enough to support using a COM to demonstrate compliance with the metal HAP emission standard. Therefore, as discussed in the preceding response, the metal HAP monitoring requirements have been revised to remove the COM requirement. The final rule requires a bag leak detection system coupled with a baghouse inspection and maintenance program as a means to ensure proper baghouse functioning following an initial lead compliance test.

Comment: One commenter (IV-D-15) objected to the 2-percent allowance in the proposed opacity limit for COM drift because it is less than the allowable drifts specified in 40 CFR Part 60, Appendix B, Performance Specification 1, and Part 60, Appendix F. Another commenter (IV-D-07) added that a COM may not measure any opacity during the compliance test and that subsequent violations could be triggered by instrument drift.

Response: Performance specification 1 in 40 CFR part 60, appendix B allows a maximum zero drift of 2 percent opacity and maximum calibration drift of 2 percent opacity. These drifts are not additive because they are for the lower and upper ends, respectively, of the COM output ranges. Performance specification 1 also allows a maximum calibration error of 3 percent opacity. However, this error is only relevant for determining compliance with an absolute opacity limit (e.g., 5 percent opacity). It is not relevant for monitoring a site-specific opacity limit, as in the proposed rule, that is determined and monitored with the same instrument. Therefore, the calibration error is not additive with the zero drift or calibration drift and the 2 percent allowance for drift specified in the proposed rule is sufficient.

Appendix F does not address drift of COM's. The proposed rule allowed for 2 percent opacity to account for drift so a violation could not be triggered solely by drift. Regardless, as discussed above, the COM requirement has been withdrawn. The revised rule specifies that bag leak detection systems be calibrated according to EPA guidance, if available, or according to the manufacturers' written guidelines.

Comment: One commenter (IV-D-06) stated that using the single highest 6-minute average opacity to establish an opacity limit would be too lenient because this value may be a statistical outlier that is not indicative of compliance with the lead standard. The commenter requested that the rule contain a statistically calculated 6-minute average opacity limit that would better reflect lead emission levels measured during the lead compliance test. The same commenter also requested that the EPA delete the phrase "6-minute average" from the proposed monitoring requirements for process sources because there is an implication that only one 6-minute average needs to be obtained. The commenter stated that removing the phrase will require all collected opacity data to be evaluated.

Response: As discussed above, the COM requirement has been withdrawn. The revised requirement for a bag leak detection system is not tied to compliance with the lead emission limit. However, the bag leak detection system must include an alarm to indicate baghouse leaks or tears. An alarm by itself will not indicate or constitute a violation of the standard. Failure to take corrective action to respond to an alarm or failure to follow the inspection and maintenance procedures is a violation of the standard.

Comment: Six commenters (IV-D-01, IV-D-07, IV-D-14, IV-D-15, IV-D-16, and IV-D-30) declared that the proposed monitoring requirements would be more stringent than the actual emission standards and did not account for normal variability in baghouse opacity.

Four commenters (IV-D-07, IV-D-14, IV-D-15, and IV-D-16) stated that the proposed opacity monitoring requirement may force a source to comply with a more stringent lead standard than the proposed 2.0 mg/dscm because the opacity measured during the initial lead compliance test would become an enforceable limit, even if the measured lead emissions were well below the proposed limit of 2.0 mg/dscm.

One commenter (IV-D-16) also stated that the proposed monitoring requirements would establish emission standards more stringent than MACT because compliance with the lead standard is based on a 3-hour averaging period, but compliance with the opacity standard is based on only a 6-minute averaging period. Shorter averaging periods effectively create more stringent standards.

Five commenters, (IV-D-01, IV-D-07, IV-D-15, IV-D-16 and IV-D-30) also objected to the proposed monitoring requirement because it does not account for normal variability in baghouse opacity, which could lead to violations of the standard. One of the commenters (IV-D-30) added that the EPA test data do not represent a level that can be continuously achieved on a long-term basis. Two commenters (IV-D-01 and IV-D-07) suggested that fluctuations in furnace feed and other factors

may cause sooting episodes, which may not necessarily occur during the initial compliance test. Because sooting episodes do not entail significant increases in metal HAP emissions, they could cause a violation of the opacity standard even though the lead limit was not being exceeded.

Response: As discussed above, the COM requirement has been withdrawn. The revised requirement for a bag leak detection system allows each source to set the system parameters (e.g., alarm level) to account for normal variations in emissions. As discussed above, these systems will be used to monitor baghouse performance and are not tied to compliance with the lead emission limit. Sooting episodes should not affect particulate matter readings because the soot will be controlled by the metal HAP control device (i.e., the baghouse).

Comment: One commenter (IV-D-03) objected to the use of COM's on process sources because they do not represent state-of-the-art monitoring. The commenter requested that CEM's be required for monitoring metal HAP emissions to ensure the accuracy of reported emissions. However, two commenters (IV-D-01 and IV-D-07) specifically stated that there are no CEM's for metal HAP's.

Response: The EPA has no data to indicate that CEMs for metal HAP's, other than for mercury, are commercially available at this time. For this rule, the EPA would be interested in a metal CEM to demonstrate continuous compliance with the lead standard. The EPA does not believe a mercury monitor is relevant to the lead standard, so the use of a mercury CEM was not pursued. The development of a metal CEM which can measure lead is currently in the research to early prototype stages, so mandating the use of one now is not possible. Consequently, CEM's are not required in the proposed or final rule. However, as discussed above, the COM requirement has been replaced with a requirement for a bag leak detection system, which provides a better measure of baghouse performance than a COM.

Comment: Two commenters (IV-D-14 and IV-D-16) stated that the performance of COM's may be adversely affected by conditions in the furnace exhaust (e.g., moisture). One commenter (IV-D-30) stated that COM's have historically had operating problems that could cause operating delays and erroneous violations of the proposed opacity standard. Another commenter (IV-D-31) stated that COM's cannot respond to the velocity changes that occur in baghouses. Finally, one commenter (IV-D-14) added that because the proposed location for the COM is upstream of any scrubber, the COM would not measure actual emissions to the ambient air.

Response: The EPA agrees that COM's may be adversely affected by furnace exhaust; however, properly maintained COM's have been demonstrated as an effective monitoring technology at several smelters. Baghouse velocity changes would not affect the monitoring of baghouse functioning using a COM because opacity is not tied to gas stream velocity. However, as discussed above, the revised rule requires bag leak detection systems instead of COM's. Bag leak detection systems are used by at least four facilities in this industry.

False indications of a baghouse failure (i.e., false alarms) do not constitute a violation as long as the appropriate corrective actions are taken, recorded, and reported.

EPA test data indicate that scrubbers designed for acid gas control do not provide any significant additional metal HAP's control when they follow a baghouse. However, scrubbers may emit PM, which could affect the reading of COM's or bag leak detectors. Consequently, the required location for the monitoring device is still between the baghouse and any scrubber.

Comment: One commenter ([IV-D-30]) objected to the proposed opacity monitoring requirement for process sources on the grounds that it is unnecessary because the NAAQS require continuous lead monitoring. The commenter also stated that

the NAAQS lead monitoring requirement makes the opacity proposal excessive and a waste of money.

Response: The NAAQS monitoring requirements are intended to ensure compliance with ambient air quality standards for lead. The NAAQS monitoring cannot demonstrate that the MACT level of control for metal HAP'S is being achieved on a continuous basis.

Comment: One commenter (IV-D-16) requested that the opacity monitoring proposal be withdrawn because the EPA had improperly evaluated the cost impact of the requirement. The commenter stated that the EPA had overestimated the cost-effectiveness of COM's by overestimating the level of lead reductions attributable to COM's. One commenter (IV-D-22) stated that COM's would not be cost-effective for small operations that do not recycle batteries.

Response: As stated above, the COM requirement has been replaced with a requirement for a bag leak detection system and an inspection and maintenance program. Both COM's and bag leak detection systems have been demonstrated and are in use in this industry and the costs cannot, therefore, be considered prohibitive. Small facilities that do not perform smelting, such as lead remelters and refiners, are not subject to the standards.

Comment: One commenter (IV-D-03) supported the proposed baghouse inspection and maintenance requirements for process fugitive sources. Another commenter (IV-D-06) recommended changing the proposed baghouse inspection requirements to limit inspections to the clean side of the baghouse. The commenter stated that visual inspections of the clean sides of baghouses would easily detect any baghouse leaks and that most baghouses have a glass window for such monitoring. The commenter also stated that this change would reduce exposure of the inspector to lead dust.

One commenter (IV-D-15) stated that the proposed baghouse inspection requirement could not be easily performed unless it was only a visual observation of exhaust opacity. The



commenter objected to an internal inspection because it would require the baghouse to be taken off-line, during which time the process would need to be shut down.

Response: The EPA's survey of secondary lead smelters indicates that most smelters perform full baghouse inspections for both process and process fugitive sources at least weekly, and generally more often. Most secondary lead baghouses are divided into two or more cells. Therefore, individual cells can be taken off-line for inspection, without shutting down the whole baghouse or the process. As discussed above, the rule requires a comprehensive baghouse inspection and maintenance program that is consistent with current practices at most smelters, together with a bag leak detection system for both process and process fugitive source baghouses. These requirements may require inspecting the dirty sides of some baghouses but they are consistent with current practices and are necessary to ensure that the baghouses perform optimally on a continuous basis. The EPA agrees that worker exposure to dust should be minimized and proper precautionary measures should be taken when working on the dirty sides of the baghouses.

Comment: One commenter (IV-D-20) requested that the proposed rule require the installation of ambient air monitoring equipment for lead to demonstrate compliance with the federal ambient air standard.

Response: Ambient air quality is regulated for lead under the NAAQS rather than under this standard.

#### 2.7.2 Organic HAP's - THC And Temperature

The proposed organic HAP monitoring requirements allowed smelter owners or operators to monitor either THC concentration directly with a CEM or monitor incinerator or afterburner temperature. If the owner or operator selected the second option, they would have to maintain, at a minimum, the same temperature as measured during the initial THC compliance test.

Comment: Two commenters (IV-D-02 and IV-D-03) supported the proposed process source THC monitoring requirements. They supported the requirement for continuous monitoring of incinerator or afterburner temperature because these parameters are correlated to THC emissions. One of these commenters (IV-D-03), however, requested that the EPA consider state-of-the-art CEM's--particularly fourier transform infrared (FTIR) instruments--as a means of ensuring compliance with the process source THC standard. According to the commenter, FTIR is economically feasible and reliable for some industries and may be so for the secondary lead smelter industry.

Response: The proposed requirements for THC or temperature monitoring are equivalent and both are adequate for meeting the statutory obligation for continuous emission or parameter monitoring; however, the use of a THC CEM is a more expensive monitoring option than temperature monitoring. No FTIR instruments are commercially available at this time that can be used as an in-stack CEM. The EPA cannot mandate the use of instruments that are not commercially available. Therefore, the EPA has not included FTIR as an option in the final monitoring requirements.

#### 2.7.3 Total Chlorides - Parameter Monitoring

The EPA proposed four monitoring options to demonstrate compliance with the proposed HCl/Cl<sub>2</sub> emission standards. In the first option, the owner or operator would be required to monitor and maintain the same ratio of fluxing agents to feed material as during the initial HCl/Cl<sub>2</sub> compliance test. In the second and third options, owners or operators using a sulfur dioxide (SO<sub>2</sub>) scrubber to control HCl/Cl<sub>2</sub> would be required to monitor and maintain either the same scrubber operating parameters (media pH and injection rate) or SO<sub>2</sub> concentration, respectively, as during the initial HCl/Cl<sub>2</sub> compliance test. In the final option, owners or operators would be required to monitor HCl emissions directly using an HCl CEM. Alternatives to an HCl CEM were proposed because an

HCl CEM has not been demonstrated for this industry and the costs are expected to be prohibitive. Data available to the EPA indicated that the other monitoring options were equally effective and less costly.

Several comments were received on the proposed monitoring requirements to demonstrate compliance with the proposed HCl/Cl<sub>2</sub> emission standards for process sources. These comments are discussed in the sections below.

#### 2.7.3.1 Fluxing Monitoring Option.

Comment: Two commenters (IV-D-18 and IV-D-20) conditionally supported the EPA's proposal to allow operators to monitor the amount of flux added to the furnaces to control HCl/Cl<sub>2</sub> as a means of demonstrating compliance with the HCl/Cl<sub>2</sub> emission standard. One commenter (IV-D-18) supported the monitoring of HCl/Cl<sub>2</sub> emissions through fluxing if the effectiveness of this control technique were periodically verified by testing the exhaust stream. Another commenter (IV-D-20) supported the fluxing monitoring requirement and additionally requested that sources be required to install a volumetric feeder for lime or soda ash to ensure a steady supply of fluxing materials.

Two commenters (IV-D-03 and IV-D-04) stated that the proposed use of fluxing to control HCl/Cl<sub>2</sub> was a good approach, but it provides no mechanism for demonstrating continuous compliance with the HCl/Cl<sub>2</sub> standard. Consequently, both commenters requested that the EPA require HCl CEM monitoring to verify compliance. One commenter (IV-D-04) supported an HCl CEM requirement because it would allow a smelter to minimize the use of fluxes to control HCl/Cl<sub>2</sub> emissions by adjusting the quantity of fluxing materials added according to monitored HCl emissions.

One commenter (IV-D-22) objected to the proposed fluxing monitoring option because the proposal preamble did not provide sufficient data to support the efficiency of fluxing for controlling HCl/Cl<sub>2</sub>. The commenter stated that the EPA needs to establish a relationship between fluxing agents and

furnace feed, stream composition, and emissions in order to determine the appropriate fluxing levels for compliance purposes. The commenter also stated that it may not be possible to maintain a constant ratio of feed to flux and that a constant ratio may not be adequate for monitoring because the chlorine content of the feed may be variable.

Response: At proposal, the EPA's data indicated that normal fluxing was a feasible option for controlling HCl/Cl<sub>2</sub> emissions. However, as described in section 2.3.4, the EPA is not promulgating the HCl/Cl<sub>2</sub> emissions standards and associated monitoring requirements because subsequent information obtained since proposal indicates fluxing may not be effective in many cases and HCl/Cl<sub>2</sub> emissions will be declining, in any case, because of the phase out of PVC separators.

The EPA agrees that a volumetric feeder would have made it easier to maintain a constant ratio of feed to flux, as required by the proposed monitoring requirements. However, only a few smelters use volumetric feeders because standard industry operating procedures are sufficient to maintain a constant ratio of feed to flux. Therefore, the choice of which mechanism to use to maintain that ratio would have been left to the individual smelter operator, according to the proposed rule.

The EPA included HCl CEM's as one of several monitoring options but did not require them as the only option in the proposed rule because the costs would be prohibitive for this industry and other less costly options were available. The economic savings represented by using less flux in response to lower HCl emissions would not have been sufficient to justify the cost of an HCl CEM.

#### 2.7.3.2 Scrubber Operating Parameters Monitoring Option.

Comment: One commenter (IV-D-30) objected to the EPA's proposed option to allow operators to monitor compliance by maintaining the same scrubber parameters (media pH and injection rate) as measured during the initial compliance

test, if they are using wet scrubbers to control HCl/Cl<sub>2</sub> emissions. The commenter stated that insufficient data have been provided on the feasibility of regulating scrubber pH to within one pH unit and that such control is not feasible.

A second commenter (IV-D-22) objected to the proposed 30-percent variance allowed for the scrubber liquid injection rate. The commenter requested a requirement for a constant ratio of the liquid injection rate to the chlorinated hydrocarbon content of the furnace feed. This alternative would (1) allow the source to reduce the injection rate when the chlorinated hydrocarbon content of the feed was low; and (2) increase the injection rate to adequately control HCl/Cl<sub>2</sub> when the chlorinated hydrocarbon of the feed was high. If the source could not test the feedstocks for the chlorinated hydrocarbon content, the rate of chlorinated hydrocarbon variability would provide an upper-limit estimate that correlated to a minimum required injection rate.

Response: The proposed rule required only that the 3-hour average scrubber pH level be maintained to within one pH unit of the average pH recorded during the initial HCl/Cl<sub>2</sub> test; deviations greater than one pH unit were allowed as long as the 3-hour average is maintained within one pH unit.

EPA data indicate that pH can be maintained within this range and no data have been provided to indicate otherwise. Wet scrubbers are greater than 99-percent effective in removing HCl/Cl<sub>2</sub> from exhaust gases. The EPA does not believe that a 30-percent drop in injection rate would affect scrubber efficiency for HCl/Cl<sub>2</sub> removal. However, as discussed in section 2.3.4, the HCl/Cl<sub>2</sub> emissions standards and associated monitoring requirements have been withdrawn.

#### 2.7.3.3 Sulfur Dioxide CEM Monitoring Option.

Comment: Three commenters (IV-D-04, IV-D-06, and IV-D-30) objected to the second monitoring option for smelters using an SO<sub>2</sub> scrubber to control HCl/Cl<sub>2</sub> emissions. This option allowed operators to monitor compliance by monitoring and maintaining the same SO<sub>2</sub> concentration as during the

HCl/Cl<sub>2</sub> compliance test. One commenter (IV-D-30) stated that requiring an SO<sub>2</sub> CEM would significantly increase operating costs.

Two commenters (IV-D-04 and IV-D-06) objected to the proposed SO<sub>2</sub> monitoring option because SO<sub>2</sub> inlet concentrations and emissions reductions are not correlated with HCl/Cl<sub>2</sub> emissions. They stated that HCl/Cl<sub>2</sub> emissions are dependent upon the vinyl chloride concentration of the feed and SO<sub>2</sub> emissions are dependent upon fuel type. Consequently, HCl/Cl<sub>2</sub> emissions will vary more than SO<sub>2</sub> emissions and their concentrations will not be correlated. These commenters stated that the proposal would allow for the establishment of an SO<sub>2</sub> monitoring compliance level even when SO<sub>2</sub> inlet concentrations were at or near zero; consequently, no HCl/Cl<sub>2</sub> emissions control would be required.

Both commenters (IV-D-04 and IV-D-06) also stated that an SO<sub>2</sub> monitoring system should only be allowed in situations in which it can be demonstrated that (1) reductions of SO<sub>2</sub> emissions are sufficient to verify that total acid gas reduction is related to SO<sub>2</sub> reduction, and (2) the proportion of SO<sub>2</sub> entering the scrubber is proportional to the concentration of other acid gases.

Response: As discussed in section 2.3.4, the HCl/Cl<sub>2</sub> emission standards and associated monitoring requirements have been withdrawn. However, sources selecting the SO<sub>2</sub> monitoring option under the proposed rule would have incurred no additional monitoring expenses because smelters with SO<sub>2</sub> scrubbers typically have SO<sub>2</sub> CEM's.

The EPA agrees that SO<sub>2</sub> emissions are not necessarily correlated with HCl/Cl<sub>2</sub> emissions. However, the SO<sub>2</sub> monitoring option was not intended to establish a correlation between SO<sub>2</sub> and HCl/Cl<sub>2</sub> emissions; rather it was to establish that the SO<sub>2</sub> scrubber is being operated in the same manner as during the initial HCl/Cl<sub>2</sub> compliance test. Acid gas scrubbers will preferentially remove HCl and Cl<sub>2</sub> before they remove SO<sub>2</sub> because HCl and Cl<sub>2</sub> are more soluble in scrubber

media than SO<sub>2</sub>. Therefore, a scrubber that is effectively controlling SO<sub>2</sub> will also be controlling HCl/Cl<sub>2</sub>.

The statement that SO<sub>2</sub> emissions from secondary lead smelters are dependent on fuel type is incorrect; the majority of SO<sub>2</sub> emissions are from the lead-sulfur compounds in the battery paste. All smelters use coke, natural gas, or propane as fuel. Natural gas and propane have no sulfur. Coke contains some sulfur, but SO<sub>2</sub> emissions due to the sulfur in coke are still less than emissions of sulfur from battery paste.

#### 2.7.3.4 Hydrochloric Acid CEM Monitoring Option.

Comment: Two commenters (IV-D-02 and IV-D-03) supported the monitoring of HCl using a CEM and requested that the EPA require this monitoring option for facilities that fail to comply with the other HCl monitoring options.

Response: As discussed in section 2.3.4, the proposed HCl/Cl<sub>2</sub> emissions standards and associated monitoring requirements have been withdrawn. Smelters that did not select one of the other HCl monitoring options under the proposed rule would have been required to comply with the HCl CEM requirements. However, an HCl CEM would not have been required as a penalty for noncompliance with the other monitoring options.

#### 2.7.3.5 Ambient Monitoring for HCl and Chlorine Emissions.

Comment: One commenter (IV-D-03) requested that the EPA consider the use of a corrosion monitoring system of metal plates as a possible alternative to the first three HCl monitoring options (i.e., monitoring fluxing parameters, scrubber parameters, or SO<sub>2</sub> concentration). These metal plates of copper, bronze, and aluminum react with HCl/Cl<sub>2</sub> and would be placed along the property fenceline. After 12 to 18 months, the plates would be tested for corrosion, based on a pre- and post-weighing, to verify the reliability of the first three monitoring options. This suggestion was based on a monitoring program at a hydrochloric acid/potassium sulfate

fertilizer plant that was conducted by the commenter's State Air Control Board.

Response: As discussed in section 2.3.4, the proposed HCl/Cl<sub>2</sub> emissions standards and associated monitoring requirements have been withdrawn. It is unlikely that HCl/Cl<sub>2</sub> concentrations at the fence-line are high enough to cause measurable corrosion. Regardless, this technique could not confirm that the source of any corrosion is acid gases from the smelter. In addition, there is no way to establish a correlation between corrosion and violations of a numerical HCl/Cl<sub>2</sub> emission standard.

## 2.8 RECORDKEEPING AND REPORTING REQUIREMENTS

Comment: Four commenters (IV-D-02, IV-D-03, IV-D-06, and IV-D-30) submitted comments on the proposed recordkeeping and reporting requirements. One commenter (IV-D-03) supported all of the proposed notification requirements and stated that they are consistent with other NESHAP rules.

Two commenters (IV-D-02 and IV-D-03) supported the proposed requirement for retaining records for five years. One of these commenters (IV-D-03) stated that the requirement is consistent with other NESHAP rules, encourages compliance, and provides a means of verifying facility compliance with the proposed standards.

Two commenters (IV-D-02 and IV-D-03) supported the proposed standard of quarterly reporting in order to facilitate compliance with the proposed standards.

One commenter (IV-D-06) recommended that the EPA revise the proposed quarterly reporting requirements for all 3-hour block averages from the continuous monitoring system or control device so that only the 3-hour block averages that are in violation of any of the proposed standards or monitoring requirements must be reported.

One commenter (IV-D-30) requested that the EPA delete the proposed standard of quarterly reporting. The commenter stated that this requirement is excessive and unnecessary



because records are currently kept at each smelter and they can be inspected at any time by regulatory personnel.

Response: Section 63.10(e)(3) of the General Provisions requires that the excess emission and monitoring system performance reports and summary excess emission reports include the total duration of excess emissions (or parameter exceedences, if a parameter is being monitored) and does not require reporting of all 3-hour block averages for the reporting period. The reporting requirements in the proposed rule have been revised to clarify that only excess emissions or parameter exceedences must be included in the reports so that this requirement will be consistent with the General Provisions.

Based on a consideration of the revised monitoring requirements, the EPA agrees that semi-annual reports are appropriate for this source category. The reporting requirements have been revised to require only semi-annual reports. However, owners and operators must begin to submit quarterly reports if the source experiences excess emissions. Owners and operators may return to a semi-annual reporting frequency by meeting the requirements of § 63.10(e)(3)(ii) of the General Provisions. These require the source to have been continually in compliance for 1 year and to continue to comply with all recordkeeping and monitoring requirements.

Comment: Commenter (IV-D-01) expressed a concern that the increased continuous emissions or parameter monitoring would not allow for any excursions in emissions that might occur during startup or shutdown periods or in connection with emergencies or malfunctions. The commenter requested that the final rule address the application of MACT standards and allow some flexibility for smelter operators during these periods.

A second commenter (IV-D-30) noted that the proposed standards do not include any provisions for "Acts of God" that may cause upsets to the pollution control devices and monitors.

Response: Section 63.6(e) of the General Provisions requires facilities to develop and implement written startup, shutdown, and malfunction plans. The purpose of these plans is to ensure that owners operate and maintain affected sources, including air pollution controls, in a manner consistent with good air pollution control practices during periods of startup, shutdown, and malfunction.

Sections 63.6(f) and 63.6(h) of the General Provisions state that all non-opacity and opacity emission standards apply at all times except during periods of startup, shutdown, and malfunction and as otherwise specified in an applicable subpart. If a pollution control device or monitor is caused to malfunction by natural events, such as inclement weather, then the source would not be subject to the appropriate emission standards, but would be required to follow the startup, shutdown, and malfunction plan. Section 63.8(b) contains provisions for monitoring system malfunctions that are not in the startup, shutdown, and malfunction plan and for monitoring devices that are determined to be "out of control."

## 2.9 INTERACTION WITH OTHER RULES

Several comments were received on the interaction between the proposed rule and other environmental regulations and standards.

### 2.9.1 Interaction With NAAQS

Comment: One commenter (IV-D-10) discussed the interaction of the proposed emission standards and the lead NAAQS. The commenter noted that a number of areas in the United States are not in attainment with the lead NAAQS and that the proposed standards did not discuss whether secondary lead smelters cause or contribute to nonattainment in these areas. The commenter stated that if any secondary lead smelters cause or contribute to nonattainment situations, then the proposed standards may make it difficult for States to reach attainment. This is because the proposed standard will not require further controls on process sources, which are the largest source of lead emissions, according to the commenter.

The same commenter also indicated that the EPA informed the commenter about plans to abandon the NAAQS in favor of a NESHAP approach. According to the commenter, the EPA has found that with the abolition of leaded gasoline, the only lead nonattainment areas are in the vicinity of lead smelters or other large stationary sources of lead. Therefore, the EPA believes that a control technology-based approach will be more effective in reducing public exposure to lead. The commenter concurs with the EPA's concept of focusing on stationary sources. However, the commenter is concerned that under the proposed MACT emission standards for lead and with the abolition of the lead NAAQS, the States will have no mechanism under which to gain further lead emission reductions from secondary lead smelters. Under the proposed emission standards, stack emissions of lead.

Furthermore, according to the commenter, the EPA did not include lead refineries and sources that produce lead compounds in the regulated category. Therefore, it is possible that lead emissions in nonattainment areas may not decrease sufficiently in some areas to reach attainment with the lead NAAQS. No further action would be taken on these categories until the residual risk assessment, but this will not occur for at least 8 years from the present. It is theoretically possible, according to the commenter, that the proposed MACT standards may delay progress in reducing ambient concentrations of lead.

The commenter requested that the EPA examine and discuss the relationship between the lead NAAQS and the proposed MACT standard and determine whether the proposed MACT standards may actually delay progress in reducing ambient concentrations of lead.

Response: The EPA did not discuss at proposal the issue of whether secondary lead smelters cause or contribute to violations of the NAAQS, except in the context of the area source finding, because that is not the focus of the NESHAP

program. The NESHAP program establishes technology-based emission standards and the NAAQS regulate ambient air quality. However, according to the November 6, 1991 Federal Register, there are 17 lead non-attainment areas; secondary lead smelters were located in 12 of these areas.

The commenter is incorrect in stating that process sources are the largest sources of lead emissions; as described in Chapter 4 of the proposal BID, fugitive dust sources are the largest sources of metal HAP emissions, followed by process fugitive sources. Process sources are actually the smallest sources of metal HAP emissions because all process sources are already controlled by MACT technology (i.e., baghouses). The standards require further controls on fugitive dust sources and process fugitive sources, and establish emission limits for all sources ventilated through a control device or a stack. If further lead emissions reductions are necessary because the area around a smelter is still in nonattainment for lead after a smelter has complied with the NESHAP, then a State may still require more stringent controls, emission limits, or operating restrictions as part of a State Implementation Plan.

The EPA currently has no plans to abandon the lead NAAQS in favor of a NESHAP approach. The NESHAP and NAAQS programs are both still needed because they regulate different aspects of air quality.

Lead refineries and sources that produce lead compounds (such as lead oxide production facilities) are not secondary lead smelters. Regulation of these other sources under section 112 would require an independent finding that they are major sources of HAP air emissions. The EPA has no data to support such a finding.

#### 2.9.2 Interaction with Regulation of Air Emissions Under RCRA

At proposal, the EPA stated that air emissions from secondary lead smelting furnaces are potentially subject to regulation under RCRA because the feed material is often classified as a hazardous waste (50 FR 29776). The furnace

emissions are exempt from regulation; however, the EPA agreed to reexamine the exemption as part of a settlement agreement. The EPA proposed to continue the exemption because the air emissions would be adequately regulated under the proposed NESHAP (at least until the section 112(f) residual risk determination) and requested public comment.

The EPA noted that there was also a potential overlap between the RCRA rules, specifically 40 CFR 264.1101(i) and 265.1101(i), which regulate storage facilities, and the proposed standards to control fugitive dust emissions. The EPA requested comment on whether the RCRA requirements for storage units were incompatible with the proposed NESHAP.

Comment: Five commenters (IV-D-03, IV-D-07, IV-D-14, IV-D-18, and IV-D-30) responded to the request for comment on whether air emissions from secondary lead smelters should also be regulated under RCRA.

One commenter (IV-D-30) noted that only the storage of hazardous waste prior to reclamation, treatment, and disposal is subject to RCRA. The reclamation equipment (i.e., the process equipment) is not subject to RCRA, according to the commenter.

Three commenters (IV-D-03, IV-D-07, and IV-D-18) agreed with the EPA's determination that further RCRA regulation of air emissions from secondary lead smelters would be unnecessary. All three commenters noted that regulation under both programs would not achieve an increased environmental benefit compared to regulation under only one program. One commenter (IV-D-03), however, added that if the proposed NESHAP fails to obtain adequate protection for the public, then RCRA regulation may be appropriate in the future. Another commenter (IV-D-18) added that including all the requirements for air emissions in the Title V operating permit would facilitate permit preparation and processing for facilities and regulatory personnel, compared to requiring additional RCRA air emission permitting.

One commenter (IV-D-14) recommended that the EPA harmonize the fugitive emissions standards with the RCRA standards to ensure that both programs are administered consistently, particularly with respect to the requirements for containment buildings. The same commenter also recommended that the EPA exempt from the fugitive dust requirements those areas subject to RCRA subpart DD containment building standards.

Response: RCRA rules presently control storage of all lead-bearing materials because they are hazardous wastes before they are processed by smelting. Hazardous wastes generated by the smelting process also are subject to regulation. Air emissions from smelting hazardous wastes (including spent batteries, which were held to be solid and hazardous wastes by the Eleventh Circuit in Ilco v. EPA) could be regulated under RCRA. However, in 1991 the Agency chose to temporarily exempt such emissions [see existing 40 CFR 266.100(c)(1) and (3)], and to reexamine the appropriateness of that exemption as part of this proceeding.

The EPA believes it is appropriate to continue the RCRA exemption. The MACT standards, coupled with the area source listing determination, provide substantial protection of human health and the environment from air emissions from secondary lead smelters engaged in normal lead recovery activities. Integration of the two statutes, required by RCRA section 1006, is best served by continuing the RCRA exemption because RCRA regulation of such air emissions would be largely or completely duplicative of the MACT standards. A determination as to whether the RCRA exemption should be permanent can be made at the time of the residual risk determination required by section 112(f) of the Act. The MACT standards, at the least, will function as reasonable interim controls.

The EPA has also sought to integrate certain of the RCRA storage requirements with the MACT standards. It has done so by allowing secondary lead smelters with RCRA containment

buildings (the standards for which appear in 40 CFR part 264, subpart DD (for permitted facilities) and part 265, subpart DD (for interim status facilities) to use these buildings as a means of complying with certain MACT standards. The Agency's technical judgement is that the containment buildings provide as stringent control as the other MACT option and, therefore, are a valid alternative means of meeting the standard.

#### 2.9.3 Interaction With Effluent Limitation Guidelines

Comment: One commenter (IV-D-07) disagreed with the EPA's conclusion that most smelters with reverberatory furnaces would use fluxing rather than scrubbers to control HCl/Cl<sub>2</sub> emissions. The commenter also disagreed with the EPA's conclusion that it was unnecessary to reexamine the effluent limitation guidelines for secondary lead smelters. According to the commenter, most smelters would be forced to use scrubbers rather than alter the fluxing of the furnaces. As a result, the water quality impacts of the proposed rule would be more significant than estimated by the EPA. Therefore, the commenter believes that the effluent limitation guidelines should be revised to account for the increased use of scrubbers at these facilities.

Response: Scrubbers are currently in use in this industry for acid gas control with no apparent conflict with the current effluent limitation guidelines for this industry.

#### 2.9.4 The Title V Operating Permit Program

Three commenters (IV-D-03, IV-D-16, and IV-D-22) discussed the need for secondary lead smelters to obtain Title V operating permits required by 40 CFR 71. One commenter (IV-D-03) agreed that all smelters should be required to obtain operating permits.

Two commenters (IV-D-16 and IV-D-22) disagreed with the EPA's statement in the preamble that all HAP sources must obtain a Title V operating permit from the State or from the EPA if the State does not have an approved permit program. One commenter (IV-D-16) noted that, in fact, a smelter is obligated to obtain an operating permit from the State only

when the State has an approved Title V operating permit program in place. Otherwise, a smelter is obligated to submit a Title V permit application to the EPA only if the EPA has promulgated a substitute program for that State under section 502(d)(3) of the Act.

The second commenter (IV-D-22) pointed out that all major sources of HAP's are required to obtain Title V operating permits, but area sources of HAP's have a 5-year deferral for obtaining a Title V operating permit. After 5 years, there will be further rulemaking by the EPA to determine the ultimate permit requirements for area sources under the Title V operating permit program.

The same commenter (IV-D-22) also noted that the General Provisions of part 63 (subpart A) require any source subject to a section 112(d) emission standard to obtain a Title V operating permit unless the individual standard to which it is subject exempts the source from permitting. The 5-year deferral for area sources under Title V is also allowed unless the individual standard overrides the deferral. The commenter recommends that the EPA explicitly exempt area source smelters from Title V operating permit requirements in the final rule, or at least exempt those area sources already subject to permitting requirements with a State or local agency. The commenter cited the resource-intensive nature of the Title V operating permit program and the comparatively smaller emissions from area sources as a justification for this recommendation.

Response: The EPA agrees that smelters in States with no approved Title V program would be obligated to submit a Title V permit application to the EPA only if the EPA has promulgated a substitute program for that State. Individual States establish the schedules for Title V permit applications; however, the deadline must be within 12 months of the EPA approval of a State's Title V program or the EPA's promulgation of a substitute program for that State.



Area sources do not automatically have a 5-year deferral for obtaining a Title V operating permit; this deferral is automatic only for sources subject to NESHAP that were promulgated under part 61 (i.e., prior to the 1990 amendments of the Act). Otherwise, this deferral must be granted in a specific emission standard. Section 63.1(c)(2)(iii) of the General Provisions states, "If a standard fails to specify what the permitting requirements will be for area sources affected by that standard, then area sources that are subject to the standard will be subject to the requirement to obtain a Title V permit without deferral."

The EPA's area source finding concluded that the health risks posed by area source smelters warranted the same emission standards (i.e., MACT) under this NESHAP as the major sources. Area sources should be subject to the Title V operating permit program and no deferral is being granted in this emission standard. Regardless, secondary lead smelters that are area sources would still need to obtain Title V permits even if they were exempt under this NESHAP because nearly all of them are subject to the 40 CFR 60 subpart L NSPS and most are also subject to permitting requirements with a State or local regulatory agency.

#### 2.9.5 Administrative Procedure Act Requirements

Comment: One commenter (IV-D-14) noted that only the preamble was published in the Federal Register. The commenter believes that the Administrative Procedures Act requires publication of the proposed rule because the proposed rule contains technical information, such as monitoring requirements, that was not included in the preamble. The commenter argued that interested parties were, therefore, deprived of adequate notice of the proposal's potential impact and of the opportunity to comment on it. The commenter requested that the EPA publish the proposed rule in the Federal Register and reopen the comment period.

Response: The Office of Air Quality Planning and Standards has reviewed its responsibility to adequately inform the affected public. The decision and actions taken to reduce the amount of printed material in the Federal Register and still ensure that the proposed regulatory text and support documents are accessible for public comment satisfy the statutory requirements of the Administrative Procedures Act (APA), the Federal Register Act (FRA), and the requirements of the Clean Air Act Amendments of 1990. Access to the rule and support material was identified in the preamble to the proposed rule.

The Agency uses many connections to increase access to information not printed in the Federal Register: the Technology Transfer Network's (TTN) recently-signed-rule bulletin board; direct access to the Air and Radiation Docket and Information Center; distribution of the proposed rule and preamble to trade associations; distribution to plaintiffs in court-ordered regulatory actions; distribution to the small business ombudsperson system in each State; and, if necessary, through contact with the EPA. The general response to this process has so far been positive. In addition, the commenter was provided a copy of the proposed rule at the time of proposal.

## 2.10 MISCELLANEOUS

Several comments were received on a number of issues relating to the proposed standards that do not fit into the categories presented above. These comments are presented in the following sections.

### 2.10.1 Definitions

Comment: One commenter (IV-D-06) recommended that a definition of THC be included in the definitions in the proposed standards. The commenter pointed out that the test method proposed for determining compliance with the proposed THC emission standards (Method 25A) does not preclude methane or ethane. Both of these compounds are excluded from the definition of volatile organic compounds (VOC). If the EPA

does not intend to require the inclusion of these compounds, then the definition of THC should correspond to the definition of VOC by including the same list of exempt compounds.

Response: The statutory definition of VOC (40 CFR 51) includes a list of compounds that are negligibly photochemically reactive, including methane and ethane. This definition is intended for developing inventories of VOC emissions that contribute to the formation of ozone and bears no regulatory relationship to THC as measured by reference Method 25A. Method 25A measures total gaseous organic concentration (i.e., THC) expressed in terms of propane, and this measurement includes methane and ethane. The EPA is establishing emission limits for THC as a surrogate for total organic HAP's and is not regulating individual organic species. Because THC is determined by an EPA reference test method, there is no need for a definition of THC analogous to the definition of VOC.

#### 2.10.2 Compliance Dates

Three commenters (IV-D-01, IV-D-02, and IV-D-14) commented on the proposed compliance dates.

Comment: One commenter (IV-D-02) requested that compliance with the proposed standards be phased in as quickly as practical, rather than requiring compliance only within 2 years of the promulgation date. The commenter noted that compliance with some of the requirements, especially those that result in little cost to the smelters, could be achieved before 2 years and that phasing in compliance would achieve emission reductions sooner. The same commenter noted, however, that blast furnace smelters may need more than 2 years if they are required to meet a more stringent THC limit of 20 ppmv proposed by the commenter.

Response: The EPA selected the proposed 2-year compliance schedule based on the estimated period of time a smelter would need to design, fabricate, install, and test a new add-on control device such as an afterburner, baghouse, or scrubber. Compliance with the standards for nearly all of the

pollutant types and emission sources regulated by this NESHAP can be achieved through the use of add-on controls that may require 2 years to implement. Compliance with some standards can also be achieved through process modifications or work practice controls. It would be impractical and would achieve little additional emission reductions to specify different compliance dates that would be dependent on which type of controls the smelter operator selected. Therefore, the proposed 2-year compliance schedule has not been revised. The THC limit for blast furnaces has not been revised and the EPA does not believe that merely extending the compliance date would allow smelter operators to achieve a higher level of control.

Comment: One commenter (IV-D-14) noted that a smelter's schedule to design and install appropriate control equipment will depend on the speed with which the applicable permitting authority approves necessary permits. Furthermore, these permit approvals are often delayed for reasons beyond the smelter's control. Therefore, the commenter recommended that the EPA revise the compliance date to be no earlier than 18 months following the date that all necessary permits are approved.

Response: Section 63.6(i)(4) of the General Provisions allows operators of existing sources to request an extension of up to one additional year to comply with emission standards if the additional period is needed to install air pollution controls. Adopting the approach recommended by the commenter would require the EPA to adopt provisions to ensure that the operators have submitted appropriate permit applications in a timely manner, but such provisions would be impractical to implement. Therefore, the EPA did not revise the 2-year compliance schedule.

Comment: One commenter (IV-D-01) argued that data on the public health risks associated with secondary lead smelters indicate that these risks are low enough to support a decision to allow the industry 3 years to install MACT controls and

come into compliance with the proposed standards. The proposed regulation allows only 2 years. The commenter referred to section 112(i)(3) of the Act.

Response: There is nothing in section 112(i)(3) of the Act to indicate that public health risks should be considered in establishing the compliance schedule for this NESHAP. The compliance schedule for this NESHAP was based on the estimated time needed to implement MACT controls. No information has been provided to indicate that this schedule is not feasible, so it has not been revised.

#### 2.10.3 Presentation of the Standards

Comment: One commenter (IV-D-22) requested that the regulation include a summary table of the numerical emission limits. The commenter noted that this would allow a facility to quickly and easily locate all of the emission limitations that apply to a given configuration of equipment.

Response: The EPA agrees that a summary table of the numerical emission limits would be useful and one has been included in the final regulation.

#### 2.10.4 Impacts of a Loss in Lead-Recycling Capacity

Comment: One commenter (IV-D-27) expressed concern that overly stringent emission standards for secondary lead smelters could cause facility closures, which would lead to a reduction in smelter capacity and a reduction in the recycling of scrap lead. According to the commenter, this would lead to greater disposal of lead scrap in landfills and more mining of virgin lead. The commenter requested that the EPA consider the likelihood of a decrease in recycling of lead scrap if overly stringent emission standards are adopted for secondary lead smelters. The commenter also requested that the EPA establish emission standards that do not result in the reduction of secondary lead smelter capacity, but did not propose how the EPA should accomplish this.

Response: The proposal preamble discusses the effects of the standards on the total industry lead smelting capacity (59 FR 29760). Total smelting capacity for the industry is

expected to decrease by less than 1 percent. It is also not expected that the proposed NESHAP would reduce the opportunities for recycling scrap lead or lead-acid batteries.

#### 2.10.5 Environmental Justice

Two commenters (IV-D-03 and IV-D-10) submitted comments on the proposed secondary lead NESHAP and the issue of environmental justice. One commenter (IV-D-03) asserted that there have been disproportionate impacts on the communities of color and poor people in two communities in Texas, one of which is the former site of a secondary lead smelter and the second of which is the site of an operating secondary lead smelter. The commenter claimed that these are both examples of "lead-dumping" on poor people of color due to lead smelter emissions. The commenter also expressed concern that the proposed NESHAP has too many loopholes that significantly weaken the ability of the proposal to help bring an end to environmental racism.

According to the commenter (IV-D-03), the draft rule can be improved to help end environmental injustice in minority communities and poor neighborhoods by requiring cumulative emission reviews and modeling. The commenter also noted that the current proposal allows blast furnace smelters to have higher organic HAP emissions of 1.34 million pounds and that this will allow the poor and minorities to continue to suffer environmental injustice. The commenter also noted that the EPA has failed to calculate in the proposed NESHAP the economic and social costs of increased incidence of cancer, lung disease, and other health problems in areas around secondary lead smelters.

Another commenter (IV-D-10) noted that many lead nonattainment areas are located in urban areas with low income residents and, therefore, the regulation of these sources has important implications for environmental justice.

Response: The former site of the secondary lead smelter in West Dallas, Texas has been cleaned up (remediated) and the smelter has been dismantled. No further exposure from this

site is possible. With respect to the second smelter located in Texas, the EPA cannot alter the location of an existing source. However, the proposed and final NESHAP achieves significant reductions of HAP's and related criteria pollutants. The EPA is not aware of any loopholes in the NESHAP that would prevent these reductions from being achieved.

Under the final NESHAP, organic HAP emissions from blast furnace smelters will total no more than 302 Mg (332 tons) per year. The commenter did not provide the basis for the claim that the proposed and final NESHAP would allow blast furnace smelters to have excess organic HAP emissions of 1.34 million pounds (610 Mg) compared to a more stringent standard. The final NESHAP should achieve reductions in lead compound emissions from these dust sources and these reductions should help reduce ambient lead concentrations in nonattainment areas. Furthermore, the NESHAP will reduce the risks to all individuals near smelters by regulating emissions from both major and area source smelters.

The Act requires that the NESHAP be a technology-based standard, rather than a health risk-based standard. There are no data on the incidence of health problems around secondary lead smelters on which economic and social costs could be based. However, under the NESHAP, HAP emissions will be significantly reduced, along with carbon monoxide emissions, and this will reduce the threat to public health and the environment presented by smelters. The commenter did not provide any details on how cumulative emission reviews and modeling can be used in conjunction with the NESHAP to help end environmental injustice.

#### 2.10.6 Pollution Prevention Considerations

Comment: One commenter (IV-D-03) responded to the EPA's request for comments on several pollution prevention options presented in the proposal preamble. The commenter supported allowing the smelters to pursue each of the pollution

prevention options, as long as compliance with the proposed emission standards is demonstrated. With respect to plastic separation to reduce organic HAP and HCl/Cl<sub>2</sub> emissions, the commenter argued that recycling options for these plastics must continue to be pursued as long as these materials are being received by smelters.

Response: Nothing in the proposed or final rule will prevent or discourage smelters from pursuing pollution prevention options. In fact, the reduction of HCl/Cl<sub>2</sub> emissions will result from the replacement of PVC separators with those of other materials. Even though this was undertaken by battery manufactures and not the smelters, this is an example of pollution prevention. Regardless of the control technology adopted, all smelters must demonstrate compliance with the emission standards and monitoring requirements of the final rule.

#### 2.10.7 Section 112 Prohibition of Ad Hoc Standards

Comment: One commenter (IV-D-16) objected to the proposed monitoring requirements because they violate the prohibition against ad hoc standards in section 112 of the Act. The commenter asserted that the proposed opacity monitoring requirements for compliance with the lead standard are ad hoc because (1) there is no correlation between PM and lead; (2) there is no correlation between PM and opacity; and (3) they would establish lead standards more stringent than MACT because the opacity limit would be based on the opacity measured during the initial lead compliance test and would become an enforceable limit, even if lead emissions were well below the proposed lead standard. The commenter stated that the proposed monitoring requirements for compliance with the proposed THC and HCl/Cl<sub>2</sub> standards also constitute ad hoc standards, based on the same rationale presented for the proposed opacity monitoring requirements; however, the commenter did not elaborate further.



Response: The EPA does not believe that there is any legal standing to the term "ad hoc standards" and notes that there is no mention of this term in section 112 of the Act. The EPA followed the guidance provided in section 112 of the Act and in 40 CFR part 70 in developing the emission standards and monitoring requirements.

As discussed in detail in section 2.7.1 of this document, the EPA agrees that COM's cannot be used to demonstrate compliance with the metal HAP emission standards for process sources. The revised metal HAP monitoring requirements are baghouse leak detectors coupled with baghouse inspection and maintenance programs to ensure that baghouses are properly functioning on a continuous basis. As discussed in section 2.3.4 of this document, the EPA plans to withdraw the HCl/Cl<sub>2</sub> emission standards. Owners and operators may use a THC CEM during initial compliance tests to adjust control parameters such that THC emissions are at or slightly below the levels of the emission standards. Therefore, owners and operators are not required to meet emission levels any more stringent than the final emission standards.

APPENDIX A  
SUMMARY OF PUBLIC COMMENTS ON NOTICE TO WITHDRAW  
HYDROCHLORIC ACID/CHLORINE (HCl/Cl<sub>2</sub>) LIMITS

Information gathered since proposal indicates that polyvinyl chloride (PVC) plastic contained in lead-acid battery scrap feedstock has decreased to negligible quantities in recent years. The PVC in feedstock is a precursor to HCl and Cl<sub>2</sub> emissions. A supplemental Federal Register notice was published on April 19, 1995 (60 FR 19556) to amend the proposed standards (59 FR 297750) by withdrawing the HCl limits. A total of eight comment letters were received in response to the supplemental notice. Six commenters supported the amendment (IV-D-39, IV-D-40, IV-D-41, IV-D-43, IV-D-45, and IV-D-46), while two commenters opposed it (IV-D-42 and IV-D-44). A list of all of the commenters, their affiliations, and the EPA docket item number assigned to their correspondence is given in table A-1.

TABLE A-1. LIST OF COMMENTERS ON HCl LIMIT WITHDRAWAL

Document Item Number	Commenter and Affiliation
IV-D-39	M.L. Sappington Electrowinning Technologies, Inc.
IV-D-40	J.W. Walton State of Tennessee, Department of Environment and Conservation, Division of Air Pollution Control
IV-D-41	L.L. Bergeson Weinberg, Bergeson & Neuman
IV-D-42	J.P. Valenti Disposal Safety Incorporated
IV-D-43	E. Roy Baggett Sanders Lead Co., Inc.
IV-D-44	N.J. Carmen Sierra Club, Loan Star Chapter
IV-D-45	R.N. Steinwurtzel Association of Battery Recyclers
IV-D-46	K. Parameswaren ASARCO Inc.

Comment: Six commenters (IV-D-39, IV-D-40, IV-D-41, IV-D-43, IV-D-45, and IV-D-46) agreed that because batteries manufactured in the United States are no longer made with PVC plastic separators, the PVC content in the used lead-acid battery feedstock is decreasing dramatically and will dwindle to negligible levels by the time HCl emission controls would be installed under the rule. These commenters argued that because PVC is the source of chlorides, emissions of HCl and Cl<sub>2</sub> will decrease even in the absence of a Federal rule. The controls are costly and would provide negligible, if any, environmental benefit. One commenter (IV-D-45) stated that their organization provided the EPA with data showing a tenfold reduction in the percent of PVC-containing batteries available for recycling in the United States between 1990 and 1995.

Response: The EPA agrees with the commenters that HCl/Cl<sub>2</sub> emissions will decline because PVC is no longer used as a separator material.

Comment: One commenter (IV-D-39) supported the withdrawal of the HCl/Cl<sub>2</sub> standard because an HCl/Cl<sub>2</sub> standard would discourage the use of pollution prevention technologies at secondary lead smelters. According to the commenter, the economic benefits of battery paste desulfurization, which increases furnace efficiency and controls SO<sub>2</sub> emissions, would be diminished because a scrubber to control HCl/Cl<sub>2</sub> would also control SO<sub>2</sub> emissions. Consequently, installing scrubbers would halt the move toward battery paste desulfurization technology as an SO<sub>2</sub> emission control. Battery paste desulfurization provides a significant reduction in energy use in the furnace and offers the ability to recover a marketable product instead of generating wastes (sludge and wastewater) from a scrubber.

The commenter (IV-D-39) argued that emission control strategies that prevent pollution generation are preferable to those that remove the pollutants at the point of release. Compared to paste desulfurization, scrubbers adversely affect

the environment by generating increased wastewater and solid waste and by increasing energy consumption and combustion gas emissions at off-site power plants.

According to the same commenter (IV-D-39), feed desulfurization is also an essential initial processing step if the electrolytic recovery of lead from battery paste is to be implemented. Recovery of lead through electrowinning is an important emerging technology which has many environmental advantages and has strong EPA and State level support. Lead electrowinning would greatly reduce the air emissions associated with pyrometallurgical furnaces and minimize the production of slag which must be land disposed. Since feed desulfurization is the first step in this process, any move away from desulfurization in the industry would delay or potentially stop progress toward the commercialization of this environmentally superior process, according to the commenter.

Response: The EPA agrees that the HCl/Cl<sub>2</sub> standard should be withdrawn. The EPA also agrees that battery paste desulfurization may be used to control some fraction of SO<sub>2</sub> emissions. However, EPA data indicate that some secondary lead smelters that practice battery paste desulfurization also have SO<sub>2</sub> scrubbers (see docket items II-B-5 and II-B-7). Therefore, the impact of an HCl/Cl<sub>2</sub> emission standard on the practice of paste desulfurization is difficult to predict. However, the EPA agrees that, compared to paste desulfurization, scrubbers may increase energy consumption and generate increased wastewater and solid waste.

The EPA agrees that lead electrowinning would reduce air emissions associated with pyrometallurgical furnaces. However, because HCl/Cl<sub>2</sub> emissions are produced from combustion processes, electrowinning technologies would produce no HCl/Cl<sub>2</sub> emissions. Consequently, an HCl/Cl<sub>2</sub> standard would not be expected to discourage the use of this technology. In any case, the EPA is not promulgating HCl/Cl<sub>2</sub> emission standards, nor are any of the standards applicable to

emerging non-pyrometallurgical processes such as electrowinning.

Comment: Two commenters (IV-D-43 and IV-D-45) supported the withdrawal of the HCl/Cl<sub>2</sub> standard due to the cost of scrubbers. One of these commenters (IV-D-43) stated that no economic analysis had been conducted on the impact of installing scrubbers to comply with the standard. The other commenter (IV-D-45) stated that the high cost of scrubbers is unjustified because the effect of these scrubbers on HCl/Cl<sub>2</sub> emissions would be negligible due to the decrease of PVC content in the battery feedstock.

Response: As stated in section 2.3.4.3, the EPA previously believed that fluxing could be used to control HCl/Cl<sub>2</sub> emissions and did not include the cost of scrubbers to control emissions. However, based on the emission test results described in section 2.3.4.3, the EPA may have over-stated the effectiveness of this control technique. Regardless, after reviewing the recent data on the decrease of PVC content in the battery feedstock, the EPA concluded that an HCl/Cl<sub>2</sub> standard is not necessary and a scrubber economic impact analysis is, therefore, not needed.

Comment: One commenter (IV-D-42) expressed concerns about air quality impacts from smelters' SO<sub>2</sub> and other acid gas emissions and stated that the EPA should not withdraw the HCl/Cl<sub>2</sub> requirement until it develops a coordinated regulatory policy with other EPA offices for the control of SO<sub>2</sub>, other acid gases, and lead. The commenter stated that PVC plastic separators are not the only source of chlorine in the battery feedstock because some smelters include their employees' lead-contaminated personal protective equipment in the feedstock. Some of this protective equipment is made of PVC and contains up to 56 percent by weight chlorine. The commenter requested that until the EPA determines the extent of this practice, the amount of chlorine contributed, and whether or not this disposal practice is allowed under the RCRA boilers and industrial furnaces (BIF) rule, the NESHAP should continue to

regulate HCl/Cl<sub>2</sub> emissions. The commenter requested that the EPA establish standards that result in the maximum control of acid gases from secondary lead smelters by mandating technologies such as flue gas scrubbers and practices such as battery paste desulfurization and furnace fluxing to remove chlorides.

Response: The EPA has received data (see docket item IV-D-47) indicating that the personal protective equipment in a smelter's feedstock amounts to less than 1 ton per year. If all of this equipment consisted of PVC and all available chlorides were emitted, less than 0.5 tons per year of HCl/Cl<sub>2</sub> emissions would result. However, the actual PVC and chloride content of personal protective equipment is significantly below the level estimated by the commenter. For this reason and because of the decrease in the PVC content of the battery feedstock, the EPA has concluded that total HCl/Cl<sub>2</sub> emissions from secondary lead smelters will be negligible and no HCl/Cl<sub>2</sub> standard is warranted.

The EPA is considering under a separate action whether the disposal of PPE in the smelting furnaces is allowed under the BIF rule.

Scrubbers presently installed in the secondary lead smelting industry are in place due to Prevention of Significant Deterioration or New Source Review permitting activities. Sulfur dioxide is not a HAP and the EPA is prohibited from using an HCl/Cl<sub>2</sub> standard as a means of enforcing SO<sub>2</sub> control requirements.

Comment: One commenter (IV-D-44) agreed that HCl/Cl<sub>2</sub> emissions are declining as a result of the decrease of PVC battery separators in the feedstock. The commenter stated, however, that the EPA should require the HCl/Cl<sub>2</sub> standard for a period of 3 to 5 years, or until sources can demonstrate no HCl/Cl<sub>2</sub> emissions using emission performance tests. The commenter stated several reasons for retaining the HCl/Cl<sub>2</sub> standard during this period. According to the commenter, HCl/Cl<sub>2</sub> is easy to control and the required controls are not

too expensive "as long as a facility is producing HCl gases." Because HCl/Cl<sub>2</sub> is a strong acid, its emissions cause adverse health effects and property damage. These emissions are of particular concern with respect to environmental justice because many smelters are located in low-income, minority neighborhoods, according to the commenter.

Response: Data obtained by the EPA indicate that the percent of PVC-containing batteries available for recycling in the United States decreased tenfold between 1990 and 1994, with PVC content accounting for less than one tenth of one percent of the total battery feedstock (see docket item IV-D-34). Because PVC separators are no longer used in batteries, this trend will continue and the PVC content of the battery feedstock will decline to negligible levels by the 1997 effective date of this rule. Because the PVC content of the battery feedstock is the source of HCl/Cl<sub>2</sub> emissions, an HCl/Cl<sub>2</sub> standard would have negligible, if any, environmental benefits. Consequently, HCl/Cl<sub>2</sub> controls, performance tests, or temporary emission standards would not be economically justifiable.

For example, a large secondary lead smelter (100,000 tons per year lead production capacity) would process about 40,000 lead-acid automobile batteries per day. In 1990, about 1 percent of the batteries available for recycling (400 batteries per day at a large smelter) contained PVC plastic separators. Each battery with PVC separators would contain about 1 pound of PVC separator material. The PVC used in battery separators is nearly all PVC homopolymer with very little modifiers added, so this PVC would be about 57 percent chlorine by weight. Therefore, each battery with PVC separators would contain about 0.6 pounds of chlorine. Based on these numbers, a large smelter in 1990 would emit about 240 pounds of HCl/Cl<sub>2</sub> per day, or about 45 tons per year. This estimate assumes that all of the available chlorides are released as HCl/Cl<sub>2</sub> air emissions and none are retained in the slag.

In 1994, the frequency of batteries available for recycling that contained PVC separators had dropped to 0.1 percent of all batteries available for recycling. This frequency translates to a maximum HCl/Cl<sub>2</sub> emission rate from a large smelter of about 4 tons per year. Because no new automotive batteries are being manufactured with PVC separators, this trend will continue and HCl/Cl<sub>2</sub> emissions from a large smelter will be no more than 1 or 2 tons per year by the rule's effective date in 1997. Emissions of HCl/Cl<sub>2</sub> will continue to decline after that date as very old batteries with PVC separators become less and less frequent among those available for recycling.



