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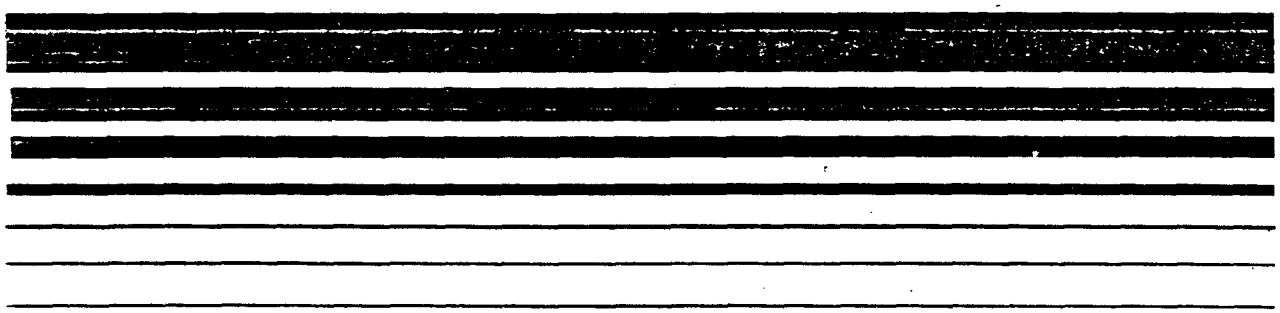
Calciners and Dryers in Mineral Industries - Background Information for Promulgated Standards

Final EIS



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Calciners and Dryers in Mineral Industries - Background Information for Promulgated Standards

Emission Standards Division

U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Air and Radiation
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711
December 1991

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ENVIRONMENTAL PROTECTION AGENCY

Background Information and Final
Environmental Impact Statement
for Calciners and Dryers in Mineral Industries

Prepared by:

for [signature] 12/10/91

Bruce C. Jordan
Director, Emission Standards Division
U. S. Environmental Protection Agency
Research Triangle Park, NC 27711

Date

1. The standards of performance would limit emissions of particulate matter from calciners and dryers in mineral industries. Section 111 of the Clean Air Act (42 U.S.C. 7411), as amended, directs the Administrator to establish standards of performance for any category of new stationary source of air pollution that ". . . causes or contributes significantly to air pollution which may reasonably be anticipated to endanger public health or welfare."

2. Copies of this document have been sent to the following Federal Departments: Labor, Health and Human Services, Defense, Office of Management and Budget, Transportation, Agriculture, Commerce, Interior, and Energy; the National Science Foundation; and the Council on Environmental Quality. Copies have also been sent to members of the State and Territorial Air Pollution Program Administrators; the Association of Local Air Pollution Control Officials; EPA Regional Administrators; and other interested parties.

3. For additional information contact:

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4. Copies of this document may be obtained from:

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1. SUMMARY

On April 23, 1986, the U. S. Environmental Protection Agency (EPA) proposed standards of performance for calciners and dryers in mineral industries (51 FR 15438) under authority of Section 111 of the Clean Air Act (CAA). Public comments were requested on the proposal in the Federal Register. There were 14 commenters composed mainly of industry representatives, trade associations, and a State agency. Twelve presentations were made at the public hearing on June 9, 1986. The comments that were submitted, along with responses to these comments, are summarized in this document. The summary of comments and responses serve as the basis for revisions made to the standards between proposal and promulgation.

1.1 SUMMARY OF CHANGES SINCE PROPOSAL

In response to the public comments and as a result of EPA's reevaluation, a change was made to the definition of "mineral processing plant" in the standards. Specifically, the definition was revised to provide that a new, modified, or reconstructed dryer or calciner which processes a mixture of minerals is covered by the standards if the majority of the material being processed (greater than 50 percent) is any of the following minerals or a combination of these minerals: alumina, ball clay, bentonite, diatomite, feldspar, fire clay, fuller's earth, gypsum, industrial sand, kaolin, lightweight aggregate, magnesium compounds, perlite, roofing granules, talc, titanium dioxide, and vermiculite.

The following changes were made to the opacity monitoring requirements in response to the public comments and as a result of EPA's reevaluation. Except for the following process units, owners and operators of affected calciners and dryers that use a dry control device to comply with the mass emissions standard are required to install and operate a continuous opacity monitoring system (COMS). Owners or operators of ball clay vibrating grate dryers, bentonite rotary dryers, diatomite flash dryers, diatomite rotary calciners, feldspar rotary dryers, fire clay rotary dryers, industrial sand fluid bed dryers, kaolin rotary calciners, perlite rotary dryers, roofing granules fluid bed dryers, roofing granules rotary dryers, talc rotary calciners, titanium dioxide fluid bed dryers, titanium dioxide spray dryers,

vermiculite fluid bed dryers or vermiculite rotary dryers who use a dry control device may have a certified visible emission observer measure and record the opacity of the visible emissions daily in lieu of using a COMS. Owners or operators of ball clay rotary dryers, diatomite rotary dryers, feldspar fluid bed dryers, fuller's earth rotary dryers, gypsum rotary dryers, gypsum flash calciners, gypsum kettle calciners, industrial sand rotary dryers, kaolin rotary dryers, kaolin multiple hearth furnaces, perlite expansion furnaces, talc flash dryers, talc rotary dryers, titanium dioxide direct or indirect rotary dryers or vermiculite expansion furnaces who use a dry control device are exempt from the monitoring requirements.

In Section 60.734(d), a technical correction was made to the final standards to clarify the monitoring and recordkeeping requirements for facilities which are controlled by wet scrubbers. For operation and maintenance purposes, the only requirement for monitoring devices at this time are daily zero and span checks. Therefore, semiannual recalibration requirements for monitoring devices in Section 60.734 have been deleted from the final standards.

Section 60.735(b) was added to clarify that each owner or operator who uses a wet scrubber to comply with the standards must record daily an arithmetic average over a 2-hour period of both the change in pressure of the gas stream across the scrubber and the scrubbing liquid flowrate.

1.2 SUMMARY OF IMPACTS OF PROMULGATED ACTION

1.2.1 Alternatives to promulgated Action

The regulatory alternatives are discussed in Chapter 6 of the Background Information Document (BID) to the proposed standards (EPA-450/3-85-025a). These regulatory alternatives reflect the different levels of emission control from which one was selected that represents the best demonstrated

technology, considering costs, nonair quality, health, and environmental and economic impacts for mineral processing plants. These alternatives remain the same.

1.2.2 Environmental Impacts of Promulgated Action

The environmental impacts of the standards are presented in Chapter 7 of the BID for the proposed standards. A review of these impacts indicated no changes were necessary and, therefore, the impacts remain unchanged since proposal.

The analyses of environmental impacts presented in the BID for the proposed standards constitutes the final Environmental Impact Statement.

1.2.3 Economic and Energy Impacts of Promulgated Action

The economic impact of the standards are discussed in Chapter 9 of the BID for the proposed standards. These economic impacts have been reviewed and remain unchanged for the promulgated standards.

The energy impacts of the standards are discussed in Chapter 7 of the BID for the proposed standards and remain unchanged for the promulgated standards.

1.2.4 Other Considerations

1.2.4.1 Irreversible and Irretrievable Commitment of Resources

Chapter 7 of the BID for the proposed standards contains a discussion of irreversible and irretrievable commitment of resources. These impacts remain unchanged.

1.2.4.2 Environmental and Energy Impacts of Delayed Standards

Chapter 7 of the BID for the proposed standards contains a discussion of the environmental and energy impacts of delayed standards. These impacts remain unchanged.

2. SUMMARY OF PUBLIC COMMENTS

A total of 14 letters commenting on the proposed standards and the BID for the proposed standards were received. In addition, a public hearing on the proposed standards was held on June 9, 1986, and 12 industry representatives gave oral comments on the proposed standards. A list of the commenters, their affiliations, and EPA docket numbers assigned to their comments is given in Table 2-1.

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

(1) Need for Standards and Selection of Source Category
(2) Selection of Affected Facility and Reconstruction Provisions
(3) Emission Control Technology
(4) Economic Impact
(5) Environmental Impact
(6) Energy Impact
(7) Selection of Best Demonstrated Technology
(8) Selection of Format of Standards
(9) Selection of Emission Limits
(10) Test Methods and Monitoring
(11) Reporting and Recordkeeping
(12) Miscellaneous

The comments, the issues they address, and EPA's responses are discussed in the following sections of this chapter. Changes to the regulation are summarized in section 1.1 of Chapter 1.

TABLE 2-1. LIST OF COMMENTERS ON THE PROPOSED STANDARDS OF PERFORMANCE FOR CALCINERS AND DRYERS IN THE MINERAL INDUSTRY

Docket Entry Number[a]	Commenter/Affiliation
IV-D-1	Frank DeVooght Texas Air Control Board 6330 Hwy. 290 East Austin, kTX 78723
IV-D-2	Kim A. Nelson North American Refractories Company P. O. Box 56 Curwensville, PA 16833
IV-D-3	Ben A. Brodovicz Commonwealth of Pennsylvania Department of Environmental Resources P.O. Box 2063 Harrisburg, PA 17120
IV-D-4	R. W. Piekarz Eagle-Picher Industries, Inc. 1755 E. Plumb Lane Reno, NV 89510
IV-D-5	Roger A. Kauffman Hecla Mining Company 6500 Mineral Drive Box C-8000 Coeur D'Alene, ID 83814
IV-D-6	Andrew G. Kopas Harshaw/Filtrol Partnership P.O. Box 39189 Cleveland, OH 44139
IV-D-7	John W. Harris International Mineral and Chemical Corp. Mundelein, IL 60060
IV-D-8	Richard M. Jaffee Sorptive Minerals Institute 605 Fourteenth Street, NW Washington, DC 20005

[a]The designations represent docket entry numbers for Docket No. A-82-39. These documents are available for public inspection at: U. S. Environmetal Protection Agency, Air Docket Section (LE-131), Waterside Mall, Room 1500, 1st Floor, 401 M Street, S. W., Washington, D. C. 20460.

TABLE 2-1. LIST OF COMMENTERS ON THE PROPOSED STANDARDS OF PERFORMANCE FOR CALCINERS AND DRYERS IN THE MINERAL INDUSTRY

Docket Entry Number[a]	Commenter/Affiliation
IV-D-9, IV-F-1	Harry C. Robinson Expanded Shale Clay and Slate Institute 6218 Montrose Road Rockville, MD 20852
IV-D-10, IV-F-1	George S. Kosko SOLITE Corporation P. O. Box 27211 Richmond, VA 23261
IV-D-11	J. S. Boyt Aluminum Company of America 1501 Alcoa Building Pittsburgh, PA 15219
IV-D-12, IV-F-1	W. W. Allen, Jr. Hydraulic Press Brick Company P. O. Box 7 Brooklyn, IN 46111
IV-D-13, IV-F-1	J. Derman Norlite Corporation P. O. Box 694 Cohoes, NY 12047
IV-D-14	R. H. Griffin North American Refractories, Co. P. O. Box 56 Curwensville, PA 16833
IV-F-1	William A. Hendrick Carolina Stalite
IV-F-1	Edgar E. Martin Expanded Shale Clay and Slate Institute 6218 Montrose Road Rockville, MD 20852
IV-F-1	H. B. Rushing Big River Industries, Inc.
IV-F-1	Dave McNeel Arkansas Lightweight Aggregate

TABLE 2-1. LIST OF COMMENTERS ON THE PROPOSED STANDARDS OF PERFORMANCE FOR CALCINERS AND DRYERS IN THE MINERAL INDUSTRY

Docket Entry Number	Commenter/Affiliation
IV-F-1	Carston Mortenson Utelite Corporation
IV-F-1	P. W. Martin Chandler Materials Company
IV-F-1	Charles Marvin The Refractories Institute
IV-F-1	Joseph Evans Fuller Company

2.1 NEED FOR STANDARDS AND SELECTION OF SOURCE CATEGORY

2.1.1 Comment (IV-D-5)

One commenter stated that EPA should select Regulatory Alternative I which is equivalent to no additional control beyond that required by individual States because the cost of replacing present dust collection systems is not justified by the very small reduction in particulate emissions.

Response: The commenter has misinterpreted what dryers and calciners are subject to this new source performance standard (NSPS). Existing dryers and calciners are not covered by this standard unless they are modified or reconstructed. As stated in the preamble to the proposal standards, the vast majority of dryers and calciners affected by these standards will be new facilities because very few calciners and dryers in the 17 mineral industries would fall under the modification or reconstruction provisions. For those dryers and calciners that fall under these provisions, no cost increases will be incurred for many of these sources as existing control equipment is often achieving the NSPS emission levels. For affected facilities presently controlled by baghouses not presently achieving the standard, the NSPS emission limits can be achieved by increasing the maintenance of fabric filters. For dryers and calciners that become affected facilities by modification or reconstruction and are presently controlled by wet scrubbers or electrostatic precipitators (ESP's), some may incur retrofit costs. However, as stated in the preamble to the proposed standards (51 FR 15438, April 23, 1986), EPA does not believe any existing control devices will have to be replaced as a result of the NSPS. These costs would not differ significantly from the annualized costs for new facilities. For 15 of the 17 industries covered by these standards, the product price increases for new sources that would result from implementation of this NSPS would be typically less than 0.5 percent. For the other two industries, the product price increase would be less than 2 percent. Therefore, the economic impact of this NSPS was found to be reasonable.

Concerning the reduction in particulate emissions, in the fifth year after the NSPS for calciners and dryers in mineral industries is in effect, nationwide emissions of particulate matter would decrease by 7,900 megagrams (Mg) (8,800 tons) compared to emissions allowed under typical state implementation plans (SIP's). This represents a 78 percent reduction in emissions compared to Regulatory Alternative I. This is a significant reduction in particulate matter emissions. As discussed in the response to comment 2.1.2, EPA concluded that this standard reflects the best demonstrated technology (BDT) and is therefore promulgating it as required by Section 111 of the Clean Air Act.

2.1.2 Comment (IV-D-8, IV-F-1)

One commenter wrote that EPA has submitted no evidence which suggests that plants complying with existing environmental rules or regulations violate national ambient air quality standards (NAAQS) for particulate matter. The existing requirements for particulate control for the fuller's earth industry are more than adequate and present emission levels do not endanger public health and welfare. The commenter stated that this industry should be excluded from this NSPS. He stated that fuller's earth is inert and contains no hazardous constituents. Also, the commenter felt that the same logic used for exempting other industries from this NSPS because of their unique characteristics should have been used for the fuller's earth industry.

Another commenter from the refractories industry stated that EPA has presented no data which substantiates the effect calciners and dryers in the mineral industry may currently have on public health. In particular, he pointed to the absence of scientific data to show any public health endangerment from the calcining or drying of alumina, ball clay, bentonite, fire clay, kaolin and magnesite which are refractory raw materials. Considering the absence of any public health data and the fact that the majority of refractory plants are in rural areas, he questioned whether the public health aspects of the proposed standards have been clearly defined and justified to show the need for this standard.

Response: Under Section 111(b)(1) of the CAA, the EPA Administrator is required to publish and periodically revise a list of categories of stationary sources. A source category is to be included on the list "... if in his judgment it causes, or contributes significantly to, air pollution which may reasonably be anticipated to endanger public health or welfare." Such categories are referred to as "significant contributors", National Asphalt Pavement Association v. Train 539 F. 2d 775 (D.C. Cir. 1976). The Act then requires that NSPS reflecting the BDT as defined in Section 111(a)(1) be promulgated for all listed source categories. The language of the Act does not require absolute proof that health or welfare has been harmed by emissions from a source category before the category is listed. In fact, the legislative history stresses two points:

(1) The Act is preventive, and regulatory action should be taken to prevent harm before it occurs; and

(2) The Administrator should consider the contribution of each single class of sources to the cumulative impact of all particulate matter emitters.

On August 21, 1979, the Administrator promulgated a priority list of source categories for which NSPS are to be promulgated (44 FR 49225). This action was required under the 1977 CAA Amendments [Section 111(f)]. Development of the priority list was initiated by compiling data on a large number of source categories and ranking them using the three criteria specified in Section 111(f) of the CAA. In this ranking, first priority was given to quantity of emissions, second to potential impact on health and welfare, and third priority was given to the mobility and competitive nature of the source category.

There are six source categories currently listed on the NSPS priority list (August 21, 1979, 44 FR 49225, revised January 8, 1982, 47 FR 950) that include all 17 mineral industries being covered by the NSPS. Number 13 on the priority list is Nonmetallic Mineral Processing, which includes sand and gravel, clay (ball clay, bentonite, fuller's earth, kaolin), talc, feldspar, diatomite, roofing granules, and vermiculite. Number 14 on the priority list, Metallic Mineral Processing, includes aluminum, magnesium compounds, and titanium. The lightweight aggregate (LWA) industry (clay, shale,

slate) is Number 32 on the NSPS priority list. Numbers 34, 46, and 54 on the list are gypsum, brick and related clay products (fire clay), and perlite, respectively.

These industries were included on the NSPS priority list because of their emissions of particulate matter. Particulate matter is a criteria pollutant which has been determined to be an air pollutant which may endanger public health and welfare and for which NAAQS have been promulgated (40 CFR 50.6, 50.7). Fuller's earth, alumina, ball clay, bentonite, fire clay, kaolin, magnesite, and other dusts emitted by the industries covered by the NSPS are types of particulate matter. The basis for the Administrator's determination that particulate emissions may endanger public health and welfare is presented in the rulemaking setting and revising the NAAQS for particulate matter (52 FR 24634, July 1, 1987).

As stated in Section 2.1.1, the main purpose of NSPS is to minimize increases in air pollution from new sources, thereby improving air quality as the nation's industrial base is replaced over time. It is not the purpose of NSPS to bring new sources in compliance with the particulate matter NAAQS. The EPA has considered the emission reductions and costs and other impacts due to emission controls and has concluded that the controls underlying the standards are BDT. The EPA is therefore promulgating standards that reflect BDT.

The estimated reduction in particulate emissions in the fifth year from the fuller's earth industry is approximately 240 Mg/yr. The estimated percent price increase for this industry is 1 percent or less. Because the emission reduction is significant and the economic impact on the fuller's earth industry is considered reasonable, the Agency does not believe including the fuller's earth industry in the NSPS will create a hardship for that industry.

2.1.3 Comment (IV-F-1)

One commenter felt that the local rules and regulations that apply in Southern California are sufficient to protect the environment. He recommended abandoning the proposed limit or changing it to an achievable level. Another commenter stated that State and local agencies currently have regulations that apply to these industries. In addition, he stated that wherever actual

documented need exists, SIP's are in place to make the necessary improvements because these plans consider both the magnitude of the need and the impact of each source. Because these plans are approved by EPA, the commenter questioned the need for this standard.

Response: As stated in section 2.1.2, the legislative history of the CAA stresses two points:

(1) The Act is preventive and regulatory action should be taken to prevent harm before it occurs; and

(2) The Administrator should consider the contribution of each single class of sources to the cumulative impact of all particulate matter emitters.

In addition, all of the industries covered by these standards have been listed on the NSPS priority list (44 FR 49225, August 21, 1979, revised January 8, 1982).

Standards of performance required by Section 111 play a unique role under the CAA. The main purpose of standards of performance is to require new sources, wherever located, to reduce emissions to the level achievable by the best technological system of continuous emission reduction considering the cost of achieving such emission reduction, any nonair quality health and environmental impact, and energy requirements (BDT) [Section 111(a)(1)]. Congress recognized that establishing such standards would minimize increases in air pollution from new sources, thereby improving air quality as the nation's industrial base is replaced over the long term. An NSPS thereby serves as a distinct means of achieving the Act's goals, supplementing the role played by the requirements including Reasonably Available Control Technology requirements for existing and new sources within SIP's developed for the purpose of attaining the NAAQS.

The existence of other environmental regulations was considered during selection of BDT, but their existence does not lead the EPA to conclude that standards reflecting better control technology are not necessary or cannot be applied at reasonable costs.

2.1.4 Comment (IV-F-1)

Three commenters stated that the LWA industry is not a source which "may reasonably be anticipated to endanger public health or welfare." These commenters stated that most LWA plants are located in rural areas

making it less probable that these emissions would endanger public health. One of the commenters stated that LWA plants are normally located on large tracts of rural land where particulate emissions that do occur remain on the plant sites. Another commenter stated that the air quality review in the BID showed that the impact of emissions from a typical plant are not significant for the annual period and barely significant for the maximum 24 hour period.

Response: As stated in section 2.1.2, the Administrator considers the contribution of each single class of sources to the cumulative impact of all particulate matter emitters. The LWA industry was listed number 32 on the NSPS priority list. In this ranking, first priority was given to the quantity of emissions, second to the potential impact on health and welfare, and third priority was given to the mobility and competitive nature of the source category. The commenter did not submit, nor is EPA aware of information that would cause EPA to revise its 1979 decision that the LWA industry is a significant contributor.

The estimated reduction in particulate emissions in the fifth year from the LWA industry is 460 Mg/yr. The estimated percent price increase for this industry, assuming a selling price of $18/Mg, is 1 percent or less. In addition, as discussed in Section 2.4.4, EPA evaluated the potential competitive advantage that might be given to substitutes for LWA as a result of this NSPS and concluded that there would be no competitive disadvantage for the LWA industry. Because the emission reduction is significant and the economic impact on the LWA industry is considered reasonable, the Agency does not believe that including the LWA industry in the NSPS will create a hardship for that industry.

2.1.5 Comment (IV-F-1)

One commenter from the LWA industry felt it was improper to include that industry in a standard which applies to a very wide variety of processes and sources, most of which are very different from LWA industry's processes and sources.

Response: As discussed in the preamble to the proposed standards (51 FR 15438, April 23, 1986), the emission sources (calciner and dryer processing units) in the industries covered by the NSPS process materials

that can be controlled with similar effectiveness, costs, and control techniques. In the proposal BID, the particular characteristics of the LWA industry are addressed in Chapters 3, 6, 8 and 9. In Chapter 3, there is a discussion of the type of processing equipment employed in the LWA. In Chapter 6, model plants were developed for each dryer/calciner type in all 17 mineral industries so that impacts of this NSPS could be determined. In Chapters 8 and 9, the cost of controlling the type of calciners used by the LWA industry to the NSPS level is presented and the economic impact on the industry of requiring the NSPS level of control is analyzed. In addition, based on the results of EPA's test program, it was concluded that the LWA industry was amenable to the same control technology and emission limits as the other sources and industries covered by this NSPS. Because the cost and economic impacts on the LWA industry as a result of this NSPS were found to be reasonable (see sections 2.4.3 and 2.4.4), it was determined that there was no reason to exempt the LWA industry from this NSPS.

2.1.6 Comment (IV-D-6, IV-D-11)

One commenter stated that EPA addressed the classical production of alumina for use in large volume applications, such as production of aluminum metal and refractories in the analyses in the BID. However, the commenter pointed out that a much smaller market exists for the production of specialty alumina. The commenter stated that the BID characterizes a small model facility as being 25 tons per hour while in the specialty market the facilities range from 0.25 to 5 tons per hour. The commenter believed that the costs associated with the proposed standards are extremely high considering the lack of emissions and the lower volume of product produced. He recommended that calciners and dryers with capacities of less than 10 tons per hour be exempted from the standards.

One commenter stated that their alumina calciner processes at a much lower rate (1-2 tons of material per hour) than the much larger dryers and calciners that it appears these standards were intended to regulate. The commenter suggested exempting smaller dryers and calciners.

Response: In developing standards of performance, the EPA is mandated, under Section 111 of the CAA, to develop standards that reflect the degree of emission limitations achievable through application of the best

technological system of continuous emission reduction (taking into consideration cost, nonair quality health and environmental impacts, and energy requirements) (BDT). Where appropriate, the EPA has promulgated separate requirements for certain subcategories of industrial source categories, as authorized by Section 111(b)(2). These subcategories may be defined by various criteria including size of operation and type of material processed. Typically, this need for special consideration arises from one of several causes. For example, there may be economies of scale apparent within an industry that would cause a standard applied across the industry to have disproportionately adverse economic impacts on small facilities. Also, there may be reasons of technical feasibility that would result in certain segments of an industry being regulated differently or exempted from coverage. Such decisions are made for specific reasons for specific subcategories.

In analyzing the technical and economic impacts of the proposed standard for the calciners and dryers in the mineral industries, the EPA could find no reasons to exempt affected facilities below a certain size limit. Since the commenter indicates that the process equipment would already have a control device affixed to it, technical feasibility is not an issue. Likewise, the major cost of meeting the standard is the application of a control device. The commenter stated that air flow would probably be less than 20,000 acfm. There are numerous dryers/calciners model plants with air flow rates less than 20,000 acfm. The lowest is 2,500 acfm. While the commenters are correct that their facilities are smaller than the model alumina facilities included in EPA's regulatory impact analysis, the incremental cost of control associated with this NSPS was estimated to be negative for all of the model alumina facilities in the analysis due to the value of the recovered alumina product. Based on EPA's analysis of the cost impacts on small model facilities in other industries, EPA believes the costs of control associated with this NSPS are reasonable even for small alumina facilities. The incremental cost of an initial performance test and the minimal recordkeeping required by these standards will not have a significant economic impact on these operations. Thus, EPA has decided that these standards will cover all affected facilities regardless of size.

2.2 SELECTION OF AFFECTED FACILITY AND RECONSTRUCTION PROVISIONS

2.2.1 Comment (IV-D-6)

One commenter questioned whether a calciner that handles a mixture of material, including some of the minerals regulated by this NSPS, is subject to this NSPS.

Response: Any dryer or calciner which processes or produces any of the following minerals, their concentrates or any mixture of which the majority (> 50 percent) is any of the following minerals or a combination of these minerals is covered by the NSPS: alumina, ball clay, bentonite, diatomite, feldspar, fire clay, fuller's earth, gypsum, industrial sand, kaolin, lightweight aggregate, magnesium compounds, perlite, roofing granules, talc, titanium dioxide, and vermiculite. The definition of "mineral processing plant" in section 60.731 has been revised to clarify this point.

2.2.2 Comment (IV-F-1, IV-D-14)

One commenter stated that his primary concern with this NSPS is the reconstruction provision because at his plant if a kiln were modified or reconstructed the current control device (low energy wet scrubber) would need to be replaced by a baghouse and the cost of installing a new baghouse would be prohibitive because the scrubber does not rely on gas pressure drop for collection efficiency and cannot be upgraded.

Another commenter stated that an NSPS should be limited to new facilities. Relative to the refractories industry in particular, the commenter stated that the application of stringent regulations to existing plants through the modification and reconstruction provisions can only serve to place additional economic pressures on manufacturers and could cause facilities to be closed due to the cost of compliance.

Response: The EPA believes that, for this industry, a baghouse or a venturi scrubber with a pressure drop of 23 inches can lower emissions to the NSPS level based on emission test results. The cost and economic impacts for these control options are considered reasonable and are discussed in Chapters 8 and 9 of the BID for the proposed standards and in the response to comment 2.4.3.

The EPA disagrees with the commenters' concerns about the economic impact on existing facilities. As stated in the preamble to the proposed standards (51 FR 15438, April 23, 1986), it was estimated that 104 existing calciners and dryers would be replaced in the first 5 years that the NSPS is in effect. The costs associated with upgrading of existing control systems for these facilities were estimated and the economic impacts analyzed and determined to be reasonable. In some cases, it may not be possible or desirable to upgrade an existing control device depending on the remaining useful life of the equipment and limitations on its performance. In these cases, the existing control device may have to be replaced. The short-term economic impact would be higher than estimated by EPA in these situations. However, because all existing calciners and dryers in the mineral industries covered by this NSPS currently control their emissions either to comply with State regulations or to recover products, there would be no competitive disadvantage for the few plants which face this situation, and the long-term economic impact would be as estimated by EPA.

2.3 EMISSION CONTROL TECHNOLOGY

2.3.1 Comment (IV-D-2, IV-F-1)

Several commenters stated that the NSPS emission limits (Regulatory Alternative III) do not allow for the use of low energy wet scrubbers, because control devices with greater energy consumption are required to achieve these limits. They felt that energy consumption is an important consideration in the selection of a control device and it is inappropriate to regulate against the use of an energy-efficient device in the face of increasing foreign competition. Another commenter stated that the 0.04 gr/dscf standard could not be achieved for a lightweight aggregate rotary calciner controlled by a venturi scrubber with a pressure drop of 6 inches. The commenter stated that their experience shows the controlled emissions to be in the 0.1 to 0.13 grains per dry standard cubic foot (gr/dscf) range.

Response: The EPA does not necessarily recommend the use of a high pressure drop scrubber or any other emission control technology to attain and maintain compliance with the performance requirements of this standard. Compliance with the pollutant concentration limits of this standard can generally be achieved by application of one of many alternative emission control strategies, and, for a specific case, the EPA does not require that a particular control device be used.

In several industries, EPA has determined that low energy wet scrubbers (pressure drops less than 6 inches of water gauge) can achieve the standard based on emission test data presented in Chapter 4 of the BID. The pressure drops required for scrubbers to meet the standards were based on the most difficult to control case for that particular process unit in each industry. Other process units in that industry that are less difficult to control should be able to comply with this NSPS using lower pressure drops.

When a scrubber is used to control particulate emissions from a dryer or calciner, the actual pressure drop necessary to reach the NSPS levels will vary from plant to plant. A rotary dryer in one of the commenter's (IV-D-2) plants was tested by EPA (See Plant F1 on page 4-42 of BID). Depending on the material processed, emission levels from a wet scrubber with a pressure drop of 12 inches of water column were 0.070 and 0.088 g/dscm (0.031 and 0.038 gr/dscf). To achieve 0.057 g/dscm (0.025 gr/dscf), scrubber modelling showed that an increase of only 2 inches of pressure drop is required. The predictive capability of this model has been widely demonstrated as discussed in the document entitled Venturi Scrubber Performance Model (EPA-600/2-77-172) (Docket No. IV-A-1). The increase in annualized cost was analyzed and is considered to be reasonable by EPA.

Using the model described above, EPA evaluated the pressure drop necessary for different facilities to meet the NSPS limits. In some cases, a high pressure drop (23 inches) was estimated to be necessary. In all cases, the cost, energy, and economic impacts, including the impact of foreign competition associated with the increased pressure drop were evaluated and determined to be reasonable by EPA.

2.3.2 Comment (IV-F-1, IV-D-13)

A commenter from the LWA industry stated that previous experience with baghouses was totally unsuccessful as bags would only last a week at a gas inlet temperature of 450°F. Another commenter in this industry stated that a baghouse used on a rotary kiln was discontinued at his plant due to problems related to the bags, i.e., burning and tearing and resulting bag replacement costs.

Response: Emission test results from another lightweight aggregate plant whose rotary kiln is controlled by a baghouse were obtained. The plant has experimented with many different filter fabrics and design modifications. The plant is currently using a 100 percent Teflon bag in addition to a patented modification of the bag cage. Bag failure and bag wear have been drastically reduced. In an 8-month period, there has been only one bag failure out of a total of 2,200 bags. Emission test results from this plant (K-5) are shown in Chapter 4 and Appendix C of the BID for the proposed standards. The outlet from the baghouse was 0.074 g/dscm (0.032 gr/dscf) and thus was able to achieve the NSPS emission limit.

As shown in Chapter 6 of the BID for the proposed standards, two control options were determined by EPA to be able to achieve the NSPS emission limit for LWA rotary calciners. These options are a baghouse with Nomex bags and a venturi scrubber with a pressure drop of 23 inches water gauge. As noted on page 4-14 of the BID, both Nomex and Teflon can treat gases with temperatures up to 420°F. Ambient air could be added to reduce the temperature from 450 to 420°F. A venturi scrubber could also be used with no adverse impact due to the gas temperature of 450°. Neither of these control options would have any severe economic impact on this industry.

2.3.3 Comment (IV-D-4)

One commenter disagreed with EPA's assessment that there would be no capital cost increases for baghouses used in 66 percent of the cases where these units could meet NSPS limits through better operation and increased maintenance. According to the commenter, the ores are naturally occurring heterogeneous solid material of slightly differing composition, purity, moisture and hardness. The softer crudes will yield more fine particles

during processing which increases the baghouse inlet grain loadings and can affect its performance. The commenter stated that increasing the fabric cleaning cycle can help, but this practice is detrimental to bag longevity and will accelerate fabric failures. According to the commenter, the baghouse must often be upgraded with the addition of another compartment.

Response: EPA agrees with the commenter that an increase in uncontrolled emissions may require an increase in the fabric cleaning cycle so that the baghouse pressure drop does not exceed design specifications. An increase in the cleaning cycle may decrease the bag life. EPA recognized this phenomena as the bag life that was specified and costed for the standard was 80 percent of the bag life used for the baseline.

As shown in Chapter 4 of the BID, all baghouses that were tested by EPA, or where State compliance tests were obtained, met the NSPS levels. It is reasonable to conclude that many baghouses presently operating to achieve emission levels set by SIP's can achieve NSPS emission limits without adding a new compartment.

2.3.4 Comment (IV-D-7)

One commenter wrote that the Agency has not adequately assessed all of the adverse economic impacts that the proposed standard would have on existing dryers using existing ESPs for emission control. The commenter stated that it would not be possible to achieve the standard through improved operation and maintenance but the specific collection area would need to be increased or the dryer's throughput would be required to be reduced. Both of these options would be more costly than improved operation and maintenance.

Response: Existing dryers and calciners and their control systems are not affected by this standard unless the dryers or calciners are modified or reconstructed. As stated in the preamble to the proposed standards, not many dryers and calciners in the 17 mineral industries would fall under the modification or reconstruction provisions. Information on how a dryer or calciner falls under these provisions is presented in the preamble and regulation for the proposed standard (51 FR 15438, April 23, 1986).

The EPA agrees with the commenter that, to achieve the NSPS emission limit, an increase in the specific collection area (SCA) may be required in comparison with the SCA used to comply with State regulations. As shown in Chapter 6 of the BID, the SCA would increase from 174 to 350 square feet of plate area per 1000 actual cubic feet per minute of air flow for fluid bed dryers in the bentonite industry. These SCA's were used in the development of control costs of the three regulatory alternatives considered. For the commenter's industry, the product price increase estimated to result from the NSPS is less than 0.3 percent.

2.3.5 Comment (IV-D-4)

One commenter stated that high moisture content within the flash dryer flue gases can cause fabric blinding problems that will affect the performance of a baghouse. Increased maintenance does little or nothing to solve the problem, according to the commenter. The commenter stated that increased capital investment in larger baghouses along with ripple-effect bag cleaning equipment and air heaters would be required. Therefore, the commenter believes the costs of control were underestimated by EPA.

Response: Two of the commenter's plants were visited during the development of this NSPS. Two flash dryers previously controlled by 60 inch pressure drop venturi scrubbers were replaced by baghouses. Compared to the scrubbers, the baghouses have required much less maintenance. If there is a problem with fabric blinding, a scrubber can be used. As shown in Chapter 6 of the BID, a scrubber with a gas pressure drop of 25 inches water gauge can achieve the standard. The product price increase is less than 0.5 percent so no adverse economic impacts are expected.

2.4 ECONOMIC IMPACT

2.4.1 Comment (IV-D-4)

One commenter questioned whether EPA has totaled the sum of all the incremental costs of all environmental regulations pertaining to the domestic mining industry. The commenter states that the total cost to comply with environmental regulations is becoming more burdensome to an already depressed industry.

Response: In estimating and analyzing the economic impact of these standards, only the incremental cost associated with complying with the standards was used. The other environmental regulations that the commenter refers to are already applicable to the different industries and are part of the normal cost of operation of any new plant. It is impossible to identify what percent of current operating costs is associated with complying with the various Federal, State, and local environmental regulations. The cost associated with these regulations will vary considerably depending on the stringency of the regulations and the method of compliance chosen by the individual plants. However, because these costs are already part of the normal operating costs of the industries and reflected in their current product prices, only the incremental cost and the resultant economic impact associated with this NSPS on top of the current operating costs and product prices could be evaluated. Based on the results of the economic impact analysis, the percent product price increase would be 2 percent or less for the industries covered by the standards. This impact has been determined to be reasonable considering the emission reduction of 7,900 Mg (8,800 tons) in the fifth year.

2.4.2 Comment (IV-D-8)

One commenter wrote that he does not agree with the background support document that states that the fuller's earth industry is not likely to experience significant economic effects due to this NSPS. The commenter stated that some industries may not be able to meet these new standards at all locations and may choose to keep old equipment.

Response: The 1982 price per ton for fuller's earth ranged from a low of $10.00 per ton for montmorillonite to a high of $69.89 per ton for attapulgite. The typical price per ton used for the price increase calculation was $54/ton. The highest price increase for any regulatory scenario for the fuller's earth industry was less than 1 percent. Based on the typical value of the product and the small price increase anticipated, it would indeed appear that such an impact on product price would be insignificant.

With regard to the discussion of aging equipment, it is a fact that some plants within the fuller's earth industry are approaching the end of their useful production life. Some of these plants are currently producing on a marginal profit basis. Although it is not possible to predict exact plants and schedules, some fuller's earth plants will close as a result of natural attrition in the absence of any regulations. Obsolete machinery, newer, more efficient and competitive plants, changing market demands and better substitute products would all influence the decision to close an aging plant returning only marginal profits, irrespective of the regulatory environment. The results of the economic analysis do not indicate that the maximum product price increase of less than 1 percent would be an important factor in the decision to modify or reconstruct an aging fuller's earth plant.

2.4.3 Comment (IV-F-1)

One commenter calculated the incremental capital cost for a lightweight aggregate calciner to be 10 to 20 times higher than the cost for other industries based on data in EPA's BID. Also, the commenter calculated the annual incremental cost for this industry to be 4-9 times that estimated by EPA for the other industries. If EPA had used actual costs of electricity, the commenter estimated that this difference would be even greater. He also calculated the percent product price increase to be significantly higher than that calculated by EPA. These costs and price increases seemed to be overly burdensome on the LWA industry to the commenter because only 5.8 percent of the total national particulate matter reduction would come from this industry.

Response: In order to assess the incremental cost of an NSPS, it is important to establish a common basis. One basis used by EPA is the incremental cost of the NSPS divided by the megagrams of reduction in particulate emissions. The range for the LWA industry depending on the type and size of the affected facility is $240 - $1,100/Mg. This is within the range of incremental cost per megagram for the other source categories.

Another measure of incremental cost is incremental cost versus the selling price of the product. Calculations were done to determine what impact the actual price paid for electricity by the commenter, which was

over double the cost EPA used in estimating costs, would have on the incremental annualized costs. If baghouses are used, there is no increase as electrical costs are the same. For scrubbers, there would be an additional incremental increase of $52,000 in annualized costs for a total increase in annualized costs of $114,000 using the commenter's electricity cost estimate. Based on a product price of $22/Mg for this industry, the percent product price increase including electrical costs would be 0.4 percent for baghouses and 2.4 percent for scrubbers. The Administrator considered these impacts to be reasonable and not overly burdensome.

2.4.4 Comment (IV-F-1)

Seven commenters stated that the LWA industry is declining due to rising energy costs, environmental control costs, and impacts of product substitutes, in particular pumice. Two of these commenters stated that if the proposed standard was implemented the LWA industry would suffer further decline. One commenter attributed this decline to their inability to pass through the cost of control to their customers. He pointed out that the LWA industry's prices have been staying behind the cost of living increases for the past several years because of competition. Two other commenters felt that the LWA industry would be destroyed by the proposed standard. One of these commenters stated that the additional environmental control costs would add more uncertainty to any investment consideration and, therefore, many companies would continue to operate old, existing sources. The commenter felt that the LWA industry would then die of old age and lack of reinvestment.

These commenters suggested that the LWA industry either be dropped due to economic reasons or that an alternative control level equal to current State regulations be selected. One of these commenters recommended that EPA reanalyze the economic impact on the LWA industry because he felt that EPA's current estimate represents just a fraction of the impact anticipated by the industry.

Response: As stated earlier in section 2.4.2, many factors influence a corporate decision as to whether it is prudent to invest in new, efficient equipment or to continue to operate old, existing equipment until operation is no longer possible. The product price increases attributable to the NSPS are quite small--less than 2 percent for all cases. The corporate decision to invest or reinvest in plant operations must be made in terms, of course, of expected profitability. New plants will be built when it is feasible and financially profitable to do so--this decision being driven by the price of the product and/or market demand. It is possible that various market forces external to the costs of NSPS would preclude investment in newer plants and equipment. The actual cost, however, resulting from the NSPS is very small, and it is unlikely that investment plans would be made based on a cost so small.

With regard to pumice, there is no doubt about the fact that pumice is a substitute for LWA, although in many cases pumice is an inferior substitute. The BID for the proposed standards discusses the substitution of pumice for LWA in sections 9.1 and 9.2. The commenter's question involves the degree of competition that exists between LWA and pumice, and whether the proposed NSPS control costs for LWA will significantly alter the degree of competition that currently exists between LWA and pumice. Production data and market share data for LWA and pumice were compared. LWA has a far larger share of the total market (LWA plus pumice) than pumice. Pumice's share of the market has ranged from 9 percent to 19 percent of the total market, with an average of 13 percent. During 1977, 1978, and 1979 pumice's share of the market increased to approximately 18 percent. For 1983, pumice's share of the total market was 13 percent. The current levels of production of LWA are down sharply from past levels reached during the early 1970's. However, the losses experienced by LWA are not due to gains by pumice because pumice's recent share of the total market is similar to its historical position. Additionally pumice produced from domestic mines has declined, as well as pumice supplied by imports.

Therefore, EPA believes that the cost of this NSPS will not lead to a competitive disadvantage for the LWA industry.

2.4.5 Comment (IV-F-1)

One commenter stated that the cost of installing and maintaining the equipment to meet these standards is very substantial. He estimated it would cost $34,500 per year to usé a baghouse rather than a multiclone system which is currently in use. The commenter stated that this would increase the cost of doing business by over 5 percent. He also felt that this cost combined with other pressures on the economy and the LWA industry could force some LWA plants to close. For his specific plant, he informed EPA of the following data to support his point. By amortizing the capital cost of the baghouse over an 8 or 10 year life, the percent product increase would vary from 6.8 - 11.4 percent depending on the time period that is used for amortization and lightweight aggregate prices used ($13-14/yard or $12.30-$13.20/ton). The calciners have a capacity of 260 tons/day and operate at 60-70 percent of annual capacity.

Response: The information provided by this commenter is not of sufficient detail to assess the particular situation of the plant described. However, as stated in section 2.3.4, existing operations will not be affected by the NSPS unless the existing sources are replaced, modified or reconstructed. Therefore, the commenter's operating costs should remain unchanged from current levels. It was noted in the commenter's statement that the calciners in question were operating at 60 to 70 percent annual capacity. This data suggests that the need for new sources is perhaps not apparent for the short-term.

2.4.6 Comment (IV-F-1)

One commenter believed that this NSPS would have a doubling effect in terms of costs on the LWA industry as the standards also apply to the refractory industry whose products are used by the LWA industry. This commenter also stated that this NSPS would have a cumulative economic impact on the fire clay industry as this industry uses both dryers and calciners. He also said that other regulated minerals are used in the same refractory products so percent price increases could approach 3-4 percent. The commenter felt that based on EPA's cost analysis figures, these costs would create a major burden on the refractory industry which currently is struggling to stay alive.

Response: Additive effects of the NSPS are indeed possible where an industry utilizes both calciners and dryers. In the case of fire clay, cumulative impacts could be as high as 2 percent although it would typically be 1.6 percent using the least costly control device for a rotary dryer and the 2 percent estimate is based on the smallest plant size and resultant worst case.

With regard to the comment that additive impacts for refractory products could reach 3-4 percent, this comment overstates the mathematical outcome of the price increase calculation. The commenter simply adds the price increase for LWA and the price increase for fire clay and presents the result, which is about a 3 to 4 percent increase. The 3 to 4 percent increase is an overstatement because refractories are only a portion of the cost components for LWA. Expenditures for refractories for a LWA model plant are necessary to perform the calculation accurately. However, for illustration, assume a LWA model plant spends 10 percent of its total expenses on refractories. Then, if the price of refractories increases by 2 percent, the price of LWA would increase 0.2 percent (or 2 percent times 10 percent). Therefore, the EPA does not believe the NSPS has a doubling effect in terms of cost on the LWA industry.

2.4.7 Comment (IV-F-1)

One commenter estimated this NSPS would impose an incremental capital increase of $100,000 per dryer and between $250,000-$1,500,000 per calciner on those who cannot currently meet the standards. Thus, the rate of return on investment in many cases would be too low for plants to modify, reconstruct, or replace dryers or calciners at existing plants.

Response: EPA calculations were reviewed and found to be correct. The average incremental capital cost increase is $11,000 for dryers and calciners if baghouses are used where there is a baghouse/wet scrubber option, and $14,900 if scrubbers are used where this option exists. The commenter was contacted and requested to supply supporting data for his calculations. These calculations were not received. The economic analysis as discussed in Chapter 9 of the BID for the proposed standards showed no adverse impacts for any of the 17 mineral industries covered by the standards.

2.4.8 Comment (IV-F-1)

One commenter in the LWA industry believed that EPA underestimated the incremental capital cost and product price increase associated with complying with the standard. He stated that if a modification were made at his existing plant, a low energy wet scrubber would have to be replaced by a baghouse because the collection efficiency of the scrubber could not be improved by increasing the pressure drop. This would cost much more than EPA has estimated and result in a significantly higher product price increase.

Response: As discussed in the preamble to the proposed standards (51 FR 15438, April 23, 1986), EPA believes few, if any, existing calciners and dryers will become covered by the NSPS due to the modification provisions of the General Provisions (40 CFR 60.14). Calcining and drying operations usually operate below 100 percent of capacity and are capable of handling moderate increases in production without additional equipment. This situation is not considered a modification. When expansions at existing plants take place, usually a completely new calciner or dryer is added. Such an increase in production would not be considered a modification but rather a new source, and the cost of control should be considered as part of the expansion.

If there were a modification (or a replacement) of an existing facility at the commenter's plant, it is unclear whether the wet scrubber used by the commenter would have to be replaced by a baghouse to achieve the NSPS emission level. As mentioned in section 2.2.2, there are other techniques than increasing the pressure drop that will improve scrubber performance (see also section 2.7.1). Due to the lack of emission test data, it is uncertain whether the use of these techniques can achieve the NSPS emission level. If these techniques are successful, then the incremental increase in costs attributable to this NSPS is likely to be less than what is shown in the BID for the proposed standards. There may be cases where an existing control device is not capable of achieving the NSPS emission limits, and may have to be replaced as a result of the NSPS. The EPA believes that the situation described by the commenter is very unlikely to occur. If it did happen, the cost associated with this replacement would

have to be considered by the owner or operator of the existing facility as part of his investment decision prior to commencing the modification of the facility.

2.5 ENVIRONMENTAL IMPACT

2.5.1 Comment (IV-D-8)

One commenter stated that the particulate emission reduction of 8,800 tons per year attributable to this NSPS sounds impressive but would equate to a reduction of 0.011 ounce per acre per month across the contiguous United States. Of this total reduction, only 326 tons per year are attributed to controlling the fuller's earth industry. This reduction is extremely small and would cost the sorptive mineral industry millions of dollars. According to the commenter, the actual national emission reduction is more in the order of 4,000 tons per year. Mild winds in dry areas or farmers' plowing cause resuspension of particulates far in excess of these quantities.

Response: The 7,900 Mg (8,800 tons) per year emission reduction is an estimate made by EPA using the best data available and reasonable assumptions. Baseline emissions (those which would occur in the absence of an NSPS) were estimated assuming new facilities would comply with typical State regulations. These were compared with emissions estimated to occur if new facilities were controlled to the level required by the NSPS. For details on the procedure, see Chapter 7 of the document "Calciners and Dryers in Mineral Industries--Background Information for Proposed Standards" (EPA 450/3-85-025a).

Related to the commenter's concern about the significance of this emission reduction, the six source categories regulated under this NSPS have been found to be significant contributors to particulate emissions which may reasonably be anticipated to endanger public health and welfare (see section 2.1). The industries covered were included on EPA's priority

list of source categories for which NSPS must be promulgated. The EPA estimates emissions can be reduced by 7,900 Mg/yr (8,800 tons). This is a large and significant number, despite the fact that it may appear small when divided by the land mass of the contiguous United States. Particulate matter sources are dispersed, each contributing a small percent of a large total emission. The EPA has identified BDT for calciners and dryers in the mineral industries which can be applied for a reasonable cost, so an NSPS is being promulgated. The incremental annualized cost associated with this NSPS in the fifth year for the fuller's earth industry is $129,000 and the fifth year emission reduction is estimated to be 241 MG/yr (265 tons/yr). It was estimated that as a result of this NSPS, the price of fuller's earth would increase by 1 percent or less. The emission reduction is considered significant and the cost and economic impacts are considered reasonable.

2.5.2 Comment (IV-F-1)

One commenter stated that the BID indicated that particulate emissions from the LWA industry would be reduced by 56 percent or 500 tons per year. The commenter estimated that the reduction of 500 tons per year is only a 16 percent reduction.

Response: The commenter's calculations were reviewed by EPA. These calculations are based on reduction in particulate matter for all lightweight aggregate rotary calciners whether or not these sources are subject to this NSPS. As shown in Chapter 6 of the proposal BID, the baseline and NSPS emission limits are 0.21 g/dscm (0.09 gr/dscf) and 0.092 g/dscm (0.040 gr/dscf), respectively. Therefore, the reduction in particulate emissions for only those lightweight aggregate rotary calciners subject to the NSPS is 56 percent.

2.6 ENERGY IMPACT

2.6.1 Comment (IV-F-1)

One commenter indicated that the additional electricity required to achieve the NSPS levels would result in approximately a 60 percent increase in particulate matter, nitrogen oxides, and sulfur dioxide emissions from

power plants due to the difference in electrical consumption between baseline and the NSPS level for the LWA industry.

Response: The commenter is correct that particulate matter (PM), sulfur dioxide (SO_2), and nitrogen oxides (NO_x) emissions may increase from coal-fired power plants if they are used to supply any additional electricity required to achieve NSPS levels. The commenter is incorrect that these emissions will increase by 60 percent as a result of applying this NSPS on the LWA industry. As shown in Table 7-11 in Chapter 7 of the proposal BID, the increase in energy usage for the LWA industry would be 60 percent only if all new facilities were controlled with wet scrubbers. However, if fabric filters or baghouses were used to control the new facilities, there would be no increase in energy usage for this industry as a result of the NSPS. The EPA cannot predict which control devices will be installed on new facilities within the LWA and, therefore, cannot predict the exact increase in energy associated with applying the NSPS to the LWA industry. A worst case analysis of the increase in emissions from power plants as a result of this NSPS is where only wet scrubbers are used, and coal-fired power plants are used to supply the increase in energy. In this case, based on the NSPS for power plants (40 CFR 60.40 and 60.40(a)), PM emissions would increase by 1.5 Mg (1.6 tons), SO_2 by 59 Mg (65 tons), and NO_x by 30 Mg (33 tons). This represents the increase in energy usage by all 17 industries covered by this NSPS. These increases are considered reasonable compared with the PM reduction attributable to this NSPS of 7,900 Mg/yr (8,800 tons/yr).

2.6.2 Comment (IV-F-1)

One commenter stated that the 1 percent increase in total power required by this NSPS may be correct but this increase is substantial and unreasonable. The commenter estimated an additional annual cost of $50,000 in electricity to operate one wet scrubber on a rotary kiln.

Response: As shown in Table 8-5c of the proposal BID, there are some dryer/calciner types where the incremental increase in energy costs from control devices may exceed $50,000. However, in many cases there is no increase as present control devices are achieving the standard; if baghouses

are used there is no additional power cost compared to an assumed baghouse baseline. As shown in Table 7-12 of the BID, the incremental energy requirement to operate control equipment due to the NSPS would be less than 1 percent of the total energy used to operate dryer and calciner process units. The highest price increase for facilities with higher energy costs is estimated to be 1.4 percent based on realistic prices for the minerals. This increase is considered reasonable by EPA considering the significant reduction in particulate emissions.

2.7 SELECTION OF BEST DEMONSTRATED TECHNOLOGY

2.7.1 Comment (IV-F-1)

One commenter wrote that this NSPS not only dictates the level of 0.04 gr/dscf but also dictates the control techniques to be used to achieve this level. He felt this reduces competition and drives up the cost of pollution control equipment by restricting suppliers. Another commenter stated that the proposed rule appears to discriminate against suppliers as well as users of scrubbers by mandating a higher pressure drop across the scrubber to obtain a lower emission rate. The commenter stated that increasing the pressure drop for wet scrubbers is not the only method to assure better particulate control. Alternate methods mentioned by this commenter include lowering the solids content in recycled scrubber water, using all fresh make-up water, and increasing the atomization of scrubbing liquid which would all increase the particulate control efficiency.

Response: The EPA does not dictate the use of any emission control device that is to be employed to attain and maintain compliance with the performance requirements of these standards. This choice is up to the owner or operator of the affected facility. Compliance with the pollutant concentration limits of these standards generally can be achieved by application of one of several alternative control strategies. As stated in the preamble to the proposed standards (51 FR 15438, April 23, 1986), tests of 15 wet scrubber-controlled dryers in seven industries indicate that for 10 of the 15 dryers, relatively low energy wet scrubbers (3-to 10-inch water column pressure drop) were able to reduce emissions to less than the NSPS level. Tests of nine scrubber-controlled calciners

indicate that for six calciners, wet scrubbers were able to reduce emissions to less than the NSPS level. Therefore, the use of low energy wet scrubbers or scrubbers which use alternative methods to reduce particulate emissions is not always precluded by the NSPS level selected. However, there are extreme case-specific factors that may require that a scrubber, if selected by the owner, be a high-energy scrubber in order to achieve the performance standard. Any alternative method of increasing a scrubber's efficiency in removing particulate matter from the dryer or calciner's vent stream that reduces the emissions to the NSPS level is also acceptable.

2.7.2 Comment (IV-D-2, IV-F-1)

Two commenters stated that the proposed standards discriminate against low energy scrubbers. They stated that stack tests by EPA on a low energy scrubber at refractory facilities indicated removal efficiencies greater than 99 percent, an average outlet concentration of 0.086g/dscm, and opacities of zero to five percent. The commenter felt that pollution devices which achieve that level of control should be acceptable for the control of new sources. The commenter also stated that wet scrubbers require less maintenance and provide more reliable service than other control devices. He felt that the maintenance aspect of control devices should be considered in selecting the level of the standards.

Response: As mentioned in the section 2.3.1, compliance with the emission limits of this standard can be achieved by application of different emission control strategies. For any dryer or calciner subject to the NSPS, EPA does not require the use of a particular control device. In several industries, EPA has determined that wet scrubbers with pressure drops less than 6 inches of water gauge can achieve the standard. However, as discussed in the preamble to the proposed standards (51 FR 15438, April 23, 1986) to evaluate the performance of higher energy scrubbers on dryers and calciners that did not meet the NSPS emission limits, an EPA computerized scrubber model, as described in EPA report No. EPA-600/7-78-026, was used. This modelling indicated that the pressure drop required to achieve the NSPS emission limit for rotary dryers is 14 inches. The economic

impact of this NSPS for fire clay rotary dryers is not adverse because the percent product price increase is less than 1 percent for all sizes as shown in Chapter 9 of the BID for the proposed standards.

In estimating the costs and economic impacts associated with the standards, EPA included the cost of the improved operation and the increased maintenance of both baghouses and scrubbers that would be required to achieve the level of the standards. The costs and economic impacts associated with the increased maintenance being required were considered by EPA and determined to be reasonable.

2.8 SELECTION OF FORMAT OF STANDARDS

2.8.1 Comment (IV-D-8)

One commenter questioned the desirability of imposing an emission limit without regard to the quantity of material being processed by the dryer or calciner. According to the writer, the existing process weight rate formula, used by many states, was designed to ensure that there was a degree of fairness in allowable emissions between large and small processes. The commenter said that it states in the preamble to the proposed standards (51 FR 15438, April 23, 1986) that it is difficult to establish consistent standards by which to measure particulate emissions at mineral processing plants. The commenter stated that it seemed that EPA proposed an emission limitation, based on particulate concentration, to ease enforcement rather than desirability of results.

Response: The final emission limit is in a concentration format, rather than in a mass emissions per unit of production format. In general, this format is preferred bacause it is simpler and it is therefore selected when it provides a good reflection of the performance of BDT. The concentration format does indirectly take into account the amount of material being processed because air flow rates for dryers and calciners generally increase with production rates. The EPA's test data does support the development of concentration standards of 0.092 g/dscm (0.040 gr/dscf) for calciners and 0.057 g/dscm (0.025 gr/dscf) for dryers. These limits can be met by all new, modified, or reconstructed dryers and calciners. No apparent benefit would result by basing the standard on process weight.

Moreover, accurate measurement of process weight on a short-term basis adds difficulty and cost. Some processing plants do not measure production or feed rate over the short term, so they would find it difficult to determine compliance with a mass emissions standard. Establishment of the concentration format standard will not add the cost of monitoring the process throughputs on those industries which do not currently monitor short-term feed rates.

2.9 SELECTION OF EMISSION LIMITS

2.9.1 Comment (IV-D-2)

The commenter recommended the selection of Regulatory Alternative I, which would allow States to control emissions through SIP's, or Regulatory Alternative II, which would limit emissions from both calciners and dryers to 0.09 g/dscm over Alternative III, which the commenter felt precluded the use of low energy scrubbers.

Response: The standards are based on EPA's judgment of the technology which represents BDT considering the cost, any nonair quality health and environment impact and energy requirements. In this case, BDT is a baghouse or high energy scrubber although in some instances low energy scrubbers may achieve comparable performance. A standard based on low energy scrubbers for all sources covered by this NSPS would not reflect BDT or reduce emissions to a level achievable by BDT.

2.9.2 Comment (IV-D-2, IV-F-1)

Two commenters questioned the fairness and rationale of having a more stringent standard (0.025 gr/dscf) for dryers alone compared with the standard (0.040 gr/dscf) for dryers and calciners in series. One of the commenters stated that it did not seem equitable because producers without calciners but with dryers would be bound by a more stringent standard.

Response: The NSPS emission level for dryers and calciners in series (0.040 gr/dscf) is different than for dryers alone (0.025 gr/dscf) because EPA's emission test data and analysis indicate that these levels reflect BDT. As shown on page 4-46 of the BID, all emission test data for dryers were less than 0.025 gr/dscf except for four dryers controlled by wet scrubbers and one controlled by a baghouse which was not operating properly as there was leakage through a closed bypass damper. By using EPA's wet scrubber

model, increases in pressure drop were calculated to ascertain what is required to achieve 0.025. As shown on page 4-47 of the BID, all emission test data for calciners were less than 0.04 gr/dscf except for three calciners controlled by wet scrubbers. Again, EPA's wet scrubber model was used to determine the pressure drop required to achieve 0.04. Also, emission test results for a flash dryer/rotary calciner installed in series in the diatomite industry (Plant D1) on page 4-49 of the BID were 0.040 gr/dscf. As defined in the regulation, "installed in series" means a dryer and calciner installed such that the exhaust gases from one flow through the other and then the combined exhaust gases are discharged to the atmosphere. No emission data were submitted to support changing the standard for these sources.

2.9.3 Comment (IV-F-1)

Four commenters questioned why the NSPS emission limits on particulate matter for the proposed standard are much stricter than the limits placed on hazardous waste incinerators (0.08 gr/dscf). They felt this was inappropriate because the emissions from their facilities are nonhazardous while the emissions from a hazardous waste incinerator will almost certainly include hazardous materials. Some of these commenters questioned why the emission level for lightweight aggregate is not the same as for the cement industry (0.13 gr/dscf) since the production processes are similar.

Response: As stated in section 2.1, the main purpose of standards of performance required by Section 111 of the Clean Air Act is to require new sources, wherever located, to reduce emissions to the level achievable by the best technological system of continuous emission reduction considering the cost of achieving such emission reduction, any nonair quality health and environmental impact and energy requirements [Section 111(a)(1)]. It is not unusual in developing NSPS for different industries to identify differences in control technologies and removal efficiencies, cost and economic impacts associated with control technologies, and other unique characteristics associated with the industry being regulated. The actual emission limits selected are based on available test data and cost and

economic impact analyses of the alternative control levels. The commenters were incorrect in their understanding of the portland cement NSPS. The emission limit in that standard is 0.3 lb of particulate matter emissions per ton of material processed. This equates to a concentration standard of 0.03 gr/dscf which is less than the limits for calciners or calciners and dryers in series in this NSPS.

As discussed in sections 2.9.1 and 2.9.2 and in the preamble for the proposed standards (51 CFR 15438, April 23, 1986), the EPA test data for calciners and dryers in the mineral industry clearly show that the emission limits are achievable. After analysis, the cost and economic impacts associated with the NSPS level of control were determined to be reasonable. Related to the hazardous waste incinerators, similar tests led to the selection of the 0.08 gr/dscf emission limit (47 FR 27520, June 24, 1982).

2.9.4 Comment (IV-F-1)

One commenter stated that there have been background readings taken that show the particulate level in the ambient air is 0.02 gr/dscf. He concluded that, therefore, the proposed standards will permit only 0.02 gr/dscf more than is in the ambient air. He felt this was overly restrictive.

Response: A background level of 0.02 gr/dscf is approximately 46,000 micrograms per cubic meter. This value is unrealistically high and is not representative of the background particulate matter levels anywhere in the United States. In addition, the test data and analysis as discussed in Chapter 4 of the proposal BID clearly shows outlet particulate concentrations less than the NSPS emission limits are achievable. A total of 52 source tests comprise the data base. The 25 dryers and 27 calciners tested were processing a variety of minerals in many different geographic locations. In none of these cases did the background level of particulate matter in the ambient air cause the outlet particulate emissions to exceed the NSPS emission limits. Because the emission limits are achievable and the cost and economic impacts are reasonable, EPA sees no reason to change the NSPS emission limits.

2.10 TEST METHODS AND MONITORING

2.10.1 Comment

One commenter requested that the particulate concentration standard be corrected to a certain percent oxygen measured at the stack. For example, he suggested using the average oxygen level from test data used to establish the standards. If this is not acceptable, then the commenter recommended the source continuously monitor the oxygen level with a continuous emission monitor which should be calibrated per Appendix B, Specification 3 of 40 CFR 60. This monitor should be located near the stack sampling site and be certified before the performance test according to the commenter.

Response: As noted in the preamble to the proposed standards (51 FR 15438, April 23, 1986), a concentration-based standard could be circumvented by adding dilution air to the gas stream. However, this is unlikely to occur at mineral calciner and dryer facilities, because the size and operating costs of fans and motors increase with increasing gas volume to be handled. Also, Section 60.12 of the General Provisions clearly states that gaseous diluents cannot be used to achieve compliance with a standard which is based on the concentration of a pollutant in the gases discharged to the atmosphere.

2.10.2 Comment

One commenter stated that the requirement for semiannual recalibration of a COMS refers to 40 CFR 60.13 which contains only daily zero and span check procedures. According to this comment, it would be more appropriate to require repetition of calibration error check procedures of 40 CFR 60, Appendix B, on a quarterly basis to check the linearity of the analyzer.

Response: The requirement of the repetition of calibration error check procedures of 40 CFR 60, Appendix B, Specification 1, on a quarterly basis to check the linearity of the analyzer is intended for monitors that, by terms of applicable NSPS, are used to determine compliance. In this case, the installation of a COMS is intended to evaluate operations and maintenance of the control equipment; the frequency of the repetition of calibration effort check has not yet been determined. The only requirement for COM's intended for operation and maintenance at this time are daily zero and span checks. The reference to semiannual recalibration has been deleted from the final standards.

2.10.3 Comment (IV-D-4)

One commenter stated that dryers are used in their diatomite operation for the evaporation of uncombined water. He pointed out that the measured moisture contents within these flue gases vary from 7 to 22 percent by volume and during cold weather, plume moisture occurs with little or no plume stack separation. In addition, he stated that condensed water has appeared on the stack exterior in the vicinity of the sample ports at his plant. According to the commenter, these conditions are not conducive to in-stack opacity monitoring devices. He felt it would be more reasonable to require a certified observer to record opacities on a periodic basis similar to EPA's proposed monitoring requirements for gypsum and perlite pyroprocessing units.

Response: Condensation on the outside of the stack should have no effect on the opacity inside the stack. The commenter had no data to support that opacity readings were erroneous when moisture was sighted on the stack exterior. However, if high moisture content in the stack causes malfunction of the COM's, the owner or operator may petition the Administrator to approve an alternative monitoring procedure, requirement, or location according to Section 60.13(i).

In addition, the promulgated standards allow owners or operators of diatomite flash dryers who use a dry control device to have a certified visible emission observer record daily three 6-minute opacity averages in lieu of installing a COMS, and diatomite rotary dryers are exempt from any monitoring requirements.

2.10.4 Comment (IV-D-7)

One commenter felt that a COMS for an ESP controlling a dryer used in bentonite processing would continuously yield erroneous readings due to dripping water, falling clay-laden films, and clay film bridging. He cited problems his company has experienced with a bentonite dryer controlled by a "dry" ESP. The commenter stated that extensive insulation of the stack has reduced the film thickness but it has not eliminated it. He recommended that emissions from "dry" control devices be treated similarly to emissions from "wet" control devices and that periodic visual opacities plus recording of certain operating parameters be allowed for the assessment of compliance with the proposed opacity requirements. He felt the requirements should be flexible and depend on the configuration of the control device and its

operating requirements rather than having a rigid across-the-board requirement, even it not attainable, imposed on all "dry" ESP installations.

Response: Conditions downstream of a dry ESP should be reasonably dry. However, if a high moisture content of the exhaust gas causes erroneous readings from the COMS, the owner or operator may petition the Administrator to approve an alternative monitoring procedure or location according to Section 60.13(i).

2.10.5 Comment (IV-D-2, IV-D-5, IV-F-1)

Three commenters felt that the reasons used by EPA to justify continuous opacity monitoring, and the associated recordkeeping and reporting are inadequate. Two of the commenters stated that broken bags in a collector are apparent without the need for a COMS and the increased capital and operating costs associated with continuous opacity monitoring are not commensurate with the benefits. They felt that this requirement should apply only to major sources of pollution. The other commenter stated that his company's experience with these monitors has shown them to be expensive, difficult to install, very difficult to maintain and inaccurate. He recommended these requirements be dropped.

Response: Section 114 of the CAA authorizes EPA to require such monitoring as is appropriate for enforcing NSPS. Also, Section 301(1) of the CAA defines "standards of performance" to include "any requirement relating to the operation and maintenance of a source to assure continuous emission reduction." The EPA's experience with control devices shows that regular maintenance, both remedial and preventive, greatly enhances control equipment efficiency and reduces overall costs. As stated in the preamble to the proposed standards (51 FR 15438), opacity monitoring can indicate when fabric filter bags are torn loose and when ESP electrodes are damaged or malfunctioning. EPA's experience with COMS's is that the devices operate accurately and with minimum downtime with regular and reasonable maintenance.

The EPA agrees with the commenters that a sudden increase in emissions resulting from either broken bags in a baghouse or a sudden failure of a baghouse or ESP would be immediately apparent and require attention by the source operator. However, the purpose of a COMS or other monitoring alternatives such as daily visible emissions observations is to alert industry and enforcement personnel to potential violations of the mass emission standard and to ensure the proper operation and maintenance of particulate

control equipment on a continuous basis, i.e., to alert the operator to more subtle and gradual deterioration of the control device efficiency that occurs over time and results in increased emissions unless corrected. The emission reduction performance of air pollution control equipment is dependent upon the proper operation of many components of the control system. While certain parameters can provide information on the status of certain key components, it is generally not possible to determine overall control device performance by monitoring parameters other than emissions. Without COMS's, operators have essentially no tools that they can use to monitor the continued performance of ESP's or fabric filter systems or to ensure that necessary maintenance is performed. The broken rapper welds and bag deterioration are examples of items that affect emissions and that cannot be evaluated or detected except with COMS's. The reporting of excursions as recorded by COMS's also helps State and local enforcement programs with their control devices. Since plant inspections and testing are infrequent, gradual deterioration will not be detected until a major failure occurs unless opacity monitoring is required.

The benefits of using a COMS are documented in a recent study conducted at Portland cement plants (Docket Item II-A-130). The study concludes that COMS's installed on control equipment at these plants contributed significantly to lower emissions. The emission reduction benefits are derived from: (1) indicating when repairs and maintenance of control equipment is needed, (2) signalling the need for a change in operating and maintenance practices for the process and the air pollution control device, and (3) quantifying emission reductions after the installation of a COMS. Factors which contributed to the lower emissions from the facilities were: (1) an increased sensitivity of the plant operating personnel that changes in process operating conditions and flue gas characteristics affect stack emissions, (2) the awareness by plant operators that increased stack opacities below the opacity limit can be indications of excess particulate emissions, and (3) an enforcement presence on a continuous basis.

Nevertheless, as the amount of emissions from an individual source decreases, the benefits of monitoring also decrease and at some point it is no longer reasonable to require a COMS or other monitoring alternative. Therefore, as a result of the comments received, EPA evaluated four alternative monitoring requirements: the use of a COMS; the reading of visible emissions daily or weekly by a certified visible emissions observer;

and no monitoring requirements (Docket No. A-82-39, IV-B).

As a result of the analysis, the Administrator has determined that it is reasonable to require the installation of the COMS's on all dryers and calciners of a certain type within an industry where the typical size unit of that type has emissions after NSPS control equal to or greater than 22.7 Mg/yr (25 tons/yr). For typical size units with emissions less than 22.7 Mg/yr (25 tons/yr) but greater than or equal to 10 Mg/yr (11 tons/yr), EPA has determined that owners or operators may perform daily visible emission observations in lieu of installing a COMS. The EPA has also determined that typical units with emissions less than 10 Mg/yr (11 tons/yr) should be exempt from any monitoring requirements. Because of the variation in emissions after NSPS control for each size and type of calciner or dryer and for each industry, the monitoring requirements are based on the typical size of a particular type of calciner or dryer in each industry. The specific monitoring requirements for each type of dryer or calciner in each industry are presented in Section 60.734 of the final standards.

The following discussion summarizes the basis for the specific monitoring requirements for each type of dryer or calciner. The EPA used 22.7 Mg/yr (25 tons/yr) as the cutoff level for particulate matter (PM) emissions in determining which facilities would be required to install COMS's if they use dry control devices. In the prevention of significant deterioration (PSD) rules, EPA set de minimis levels of emissions for various pollutants. For PM emissions, the level was selected by evaluating the potential effect of different emission levels on the area's air quality and how that related to the national ambient air quality standard for PM. The analysis was based on a source's potential to emit after application of all appropriate Federal regulations such as NSPS. The significance level for PM emissions was set at 22.7 Mg/yr (25 tons/yr). Therefore, the Administrator has determined that it is beneficial and reasonable to require the installation of COMS's on all calciners of a certain type within an industry where the typical size unit of that type has emissions after NSPS control equal to or greater than 22.7 Mg/yr (25 tons/yr).

As stated previously, however, as the amount of emissions from an individual source decreases, the expected benefits of monitoring also decrease and at some point it is no longer reasonable to require a COMS or other monitoring alternative. As a result, for calciners and dryers with emissions

of less than 22.7 Mg/yr (25 tons/yr) after NSPS controls, the EPA assessed alternatives other than the installation of a COMS. These alternatives included daily or weekly visible emission observations and no monitoring requirements. In assessing the reasonableness of performing daily versus weekly visible emission observations, it was determined that the cost of either one would be similar but not deliver the same benefits. In both cases, employees of the affected plant would need to be formally certified as opacity readers twice per year. The costs associated with the certification would be incurred regardless of whether a daily or weekly monitoring requirement was imposed. The other costs associated with these alternatives are the annual cost of performing the observations and recording the results. The annual cost of weekly readings of visible emissions would be reduced somewhat, but because of the fixed cost of certification, would cost approximately 40 percent of the cost of doing daily observations. Moreover, a daily observation program would be more effective at identifying gradual deterioration of the control device efficiency and allowing a plant operator time to correct the problem prior to complete failure of the device. A weekly observation program would not identify the gradual deterioration of the control device as quickly and, in some cases, a failure of the control device could occur between two weekly observations. Because requiring daily observations would yield substantially greater benefits than weekly observations and the cost difference was considered reasonable, the alternative of weekly observations was considered inferior for the sources with less than 22.7 Mg/yr of emissions after NSPS control. Therefore, for typical size units with emissions less than 22.7 Mg/yr, but greater

than or equal to 10 Mg/yr, the regulation has been revised to allow the owner or operator to perform daily visible emission observations in lieu of installing a COMS.

On the other hand, the Administrator has determined that typical size units with emissions less than 10 Mg/yr should be exempt from any monitoring requirements. In making this determination, consideration was given to the size of the source in terms of the emissions after NSPS control is applied. In addition, the benefits associated with monitoring, such as identifying sources that are having control equipment problems for the appropriate enforcement agency so corrective action can be taken, were considered. For very small sources with small control devices, the benefits associated with a COMS or daily visible emission observations, in terms of reducing excess emissions, are smaller in comparison to larger sources. The cost of daily visible emission observations as a percent of the annualized cost of operating the control equipment was also considered. For these reasons, typical size units with emissions less than 10 Mg/yr are exempt from any monitoring requirements. The new monitoring requirements per type of dryer or calciner and per industry are presented in Section 1.1.

2.10.6 Comment (IV-F-1)

One commenter noted that at an earlier EPA hearing, an EPA representative stated that opacity monitors are 98 percent reliable. Because his company operates 24 hours a day, seven days a week, it would be 3.4 hours a week of built-in possible problems. He is concerned that when the instrument is not working properly, its findings might stop the plant from operating or place them out of compliance with the final standard. He feels that until the technology is perfected this burden should not be placed on the LWA industry.

Response: Section 60.13 of the General Provisions addresses the commenter's concerns. The EPA recognizes that there will be times when the monitors will break down and be in need of repair. However, these occurrences can be minimized with good operating and maintenance practices. However, if there is a problem with the monitor, Section 60.13(h) clearly states that data recorded during periods of continuous monitoring system breakdowns, repairs, calibration checks, and zero and span adjustment

shall not be included in the data averages computed. Therefore, the findings of a COMS that is not working properly will not cause a plant to stop operating or cause a plant to be cited for being out of compliance with the standards.

2.10.7 Comment (IV-D-3)

One commenter stated that it was inconsistent to allow 18 minutes of visible emission observations per week to be substituted for COM's on certain sources. Also, at a minimum, the commenter felt that these observations should be required on at least a daily instead of a weekly basis. To avoid a source selecting periods of low opacity to conduct the observations, a predetermined schedule for these observations should be specified according to this commenter.

Response: As discussed in section 2.10.5, EPA re-evaluated the opacity monitoring requirements for dry control devices. The EPA determined that for those cases where daily visible emission observations were not reasonable no monitoring requirements were appropriate. (See Docket No. A-82-39, IV-B). The final monitoring requirements for dry control devices are presented in Section 1.1.

Related to the commenter's concern that sources will select periods of low opacity to conduct the observations, EPA has determined that it is not practical to require these sources to make their observations on a specified schedule. Because differences in operating schedules and times exist from plant to plant and industry to industry, it is not possible to specify a schedule for visible emission readings that would be practical.

2.11 REPORTING AND RECORDKEEPING

2.11.1 Comment (IV-D-3)

One commenter requested that the semiannual reporting of exceedances as described in Section 60.735 should be increased to quarterly, in order to be consistent with the reporting frequency of other sources and to help identify potential problems in a more timely manner.

Response: The EPA uses the following procedure to determine reporting frequencies for NSPS.

For NSPS, the information collected is of three different types that are of different uses to the enforcing agency. These types of information are:

1. Monitored Parameter Data - information on control device or process parameters (e.g., pressure drop). This information is used as an indicator of how well the control device is being operated and maintained and is useful for targeting inspections.
2. Excess Emission Data - generally continuous emission monitor reports. This information is used as an indicator of the compliance status of the source and may be used to target inspections or performance tests. In most cases, neither this nor monitored parameter data may be used as the sole evidence of a violation of the standard.
3. Direct Compliance Information - data which may be used by the enforcement agency as the sole evidence of a violation of the standard.

Direct compliance information is most useful to an enforcement agency because the compliance status of the source is evident from the information itself and no further testing is necessary to document a violation. Because these data can be used so quickly, and because it is beneficial to an enforcement action to have the freshest data available, sources are required to report this information to EPA on a quarterly basis. However, if no exceedances of the standard have occurred during a particular quarter, only a statement to that effect (negative declaration) is needed. Further, these negative declarations may be made on a semiannual basis. Thus, the quarterly reporting period is activated only when a source has had an exceedance of the standard during that particular quarter. This helps focus the resources both of the industry and of EPA on sources where remedial action is warranted. For NSPS, semiannual reporting is required in the absence of evidence as to why this is not sufficient. Factors that are considered include size, number and location of sources, likelihood of excess emissions, potential for severe adverse air quality impacts. For this particular NSPS, after weighing the factors described above, it was determined that semiannual reporting of the monitored data was appropriate.

2.12 MISCELLANEOUS

2.12.1 Comment (IV-D-7)

One commenter stated that in the preamble to the proposed standards the Agency appeared to assume that particle size distribution and emissions loading from all bentonite dryers are identical. According to the commenter, the particle size distribution in dryer emissions is influenced by the processing history of the bentonitic material prior to the drying and/or prior to final emission control and would also tend to vary markedly between rotary dryers and fluid bed dryers.

Response: The commenter was contacted to determine if he had any emission test data which indicated what was the worst case of uncontrolled emissions for bentonite dryers. He had no specific data but felt that uncontrolled emissions from dryers that process Wyoming bentonite would be a little higher than from dryers in Mississippi. He also felt that coal burning would increase the emission problem and could not estimate whether emissions from rotary dryers are harder to control than fluid bed dryers.

As shown in Chapter 4 of the BID, emission test data on two bentonite rotary dryers were obtained. Both plants are located in Wyoming and burn coal. Controlled emissions were 0.014 g/dscm (0.006 gr/dscf) and 0.047 g/dscm (0.020 gr/dscf). In addition, test data from dryers in the titanium dioxide industry where the particles were much smaller and, therefore harder to control than emissions at the bentonite facilities, show that the standard can be met.

2.12.2 Comment (IV-F-1)

One commenter requested a better definition of the mineral industry. He questioned whether users as well as producers were covered. He stated that refractory producers are under SIC 3255, clay refractories, and 3297, non-clay refractories. He questioned whether they were covered or if the coverage was limited to major SIC group 14. He also questioned whether magnesium compounds applied only to magnesium minerals or are recycled magnesia brick and shapes included.

Response: This regulation covers calciners and dryers at mineral processing plants. A mineral processing plant is any facility that processes or produces any of the following minerals, their concentrates, or any mixture of which the majority is any of the following minerals: alumina, ball clay, bentonite, diatomite, feldspar, fire clay, fuller's earth, gypsum, industrial sand, kaolin, lightweight aggregate, magnesium compounds, perlite, roofing granules, talc, titanium dioxide, and vermiculite. To determine whether a particular mineral is or is not covered, the EPA bases its determination on the United States Bureau of Mines definitions for these minerals in their annual yearbook. Standard industrial codes are not used in this determination. However, as stated in the preamble at proposal (51 FR 15438, April 23, 1986) for the brick and related clay products source category, only calcining and drying of raw materials prior to firing of the brick are covered under this NSPS. Section 60.730 and the definition of "mineral processing plant" in Section 60.731 of the regulation have been revised to clarify this point. Magnesium compounds covered by the NSPS are caustic-calcined and specified magnesias, magnesium hydroxide, magnesium sulfate, precipitated magnesium carbonate, and refractory magnesia.

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16. ABSTRACT

Standards of performance for the control of emissions from calciners and dryers in mineral industries are being promulgated under the authority of Section 111 of the Clean Air Act. These standards would apply to new, modified, or reconstructed calciners and dryers in 17 mineral industries. This document contains a summary of the contents on the proposed standards, the Agency's response to the comments, and a summary of the changes to the standards since proposal.

17. KEY WORDS AND DOCUMENT ANALYSIS

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