ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 60

[AD-FRL-2295-7]

Standards of Performance for New Stationary Sources; Nonmetallic Mineral Processing Plants

AGENCY: Environmental Protection Agency (EPA).

ACTION: Proposed rule and notice of public hearing.

SUMMARY: The proposed standards would limit emissions of particulate matter from new, modified, and reconstructed facilities at nonmetallic mineral processing plants. The proposed standards implement Section 111 of the Clean Air Act and are based on the Administrator's determination that emissions from nonmetallic mineral processing plants cause, or contribute significantly to, air pollution which may reasonably be anticipated to endanger public health or welfare. The intent is to require new, modified, and reconstructed facilities at nonmetallic mineral processing plants to use the best demonstrated system of continuous emission reduction, considering costs, nonair quality health, and environmental and energy impacts.

A public hearing will be held, if requested, to provide interested persons an opportunity for oral presentation of data, views, or arguments concerning the proposed standards.

DATES: *Comments.* Comments must be received on or before November 14, 1983.

Public Hearing. If anyone contacts EPA requesting to speak at a public hearing by September 21, 1983, a public hearing will be held on October 12, 1983, beginning at 10:00 a.m. Persons interested in attending the hearing should call Mrs. Naomi Durkee at (919) 541-5578 to verify that a hearing will occur.

Request to Speak at Hearing. Persons wishing to present oral testimony must contact EPA by October 4, 1983.

ADDRESSES: *Comments.* Comments should be submitted (in duplicate if possible) to: Central Docket Section (A-130), Attention: Docket No. OAQPS-78-11. U.S. Environmental Protection Agency, 401 M Street, SW., Washington, D.C. 20460.

Public Hearing. If anyone contacts EPA requesting to speak at a public hearing, it will be held at the Environmental Research Center Auditorium, corner of Hwy. 54 and Alexander Drive, Research Triangle Park, North Carolina. Persons interested in attending the hearing should call Mrs. Naomi Durkee at (919) 541-5578 to verify that a hearing will occur. Persons wishing to present oral testimony should notify Mrs. Naomi Durkee, Standards Development Branch (MD-13), U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711, telephone number (919) 541-5578.

Background Information Document. The background information document (BID) for the proposed standards may be obtained from the U.S. EPA Library (MD-35), Research Triangle Park, North Carolina 27711, telephone number (919) 541-2777. Please refer to "Nonmetallic Mineral Processing Plants-Background Information for Proposed Standards" (EPA-450/3-83-001a).

Docket. Docket No. OAQPS-78-11, containing supporting information used in developing the proposed standards, is available for public inspection and copying between 8:00 a.m. and 4:00 p.m., Monday through Friday, at EPA's Central Docket Section, West Tower Lobby, Gallery 1, Waterside Mall, 401 M Street, SW., Washington, D.C. 20460. A reasonable fee may be charged for copying.

FOR FURTHER INFORMATION CONTACT: Mr. Gene Smith, Standards Development Branch, Emission Standards and Engineering Division (MD-13), U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711, telephone number (919) 541-5624.

SUPPLEMENTARY INFORMATION:

Proposed Standards

Standards of performance for new sources established under Section III of the Clean Air Act reflect:

> * * * application of the best technological system of continuous emission reduction which (taking into consideration the cost of achieving such emission reduction, and any nonair quality health and environmental impact and energy requirements) the administrator determines has been adequately demonstrated (Section 111 (a)(1)).

For convenience, this will be referred to as "best demonstrated technology" or "BDT."

The proposed standards would apply to new, modified, and reconstructed facilities at plants that process any of the following 18 nonmetallic minerals: Crushed and broken stone, sand and gravel, clay, rock salt, gypsum, sodium compounds, pumice, gilsonite, talc and pyrophyllite, boron, barite, fluorspar, feldspar, diatomite, perlite, vermiculite, mica, and kyanite. The affected facilities would be each crusher, grinding mill, screening operation, bucket elevator, belt conveyor, bagging operation, storage bin, and enclosed truck or railcar loading station. Common clay plants and pumice plants with capacities of 9 megagrams per hour (Mg/h) (10 tons per hour (tons/h)) or less, fixed sand and gravel plants and crushed stone plants with capacities of 23 Mg/h (25 tons/h) or less, and portable sand and gravel plants and crushed stone plants with capacities of 136 Mg/h (150 tons/h) or less would be exempt from the proposed standards. All nonmetallic mineral processing equipment at lime plants, power plants, steel mills, and other source categories that is not already covered by standards of performance for those categories would be covered by the proposed standards. At asphalt concrete plants and Portland cement plants, equipment used to process nonmetallic minerals that precedes equipment already coverd by other standards of performance would be subject to the proposed standards.

The proposed standards would limit both fugitive and stack emissions of particulate matter from the affected facilities. Fugitive emissions are emissions not collected by a capture system. Fugitive emissions would be limited to 10 percent opacity for all affected facilities with the following exception: fugitive emissions from crushers at which capture systems are not used would be limited to 15 percent opacity. The proposed standard for stack emissions, which are emissions collected by a capture system, would limit the concentration of particulate matter to 0.05 gram per dry standard cubic meter (g/dscm) [0.02 grain per dry standard cubic foot (gr/dscf)] and 7 percent opacity. The stack opacity standard would not apply to affected facilities that use wet scrubbers to control emissions. Instead, the monitoring of the operating parameters of wet scrubbers (pressure drop and scrubber liquid flow rate) would be required in order to ensure proper operation and maintenance of scrubbers.

Summary of Environmental, Energy, and Economic Impacts

Environmental Impact

By the fifth year following proposal, the proposed standards would reduce the total amount of particulate matter emissions into the atmosphere by 41,000 megagrams per year (45,000 tons per year). This reduction is 90 percent greater than that achievable with a typical State process weight regulation.

Uncontrolled emission rates were not used to estimate the reduction in

particulate matter emissions associated with the proposed standards. However, these emission rates are presented in the background information document (BID), and some industry representatives have questioned their validity. They believe the rates are too high and are concerned that States will use them to determine the significance of a plant as an air pollution source. EPA is reviewing the emission factors presented in the BID to determine if they need to be revised, and comments are solicited on this issue. The uncertainty, however, does not affect the determination of best demonstrated technology on which the proposed standards are based.

With the use of dry collection techniques (baghouses) to achieve the standards, no water discharge is generated. Therefore, there would be no adverse water pollution impact from the proposed standards. Where wet dust suppression may be used to meet the standards, there would be no significant water discharge because most of the water adheres to the material being processed until it evaporates.

The solid waste impact of the proposed standards would be very small. When dry collection techniques are used, about 1.4 megagrams (1.5 tons) of solid waste are collected for every 250 megagrams (276 tons) of material processed. In many cases, this material can be recycled back into the process, sold, or used for a variety of purposes. Where no market exists for the collected material, it is typically disposed of in the mine or in an isolated location in the quarry. No subsequent air pollution problems should develop provided the waste pile is protected from wind erosion. Information on control techniques for waste piles is included in the document entitled "Air Pollution Control Techniques for Nonmetallic Minerals Industry" (EPA 450/3-82-014) available from the EPA Library (MD-35), Research Triangle Park, North Carolina 27711, telephone number (919) 541-2777. Where wet dust suppression could be used to meet the standards, no solid waste disposal problem would result from implementing the standards.

Energy Impact

The incremental energy requirements of the proposed standards have been estimated by comparing the use of baghouses to control particulate matter emissions to the use of no control system. The estimates indicate a greater impact than would actually occur because it is expected that less-energy-consuming wet dust suppression systems would be used in many cases to achieve the proposed standards. In addition, many new plants would use baghouses or combinations of baghouses and water spray controls to meet existing State regulations.

The energy required to control all new nonmetallic mineral processing plants constructed by the fifth year after proposal to the level of the proposed standards would be about 430 terajoules per year (1.2 terajoules per day), indicating a minor impact on national electrical energy demand. This would be about a 15 percent increase over the amount of energy that would otherwise be required to meet the industry's projected capacity additions without controls. The increased energy cosumption for typical plants that would result from the proposed standards would range from about 5 percent for a 136 Mg/h (150 tons/h) plant having both crushing and grinding operations to about 20 percent for a 9 Mg/h (10 tons/h) plant having only a crushing operation.

Economic Impact

The costs and economic impacts associated with the proposed standards are considered to be reasonable. The estimated impacts are based on a comparison of baghouse use to no control. Less expensive wet dust suppression systems may be used in many cases to achieve the proposed standards. Also, many new plants would use baghouses or a combination of baghouses and water sprays to meet existing State regulations. Thus, the actual economic impact of the proposed standards would be considerably less than the estimates summarized below.

The impact of the proposed standards on an individual plant was evaluated by developing a discounted cash flow (DCF) analysis for each new model plant size and for each expansion model plant size. DCF is an investment decision analysis that shows the economic feasibility of a planned capital investment project over the life of the project. The results of the analysis indicate that the costs associated with implementing the proposed standards would not preclude construction of most new nonmetallic mineral processing plants that would be built in the absence of the proposed standards. However, the DCF analysis indicated that the incremental costs associated with baghouse control may preclude the construction of new pumice plants and common clay plants with capacities of 9 Mg/h (10 tons/h) or less, fixed sand and gravel plants and crushed stone plants with capacities of 23 Mg/h (25 tons/h) or less, and portable sand and gravel plants and crushed stone plants with capacities of 136 Mg/h (150 tons/h) or less. For this reason, these plants would be exempt from the proposed standards. Representatives of the crushed stone and sand and gravel industries have indicated that few, if any, fixed plants smaller than 23 Mg/h (25 tons/h) and portable plants smaller than 136 Mg/h (150 tons/h) would be built in the future. Nevertheless, these exemptions are provided for those few plants that may be built.

All of the dollar figures presented below are in 1979 dollars. Figures that were reported in different year dollars in the economic impact analysis in the BID were converted to 1979 dollars for comparison purposes only. The capital costs for baghouse control systems for plants having only a crushing operation would range from $70,000 for a 9 Mg/h (10 tons/h) plant to $936,000 for a 544 Mg/h (600 tons/h) plant or from 12 to 9 percent of the plant's total capital costs. Total annualized costs would range from $17,000 to $105,000 per year. For plants having both crushing and grinding operations, capital costs would range from $109,000 for a 9 Mg/h (10 tons/h) plant to $219,000 for a 136 Mg/h (150 tons/h) plant or from 16 to 6 percent, respectively, of the plant's total capital costs. For these plants, annualized costs would range from $25,000 to $53,000 per year. For portable crushing plants, capital costs would range from $88,000 for a 68 Mg/h (75 tons/h) plant to $260,000 for an 816 Mg/h (900 tons/h) plant or from 22 to 15 percent, respectively, of the plant's total capital costs. Annualized costs would range from $34,000 to $105,000 per year. The total additional capital cost to install baghouses on all new plants would be about $125 million for the first 5 years the proposed standards would be in effect. The total annualized cost would increase by $34 million in the fifth year. For each mineral industry, the annualized control cost in the fifth year divided by the annual output is less than 2 percent of the price of a ton of product.

Rationale

Selection of the Source Category for Control

EPA has identified nonmetallic mineral processing plants as sources of emissions that cause or contribute significantly to air pollution that may reasonably be anticipated to endanger public health or welfare. As a result, the Agency listed this source on the Priority List [40 CFR 60.16, 44 FR 49222 (August 21, 1979)], in accordance with Section 111(b)(1)(A) of the Clean Air Act. By the fifth year after proposal new, modified, and reconstructed facilities at

nonmetallic mineral processing plants would cause annual nationwide particulate matter emissions to increase by about 45,000 megagrams per year (50,000 tons per year) if no standards of performance were set.

The production of nonmetallic minerals is projected to increase at compound annual growth rates of up to 6 percent through the first 5 years after proposals, depending on mineral type. The growth rate estimates are based on long-term trends in the industries rather than current economic conditions. They indicate that about 500 new plants will be constructed in the 5-year period. Geographically, the nonmetallic minerals industry is highly dispersed, with plants processing at least 1 of the 18 nonmetallic minerals in all States.

The 18 minerals covered by the proposed standards were selected on the basis of production tonnage rather than on the basis of any health or welfare considerations as compared to other minerals. They are the top 18, excluding minerals for which standards have already been established or are being developed. Also excluded were minerals, such as sulfur, bromine, peat, and slag, with production processes that are not typical for most minerals, and those for which no growth is expected, such as potash and pyrites.

Selection of Pollutant and Emission Sources for Control

Particulate matter is the only pollutant emitted from sources covered by the proposed standards. The process operations included under the proposed standards were selected becasue they are sources of particulate matter emissions at nonmetallic mineral processing plants and because they are all amenable to the same types of air pollution control techniques. Process operations covered include the following pieces of equipment: crushers, grinding mills (including air separators, classifiers, and conveying systems), screening operations, bucket elevators, belt conveyors, bagging operations, storage bins, and enclosed truck and railcar loading stations. Equipment at portable plants is included because this equipment is similar to that used at fixed plants and is able to use the same emission control techniques.

Emissions from the following operations common to nonmetallic mineral processing plants are not covered by the proposed standards: haul roads, stockpiles, drilling, blasting, loading at the mine, and conveying (other than transfer points). There has been limited demonstration of the effectiveness of specific control techniques for these sources for the variety of conditions experienced across the country. EPA's Office of Research and Development is currently assessing these techniques, and the results will be considered in the future in determining the need for standards of performance for these sources. Information on control techniques for these operations is included in the document entitled "Air Pollution Control Techniques for Nonmetallic Minerals Industry" (EPA–450/3–82–014) available from the EPA Library (MD–35), Research Triangle Park, North Carolina 27711, telephone number (919) 541–2777.

Selection of Affected Facilities

The choice of the affected facility for these standards is based on the Agency's interpretation of Section 111 of the Act, and judicial construction of its meaning.[1] Under Section 111, the NSPS must apply to "new sources"; "source" is defined as "any building, structure, facility, or installation that emits or may emit any air pollutant" [Section 111(a)(3)]. Most industrial plants, however, consist of numerous pieces or groups of equipment that emit air pollutants, and that might be viewed as "sources." EPA, therefore, uses the term "affected facility" to designate the equipment, within a particular kind of plant, that is chosen as the "source" covered by a given standard.

In choosing the affected facility, EPA must decide which pieces or groups of equipment are the appropriate units for separate emission standards in the particular industry. The Agency must do this by examining the situation inlight of the terms and purpose of Section 111. One major consideration in this examination is that the use of a narrower definition results in bringing replacement equipment under the NSPS sooner. If, for example, an entire plant were designated as the affected facility, no part of the plant would be covered by the standards unless the plant as a whole is "modified" or "reconstructed." If, on the other hand, each piece of equipment is designated as the affected facility, then as each piece is replaced, the replacement piece will be a source subject to the standards. Because the purpose of Section 111 is to minimize emissions by the application of the best demonstrated control technology (considering cost, other health and environmental effects, and energy requirements) at all new and modified sources, there is a presumption that a narrower designation of the affected facility is proper. This ensures that new emission sources within plants will be brought under the coverage of the standards as they are installed. This presumption can be overcome, however, if the Agency concludes that the relevant statutory factors (technical feasibility, cost, energy, and other environmental impacts) points to a broader definition.

The narrow designation of affected facility for nonmetallic mineral processing plants would be each crusher, grinding mill, screening operation, bucket elevator, belt conveyor, bagging operation, storage bin, enclosed truck loading station, and enclosed railcar loading station. It is technologically feasible to control each facility under the narrow designation. Moreover, the Agency considers the economic, energy, and other impacts associated with the narrow designation of affected facility reasonable. As a result, EPA has selected the narrow designation of affected facility.

In order to promulgate the broader designation, EPA would have to find that it would achieve greater total emission reductions or equivalent total reductions with significant other benefits such as reduced costs, energy consumption or other environmental impacts. EPA solicits comments on this issue.

With the narrow designation of affected facility, the standards would cover new equipment at new plants and new equipment used to expand or refurbish existing plants. Expansions of plant capacity typically occur with the addition of a new crushing or grinding line, which may include one or more of each of the facilities listed above. Each of these facilities in the new line would be covered by the proposed standards as a new source (affected facility), but the rest ot the plant would not be affected.

Replacement of an entire piece of existing process equipment (e.g., a crusher) with new equipment would bring the replacement equipment under the standards as a new source. (See below the Section of Modification and Replacement for a discussion of equipment whose replacement would be considered only routine maintenance.) Industry representatives have asked for clarification of this provision. As a fixed or portable plant's crushers, screens, etc., wear out or require repair, they are usually replaced by comparable equipment. Further, a portable plant may change configuration, depending on the job for which it is being used, and equipment is either added to or taken from the plant as needed. If a piece of equipment added to a plant in such situations was manufactured before the

[1] The most important case is *ASARCo, Inc. v. EPA*, 578 F., 2d 319 (D.C. Cir. 1978).

date of proposal of the standards, it would be considered an "existing facility" and would not be subject to the standards. If it is manufactured after the date of proposal, it would be considered an "affected facility" and would be subject to the standards. The basis for this is the requirement in Section 111(a)(2) of the Clean Air Act that new source performance standards apply to sources for which construction or modification is "commenced" after proposal of the standards. EPA defines "commenced" in 40 CFR 60.1 to mean "* * * that an owner or operator (i.e., an equipment manufacturer or, in the case of field erection, a plant owner) has undertaken a continuous program of construction or modification or that an owner or operator has entered into a contractual obligation to undertake and complete, within a reasonable time, a continuous program of construction or modification." The manufacture of equipment would constitute a "continuous program of construction," and the date of manufacture would determine whether or not the equipment would be subject to the standards.

Selection of the Basis of the Proposed Standards

Section 111 of the Clean Air Act requires that standards of performance reflect the degree of emission limitation achievable through "application of the best system of continuous emission reduction which (taking into consideration the cost of achieving such emission reduction, and any nonair quality health and environmental impact and energy requirements) has been adequately demonstrated."

Methods currently in use to reduce particulate matter emissions at nonmetallic mineral processing plants include wet dust suppression, dry and wet collection, and a combination of collection and wet dust suppression. Wet dust suppression consists of spraying the materials with a fine mist of water causing fine particulate matter to adhere to the surface of the larger materials rather than becoming airborne. Dry and wet collection involves hooding or enclosing dust-producing points, capturing the dust generated, and passing the dust-laden air through a collection device. Combination systems use both methods at different stages throughout the processing plant. In addition to these control techniques, the use of enclosed structures to house process equipment may also be effective in preventing particulate matter emissions from reaching the atmosphere.

In a wet dust suppression system, water (with or without surfactant) is sprayed on the materials at critical dust-producing points in the process flow. This method has been used on a wide variety of materials including limestone, traprock, granite, shale, dolomite, and sand and gravel. It generally can be applied to materials that undergo crushing.

Wet dust suppression cannot be used in some cases, however, because the moisture may interfere with further processing such as screening or grinding where "blinding" problems may occur. In addition, the thermal capacity of the dryers that are used in some processing steps may limit the amount of water that can be sprayed into the materials. The addition of water at processing steps after the drying operation is not feasible for products sold in dry form and other means of emission control must be used. Where the materials processed contain a high percentage of fines, such as the product from a hammermill, wet dust suppression may be totally inadequate because of the large surface areas involved, which in turn would require large amounts of water. In some cases, wet dust suppression also reduces the maximum production rate because of the added weight to the material being processed. Although the mass emission reduction achieved with wet dust suppression systems cannot be calculated, if properly designed, installed, and operated, these systems are effective in reducing visible emissions in many situations. In addition, they are inexpensive and use little energy.

In both wet and dry collection systems, particulate matter emissions generated during process operations are controlled by capturing the emissions and passing them though a collection device. The most efficient collection device used in the nonmetallic mineral industry is the fabric filter or baghouse. Greater that 99 percent particulate collection control efficiency can be attained for material even as small as submicron sizes. Data gathered during emission tests on baghouse units used to control a variety of process operations indicate that the size distribution of particulate matter, the rock type processed, and the facility controlled do not substantially affect baghouse performance.

Other collection devices used in the nonmetallic mineral processing industry include dry inertial cyclones and wet scrubbers. Although dry inertial collectors demonstrate 95 to 99 percent efficiency for coarse particles (40 microns and larger), their efficiency for medium and fine particles (20 microns and smaller) is less that 85 percent.

The effectiveness of wet scrubber collection devices is directly related to presssure drop across the unit. The collection efficiency for a particle size distribution increases as pressure drop increases. A typical 6-inch pressure drop wet scrubber exhibits removal efficiencies of 80 to 99 percent for particles in a range of 1 to 10 microns in diameter. High-energy wet scrubbers with pressure drops of 30 inches can achieve efficiencies of 99.0 to 99.9 percent for particles from 0.2 to 1 micron. Fifteen-inch pressure drop wet scrubbers provide an intermediate level of control, removing 95.0 to 99.9 percent of the particles in the 1 to 10 micron range and 80 to 95 percent of the submicron particles. Collection efficiencies for wet scrubbers of a given pressure drop are a relatively constant percentage over the range of normal particle loadings. Thus, higher inlet particle loading will result in higher outlet concentrations, all other factors held equal. At abnormally low inlet particle loadings, however, the percentage removal may decrease even though lower outlet concentrations are reached.

Regulatory Alternatives

In determining the basis for the proposed standards, three regulatory alternatives were considered: to set no standards, to set standards based on baghouses and wet dust suppression systems, or to set standards based on baghouses only. To estimate the environmental, economic, and energy impacts of the alternatives, a "worst-case" analysis was conducted in which it was assumed that the model plants would use baghouses only to meet the proposed standards. Thus, the estimates reflect the maximum adverse economic and energy impact that could occur as a result of the standards, and actual impacts may be considerably less, particularly where wet dust suppression systems could be used instead of or in combination with baghouses.

A. *Environmental Impact.* There are many variations in the type and stringency of existing State regulations for nonmetallic mineral processing plants. Many, however, include process weight regulations limiting particulate matter emissions to a certain number of pounds per hour of production. For purposes of analysis, therefore, a typical process weight regulation that would reduce uncontrolled emissions by about 95 percent was selected as the baseline against which the regulatory alternatives were compared.

If no standards were set and the typical State process weight regulations were in effect, there would be an increase in nationwide particulate matter emissions of about 45,000 megagrams per year (50,000 tons per year) in 5 years. Standards based on baghouse control would reduce the increase in emissions to only 4,500 megagrams per year (5,000 tons per year). This is approximately 90 percent lower than the emission level that would be allowed under State regulations. It is not possible to quantify the mass emission reduction that would be achieved by the use of wet dust suppression systems although they are almost as effective as baghouses in reducting visible particulate emissions.

There would be no adverse water pollution impact resulting from any of the three regulatory alternatives. If no standards were set, plant processing operations would continue as in the past with neither an increase nor a decrease in water consumption or discharge. The use of baghouse control systems to meet the standards would not result in any water discharge because the standards would not require the use of any water. If wet dust suppression were used to meet the standards, there would be an increase in water consumption, but there would be no significant water discharge because most of the water adheres to the material being processed until it evaporates.

If no standards were set, there would be no solid waste impact other than that resulting from normal operation. The use of baghouse control systems to meet the standards would result in the collection of about 1.4 megagrams (1.5 tons) of solid waste for every 250 megagrams (276 tons) of material processed. In many cases, however, this material can be recycled back into the process, sold, or used for a variety of purposes. Where no market exists, the material is generally disposed of in the mine or in an isolated location in the quarry. To prevent subsequent air pollution problems, the waste pile should be protected from wind erosion. Methods for minimizing windblown dust are discussed in the document entitled "Air Pollution Control Techniques for Nonmetallic Minerals Industry" (EPA–450/3–82–014) available from the EPA Library (MD–35), Research Triangle Park, North Carolina 27711, telephone number (919) 541–2777. The use of wet suppression systems to meet the standards would result in no solid waste impact other than that resulting from normal operation.

There would be no noise impact if no standards were set. The only source of noise that would result from the standards would be the exhaust fans used in dry emission control systems. When compared to the noise from crushing and grinding process equipment, any additional noise from baghouse control system exhaust fans would be insignificant.

B. *Energy Impact.* There would be no energy impact if no standards were set. The net increase in electrical energy consumption by all new plants using baghouse control would be about 430 terajoules per year (1.2 terajoules per day) by the fifth year after proposal or 15 percent over that which would otherwise be required to meet the projected capacity additions without any controls. The estimates indicate a greater impact than would actually occur because many new plants would use baghouses or combinations of baghouses and water spray controls to meet existing State regulations. The energy impact that would result from the use of wet dust suppression systems has not been quantified, but would be less than the impact that would result from baghouse control.

The incremental increase in energy consumption at a particular plant using baghouse control is dependent on the size of the plant. Although the amount of energy that would be required would be more for a large plant than for a small plant, the percentage increase in the plant's total energy consumption would be less for a large plant than for a small plant. The increased energy consumption associated with baghouse control at a plant having both crushing and grinding operations would range from about 5 percent for a 136 Mg/h (150 tons/h) plant to 14 percent for a 9 Mg/h (10 tons/h) plant. For plants with crushing operations only, the increase would range from about 19 percent for a 544 Mg/h (600 tons/h) plant to 20 percent for a 9 Mg/h (10 tons/h) plant.

C. *Cost and Economic Impact.* There would be no adverse economic impact if no standards were set. The economic impact comparing no control to baghouse control is discussed below. The actual economic impact would be considerable less than the estimates presented because many new plants would use baghouses or combinations of baghouses and wet dust suppression systems to meet existing State standards. All of the dollar figures presented below are in 1979 dollars. Figures that were reported in different year dollars in the economic impact analysis in the BID have been converted to 1979 dollars for comparison purposes only.

The capital costs for baghouse control for a fixed plant with crushing but not grinding operations would range from $70,000 for a 9 Mg/h (10 tons/h) plant to $936,000 for a 544 Mg/h (600 tons/h) plant or from 12 to 9 percent, respectively, of the plant's total capital costs. For a fixed plant with both crushing and grinding operations, the capital costs would range from $109,000 for a 9 Mg/h (10 tons/h) plant to $219,000 for a 136 Mg/h (150 tons/h) plant or from 16 to 6 percent, respectively, of the plant's total capital costs. For portable crushing plants, the capital costs would range from $88,000 for a 68 Mg/h (75 tons/h) plant to $260,000 for an 816 Mg/h (900 tons/h) plant or from 22 to 15 percent of the plant's total capital costs.

The annualized costs for baghouse control at a fixed crushing plant would range from $17,000 to $105,000 per year, corresponding to $0.93 to $0.10/Mg ($0.85 to $0.09/ton) of product, as the plant capacity goes from 9 to 544 Mg/h (10 to 600 tons/h). The annulized costs for a fixed crushing and grinding plant would range from $25,000 to $53,000 per year or $0.33 to $0.05/Mg ($0.30 to $0.04/ton) of product as the plant capacity goes from 9 to 136 Mg/h (10 to 150 tons/h). The annualized costs for a portable crushing plant would range from $34,000 to $105,000 per year or $0.25 to $0.06/Mg ($0.23 to $0.06.ton) of product as the plant capacity goes from 68 to 816 Mg/h (75 to 900 tons/h).

The total additional capital cost for all new plants using baghouses would be about $125 million for the first 5 years the proposed standards would be in effect. These costs would vary for each industry, ranging from about $109,000 for several minerals to $96.5 million for crushed stone. The total annualized costs in the fifth year would increase by about $34 million, ranging from about $25,000 for vermiculite to more than $26 million for crushed stone. The average annualized control costs per ton of output in the fifth year following proposal would range from $0.006 for sand and gravel to $0.165 for kyanite. For each mineral industry, the annualized control cost in the fifth year divided by the annual output is less than 2 percent of the price of a ton of product. The economic impacts associated with standards based on baghouse control techniques would not preclude the building of most new plants. However, discounted cash flow analysis indicates that the incremental costs associated with the use of baghouse control may preclude the construction of new common clay plants and pumice plants with capacities of 9 Mg/h (10 tons/h) or

less, fixed sand and gravel plants and crushed stone plants with capacities of 23 Mg/h (25 tons/h) or less, and portable sand and gravel plants and crushed stone plants with capacities of 136 Mg/h (150 tons/h) or less. For this reason, these plants are exempt from the proposed standards. Representatives of the crushed stone and sand and gravel industries have indicated that few, if any, fixed plants smaller than 23 Mg/h (25 tons/h) and portable plants smaller than 136 Mg/h (150 tons/h) would be built in the future. Nevertheless, these exemptions are provided for those few plants that may be built.

If wet dust suppression systems were used to comply with the proposed standards, the economic impact would be less due to the lower costs of these systems. The capital costs for these systems for a fixed crushing plant would range from $57,000 for a 68 Mg/h (75 tons/h) plant to $135,000 for a 544 Mg/h (600 tons/h) plant. For portable crushing plants, the capital costs would range from $57,000 for a 68 Mg/h (75 tons/h) plant to $154,000 for an 816 Mg/h (900 tons/h) plant. The total annualized costs for a fixed crushing plant would range from $13,000 to $30,000 per year, corresponding to $0.10 to $0.02/Mg ($0.09 to $0.02/ton) of product, as the plant capacity goes from 68 to 544 Mg/h (75 to 600 tons/h). The total annualized costs for a portable crushing plant would range from $13,000 to $34,000 per year, corresponding to $0.10 to $0.02/Mg ($0.09 to $0.02/ton) as the plant capacity goes from 68 to 816 Mg/h (75 to 900 tons/h).

The economic analysis conducted for nonmetallic mineral processing plants would apply also to integrated production plants, such as those at lime plants, power plants, and steel mills. The economic impact for integrated production plants is expected to be the same or less for two reasons. First, the integrated plants would tend to have a lower cost of capital since they are usually affiliated with larger companies. Second, these plants would tend to pass on control costs sooner because the relative magnitude of the control cost in terms of final product value would be less. Therefore, all mineral processing equipment at lime plants, power plants, steel mills, and other source categories that operate separate mineral processing plants, would be covered by the proposed standards. At asphalt concrete plants and Portland cement plants, equipment used to process nonmetallic minerals that precedes equipment already covered by other standards of performance would be subject to the proposed standards. The equipment is identical to equipment at nonmetallic mineral processing plants. For example, an asphalt concrete plant may have all of the stone necessary for its product crushed on-sited. Because the asphalt concrete plant would crush as much stone as a nonmetallic mineral processing plant and use similar equipment, this part of an asphalt concrete plant would be considered a nonmetallic mineral processing plant and would be covered by the proposed standards. However, once the crushed stone is entered as a raw material into the process by which asphalt concrete is manufactured, equipment for handling it is considered part of the asphalt concrete plant and would not be covered by the proposed standards.

Representatives of the Chemical Manufacturers Association have commented that the economic analysis does not address the processing of synthetic nonmetallic minerals. EPA has found that the processing and emission control equipment used for synthetic nonmetallic minerals that would be covered by the standards is comparable to that used for natural nonmetallic minerals. The approach used in the economic analysis is believed to be valid for both synthetic and natural minerals. It indicates impacts that would occur under worst-case conditions for natural minerals, and EPA believes that the processing of synthetic minerals is adequately, although not specifically, represented by the situations analyzed. In the economic analysis, each industry was evaluated for potentially significant impacts as a result of the cost of control. A screening analysis that measured the effect of annualized control cost for the smallest size model plant in each industry (thus resulting in the highest per unit control cost and a worst case situation) on the average selling price of the mineral was prepared. Any industry that had a plant whose per unit production cost could be increased by 2 percent or more because of the cost of control was further evaluated. For these industries, a financial analysis of the impact of the cost of control on different plant sizes was prepared. This approach is believed to be valid for all segments of the industries covered by the standards.

Summary. Comparison of the alternatives indicates that a significant reduction in particulate matter emissions would result from setting standards and there would be minimal adverse water pollution, solid waste, and noise impacts. The increase in energy consumption would not be significant and the costs and economic impacts would be reasonable.

The standards that are being proposed are based on emission levels achievable using well designed and operated baghouse control or wet suppression techniques. Both systems are designated as best demonstrated technology (BDT). The effectiveness of wet dust suppression systems cannot be quantified in terms of mass emissions. However, where their use is feasible technologically, they are almost as effective as baghouse systems in reducing visible emissions. They cost about one-third as much as baghouses and use less energy. Therefore, the Administrator has determined that the small difference in visible emissions is justified by the large difference in cost and energy usage and has selected wet dust suppression as well as baghouses as BDT for cases where it can be used. The standards of performance do not require the installation or operation of any specific type of control equipment, rather, only that the specified emission limits be met. Thus, recognizing the diverse nature of the nonmetallic mineral processing industry, it is expected that effective wet dust suppression can and will be utilized to meet the standards in many cases. As described in another section of this preamble (SELECTION OF EMISSION LIMITS), this capability has been confirmed through EPA emission tests. In other instances, wet dust suppression may not provide the necessary control, and baghouse controls would be needed The proposed standards do not specify that any particular type of control equipment be installed and operated. Rather, they are "performance" standards that simply specify emission limits that must be met. Plants may choose any type of control system appropriate to their situations, as long as the emission limits are met.

Selection of Format for the Proposed Standards

In selecting the format for the proposed standards, it was necessary to differentiate between the two types of particulate matter emissions at nonmetallic mineral processing plants: fugitive emissions and stack emissions. Fugitive emissions are those that are no caught by a capture system before they are released into the atmosphere. Stack emissions, on the other hand, are those that are caught by a capture system, pass through a control device, and are released into the atmosphere from a stack or duct. Fugitive emissions are present when emissions generated at a point are not captured. They are also present when the capture system is not 100 percent effective in catching

emissions. To ensure that all emissions at affected facilities are controlled by the proposed standards, it is necessary to have one standard for fugitive emissions, which effectively requires good capture of emissions, and another standard for stack emissions, which effectively requires good collection of emissions.

Fugitive Emissions Standard. Two different formats could be selected to limit fugitive emissions from nonmetallic mineral processing plants: an equipment standard or a visible emissions standard. An equipment standard would require that a specific control device or technique be used. The Clean Air Act permits the use of equipment standards only when it is infeasible to set emission standards.

The second alternative format for controlling fugitive emissions is a visible emissions standard. A visible emissions standard would specify the maximum allowable opacity. A visible emissions standard could be applied to any process operation regardless of whether or not it is enclosed. For this reason, a visible emissions standard that specifies the maximum allowable opacity was selected for all plant process equipment.

Stack Emissions Standard. Two different formats could be selected to limit stack emissions from nonmetallic mineral processing plants. These are: (1) A mass standard, limiting emissions in terms of mass emissions per unit of production, (2) a concentration standard, limiting the concentration of particulate matter in the effluent gases.

A mass standard may appear more meaningful in the sense that it relates directly to the quantity of emissions discharged into theatmosphere. However, a major disadvantage of a mass standard for nonmetallic mineral processing plants is that, typically, the production or feed rate of a process operation is not measured over the short term. This, an accurate determination of the weight of material processed through an affected facility would not be possible.

A factor to consider when establishing a concentration standard is the possibility of the standard being circumvented by diluting the air going to the control device. This is unlikely to occur at nonmetallic mineral processing plants, because the size and operating costs of the control device are functions of the volume of gas treated an the cost of such a strategy probably would be prohibitive. Consequently, a concentration standard was selected for stack emissions at nonmetallic mineral processing plants. To ensure that the air pollution control system is properly installed, operated, and maintained, an opacity standard is also being proposed for all facilities not controlled by wet scrubbers. As discussed later in this preamble, an opacity standard for scrubbers would not be a meaningful indication of scrubber performance at nonmetallic mineral procesing plants. However, the monitoring of operating parameters of wet scrubbers (pressure drop accross the unit and scrubber liquid flow rate) would be required by the proposed standards.

Selection of Emission Limits

The selection of emission limits is based on the performance of the best systems of continuous emission reduction for the nonmetallic mineral processing industry. Because the proposed standards set emission limits for both capture devices (such as hoods and enclosures) or dust suppression systems, and for control devices (such as baghouses), all of these types of systems require evaluation.

In order to broaden the range of conditions considered for the performance of the control equipment, test data for metallic mineral processing facilities are also included in the data base considered in the selection of emission limits. Data from the metallic mineral processing industries may be appropriately transferred to the nonmetallic mineral industries for several reasons. Much of the process equipment relevant to the proposed standards is similar in the metallic and nonmetallic processing industries. Because the ores from which metallic elements are extracted are primarily nonmetallic in character, the emissions from metallic mineral processing operations are primarily nonmetallic mineral constituents. Furthermore, the similarity of emissions from metallic and nonmetallic processes in key parameters such as particle size distribution and mass loading provides additional evidence of similarity between the two industries. These measurements were made during the testing of both metallic and nonmetallic processing facilities and form the basis for extrapolating control efficiency from one industry, whether metallic or nonmetallic, to another.

Fugitive Emission Standard. Observations of visible emissions were made at hoods and enclosures to record the presence of process fugitive emissions escaping capture. Observations at both metallic and nonmetallic mineral processing plants are included in the data base presented in the background information document. A total of 53 operations at 13 plants were tested including all types of facilities covered by the standards. Visible emission readings were conducted in accordance with procedures outlined in EPA Method 9 (Appendix A 40 CFR Part 60) in which opacity is measured at 15-second intervals on a scale from 0 to 100 percent, to the nearest 5 percent. The sequence of the highest 24 consecutive readings was then averaged to give the maximum 6-minute average.

The maximum 6-minute average at 35 of the 53 processes tested was 0 percent. Only two facilities exceeded 5 percent opacity at any time. A grizzly screen at a copper operation showed maximum visible emissions of 8 percent opacity, and a bagging operation at a talc plant showed maximum visible emissions of 9 percent.

After reviewing the visible emission data for the plants controlled with capture and collection devices, representatives of the crushed stone and the sand and gravel industries commented that a representative cross section of plants had not been tested. Their primary concern was that controlled emissions at plants using dust suppression had not been characterized. Therefore, EPA and industry representatives cooperated in selecting 20 plants to visit as candidates for testing. Five of the twenty plants were judged to have the best wet dust suppression systems, and, therefore, were selected for visible emission observations. EPA and industry representatives observed visible emissions at these plants at the same time. For the most part, the results of the industry observations are in accord with EPA observations discussed below.

Opacity determinations were made at four crush stone processing plants and one sand and gravel processing plant that use wet dust suppression systems. Three of the plants were stationary and two were portable. At all of the process equipment (except crushers) being operated under conditions representative of normal operations and for which the wet dust suppression system was properly designed and operated, emissions were below 5 percent opacity. At crushers operated under the same conditions, emissions were below 15 percent opacity.

Based on the results of the visible emissions tests, a standard is being proposed to limit fugitive emissions to 10 percent opacity for all process equipment, with the following exception: the proposed standard for crushers at which capture systems are not used would limit emissions to 15 percent opacity. This standard, as shown by the date presented above and in the BID, is achievable with an ample margin in all

but the most extreme cases through the application of properly designed, operated, and maintained capture systems and in many cases through the use of properly designed, operated, and maintained wet dust suppression systems.

Stack Emissions Standard. The proposed concentration standard is based on the emission levels achievable using a baghouse. Particulate matter emissions were measured from 25 baghouses used to control emissions at crushing, screening, conveying (transfer points), and grinding operations at 13 plants in the metallic and nonmetallic mineral processing industries. The concentration of particulate matter emissions from these baghouses averaged 0.014 g/dscm (0.006 gr/dscf) and never exceeded 0.041 g/dscm (0.018 gr/dscf). Additional test results in a study performed by the Industrial Gas Cleaning Institute showed emission concentrations below 0.023 g/dscm (0.01 gr/dscf) for two fluid energy grinding mills processing clay (Fuller's earth).

Included in the testing program were emission tests at one gypsum and two talc plants. In all three tests, emissions exceeded the proposed standard of 0.05 g/dscm (0.02 gr/dscf). These test results were not representative of normal plant operation or proper baghouse operation. At the gypsum plant frequent startup and shutdown did not allow the baghouse to build up the necessary filter cake. Opacity determinations ranged continuously from 1 to 6 percent. Periodic visible puffing at one talc plant indicated either that a torn bag was being used or that the baghouse was operated improperly. Test results from the second talc plant indicated that emissions were well above the baghouse manufacturer's specification. To verify that properly designated and operated baghouses should have controlled emissions at these plants to levels below the standards, additional tests were conducted at plants processing Fuller's earth and kaolin. These clays were selected because their emissions contain particles as small or smaller than those from gypsum and talc plants and, therefore, would be just as difficult to control with a baghouse. The emission levels at these clay plants were lower than the proposed standard, confirming that a properly operated baghouse can control emissions to the level of the standard even on very fine particles. However, some industry representatives have previously commented that sufficient consideration was not given to the effect of particle size on collection efficiency, outlet emission grain loading, and opacity. Based on the results of the tests on plants processing Fuller's earth and kaolin, the Administrator believes that the standards are achievable even for very fine particles. However, comments are specifically requested on the effect of particle size on collection efficiency, outlet emission grain loading, and opacity.

The test data and modelling results summarized above indicate that baghouses can be used to achieve an emission limit of 0.05 g/dscm (0.02 gr/dscf). Therefore, the proposed stack emission standard would limit emissions to this level.

A 7-percent opacity standard (based on 6-minute averages) is also proposed for stack emissions. Opacity data were obtained during the emission tests on which the concentration standard is based. At 21 of 25 baghouses tested the maximum 6-minute average was 0 percent opacity. At three of the remaining four baghouses the maximum 6-minute opacity was 1 percent. The last baghouse showed visible emissions of up to 6 percent opacity. Therefore, a 7-percent opacity standard is being proposed to insure the proper operation and maintenance of the air pollution control device. Facilities controlled with wet scrubbers would be exempt from the proposed opacity standard as discussed below.

The opacity standard for stack emissions would be applicable in all cases unless EPA were to approve establishment of a special opacity standard under the provisions of 40 CFR 60.11(e). The provisions allow an owner or operator to apply to EPA for establishment of a special opacity standard for any source that meets the applicable concentration standard (demonstrated through performance tests under conditions established by EPA) but is unable to meet the opacity standard despite operating and maintaining the control equipment so as to minimize opacity. A special opacity standard might be established, for example, where an unusually large diameter stack precludes compliance with the proposed opacity standard.

Stack emission opacity data collected during test of wet scrubbers at metallic mineral processing plants were inconclusive due to their high variability. Some of the highest opacity readings (e.g., 25 percent) were observed at low outlet particle concentrations (e.g., 0.006 gr/dscf); while at other facilities with outlet concentrations closer to the stack emission limits, opacity was essentially zero. Therefore, an opacity standard is not being proposed for wet scrubbers. Instead, monitoring operating parameters of wet scrubbers (pressure drop and scrubber liquid flow rate) would be required by the proposed standard.

Modification and Reconstruction of Existing Facilities

Under the modification provisions applicable to all standards of performance, facilities at existing plants would be required to comply with the proposed standards if some type of physical or operational change is made that results in an increase in particulate matter emissions.

Under the modification provisions, actions that by themselves would not be considered modifications and thus would not cause an existing facility to become subject to the standards, regardless of emission increase, include the following:

1. Routine maintenance, repair, and replacement, such as replacement or refurbishing of components subject to high abrasion and impact (crushing surfaces, screening surfaces, conveyor belts, etc.).

2. An increase in the production rate, if the increase can be accomplished without a capital expenditure exceeding the product of the existing facility's Internal Revenue Service annual asset guideline repair allowance of 6.5 percent per year and the facility's basis.

3. An increase in the hours of operation.

4. Use of an alternative raw material, if the existing facility was designed to accomodate such material. Because process equipment (crushers, screens, conveyors, etc.) is designed to accommodate a variety of rock types, any change in raw material feed would not likely be considered a modification.

5. The addition or use of any air pollution control system except when a system is removed or replaced with a system considered to be less effective.

6. The relocaltion or change in ownership of an existing facility.

Because most changes to nonmetalic mineral processing plants would fall under one of the six categories listed above, there would be few cases where an existing facility would become subject to the standards as a result of modification. Typically, expansions in capacity at an existing plant involves adding completely new process lines. The affected facilities in each new process line would be regulated as new sources subject to the proposed standards.

Under the reconstruction provisions applicable to all standards of performance, an existing facility might become subject to the standards if its

components were replaced to such an extent that the fixed capital cost of new components exceeded 50 percent of the fixed capital cost that would be required to construct a comparable entirely new facility. At nonmetallic mineral processing plants, several types of actions that constitute routine repair and maintenance would conceivably bring an existing facility under the standards within a short period of time. For example, crusher jaw and spindle surfaces and screen meshing are typically replaced on regular intervals ranging from 1 to 6 months. These replacements parts typically represent from 5 to 10 percent of the cost of new equipment. Thus, within a period of 2 years or less, most existing crushers and screens will encounter such replacements. Depending on the application and the material handled, the replacement of conveyor belts is also a routine repair item of many plants. The replacement of crushing surfaces; screen meshes, bars and plates; conveyor belts; and other surfaces subject to abrasion occurs regularly to maintain the equipment in proper working order. However, as explained below, these types of replacements would not bring a facility under the standard.

As noted in the preamble to the regulation regarding reconstruction of existing facilities, 40 FR 58417 (December 16, 1975), the purpose of the reconstruction provisions is to "recognize that replacement of many of the components of a facility can be substantially equivalent to totally replacing it at the end of its useful life with a newly constructed affected facility." By requiring this type of essentially new facility to comply with NSPS, the Agency furthers Congress' intent of ensuring that best demonstrated control technology is applied during the turnover in the nation's industrial base. The reasoning underlying the reconstruction provisions may apply even when replacement of the components of a facility occurs over a relatively long period of time.

Section 60.15 defines the "fixed capital cost" of replacement components as the capital needed to provide all the "depreciable" components. By excluding nondepreciable components from consideration in calculating component replacement costs, this definition excludes many components that are replaced frequently to keep the plant in proper working order. There may, however, be some relatively minor depreciable components that are replaced frequently for similar purposes. In the Agency's judgment, maintaining records of the repair or replacement of these items may constitute an unnecessary burden. Moreover, the Agency does not consider the replacement of these items an element of the turnover in the life of the facility which concerned Congress when it enacted Section 111. Therefore, in accordance with 40 CFR 60.15(g), these proposed standards would exempt certain frequently replaced components, whether depreciable or nondepreciable, from consideration in applying the reconstruction provisions to nonmetallic processing plant facilities. The cost of these components will not be considered in calculating either the "fixed capital cost of the new components" or the "fixed capital costs that would be required to construct a comparable new facility" under § 60.15. In the Agency's judgment, these items are ore-contact surfaces on processing equipment, including crushing surfaces; screen meshes, bars, and plates; conveyor belts; and elevator buckets.

Other types of repairs and replacement also take place at nonmetallic mineral processing plants over a period of time. Section 60.15 currently defines "reconstruction" as the replacement of components of an existing facility to such an extent that "the fixed capital cost of the new components" exceeds 50 percent of the "fixed capital cost" that would be required to construct a comparable entirely new facility and EPA determines that it is technologically and economically feasible to meet the applicable NSPS. The question arises under this wording whether a reconstruction has occurred in the case of an owner who first replaces components of an existing facility at a cost equal to, say, 30 percent of the cost of an entirely new facility and then, shortly after commencing or completing those replacements, replaces an additional 30 percent. More specifically, it is uncertain whether there are two separate actions occuring, neither of which would be a reconstruction, or the actions would be considered as one, and thus a possible reconstruction.

EPA does not believe that the facilities undergoing this type of extensive component replacement should be excluded from NSPS coverage. Failure to cover these sources serves to undermine Congress' intent that air quality be enhanced over the long term by applying best demonstrated technology with the turnover in the Nation's industrial base.

To eliminate the ambiguity in the current wording of § 60.15 and further the intent underlying Section 111 (as described above), the Agency in this notice is interpreting replacement components under § 60.15 to include components that are replaced pursuant to all continuous programs of component replacement that commence (but are not necessarily completed) within the period of time determined by the Agency to be appropriate for the individual NSPS involved. The Agency is selecting a 2-year period as the appropriate period for purposes of the nonmetallic minerals NSPS being proposed today [§ 60.673(b)]. Thus, the Agency will count toward the 50 percent reconstruction threshold the "fixed capital cost" of all depreciable components (except those described above) replaced pursuant to all continuous programs of reconstruction that commence within any 2-year period following proposal of these standards. In the Administrator's judgment, the 2-year period provides a reasonable, objective method of determining whether an owner or operator of a nonmetallic mineral production facility is actually conducting extensive component replacement, within the Agency's original intent in promulgating § 60.15

Selection of Performance Test Methods

Under the proposed standards, performance tests for particulate matter emissions would be required for all air pollution control devices on process equipment. Particulate matter would be measured by Reference Methods 1, 2, 3, and 5 or 17 to determine compliance with the stack emission standards. Performance tests would not be required for fugitive emission sources.

The proposed standards do not include any requirements for continuous emission monitoring for opacity on either baghouses or wet scrubbers.The lack of requirements for opacity monitors for wet scrubbers logically follows from the exemption of wet scrubbers for the stack opacity standard. At many nonmetallic mineral processing plants, the cost of operating continuous monitors on baghouses could be prohibitive. The total annualized cost for monitors would range from 47 percent of the annualized cost for baghouses on a 9 Mg/h (10 tons/h) crushing and grinding plant to 15 percent for a 544 Mg/h (600 tons/h) crushing and grinding plant. Therefore, continuous emissions monitors would not be required by the proposed standards.

In order to provide an inexpensive and easily verified check of the operation and maintenance of wet scrubbers, the owner or operator of an affected facility whose emissions are controlled by a wet scrubber would be

required by the proposed standards to install a device to measure scrubber liquid flow rate to withing ±5 percent. The owner or operator of a wet scrubber on an affected facility would also be required to install a device to measure the pressure drop to within ±250 pascals (±1 inch water) gauge pressure.

Selection of Reporting and Recordkeeping Requirements

The implementation of the proposed standards would involve no reporting by industry beyond the reports required under the General Provisions (40 CFR 60.7). The General Provisions require the owner or operator of a proposed affected facility to notify the Administrator or his designated representative of the construction, anticipated startup, actual startup, and control system performance test of an affected facility.

The Paperwork Reduction Act (PRA) of 1980 (Pub. L. 96–511) requires that the Office of Management and Budget (OMB) approve reporting and recordkeeping requirements that qualify as an "information collection request" (ICR). For the purposes of accommodating OMB's review, EPA uses 2-year periods in its impact analysis procedures for estimating the labor-hour burden of reporting and recordkeeping requirements. During the first 2 years that the proposed standards would be in effect, the average annual industry-wide burden of the reporting and recordkeeping required by the General Provisions (notifications, performance tests, etc.) would be 79,500 person-hours, based on an average of 104 respondents per year. No additional burden would be associated with the proposed standards. The supporting statement that documents calculation of this burden is filed as item II–A–37 in docket number OAQPS–78–11.

The collection of information requirements contained in this rule have been submitted to OMB for review under Section 3504(h) of the Paperwork Reduction Act. Comments on these requirements should be directed to the Office of Information and Regulatory Affairs, OMB, Attention: Desk Officer for EPA.

Public Hearing

A public hearing will be held, if requested, to discuss the proposed standards in accordance with Section 307(d)(5) of the Clean Air Act. Persons wishing to make oral presentations should contact EPA at the address given in the **ADDRESSES** Section of this preamble. Oral presentations will be limited to 15 minutes each. Any member of the public may file a written statement with EPA before, during, or within 30 days after the hearing. Written statements should be addressed to the Central Docket Section address given in the **ADDRESSES** section of this preamble.

A verbatim transcript of the hearing and written statements will be available for public inspection and copying during normal working hours at EPA's Central Docket Section, in Washington, D.C. (See **ADDRESSES** section of this preamble).

Docket

The docket is an organized and complete file of all the information submitted to or otherwise considered by EPA in the development of this proposed rulemaking. The principal purposes of the docket are: (1) To allow interested parties to identify and locate documents so that they can effectively participate in the rulemaking process, and (2) to serve as the record in case of judicial review (except for interagency review materials [section 307(d)(7)(A)]).

Miscellaneous

As prescribed by Section 111 of the Clean Air Act, as amended, establishment of standards of performance for nonmetallic mineral processing plants was preceded by the Administator's determination (40 CFR 60.16, 44 FR 49222, dated August 21, 1979) that these sources contribute significantly to air pollution which may reasonably be anticipated to endanger public health or welfare. In accordance with Section 117 of the Act, publication of this proposal was preceded by consultation with appropriate advisory committees, independent experts, and Federal departments and agencies. In addition, numerous meetings were held with industry representatives and trade associations during development of the proposed standards. The Administrator will welcome comments on all aspects of the proposed regulation, including economic and technological issues.

Comments are also specifically invited on the effect of particle size on collection efficiency, outlet grain loading, opacity, and the designation of an affected facility. Any comments submitted to the Administrator on this issue, however, should contain specific information and data pertinent to an evaluation of the magnitude and severity of its impact and suggested alternative courses of action that could avoid this impact.

This regulation will be reviewed 4 years from the date of promulgation as required by the Clean Air Act. This review will include an assessment of such factors as the need for integration with other programs, the existence of alternative methods, enforceability, improvements in emission control technology, and reporting requirements.

Section 317 of the Clean Air Act requires the Administrator to prepare an economic impact assessment for any new source standard of performance promulgated under Section 111(b) of the Act. An economic impact assessment was prepared for the proposed regulations and for other regulatory alternatives. All aspects of the assessment were considered in the formulation of the proposed standards to insure that the proposed standards would represent the best system of emission reduction considering costs. The economic impact assessment is included in the background information document.

Under Executive Order 12291, EPA must judge whether a regulation is "major" and therefore subject to the requirement of a Regulatory Impact Analysis. This regulation is not major because it would result in none of the adverse economic effects set forth in Section 1 of the Order as grounds for finding a regulation to be major. The industry-wide annualized costs in the fifth year after the standards would go into effect would be $34 million, much less than the $100 million established as the first criterion for a major regulation in the Order. The estimated price increase of less than 2 percent associated with the proposed standards would not be considered a "major increase in costs or prices" specified as the second criterion in the Order. The economic analysis of the proposed standards' effects on the industry did not indicate any significant adverse effects on competition, investment, productivity, employment, innovation, or the ability of U.S. firms to compete with foreign firms (the third criterion in the Order).

This regulation was submitted to the Office of Management and Budget for review as required by Executive Order 12291.

In addition to the economic impact analysis, the emission reductions and annualized costs for typical facilities—expressed in dollars per ton of pollutant removed per year—were examined. Worst-case estimates (assuming the use of baghouses at all affected facilities) indicate that annualized costs per megagram of emission reduction for typical plants would be no more than $32 for stationary plants and $110 for portable plants.

Pursant to the provisions of 5 U.S.C. 605(b), I hereby certify that this rule, if promulgated, will not have a significant

economic impact on a substantial number of small entities.

List of Subject in 40 CFR Part 60

Air pollution control, Aluminum, Ammonium sulfate plants, Asphalt, Cement industry, Coal, Copper, Electric power plants, Glass and glass products, Grains, Intergovernmental relations, Iron, Lead, Metals, Metallic minerals, Motor vehicles, Nitric acid plants, Paper and paper products industry, Petroleum, Phosphate, Sewage disposal, Steel, Sulfuric acid plants, Waste treatment and disposal, Zinc, Tires, Incorporation by reference, Can surface coating.

Dated: August 12, 1983.

William Ruckelshaus,

Administrator.

PART 60—[AMENDED]

It is proposed to amend Part 60 of Chapter I, Title 40 of the Code of Federal Regulations by adding Subpart OOO as follows:

Subpart OOO—Standards of Performance of Nonmetallic Mineral Processing Plants

Sec.

Authority: Secs. 111 and 301(a) of the Clean Air Act, as amended [42 U.S.C. 7411, 7601(a)], and additional authority as noted below

Subpart OOO—Standards of Performance for Nonmetallic Mineral Processing Plants

§ 60.670 Applicability and designation of affected facility.

(a) Except as provided in paragraphs (b) and (c) of this section, the provisions of this subpart are applicable to the following affected facilities in fixed or portable nonmetallic mineral processing plants: each crusher, grinding mill, screening operation, bucket elevator, belt conveyor, bagging operation, storage bin, enclosed truck or railcar loading station.

(b) An affected facility that is subject to the provisions of Subpart F or I or that follows in the plant process any facility subject to the provisions of Subparts F or I of this part is not subject to the provisions of this subpart.

(c) Facilities at the following plants are not subject to the provisions of this subpart:

(1) Fixed sand and gravel plants and crushed stone plants with capacities of 23 megagrams per hour (25 tons per hour) or less;

(2) Portable sand and gravel plants and crushed stone plants with capacities of 136 megagrams per hour (150 tons per hour) or less; and

(3) Common clay plants and pumice plants with capacities of 9 megagrams per hour (10 tons per hour) or less.

(d) An affected facility under paragraph (a) of this section that commences construction or modification after ——— (date of publication in the **Federal Register**) is subject to the requirements of this part.

§ 60.671 Definitions.

All terms used in this subpart, but not specifically defined in this section, shall have the meaning given them in the Act and in subpart A of this part.

Bagging operation means the mechanical process by which bags are filled with nonmetallic minerals.

Belt conveyor means a conveying device that transports material from one location to another by means of an endless belt that is carried on a series of idlers and routed around a pulley at each end.

Bucket elevator means a conveying device for nonmetallic minerals consisting of a head and foot assembly which supports and drives an endless single or double strand chain or belt to which buckets are attached.

Capture system means the equipment (including buildings, enclosures, hoods, ducts, fans, dampers, etc.) used to capture and transport particulate matter generated by one or more process operations to a control device.

Control device means the air pollution control equipment used to reduce particulate matter emissions released to the atmosphere from one or more process operations at a nonmetallic mineral processing plant.

Crusher means a machine used to crush any nonmetallic mineral, and includes but is not limited to the following types: jaw, gyratory, cone, roll, rod mill, and hammermill.

Enclosed truck or railcar loading station means that portion of a nonmetallic mineral processing plant where nonmetallic minerals are loaded by an enclosed conveying system into enclosed trucks or railcars.

Fixed plant means any nonmetallic mineral processing plant at which any piece of equipment is attached by a cable, chain, turnbuckle, bolt or other means to any anchor, slab, or structure including bedrock.

Fugitive emission means particulate matter that is not collected by a capture system and is released to the atmosphere at the point of generation.

Grinding mill means a machine used for the wet or dry fine crushing of any nonmetallic mineral. Grinding mills include by are not limited to the following types: Hammer, roller, rod, pebble and ball, and fluid energy. The grinding mill includes the air conveying system, air separator, or air classifier, where such systems are used.

Nonmetallic mineral means any of the following minerals or any mixture of which the majority is any of the following minerals:

(a) Crushed and Broken Stone, including Limestone, Dolomite, Granite, Traprock, Sandstone, Quartz, Quartzite, Marl, Marble, Slate, Shale, Oil Shale, and Shell.

(b) Sand and Gravel.

(c) Clay including Kaolin, Fireclay, Bentonite, Fuller's Earth, Ball Clay, and Common Clay.

(d) Rock Salt.

(e) Gypsum.

(f) Sodium compounds, including Sodium Chloride, Sodium Carbonate, and Sodium Sulfate.

(g) Pumice.

(h) Gilsonite.

(i) Talc and Pyrophyllite.

(j) Boron, including Borax, Kernite, and Colemanite.

(k) Barite.

(l) Fluorspar.

(m) Feldspar.

(n) Diatomite.

(o) Perlite.

(p) Vermiculite.

(q) Mica.

(r) Kyanite, including Andalusite, Sillimanite, Topaz, and Dumortierite.

Nonmetallic mineral processing plant means any combination of equipment that is used to crush or grind any nonmetallic mineral wherever located, including lime plants, power plants, steel mills, asphalt concrete plants, Portland cement plants, or any other facility processing nonmetallic minerals except as provided in § 60.670 (b) and (c).

Portable plant means any nonmetallic mineral processing plant that is mounted on any chassis or skids and may be moved by the application of a lifting or pulling force. In addition, there shall be no cable, chain, turnbuckle, bolt or other means by which any piece of equipment is attached or clamped to any anchor, slab, or structure, including bedrock, that must be removed prior to the application of a lifting or pulling force for the purpose of transporting the unit.

Screening operation means a device for separating material according to size by passing undersize material through one or more mesh surfaces (screens) in series, and retaining oversize material on the mesh surfaces (screens).

Stack emission means the particulate matter that is released to the atmosphere from a capture system.

Storage bin means a facility for storage (including surge bins) of nonmetallic minerals prior to further processing or loading.

Transfer point means a point in a conveying operation where the nonmetallic mineral is transferred to or from a belt conveyor except where the nonmetallic mineral is being transferred to a stockpile.

§ 60.672 Standard for particulate matter.

(a) On and after the date on which the performance test required to be conducted by § 60.8 is completed, no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any transfer point on belt conveyors or from any other affected facility any stack emissions which:

(1) Contain particulate matter in excess of 0.05 g/dscm; or

(2) Exhibit greater than 7 percent opacity, unless the stack emissions are discharged from an affected facility using a wet scrubbing control device.

(b) On and after the sixtieth day after achieving the maximum production rate at which the affected facility will be operated, but not later than 180 days after initial startup, no owner or operator subject of the provisions of this subpart shall cause to be discharged into the atmosphere from any transfer point on belt conveyors or from any other affected facility any fugitive emissions which exhibit greater than 10 percent opacity, except as provided in paragraphs (c) and (d) of this section.

(c) On and after the sixtieth day after achieving the maximum production rate at which the affected facility will be operated, but not later than 180 days after initial startup, no owner or operator shall cause to be discharged into the atmosphere from any crusher, at which a capture system is not used, fugitive emissions which exhibit greater than 15 percent opacity.

(d) Truck dumping of nonmetallic minerals into any screening operation, feed hopper, or crusher is exempt from the requirements of this section.

§ 60.673 Reconstruction.

(a) The cost of replacement of ore-contact surfaces on processing equipment shall not be considered in calculating either the "fixed capital cost of the new components" or the "fixed capital cost that would be required to construct a comparable new facility" under § 60.15. Ore-contact surfaces are crushing surfaces; screen meshes, bars, and plates; conveyor belts; and elevator buckets.

(b) Under § 60.15, the "fixed capital cost of the new components" includes the fixed capital cost of all depreciable components (except components specified in paragraph (a) of this section) which are or will be replaced pursuant to all continuous programs of component replacement commenced within any 2-year period following—[date of publication in **Federal Register**].

§ 60.674 Monitoring of operations.

(a) The owner or operator subject to the provisions of this subpart shall install, calibrate, maintain, and operate a monitoring device for the continuous measurement of the pressure loss of the gas stream through the scrubber for any affected facility using a wet scrubbing emission control device. The monitoring device must be certified by the manufacturer to be accurate within ±250 pascals ±1 inch water) gauge pressure and must be calibrated on an annual basis in accordance with manufacturer's instructions.

(b) The owner or operator subject to the provisions of this subpart shall install, calibrate, maintain, and operate a monitoring device for the continuous measurement of the scrubbing liquid flow rate to a wet scrubber for any affected facility using any type of wet scrubbing emission control device. The monitoring device must be certified by the manufacturer to be accurate within ±5 percent of design scrubbing liquid flow rate and must be calibrated on an annual basis in accordance with manufacturer's instructions.

§ 60.675 Test methods and procedures.

(a) Reference methods in Appendix A of this part, except as provided under § 60.8(b), shall be used to determine compliance with the standards prescribed under § 60.672 as follows:

(1) Method 5 or Method 17 for concentration of particulate matter and associated moisture content;

(2) Method 1 for sample and velocity traverses;

(3) Method 2 for velocity and volumetric flow rate;

(4) Method 3 for gas analysis.

(b) For Method 5, the following stipulations shall apply:

(1) The sampling probe and filter holder may be operated without heaters if the gas stream being sampled is at ambient temperature;

(2) For gas streams above ambient temperature, the sampling train shall be operated with a probe and filter temperature slightly above the effluent temperature [up to a maximum filter temperature of 121°C (250°F)] in order to prevent water condensation on the filter;

(3) The minimum sample volume shall be 1.7 dscm (60 dscf).

(c) When determining compliance with the standard prescribed under § 60.672 (b) and (c), the Administrator shall adhere to the following stipulations for Method 9:

(1) The minimum distance between the observer and the emission source shall be 4.57 meters (15 feet).

(2) The observer shall, when possible, select a position that minimizes interference from other fugitive emission sources (e.g., road dust). Note that the required observer position relative to the sun (Method 9, Section 2.1) must be followed.

(3) For affected facilities utilizing wet dust suppression for particulate matter control, a visible water mist is sometimes generated by the spray. Whether or not a visible mist is generated is a function of spray design and wind condition. The water mist must not be confused with particulate matter emissions and is not to be considered a visible emission. When a water mist of this nature is present, the observation of the emissions is to be made at a point in the plume where the mist is no longer visible.

(d) During each performance test of a wet scrubber and at least weekly thereafter, the owner or operator shall record the measurements of pressure loss of the gas stream through the scrubber and the scrubbing liquid flow rate required in § 60.674.

(Sec. 114 of the Clean Air Act, as amended (42 U.S.C. 7414))

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