Title 40—Protection of the Environment

CHAPTER I—ENVIRONMENTAL PROTECTION AGENCY

SUBCHAPTER N—EFFLUENT GUIDELINES AND STANDARDS

[FRL 557-1]

PART 436—MINERAL MINING AND PROCESSING POINT SOURCE CATEGORY

Interim Final Rule Making

Notice is hereby given that effluent limitations and guidelines for existing sources to be achieved by the application of best practicable control technology currently available as set forth in interim final form below are promulgated by the Environmental Protection Agency (EPA). The regulation set forth below amends Part 436—mineral mining and processing point source category and will be applicable to existing sources for the crushed stone subcategory (subpart B), the construction sand and gravel subcategory (Subpart C), the industrial sand subcategory (Subpart D), and the phosphate rock subcategory (Subpart R) of the mineral mining and processing point source category pursuant to sections 301, and 304(b) and (c), of the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251, 1311 and 1314(b) and (c), 86 Stat. 816 et seq.; Pub. L. 92-500) (the Act). Simultaneously, the Agency is publishing in proposed form effluent limitations and guidelines for existing sources to be achieved by the application of best available technology economically achievable, standards of performance for new point sources and pretreatment standards for new sources. These latter limitations and guidelines are published for the above four subcategories (Subparts B, C, D and R) and also for those subcategories for which effluent limitations and guidelines representing the best practicable control technology currently available were promulgated on October 6, 1975. At that time the best available technology economically achievable, standards of performance for new point sources and pretreatment standards for new sources were not specified. A description and discussion of this legal authority is contained in Appendix A to this preamble.

The mineral mining and processing point source category was first studied to determine whether separate limitations are appropriate for different segments within the category. This analysis included a determination of whether differences in raw material used, product produced, manufacturing process employed, age, size, waste water constituents and other factors require development of separate limitations for different segments of the point source category. The raw waste characteristics for each such segment were then identified. The control and treatment technologies existing within each segment were identified in terms of the amount of constituents and the chemical, physical, and biological characteristics of pollutants, the effluent level resulting from the application of each of the technologies. This information was then evaluated in order to determine what levels of technology constitute the "best practicable control technology currently available." The data upon which the above analysis was performed included EPA permit applications, EPA sampling and inspections, consultant reports, and industry submissions. A substantial summary of the method of study, the several factors considered in subcategorization and the conclusions reached are set forth as Appendix B to this preamble.

The report entitled "Development Document for Interim Final Effluent Limitations Guidelines and New Source Performance Standards for the Mineral Mining and Processing Point Source Category" details the analysis undertaken in support of the interim final regulation set forth herein and is available for inspection at the EPA Public Information Reference Unit, Room 2922 (EPA Library), Waterside Mall, 401 M St. S.W., Washington, D.C., at all EPA regional offices, and at State water pollution control offices. A supplementary analysis prepared for EPA of the possible economic effects of the regulation is also available for inspection at these locations. Copies of both of these documents are being sent to persons or institutions affected by the proposed regulation or who have placed themselves on a mailing list for this purpose (see EPA's Advance Notice of Public Review Procedures, 38 FR 21202, August 6, 1973). An additional limited number of copies of both reports are available. Persons wishing to obtain a copy may write the Environmental Protection Agency, Effluent Guidelines Division, Washington, D.C. 20460, Attention: Distribution Officer, WH-552.

When this regulation is promulgated in final rather than interim form, revised copies of the Development Document will be available from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402. Copies of the economic analysis document will be available through the National Technical Information Service, Springfield, VA 22151.

Prior to this publication, many agencies and groups were consulted and given the opportunity to participate in the development of these limitations, guidelines and standards. All participating agencies have been informed of project developments. Initial drafts of the Development Documents were sent to all participants and comments were solicited on those reports. A summary of these comments and the agencies' response and consideration of these is contained in Appendix C to this preamble.

The Agency has made a study of the costs and economic and inflationary impacts of this regulation. It is estimated that the capital cost of complying with the limitations based on the best practicable control technology currently available will be $23.9 million. There will be no significant additional costs of complying with regulations based on the best available control technology economically achievable. There will be no cost of complying with pretreatment standards for new sources. The total annual operating costs for these requirements is estimated to be $10.1 million. The proposed new source performance standards are identical to the limitations representing the best available technology economically achievable. Hence, the costs per ton of product will be the same. These costs and the resultant economic and inflationary impact are briefly discussed in Appendix B to this preamble and are substantially detailed in the economic analysis document. It is hereby certified that the economic and inflationary effects of this proposal have been carefully evaluated in accordance with Executive Order No. 11821.

The Agency is subject to an order of the United States District Court for the District of Columbia entered in *Natural Resources Defense Council* v. *Train* et al. (Cv. No. 1609-73) which requires the promulgation of regulations for this industry category no later than June 1, 1976. This order also requires that such regulations become effective immediately upon publication. In addition, it is necessary to promulgate regulations establishing limitations on the discharge of pollutants from point sources in this category so that the process of issuing permits to individual dischargers under section 402 of the Act is not delayed.

It has not been practicable to develop and publish regulations for this category in proposed form, to provide a 60 day comment period, and to make any necessary revisions in light of the comments received within the time constraints imposed by the court order referred to above. Accordingly, the Agency has determined pursuant to 5 U.S.C. § 553(b) that notice and comment on the interim final regulations would be impracticable and contrary to the public interest. Good cause is also found for these regulations to become effective immediately upon publication.

Interested persons are encouraged to submit written comments. Comments should be submitted in triplicate to the Environmental Protection Agency, 401 M St., S.W., Washington, D.C. 20460, Attention: Distribution Officer, WH-552. Comments on all aspects of the regulation are solicited. In the event comments are in the nature of criticisms as to the adequacy of data which are available, or which may be relied upon by the Agency, comments should identify and, if possible, provide any additional data which may be available and should indicate why such data are essential to the amendment or modification of the regulation. In the event comments address the approach taken by the Agency in establishing an effluent limitation or guideline EPA solicits suggestions as to what alternative approach should be taken and why and how this alternative better satisfies the detailed requirements of sections 301 and 304(b) of the Act.

A copy of all public comments will be available for inspection and copying at the EPA Public Information Reference

Unit, Room 2922 (EPA Library), Waterside Mall, 401 M Street, S.W., Washington, D.C. A copy of the preliminary draft contractor reports, the Development Document and economic study referred to above, and certain supplementary materials supporting the study of the industry concerned will also be maintained at this location for public review and copying. The EPA information regulation, 40 CFR Part 2, provides that a reasonable fee may be charged for copying.

All comments received on or before August 9, 1976, will be considered. Steps previously taken by the Environmental Protection Agency to facilitate public response within this time period are outlined in the advance notice concerning public review procedures published on August 6, 1973 (38 FR 21202). In the event that the final regulation differs substantially from the interim final regulation set forth herein the Agency will consider petitions for reconsideration of any permits issued in accordance with these interim final regulations.

In consideration of the foregoing, 40 CFR Part 436 is hereby amended as set forth below.

(Secs. 301, 304 (b) and (c), 306(b) and 307(c), Federal Water Pollution Control Act, as amended (the Act); (33 U.S.C. 1251, 1311, 1314 (b) and (c), 1316(b) and 1317(c)); 86 stat. 816 et seq.; Pub. L. 92-500)

Dated: May 28, 1976.

JOHN QUARLES,
Acting Administrator.

APPENDIX A
LEGAL AUTHORITY

(1) Existing point sources.

Section 301(b) of the Act requires the achievement by not later than July 1, 1977, of effluent limitations for point sources, other than publicly owned treatment works, which require the application of the best practicable control technology currently available as defined by the Administrator pursuant to section 304(b) of the Act. Section 301(b) also requires the achievement by not later than July 1, 1983, of effluent limitations for point sources, other than publicly owned treatment works, which require the application of best available technology economically achievable which will result in reasonable further progress toward the national goal of eliminating the discharge of all pollutants, as determined in accordance with regulations issued by the Administrator pursuant to section 304(b) of the Act.

Section 304(b) of the Act requires the Administrator to publish regulations providing guidelines for effluent limitations setting forth the degree of effluent reduction attainable through the application of the best practicable control technology currently available and the degree of effluent reduction attainable through the application of the best control measures and practices achievable including treatment techniques, process and procedural innovations, operating methods and other alternatives. The regulation herein sets forth effluent limitations and guidelines, pursuant to sections 301(b)(1) and 304(b) of the Act, for the crushed stone subcategory (Subpart B), the construction sand and gravel subcategory (Subpart C), the industrial sand subcategory (Subpart D) and the phosphate rock subcategory (Subpart R) of the mineral mining and processing point source category. The regulation herein also sets forth effluent limitations and guidelines, pursuant to sections 301(b)(2) and 304(b) of the Act, for the crushed stone subcategory (Subpart B), the construction sand and gravel subcategory (Subpart C), the industrial sand subcategory (Subpart D), the gypsum subcategory (Subpart E), the asphaltic minerals subcategory (Subpart F), the asbestos and wollastonite subcategory (Subpart G), the barite subcategory (Subpart J), the fluorspar subcategory (Subpart K), the salines from brine lakes subcategory (Subpart L), the borax subcategory (Subpart M), the potash subcategory (Subpart N), the sodium sulfate subcategory (Subpart O), the phosphate rock subcategory (Subpart R), the Frasch sulfur subcategory (Subpart S), the bentonite subcategory (Subpart V), the magnesite subcategory (Subpart W), the diatomite subcategory (Subpart X), the jade subcategory (Subpart Y), the novaculite subcategory (Subpart Z), the tripoli subcategory (Subpart AF), and the graphite subcategory (Subpart AL) of the mineral mining and processing point source category.

Section 304(c) of the Act requires the Administrator to issue to the States and appropriate water pollution control agencies information on the processes, procedures or operating methods which result in the elimination or reduction of the discharge of pollutants to implement standards of performance under section 306 of the Act. The report entitled "Development Document for Interim Final Effluent Limitations Guidelines and New Source Performance Standards for the Mineral Mining and Processing Point Source Category" provides, pursuant to section 304(c) of the Act, information on such processes, procedures or operating methods.

(2) New sources.

Section 306 of the Act requires the achievement by new sources of a Federal standard of performance providing for the control of the discharge of pollutants which reflects the greatest degree of effluent reduction which the Administrator determines to be achievable through application of the best available demonstrated control technology, processes, operating methods, or other alternatives, including, where practicable, a standard permitting no discharge of pollutants.

Section 306 also requires the Administrator to propose regulations establishing Federal standards of performance for categories of new sources included in a list published pursuant to section 306 of the Act. The regulation proposed herein sets forth the standards of performance applicable to new sources for the crushed stone subcategory (Subpart B), the construction sand and gravel subcategory (Subpart C), the industrial sand subcategory (Subpart D), the gypsum subcategory (Subpart E), the asphaltic minerals subcategory (Subpart F), the asbestos and wollastonite subcategory (Subpart G), the barite subcategory (Subpart J), the fluorspar subcategory (Subpart K), the salines from brine lakes subcategory (Subpart L), the borax subcategory (Subpart M), the potash subcategory (Subpart N), the sodium sulfate subcategory (Subpart O), the phosphate rock subcategory (Subpart R), the Frasch sulfur subcategory (Subpart S), the bentonite subcategory (Subpart V), the magnesite subcategory (Subpart W), the diatomite subcategory (Subpart X), the jade subcategory (Subpart Y), the novaculite subcategory (Subpart Z), the tripoli subcategory (Subpart AF), and the graphite subcategory (Subpart AL) of the mineral mining and processing point source category.

(3) Pretreatment for new sources.

Section 307(c) of the Act requires the Administrator to promulgate pretreatment standards for new sources at the same time that standards of performance for new sources are promulgated pursuant to section 306. In another section of the FEDERAL REGISTER regulations are proposed in fulfillment of these requirements which may not be fulfilled by this interim final regulation.

APPENDIX B

TECHNICAL SUMMARY AND BASIS FOR REGULATIONS

This Appendix summarizes the basis of interim final effluent limitations and guidelines for existing sources, proposed effluent limitations and guidelines for existing sources to be achieved by the application of the best available technology economically achievable, proposed standards of performance for new sources, and proposed pretreatment standards for both new and existing sources.

(1) General methodology.

The effluent limitations and guidelines set forth herein were developed in the following manner. The point source category was first studied for the purpose of determining whether separate limitations are appropriate for different segments within the category. This analysis included a determination of whether differences in raw material used, product produced, manufacturing process employed, age, size, waste water constituents and other factors require development of separate limitations for different segments of the point source category. The raw waste characteristics for each such segment were then identified. This included an analysis of the source, flow and volume of water used in the process employed, the sources of waste and waste waters in the operation and the constituents of all waste water. The constituents of the waste waters which should be subject to effluent limitations were identified.

The control and treatment technologies existing within each segment were identified. This included an identification of each distinct control and treatment technology, including both in-plant and end-of-process technologies, which is existent or capable of being designed for each segment. It also included an identification of, in terms of the amount of constituents and the chemical, physical, and biological characteristics of pollutants, the effluent level resulting from the application of each of the technologies. The problems, limitations and reliability of each treatment and control technology were also identified. In addition, the nonwater quality environmental impact, such as the effects of the application of such technologies upon other pollution problems, including air, solid waste, noise and radiation were identified. The energy requirements of each control and treatment technology were determined as well as the cost of the application of such technologies.

The information, as outlined above, was then evaluated in order to determine what levels of technology constitute the "best practicable control technology currently available." In identifying such technologies, various factors were considered. These included the total cost of application of technology in relation to the effluent reduction benefits to be achieved from such application, the age of equipment and facilities involved, the process employed, the engineering aspects of the application of various types of control techniques, process changes, nonwater quality environmental impact (including energy requirements) and other factors.

The data upon which the above analysis was performed included EPA permit appli-

cations, EPA sampling and inspections, consultant reports, and industry submissions.

(2) Summary of conclusions with respect to the crushed stone subcategory (Subpart B), the construction sand and gravel subcategory (Subpart C), the industrial sand subcategory (Subpart D) and the phosphate rock subcategory (Subpart R) of the mineral mining and processing point source category.

A summary of conclusions for the gypsum subcategory (Subpart E), the asphaltic minerals subcategory (Subpart F), the asbestos and wollastonite subcategory (Subpart G), the barite subcategory (Subpart J), the fluorspar subcategory (Subpart K), the salines from brine lakes subcategory (Subpart L), the borax subcategory (Subpart M), the potash subcategory (Subpart N), the sodium sulfate subcategory (Subpart O), the Frasch sulfur subcategory (Subpart S), the bentonite subcategory (Subpart V), the magnesite subcategory (Subpart W), the diatomite subcategory (Subpart X), the jade subcategory (Subpart Y), the novaculite subcategory (Subpart Z), the tripoli subcategory (Subpart AF), and the graphite subcategory (Subpart AL) was given in the FEDERAL REGISTER on October 16, 1975 (40 FR 48652). That discussion also applies to the proposed limitations and standards.

(1) Categorization.

For the purpose of studying waste treatment and establishing effluent limitations guidelines and standards of performance, the mineral mining and processing category was divided into 38 discrete subcategories. These subcategories consist of specific mineral types or classes of minerals. In addition, within each subcategory a determination was made whether subparts required different effluent limitations based on type of ore, method of ore transport, type of processing, use of wet air emissions control devices, type of product, and ground water seepage and runoff into the mine and process waste water impoundments. For the four commodities, crushed stone, construction sand and gravel, industrial sand and phosphate rock, the processing techniques were sufficiently different to form four separate subcategories. In addition, within each subcategory there were different processes used and separate consideration was given to each as given in the following list.

Crushed stone: dry processing, wet processing, flotation processing, mine dewatering, area runoff.

Construction sand and gravel: dry processing, wet processing, dredging with land processing, dredging water, other process water, mine dewatering, area runoff.

Industrial sand: dry processing, wet processing, acid and alkali flotation, HF flotation, mine dewatering, area runoff.

Phosphate rock: flotation processing, other processing, mine dewatering, area runoff.

Upon completion of the technical and economic analysis several processes within a given commodity were combined because of the feasibility of achieving a common effluent limitation. Hence, the dry, wet and flotation processing of crushed stone were combined. Dry and wet processing of construction sand and gravel were combined. Dry, wet and acid and alkali flotation processing of industrial sand were combined. Dredge water discharge from land based construction sand and gravel plants is not regulated at this time pending further study. Dredging and on-board processing in navigable waters are regulated by the Corps of Engineers pursuant to section 404 of the Act. Area runoff is likewise not regulated at this time unless the runoff enters process or mine dewatering waste water impoundments.

(ii) Waste characteristics.

The known significant pollutants and properties resulting from the four subcategories covered include pH and total suspended solids. Fluoride is present in the process waste waters of the HF flotation, industrial-sand subcategory. Although fluoride, phosphate and radium 226 exist in the waste waters from the phosphate rock subcategory, control of total suspended solids to the promulgated limits will also control these pollutants.

(iii) Origin of waste water pollutants.

The sources of waste water pollutants at the mine include surface runoff of rain water into the mine and mine water treatment systems, ground water seepage and infiltration into the mine, and process water used to transport the ore to the processing plant. The quantity of mine water is either unrelated or only indirectly related to the mine production rate. Therefore, effluent limitations are expressed in terms of concentration rather than units of production.

Mine dewatering is defined as any water that is pumped, drained or otherwise removed from the mine through the direct action of the mine operator. Pit pumpage of ground water, seepage and precipitation or surface runoff entering the active mine workings is an example of mine dewatering. Mine dewatering discharges are regulated. Runoff that is not classified as mine dewatering or does not commingle with process generated waste water is not regulated at this time. Preliminary information indicates that a significant economic impact could result if stringent limitations were promulgated. Therefore, regulations covering plant and mine runoff will not be promulgated until additional information is assessed.

The sources of waste water pollutants at the process facility include transport water, ore and product wash water, dust suppression water, classification water, heavy media separation water, flotation water, solution water, air emissions control equipment water and equipment and floor wash down water. Where production could be related to process water flow, the effluent limitations are tied to the units of production. In cases where uncontrolled volumes of water, such as mine dewatering, are normally mixed with process water or in cases where process water flow cannot be related to the rate of production, the effluent limitations for process waste water are expressed in terms of concentration.

(iv) Treatment and control technology.

Waste water treatment and control technologies have been studied for each subcategory of the industry to determine what is the best practicable control technology currently available. The following discussion of treatment technology provides the basis for the effluent limitations guidelines. This discussion does not preclude the selection of other waste water treatment alternatives which provide equivalent or better levels of treatment.

In the following discussion normal weather conditions are assumed. In the event of an extreme precipitation event an allowance for unregulated discharge is made. The best practicable control technology currently available is that treatment systems be designed, constructed and maintained to treat waste water to the applicable effluent quality level during the 10-year 24 hour precipitation event. Successive storm events that in total exceed the 10-year 24 hour event will thus qualify for this exemption if the treatment systems are properly maintained.

The Agency has no data to show that an accumulation of dissolved solids occurs in the recirculation systems for subcategories in which no discharge of process generated waste water pollutants is required or that such an accumulation would prevent total recycle. However, the Agency has not inspected all of the approximately 10,000 aggregate operations. Therefore, a variance from the requirements of no discharge of process generated waste water pollutants may be warranted if the accumulated dissolved solids content of the water necessitates a blowdown discharge. This may also be the case if a change to the dry process, because of no discharge limitations, would adversely affect required product purity.

(1) Treatment for the crushed stone subcategory. Dry processing plants will have no discharge. Water at wet processing plants is used to wash the stone and control dust. The waste water is clarified in a settling pond and is usually of sufficient quality that it is recirculated directly to the process. If precautions are taken to preclude storm runoff and mine water from the treatment system, there will be no cause for a discharge. At facilities that use flotation, such as to obtain calcite, the waste flotation water can be used to wash the stone. Excess waste water can also be used for dust suppression.

Due to the nature of the hard rock in crushed stone quarries, water that collects on the quarry floor is quite clear. This water can originate from direct rainfall or ground water seepage into the quarry. It is poor practice to allow surface runoff to enter the quarry, and diversion ditches or berms can prevent this. Quarry water is collected in a low spot or sump, which is rarely designed to efficiently remove suspended solids. From this sump quarry water is pumped to the surface and discharged. Fortunately, despite such common poor practices as positioning the pump near the sump influent and allowing mine vehicles to drive through flooded areas, this water is typically of excellent purity. Data from several quarries demonstrate that a total suspended solids concentration of 30 mg/l need not be exceeded. In instances where the mine water quality may not meet this limitation, better water handling practices can be instituted. The sump can be enlarged to provide adequate settling time. The sump pump can be positioned opposite the sump influent. Pumping may be temporarily stopped to allow the water to clear. In extreme cases a settling pond at ground level may be built to provide additional settling time. The intermittent use of flocculants is a possible but unexpected alternative. In general mine dewatering for all subcategories is limited on a daily maximum basis only, since mine dewatering may occur on an intermittent basis.

(2) Treatment for the construction sand and gravel subcategory. Processing plants that do not use water have no process generated waste water discharge. Water at wet processing plants is used for ore washing, dust suppression, heavy media separation and classification. As is the case for crushed stone, process waste water can be completely recycled after clarification in settling ponds. A series of ponds is recommended in order to improve the settling efficiency and allow for dredging of the primary pond without having to discontinue recycle. The use of flocculants in the secondary ponds is sometimes practiced. After adequate clarification water, which may exceed water quality limits for total suspended solids, is good enough to recycle. For land-based processors, particularly small plants, treatment other than single settling ponds followed by recycle may be the only economically viable technology (Level C in the Development Document). The limitations, therefore, are based on this technology. In dredged ponds that are not navigable waters, process waste water is almost always returned to the ponds untreated

to maintain the water level. This is acceptable practice. Discharges from these ponds to navigable waters do not normally occur. Discharges from these ponds due to subsurface ground water intrusion are considered to be mine dewatering.

For dredging operations in navigable waters, slurry water pumped ashore is still under investigation. Few facilities operate in this mode. Land based processing facilities that do not slurry transport from the dredge can recycle process waste water as do other land based non-dredge operations.

If mine dewatering is practiced a total suspended solids concentration of 30 mg/l can be met by the use of well designed and operated settling ponds. Intermittent use of flocculants as practiced for process waste water treatment will aid in extreme cases. For sand and gravel plants, mine water is often treated in process waste water ponds. This practice is allowed, provided process waste water is recycled.

(3) Treatment for the industrial sand subcategory. This subcategory resembles the construction sand and gravel subcategory except that additional beneficiation is done. The best facilities recycle all process waste water afer settling in ponds. Certain operations require fresh water make-up, but this excess is balanced by water lost through evaporation, product drying and sludge disposal. Clarifiers are used at some locations to increase settling efficiency and to minimize the treatment area. However, this latter technology is not economically feasible for all plants. Therefore the limitations are based on the technology of settling and recycle (Level B in the Development Document). Sludge disposal can present problems if a watershed is dammed and an excess of runoff enters the sludge pond. This runoff can be diverted around the impoundment and the supernatant pond water returned to the process water system.

There is one plant that uses hydrofluoric acid in the flotation circuit. At the present time this facility is able to recycle about 90% of the process waste water. Total recycle is claimed to hinder the HF flotation of feldspar. The daily maximum for total suspended solids was based on plant data.

Industrial sand mines are identical to sand and gravel mines and the same reasoning for the mine dewatering limitation applies.

(4) Treatment for the phosphate rock subcategory. There are two types of processing operations that effect the process waste water in different ways. Facilities that practice flotation with amines, fatty acids and other reagents experience interference when excessive concentrations of impurities build-up in a total recirculation system. A discharge may then be necessary. There is some leeway for partial recirculation, and these facilities are urged to recycle as much as possible. Because large amounts of mine water, runoff and rainfall can enter the treatment system, the limitations are expressed in terms of concentration. Although radium 226, phosphate and fluoride are present in the waste water, the existing treatment systems are not designed to specifically remove these pollutants. Furthermore, additional treatment of these pollutants to concentrations below present levels is not judged to be practicable. Effective control of total suspended solids should adequately control these pollutants. Facilities that do not float process the ore and non-flotation unit operations within flotation plants are able to use recycled waste waters.

Process waste water management is complicated by inclusion of mine drainage or of surface runoff if watersheds are dammed. This practice is acceptable in that large amounts of make-up water are needed, and the use of runoff minimizes the depletion of ground water. It is estimated that over 50 billion gallons annually are bound in the waste phosphate slimes. Thus, nonflotation plants are permitted to discharge to the specified limits if the damming of watersheds results in periodic overflow. These plants, however, must use this slime pond water as make-up water. Other sources of make-up water can be used only if no discharge will result. This same principle applies to flotation plants. Recycled water can be satisfactorily used as wash water, transport water, pumpseal water, and air scrubber water. Since a discharge will occur, because of the use of fresh water make-up for the flotation circuits and the inclusion of mine water and runoff into the process water system, the above listed nonflotation process water uses must not add to the discharge volume and the pollutant quantities by taking unnecessary fresh water into the process. Although total recycle of non-flotation process water can be achieved by use of separate waste water treatment systems for flotation and non-flotation waste waters, this is judged to be overly severe if universally applied.

A statistical analysis of the long term effluent data from several facilities shows that a total suspended solids concentration of 30 mg/l can be met as a maximum monthly average and 60 mg/l as a daily maximum. As noted in the Development Document several plants are meeting these limitations 100 percent of the time. Those plants that do not achieve the standards all of the time can upgrade their treatment system by various methods. Some plants are continuing to use their ponds beyond their useful life, thus discharging some of the sludge that has settled. One plant was observed to be fertilizing the inner pond walls and excessive aquatic growth apparently resulted which increased the total suspended solids level. Earthen ditches are frequently used to convey the pond overflow to the discharge point. Excessive flow rates through these ditches were observed to result in erosion to the walls. Larger channels with well compacted walls or concrete or pipe conveyances would minimize this problem. The use of wooden boards in overflow towers can result in significant leaks between the boards of subsurface levels of water in the impoundments which have higher levels of suspended solids.

(5) Solid wastes. Solid waste control must be considered. Most of the solid wastes for this category are inert solids. However, salt concentrates are ponded for the salines from brine lakes, borax, potash, and sodium sulfate subcategories. Best practicable control technology as known today, requires disposal of the pollutants removed from waste waters in this industry in the form of solid wastes and liquid concentrates. In most cases these are nonhazardous substances requiring only minimal custodial care. However, some constituents may be hazardous and may require special consideration. In order to insure long-term protection of the environment from these hazardous or harmful constituents, special consideration of disposal sites must be made. All landfill sites where such hazardous wastes are disposed should be selected so as to prevent horizontal and vertical migration of these contaminants to ground or surface waters. In cases where geologic conditions may not reasonably ensure this, adequate legal and mechanical precautions (e.g. impervious liners) should be taken to ensure long term protection to the environment from hazardous materials. Where appropriate, the location of solid hazardous materials disposal sites should be permanently recorded in the appropriate office of legal jurisdiction.

(v) Cost estimates for control of waste water pollutants.

The costs estimated to result from the promulgated regulations are listed below.

[In thousands]

Subcategory	Capital costs	Annual costs
Crushed stone	$12,420	$5,543
Construction sand and gravel	7,460	2,223
Industrial sand	644	169
Phosphate rock	3,340	1,056
Total	23,864	10,655

(vi) Energy requirements and nonwater quality environmental impacts.

The additional energy requirements are estimated as follows:

Mineral:	mil kw hrs per yr
Crushed stone	140
Construction sand and gravel	22.7
Industrial sand	8
Phosphate rock	42.3
Total	213

These figures are conservative in that the savings in not pumping as much fresh water as make-up were not subtracted.

The regulations will increase the amount of solid wastes. Assuming that only a few plants are discharging untreated raw wastes, however, the increased amount of solid wastes resulting from recirculation systems is small when compared to the sludge currently deposited in an adequately maintained settling pond prior to acceptable discharge of the clarified water.

(vii) Economic impact analysis.

The impact of these regulations on phosphate mining and processing are not expected to be significant. Prices may increase about $0.11 per ton, or less than 1 percent over mid-1974 levels of $12.10 per ton. No plants are expected to close, and the effects on the balance of trade will be minimal.

Overall production of the crushed stone industry will not be affected by the guidelines. Several hundred plants which presently have no treatment and which are unable to pass control costs on are likely to shift from production of both dry processed and wet processed stone to entirely dry processing. Depending on the local market characteristics, the price for crushed stone could remain stable or increase up to 8 percent. No closures will occur.

The economic analysis of the sand and gravel industry indicated that the only technology which is economically viable is a settling pond with recycle. More extensive treatment which involves additional ponds or flocculation may be feasible for some plants but is considered to be economically impracticle in general. In particular, plants which have no treatment at present and are in a large metropolitan market will be unable to install treatment past settling and recycle. Therefore, the EPT limitations are based on a technology of settling and recycle. The price of sand and gravel may increase from between $0.04 to $0.20 per ton in small cities or rural areas. Up to 26 plants in major metropolitan areas which have to absorb control costs may close. These plants represent a total of 0.3 percent of the present national production and are a very small proportion of the 5,150 operations in the industry. The closures could result in the loss of work for up to 86 persons but are not expected to affect local economics.

The price of industrial sand will increase less than 1 percent over present levels of about $5 to $7 per ton. Because plants requiring mechanical thickening which have no treatment at present could be seriously impacted, it has been determined that this option is economically infeasible. Settling with recycle is the technology on which the best

practicable technology guidelines are based. Therefore, no closures are predicted, and local economies, unemployment, industry growth and the balance of trade will not be significantly affected.

APPENDIX C

SUMMARY OF PUBLIC PARTICIPATION

Prior to this publication, the agencies and groups listed below were consulted and given an opportunity to participate in the development of effluent limitations, guidelines and standards proposed for the mineral mining and processing category. All participating agencies have been informed of project developments. An initial draft of the Development Document was sent to all participants and comments were solicited on that report. The following are the principal agencies and groups consulted: (1) Effluent Standards and Water Quality Information Advisory Committee (established under section 515 of the Act); (2) all State and U.S. Territory Pollution Control Agencies; (3) the Ohio River Valley Sanitation Commission; (4) the Delaware River Basin Commission; (5) the New England Interstate Water Pollution Control Commission; (6) U.S. Department of Commerce; (7) U.S. Department of the Interior; (8) U.S. Department of Defense; (9) U.S. Department of Agriculture; (10) U.S. Department of Transportation; (11) U.S. Department of Health, Education and Welfare; (12) U.S. Department of Housing and Urban Development; (13) U.S. Department of Treasury; (14) Tennessee Valley Authority; (15) Council of Environmental Quality; (16) National Commission on Water Quality; (17) Federal Power Commission; (18) Federal Energy Administration; (19) Office of Management and Budget; (20) Internal Revenue Service; (21) Nuclear Regulatory Commission; (22) The American Society of Mechanical Engineers; (23) The Conservation Foundation; (24) Businessmen for the Public Interest; (25) Environmental Defense Fund, Inc.; (26) Natural Resources Defense Council, Inc.; (27) The American Society of Civil Engineers; (28) Water Pollution Control Federation; (29) National Wildlife Federation; (30) Gypsum Association; (31) Indiana Limestone Institute of America; (32) Marble Institute of America; (33) National Crushed Stone Association; (34) National Industrial Sand Association; (35) National Limestone Institute; (36) National Sand and Gravel Association; (37) American Mining Congress; (38) Asbestos Information Association of North America; (39) Barre Granite Association; (40) Brick Institute of America; (41) Building Stone Institute; (42) The Fertilizer Institute; (43) Florida Limerock Institute; (44) Florida Phosphate Council; (45) North Carolina Minerals Association; (46) North Carolina Sand, Gravel and Crushed Stone Association; (47) Portland Cement Association; (48) The Refractories Institute; (49) Salt Institute; (50) Sorptive Minerals Institute; (51) National Clay Pipe Institute; (52) National Lime Association; (53) Environmental Protection Service, Canada; (54) Manufacturing Chemists Association; and (55) Georgia Association of Mineral Producing Industries.

The following responded with comments: Effluent Standards and Water Quality Information Advisory Committee; Southwestern Graphite Co.; Indiana Limestone Institute of America; Delaware Department of Natural Resources and Environmental Control; Gypsum Association; Illinois State Geological Survey; Swift Chemical Co.; Illinois Association of Aggregate Producers; American Aggregates Corp.; Texas Water Quality Board; North Carolina Industrial Mineral Association; Brick Institute of America; International Minerals and Chemicals Corp.; Asbestos Information Association; American Mining Congress; The Feldspar Corp.; Sobin Chemicals, Inc.; Harris Mining Co.; Water Resources Commission, Michigan; Winter Brothers Material Co.; Illinois Environmental Protection Agency; Waverly Mineral Products Co.; Department of Natural Resources, Georgia; U.S. Water Resources Council; Colorado Department of Health; Ohio Environmental Protection Agency; State of Florida Department of Pollution Control; Department of Health, Education, and Welfare; Delta Materials, Inc.; Harry T. Campbell Sons' Co.; Bethlehem Steel Corp.; Ingram Materials, Inc.; National Lime Association; Cape Girardeau Sand Co.; Becker Sand and Gravel Co.; New York State Department of Environmental Conservation; Unsil Corp.; U.S. Department of Agriculture; National Sand and Gravel Association; National Industrial Sand Association; U.S. Department of Transportation; Freeport Minerals Co.; Erie Sand and Gravel Co.; The Georgia Kaolin Co.; American Limestone Co.; The Refractories Institute; State of Indiana Department of Natural Resources; Atlantic Richfield Co.; Ottawa Silica Co.; American Sand and Gravel Co.; Globe Refractories; CF Industries; Mr. David Branfman; Duval Corp.; Milchem—Mineral Division; Great Salt Lake Minerals and Chemicals Co.; Morton Salt Co.; Dresser Industries; Environmental Protective Service, Canada; J. R. Simplot Co.; U.S. Borax; Englehard Minerals and Chemicals Corp.; The Fertilizer Institute; North Carolina Department of Natural and Economic Resources; Commonwealth of Pennsylvania, Department of Environmental Resources; Freeport Sulfur Co.; American Industrial Clay Co.; National Limestone Institute; Thiele Kaolin Co.; Cyprus Minerals Co.; Anglo-American Clay Corp.; Gardinier, Inc.; Assistant Secretary of Defense; Jefferson Lake Sulfur Co.; National Clay Pipe Institute; Kerr-McGee Corp.; International Minerals and Chemical Corp.; J. M. Huber Corp.; Freeport Kaolin Co.; Lithium Corporation of America; Foote Mineral Co.; New Riverside Ochre Co.; TexasGulf Inc.; Agrico; Basic Inc.; Brewster Phosphates, USS Agri-Chemicals; W. R. Grace and Co.; Kaiser Refractories; Morton Salt Co.; Martin Marietta; Ozark-Mahoning Co.; Florida Phosphate Council; Salt Institute; Sorptive Minerals Institute; Manufacturing Chemists Association; Kaiser Cement and Gypsum Corp.; U.S. Department of the Interior; Lone Star Industries, Inc.; Monsanto; The Fertilizer Institute; General Refractories Co.; Allied Chemical; Pfizer, Minerals, Pigments and Metals Division; North American Refractories Co.; GAF Corp.; National Wildlife Federation; Kaiser Cement and Gypsum Association; Ideal Basic Industries; Martin Marietta Cement; Huron Cement; Southwestern Portland Cement Co.; Lehigh Portland Cement Co.; General Portland, Inc.; Medusa Cement Co.; Portland Cement Association; Flintkote Co., Calaveras Cement Division; A. P. Green Refractories Co.; Evansville Materials, Inc.; Conrock Co.; Mulzer Crushed Stone Co.; Martin Marietta Cement; Pennsylvania Glass Sand Corp.; Cooley Gravel Co.; and National Crushed Stone Association.

A large number of comments were received long after the period of comment had expired. These comments were assessed as time was available. With few exceptions these late comments express the same interests as described below. The more significant issues raised in the development of the interim final effluent limitations and guidelines and the treatment of these issues herein are as follows:

(1) There was considerable comment on the requirement of treating mine and plant area runoff until reclamation is successfully completed and of diverting storm runoff away from mines and process waste water impoundments.

Only two areas involving runoff will be regulated at this time, mine dewatering and runoff into waste water treatment systems. Mine dewatering is defined as any water that is pumped, drained or otherwise removed from the mine through the direct action of the mine operator. Pit pumpage of ground water, seepage and precipitation or surface runoff entering the active mine workings is an example of mine dewatering. Mine operators are encouraged to divert surface runoff away from the active mine workings. Surface runoff that enters a waste water treatment system becomes waste water and must meet the appropriate effluent limitation. In the case of limitations specifying no discharge of process waste water pollutants, diversion of storm waters around the impoundments may be necessary.

(2) Many of the commenters suggested that the pH range 6–9 should be expanded because some natural waters have a pH less than 6.

In the case of a discharge into receiving waters for which the pH, if unaltered by man's activities, is or would be less than 6.0 and water quality criteria in water quality standards approved under the Act authorize such lower pH, the pH limitation for such discharge may be adjusted downward to the pH water quality criterion for the receiving waters. In no case shall a pH limitation outside the range 5.0 to 9.0 be permitted. This problem was noted by plants in the crushed stone, construction sand and gravel, and industrial sand subcategories. In particular for the phosphate subcategory this situation has not been commented on by the industry, and allowing a lower pH could have the adverse effect of dissolving radium 226 in the sludge.

(3) Some commenters recommended that the effluent limitations should be applied on a net basis, especially where no discharge of pollutants is required.

The Agency has promulgated regulations (40 CFR Part 125) concerning the net or gross application of effluent standards. Prior to the time of permit issuance an affected plant can petition for a net limit if the applicant demonstrates that specified pollutants which are present in the applicant's intake water will not be removed by waste water treatment systems designed to reduce process waste water pollutants and other added pollutants to the levels required by the applicable limitations or standards. The effluent limitations promulgated are based on the gross discharge of pollutants.

(4) Three commenters insisted that process waste water should be defined to omit that water which contacts the ore before it is mined.

Process waste water does not include mine runoff contacting the ore unless this water enters the process waste water treatment system. The term process generated waste water is used to clarify this.

(5) There were objections to the omission of total dissolved solids (TDS) and of certain constituents of TDS such as calcium, magnesium, and nitrates from the limitations. In addition one company wanted to be able to exceed the water quality standards for TDS.

Total dissolved solids are limited where the effluent limitation specifies no discharge of process waste water pollutants. In this case the limitation can be met by total recycle or impoundment with no discharge. For those subcategories with limitations other than no discharge of pollutants it is not economically practicable to treat for total dissolved solids or certain constituents of TDS such as calcium, magnesium and nitrates. This does not relieve the discharger from meeting applicable water quality standards.

(6) It was suggested that for the phosphate subcategory the subcategorization not be based on Eastern versus Western operations because new operations in the West that may slurry transport the ore will not be able to achieve no discharge of pollutants. Another commenter suggested that Tennessee operations be subcategorized separately from Florida and North Carolina operations.

Eastern operations, especially those in Florida and North Carolina cannot now achieve a permanent no discharge condition because of excessive mine water and the need to principally use fresh make-up water in the flotation circuit. The subcategorization has been redefined to distinguish between flotation processes and other processing and mine dewatering. It is not universally practicable to separate all mine water, rainfall and runoff and process waste water for this subcategory. Thus the limitations allow a discharge for flotation process water, mine dewatering and excess rainfall and runoff into process waste water impoundments. Slurry water is recycled at all existing plants and this practice is incorporated into the criteria used to determine the new source performance standards. Hence all new plants, Eastern or Western, will have to recycle this water.

(7) Several phosphate mining companies suggested that fluoride and phosphorus not be regulated since the present treatment systems are not designed to specifically remove these parameters. In addition it was contested their presence is due to the suspended solids which are regulated.

Upon review of the contractor's data, additional plant inspections by EPA personnel and data submitted by this industry it was found that only pH and TSS need be regulated by effluent limitations guidelines at this time. The phosphate and fluoride concentrations appeared to be affected both by the quality of the well water intake and to their presence in suspended solids which are treated. Specific treatment for these pollutants was judged to be prohibitively expensive.

(8) It was suggested that the limits for the phosphate subcategory be in units of mg/l instead of kg/kkg since mine water, runoff and process water are one and the same, and this combined flow cannot be related to production. A TSS limit of 30 mg/l as an average and 150 mg/l as a daily maximum was suggested.

Because mine water, runoff and process waste water cannot be economically segregated, the units of the limits are more appropriate as concentrations. A statistical analysis of data from several plants indicates that a well designed and operated slime pond can achieve 30 mg/l TSS as a maximum monthly average and 60 mg/l as a daily maximum.

(9) There was considerable comment on the contractor's recommendations concerning dredging for sand, gravel and shell.

Discharges from dredges mining mineral deposits in navigable waters are regulated under section 404 of the "Permits for Dredged or Fill Material." Discharges originating from hydraulic dredges that pump to shore for processing are not regulated by these effluent limitations pending additional investigation. Other discharges from shore based plants are regulated.

(10) One commenter questioned whether the return flow of process waste to dredged pits need to meet no discharge of process waste water pollutants.

The limits are only to be applied to point source discharges to navigable waters. Hence the standards only apply to the discharge of the pit to navigable waters if the pit itself is a non-navigable water.

(11) One aggregate processing company claimed that it will discharge water from its treatment pond system as it tries to match the water lost by evaporation and percolation with fresh water intake.

Adequate control of the intake water volume will prevent treatment pond overflow in this case.

(12) One commenter claimed that not enough sand, gravel and crushed stone plants were visited.

Approximately 57 sand and gravel and 37 crushed stone plants were visited by the EPA contractor. It would be impossible to visit all 10,000 plants and it is questionable whether much additional treatment technology information would be gained by doing so. Plant inspection selection was decided after consultation with national and state trade associations. These plants are of various sizes and property dispositions. The plants visited are therefore considered to be a good sample of the industry. The comment period to the draft reports allowed companies not inspected to describe their particular situations.

(13) The land cost was claimed to be too low for the treatment of process waste waters.

The land cost factor was an average value. The economic analysis indicates that even if the total treatment costs were significantly higher the results would be the same.

(14) One commenter complained that the cost of recycling water will increase as new ponds are located farther from the process equipment.

The newer plants have usually taken this into acount when the plant was constructed. Common practice for older plants include moving the plant to a more favorable location, pumping farther distances to new treatment ponds or dredging the existing ponds to prolong their life. The tailings from dredging may be disposed of in inactive sections of the mine.

(15) Another commenter suggested that portable aggregate processing plants should be a separate subcategory.

Portable crushed stone plants were studied by the contractor and there is no reason why they cannot recycle process waste water as do permanent processing facilities. At a minimum a treatment pond should already exist at portable plant locations, and this system can be modified to recycle the waste water. Further subcategorization is therefore not necessary.

(16) Instead of no discharge of pollutants for process water, a national trade association recommended that both mine water and process water for sand and gravel be limited to 100 mg/l TSS.

Many sand and gravel plants in different parts of the United States were found to achieve no discharge of process waste water. The limitations for best practicable control technology currently available are based on the average performance of the best existing treatment rather than on what most plants currently achieve. The technologies cited in the development document are applicable to those that presently do not recycle process waste water.

(17) Some sand and gravel commenters pointed out that there can be land availability problems in building treatment ponds and in disposing sludge.

Alternative treatments can be employed if sufficient land is unavailable to construct large settling ponds. These technologies include flocculants, cyclones, clarifiers, or thickeners used in conjunction with smaller settling ponds. However, the economic analysis indicated that should treatments other than simple settling and recycle be necessary, operations could suffer severe economic impacts and possibly close. Therefore, the limitations are only based on the basic settling pond treatment. Section 436.32 for sand and gravel specifies the manner for seeking relief in unusual situations.

In the case where commenters claim that total recycle will result in an unmanageable amount of additional sludge, the EPA believes this is overstated. The additional sludge resulting from settling the solids for an existing discharge, were it to be recycled and hence the suspended solids ultimately settled, are minor compared to the several thousand milligrams per liter of suspended solids that need be settled from the raw waste before a discharge would be ever acceptable.

(18) One plant operator claimed that when a new quarry face is opened the quarry sump will not be able to achieve the proposed limits for TSS.

Proper location of the quarry sump or the use of an additional settling pond will prevent this problem.

(19) Some commenters observed that no discharge of process waste water is not possible from a dredged pit if ground water intrusion into the pit is high.

Excess water discharged from wet pits due to direct rainfall and ground water seepage is classified as mine dewatering and is regulated under the combined discharges clause.

(20) One person complained that dry processing plants which have wet scrubbers must discharge and cannot achieve the no discharge standards.

Dry processing plants that use scrubbers are totally recycling this process waste water after adequate settling.

(21) A few crushed stone companies complained of the severity of the mine dewatering limitation.

The mine dewatering limitation is based on existing plant data. Crushed stone quarries, because they are hard rock operations instead of strip mining operations involving much topsoil, are able to discharge mine water that is much cleaner than 30 mg/l of TTS. Discharges in excess of this are either due to inadequate sump or pond size or poor quarry practice such as allowing surface runoff to enter the quarry.

(22) Several commenters suggested that the 10- and 25-year 24 hour precipitation event criteria be replaced by the 1-year 24 hour event. This was claimed to be more cost beneficial because of the infrequency of the 10- and 25-year events.

There is some misunderstanding that the regulation language in the case of limitations specifying no discharge of process waste water pollutants would allow a discharge only once in 10 years when the respective event occurs. Constructing and operating impoundments to contain the 10-year event and even less frequent events is standard engineering practice. However, if closely spaced storms or a prolonged storm equals the 10-year event a discharge will occur for a pond so designed. Thus an allowable discharge of pollutants may occur more frequently depending upon the occurrence of major storm events. This storm event is defined by the National Climatic Center of the Environmental Data Service, National Oceanic and Atmospheric Administration, U.S. Department of Commerce. It is determined by detailed statistical analysis. It is quite possible that more than one 24 hour rainfall in the last 10 years has exceeded the defined 10-year 24 hour event. Therefore, the agency cited above should be consulted rather than company records alone.

The draft recommendations suggesting treatment up to the 25-year 24 hour storm event for the 1983 limitations and the new source performance standards were replaced by the 10-year 24 hour storm event as required by the 1977 limitations. It is judged that for the pollutants present for this industry, principally suspended solids, little

added environmental benefit is gained by the added expenditures to heighten the impoundment walls or divert storm waters.

(23) It was contested that no discharge of process waste water pollutants for the industrial sand subcategory is too costly. A limit of 100 mg/l TSS was suggested.

The economic analysis evaluated several treatment options for achieving no discharge of process water. Because it was determined that plants requiring mechanical thickening could suffer a severe economic impact, the guidelines are only based on a technology of settling ponds and recycle. Based on this technology, the economic analysis indicated that the industrial sand industry would not be seriously impacted.

(24) There was confusion between what is included in the HF and wet processing divisions of the industrial sand subcategory. Only an industrial sand plant that employs HF flotation is classified in the HF subcategory.

1. Part 436 is amended by adding the following sections to the table of contents.

Subpart B—Crushed Stone Subcategory

Sec.
436.20 Applicability; description of the crushed stone subcategory.
436.21 Specialized definitions.
436.22 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

Subpart C—Construction Sand and Gravel Subcategory

436.30 Applicability; description of the construction sand and gravel subcategory.
436.31 Specialized definitions.
436.32 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

Subpart D—Industrial Sand Subcategory

436.40 Applicability; description of the industrial sand subcategory.
436.41 Specialized definitions.
436.42 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

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Subpart R—Phosphate Rock Subcategory

436.180 Applicability; description of the phosphate rock subcategory.
436.181 Specialized definitions.
436.182 Effluent limitations guidelines representing the degree of effluent reduction attaintable by the application of the best practicable control technology currently available.

2. Subpart B is amended by adding §§ 436.20, 436.21 and 436.22 as follows:

Subpart B—Crushed Stone Subcategory

§ 436.20 Applicability; description of the crushed stone subcategory.

The provisions of this subpart are applicable to the mining or quarrying and the processing of crushed and broken stone and riprap. This subpart includes all types of rock and stone. Rock and stone that is crushed or broken prior to the extraction of a mineral are elsewhere covered. The processing of calcite, however, in conjunction with the processing of crushed and broken limestone or dolomite is included in this subpart.

§ 436.21 Specialized definitions.

For the purpose of this subpart:

(a) Except as provided below, the general definitions, abbreviations and methods of analysis set forth in 40 CFR 401 shall apply to this subpart.

(b) The term "mine dewatering" shall mean any water that is pumped, drained or otherwise removed from the mine through the direct action of the mine operator.

(c) The term "10-year 24 hour precipitation event" shall mean the maximum 24 hour precipitation event with a probable re-occurrence interval of once in 10 years. This information is available in "Weather Bureau Technical Paper No. 40," May 1961 and "NOAA Atlas 2," 1973 for the 11 Western States, and may be obtained from the National Climatic Center of the Environmental Data Service, National Oceanic and Atmospheric Administration, U.S. Department of Commerce.

(d) The term "mine" shall mean an area of land, surface or underground, actively used for or resulting from the extraction of a mineral from natural deposits.

(e) The term "process generated waste water" shall mean any waste water resulting from the slurry transport of ore or intermediate product, air emissions control, or processing exclusive of mining.

§ 436.22 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

In establishing the limitations set forth in this section, EPA took into account all information it was able to collect, develop and solicit with respect to factors (such as age and size of plant, raw materials, manufacturing processes, products produced, treatment technology available, energy requirements and costs) which can affect the industry subcategorization and effluent levels established. It is, however, possible that data which would affect these limitations have not been available and, as a result, these limitations should be adjusted for certain plants in this industry. An individual discharger or other interested person may submit evidence to the Regional Administrator (or to the State, if the State has the authority to issue NPDES permits) that factors relating to the equipment or facilities involved, the process applied, or other such factors related to such discharger are fundamentally different from the factors considered in the establishment of the guidelines. On the basis of such evidence or other available information, the Regional Administrator (or the State) will make a written finding that such factors are or are not fundamentally different for that facility compared to those specified in the Development Document. If such fundamentally different factors are found to exist, the Regional Administrator or the State shall establish for the discharger effluent limitations in the NPDES permit either more or less stringent than the limitations established herein, to the extent dictated by such fundamentally different factors. Such limitations must be approved by the Administrator of the Environmental Protection Agency. The Administrator may approve or disapprove such limitations, specify other limitations, or initiate proceedings to revise these regulations.

(a) Subject to the provisions of paragraphs (b) and (c) of this section, the following limitations establish the quantity or quality of pollutants or pollutant properties, controlled by this section, which may be discharged by a point source subject to the provisions of this subpart after application of the best practicable control technology currently available:

(1) There shall be no discharge of process generated waste water pollutants into navigable waters.

(2) Mine dewatering discharges shall not exceed the following limitations:

Effluent characteristic	*Effluent limitations—maximum for any 1 day*
TSS	30 mg/l.
pH	Within the range of 6.0 to 9.0.

(b) Any overflow from facilities designed, constructed and operated to treat to the applicable limitations the precipitation and runoff resulting from a 10-year 24 hour precipitation event shall not be subject to the limitations of this section.

(c) In the case of a discharge into receiving waters for which the pH, if unaltered by man's activities, is or would be less than 6.0 and water quality criteria in water quality standards approved under the Act authorize such lower pH, the pH limitations for such discharge may be adjusted downward to the pH water quality criterion for the receiving waters. In no case shall a pH limitation outside the range 5.0 to 9.0 be permitted.

3. Subpart C is amended by adding §§ 436.30, 436.31 and 436.32 as follows:

Subpart C—Construction Sand and Gravel Subcategory

§ 436.30 Applicability; description of the construction sand and gravel subcategory.

The provisions of this subpart are applicable to the mining and the processing of sand and gravel for construction or fill uses. The dredging of sand and gravel from navigable waters is regulated in 33 CFR Part 209, "Permits for Activities in Navigable Waters or Ocean Waters." Discharges from dredges in navigable waters resulting from the on-board processing of sand and gravel are also regulated in 33 CFR Part 209. Discharges from shore based facilities of waste water originating solely from the suction dredging of deposits in navigable waters are not included in this subpart.

§ 436.31 Specialized definitions.

For the purpose of this subpart:

(a) Except as provided below, the general definitions, abbreviations and methods of analysis set forth in 40 CFR 401 shall apply to this subpart.

(b) The term "mine dewatering" shall mean any water that is pumped, drained or otherwise removed from the mine through the direct action of the mine operator. This shall include wet pit overflows caused solely by direct rainfall and ground water seepage.

(c) The term "10-year 24 hour precipitation event" shall mean the maximum 24 hour precipitation event with a probable re-occurrence interval of once in 10 years. This information is available in "Weather Bureau Technical Paper No. 40," May 1961 and "NOAA Atlas 2," 1973 for the 11 Western States, and may be obtained from the National Climatic Center of the Environmental Data Service, National Oceanic and Atmospheric Administration, U.S. Department of Commerce.

(d) The term "mine" shall mean an area of land, surface or underground, actively used for or resulting from the extraction of a mineral from natural deposits.

(e) The term "process generated waste water" shall mean any waste water resulting from the slurry transport of ore or intermediate product, air emissions control, or processing exclusive of mining.

§ 436.32 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

In establishing the limitations set forth in this section, EPA took into account all information it was able to collect, develop and solicit with respect to factors (such as age and size of plant, raw materials, manufacturing processes, products produced, treatment technology available, energy requirements and costs) which can affect the industry subcategorization and effluent levels established. It is, however, possible that data which would affect these limitations have not been available and, as a result, these limitations should be adjusted for certain plants in this industry. An individual discharger or other interested person may submit evidence to the Regional Administrator (or to the State, if the State has the authority to issue NPDES permits) that factors relating to the equipment or facilities involved, the process applied, or other such factors related to such discharger are fundamentally different from the factors considered in the establishment of the guidelines. On the basis of such evidence or other available information, the Regional Administrator (or the State) will make a written finding that such factors are or are not fundamentally different for that facility compared to those specified in the Development Document. If such fundamentally different factors are found to exist, the Regional Administrator or the State shall establish for the discharger effluent limitations in the NPDES permit either more or less stringent than the limitations established herein, to the extent dictated by such fundamentally different factors. Such limitations must be approved by the Administrator of the Environmental Protection Agency. The Administrator may approve or disapprove such limitations, specify other limitations, or initiate proceedings to revise these regulations.

(a) Subject to the provisions of paragraphs (b) and (c) of this section, the following limitations establish the quantity or quality of pollutants or pollutant properties, controlled by this section, which may be discharged by a point source subject to the provisions of this subpart after application of the best practicable control technology currently available:

(1) There shall be no discharge of process generated waste water pollutants into navigable waters.

(2) Mine dewatering discharges shall not exceed the following limitations:

Effluent characteristic	*Effluent limitations—maximum for any 1 day*
TSS	30 mg/l.
pH	Within the range of 6.0 to 9.0.

(3) In the event that waste streams from various sources are combined for treatment and discharge, the quantity and quality of each pollutant or pollutant property in the combined discharge shall not exceed the quantity and quality of each pollutant or pollutant property allowed had each stream been treated separately.

(b) Any overflow from facilities designed, constructed and operated to treat to the applicable limitations the precipitation and runoff resulting from a 10-year 24 hour precipitation event shall not be subject to the limitations of this section.

(c) In the case of a discharge into receiving waters for which the pH, if unaltered by man's activities, is or would be less than 6.0 and water quality criteria in water quality standards approved under the Act authorize such lower pH, the pH limitation for such discharge may be adjusted downward to the pH water quality criterion for the receiving waters. In no case shall a pH limitation outside the range 5.0 to 9.0 be permitted.

4. Subpart D is amended by adding §§ 436.40, 436.41 and 436.42 as follows:

Subpart D—Industrial Sand Subcategory

§ 436.40 Applicability; description of the industrial sand subcategory.

The provisions of this subpart are applicable to the mining and the processing of sand and gravel for uses other than construction and fill. These uses include, but are not limited to glassmaking, molding, abrasives, filtration, refractories and refractory bonding.

§ 436.41 Specialized definitions.

For the purpose of this subpart:

(a) Except as provided below, the general definitions, abbreviations and methods of analysis set forth in 40 CFR 401 shall apply to this subpart.

(b) The term "mine dewatering" shall mean any water that is pumped, drained or otherwise removed from the mine through the direct action of the mine operator. This shall include wet pit overflows caused solely by direct rainfall and ground water seepage.

(c) The term "10-year 24 hour precipitation event" shall mean the maximum 24 hour precipitation event with a probable re-occurrence interval of once in 10 years. This information is available in "Weather Bureau Technical Paper No. 40," May 1961 and "NOAA Atlas 2," 1973 for the 11 Western States, and may be obtained from the National Climatic Center of the Environmental Data Service, National Oceanic and Atmospheric Administration, U.S. Department of Commerce.

(d) The term "mine" shall mean an area of land actively used for a resulting from the extraction of a mineral from natural deposits.

(e) The term "process generated waste water" shall mean any waste water resulting from the slurry transport of ore or intermediate product, air emissions control, or processing exclusive of mining.

§ 436.42 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

In establishing the limitations set forth in this section, EPA took into account all information it was able to collect, develop and solicit with respect to factors (such as age and size of plant, raw materials, manufacturing processes, products produced, treatment technology available, energy requirements and costs) which can affect the industry subcategorization and effluent levels established. It is, however, possible that data which would affect these limitations have not been available, and, as a result, these limitations should be adjusted for certain plants in this industry. An individual discharger or other interested person may submit evidence to the Regional Administrator (or to the State, if the State has the authority to issue NPDES permits) that factors relating to the equipment or facilities involved, the process applied, or other such factors related to such discharger are fundamentally different from the factors considered in the establishment of the guidelines. On the basis of such evidence or other available information, the Regional Administrator (or the State) will make a written finding that such factors are or are not fundamentally different for that facility compared to those specified in the Development Document. If such fundamentally different factors are found to exist, the Regional Administrator or the State shall establish for the discharger effluent limitations in the NPDES permit either more or less stringent than the limitations established herein, to the extent dictated by such fundamentally different factors. Such limitations must be approved by the Administrator of the Environmental Protection Agency. The Administrator may

approve or disapprove such limitations, specify other limitations, or initiate proceedings to revise these regulations.

(a) Subject to the provisions of paragraphs (b) and (c) of this section, the following limitations establish the quantity or quality of pollutants or pollutant properties, controlled by this section, which may be discharged by a point source subject to the provisions of this subpart after application of the best practicable control technology currently available:

(1) Except for HF flotation facilities, there shall be no discharge of process generated waste water pollutants into navigable waters.

(2) Process generated waste water from facilities employing HF flotation shall not exceed the following limitations:

[Metric units, kg/kkg of total product; English units, lb/1,000 lb of total product]

Effluent characteristic	Effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed—
TSS	0.046	0.023
Total fluoride	0.006	0.003
pH	Within the range 6.0 to 9.0.	

(3) Mine dewatering discharges shall not exceed the following limitations:

Effluent characteristic	*Effluent limitations—maximum for any 1 day*
TSS	30 mg/l.
pH	Within the range of 6.0 to 9.0.

(4) In the event that waste streams from various sources are combined for treatment and discharge, the quantity and quality of each pollutant or pollutant property in the combined discharge shall not exceed the quantity and quality of each pollutant or pollutant property allowed had each stream been treated separately.

(b) Any overflow from facilities designed, constructed and operated to treat to the applicable limitations the precipitation and runoff resulting from a 10-year 24 hour precipitation event shall not be subject to the limitations of this section.

(c) In the case of a discharge into receiving waters for which the pH, if unaltered by man's activities, is or would be less than 6.0 and water quality criteria in water quality standards approved under the Act authorize such lower pH, the pH limitation for such discharge may be adjusted downward to the pH water quality criterion for the receiving waters. In no case shall a pH limitation outside the range 5.0 to 9.0 be permitted.

5. Subpart R is amended by adding §§ 436.180, 436.181 and 436.182 as follows:

Subpart R—Phosphate Rock Subcategory

§ 436.180 Applicability; description of the phosphate rock subcategory.

The provisions of this subpart are applicable to the mining and the processing of phosphate bearing rock, ore or earth for the phosphate content.

§ 436.181 Specialized definitions.

For the purpose of this subpart:

(a) Except as provided below, the general definitions, abbreviations and methods of analysis set forth in 40 CFR 401 shall apply to this subpart.

(b) The term "mine dewatering" shall mean any water that is pumped, drained or otherwise removed from the mine through the direct action of the mine operator.

(c) The term "10-year 24 hour precipitation event" shall mean the maximum 24 hour precipitation event with a probable re-occurrence interval of once in 10 years. This information is available in "Weather Bureau Technical Paper No. 40," May 1961 and "NOAA Atlas 2," 1973 for the 11 Western States, and may be obtained from the National Climatic Center of the Environmental Data Service, National Oceanic and Atmospheric Administration, U.S. Department of Commerce.

(d) The term "mine" shall mean an area of land, surface or underground, actively used for or resulting from the extraction of a mineral from natural deposits.

(e) The term "process generated waste water" shall mean any waste water resulting from the slurry transport of ore or intermediate product, air emissions control, or processing exclusive of mining.

§ 436.182 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

In establishing the limitations set forth in this section, EPA took into account all information it was able to collect, develop and solicit with respect to factors (such as age and size of plant, raw materials, manufacturing processes, products produced, treatment technology available, energy requirements and costs) which can affect the industry subcategorization and effluent levels established. It is, however, possible that data which would affect these limitations have not been available and, as a result, these limitations should be adjusted for certain plants in this industry. An individual discharger or other interested person may submit evidence to the Regional Administrator (or to the State, if the State has the authority to issue NPDES permits) that factors relating to the equipment or facilities involved, the process applied, or other such factors related to such discharger are fundamentally different from the factors considered in the establishment of the guidelines. On the basis of such evidence or other available information, the Regional Administrator (or the State) will make a written finding that such factors are or are not fundamentally different for that facility compared to those specified in the Development Document. If such fundamentally different factors are found to exist, the Regional Administrator or the State shall establish for the discharger effluent limitations in the NPDES permit either more or less stringent than the limitations established herein, to the extent dictated by such fundamentally different factors. Such limitations must be approved by the Administrator of the Environmental Protection Agency. The Administrator may approve or disapprove such limitations, specify other limitations, or initiate proceedings to revise these regulations.

(a) Subject to the provisions of paragraph (b) of this section, the following limitations establish the quantity or quality of pollutants or pollutant properties, controlled by this section, which may be discharged by a point source subject to the provisions of this subpart after application of the best practicable control technology currently available:

(1) Process waste water generated from froth flotation operations, mine dewatering and surface runoff into waste water treatment systems shall not exceed the following limitations:

Effluent characteristic	Effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed—
TSS, milligrams per liter	60	30
pH	Within the range 6.0 to 9.0	

(2) For all other process generated waste water, such as ore transport water, pump seal water, air scrubber water and ore wash water, there shall be no discharge of pollutants into navigable waters.

(3) In the event that waste streams from various sources are combined for treatment and discharge, the quantity and quality of each pollutant or pollutant property in the combined discharge shall not exceed the quantity and quality of each pollutant or pollutant property allowed had each stream been treated separately.

(b) Any overflow from facilities designed, constructed and operated to treat to the applicable limitations the precipitation and runoff resulting from a 10-year 24 hour precipitation event shall not be subject to the limitations of this section.

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