Title 40—Protection of the Environment

CHAPTER I—ENVIRONMENTAL PROTECTION AGENCY

SUBCHAPTER N—EFFLUENT GUIDELINES AND STANDARDS

[405-2]

PART 440—ORE MINING AND DRESSING POINT SOURCE CATEGORY

Interim Final Rules

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 are promulgated by the Environmental Protection Agency (EPA). The regulation set forth below establishes Part 440—ore mining and dressing point source category and will be applicable to existing sources for the iron or subcategory (Subpart A), the base and precious metals subcategory (Subpart B), the bauxite subcategory (Subpart C), the mercury ore subcategory (Subpart D), the uranium, radium and vanadium ore subcategory (Subpart E), and the titanium ore subcategory (Subpart F) of the ore mining and dressing point source category pursuant to sections 301 and 304 (b) of the Act, and (c), (d), (e), (f), and (g) of the Federal Water Pollution Control Act, as amended (33 U.S.C. 1311, 1312, 1316, 1321, 1341, 1342, 1345, 1351, 1361 et seq.; Pub. L. 92-500 (the Act)).

Simultaneously, the Agency is publishing Administrator to publish regulations proposed pursuant to sections 301 and 304 (b) of the Act, for the iron ore subcategory (Subpart A), the base and precious metals subcategory (Subpart B), the bauxite subcategory (Subpart C), the ferroalloys ores subcategory (Subpart D), the uranium, radium and vanadium ore subcategory (Subpart E), and the titanium ore subcategory (Subpart F) of the ore mining and dressing 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 or “Development Document” currently available as set forth in section 304 (c) of the Act, information on such processes, procedures or operating methods.

New sources

Section 304 (c) of the Act requires the Administrator to establish the standards of performance for new sources of a Federal point source category. The standards for new sources of a Federal point source category will provide, pursuant to sections 304 and 306 of the Act, information on the best practicable control technology economically achievable, standards of performance for new point sources and pretreatment standards for existing sources and for new sources.

(a) Legal authority.

(1) Existing point sources.

Section 301 (b) of the Act requires the Administrator to issue, 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 Administrator to issue, not later than July 1, 1983, of effluent limitations for point sources, other than publicly owned treatment works, which require the application of the 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 available technology and practices achievable including treatment techniques, process and procedural innovations, operating methods and other alternatives. The regulation herein set forth is promulgated pursuant to sections 301 and 304 (b) of the Act, for the iron ore subcategory (Subpart A), the base and precious metals subcategory (Subpart B), the bauxite subcategory (Subpart C), the ferroalloys ores subcategory (Subpart D), the uranium, radium and vanadium ore subcategory (Subpart E), and the titanium ore subcategory (Subpart F) of the ore mining and dressing point source category.

(b) Summary and 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 pretreatment standards for new sources 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 materials used, product produced, manufacturing process employed, age, size, water use characteristics and other factor require development of separate limitations for different segments of the point source category. The raw water characteristics for each segment were then identified. This included an analysis of flow, volume of water used in the process employed, the sources of waste and wastewater in the operation and the constituents of the waste water 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 levels resulting from the application of each of the technologies. The problems, limitations and reliability of each technology were also identified. In addition, the nonwater quality environmental impact, such as the factors 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 by the Administrator in determining the 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.

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The data upon which the above analysis was performed included EPA permit application forms for sample King and inspection, consultant reports, and industry submissions.

The Development Document addressed the production of antimony, beryllium, and the rares metals; the regulations set forth herein do not address the production of these metals. There is currently in the United States only one facility solely producing beryllium; and one facility solely producing the rare earth metals. Each of these operations is located in water-short areas with high evaporation rates; consequently, these facilities are discharging zero discharge from both mine and mill. Because all three facilities are now achieving zero discharge, no benefit to the environment can be shown by establishing effluent limitations. The techniques currently used for pollution control by these facilities may not be applicable to any future operations. For the discharge, the limitations have not been obtained with which other effluent limitations can be established. Therefore limitations for these ore mining and dressing operations are not being set forth in this subpart.

(2) Summary of conclusions with respect to the iron ore subcategory (Subpart A), the base and precious metal subcategory (Subpart B), the bauxite ore subcategory (Subpart C), the ferroalloy ores subcategory (Subpart D), the uranium, radium, and vanadium ore subcategory (Subpart E), the mercury ore subcategory (Subpart F), and the titanium ore subcategory (Subpart G) are as follows:

(a) Categorization.

For the purpose of studying waste treatment and effluent limitations, the ore mining and dressing point source category was divided into seven subcategories based on the metal ore produced or processed. These seven subcategories were further divided into a total of twenty-two (22) subsubcategories primarily based on considerations of type of process and whether the ore was beneficiated or not beneficiated as outlined in the Development Document referred to below. Other factors have been recognized as causing such differences in the waste discharged; however, it has been determined that these factors do not significantly affect the treatability of the wastes generated within a subcategory. In those situations where there is a difference in the treatability of the wastes generated within a subcategory, the effluent limitations have been set so that all facilities within that subcategory can achieve the limitations with the treatment identified, with a lesser treatment or without treatment. To require a higher level of treatment for those facilities that need little or no treatment to achieve the limitations is not believed to be justified.

The subcategories and subdivisions within the subcategories are as follows:

(1) Subpart A, Iron Ore Subcategory.

The provisions of this subpart are applicable to discharges from (a) mines operated to obtain iron ore regardless of the type of ore or its mode of occurrence processed by physical and chemical separation and mills beneficiating iron ores by only physical (not magnetic) methods; and (b) mills beneficiating iron ores by magnetic and physical separation.

(2) Subpart B, Base and Precious Metals Subcategory.

The provisions of this subpart are applicable to discharges from (a) mines operating to obtain copper bearing ores, lead bearing ores, zinc bearing ores, gold bearing ores or silver bearing ores or any combination of these ores from open pit or underground operations other than placer deposits; (b) mills which employ the froth-flotation process alone or in conjunction with other processes, for the beneficiation of copper ores, lead ores, zinc ores, gold ores or silver ores or any combination of these metals; (c) mines and mills which employ dump, heap, in situ leach or vat-leach processes; (d) mills which process from iron or ore or waste materials; (e) mills which extract gold or silver by the cyanide process alone (e) mills which extract gold or silver by the carbon-in-cementation process alone; and (f) mines or mine and mill complexes beneficiating gold ores, silver ores, tin ores or platinum ores by gravity separation methods; this includes placer or dredge mining or concentrating operations, as well as hydrometallurgical operations.

(3) Subpart C, Bauxite Ore Subcategory.

The provisions of this subpart are applicable to discharges from mines producing bauxite and other aluminum ores.

(4) Subpart D, Ferroalloy Ores Subcategory.

The provisions of this subpart are applicable to discharges from (a) mines producing 5,000 metric tons (5,512 short tons) or more of ferroalloy ores per year; (b) mines or mills processing less than 5,000 metric tons (5,512 short tons) of ferroalloy ores per year by methods other than ore leaching; (c) mines processing more than 5,000 metric tons (5,512 short tons) or more of ferroalloy ores per year by purely physical methods including ore crushing, washing, jigging, heavy-media and gravity separation, and magnetic and electrostatic separatory techniques; and (d) mills beneficiating ferroalloy ores by leaching techniques (either acid or alkaline) and associated chemical beneficiation techniques.

(5) Subpart E, Uranium, Radium and Vanadium Ores Subcategory.

The provisions of this subpart are applicable to discharges from (a) mines, either open-pit or underground, from which uranium, radium and vanadium ores are produced; and (b) mills using the acid leach, alkaline leach, or combined acid and alkaline leach process for the extraction of uranium ores.

(6) Subpart F, Mercury Ore Subcategory.

The provisions of this subpart are applicable to discharges from (a) mines, either open-pit or underground, operated for the production of mercury ores; and (b) mills beneficiating mercury ores by gravity separation methods or by froth-flotation methods.

(7) Subpart G, Titanium Ore Subcategory.

The provisions of this subpart are applicable to discharges from (a) mines obtaining titanium ores from lode deposits; (b) mills beneficiating titanium ores by electrostatic methods, magnetic and physical methods, or flotation methods; and (c) mines engaged in the dredge mining of placer deposits of sands containing rutile, ilmenite, leucoxene, monazite, zircon, and other heavy metals, and the milling techniques employed in conjunction with the dredge mining activity (milling techniques employed include the use of water gravity methods in conjunction with electrostatic or magnetic methods).

(II) Waste characteristics.

The raw waste characteristics of ore mining and mill process water are highly dependent upon the mineralogy of the ore processed and the extraction, beneficiation or concentration technique employed in the mill and the reagents used. The major pollutant parameters present in all or some of the waste waters from the ore mining and dressing point source category are suspended solids, stabilized metals, radionuclides, organic and inorganic matter, and reagents used in the milling process. The primary metals present that have been identified as causing significant pollution problems include iron, cadmium, copper, zinc, mercury, lead, moyleshdenium, arsenic, nickel, aluminum, antimony, chromium and vanadium. The radionuclides include radium 226 and uranium. The primary reagents of interest are cyanide and ammonia; other reagents and organic and inorganic materials present in the water may exert an oxygen demand on the receiving water and can be measured by determining the chemical oxygen demand (COD) of the waste water.

Inferior effluent limitations guidelines based upon what is achievable through the application of the best practicable control technology currently available are established for each of the above pollutants. The determination of which pollutants to limit in each subcategory was based on (1) which pollutants are frequently present in the discharge in concentrations deleterious to aquatic organisms; and (2) which pollutants will be removed or reduced by the technology identified as the best practicable control technology currently available. In those situations where the available data indicates one or more of the pollutants to be limited are normally reduced incidentally with the removal or
If mine drainage may continue indefinitely and treating often massive volumes of navigable waters. In addition to handling systems. This waste water is discharged is a part of most ore mining methods or hydraulic mining of some placer deposits used in the actual mining of ore in the industry. Waste water handling and management is a problem that plagues much of, its. Waste water handling and management is a problem that plagues much of, its. Waste water treatment and control technology has been studied for each subcategory of the industry to determine what is the best practicable control technology currently available.

Waste water treatment technology discussed in this document is the use of lime precipitation methods, tailings impoundments for removal of suspended solids and precipitates, and partial reuse of mill water. It cyanide is present in waste water, alkaline chlorination for cyanide destruction may be required. Adjustment for the pH of the waste water may be required prior to discharge.

(3) Mines and mills which employ dump, heap, instill leach or vat-leach processes for the extraction of copper from copper ores.

BPCTCA for this subdivision is the use of lime precipitation in conjunction with sedimentation or settling impoundment, with the in-process recycle of the mercury solvent agent in the amalgamation process. Adjustment of the pH of wastes prior to discharge may be necessary.

(4) Mills which extract gold or silver by the cyanidation process alone.

BPCTCA for this subdivision is the use of lime or lime and acid mill complexes beneficiating gold ores, silver ores, tin ores or platinum ores by gravity separation.

BPCTCA for this subdivision is the use of settling or tailing impoundments for settling of suspended solids. An alternative technology is the pumping of waste water from dredging operations back to a tailing-dipper area, area for filtration through sands and gravels. At some operations, it may be necessary to add flocculating agents to enhance the settling of suspended solids. pH adjustment prior to discharge may be required.

SUBPART C—BAUXITE SUBCATEGORY

BPCTCA for this subcategory is the use of lime precipitation and settling. Adjustment of waste water pH prior to discharge may be required.

SUBPART D—FERROALLOY ORES SUBCATEGORY

(1) Mines producing 5,000 metric tons (5,512 short tons) or more of ferroalloy ores per year.

BPCTCA for this subdivision is the use of lime precipitation in conjunction with a settling pond or a mechanical clarifier for suspended solids removal. pH adjustment prior to discharge may be required.

(2) Mines or mills processing less than 5,000 metric tons (5,512 short tons) of ferroalloy ores per year by methods other than ore leaching.

BPCTCA for this subdivision is the use of settling or tailing ponds in conjunction with pH control.
(3) Mills processing 5,000 metric tons (5,512 short tons) or more of ferroalloy ores per year by purely physical methods including ore crushing, washing, jigging, heavy-media and gravity separation, and magnetic and electrostatic separation methods.

BPCTCA for this subdivision is lime precipitation in conjunction with settling ponds. Adjustment prior to discharge may be necessary.

(4) Mills processing 5,000 metric tons (5,512 short tons) or more of ferroalloy ores per year by flotation methods.

BPCTCA for this subdivision includes the use of primary settling or thickening ponds in conjunction with lime precipitation and secondary settling. lime precipitation may be necessary at selected locations to meet suspended-solid limitations. pH adjustment prior to discharge may be necessary.

(5) Mills processing ferroalloy ores by leaching techniques (either acid or alkaline) and associated chemical beneficiating techniques.

BPCTCA for this subdivision includes thickening ponds for primary settling, in conjunction with lime precipitation, flocculation, and secondary settling. Segregation of waste water streams and ammonia stripping may be required. The segregation of highly contaminated leach solutions, extraction, precipitation, and scrubber waste streams from noncontact cooling water and uncontaminated waste streams is essential to effective removal of metals from the waste water. pH adjustment prior to discharge may be necessary.

SUBPART E—URANIUM, RADIUM, AND VARIOUS ORES SUBCATEGORY

(1) Mines, either open pit or underground, from which uranium, radium, and vanadium ores are produced.

BPCTCA for this subdivision is the use of settling ponds in conjunction with lime precipitation, ion exchange (for uranium removal), barium chloride co- precipitation (for radium removal), and secondary settling.

(2) Mills using the acid leach, alkaline leach, or combined acid and alkaline leach process for the extraction of uranium, radium, and vanadium.

BPCTCA for this subdivision is no discharge of waste water pollutants.

SUBPART F—MERCURY ORES SUBCATEGORY

(1) Mines, either open pit or underground, operated for the production of mercury ore.

BPCTCA is lime precipitation in conjunction with settling impoundments. Adjustment of the pH prior to discharge may be required.

(2) Mills beneficiating mercury ores by gravity-separation methods, or by froth-flotation methods.

BPCTCA is zero discharge by recycling of process water or total impoundment.

SUBPART G—TITANIUM ORE SUBCATEGORY

(1) Mines obtaining titanium ores from lode deposits.

BPCTCA for this subdivision is neutralization in conjunction with the use of a settling pond for suspended solids removal.

If thermal processing (incineration) is the choice for disposal, provisions must be made to insure against entry of hazardous pollutants into the atmosphere. Consideration should also be given to recovery of materials of value in the waste.

For those waste materials considered to be nonhazardous where land disposal is the choice for disposal, practices similar to proper sanitary landfill technology may be followed. The principles set forth in the EPA's Land Disposal of Solid Wastes Guidelines 40 CFR Part 241 may be used as guidance for acceptable land disposal techniques.

For those waste materials considered to be hazardous, disposal will require special precautions. In order to ensure long-term protection of public health and the environment, special preparation and pretreatment may be required prior to disposal. If land disposal is to be practiced, these sites must not allow movement of pollutants to either ground or surface waters. Sites should be selected that have natural soil and geological conditions to prevent such contamination.

Artificial means (e.g., liners) must be provided to ensure long-term protection of the environment from hazardous materials. Where appropriate, the location of waste disposal sites should be permanently recorded in the appropriate office of the legal jurisdiction in which the site is located.

(3) Mills processing 5,000 metric tons (5,512 short tons) or more of ferroalloy ores per year by flotation methods.

BPCTCA for this subdivision is lime precipitation in conjunction with settling impoundments, flocculation, and secondary settling. Adjustment of the pH prior to discharge may be necessary.

(4) Mills processing 5,000 metric tons (5,512 short tons) or more of ferroalloy ores per year by flotation methods.

BPCTCA for this subdivision includes the use of primary settling or thickening ponds in conjunction with lime precipitation and secondary settling. Flocculation may be necessary at selected locations to meet suspended-solid limitations. pH adjustment prior to discharge may be necessary.

(5) Mills processing ferroalloy ores by leaching techniques (either acid or alkaline) and associated chemical beneficiating techniques.

BPCTCA for this subdivision includes thickening ponds for primary settling, in conjunction with lime precipitation, flocculation, and secondary settling. Segregation of waste water streams and ammonia stripping may be required. The segregation of highly contaminated leach solutions, extraction, precipitation, and scrubber waste streams from noncontact cooling water and uncontaminated waste streams is essential to effective removal of metals from the waste water. pH adjustment prior to discharge may be necessary.

SUBPART E—URANIUM, RADIUM, AND VARIOUS ORES SUBCATEGORY

(1) Mines, either open pit or underground, from which uranium, radium, and vanadium ores are produced.

BPCTCA for this subdivision is the use of settling ponds in conjunction with lime precipitation, ion exchange (for uranium removal), barium chloride co- precipitation (for radium removal), and secondary settling.

(2) Mills using the acid leach, alkaline leach, or combined acid and alkaline leach process for the extraction of uranium, radium, and vanadium.

BPCTCA for this subdivision is no discharge of waste water pollutants.

SUBPART F—MERCURY ORES SUBCATEGORY

(1) Mines, either open pit or underground, operated for the production of mercury ore.

BPCTCA is lime precipitation in conjunction with settling impoundments. Adjustment of the pH prior to discharge may be required.

(2) Mills beneficiating mercury ores by gravity-separation methods, or by froth-flotation methods.

BPCTCA is zero discharge by recycling of process water or total impoundment.

SUBPART G—TITANIUM ORE SUBCATEGORY

(1) Mines obtaining titanium ores from lode deposits.

BPCTCA for this subdivision is neutralization in conjunction with the use of a settling pond for suspended solids removal.

If thermal processing (incineration) is the choice for disposal, provisions must be made to insure against entry of hazardous pollutants into the atmosphere. Consideration should also be given to recovery of materials of value in the waste.

For those waste materials considered to be nonhazardous where land disposal is the choice for disposal, practices similar to proper sanitary landfill technology may be followed. The principles set forth in the EPA's Land Disposal of Solid Wastes Guidelines 40 CFR Part 241 may be used as guidance for acceptable land disposal techniques.

For those waste materials considered to be hazardous, disposal will require special precautions. In order to ensure long-term protection of public health and the environment, special preparation and pretreatment may be required prior to disposal. If land disposal is to be practiced, these sites must not allow movement of pollutants to either ground or surface waters. Sites should be selected that have natural soil and geological conditions to prevent such contamination.

Artificial means (e.g., liners) must be provided to ensure long-term protection of the environment from hazardous materials. Where appropriate, the location of waste disposal sites should be permanently recorded in the appropriate office of the legal jurisdiction in which the site is located.

(3) Mills processing 5,000 metric tons (5,512 short tons) or more of ferroalloy ores per year by purely physical methods including ore crushing, washing, jigging, heavy-media and gravity separation, and magnetic and electrostatic separation methods.

BPCTCA for this subdivision is lime precipitation in conjunction with settling impoundments, flocculation, and secondary settling. Adjustment of the pH prior to discharge may be necessary.

(4) Mills processing 5,000 metric tons (5,512 short tons) or more of ferroalloy ores per year by flotation methods.

BPCTCA for this subdivision includes the use of primary settling or thickening ponds in conjunction with lime precipitation and secondary settling. Flocculation may be necessary at selected locations to meet suspended-solid limitations. pH adjustment prior to discharge may be necessary.

(5) Mills processing ferroalloy ores by leaching techniques (either acid or alkaline) and associated chemical beneficiating techniques.

BPCTCA for this subdivision includes thickening ponds for primary settlement, in conjunction with lime precipitation, flocculation, and secondary settlement. Segregation of waste water streams and ammonia stripping may be required. The segregation of highly contaminated leach solutions, extraction, precipitation, and scrubber waste streams from noncontact cooling water and uncontaminated waste streams is essential to effective removal of metals from the waste water. pH adjustment prior to discharge may be necessary.

SUBPART E—URANIUM, RADIUM, AND VARIOUS ORES SUBCATEGORY

(1) Mines, either open pit or underground, from which uranium, radium, and vanadium ores are produced.

BPCTCA for this subdivision is the use of settling ponds in conjunction with lime precipitation, ion exchange (for uranium removal), barium chloride co- precipitation (for radium removal), and secondary settling.

(2) Mills using the acid leach, alkaline leach or combined acid and alkaline leach process for the extraction of uranium, radium and vanadium.

BPCTCA for this subdivision is no discharge of waste water pollutants.

SUBPART F—MERCURY ORES SUBCATEGORY

(1) Mines, either open pit or underground, operated for the production of mercury ore.

BPCTCA is lime precipitation in conjunction with settling impoundments. Adjustment of the pH prior to discharge may be required.

(2) Mills beneficiating mercury ores by gravity-separation methods, or by froth-flotation methods.

BPCTCA is zero discharge by recycling of process water or total impoundment.

SUBPART G—TITANIUM ORE SUBCATEGORY

(1) Mines obtaining titanium ores from lode deposits.

BPCTCA for this subdivision is neutralization in conjunction with the use of a settling pond for suspended solids removal.

If thermal processing (incineration) is the choice for disposal, provisions must be made to insure against entry of hazardous pollutants into the atmosphere. Consideration should also be given to recovery of materials of value in the waste.

For those waste materials considered to be nonhazardous where land disposal is the choice for disposal, practices similar to proper sanitary landfill technology may be followed. The principles set forth in the EPA's Land Disposal of Solid Wastes Guidelines 40 CFR Part 241 may be used as guidance for acceptable land disposal techniques.

For those waste materials considered to be hazardous, disposal will require special precautions. In order to ensure long-term protection of public health and the environment, special preparation and pretreatment may be required prior to disposal. If land disposal is to be practiced, these sites must not allow movement of pollutants to either ground or surface waters. Sites should be selected that have natural soil and geological conditions to prevent such contamination.

Artificial means (e.g., liners) must be provided to ensure long-term protection of the environment from hazardous materials. Where appropriate, the location of waste disposal sites should be permanently recorded in the appropriate office of the legal jurisdiction in which the site is located.

(3) Mills processing 5,000 metric tons (5,512 short tons) or more of ferroalloy ores per year by purely physical methods including ore crushing, washing, jigging, heavy-media and gravity separation, and magnetic and electrostatic separation methods.

BPCTCA for this subdivision is lime precipitation in conjunction with settling impoundments. Adjustment of the pH prior to discharge may be required.

(4) Mills processing 5,000 metric tons (5,512 short tons) or more of ferroalloy ores per year by flotation methods.

BPCTCA for this subdivision includes the use of primary settling or thickening ponds in conjunction with lime precipitation and secondary settling. Flocculation may be necessary at selected locations to meet suspended-solid limitations. pH adjustment prior to discharge may be necessary.

(5) Mills processing ferroalloy ores by leaching techniques (either acid or alkaline) and associated chemical beneficiating techniques.

BPCTCA for this subdivision includes thickening ponds for primary settling, in conjunction with lime precipitation, flocculation, and secondary settling. Segregation of waste water streams and ammonia stripping may be required. The segregation of highly contaminated leach solutions, extraction, precipitation, and scrubber waste streams from noncontact cooling water and uncontaminated waste streams is essential to effective removal of metals from the waste water. pH adjustment prior to discharge may be necessary.
(vii) Economic impact analysis.

The economic impact analysis of the interim final regulation set forth herein indicates that the economic impact of compliance with the regulation will be minimal. As previously mentioned in paragraph (v) above, only two facilities will be endangered by the BPTCWA limitations.

Executive Order 11821 (November 27, 1974) requires that major proposals for legislation and promulgation of regulations and rules be accompanied by a statement certifying that the inflationary impact of the proposal has been evaluated.

OMB Circular A-11 (January 26, 1975) prescribes guidelines for the identification and evaluation of major proposals requiring preparation of inflationary impact certifications. The Circular provides that during the interim period prior to final approval by OMB of criteria developed by each Agency, the Administrator is responsible for identifying those regulations which require evaluation and certification. The Administrator has directed that all regulatory actions which are likely to result in capital investment exceeding $100 million or annualized costs in excess of $50 million will require certification.

As the Agency's analysis of the potential economic impacts of these regulations indicates, the capital investment and annualized costs associated with compliance are not estimated to exceed these amounts. However, the Agency has reviewed and analyzed the projected effect on the prices and economies of the industry as summarized above.

The report entitled "Development Document for Proposed Efluent Limitations Guidelines and New Source Performance Standards for the Ore Mining and Dressing Point Source Category" details the analysis undertaken in support of the interim final regulation set forth herein and is available for inspection and copying at the EPA Public Information Reference Unit, Room 2404, Waterside Mall, 401 M St., S.W., Washington, D.C. 20460, 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 regulations 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 regulations or who have placed themselves on a mailing list for this purpose (see EPA's Advance Notice of Public Revisions Procedures, 38 F.R. 21202, August 6, 1973). An additional limited number of copies of both reports are available. Persons wishing to obtain a copy may contact the EPA, Effluent Guidelines Division, Washington, D.C. 20460, Attention: Distribution Office, WH452.

When this regulation is promulgated in final form rather than under 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 information available through the National Technical Information Service, Springfield, VA 22151.

(e) Summary of public participation:

Prior to this publication, the agencies and groups consulted and given an opportunity to participate in the development of effluent limitations, guidelines and standards proposed for the ore mining and dressing point source category 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 303(c) of Clean Water 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) the U.S. Department of Commerce; (7) U.S. Department of the Interior; (8) U.S. Department of Agriculture; (9) U.S. Department of Health, Education, and Welfare; (10) U.S. Department of Housing and Urban Development; (11) U.S. Department of Treasury; (12) Tennessee Valley Authority; (13) Council on Environmental Quality; (14) National Commission on Water Pollution; (15) Water Pollution Control Federation; (16) the American Society for Testing and Materials; (17) the American Iron Ore Association; (18) Federal Energy Administration; (19) Office of Management and Budget; (20) Federal Reserve Board; (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) National Resources Defense Council; (27) The American Society of Civil Engineers; (28) Water Pollution Control Federation; (29) National Wildlife Federation; (30) The American Mining Congress; (31) The American Iron Ore Association; (32) Environment Canada; and (33) Isaac Walton League. In addition all the respondents, associations, and other pollutants in the system (with or without cost considerations) have been included in the development of the interim final regulations.

The primary issues raised in the development of the interim final effluent limitations and guidelines and the treatment of these issues herein are as follows:

(1) Two commenters questioned the reason for different effluent limitations for mines and mills processing the same ore.

It was determined that when mine and mill waste water are treated separately, the mill waste water alone can often be treated to a better quality than the mine waste water alone. When mine waste water and mill waste water are mixed, coprecipitation often occurs and the resultant effluent can readily meet the effluent limitations recommended for discharges from the mill.

(2) Several commenters suggested that a higher level of treatment could be obtained with a resultant benefit to the environment by allowing a mixing of mine waste water and mill process waste water in a combined treatment system or by using mine waste water as mill process water prior to treatment in a combined treatment system. The commenters stated that the mine waste water is in excess of that which can be consumptively used as mill process water, a discharge must occur. Because a benefit to the environment can be shown by using mine waste water as mill process water or treating the mine waste water in a combined treatment system, the development document and the regulations have been revised to allow a discharge, subject to stringent limitations, in a combined treatment system is used.

(3) Several commenters expressed concern that the attainment of "zero" discharge through the use of recycle water was impossible for facilities beneficiating ore containing pyritic sulfur. It was stated that the flotation process is a very complex process which can be easily upset by the addition of recycle water containing even minute amounts of degraded chemicals initially used in the process. It was also stated that a build-up of sulfides and other pollutants in the system (with-
out a bleed) will prevent recycle. One commenter stated that an increased process loading would result in a bleed in the form of water trapped in the interstitial voids of the tailings. This commenter further stated that this "bleed" will remove a portion of the dissolved salts from the recycle mill's process water, with the result that the circuit can operate on a zero discharge.

Experience at a number of facilities have shown that zero discharge can be achieved on a full scale basis through the use of recycle. Several of these facilities expressed concern over loss of recovery of metal values because of recycle. However, no adverse effect has been demonstrated. Those facilities that have run bench scale tests to determine the effect of recycle on production have noticed a loss in production; however, the bench scale tests were run using the effluent from the existing treatment system with no process modification or recycler change. Based on the experience of those now recycling, it is believed that when all process waste water is recycled, some consideration of process modification or recycle need be necessary.

(4) Two commenters recommended that limitations not be set for those parameters that are present in the discharge in lower concentrations than are specified in the effluent limitations. Several commenters requested that parameters not present in the process waste water or added in the process not be limited. Several commenters requested that no limitations be set for parameters not removed by the identified treatment systems. Several commenters recommended that only indicator parameters, i.e., the limitation of one parameter will result in the limitation of other parameters, be limited rather than a great number of parameters. One commenter stated that limitations were more stringent than the state water quality standards. Another commenter stated that the limitations were more stringent than the state stream standards.

The numbers have been based on what can be obtained by the application of BFCTCA and BATEA. If a particular facility does not have one of the limited parameters present in the waste water or it is present in quantities below the limitations, then that facility naturally will not have to treat to remove that parameter.

A reanalysis of the parameters to be limited indicated that a number of parameters would be controlled if indicator parameters were controlled. The reanalysis also indicated that some of the limited parameters are removed by the recommended treatment systems. Therefore, in the regulations only those indicator parameters that are removed by the treatment systems identified are limited.

(5) It was stated that the definition of a mine is too general. One commenter stated that the definition of a mine did not cover lead-zinc mining. The definition of a mine was intended to be sufficiently broad to cover all point source pollution resulting from all of the activities related to operation of the mine including drainage tunnels, haul roads, storage piles, etc.

(6) A number of commenters stated that a variation in raw waste loads impacted on the ability of the discharger to meet the effluent limitations. Several commenters requested that effluent limitations be net rather than gross to consider the variation in raw waste loads caused by variation in influent waste quantities.

It was determined that the treatment systems recommended can achieve the specified effluent limitations regardless of the raw waste quality (within the limits experienced in the ore mining and dressing industry). Of course, as with any treatment system, the treatment systems for the ore mining and dressing industry must be routinely monitored to compensate for changes in the raw waste load. The Environmental Protection Agency has promulgated a regulation (40 CFR Part 125) that provides the Regional Administrator the authority to adjust the effluent limitations to consider specified pollutants in the water supply if the source of the water supply is the same as the source of the discharge is made and if the waste water treatment system (equal to BFCTCA or BATEA) is not designed to reduce the specified parameters to the level required by the applicable standards. This latter provision is not expected to be applicable in the ore mining and dressing industry.

(7) It was stated that control of mine closures, revegetation and mine safety should not be considered as part of the effluent limitations setting process. The contractor's draft was intended to give an overview of the mining industry in addition to identifying available treatment technologies. The regulation will only consider those items directly impacting on effluent limitations.

(8) One commenter preferred the copper industry be subcategorized into solubilization no-solubilization subcategories. The solubilization no-solubilization potential subcategories for the lead and zinc mines has been found to be an unworkable concept and consequently has been dropped. The effluent limitations are based on what quality can be obtained by treating waste water with solubilization potential (the most difficult mine water to treat). Mine waters with no-solubilization potential can probably meet the limitations either with relative little treatment or with settling alone.

(9) One commenter suggested the technology identified as BFCTCA be subcategorized into solubilization no-solubilization subcategories. The technology identified as BFCTCA is correct; however, the effluent limitations cannot be met. Not all of the facilities with the technology identified as BFCTCA in place are operated as exemplary facilities, and as such the limitations from those facilities cannot be considered as representative of what can be obtained with proper operation of the treatment system. Data is available that shows the limitations can be achieved.

(10) Several commenters stated that effluent limitations should be based on the cost data provided in the draft development document. One commenter stated that the costs were not covered by the data provided in the draft development document; however, the data provided in the draft development document did not agree with data in other EPA publications. Another commenter suggested that the costs were not
RULES AND REGULATIONS

based on actual costs incurred by the industry. Several of the commenters objected to the lack of cost data for lining of tailing ponds. Several commenters also commented that the 'PACT study' in the draft development document was inadequate. One commenter recommended that costs include the costs to abate pollution from sources other than the discharge.

The cost data presented in the development document was obtained from the industry and from sources supplying equipment to the industry. The costs presented are the estimated costs that a typical facility within an industrial subcategory would incur in the installation of BPCTCA and BATEA. A typical facility may not be an actual facility but rather a hypothetical facility that is representative of the industrial subcategory. Disagreement with other EPA documents was noted; however, it was determined that typographical errors in other documents explained the discrepancies. Only those costs which directly result from the implementation of the recommended effluent limitations are not costs.

The cost data in the development document is not the economic impact study, but rather has been used as input to the economic impact study which was prepared by another EPA contractor (EPA contract #ES-01-1541).

One commenter stated that the costs of diversion ditching to control the runoff resulting from rainfall have not been considered.

Diversions ditching to control excess water passing through the mine and mill facilities is generally considered a part of the industrial process rather than for water pollution control. In those cases where water or摇滚 the are not required for the achieving of the costs have been included.

Four commenters questioned whether the metals limitations are total or dissolved.

Test methods specified in the October 16, 1973 Federal Register (40 CFR Part 130) Procedures for Analysis of Solutions are the methods that the contractor used in determining obtainable levels (unless specifically noted otherwise) and are the methods which should be used by a discharger in determining whether he is in compliance with the applicable limitations. With the exception of the procedure for analysis of hexavalent chromium and filtrable iron, all analysis for metals provide a total metal concentration.

The recommended effluent limitations are based on the technology available as required by Pub. L. 92-500. Drinking water standards have been used as a guide in determining which parameters to limit; however, the standards for drinking water are not applicable to effluent limitations.

Several commenters recommended only concentration limits for mill discharges rather than mass loading limitations.

It has been determined that variability in ore mineralogy results in differing water requirements to concentrate products within the same subcategory. For example, water use within the grinding circuit is directly dependent upon the fineness of grind required to liberate the metal ore. Furthermore, it has been determined that in general, water use in a mill is minimized to minimize pumping and treatment costs. Therefore, the effluent limitations have been revised to be concentration limitations only.

One commenter stated that the pH limitations of 6 to 9 are inconsistent with the technologies identified as BPCTC and BATEA. The technologies identified generally call for raising the pH (in some cases above pH 9) to reduce the metals concentration. The recommendation prior to discharge is also required. The revised development document now clearly specifies neutralization prior to discharge.

One commenter questioned the advisability of different effluent limitations for different subcategories. It has been determined that the treatability of the waste varies between some subcategories. Effluent limitations that can be achieved for one subcategory may not be achievable for another. Where possible, however, effluent limitations are consistent between subcategories.

One commenter stated that the draft development document did not explain the rationale for the concentration of ammonia used only for the subcategory of copper mills using flotation and not for other subcategories. Several commenters stated that in the development of the recommended effluent limitations, consideration was not given to those areas having an unfavorable water balance (i.e. net precipitation areas).

It was determined that use of net precipitation data was not a good method for subcategorization and this system was dropped. For BPCTC, those facilities already at zero discharge will not be authorized to discharge. Those facilities in net precipitation areas and those facilities currently having a discharge will have until 1979 to eliminate discharges where zero discharge is required. The regulation resulting from the information presented in the draft development document will allow a discharge in those areas where the discharge results from the precipitation; the allowable discharge is equal to the difference between precipitation and evaporation.

One commenter stated that the recommended effluent limitations did not consider the toxic standards.

The recommended limitations have been based on what can be achieved with the available technology. No toxic standards have been promulgated at this time.

One commenter objected to having limitations placed on waste water within the tailing pond. Limitations apply only to point source discharges to the waters of the United States. Limitations do not apply within a tailing pond or other treatment system.

Several commenters objected to the requirement to contain the runoff from a 1 in 25 year precipitation event. One commenter requested that the requirement for containing a 1 in 25 year precipitation event be clarified.

The requirement to contain or treat all discharges from a specified storm or precipitation event was intended to provide the discharger with a reasonable design criteria and to allow a variance whenever catastrophic conditions occur. The requirements for control or treatment of a catastrophic occurrence have been clarified.

One commenter stated that ammonia levels should be applied to process waters. Discharges of toxic concentrations of ammonia.

The technology identified for BPCTC and BATEA and NSPS for the industries referred to does not remove ammonia, consequently ammonia was not limited.

Two commenters stated that sulfide precipitation was not well enough defined to be used for BPC TCA technology.

It has been determined that the level of reliability of sulfide precipitation was not high enough to justify recommending sulfide precipitation as BPCTA. It is believed, however, that sulfide precipitation is valid for BATEA.

Two commenters suggested that effluent limitations could be given to combined treatment systems for metals, for mills, smelters and refineries.

The revised draft development document has addressed the issue of discharge from combined treatment systems for metals, for mills, smelters and refineries.

Several commenters objected to the factors used as primary categorization factors. The commenters wanted more factors used to categorize the facilities.

A great number of factors which influence subcategorization of the industry were considered. It was determined that while all of the factors influenced the quality and quantity of wastes from the various facilities, they did not influence the treatability of the waste sufficiently to warrant separate subcategorization.

Two commenters objected to defining process-water as any water including runoff in contact with the ore. These commenters suggested that runoff be considered on an industrial basis. One commenter expressed approval as to the definition of process water.
Any water in contact with the ore may become contaminated, therefore, it is important that limitations be set. If the runoff water is not contaminated then the limitations can normally be met without treatment. The technology is available and in use within the industry to control pollution from runoff.

(31) One commenter recommended that limitations be set for mills doing custom work or for mills producing a variety of ores.

The guidelines have been revised to include instructions for determining effluent limitations for mills doing custom work or for mills producing a variety of ores.

(32) One commenter stated that recycling was prohibitive because of long pumping distances.

While it is realized that long pumping distances increase the recycle costs, other facilities have accepted the increased cost with no apparent economic disadvantage. This use to recycle process study did not determine pumping costs to be excessive.

(33) One commenter objected to using the same technology for controlling Ra 226 for both mills and mines. The commenter further stated that the limitations specified could not be reliably obtained.

The survey of the industry indicated that the technology for removal of Ra 226 is the same for both mines and mills. The limitations have been revised upward to insure that they can be reliably achieved by the recommended treatment system.

(34) One commenter stated that uranium mills in areas of net precipitation or using a acid leach process may not be able to obtain zero discharge of pollutants.

A provision has been made in the regulation to allow a discharge in areas of net precipitation. The technology currently exists and can be used to recycle process water from facilities using an acid leach process.

(35) One commenter stated that no facilities using a fatty acid flotation process have achieved any degree of recycle. At least one facility (located in California) has had success recycling process water from a fatty acid flotation process.

(36) On commenter objected to the use of 1972 dollars in the cost analysis section of the draft development document. The commenter recommended using 1975 dollars.

A uniform base year, 1975, has been used in all feasible guidelines documents to permit a compilation of all program costs to evaluate the impact of all Effluent Guidelines Division programs on a systematic basis. Appropriate indices are available and were used to convert the dollar costs for pollution control, the industry output and the annual industry capital expenditures to a base year so that all costs could be fairly compared.

(37) Several commentators expressed concern that no recommendations for disposal of solid wastes removed by the recommended, treatment systems were provided.

The principles set forth in "Land Disposal of Solid Wastes Guidelines" (40 CFR Part 241) may be used as guidance for acceptable disposal techniques. Additional data may require special considerations to ensure proper disposal. Additionally, state and local guidelines and regulations should be considered wherever applicable.

(38) Two commenters objected to the use of transfer technology from mills to mines within the same subcategory in determining that a barium chloride coprecipitation treatment system for wastes from uranium mines is BPTCTCA. One commenter did not agree that the system could be used on large mine flows.

The barium chloride coprecipitation system is currently in use treating mill wastewater (300,000 gpd). The mill wastewater in question has composition characteristics similar to those of the mine wastewater. The system in use has been successfully scaled up from pilot size and there appears to be no technical reason that the system cannot be enlarged further to a larger scale.

(39) One commenter stated that there are contradictions between the draft development document for the ore mining and dressing point source category and other development documents.

The recommended effluent limitations are believed to be obtainable with the technologies identified. Limitations recommended in other documents are not directly applicable to industries in the ore mining and dressing point source category.

(40) One commenter stated that the effluent limitations are below detectable levels.

All limitations have been checked to insure that the levels are above the detection levels for the analytical methods specified in 40 CFR Part 136.

(41) One commenter stated that the time recommended for retention of wastes in a tailing pond was not practical.

Recommended waste water retention time within a treatment system have been eliminated. Each treatment system and the types of the treatment systems must be designed and operated for optimum efficiency for each situation.

(42) One commenter suggested that the development document should consider waste water from an air scrubber (used for air pollution control in a pelleting facility) in determining treatment requirements.

Most pelleting facilities were found to be reusing their air scrubber waste water as make-up water for adjusting the waste water content of the concentrate prior to the "balling" process (ball mill feed) to obtain the required pellet. This air scrubber waste water contains iron values obtained from the pelleting kilns so that this practice results in conservation of the addition of air emissions. Because the practice of air scrubber waste water reuse is wide spread and the costs of reuse are minimal, it has been recommended that the reuse of air scrubber waste water on treatment requirements and treatment costs is negligible.

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. 1609-75) which requires the publication of regulations for this industry category no later than November 15, 1975. 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 30 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 that a notice and comment on the interim final regulations would be impracticable and contrary to the public interest. Good cause is therefore found for 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 Street, SW., 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 concept notice and ask the Agency to modify the interim final regulations to reflect submissions which requires the promulgation of regulations for this industry category.

FEDERAL REGISTER, VOL. 40, NO. 215—THURSDAY, NOVEMBER 6, 1975
ing the study of the industry concerned will also be maintained at this location for public review and copying. The EPA information, 40 CFR Part 2, provides that a reasonable fee may be charged for copying.

All comments received on or before December 8, 1975, will be considered. Steps presently under the Environmental Protection Agency to facilitate public response within this time period are outlined in the advance notice concerning public review procedures published on page 21302. 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 440 is hereby established as set forth below.

Dated: October 17, 1975.

JOHN QUARLES,
Acting Administrator.

Subpart A—Iron Ore Subcategory

Sec. 440.10 Applicability; description of the iron ore subcategory.

440.11 Specialized definitions.

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

Subpart B—Base and Precious Metals Subcategory

Sec. 440.20 Applicability; description of the base and precious metals subcategory.

440.21 Specialized definitions.

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

Subpart C—Bauxite Subcategory

Sec. 440.30 Applicability; description of the bauxite subcategory.

440.31 Specialized definitions.

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

Subpart D—Ferroalloy Ores Subcategory

Sec. 440.40 Applicability; description of the ferroalloy ores subcategory.

440.41 Specialized definitions.

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

Subpart E—Uranium, Radium and Vanadium Ores Subcategory

Sec. 440.50 Applicability; description of the uranium, radium and vanadium ores subcategory.

440.51 Specialized definitions.

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

Subpart F—Mercury Ores Subcategory

Sec. 440.60 Applicability; description of the mercury ores subcategory.

(f) The terms "annual precipitation" and "annual evaporation" mean the mean annual precipitation and mean annual lake evaporation respectively, as defined in "Standard Methods for the Examination of Water and Wastewater," 13th Edition, 1971, pg. 101, or an equivalent method.

§ 440.12 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 found 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 currently available, energy requirements and costs) which can affect the industry subcategory 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 factors exist or are fundamentally different from 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 other 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 pollutant or pollutant properties, controlled by this section, which may be discharged by a point source subject to the provisions of this section by the application of the best practicable control technology currently available:
(1) The quantity of pollutants or pollutant properties discharged from mine drainage from mines operated to obtain iron ore shall not exceed the following limitations:

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Concentration Limitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSS</td>
<td>20 mg/L</td>
</tr>
<tr>
<td>Fe (total)</td>
<td>20 mg/L</td>
</tr>
<tr>
<td>pH</td>
<td>Within the range 6.0 to 9.0</td>
</tr>
</tbody>
</table>

(2) The quantity of pollutants or pollutant properties discharged from mills that employ chemical and physical methods to beneficiate iron ore and mills that employ only physical (not magnetic) methods to beneficiate iron ore shall not exceed the following limitations:

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Concentration Limitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSS</td>
<td>20 mg/L</td>
</tr>
<tr>
<td>Fe (filterable)</td>
<td>20 mg/L</td>
</tr>
<tr>
<td>pH</td>
<td>Within the range 6.0 to 9.0</td>
</tr>
</tbody>
</table>

(3) There shall be no discharge of pollutants from mills that employ magnetic and physical methods to beneficiate iron ore.

In the event that the annual precipitation falling on the treatment system and its associated drainage area exceeds the annual evaporation, a volume of water equivalent to the difference between annual precipitation falling on the treatment system and its associated drainage area and annual evaporation may be discharged subject to the limitations set forth in paragraph (a) (2) of this section.

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


(c) The term “mine” shall mean an active mining area of land with all property placed upon, under or above the surface of such land, used in or resulting from the extraction of metal ores from natural deposits by any means or method or the secondary recovery of metal ores from storage piles derived from the mining, cleaning or concentration of metal ores.

(d) The term “mine drainage” shall mean any water drained, pumped or spilled from any mining area.

(e) The term “mill” shall mean a preparation facility within which the metal ore is cleaned, concentrated or otherwise processed prior to shipping to the consumer, refiner, smelter or manufacturer. A mill includes all ancillary operations and structures necessary for the cleaning, concentrating or other processing of the metal ore such as ore and gangue storage areas, and loading facilities.

(f) The terms “annual precipitation” and “annual evaporation” mean the mean annual precipitation and mean annual lake evaporation as defined in the publication, Climatic Atlas of the United States, U.S. Department of Commerce, Environmental Science Services Administration, Environmental Data Services, June 1968 or equivalent regional rainfall and evaporation data.

§ 440.22 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 the size and age of plants, 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 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 fundamentally different for that discharger or other interested person may submit evidence to the Regional Administrator (or to the State, if the State has the authority to issue 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. 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.

Subcategory B—Base and Precious Metals

§ 440.40 Applicability; description of the base and precious metals subcategory.

The provisions of this subpart are applicable to discharges from (a) mines operated to obtain copper bearing ores, lead bearing ores, zinc bearing ores, gold bearing ores, or silver bearing ores or any combination of these ores from open-pit or underground operations other than placer deposits; (b) mills which employ the froth-flotation process alone or in conjunction with other processes, for the beneficiation of copper ores, lead ores, zinc ores, gold ores or silver ores or any combination of these ores; (c) mines and mills which employ dump, heap, in situ leach or vat-leach processes for the extraction of copper from ores or ore waste materials; (d) mills which extract gold or silver by the cyanidation process alone; (e) mills which extract gold or silver by the amalgamation process alone; and (f) mines or mine and mill complexes beneficiating gold ores, silver ores, tin ores or platinum ores by gravity separation methods, (this includes placer or dredge mining and concentration operations, and hydraulic mining operations).

§ 440.21 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.


(c) The term “mine” shall mean an active mining area of land with all property placed upon, under or above the surface of such land, used in or resulting from the extraction of metal ores from natural deposits by any means or method or the secondary recovery of metal ores from storage piles derived from the mining, cleaning or concentration of metal ores.

(d) The term “mine drainage” shall mean any water drained, pumped or spilled from any mining area.

(e) The term “mill” shall mean a preparation facility within which the metal ore is cleaned, concentrated or otherwise processed prior to shipping to the consumer, refiner, smelter or manufacturer. A mill includes all ancillary operations and structures necessary for the cleaning, concentrating or other processing of the metal ore such as ore and gangue storage areas, and loading facilities.

(f) The terms “annual precipitation” and “annual evaporation” mean the mean annual precipitation and mean annual lake evaporation as defined in the publication, Climatic Atlas of the United States, U.S. Department of Commerce, Environmental Science Services Administration, Environmental Data Services, June 1968 or equivalent regional rainfall and evaporation data.

§ 440.22 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 the size and age of plants, 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 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. 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) Except as provided below, the general definitions, abbreviations and methods of analysis set forth in 40 CFR 401 shall apply to this subpart.


(c) The term “mine” shall mean an active mining area of land with all property placed upon, under or above the surface of such land, used in or resulting from the extraction of metal ores from natural deposits by any means or method or the secondary recovery of metal ores from storage piles derived from the mining, cleaning or concentration of metal ores.

(d) The term “mine drainage” shall mean any water drained, pumped or spilled from any mining area.

(e) The term “mill” shall mean a preparation facility within which the metal ore is cleaned, concentrated or otherwise processed prior to shipping to the consumer, refiner, smelter or manufacturer. A mill includes all ancillary operations and structures necessary for the cleaning, concentrating or other processing of the metal ore such as ore and gangue storage areas, and loading facilities.

(f) The terms “annual precipitation” and “annual evaporation” mean the mean annual precipitation and mean annual lake evaporation as defined in the publication, Climatic Atlas of the United States, U.S. Department of Commerce, Environmental Science Services Administration, Environmental Data Services, June 1968 or equivalent regional rainfall and evaporation data.
of these ores from open-pit or underground operations other than placer deposits shall not exceed the following limitations:

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Milligrams per liter</th>
<th>Effluent limitations</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSS</td>
<td>1.0</td>
<td>2.0</td>
</tr>
<tr>
<td>Zn</td>
<td>0.03</td>
<td>0.05</td>
</tr>
<tr>
<td>Fe</td>
<td>0.01</td>
<td>0.10</td>
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<tr>
<td>pH</td>
<td>Between 6.0 to 9.0</td>
<td>7.5</td>
</tr>
</tbody>
</table>

(2) The quantity of pollutants or pollutant properties discharged from mills which employ the froth-flotation process alone or in conjunction with other processes, for the beneficiation of copper ores, lead ores, zinc ores, gold ores, or silver ores or any combination of these ores shall not exceed the following limitations:

<table>
<thead>
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</tr>
</thead>
<tbody>
<tr>
<td>TSS</td>
<td>5.0</td>
<td>20</td>
</tr>
<tr>
<td>Cu</td>
<td>0.10</td>
<td>0.2</td>
</tr>
<tr>
<td>Zn</td>
<td>0.10</td>
<td>0.2</td>
</tr>
<tr>
<td>Pb</td>
<td>0.02</td>
<td>0.2</td>
</tr>
<tr>
<td>pH</td>
<td>Between 6.0 to 9.0</td>
<td>7.5</td>
</tr>
</tbody>
</table>

(3) There shall be no discharge of pollutants from mines and mills which employ dump, heap, in situ leach or vat-leach processes for the extraction of copper from ore or ore waste materials. In the event that the annual precipitation falling on the treatment system and its associated drainage area exceeds the annual evaporation, a volume of water equivalent to the difference between annual precipitation falling on the treatment system and its associated drainage area and annual evaporation may be discharged subject to the limitations set forth in paragraph (a) (2) of this section.

(4) There shall be no discharge of pollutants from mills which extract gold or silver by use of the amalgamation process alone shall not exceed the following limitations:

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Milligrams per liter</th>
<th>Effluent limitations</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSS</td>
<td>5.0</td>
<td>20</td>
</tr>
<tr>
<td>Cu</td>
<td>0.10</td>
<td>0.2</td>
</tr>
<tr>
<td>Zn</td>
<td>0.10</td>
<td>0.2</td>
</tr>
<tr>
<td>Pb</td>
<td>0.02</td>
<td>0.2</td>
</tr>
<tr>
<td>pH</td>
<td>Between 6.0 to 9.0</td>
<td>7.5</td>
</tr>
</tbody>
</table>

(5) The quantity of pollutants or pollutant properties from mills which extract gold or silver by use of the amalgamation process alone shall not exceed the following limitations:

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Milligrams per liter</th>
<th>Effluent limitations</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSS</td>
<td>5.0</td>
<td>20</td>
</tr>
<tr>
<td>Cu</td>
<td>0.10</td>
<td>0.2</td>
</tr>
<tr>
<td>Zn</td>
<td>0.10</td>
<td>0.2</td>
</tr>
<tr>
<td>Pb</td>
<td>0.02</td>
<td>0.2</td>
</tr>
<tr>
<td>pH</td>
<td>Between 6.0 to 9.0</td>
<td>7.5</td>
</tr>
</tbody>
</table>

§ 440.30 Applicability; description of the bauxite subcategory.

The provisions of this subpart are applicable to discharges from facilities engaged in the mining of bauxite and other aluminum ores.

§ 440.31 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.


(c) The term "mine" shall mean an active mining area of land with all property placed upon, under or above the surface of such land, used in or resulting from the extraction of metal ores from natural deposits by any means or method including mining of placer deposits, dredge mining, and hydraulic mining operations, and" untreated overflow which is not treated separately. The discharge flow of each waste stream shall not exceed the quantity that would have been discharged had each waste stream been treated separately. The discharge from a combined discharge shall not exceed the volume that would have been discharged had each waste stream been treated separately.

(b) Any untreated overflow which is discharged from facilities designed, constructed and operated to contain or treat as applicable all process generated waste water and the surface runoff to the treatment facility, resulting from a 10 year 24-hour precipitation event shall be subject to the limitations set forth in paragraph (a) (1), (a) (2), (a) (3), (a) (4), (a) (5), (a) (6), (a) (7), and (a) (8) of this section.

Subpart C—Bauxite Subcategory.

§ 440.30 Applicability; description of the bauxite subcategory.

The provisions of this subpart are applicable to discharges from facilities engaged in the mining of bauxite and other aluminum ores.
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 shall be established: the quantity or quality of pollutant 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:

<table>
<thead>
<tr>
<th>Effluent characteristics</th>
<th>Milligrams per liter</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>Within the range 6.0 to 9.0.</td>
</tr>
<tr>
<td>Zn</td>
<td>0.10</td>
</tr>
<tr>
<td>Cd</td>
<td>0.01</td>
</tr>
<tr>
<td>Pb</td>
<td>0.01</td>
</tr>
<tr>
<td>Ss</td>
<td>20</td>
</tr>
</tbody>
</table>

(b) Any untreated overflow which is discharged from facilities designed, constructed and operated to contain or treat as applicable all process generated waste water and the surface runoff to the treatment facility, resulting from a 10 year 24-hour precipitation event shall not be subject to the limitations set forth in this section.

§ 440.40 Applicability; description of the ferroalloy ores subcategory.

The provisions of this subpart are applicable to discharges from (a) mines producing 5,000 metric tons (5,512 short tons) or more of ferroalloy ores per year; (b) mines and mills processing less than 5,000 metric tons (5,512 short tons) of ferroalloy ores per year by methods other than ore leaching; (c) mills processing 5,000 metric tons (5,512 short tons) or more of ferroalloy ores per year by purely physical methods including ore crushing, washing, jigging, heavy media and gravity separation, and magnetic and electrostatic separation; (d) mills processing 5,000 metric tons (5,512 short tons) or more of ferroalloy ores per year by froth flotation methods; and (e) mills processing ferroalloy ores by leaching aqueous (either acid or alkali) and associated chemical beneficiation techniques. Ferroalloy metals include: chromium, cobalt, columbium, tantalum, manganese, molybdenum, nickel, tungsten and vanadium (recovered alone and not as by-product of uranium mining and mills).

§ 440.41 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 101 shall apply to this subpart.


(c) The term "mine" shall mean an active mining area of land with all property placed upon, under or above the surface of such land, used in or resulting from the extraction of metal ores from natural deposits by any means or method or the secondary recovery of metal ores from storage piles derived from the mining, cleaning or concentration of metal ores.

(d) The term "mine drainage" shall mean any water drained, pumped or siphoned from an ore mine.

(e) The term "mill" shall mean a preparation facility within which the metal ore is cleaned, concentrated or otherwise processed prior to being sold to the consumer, refiner, smelter or manufacturer. A mill includes all ancillary operations and structures necessary for the cleaning, concentrating or other processing of the metal ore such as ore and gangue storage areas, and loading facilities.

(1) The terms "annual precipitation" and "annual evaporation" mean the annual mean annual precipitation and mean annual lake evaporation respectively, as defined in the publication, Climatic Atlas of the United States, U.S. Department of Commerce, Weather Bureau, Climatic Data, June 1968 or equivalent regional rainfall and evaporation data.

§ 440.42 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, energy requirements and costs) which can affect the industry subcategory and effluent levels established. It is, however, possible that data which would affect these limits 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) 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 shall be established:

<table>
<thead>
<tr>
<th>Effluent characteristics</th>
<th>Milligrams per liter</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>Within the range 6.0 to 9.0.</td>
</tr>
<tr>
<td>Zn</td>
<td>0.10</td>
</tr>
<tr>
<td>Cd</td>
<td>0.01</td>
</tr>
<tr>
<td>Pb</td>
<td>0.01</td>
</tr>
<tr>
<td>Ss</td>
<td>20</td>
</tr>
</tbody>
</table>

(b) The quantity of pollutants or pollutant properties discharged from mines producing 5,000 metric tons (5,512 short tons) or more of ferroalloy bearing ores per year shall not exceed the following limitations:

<table>
<thead>
<tr>
<th>Effluent characteristics</th>
<th>Milligrams per liter</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>Within the range 6.0 to 9.0.</td>
</tr>
<tr>
<td>Zn</td>
<td>0.10</td>
</tr>
<tr>
<td>Cd</td>
<td>0.01</td>
</tr>
<tr>
<td>Pb</td>
<td>0.01</td>
</tr>
<tr>
<td>Ss</td>
<td>20</td>
</tr>
</tbody>
</table>
mills processing less than 5,000 metric tons (5,512 short tons) of ferroalloy ores per year by methods other than ore leaching shall not exceed the following limitations:

<table>
<thead>
<tr>
<th>Milligrams per liter</th>
<th>Effluent limitations</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSS</td>
<td>25</td>
</tr>
<tr>
<td>pH</td>
<td>Within the range 4.0 to 9.0</td>
</tr>
</tbody>
</table>

(3) The quantity of pollutants or pollutant properties discharged from mills processing 5,000 metric tons (5,512 short tons) or more of ferroalloy ores per year, by purely physical methods including ore crushing, washing, jigging, heavy media separation, and magnetic and electrostatic separation shall not exceed the following limitations:

<table>
<thead>
<tr>
<th>Milligrams per liter</th>
<th>Effluent limitations</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSS</td>
<td>30</td>
</tr>
<tr>
<td>pH</td>
<td>Within the range 4.0 to 9.0</td>
</tr>
</tbody>
</table>

(4) The quantity of pollutants or pollutant properties discharged from mills processing 5,000 metric tons (5,512 short tons) or more of ferroalloy ores per year by froth flotation methods shall not exceed the following limitations:

<table>
<thead>
<tr>
<th>Milligrams per liter</th>
<th>Effluent limitations</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSS</td>
<td>30</td>
</tr>
<tr>
<td>pH</td>
<td>Within the range 4.0 to 9.0</td>
</tr>
</tbody>
</table>

(5) The quantity of pollutants or pollutant properties discharged from mills processing ferroalloy ores by leaching techniques (either acid or alkaline) and associated chemical beneficiation techniques shall not exceed the following limitations:

<table>
<thead>
<tr>
<th>Effluent characteristic</th>
<th>Maximum for any 1 day</th>
<th>Average of daily values for 30 consecutive days shall not exceed</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSS</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>COD</td>
<td>0.10</td>
<td>0.05</td>
</tr>
<tr>
<td>Zn</td>
<td>0.10</td>
<td>0.05</td>
</tr>
<tr>
<td>Cd</td>
<td>0.10</td>
<td>0.05</td>
</tr>
<tr>
<td>Cr</td>
<td>0.15</td>
<td>0.05</td>
</tr>
<tr>
<td>Na</td>
<td>0.4</td>
<td>0.2</td>
</tr>
<tr>
<td>Pb</td>
<td>1.0</td>
<td>0.5</td>
</tr>
<tr>
<td>As</td>
<td>0.5</td>
<td>0.3</td>
</tr>
<tr>
<td>Ag</td>
<td>0.5</td>
<td>0.3</td>
</tr>
<tr>
<td>pH</td>
<td>Within the range 6.0 to 9.0</td>
<td></td>
</tr>
</tbody>
</table>

(6) In the event that waste streams from various sources are combined for treatment and discharge, the quantity or quality of each pollutant or pollutant property in the combined discharge that is subject to the limitations set forth in paragraphs (a) (1) through (a) (5) of this section shall not exceed the quantity or quality of each pollutant or pollutant property that would have been discharged had each waste stream been treated separately. The discharge flow for a combined discharge shall not exceed the volume that would have been discharged had each waste stream been treated separately.

(a) Any untreated overflow which is discharged from facilities designed, constructed and operated to contain or treat as applicable all process generated waste water and the surface runoff to the treatment facility, resulting from a 10 year 24-hour precipitation event shall not be subject to the limitations set forth in this section.

Subpart E—Uranium, Radium and Vanadium Ores Subcategory

§ 440.50 Applicability; description of the uranium, radium and vanadium ores subcategory.

The provisions of this subpart are applicable to discharges from (a) mines, either open pit or underground, from which uranium, radium and vanadium ores are produced; and (b) mills using the acid leach, or combined acid and alkaline leach process for the extraction of uranium, radium and vanadium. Only uranium by-product production from uranium ores is covered under this subpart.

§ 440.51 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.


The term "mine" shall mean an active mining area of land with all property placed upon, under or above the surface of such land, used in or resulting from the extraction of metal ores from natural deposits by any methods other than ore leaching or the secondary recovery of metal ores from storage piles derived from the milling, cleaning or concentration of metal ores.

The term "mill" shall mean a preparation facility where the metal ore is cleaned, concentrated or otherwise processed prior to shipping to the consumer, refiner, smelter or manufacturer. A mill includes all ancillary operations and structures necessary for the cleaning, concentrating or other processing of the metal ore such as ore and gangue storage areas, and loading facilities.

The terms "annual precipitation" and "annual evaporation", mean the mean annual precipitation and mean annual lake evaporation respectively, as defined in the National Atlas of the United States, U.S. Department of Commerce, Environmental Science Services Administration, Environmental Data Service, June 1969 or equivalent regional rainfall and evaporation data.


§ 440.52 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 the 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 Federal Register, Vol. 40, No. 215—Thursday, November 6, 1975
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 not 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 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 pollutant or pollutant properties discharged in mine drainage from mines, either open-pit or underground, from which uranium, radium and vanadium ores are produced shall not exceed the following limitations:

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Maximum for any 1 day</th>
<th>Average daily value for any 100 days</th>
<th>Milligrams per liter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cr</td>
<td>20</td>
<td>0.05</td>
<td>10.0</td>
</tr>
<tr>
<td>Cu</td>
<td>5.0</td>
<td>0.25</td>
<td>10.0</td>
</tr>
<tr>
<td>Zn</td>
<td>10.0</td>
<td>0.50</td>
<td>10.0</td>
</tr>
<tr>
<td>As</td>
<td>1.0</td>
<td>0.05</td>
<td>10.0</td>
</tr>
<tr>
<td>Pb</td>
<td>0.05</td>
<td>0.005</td>
<td>10.0</td>
</tr>
<tr>
<td>Cr-V</td>
<td>150</td>
<td>15.0</td>
<td>10.0</td>
</tr>
</tbody>
</table>

Whereas: within the range 6.0 to 10.0

(b) Any untreated overflow which is discharged from facilities designed, constructed and operated to contain or treat all treated separately. For the purpose of this subpart, the term "mine" shall mean an area and annual evaporation may be discharged subject to the limitations set forth in paragraph (a) (1) of this section.

(3) In the event that waste streams from various sources are combined for treatment, the quantity or quality of each pollutant or pollutant property in the combined discharge that is subject to the limitations set forth in paragraph (a) of this section shall not exceed the quantity or quality of each pollutant or pollutant property that would have been discharged had each waste stream been treated separately. The discharge flow from a combined discharge shall not exceed the volume that would have been discharged had each waste stream been treated separately.

(4) Any untreated overflow which is discharged from facilities designed, constructed and operated to contain or treat as applicable all process generated waste water and to the treatment facility, resulting from a 10 year 24-hour precipitation event shall not be subject to the limitations set forth in this section.

Part F—Mercury Ore Subcategory

§ 440.60 Applicability; description of the mercury ore subcategory.

The provisions of this subpart are applicable to discharges from (a) mines, either open-pit or underground, operated; (b) mills beneficiating mercury ores; and (c) mines beneficiating mercury ores by gravity separation methods or by froth-flotation methods.

§ 440.61 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 "ten year 24-hour precipitation event" means the maximum 24-hour precipitation event with a probable occurrence of one in 10 years as defined by the National Weather Service Technical Paper No. 46, "Rainfall Frequency Atlas of the U.S.," May 1951, and NOAA Atlas #2, "Precipitation Frequency Atlas of the Western United States," 1973, or equivalent regional or national probability information developed therefrom.

(c) The term "mine" shall mean an active mining area of land with all property placed upon, under or above the surface of such land, resulting from the extraction of metal ores from natural deposits by any means or method or the secondary recovery of metal ores, and any tailings or slimes derived from the mining; cleaning or concentration of metal ores.

(d) The term "mine drainage" shall mean any water drained, pumped or spilled from any mine area.

(e) The term "mill" shall mean a preparation facility within which the metal ore is cleaned, concentrated or otherwise processed, prior to shipping to the consumer, refiner, smelter or manufacturer. A mill includes all auxiliary operations and structures necessary for the cleaning, concentrating or otherwise processing of the metal ore such as ore and gangue storage areas, and loading facilities.

(1) The terms "annual precipitation" and "annual evaporation" mean the mean annual precipitation and mean annual lake evaporation respectively, as defined in the publication, Climatic Atlas of the United States, U.S. Department of Commerce, Environmental Services Administration, Environmental Data Service, June 1968 or equivalent regional rainfall and evaporation data.

§ 440.62 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 collate 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 party 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.
§ 440.71 Specialized definitions.

For the purpose of this subpart:

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


(c) The term “mine” shall mean an active mining area of land with all property placed upon, under or above the surface of such land, used in or resulting from the extraction of metal ores from natural deposits by any means or methods or the secondary recovery of metal ores from storage piles derived from the mining, cleaning or concentration of metal ores from storage piles derived from the mining, cleaning or concentration of metal ores from storage piles.

(d) The term “mine drainage” shall mean any water drained, pumped or siphoned from an ore mine.

(e) The term “mill” shall mean a preparation facility within which the metal ore is cleaned, concentrated or otherwise processed prior to shipping to the consumer, refiner, smelter or manufacturer. A mill includes all ancillary operations necessary for the cleaning, concentrating or other processing of the metal ore such as ore and gangue storage areas, and loading facilities.

(f) The terms “annual precipitation” and “annual evaporation” mean the mean annual precipitation and mean annual lake evaporation respectively, as defined in the publication, Climatic Atlas of the United States, U.S. Department of Commerce, Environmental Science Services Administration, Environmental Data Services, June 1968 or equivalent regional rainfall and evaporation data.

§ 440.72 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, as 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 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 pollutant 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:

(i) The quantity of pollutants or pollutant properties discharged in mine drainage from mines obtaining titanium ores from lode deposits shall not exceed the following limitations:

<table>
<thead>
<tr>
<th>Effluent characteristic</th>
<th>Maximum for any 1 day</th>
<th>Average of daily values for 30 consecutive days</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSS</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>HI</td>
<td>0.96</td>
<td>0.01</td>
</tr>
<tr>
<td>NO₃</td>
<td>0.03</td>
<td>0.1</td>
</tr>
<tr>
<td>Fe</td>
<td>0.05</td>
<td>0.1</td>
</tr>
<tr>
<td>pH</td>
<td>Within the range 6.0 to 9.0.</td>
<td>6.1</td>
</tr>
</tbody>
</table>

(2) The quantity of pollutants or pollutant properties discharged from mills beneficiating titanium ores by electrostatic methods, magnetic and physical methods, or flotation methods shall not exceed the following limitations:

<table>
<thead>
<tr>
<th>Effluent characteristic</th>
<th>Maximum for any 1 day</th>
<th>Average of daily values for 30 consecutive days</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSS</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>HI</td>
<td>0.96</td>
<td>0.01</td>
</tr>
<tr>
<td>NO₃</td>
<td>0.03</td>
<td>0.1</td>
</tr>
<tr>
<td>Fe</td>
<td>0.05</td>
<td>0.1</td>
</tr>
<tr>
<td>pH</td>
<td>Within the range 6.0 to 9.0.</td>
<td>6.1</td>
</tr>
</tbody>
</table>
(3) The quantity of pollutants or pollutant properties discharged in mine drainage from mines engaged in the dredge mining of placer deposits of sands containing rutile, ilmenite, leucoxene, monazite, zircon, or other heavy metals, and the milling techniques employed in conjunction with the dredge mining activity (milling techniques employed include the use of wet gravity methods in conjunction with electrostatic or magnetic methods) shall not exceed the following limitations:

<table>
<thead>
<tr>
<th>Effluent characteristics</th>
<th>Maximum for any 1 day</th>
<th>Average of daily values for 30 consecutive days shall not exceed</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>6.0 to 9.0</td>
<td></td>
</tr>
</tbody>
</table>

(4) In the event that waste streams from various sources are combined for treatment and discharge, the quantity or quality of each pollutant or pollutant property in the combined discharge that is subject to the limitations set forth in paragraphs (a) (1) and (a) (3) of this section shall not exceed the quantity or quality of each pollutant or pollutant property that would have been discharged had each waste stream been treated separately. The discharge flow from a combined discharge shall not exceed the volume that would have been discharged had each waste stream been treated separately.

(b) Any untreated overflow which is discharged from facilities designed, constructed and operated to contain or treat as applicable all process generated waste water and the surface runoff to the treatment facility, resulting from a 10 year 24-hour precipitation event shall not be subject to the limitations set forth in this section.

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