**ENVIRONMENTAL PROTECTION AGENCY**

**40 CFR Part 434**

**[WH-FRL 1642-5]**

# Coal Mining Point Source Category; Effluent Limitations Guidelines for Existing Sources, Standards of Performance for New Sources and Pretreatment Standards

**AGENCY:** Environmental Protection Agency (EPA).

**ACTION:** Proposed Regulation.

**SUMMARY:** EPA proposes regulations to limit effluent discharges to waters of the United States from coal mining and coal preparation facilities. The purpose of this proposal is to provide effluent limitations guidelines based on "best practicable control technology currently available," "best available technology economically achievable," and "best conventional pollutant control technology," and to establish new source performance standards under the Clean Water Act. After considering comments received in response to this proposal, EPA will promulgate a final rule.

**DATES:** Comments on this proposal must be submitted within 60 days from the date of availability of the technical development document. A Notice of Availability will be published in the Federal Register on or about February 2, 1981.

**ADDRESS:** Send comments to: Mr. William A. Telliard, Effluent Guidelines Division (WH-552), Environmental Protection Agency, 401 M Street, SW., Washington, D.C. 20460. Attention: EGD Docket Clerk, Coal Mining. The supporting information and all comments on this proposal will be available for inspection and copying at the EPA Public Information Reference Unit, Room 2922 (EPA Library). The EPA information regulation (40 CFR Part 2) provides that a reasonable fee may be charged for copying.

**FOR FURTHER INFORMATION CONTACT:** Technical information and copies of technical documents may be obtained from Mr. William A. Telliard, at the address listed above, or call (202) 426-2724. The economic analysis document may be obtained from Mr. Harold Lester, Office of Analysis and Evaluation, (WH-586), Environmental Protection Agency, 401 M Street, SW., Washington, D.C. 20460, (202) 426-2617.

**SUPPLEMENTARY INFORMATION:**

## Overview

The Supplementary Information section of this preamble describes the legal authority and background, the technical and economic bases, and other aspects of the proposed regulations. The abbreviations, acronyms, and other terms used in the preamble are defined in Appendix A to this notice.

These proposed regulations are supported by three major documents available from EPA. Analytical methods are discussed in *Sampling and Analysis Procedures for Screening of Industrial Effluents for Priority Pollutants.* EPA's technical conclusions are detailed in the *Development Document for Proposed Effluent Limitations Guidelines, New Source Performance Standards and Pretreatment Standards for the Coal Mining Point Source Category.* The Agency's economic analysis is found in *Economic Impact Analysis of Proposed Effluent Limitations Guidelines, New Source Performance Standards and Pretreatment Standards for the Coal Mining Point Source Category.*

Organization of this Notice.



## I. Legal Authority

The regulations described in this notice are proposed under authority of Sections 301, 304, 306, 307, 308, and 501 of the Clean Water Act (the Federal Water Pollution Control Act Amendments of 1972, 33 USC 1251 et seq., as amended by the Clean Water Act of 1977, Pub. L. 95-217) (the "Act"). These regulations are also proposed in response to the Settlement Agreement in *Natural Resources Defense Council, Inc. v. Train,* 8 ERC 2120 (D.D.C. 1976), modified March 9, 1979, 12 ERC 1833, 1841.

## II. Background

(a) The Clean Water Act. The Federal Water Pollution Control Act Amendments of 1972 established a comprehensive program to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters," Section 101(a). By July 1, 1977, existing industrial dischargers were required to achieve "effluent limitations requiring the application of the best practicable control technology currently available," (BPT), Section 301(b)(1)(A); and by July 1, 1983, these dischargers were required to achieve "effluent limitations requiring 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," (BAT), Section 301(b)(2)(A). New industrial direct dischargers were required to comply with Section 306 new source performance standards (NSPS), based on best available demonstrated technology (BADT); and new and existing dischargers to publicly owned treatment works (POTW) were subject to pretreatment standards under Sections 307 (b) and (c) of the Act. While the requirements for direct

dischargers were to be incorporated into National Pollutant Discharge Elimination System (NPDES) permits issued under Section 402 of the Act, pretreatment standards were made enforceable directly against dischargers to POTW (indirect dischargers).

Although Section 402(a)(1) of the 1972 act authorized the setting of requirements for direct dischargers on a case-by-case basis, Congress intended that, for the most part, control requirements would be based on regulations promulgated by the Administrator of EPA. Section 304(b) of the Act required the Administrator to promulgate regulations providing guidelines for effluent limitations setting forth the degree of effluent reduction attainable through the application of BPT and BAT. Moreover, Sections 304(c) and 306 of the Act required promulgation of regulations for NSPS, and Sections 304(f), 307(b), and 307(c) required promulgation of regulations for pretreatment standards. In addition to these regulations for designated industry categories, Section 307(a) of the Act required the Administrator to promulgate effluent standards applicable to all dischargers of toxic pollutants. Finally, Section 501(a) of the Act authorized the Administrator to prescribe any additional regulations "necessary to carry out his functions" under the Act.

EPA was unable to promulgate many of these regulations by the dates contained in the Act. In 1976, EPA was sued by several environmental groups and, in settlement of this lawsuit, EPA and the plaintiffs executed a "Settlement Agreement" which was approved by the Court. This Agreement required EPA to develop a program and adhere to a schedule for promulgating for 21 major industries BAT effluent limitations guidelines, pretreatment standards, and new source performance standards for 65 "priority" pollutants and classes of pollutants. See *Natural Resources Defense Council, Inc. v. Train,* 8 ERC 2120 (D.D.C. 1976), modified March 9, 1979, 12 ERC 1833, 1841.

On December 27, 1977, the President signed into law the Clean Water Act of 1977. Although this law makes several important changes in the federal water pollution control program, its most significant feature is its incorporation into the Act of several of the basic elements of the Settlement Agreement program for toxic pollution control. Sections 301(b)(2)(A) and 301(b)(2)(C) of the Act now require the achievement by July 1, 1984, of effluent limitations requiring application of BAT for "toxic" pollutants, including the 65 classes of toxic pollutants (subsequently defined by the Agency as 129 specific "priority pollutants") which Congress declared "toxic" under Section 307(a) of the Act. Likewise, EPA's programs for new source performance standards and pretreatment standards are now aimed principally at toxic pollutant controls. Moreover, to strengthen the toxics control program, Congress added Section 304(e) to the Act, authorizing the Administrator to prescribe "best management practices" (BMPs) to prevent the release of toxic and hazardous pollutants from plant site runoff, spillage or leaks, sludge or waste disposal, and drainage from raw material storage associated with, or ancillary to, the manufacturing or treatment process.

In keeping with its emphasis on toxic pollutants, the Clean Water Act of 1977 also revised the control program for nontoxic pollutants. Instead of BAT for "conventional" pollutants identified under Section 304(a)(4) (including biochemical oxygen demand, suspended solids, fecal coliform, oil and grease, and pH), the new Section 301(b)(2)(E) requires achievement by July 1, 1984, of "effluent limitations requiring the application of the best conventional pollutant control technology" (BCT). The factors considered in assessing BCT for an industry include a comparison of the costs of attaining conventional pollutant reduction and the effluent reduction benefits associated with the candidate technology to the costs and effluent reduction benefits from the treatment of effluents in a publicly owned treatment works (Section 304(b)(4)(B)). For non-toxic, non-conventional pollutants, Sections 301(b)(2)(A) and (b)(2)(F) require achievement of BAT effluent limitations within three years after their establishment or July 1, 1984, whichever is later, but not later than July 1, 1987.

The purpose of this rulemaking is to propose certain amendments to the existing BPT regulations and to propose revised effluent limitations guidelines for new and existing sources based upon application of BCT, BAT, and BADT (NSPS). Pretreatment standards are not proposed for the coal mining category since no known indirect dischargers exist nor are any known to be planned. Coal mines are located in rural areas, generally far from a POTW. EPA expects that the cost of pumping coal mine wastewater to a POTW would be prohibitive in most cases, and on-site treatment is more cost effective in virtually every instance.

(b) Prior EPA Regulations.

On October 17, 1975, EPA proposed regulations adding Part 434 to Title 40 of the Code of Federal Regulations (40 FR 48830). These regulations, with subsequent amendments, established effluent limitations guidelines based on the use of the best practicable control technology currently available (BPT) for existing sources in the coal mining point source category. These were followed, on April 26, 1977, by final BPT effluent limitations guidelines for this category (42 FR 21380).

On September 19, 1977, the Agency published proposed standards of performance for new sources (NSPS) within this industrial category based on application of the best available demonstrated control technology (42 FR 46932). On January 12, 1979, EPA promulgated final NSPS for this industry (44 FR 2586).

Both the BPT and NSPS regulations contained an exemption from otherwise applicable requirements during and immediately after catastrophic precipitation events. These storm exemptions were re-examined, subjected to further public comment and ultimately revised on December 28, 1979 (44 FR 76788).

Moreover, the NSPS regulations contained a definition of "new source coal mine" which was challenged by petitioners in *Pennsylvania Citizens Coalition et al.* vs. *EPA.* See 14 ERC 1545 (3rd Cir. 1980). In response to the Court's decision in that case, the Agency amended its definition of a "new source coal mine" on June 27, 1980 (45 FR 43413).

The effluent limitations guidelines being proposed today include amendments to the BPT requirements, effluent limitations guidelines based upon BCT and BAT, and new source performance standards.

(c) Overview of the Industry. The coal mining industry currently operates in 26 states in Appalachia, the Midwest, and the Mountain and Pacific regions. There were 6,075 mines in 1978, of which 2,566 exhibited acid mine drainage and 3,509 exhibited alkaline mine drainage. Of the total, 5, 976 mines were located in the eastern United States and 99 in the western United States. There are currently about 650 coal preparation plants using wet coal cleaning methods in the country.

Total coal production in the United States in 1978 was 656,100,000 short tons. It is projected to increase by 916,030,000 short tons by 1987.[1]

In the 1920's underground mining accounted for nearly 100 percent of all coal production, and surface mining

[1] Nielsen, George, ed., *1979 Keystone Coal Industry Manual,* McGraw-Hill, New York, New York, 1979.

accounted for virtually none. By 1978, underground mining accounted for only 36 percent of all domestic production, with surface mining accounting for the rest.[1] This rapid growth of surface mining was made possible by improved machinery and mining methods, the general geology of the coal fields, and the rapid expansion of the western, surface-mined, coal fields. The 6,075 mines in the United States are controlled by approximately 3,800 companies. The majority of these mines are small operations, with individual production less than 50,000 short tons per year.[2]

Water is not used in, and in fact interferes with, the mining of coal. The major sources of wastewater in the coal mining industry are: (1) surface runoff and groundwater discharged from the active mine area; (2) wastewater generated by the removal of impurities from raw coal in preparation plants; (3) precipitation-induced runoff in preparation plant associated areas; and (4) runoff generated from reclamation areas and discharges from underground mines after mining ceases. Coal mine wastewater flows range from zero to over 12,000,000 gallons per day, with an average discharge flow of approximately 1,000,000 gallons per day.

Process water used for coal cleaning can be correlated with production for any given preparation plant. However, most facilities commingle preparation plant wastewater with runoff from the associated areas, making correlation of wastewater flows with production infeasible for purposes of an effluent regulation.

Current technologies employed to achieve BPT limitations for wastewater treatment typically include:

*Acid Mines.*—Neutralization; aeration (where required); flocculation (where required); sedimentation.

*Alkaline Mines.*—Aeration (where required); flocculation (where required); sedimentation.

*Preparation Plants and Associated Areas.—Neutralization (where required); flocculation (where required); sedimentation.*

Neutralization is the addition of lime or another alkaline chemical to counteract the acidity. The resulting increase in pH (a measure of the acidity) causes the metal ions to chemically react and form a solid which can be settled from the wastewater. Aeration involves the turbulent introduction of air into the wastewater to cause a series of reactions that result in enhanced precipitation (formation of solids). Settling involves containing the wastewater in a tank or basin for a sufficient amount of time to allow the solids to sink to the bottom. Flocculation is the addition of a compound that enhances agglomeration of solids, thus increasing their settling rate.

[2]Department of the Interior, Bureau of Mines, "Coal—Bituminous and Lignite in 1975," Washington, D.C., 1976.

### III. Scope of This Rulemaking and Summary of Methodology

These proposed regulations reflect an expanded approach to the development of water pollution control requirements for the coal mining industry. In EPA's 1973–1976 round of rulemakings, emphasis was placed on the achievement of best practicable control technology currently available (BPT) by July 1, 1977. In general, this technology level represented the average of the best existing performances of well-known technologies for control of pollutants of traditional concern.

In this rulemaking, EPA's efforts are directed toward ensuring the achievement of limitations based upon the best available technology economically achievable (BAT) by July 1, 1984, which will result in reasonable further progress toward the national goal of eliminating the discharge of all pollutants. As a result of the Clean Water Act of 1977, the emphasis of EPA's program has shifted from "classical" pollutants to the control of a list of toxic substances.

In the 1977 legislation, Congress recognized that it was dealing with areas of scientific uncertainty when it declared the 65 "priority" pollutants and classes of pollutants "toxic" under Section 307(a) of the Act. The "priority" pollutants have been relatively unknown outside of the scientific community, and those engaged in wastewater sampling and control have had little experience dealing with these pollutants. Additionally, these pollutants can often appear and can have toxic effects at concentrations which severely tax current analytical techniques. Even though Congress was aware of the state-of-the-art difficulties and expense of "toxics" control and detection, it directed EPA to act quickly and decisively to detect, measure, and regulate these substances.

EPA's implementation of the Act required a complex development program described in this section and succeeding sections of this notice. Initially, because in many cases no public or private agency had done so, EPA had to develop analytical methods for toxic pollutant detection and measurement, which are discussed in the next section. EPA then gathered technical and cost data about the industry, which are summarized below and discussed in the next section. These data formed the basis for development of the proposed regulations.

First, EPA studied the coal mining industry to determine whether differences in raw materials, final products, manufacturing processes, equipment, age and size of plants, water usage, wastewater constituents, or other factors required the development of separate effluent limitations and standards for different segments (termed "subcategories") of the industry. This study included the identification of raw waste and treated effluent characteristics, including: (1) the sources and volume of water used, the processes employed, and the sources of pollutants and wastewaters in the plant; and (2) the constituents of wastewaters, including toxic pollutants. EPA then identified the constituents of wastewaters which should be considered for effluent limitations guidelines and standards of performance.

Next, EPA identified several distinct control and treatment technologies, including both in-plant and end-of-process technologies, which are in use or capable of being used in the coal mining industry. The Agency compiled and analyzed historical data and newly generated data on the effluent quality resulting from the application of these technologies. The long-term performance and operational limitations of each of the treatment and control technologies were also identified. In addition, EPA considered the non-water quality environmental impacts of these technologies, including impacts on air quality, solid waste generation, and energy requirements.

The Agency then estimated the costs of each control and treatment technology from unit cost curves developed by standard engineering analysis as applied to coal mining wastewater characteristics. This was done by generating capital and annual costs of each of the candidate treatment systems (e.g., flocculant addition equipment) and components as a function of wastewater flow rates. This provided a uniform basis to compare the various candidate existing and new source treatment alternatives. The accuracy of the model plant treatment costs were then verified by developing site-specific costs for a number of active mine sites around the country. The Agency evaluated the industry-wide economic impacts of the costs to determine the economic achievability of each candidate technology. [Costs and

economic impacts are discussed in detail in Section XVI of this notice.)

Based on these factors, EPA identified various control and treatment technologies as BCT, BAT, and BADT. The proposed regulations do not require the installation of any particular technology. Rather, they require achievement of effluent limitations representative of the proper design, construction, and operation of these technologies or equivalent technologies.

The effluent limitations for BPT, BAT, BCT, and NSPS are expressed as concentration limitations (mass per volume of wastewater). Mass-based limitations (*e.g.*, g/kg of product) are not feasible for purposes of applying a national regulation because mine water flows cannot be correlated with associated coal production.

## IV. Data Gathering Program

(a) Analytical Methods. As Congress recognized in enacting the Clean Water Act of 1977, the state-of-the-art ability to monitor and detect toxic pollutants is limited. Most of the toxic pollutants were relatively unknown until only a few years ago, and only on rare occasions has EPA regulated or has industry monitored or even developed methods to monitor these pollutants.

Section 304(h) of the Act, however, requires the Administrator to promulgate guidelines establishing test procedures for the analysis of toxic pollutants. As a result, EPA scientists, including staff of the Environmental Research Laboratory in Athens, Georgia and staff of the Environmental Monitoring and Support Laboratory in Cincinnati, Ohio, conducted a literature search and initiated a laboratory program to develop analytical protocols. The analytical techniques used in this rulemaking were developed concurrently with the development of general sampling and analytical protocols and were incorporated into the protocols ultimately adopted for the study of other industrial categories. See *Sampling and Analysis Procedures for Screening of Industrial Effluents for Priority Pollutants,* revised April 1977.

Because Section 304(h) methods were available for most toxic metals, pesticides, cyanide, and phenol, the analytical effort focused on developing methods for sampling and analyses of organic toxic pollutants. The three basic analytical approaches considered by EPA were infra-red spectroscopy (IR), gas chromatography (GC) with multiple detectors, and gas chromatography/mass spectrometry (GC/MS). Evaluation of these alternatives led the Agency to propose analytical techniques for 113 toxic organic pollutants (see 44 FR, 69464, December 3, 1979, amended 44 FR 75028, December 18, 1979) based on: (1) GC with selected detectors, or high performance liquid chromatography (HPLC), depending on the particular pollutant; and (2) GC/MS. In selecting among these alternatives, EPA considered the sensitivity, laboratory availability, costs, applicability to diverse waste streams from numerous industries, and capability for implementation within the statutory and court-ordered time constraints of EPA's program. The rationale for selection of the proposed analytical protocols may be found in the December 3, 1979, Federal Register.

In EPA's judgement, the test procedures used in this rulemaking represent the best state-of-the-art methods for toxic pollutant analyses available when this study was begun.

EPA is aware of the continuing evolution of sampling and analytical procedures. Resource constraints, however, prevented the Agency from reworking completed sampling and analysis efforts to keep up with this constant evolution. As state-of-the-art technology progresses, future rulemakings to evaluate, and, if necessary, to incorporate these changes, will be initiated.

Before proceeding to analyze coal mining and coal preparation wastes, EPA concluded that definition of specific toxic pollutants and methods of analyses were required. The list of 65 pollutants and classes of pollutants potentially includes thousands of specific pollutants, and the expenditure of resources in government and private laboratories would be overwhelming if analyses were attempted for all of these pollutants. Therefore, in order to make the task more manageable, EPA selected 129 specific toxic pollutants for study in this rulemaking and other industry rulemakings. The criteria for selection of these 129 pollutants included frequency of occurrence in water, chemical stability and structure, amount of the chemical produced, availability of chemical standards for measurement, and other factors.

(b) Data Gathering Effort. The data gathering effort for the coal mining industry includes an extensive collection of information, as follows:

(1) screening and verification sampling and analysis programs
(2) engineering site visits
(3) supporting data from regional state offices
(4) preparation plant industry survey
(5) preparation plant sampling and analysis program
(6) acid mine drainage treatability studies
(7) 308 self-monitoring survey
(8) industry and government research programs.

A data collection effort was instituted during 1974 and 1975 for the development of BPT effluent standards. These data included results from a sampling and analysis program conducted by the Agency at 153 mines and 65 preparation plants and associated areas, as well as assimilation of a large amount of historical data supplied by the industry, the Bureau of Mines, and other sources. This information characterized wastewaters from coal mining operations, with the primary focus on acidity, alkalinity, total suspended solids, pH, sulfate, iron, and manganese. However, little information on other parameters such as toxic metals and organics was available from industry or government sources. Therefore, in 1977, the Agency began a second sampling and analysis program that was conducted in two phases (screening and verification). This sampling program established the quantities of toxic, conventional, and non-conventional pollutants in coal mine drainage and preparation plant effluents. Screening and verification sampling visits were made to 28 mines and 18 coal preparation plant and associated areas. The facilities were selected to be representative of the location and type of existing mine facilities, current BPT treatment technology used in this industry and the type of coal being extracted and processed.

The primary objective of the screening phase of sampling was to obtain samples of wastewater to determine presence, absence, and relative concentrations of toxic pollutants. Screening sampling consisted of 24-hour composites to determine the presence and level of concentration of toxic pollutants in the wastewater samples. The second phase of the program is known as verification sampling. In this phase, 24-hour composites were collected for three consecutive days to verify and quantify results from the screening sampling effort.

To augment these programs, the Agency conducted a number of additional sampling projects. Engineering site visits were carried out primarily to collect site specific cost and engineering data for verifying and supplementing model treatment costs developed for the coal mining industry. Wastewater samples were collected during each site visit to supplement the data base for wastewater characteristics and treatment. Fourteen mines, some with associated preparation plants, were contacted and visited in the fall of

1979. Grab samples of raw and treated effluents were collected for analysis of TSS, iron, manganese, pH, turbidity, alkalinity, settleable solids and the 13 toxic metals. The metals were analyzed by inductively coupled plasma-optical emission spectrometry (ICP) and atomic absorption spectrometry.

EPA Region 8 (Denver, Colorado) instituted a sampling effort to assess the water treatment configurations and effluent qualities characteristic of the western coal-producing region. Several mines were visited during the spring of 1979 to assess the effect of snowmelt and rainfall on treatment facility performance. However, an unusually mild winter and dry spring in the west hampered efforts to collect these kinds of samples; in fact, only two miles were found to have a discharge that could be sampled. Additionally, EPA Region 4 (Atlanta, Georgia) conducted sampling at one mine in southern Appalachia.

A preparation plant sampling and analysis program was instituted to further characterize preparation plant wastewaters. Another purpose was to compare wastewater generated in total recycle systems with wastewater discharged from partial recycle and "once-through" systems. Grab samples were collected at three preparation plants and associated areas. Site-specific cost and wastewater engineering data were collected simultaneously to augment present data and to permit further evaluation of the feasibility of achieving the BAT and NSPS options.

Pursuant to Section 308 of the Act, 12 mining companies are conducting a self-monitoring program at two sedimentation ponds per company. The purpose of this study, which began in October 1979 and will continue through October 1980, is to supplement the data base to develop effluent limitations for treatment of runoff from mining areas undergoing reclamation and alternate limitations during precipitation events. One sample per week of influent and effluent is collected to estblish base flow conditions, with additional samples taken during and after rainfall events. The results of these sample analyses, coupled with key design specifications submitted with the data for each pond, permit identification of the wastewater characteristics and treatment effectiveness of these ponds during dry weather and precipitation. The limitations contained in today's proposal for reclamation areas and storm provisions are based on seven of the eventual twelve months' data from this self-monitoring program. Upon completion of this sampling program, the remaining data will be analyzed to detremine whether changes in today's proposal are appropriate.

A second major sampling program to characterize runoff from reclamation areas and storm provisions has been commissioned by EPA and the Office of Surface Mining Reclamation and Enforcement in the Department of the Interior. Approximately thirty-nine mine sites have been chosen from major coal-producing regions of the country for a survey of reclamation and sediment control techniques to establish the relationship of those techniques to effluent water quality. Detailed, daily information on the physical and chemical quality, flow, and sediment load of drainage from eight sites will also be collected during the study. Where possible, an hourly record will be taken during precipitation events to document drainage quality and sediment pond efficiency during runoff periods at these eight sites. This study is expected to be completed in early to mid-1981. These data will also be analyzed to determine if changes in today's proposal may be appropriate.

Other information was compiled from industry surveys. A preparation plant industry survey was conducted with the cooperation of the National Coal Association (NCA) to assess water usage and treatment in coal preparation plants. Eighty-eight member producer companies of the NCA which operate approximately 292 preparation plants were mailed a questionnaire requesting information on the following: facility profile information, water balance around the preparation facility, makeup water sources, discharge points and quantities, water treatment practices employed, water management procedures, information on the preparation plant associated areas and effluent quality data. One hundred fifty-two plants responded to the survey, representing about 24 percent of the coal preparation plants in the industry. The industry responses were used primarily to determine the number of plants operating a total recycle system and the requirements for modifying current treatment configurations to such a system, and to determine runoff treatment strategies for areas ancillary to the preparation plant.

Discharge monitoring reports (DMR) required under the NPDES program were collected from EPA regional offices located in the major United States coal-producing areas. DMRs contain data which help to identify the variation in flow and pollutant characteristics associated with mine drainage. This information was used to evaluate compliance with existing monthly average and daily maximum effluent limitations.

A number of treatability studies have been conducted by the Agency to determine the performance of advanced treatment technologies on coal mine wastewaters. An acid mine drainage treatability study evaluating flocculant addition was conducted at four separate Appalachian and Midwest mines during the summer of 1979. Jar and pilot-scale settling tests with various chemical and polymer dosages were performed on acid mine drainage. In some tests, solutions containing priority metals were added to the untreated acid drainage to elevate levels of these substances. This "spiking" procedure permitted the determination of treatment removal and effectiveness.

A second treatability study was instituted primarily to evaluate organics reduction technologies. This study was conducted near Morgantown, West Virginia, at the Crown Mine Drainage Treatability Site during 1978. Technologies examined for organics removal included neutralization, aeration, ozonation, carbon adsorption and sand filtration. Organic compounds were added to untreated mine water at various concentrations to assess the performance of the different technologies. Using BPT technology (aeration, neutralization, and settling), over 90 percent reduction of the spiked organic compounds was achieved. In no case was the final effluent concentration of any organic detected at levels greater than 39 $\mu g/l$. In most instances, reductions to below 10 $\mu g/l$ were achieved. The remaining technologies evidenced highly variable removals (*i.e.*, 0 to over 99 percent). The study concluded that if such organics were present, BPT technology was effective in reducing them to values at or near their detection limit.

Dual granular media filtration technology was investigated at two acid mine drainage treatment plants located in Appalachia. The tests were performed in the spring of 1980 on effluent treated by neutralization, aeration, and settling. Eight-hour and longer test runs were attempted to determine filter performance and backwash requirements. The potential for gypsum fouling of the filtration system was investigated at one of the mine sites. This compound can form when lime is the chemical used to neutralize the acidity of mine drainage. This substance will deposit on surfaces throughout the treatment system including the filter media. Should this occur, the passage of wastewater through the filter can be

inhibited or stopped. Results from the treatability study show that some shortening of the normal filter test runs (from 20 to 30 percent) can be caused by gypsum deposition on the filter.

(c) Sample Analysis. In the sampling programs, analyses for toxic pollutants were performed. Organic toxic pollutants included volatile (purgeable), base-neutral and acid extractable pollutants, total phenols, and pesticides. Inorganic toxic pollutants included metals, cyanide, and asbestos.

The primary method used in screening and verification of the volatiles, base-neutral, and acid organics was gas chromatography (GC) with confirmation and quantification of all priority pollutants by gas chromatography/mass spectrometry (GC/MS). Total phenols were analyzed by the 4-AAP method. GC was employed for analysis of pesticides with limited MS confirmation. The Agency analyzed the toxic heavy metals by either atomic absorption spectrometry (AAS), with flame or graphite furnace atomization with appropriate emission spectrometry and appropriate digestion or by inductively coupled plasma optical emission spectrometry (ICP). Samples were analyzed for cyanides by a colorimetric method, with sulfide previously removed by distillation. Analysis for asbestos was accomplished by microscopy and fiber presence reported as chrysotile fiber count. Analyses for applicable conventional pollutants (TSS and pH) and non-conventional pollutants were accomplished using "Methods for Chemical Analysis of Water and Wastes," (EPA 625/6-74-003).

The high costs, slow pace, and limited laboratory capability for toxic pollutant analyses posed certain difficulties. This cost to analyze each sample for organic toxic pollutants ranges between $650 and $1,700, excluding sampling costs (based upon quotations recently obtained from a number of analytical laboratories). Even with unlimited funding, however, time and laboratory capability would have posed additional constraints. Although efficiency has been improving, when this study was initiated, a well trained technician using the most sophisticated equipment could perform only one complete organic analysis in an eight-hour workday. Moreover, when this rulemaking study began, there were only about 15 commercial laboratories in the United States with sufficient capability to perform these analyses. Currently, there are about 50 commercial laboratories known to EPA which have the capability to perform these analyses, and the number is increasing as the demand for such capability also increases.

In planning data generation for this rulemaking, EPA considered requiring dischargers to perform analyses for toxic pollutants pursuant to Section 308 of the Act. The Agency refrained from using this authority in developing these regulations, except for the self-monitoring program described above for areas under reclamation. It would have required substantial resources and time to train mine operators to conduct the required screening and verification programs and to properly analyze for the presence and quantities of organic compounds and metals. Further, few coal mines presently have the laboratory capability for toxic pollutant analyses. In contrast, the Agency already had such sampling and analytical capabilities.

By sampling and analyzing wastewater at representative facilities throughout the industry, the Agency has gained an accurate assessment of wastewater characteristics while avoiding the imposition of substantial additional burdens on the regulated community.

EPA will continue to seek new data and review these proposed regulations in light of additional data, as required by the Act, and make any necessary revisions.

## V. Industry Subcategorization

Variations from plant-to-plant exist in all industries with respect to raw materials or other factors which can influence wastewater characteristics and choice of wastewater treatment technology. EPA has evaluated these differences in the coal mining industry to determine whether, and how, to subdivide it for purposes of today's regulations.

The Agency's previous BPT and NSPS regulations established effluent requirements for three subcategories: coal preparation plants and associated areas, mines exhibiting acid drainage, and mines exhibiting alkaline drainage. For acid and alkaine mine drainage, the effluent requirements were made applicable only to "active mining areas" as defined in the regulations, except when water from active mining areas is commingled with water from other areas. Thus, drainage from surface areas on which reclamation had begun or was completed, as well as drainage from underground mines where active mining operations had ceased, was not subject to the regulations if segregated from active mine drainage. The NSPS regulations established a separate subcategory for surface areas undergoing reclamation, but effluent limitations for that subcategory were reserved pending the collection of additional data.

The prior regulations also accorded special treatment to western coal mines; the BPT limitations did not apply to mines located in six specified states (e.g., 40 CFR 434.32 (a)), and the NSPS requirements created a subcategory for "Western Coal Mines," defined as mines located west of the 100-degree meridian (40 CFR 434.60). NSPS requirements for this subcategory, like those for surface areas under reclamation, were reserved.

On the basis of its review of data collected for today's proposed rules, the Agency has decided to modify the existing subcategorization scheme in several respects.

First, western mines will not comprise a separate subcategory. Data collected by EPA indicate that, although western mines discharge less frequently than facilities located in the midwest and east, the effluent characteristics of discharges considered for regulation from western mines are very similar to discharges from mines in other geographic regions. Therefore, today's proposal would apply to all coal mines wherever located in the United States. (It should be noted, however, that where western mines have been subject to more stringent requirements under NPDES permits, they may, under certain conditions, continue to be subject to those requirements under 40 CFR 122.62(1) and 40 CFR 123.7.

Second, the subcategorization of coal preparation plants and associated areas would be modified for new sources under today's proposal. Under previous regulations, coal preparation plants and their associated areas—e.g., raw materials, refuse disposal storage piles, adjacent haul roads and disturbed areas—were subject to the same effluent limitations, largely because it is common industry practice to combine wastewater from these two sources for treatment. However, as discussed elsewhere in this notice, the Agency has determined that new source—but not existing source—preparation plants should be required to achieve zero discharge of process wastewater pollutants, exclusive of associated area drainage. Consequently, today's proposed NSPS regulations address coal preparation plants and coal preparation plant associated areas separately. Requirements for existing sources, however, will remain unchanged from prior regulations.

Third, with respect to post-mining discharges, the Agency is creating a new subcategory for these discharges, which is further subdivided with respect to

surface and underground areas (see Section VII).

The Agency considered, but ultimately rejected, several other changes to the existing subcategories. Consideration was given to subdividing active mines as surface or underground. Many surface mines are more suited to mobile treatment systems that can be easily installed, operated, dismantled and moved as the mining front progresses. Conversely, at deep mines, fixed or permanent treatment facilities can be installed at the portal for treatment of underground mine drainage. However, this distinction has been rendered academic for purposes of this rulemaking because the levels of toxic metals which the Agency has found in BPT-treated effluents at both surface and deep mines are so low that no further treatment beyond BPT will be required. (It should be noted, however, that under today's proposal, discharges from surface areas will be treated differently than discharge from underground workings for purposes of the catastrophic storm exemption and treatment of post-mining discharges (see Section VIIII).)

The Agency also considered establishing a separate subcategory for anthracite mines. A thorough study was conducted to assess whether these mines exhibit any unique wastewater characteristics. The results indicate that a separate subcategory for anthracite mines is not warranted.

## VI. Available Wastewater Control and Treatment Technology

### *(a) Status of In-Place Technology*

BPT regulations for the coal mining industry have been in effect since 1977. The level of treatment required to meet these standards varies somewhat among the industry's subcategories.

(1) Acid Mine Drainage. Mines exhibiting raw acidic drainage generally employ wastewater treatment which includes: chemical precipitation/pH adjustment, aeration, and settling. Many facilities have raw water holding ponds which serve as "equalization basins." These basins reduce variations in flow and pollutant concentrations to provide a more uniform influent to the treatment system. Neutralization and chemical precipitation technology consists of the addition of an alkaline reagent to acid mine drainage to raise the pH to between 6 and 9. This pH change also causes the solubilities of positively charged metal ions to decrease and thus precipitate (leave solution as an insoluble compound). In general, three types of reactions occur as a result of pH adjustment: neutralization, oxidation, and precipitation. The precipitates are, in most cases, metal hydroxides. One of four reagents are commonly used to effect the above reactions: hydrated lime ($Ca(OH)_2$), calcined or quick lime (CaO), caustic soda (NaOH), or soda ash ($Na_2CO_3$).

Aeration is often accomplished by allowing the water to simply flow or cascade down a staircase-like trough or sluiceway. This causes turbulence that increases oxygen transfer and, therefore, the oxidation reaction. In other cases, the air or oxygen may be supplied by a mechanical type of aerator. The presence of dissolved oxygen supplied by the aerating technique oxidizes ferrous ions causing the formation of essentially insoluble ferric hydroxide ($Fe(OH)_3$). This compound is more easily settled than ferrous hydroxide ($Fe(OH_2)$. Temperature, pH, flow, dissolved oxygen content, and initial concentration are all important performance parameters.

The process of sedimentation removes the suspended solids, which includes the insoluble precipitates. Sedimentation can be accomplished in a settling pond or clarifier (a settling tank). The settling pond can be created by excavating a depression. The extent of solids removal depends upon surface area, retention time, flow patterns, settling characteristics of influent suspended solids, climatology, and other operating parameters of a particular installation. A settling pond operates on the principle that, as the sediment-laden water passes through the pond, the particles will settle to the bottom instead of being discharged. Some of the factors affecting the settling velocity of a particle include water viscosity, temperature, and the density, size and shape of the particle. Clarifiers are mechanical settling devices which can be used where insufficient land exists for construction of a pond. Clarifiers operate on essentially the same principles as a sedimentation pond. The most significant advantage of a clarifier is that closer control of operating parameters such as retention time and sludge removal can be maintained, while problems such as runoff from precipitation and short-circuiting can be avoided.

(2) Alkaline Mine Drainage. Mines exhibiting raw alkaline drainage (which account for the majority of U.S. coal mines) have raw wastewaters which are at or above pH 6.0 and contain total iron levels of less than 10 mg/l. Alkaline mine drainage generally requires treatment only for suspended solids removal. Typical treatment may include settling ponds or clarifiers where adequate land is not available for sedimentation ponds. Many alkaline mines require no treatment at all to meet BPT limitations.

(3) Preparation Plants. Typical treatment for preparation plant wastewaters includes sedimentation in a settling pond or clarifier. In addition, many facilities recycle all or a portion of their clarified wastewater for reuse in the preparation plant.

(4) Preparation Plant Associated Areas. Associated areas include coal and refuse storage piles and other areas ancillary or adjacent to the preparation plant. Runoff from these areas can become acidic and often requires neutralization and settling prior to discharge. At many facilities, the preparation plant wastewater is combined with associated area runoff for treatment.

(5) Post-Mining Discharges. Studies performed in support of this rulemaking indicate that post-mining discharges from surface areas under reclamation exhibit levels of toxic metals (when present) very near or at their limit of analytical detection. Iron and manganese in reclamation area wastewaters were detected at levels only slightly above their detection limits. Total suspended solids levels are typically at higher levels than found in active acid or alkaline mine drainage, while pH was always found to be above 6.0 unless drainage is commingled with acidic wastewaters. Toxic organics are not present because no sources of such compounds exist in surface areas under reclamation. These wastewater characteristics suggest treatment by settling in a sedimentation structure. Installation of this technology is already required by OSM regulations (30 CFR 816.42). Data from the studies indicate that settleable solids are consistently reduced in a properly designed and operated pond, whereas wide variation exists in removal of total suspended solids.

Post-mining discharges from underground mines exhibit wastewater characteristics similar to those found in active mine drainage. Thus, current treatment technology for these wastewaters includes BPT technology to control acidity, iron, manganese (if necessary), and total suspended solids.

### *(b) Control Technologies Considered for Use in This Industry*

EPA initially identified a variety of candidate technologies for control of the pollutants discharged by the coal mining industry. These included: flocculant addition, granular media filtration, activated carbon, ion exchange, reverse

osmosis, electrodialysis, ozonation, and sulfide precipitation. Of these additional technologies, only two were found to be potentially feasible and adaptable for this industry's wastewaters: flocculant addition and granular media filtration. Additionally, total recycle was also investigated as an in-process control for preparation plants. Because water is not intentionally introduced in the mining process and must be removed from the mine when encountered, recycle is not an appropriate control technology for mine drainage. A detailed discussion of the reasons for rejecting the other technologies as BAT, BCT or NSPS is presented in the technical Development Document.

(1) Flocculant Addition. This technology involves the addition of chemical coagulants prior to sedimentation ponds, clarifiers, or filter units, to enhance the efficiency of solids agglomeration. EPA has conducted treatability studies which indicate that flocculant addition effectively reduces certain toxic metals (if they are present in substantial concentrations) as well as suspended solids.

(2) Granular Media Filtration. Filtration is used as a suspended solids and metals removal technology. Filter systems are usually located downstream of primary gravity settlers, lime precipitation units, and polymer addition equipment. Filtration is accomplished by the passage of water through a physically restrictive medium with resulting entrapment of suspended particulate matter. Granular media filtration uses a variety of mechanisms including straining, interception, impaction, and adsorption for suspended solids removal. Filters are most often classified by flow direction and type of filter bed. Downflow, multimedia filters would probably find the widest application to both acid and alkaline coal mine wastewaters. In such a system, influent is piped to the top of the filter and by gravity or external pressure percolates through the bed before discharge or further treatment. This technology is proven in both industrial and municipal applications and is cost effective in relation to other technologies when reductions to 10 mg/l TSS or less are required.

(3) Zero Discharge. Recycle and reuse of preparation plant wastewaters is a demonstrated technology in this industry. Data from a survey conducted with the cooperation of the National Coal Association in early 1980 were used to establish the water treatment configurations presently used at coal preparation plants as discussed in Section IV. This procedure identified four general categoris of wastewater treatment practices.

The first category includes an estimated 42 facilities that are currently achieving zero discharge by recycling water from a clarifier and dewatering the thickened solids removed from the base of the clarifier by vacuum or pressure filtration. The filtrate from this process is recycled to the preparation plant.

The second category contains about 181 facilities that operate essentially on a total recycle basis. Because these facilities use sedimentation ponds for treatment, intermittent discharges occur during rainfall periods. Installation of ditching and diking around the ponds to divert storm runoff would be required to achieve total recycle.

The third category contains approximately 65 facilities. These plants use clarifiers and recycle the clean water to the preparation plant.

The fourth category includes approximately 362 facilities which currently discharge at least a portion of their wastewater. Many of these facilities, however, do recycle varying percentages of the treated wastewater for reuse in the plant. Therefore, requirements for achieving total recycle at these facilities vary widely from site-to-site.

Each of these categories includes facilities from a wide variety of geographical and topographical areas.

*(c) Cost Development*

The costs of applying these technologies were developed through compilation of cost data supplied by equipment manufacturers and by application of standard engineering data and cost estimation techniques.

None of the technologies studied in the development of these regulations is considered to be innovative. All of the in-plant controls described in this preamble and in greater detail in the technical Development Document have either been used or investigated for use in this industry and do not represent major process changes. The end-of-pipe treatment technologies have also been applied in this industry or other industries.

## VII. Substantive Changes From Prior Regulations

The regulations proposed today contain several substantive changes with respect to both existing and new source coal mines.

(a) Western Mines. As discussed in Section V, western mines will not be placed in a separate subcategory.

(b) Storm Exemption. Today's proposal would significantly revise the nature and scope of the storm exemption. Under prior regulations, both surface and underground coal mines were exempt from all otherwise applicable requirements if: (1) the treatment facility was designed, constructed, and maintained to contain or treat the 10-year, 24-hour storm volume; and (2) the facility experienced an overflow, increase in volume of a discharge or discharge from a bypass system as a result of a precipitation event (*e.g.*, 40 CFR § 434.22(c)). If these prerequisites were met, then the operator could discharge without regard to effluent quality during the exemption period. The rationale for affording coal mines relief during precipitation events is set forth in detail in the Agency's preamble dated December 28, 1979 (44 FR 76788), and is summarized below.

A sediment pond operates on the principle that as sediment-laden water passes through the pond, the solid particles will settle to the bottom and be trapped. Generally, small particles will settle out more slowly than large solids; therefore, in order to meet a given effluent quality of total suspended solids (TSS), the sediment pond must be designed so that all particles requiring removal will be detained in the pond long enough to settle.

However, a number of site-specific factors make it extremely difficult to predict, on a generic basis, what TSS effluent concentrations can be expected from a sediment pond of a given size and design. The most significant factor is the variation in particle size distribution of the solids entering a sediment pond at different sites, and at the same site, during the course of a storm. A state-of-the-art computer simulation, discussed in the December 28, 1979 preamble, tended to confirm that TSS concentrations in the effluent from optimally designed sediment ponds will vary widely from site-to-site, and at the same site, during a given storm.

For these reasons, the Agency has always considered it appropriate to afford relief from the effluent requirements during storm conditions, provided that the treatment facility is properly designed and operated. However, since the Agency lacked data as to what effluent limitations were feasible during storms, the exemption permitted a discharge without regard to effluent quality.

The Agency has, however, engaged in a data collection effort with industry participation under Section 308 of the Act to characterize the effluent quality during and immediately after storm events from 22 sediment ponds across the country. The results compiled thus far confirm the conclusion of the

previous computer simulation—well designed and operated sediment ponds will achieve consistently low concentrations of settleable (*i.e.*, suspended particles that will settle to the bottom in one hour) solids, but the concentrations of total suspended solids vary widely and unpredictably during and after storms because of the continual variation in particle size distributions of the influent TSS. Accordingly, the Agency proposes to exempt surface area discharges from the TSS limitations during storms provided that the sediment pond is properly designed and maintained, but to require such ponds to achieve a settleable solids limitation during the precipitation event.

The data also demonstrate that concentrations of the toxic metals and iron and manganese in drainage from these areas are at or very near limits of analytical detection which makes national regulation unnecessary. Therefore, properly designed and operated ponds treating surface runoff will also be exempt from the limitations on iron and manganese under the storm exemption proposed today. However, results from the industry pond sampling program described above indicate that a pH within the range of 6 to 9 can be maintained at all times; accordingly, there will be no relief granted from the pH requirement under today's proposed storm exemption.

In contrast to the previous exemption, today's proposed exemption would not apply to discharges from the underground workings at underground coal mines. (The exemption will apply, however, to drainage from the surface area of underground mines.) This is because the flow of mine drainage from underground workings should not be affected by precipitation (in contrast to surface areas), and storm events, therefore, should not pose the potential of inundating properly designed facilities which treat only underground mine drainage..

It should also be noted that there will be no storm exemption granted for new source preparation plants, which will be required to meet zero discharge of process wastewater pollutants. The exemption will apply, however, to new source preparation plant associated areas, whose wastewater is comprised almost exclusively of storm water runoff.

Several technical changes have been made to the design criteria for sedimentation ponds which are prerequisite to obtaining the storm exemption. The prior regulation states that, to obtain an exemption, the facility must be designed to "contain or treat" the 10-year, 24-hour storm volume. The intention of this language was to require the pond to be built to a design capacity—the 10-year, 24-hour storm volume—and to be operated at maximum efficiency during storms. However, the use of the phrase "or treat" has caused unnecessary confusion. The phrase was intended to refer to those few facilities in the coal mining industry which utilized chemical flocculants to enhance settling of solids (as distinct from the common use of lime to neutralize acid drainage, which may also cause flocculation). However, the phrase did not specify to what effluent quality and under what circumstances mine drainage would have to be treated in order to qualify for the exemption. Furthermore, if the facility was required to treat to the effluent limitations under some storm conditions, then there would be no need for the exemption.

Questions have also been raised as to how one designs a flocculation system to treat a volume of water such as the 10-year, 24-hour storm. These systems are designed for a *flow rate* rather than a volume. And again, if the exemption were construed to require that the maximum flow from a 10-year, 24-hour storm be "treated" to the effluent limitations, then an exemption during storms of that magnitude and smaller would be unnecessary.

For these reasons, the phrase "or treat" has been removed from the storm exemption (*e.g.*, § 434.63(c)). The proposed regulations make clear the design criteria for obtaining an exemption: First, the facility must be designed, constructed and operated to *contain* the runoff from the 10-year, 24-hour storm. This is a design volume criterion. Second, the facility must be designed, constructed and operated to achieve the effluent limitations during base-flow (dry weather) conditions. Thus, if a facility has continuously or recurrently failed to achieve the effluent limitations during base-flow conditions due to a deficiency in design, construction or operation, it will not be entitled to an exemption when it rains. On the other hand, it is not intended that a single or occasional violation of the effluent limitations during base-flow conditions due, for example, to malfunctions will preclude an exemption during storm conditions. This requirement provides an effective check to ensure that relief during storms will be accorded only to those operators who optimize their wastewater treatment systems.

Third, the facility must maintain the pH in the effluent between 6 and 9 at all times. As discussed previously, the Agency believes that it is feasible to do so, and an operator who fails to met this minimal requirement should not obtain the benefit of the storm exemption.

(c) Post-Mining Discharges. The issue of post-mining discharges has been the focus of substantial public comment and litigation in past rulemaking efforts. *Consolidation Coal Company* v. *Costle*, 13 ERC 1289 (4th Cir. 1979); *Commonwealth of Pennsylvania* v. *EPA* (3rd Cir. 1980). Post-mining discharges refer to the discharge of pollution-bearing wastewaters from a mining area after active mining operations cease. The concept applies to both surface an underground mines. A surface mining operation will move from one discrete area to another; as the next area is excavated and mined, the previously mined area will be restored to approximate original contour and reclaimed—that is, seeded, planted, and otherwise restored for suitable post-mining uses. If properly reclaimed, storm runoff from these inactive areas generally will be of acceptable quality; however, in the absence of proper reclamation, runoff from these post-mining areas can contain unacceptable levels of solids and metals, and be highly acidic, during reclamation and for years thereafter.

Historically, post-mining discharges from underground mines have contributed even more seriously than surface mines to water quality degradation. In the past, it was common practice for underground mine operators, particularly in Appalachia, simply to "walk away" from the mine after extracting all recoverable coal, without properly sealing and otherwise closing the mine. The results have been devastating; it has been estimated that 78 percent of all acid mine drainage in Appalachia is caused by post-mining discharges. *Commonwealth* v. *Barnes & Tucker*, 472 Pa. 115, 125, n. 10 (1978). According to a study prepared for EPA in connection with this rulemaking, even if all present and future mines were to incorporate extremely advanced treatment for their waste streams, the water quality of many watersheds would not be substantially improved because of the large contributions of acid drainage from abandoned mines. (Frontier Technical Associates, Inc., *Inventory of Anthracite Coal Mining Operations, Wastewater Treatment and Discharge Practices* (1980)).

As many studies have documented, and as many commenters have pointed out to EPA in prior rulemaking proceedings, successful control of post-mining water pollution is largely dependent on the pre-mining planning and active mining practices employed.

Thus, the mining process is increasingly viewed as integrated from planning to closure rather than as a series of unrelated, independent steps.

In order to address the environmental problems associated with coal mining in a comprehensive fashion, and in keeping with the notion that pre-mining planning and post-mining uses are interdependent, Congress enacted the Surface Mining Control and Reclamation Act of 1977, 30 U.S.C. 1201 *et seq.* ("SMCRA"). Title V of this statute gave the Office of Surface Mining Reclamation and Enforcement ("OSM") broad authority to regulate specific management practices before, during and after mining. Title IV of that statute addresses the problem of presently abandoned mines by authorizing and funding abandoned mine reclamation projects.

OSM has promulgated comprehensive regulations under Title V of SMCRA to control both surface coal mining and the surface effects of underground coal mining (30 CFR Parts 700 *et seq.*). Implementation of these requirements should lead to significant improvements in mining practices and should serve to adequately control post-mining discharges of water pollution.

On the other hand, it will necessarily be years before empirical data are collected regarding the effectiveness of OSM's program. Further, the establishment of effluent limitations for post-mining discharges will likely encourage coal mine operators to plan and conduct their mining activities in an environmentally sound manner; given the choice between incorporating such practices into the mining plan or incurring the costs of treating polluted mine drainage indefinitely, a rational operator would likely choose the former course.

Thus, effluent limitations guidelines for post-mining discharges should be coordinated with, and complement, the comprehensive regulatory scheme initiated by OSM under SMCRA. This is the clear intent of Congress as reflected in SMCRA, which requires EPA to cooperate "to the greatest extent practicable" with the Secretary of the Interior. 30 U.S.C. 1292(c). SMCRA's legislative history states Congress' view that "it is imperative that maximum coordination be required and that any risk of duplication or conflict be minimized." H.R. Rep. No. 45, 94th Cong., 1st Sess. 134 (1975). The United States Court of Appeals for the Fourth Circuit has held that EPA's regulation of post-mining discharges "must be consistent with the Secretary's enforcement and administration of SMCRA." *Consolidation Coal Company v Costle,* 13 ERC 1289, 1299 (4th Cir. 1979).

SMCRA requires coal mines to post bond securing their performance with the requirements of the Act. Under section 509 of SMCRA, liability under the bond remains for at least five years after the last year of augmented seeding, fertilizing, irrigation and other reclamation work (and for at least ten years after that time in those regions of the country where the average annual precipitation is twenty-six inches or less).

Under OSM's implementing regulations, liability under performance bonds continues for as long as necessary to achieve compliance with all requirements of SMCRA and the regulations. Under 30 CFR 816.42, runoff from the disturbed areas of a surface mine must be passed through a sedimentation pond or treatment facility until the disturbed area has been restored, revegetation requirements have been met and the quality of the drainage *without* treatment "meets the applicable State and Federal water quality standard requirements for the receiving stream." Thus, bond will not be fully released until all these conditions are met—that is, until the SMCRA regulatory authority is satisfied that the mine operator has successfully met all reclamation requirements and that the untreated drainage from the area meets Federal and State requirements.

OSM's requirements for underground mines are similar. Surface drainage from the disturbed area must be passed through a sedimentation pond or treatment facility for the same period as required for surface mines. However, drainage from the underground workings must be passed through a sediment pond or treatment facility until either the discharge continuously meets effluent limitations promulgated by OSM without treatment or until the discharge has permanently ceased. 30 CFR 817.42. Thus, bond liability with respect to underground mines will be released only when the SMCRA regulatory authority is satisfied that reclamation of the disturbed surface area is successful, and that the underground workings have been properly sealed and closed.

Given the regulatory scheme that is now being initiated by OSM and by states which have been delegated SMCRA programs by OSM, EPA believes that the goals of both SMCRA and the Clean Water Act are best harmonized at this time by applying effluent limitations until full release of the performance bond under OSM regulations. The release of bond by the appropriate SMCRA authority signifies that the coal mine operator has carried out its responsibilities under SMCRA, and that post-mining pollution problems are therefore abated and can be reasonably expected not to recur.

Present evidence indicates that the most serious potential for post-mining water pollution at surface mines occurs within the first two years after cessation of active mining operations—that is, during the period when reclamation activities may not be complete and the treatment of erosion remains high. This problem is largely resolved, however, by the fact that under SMCRA, liability under the performance bond cannot be released for at *least* five years (and at least ten years in western states) after completion of reclamation work. Thus, under today's proposal, effluent limitations will remain in effect during the period when post-mining water pollution problems are expected to occur at surface coal mines.

It should also be recognized that post-mining discharges at surface mines constitute point sources subject to effluent limitations guidelines primarily because OSM requires the collection of drainage from disturbed areas in sedimentation ponds or treatment facilities. 30 CFR 816.42. This drainage generally would otherwise diffuse non-point source runoff. Thus, once OSM authorizes removal of the sedimentation pond or treatment facility, and the performance bond is fully released, there generally will be no basis to apply EPA effluent limitations because there will generally be no point source.

The Agency recognizes that in isolated instances, runoff from inactive surface mine areas might constitute a point source discharge, even if it is not collected in a wastewater treatment facility. See *Sierra Club* v. *Abston Construction Co,* 14 ERC 1984 (5th Cir. 1980). It is also possible that drainage from surface mine areas once reclamation has been successfully completed may, in rare cases, be acidic or otherwise warrant treatment. However, there is no evidence that point source discharges from surface mines after SMCRA bond release will pose a pervasive or significant water pollution problem on a national scale sufficient to warrant effluent limitations guidelines. It should be emphasized that, in the rare instance where such a point source discharge occurs, the appropriate permitting authority may require treatment under section 402(a)(1) of the Clean Water Act, even in the absence of national guidelines. In such instances, the post-mining effluent limitations proposed today would be appropriate

from the standpoint of wastewater treatment methods and technology.

With respect to underground mines, point source discharges of pollution may occur years after mine closure and sealing, depending on site-specific factors (such as geology and hydrology). However, there is no way to ascertain at this stage how pervasive this problem is likely to be in the wake of SMCRA's requirements. The Commonwealth of Pennsylvania has reported that seals on twenty percent of all its deep mines closed since 1966 have subsequently failed. It is reasonable to anticipate that this figure would decrease as mine closure technology advances and as OSM requirements are implemented.

In short, EPA is aware that OSM requirements do not, and cannot, guarantee that pollution will never occur after bond release. It is impossible to achieve that goal with absolute certainty since, for example, technology does not exist to ensure that a discharge from an underground mine will cease forever. All that can be known at this time is that OSM requirements represent state-of-art management practices, and should reverse the legacy of abandoned mine acid drainage.

However, EPA is initiating a data collection effort which will help to assess systematically: (1) the likelihood and severity of pollution discharges at coal mines after release of SMCRA bond; and (2) the cost-effectiveness and economic impacts of establishing effluent limitations after release of bond. The investigation will have two parts. One part of this study will address the financial ability of currently active coal mines to prepare for the possibility of a catastrophic event involving the hydrological balance of the area. The data for this analysis will consist of responses to a questionnaire mailed to a simple random sample of mines startified by size of production and geographic region. The sample frame for this selection will be the most current MSHA listing of active mines. The questionnaire will be limited to these items: (1) current yearly production; (2) identification of market (contract or spot); (3) estimated remaining life of the mine; (4) estimated total capacity; (5) type and amount of the reclamation bond; (6) type of wastewater treatment technology currently in place; (7) age of the mine; (8) total operating costs; and (9) F.O.B. price per short ton of coal.

At the same time, EPA intends to evaluate the successfulness of SMCRA requirements in preventing post-mining discharges. In consultation with OSM, EPA will identify a set of mines engaged in reclamation activities under OSM regulations and those mines which have undergone reclamation procedures prior to the OSM regulations. The primary focus will be to measure the success of reclamation under OSM regulations in solving water pollution problems without resorting to pollution control technology. This evaluation will consist of an examination of the reclamation procedures used at the mine and whether a discharge occurred afterwards. This sample will be used to estimate the proportion and types of mines which could be expected to fail in attempts to prevent polluting discharges after mining ceases. This evaluation will also investigate monitoring data during and after reclamation and closure activities in order to quantify pollutant discharges. These mines will be administered a questionnaire similar to those described above.

It is expected that this survey will provide the Agency with a basis for assessing the appropriateness and feasibility of establishing national regulations applicable after bond release. This survey is now proceeding and is expected to be completed by July, 1981.

(d) Definition of "New Source Coal Mine". The NSPS regulations promulgated on January 12, 1979, defined a "new source coal mine" as a coal mine which:

(1) was not assigned the applicable Mining Safety and Health Administration (MSHA) identification number under 30 CFR Part 82 *prior to the promulgation date* of these new source performance standards and which, at such date, had no contractual obligation to purchase unique facilities or equipment as defined in Appendix A of 40 CFR Part 6, Guidance on Determining a New Source, or

(2) is determined by the Regional Administrator to constitute a "major alteration" in accordance with 40 CFR Part 6 Appendix A (even if the applicable MSHA identification number is assigned prior to the *promulgation date* of new source performance standards). In making this determination, the Regional Administrator shall take into account the occurrence of one or more of the following events, in connection with the mine for which the NPDES permit is being considered, *after the date of promulgation* of applicable new source performance standards:

(i) A mine operation initiates extraction of a coal seam not previously extracted by that mine;

(ii) a mine operation discharges into a drainage area not previously affected by wastewater discharges from the mine;

(iii) a mine operation causes extensive new surface disruption;

(iv) a mine operation initiates construction of a new shaft, slope, or drift;

(v) a mine operation makes significant capital investment in additional equipment or additional facilities;

(vi) such other factors as the Regional Administrator deems relevant (emphasis added).

Subsequently, in accordance with the Court's decision in *Pennsylvania Citizens Coalition et al.* v. *EPA*, 14 ERC 1545 (3rd Cir. 1980), the Agency amended the definition, changing the reference date for determining new source coal mines to the date of NSPS proposal, rather than the date of final NSPS promulgation. See 45 FR 43413 (June 27, 1980).

In addition, the first portion of the new source test was challenged in *Begay et al.* v. *Costle*, No. 79–1690 (10th Cir.). Petitioners in that case argued that the obtaining of a MSHA identification number bears no necessary relationship to the date of commencement of construction, which is the statutory test for determining new sources. This case was voluntarily dismissed by all parties. However, because reliance on the MSHA criteria has engendered substantial controversy in the past, the Agency believes it prudent not to rely on that test for the purpose of today's proposed new source performance standards. Instead, the first portion of the "new source" test tracks section 306(a)(2) of the statute, and defines a new source coal mine as one which commences construction after the date of publication of today's proposed regulations. Interested persons are referred to the Agency's consolidated permit regulations for elaboration as to when a new source commences construction, 45 FR at 33452, § 122.66(b)(3) (May 19, 1980).

The applicability of today's proposal and the prior new source regulations requires clarification. Generally, the NSPS regulations promulgated on January 12, 1979, apply to all new source coal mines as defined in those regulations (as amended on June 27, 1980) and today's proposed NSPS regulations apply to new sources as defined in this proposal. However, it is theoretically possible for a facility to qualify as a "new source" under both definitions. For example, if a facility did not have any contractual commitments and did not obtain a MSHA identification number before September 19, 1977, but obtained a MSHA number on September 1, 1980, it would fall within the definition of a new source coal mine under the prior NSPS regulations. However, if it did not enter into any construction within the

meaning of today's proposal until after today, then it would also be a new source within the meaning of today's definition. In this situations, the coal mine would be subject to today's proposed NSPS requirements, rather than those promulgated on January 12, 1979. By definition, the mine would qualify as a new source under today's proposal, and it will not suffer any prejudice by being subject to these NSPS requirementrs since it has not entered into any construction prior to today.

If a mine obtained a MSHA number prior to September 19, 1977, then under the prior NSPS regulation it qualified as an existing source; however, in the unlikely event that that mine had not commenced construction until after today, then it would qualify as a new source under today's definition. In this case, the facility will also be treated as a new source subject to today's proposed NSPS requirements, since, by definition, it will not suffer any prejudice as a result of the changed definition.

## VIII. BAT Effluent Limitations

The factors considered in assessing best available technology economically achievable (BAT) include the age of equipment and facilities involved, the process employed, process changes, non-water quality environmental impacts (including energy requirements), and the costs of application of such technology (Section 304(b)(2)(B)). In general, the BAT technology level represents, at a minimum, the best economically achievable performance of plants of various ages, sizes, processes or other shared characteristics. Where existing performance is uniformly inadequate, BAT may be transferred from a different subcategory or category. BAT may include process changes or internal controls, even when not common industry practice.

The statutory assessment of BAT considers costs, but does not require a balancing of costs against effluent reduction benefits (see *Weyerhaeuser* v. *Costle, supra*). In developing the proposed BAT, however, EPA has given substantial weight to the reasonableness of costs. The Agency has considered the volume and nature of discharges before and after application of BAT, the general environmental effects of the pollutants, the technical feasibility of implementing the technology, and the costs and economic impacts of the candidate pollution control levels.

The Agency considered a number of options for regulation of existing sources subject to the BAT requirement and new sources subject to the NSPS requirement. The BAT options are detailed below. New source options are discussed in Section X.

(a) BAT Options Considered

(1) Option One—Require effluent limitations equivalent to those promulgated under BPT. For acid drainage mines and coal preparation plants and associated areas the limitations are based on the application of neutralization, aeration, and settling technologies. For alkaline mines and reclamation areas, limitations are based upon application of settling technology.

Post-mining discharge limitations and the modified storm exemption discussed in Section VII would also apply here.

(2) Option Two—Require compliance for active mine drainage and preparation plants and associated areas wastewater with effluent limitations based upon flocculant addition technology as an end-of-pipe treatment supplementing existing technology.

Post-mining discharge limitations and the modified storm exemption discussed in Section VII would also apply here.

(3) Option Three—Require effluent limitations based on the application of granular media filtration technology as an end-of-pipe treatment after BPT for active mining area and coal preparation plant wastewaters.

Post-mining discharge limitations and the modified storm exemption discussed in Section VII would also apply here.

(4) Option Four—Require no discharge of process wastewater pollutants from existing preparation plants, with one of the above options selected for mine drainage and coal preparation plant associated area runoff. Associated area drainage, which includes runoff from coal and refuse storage piles and other areas adjacent to the preparation plant, would be segregated from the preparation plant water circuit for separate treatment. Total recycle of preparation plant circuit water would be necessary, with ditching or diking installed around the treatment facilities to divert storm and other surface runoff. Associated area drainage would have to be neutralized and settled in a separate facility. The modified storm exemption discussed in Section VII would apply to the associated area drainage treatment system but not to the preparation plant water circuit.

(b) BAT Selection and Decision Criteria. EPA has selected Option One as the basis for proposed BAT effluent limitations. This conclusion is based on four factors: (1) the toxic metals were found at levels very near or at concentrations considered to be the detection limit by state-of-the-art analytical techniques; (2) treatability studies, pilot plant studies, and statistical analyses indicated very low, if any, additional reductions of toxic metals are achievable beyond BPT levels; (3) it is infeasible to implement the BAT candidate technologies throughout the industry based upon by technical and cost considerations (*e.g.*, providing power, access, and security for filtration water treatment of remote discharges in Appalachia); and (4) toxic organics that were detected in BPT—treated effluents occurred at levels too low to effectively treat, were uniquely related to only a few facilities or were attributable to sampling or analytical contamination.

In the sampling programs conducted, toxic metals appeared in BPT-treated effluent at concentrations of 0.2 mg/l and above in only 15 of 1,755 toxic metal analyses and at only nine of 74 facilities sampled. Furthermore, each metal was detected at these concentrations at very few mines, thus indicating that national regulations are unwarranted. It is recognized that a metal may occasionally be present in high concentrations. For example, zinc was detected 11 times at concentrations of 0.5 mg/l and above (all 11 times at one of the 74 facilities sampled). Concentrations might be relatively high in treated wastewaters from areas where zinc was deposited simultaneously with the plant organisms during coal formation or as a mineral in surrounding strata. In this event, permit writers have the authority to establish a specific limitation for the particular pollutant in question. The Development Document presents detailed information on the frequency of occurrence and concentrations of toxic pollutants in raw and treated wastewaters in this industry.

To assess the effectiveness of certain technologies in reducing toxic metal pollutants, the Agency instituted a number of treatability studies at various mine sites. Technologies investigated include flocculant addition, granular media filtration, carbon adsorption, ion exchange, and reverse osmosis. In general, these treatment options showed effective reductions of toxic metals concentrations when these species were introduced as soluble salts (e.g., $CuCl_2$ or $Zn(NO_3)_2$). This procedure is termed "spiking." Spiking was performed because it was not possible to find BPT-treated mine water with enough naturally occurring toxic metals in quantities sufficient to perform meaningful treatability studies. When BPT-treated wastewater was used as influent to the pilot treatment unit with no spiking solutions added, the metals reductions achieved were marginal and

could not be quantified with precision because the influent levels were so near the detection limits.

As a result of the above factors, the Agency has selected Option One as the appropriate alternative for the BAT regulations.

Option Four, for existing preparation plants, was not selected because of the high retrofit expenditures ($291 million capital, $52.6 million annual; 1980 dollars) and small additional pollutant removals achievable.

## IX. BCT Effluent Limitations

The 1977 amendments added Section 301(b)(4)(E) to the Act, establishing "best conventional pollutant control technology" (BCT) for discharges of conventional pollutants from existing industrial point sources. Conventional polutants are those defined in Section 304(b)(4)—BOD, TSS, fecal coliform, and pH—and any additional pollutants defined by the Administrator as "conventional." On July 30, 1978, EPA designated oil and grease as a conventional pollutant (44 FR 44501).

BCT is not an addtional limitation; rather it replaces BAT for the control of conventional pollutants. BCT requires that limitations for conventional pollutants be assessed in light of a new "cost-reasonableness" test which involves a comparison of the cost and level of reduction of conventional pollutants from the discharge of publicly owned treatment works (POTW) to the cost and level of reduction of such pollutants from a class or category of industrial sources. As a part of its review of BAT for certain "secondary" industries, the Agency has promulgated a methodology for this cost test (44 FR 50732, August 29, 1979). The Agency compares the costs and levels of removal in a subcategory with those of an "average" POTW with a flow of 2 mgd. If the costs per pound of removal in the industrial subcategory are equal to or less than the cost per pound to the POTW ($1.51 per pound; 1979 dollars), then the costs are considered reasonable.

As discussed in Section VIII, the Agency has determined that BAT technology is equivalent to BPT for the coal mining industry. The technologies considered for treatement of conventional pollutants are the same as those considered for treatment of toxic pollutants. Accordingly, by definition, BCT for this industry meets the BCT cost test because there is no incremental cost to remove conventional pollutants beyond BPT.

## X. New Source Performance Standards (NSPS)

Under Section 306 of the Act, new source performance standards (NSPS) are to be based on application of the best available demonstrated technology. New mining facilites have the opportunity to implement the best and most efficient coal mining processes and wastewater treatment technologies. Congress, therefore, directed EPA to consider the best demonstrated process changes and end-of-pipe treatment technologies capable of reducing pollution to the maixmum extent feasible.

(a) NSPS Options Considered. The Agency considered the following NSPS options: [3]

(1) Option One—Require NSPS in each subcategory to be based on BPT technology.

(2) Option Two—Require achievement of performance standards based on flocculant addition to supplement BPT treatment for mine drainage and preparation plant and associated area drainage.

(3) Option Three—Require achievement of performance standards based on granular media filtration as end-of-pipe treatment to existing technology for mine drainage and preparation plant and associated area drainage, as per BAT Option Three.

(4) Option Four—Require no discharge of process wastewater pollutants from new source preparation plants, with one of the above options selected for mine drainage and preparation plant associate areas. Associated area drainage would be segregated from the preparation plant process wastewater. Under this option, no storm exemption is provided for the coal preparation plant water circuit.

(b) NSPS Selection and Decision Criteria. EPA has selected Options One and Four as the basis for proposed new source performance standards. The rationale for selecting Option One is identical to that described in Section VIII, and the reader is referred there for additional detail. EPA has selected Option Four as the basis for NSPS in the preparation Plant subcategory because zero discharge is a demonstrated technology for these facilities. Many existing facilities are practicing total recycle of preparation plant wastewaters. Further, this option is feasible for new sources, which can plan wastewater treatment and management practices at the design stage, thereby avoiding costly retrofit which would be required by the majority of existing sources.

[3] Options One, Two, and Three include post-mining discharge limitations and the modified storm exemption as discussed in Section VIII.

## XI. Best Management Practices

Section 304(e) of the Clean Water Act authorizes the Administrator to prescribe "best management practices" ("BMP's") to control "plant site runoff, spillage or leaks, sludge or waste disposal, and drainge from raw material storage." However, the Administrator may prescribe BMP's only where he finds that they are needed to prevent "significant amounts" of toxic or hazardous pollutants from entering navigable waters.

In contrast to this limited authority, Congress, through SMCRA, directed OSM to prescribe a range of management practices for coal mines. SMCRA and OSM's implementions regulations can be viewed as a BMP program tailored for coal mines, reflecting Congress' awareness that a comprehensive regulatory scheme is needed to remedy the host of environmental degradations caused by past mining practices.

Therefore, it is not EPA's intention at this time to propose BMP's for coal mining under the Clean Water Act. Rather, it is anticipated that today's proposed regulations governing point source discharges, coupled with OSM's program, will provide a coherent and complementary framework for the regulation of this industry. The two agencies have worked closely on this rulemaking and related rulemaking by OSM to ensure the duplication and conflict in federal regulation is minimized. If, in the future, it appears the BMP's under the Clean Water Act are necessary to supplement OSM's program, EPA will propose them as appropriate.

## XII. Variances and Modifications

Both BAT and BCT effluent limitations are subject to EPA's "fundamentally different factors" variance. See *E. I. du Pont de Nemours and Co. v. Train* 430 U.S. 1112 (1977), *Weyerhaeuser Co.* v. *Costle, supra.* This variance recognizes factors concerning a particular discharger which are fundamentally different from the factors considered in this rulemaking. Although this variance clause was set forth in EPA's 1973–1976 industry regulations, it will now be included only by reference in the coal mining and other industry regulations. See the final NPDES regulations, 40 CFR Part 125, Subpart D, 44 FR 32854, 32893 (June 7, 1979), for the text and explanation of the "fundamentally different factors" variance.

The BAT limitations in these regulations also are subject to EPA's "fundamentally different factors" variance. BAT limitations for nonconventional pollutants are subject to modifications under Sections 301(c) and 301(g) of the Act. These statutory modifications do not apply to toxic or conventional pollutants. According to Section 301(j)(1)(B), applications for these modifications must be filed within 270 days after promulgation of final effluent limitations guidelines. See 43 FR 40859 (Sept. 13, 1978).

New source performance standards are not subject to modification through EPA's "fundamentally different factors" variance or any statutory or regulatory modifications. See *du Pont* v. *Train, supra.*

### XIII. Upset and Bypass Provisions

An issue of recurrent concern has been whether industry guidelines should include provisions authorizing noncompliance with effluent limitations during periods of "upset" of "by pass." An upset, sometimes called an "excursion," is unintentional noncompliance occurring for reasons beyond the reasonable control of the permittee. It has been argued that an upset prtovision in EPA's effluent limitations guidelines is necessary because such upsets will inevitably occur due to limitations in even properly operated control equipment. Because technology-based limitations are to require only what technology can achieve, it is claimed that liability for such situations is improper. When confronted with this issue, courts have divided on the question of whether an explicit upset or excursion exemption is necessary or whether upset or excursion incidents may be handled through EPA's exercise of enforcement discretion.

While an upset is an unintentional episode during which effluent limits are exceeded, a bypass is an act of intentional noncompliance in emergency situations during which waste treatment facilities are circumvented. Bypass provisions have, in the past, been included in NPDES permits.

EPA has determined that both explicit upset and bypass provisions should be included in NPDES permits and has promulgated NPDES regulations which include upset and bypass permit provisions. See 45 FR 33448, § 122.60(g) and (h) (May 19, 1980). The upset provision establishes an upset as an affirmative defense to prosecution for violation of a technology-based effluent limitation. The bypass provision authorizes bypassing to prevent loss of life, personal injury, or severe property damage.

The Agency has received several inquiries concerning the relationship between the general upset and bypass provisions set forth in the consolidated permit regulations and the storm exemption contained in the BPT and NSPS regulations for coal mining. The storm exemption discussed in Section VII of this notice supersedes the generic upset and bypass provisions with respect to precipitation events; that is, an operator wishing to obtain relief from effluent requirements due to precipitation events must comply with the prerequisites of the rainfall exemption provision. However, the upset and bypass provisions are available to coal mines in all other applicable situations.

### XIV. Pollutant Parameter Selection

The revised Settlement Agreement described in Sections I and II of this notice authorizes the exclusion from regulation, in certain instances, of toxic pollutants and industry subcategories. Data collected and received by EPA were used in making decisions not to regulate specific toxic pollutants. EPA has not selected any toxic pollutants for control by national regulation in discharges from the coal mining industry. Specific effluent limitations are being established for TSS, pH, iron, manganese, and settleable solids.

Paragraph 8(a)(iii) of the revised Settlement Agreement allows the Adminsitrator to exclude from regulation toxic pollutants not detectable by Section 304(h) analytical methods or other state-of-the-art methods. This provision includes pollutants not detected at levels above EPA's nominal detection limit (10 ug/1) for toxic organics and those pollutants whose presence is due to contamination during sampling, sample transport, and analysis. For coal mining, sixty-seven toxic organic pollutants were not detected. Ten toxic organic pollutants are believed to be present due to sampling or analytical contamination. Paragraph 8(a)(iii) also allows the Adminsitrator to exclude from regulation any pollutant detected in only a small number of sources within the category or subcategory and uniquely related to only those sources. Twenty-three toxic organics were detected in the effluent of only one or two mines and always below 10 ug/1.

Paragraph 8(a)(iii) allows for the exclusion of pollutants which were detected in amounts too small to be effectively reduced by technologies known to the Administrator. Fourteen of the toxic organics were detected in amounts too small to be effectively reduced. Of the thirteen toxic metals, five (antimony, beryllium, cadmium, silver and thallium) were detected in the effluents of two or more mines at concentrations virtually at the detectable limits. Therefore, technologies more advanced than BPT are not known to the Adminsitrator which effectively reduce the concentration of these pollutants in the effluent.

Paragraph 8(a)(iii) also provides for exclusion of pollutants if these pollutants are already effectively controlled by technologies upon which other effluent limitations and guidelines are based. Eight toxic metal pollutants (arsenic, chromium, copper, lead, mercury, nickel, selenium, and zinc) were excluded from BAT regulation under this criterion. As discussed in Section VIII, these metals are generally found in BPT-treated effluents at such low concentrations that BPT technology effectively controls these metals when present in wastewater.

Cyanide was detected in six treated effluents, although at or below the accepted level of analytical precision. Therefore, additional treatment for cyanide reduction cannot be evaluated. Chrysotile asbestos was detected at concentrations considered to be slightly above background levels. At the levels reported, the analytical method used to measure asbestos is imprecise. As the method continues to be refined, the Agency will, if necessary, re-examine the levels of chrysotile asbestos in coal mining wastewaters and determine whether regulation is necessary.

The 114 organic pollutants excluded from regulation are listed in Appendices B, C, D and E of this notice.

### XV. Nonwater Quality Aspects of Pollution Control

The elimination or reduction of one form of pollution may aggravate other environmental problems. Therefore, Sections 304(b) and 306 of the Act require EPA to consider the nonwater quality environmental impacts (including energy requirements) of its regulations. In compliance with these provisions, EPA has considered the effect of these regulations on air pollution, solid waste generation, and energy consumption.

While it is difficult to balance pollution problems against each other and against energy utilization and economic constraints, EPA is proposing regulations which it believes best serve competing national goals.

This proposal was circulated to and reviewed by EPA personnel responsible for nonwater quality environmental programs. The following are the nonwater quality environmental aspects

(including energy requirements) associated with the proposed regulations.

Air Pollution. Imposition of BAT, BCT, and NSPS standards will not create any additional air pollution problems.

Solid Waste. Some of the solid waste production associated with the coal mining industry is generated by current treatment systems installed primarily to treat wastewater. Imposition of BAT and NSPS standards will not measurably increase the solid waste production for the industry. BAT standards will add no additional solid waste since BAT limitations would be equivalent to the BPT requirement in all subcategories. The Agency is proposing requirements for areas under reclamation and for sites where mining has ceased; however, sediment control for these areas is already required by other federal regulations, and thus no additional solid waste would result.

The same is true for NSPS, with the exception of the coal preparation plant subcategory. The Agency is proposing that new source preparation plants will be required to achieve zero discharge of process wastewater pollutants. The additional solid waste production associated with implementation of zero discharge would be minimal. This is demonstrated by examining concentrations of suspended solids at different points in the preparation plant treatment system. The average concentration of total suspended solids in the raw wastewater is 34,100 mg/l. BPT technology reduces this to 35 mg/l or less. Therefore, the vast majority of solid waste would be generated from the BPT requirement, with relatively small additional amounts produced by the NSPS requirement.

On October 21, 1980, the President signed into law the Solid Waste Disposal Act Amendments of 1980 which amend the Resource Conservation and Recovery Act of 1976 (RCRA), 42 U.S.C. 4901 *et seq.* Section 2(c) of this law transfers to the Secretary of the Interior exclusive responsibility for implementing the requirements of Subtitle C of RCRA with respect to coal mining wastes or overburden for which a surface coal mining and reclamation permit has been issued or approved under the Surface Mining Control and Reclamation Act of 1977 (SMCRA). Within 90 days after enactment of the amendments, the Administrator of EPA is directed to review regulations promulgated by the Secretary under SMRCA and to determine whether these regulations are adequate to implement Subtitle C of RCRA. The Secretary is directed to promulgate regulations which may be necessary to carry out this mandate, after obtaining the Administrator's concurrence. In addition, the amendments provide that any permit covering coal mine wastes or overburden under SMRCA shall be deemed a permit issued under section 3005 of RCRA with respect to the treatment, storage, or disposal of such wastes or overburden (Sec. 11). The amendments exempt coal mine wastes and overburden from regulations promulgated by the Administrator under Subtitle C of RCRA (Sec. 11).

As a result of these amendments, the coal mining industry will incur no costs under existing Subtitle C requirements with respect to the treatment, storage and disposal of coal mining wastes and overburden. Further, it is too early to know whether the requirements of SMRCA will be considered adequate to carry out the goals of RCRA, or whether it will be necessary for the Secretary to promulgate additional regulations. This is particularly the case since a determination as to whether these wastes are hazardous within the meaning of Subtitle C has not yet been made, and such determinations may vary from site to site. Consequently, the costs, if any, of complying with solid waste disposal requirements beyond those presently required under SMRCA are uncertain, and have not been included in the Agency's baseline economic analysis for this industry.

Energy Requirements. Achievement of BAT and NSPS effluent limitations will not result in a significant net increase in energy requirements because these standards are equivalent to BPT effluent limitations, with the exception of the NSPS requirement of zero discharge for coal preparation plants. The zero discharge standard may mandate installation of additional pump equipment and, in a few cases, chemical addition equipment to provide recycle water of adequate quality to be reused in the plant. However, the energy requirements for recycle pump operation, for instance, will be offset to a great extent by decreased fresh-water-makeup pump energy requirements. Thus, the incremental amount of energy associated with these techniques, beyond the BAT requirement, is insignificant.

## XVI. Costs and Economic Impact

Executive Order 12044 requires EPA and other agencies to perform a Regulatory Analysis of certain regulations (43 FR 12661, March 23, 1978). EPA's proposed regulations for implementing Executive Order 12044 require a Regulatory Analysis for major significant regulations involving annual compliance costs of $100 million or meeting other specified criteria (43 FR 298891, July 11, 1978). Where these criteria are met, the proposed regulations require EPA to prepare a formal Regulatory Analysis, including an economic impact analysis and evaluation of regulatory alternatives. The proposed regulations for the coal mining industry do not meet the proposed criteria which require a formal Regulatory Analysis. Nonetheless, this proposed rulemaking satisfies the formal Regulatory Analysis requirements.

EPA's impact assessment entitled *Economic Impact Analysis of Proposed Effluent Limitations Guidelines, New Source Performance Standards and Pretreatment Standards for the Coal Mining Point Source Category,* assesses the impact of compliance costs in terms of facility closures, production changes, price changes, employment changes, local community impacts, and balance of trade effects. Controls for new mines and preparation plants and existing mines and preparation plants were examined.

The estimated economic impact of the regulatory alternatives considered for this rulemaking were obtained through the simulation of supply and demand in the spot and contract coal markets in 1984. Regional supplies and costs are forecast for 1984 in the steam (spot and contract) and metallurgical coal markets, incorporating differentials in coal prices due to differing production, transportation and coal utilization costs. These estimates are used in the coal market simulation model to evaluate the economic impact of the alternatives in 1984. The impact is measured as the difference in levels of production, employment, wages and investment requirements for pollution control between the base case and alternative levels of treatment. The base case incorporates the compliance costs of the BPT limitations. The economic impacts associated with the promulgated BPT guidelines were analyzed previously (See 42 FR 21380) and are not discussed in the analysis.

Two alternative treatment levels were examined for further control at existing and new source mines: flocculant addition and granular media filtration. It is estimated that the maximum required investment in pollution control equipment with flocculant addition would be $95 million. However, the analysis indicates that there would not be any price changes in the spot or contract coal markets, nor would there be a decrease in production of coal. Thus, no mine closures, employment losses or community impacts are predicted for this option. The analysis

shows that the maximum required investment with granular media filtration will be $301 million. The direct effects of this control technology concentrate the negative impact of the filtration option in Northern Appalachia. Production is estimated to decline by 3 percent with concomitant employment losses of about 1,600 jobs result from 53 mine closures. The ultimate increase in the annual cost of energy would be $332 million (1978 dollars). The Agency has elected to propose limitations which require no additional treatment technology to that already required by BPT, and therefore no additional costs or impacts are projected to result from this regulation.

No additional costs or impacts are expected due to the post-mining discharge limitations for acid and alkaline mines under the amended BPT regulations, the BAT regulations and NSPS regulations. OSM already requires that when mine drainage occurs at an inactive mine it must be treated until the discharge ceases or meets OSM limitations. The OSM limitations are identical to EPA's proposed limitations. Therefore, any capital and operating costs resulting from compliance with the proposed EPA regulation are already incurred as a result of compliance with OSM regulations. There will not be any incremental impact for this extended coverage.

The BAT limitations proposed today for existing source coal preparation plants and associated areas do not require any additional treatment technology beyond that already needed to meet promulgated BPT standards. Therefore, no additional costs or impacts are projected to result from this proposal for these existing sources.

However, the requirement of no discharge for new source coal preparation plants is different than that currently required for existing sources. It is estimated that these requirements will potentially increase the cost of coal cleaning by up to 3.5 percent. No change is expected in the demand for coal preparation as a result of requiring zero discharge for new coal preparation plants. Further, even in the absence of the Clean Water Act, new source preparation plants generally would design total recycle systems for cost and management reasons. The zero discharge requirement is not expected to cause a decrease in the number of plants entering the industry in the near term.

## XVII. Relationship to NPDES Permits

The BAT, BCT, and NSPS limitations in these regulations will be applied to individual coal mines and preparation plants through NPDES Permits issued by EPA or approved state agencies, under section 401 of the Act. Upon the promulgation of final regulations, the numerical effluent limitations must be applied in all federal NPDES permits thereafter issued to coal mining direct dischargers. Permits issued by states with NPDES authority may contain more stringent limitations than those proposed here.

On September 25, 1979, EPA and OSM Published a proposed Memorandum of Understanding ("MOU") to coordinate the issuance and enforcement of NPDES permits and permits issued under SMCRA (45 FR 55322). Public comments on the proposed MOU have been received and the agencies expect to sign a final MOU, and propose implementing regulations, in the future.

The previous section discussed the availability of variances and modifications from national limitations, but there are other issues relating to the interaction of these regulations and NPDES permits. One matter which has been subject to different judicial views is the scope of NPDES permit proceedings in the absence of effluent limitations guidelines and standards. Under currently applicable EPA regulations, states and EPA Regions issuing NPDES permits prior to promulgation of these regulations and before June 30, 1981, must include a "re-opener clause," providing for permits to be modified to incorporate "toxics" regulations when they are promulgated. See 40 CFR 122.62(c), 45 FR 33449 (May 19, 1980). At one time, EPA had a policy of issuing short-term permits, with a view toward issuing long-term permits only after promulgation of these and other BAT regulations. While EPA continues to encourage EPA and State permit writers to issue short-term permits to primary industry dischargers until June 30, 1981, EPA has changed its policy to allow more flexibility. See 40 CFR 122.62(c), 122.64, 45 FR 33340 (May 19, 1980). EPA permit writers may issue long-term permits to primary industries even if guidelines have not yet been promulgated provided the permits require BAT and BCT and contain re-opener clauses. The appropriate technology levels and limitations will be assessed by the permit issuer on a case-by-case basis, on consideration of the statutory factors. See *U.S. Steel Corp. v. Train*, 556 F. 2d 822, 844, 854 (7th Cir. 1977). In these situations, EPA documents and draft documents (including these proposed regulations and supporting documents) are relevant evidence, but not binding, in NPDES permit proceedings. See 45 FR 33290 (May 19, 1980).

The promulgation of these regulations does not restrict the power of any permit-issuing authority to act in any manner consistent with law or these or any other EPA regulations, guidelines, or policy. For example, the fact that these regulations do not control a particular pollutant does not preclude the permit issuer from limiting that pollutant on a case-by-case basis, when necessary to carry out the purposes of the Act. In addition, to the extent that state water quality standards or other provisions of state or federal law require limitation of pollutants not covered by these regulations (or require more stringent limitations on covered pollutants), such limitations must be applied by the permit-issuing authority.

With respect to monitoring requirements, the Agency is considering establishing a regulation requiring permittees to conduct additional monitoring when they violate permit limitations. The provisions of such monitoring requirements will be specific for each permittee and may include analysis for some or all of the toxic pollutants and the use of biomonitoring techniques. The additional monitoring is designed to determine the cause of the violation, necessary corrective measures, and the identity and quantity of toxic pollutants discharged. Each violation will be evaluated on a case-by-case basis by the permitting authority. A more lengthy discussion of this requirement appears at 45 FR 33290 (May 19, 1980).

One additional topic that warrants discussion is the operation of EPA's NPDES enforcement program, many aspects of which have been considered in developing these regulations. The Agency wishes to emphasize that, although the Clean Water Act is a strict liability statute, the initiation of enforcement proceedings by EPA is discretionary. EPA has exercised and intends to exercise that discretion in a manner which recognizes and promotes good faith compliance efforts and conserves enforcement resources for those who fail to make good faith efforts to comply with the Act.

## XVIII. Solicitation of Comments

EPA invites and encourages public participation in this rulemaking. The Agency asks that any deficiencies in the record supporting this proposal be pointed to with specificity and that suggested revisions or corrections be supported by data or other relevant information.

For the purpose of clarity, the entire BPT regulation is being published as part of today's notice. However, a substantial portion of the BPT

requirements remain unaffected by today's proposal and are not being reproposed today; accordingly, comments addressed to these requirements are not appropriate to this rulemaking. EPA solicits comments only on those portions of BPT which change the prior BPT regulation—that is, the proposals covering post-mining discharges, the revised storm provision and the inclusion of western mines.

EPA is particularly interested in receiving comments and data on the following issues:

(1) Industry and other sources are invited to submit any data from pilot or commercial scale studies of the performance of flocculant addition or granular media filtration, particularly on the effectiveness of toxic metals removal. Although the Agency has undertaken a variety of treatability studies to address these technologies, EPA is aware of the possible variation of technology performance given the diverse characteristics of raw wastewaters extant in the coal mining industry.

(2) The Agency solicits comments on its proposal to establish national regulations until bond release, and on the appropriateness and necessity of establishing national regulations for existing and new mines beyond bond release.

(3) The Agency invites comments concerning the proposed requirements covering storm events.

## XIX. Small Business Administration (SBA) Financial Assistance

There are two SBA programs that can be important sources of financing for the Coal Mining Point Source Category. They are the SBA's Economic Injury Loan Program and the Pollution Control Financing Bond Guarantees.

Section 8 of the Clean Water Act Amendments of 1977 amended section 7 of the Small Business Act, 5 U.S.C. 636, to authorize the SBA through its Economic Injury Loan Program to make loans to assist small business concerns in effecting additions to or alterations in equipment, facilities, or methods of operation in order to meet water pollution control requirements under the CWA if the concern is likely to suffer a substantial economic injury without such assistance. This program is open to small business firms as defined by the Small Business Administration. Loans can be made either directly by SBA or through a bank using an SBA guarantee. The interest on direct loans depends on the cost of money to the Federal Government and is currently set at 8¼ percent. Loan repayment periods, depending on the ability of the firm to repay the loan may extend up to thirty years but will not exceed the useful life of the equipment.

Firms in the Coal Mining Point Source Category may be eligible for direct or indirect SBA loans. For further details on this Federal loan program write or telephone any of the following individuals at EPA headquaters or in the ten EPA regional offices:

Headquarters—Ms. Frances Desselle, Office of Analysis and Evaluation (WH-586), Environmental Protection Agency, 401 M Street, S.W., Washington, D.C. 20460, Telephone: (202) 426-7874.

Region I—Mr. Ted Landry, Enforcement Division, Environmental Protection Agency, J.F. Kennedy Federal Building, Boston, MA 02203, Telephone: (617) 223-5061.

Region II—Mr. Gerald DeGartano, Enforcement Division, Room 432, Environmental Protection Agency, 26 Federal Plaza, New York, NY 10007, Telephone: (212) 264-4711.

Region III—Mr. Bob Gunter, Environmental Protection Agency, Curtis Building, 3IR20, 6th and Walnut Streets, Philadelphia, PA 19106, Telephone: (215) 597-2564.

Region IV—Mr. John Hurlebaus, Grants Administrative Support Section, Environmental Protection Agency, 345 Courtland Street, N.E., Atlanta, GA 30308, Telephone: (404) 881-4491.

Region V—Mr. Arnold Leder, Water and Hazardous Material, Enforcement Branch, Environmental Protection Agency, 230 South Dearborn Street, Chicago, IL 60605, Telephone: (312) 353-2114.

Region VI—Ms. Jan Horn, Enforcement Division, Environmental Protection Agency, 1st International Building, 1201 Elm Street, Dallas, TX 75270, Telephone: (214) 729-2760.

Region VII—Mr. Paul Walker, Water Division, Environmental Protection Agency, 1735 Baltimore Avenue, Kansas City, MO 64108, Telephone: (816) 374-2725.

Region VIII—Mr. Gerald Burke, Office of Grants, Water Division, Environmental Protection Agency, 1860 Lincoln Street, Denver CO 80203, Telephone: (303) 327-4579.

Region IX—Ms. Linda Powell, Permits Branch, Enforcement Division (E-4), Environmental Protection Agency, 215 Fremont Street, San Francisco, CA 94105, Telephone: (415) 556-3450.

Region X—Mr. Danforth Bodien, Enforcement Division, Environmental Protection Agency, 1200 6th Avenue, Seattle, WA 98101, Telephone: (206) 442-1352.

Interested person may also contact the Assistant Regional Administrators for Financial Assistance in the Small Business Administration Regional offices for more details on federal loan assistance programs. For further information, write or telephone any of the following individuals:

Region I—Mr. George H. Allen, Assistant Regional Administrator for Financial Assistance, Small Business Administration, 60 Batterymarch, 10th Floor, Boston, MA 02110, Telephone: (617) 223-3891.

Region II—Mr. John Axiotakis, Assistant Regional Administrator for Financial Assistance, Small Business Administration, 26 Federal Plaza, New York, NY 10007, Telephone: (212) 264-1452.

Region III—Mr. David Malone, Assistant Regional Administrator for Financial Assistance, Small Business Administration, 231 St. Asaphs Road, West Lobby, Suite 646, Bala Cynwyd, PA 19004, Telephone: (215) 596-5908.

Region IV—Mr. Merritt Scoggins, Assistant Regional Administrator for Financial Assistance, Small Business Administration, 1375 Peachtree Street N.E., Atlanta, GA 30367, Telephone: (404) 881-2009.

Region V—Mr. Howard Bondruska, Assistant Regional Administrator for Financial Assistance, Small Business Administration, 219 South Dearborn Street, Chicago, IL 60604, Telephone: (312) 353-4534.

Region VI—Mr. Till Phillips, Assistant Regional Administrator for Financial Assistance, Small Business Administration, 1720 Regal Row, Suite 230, Dallas, TX 75202, Telephone: (214) 767-7873.

Region VII—Mr. Richard Whitley, Assistant Regional Administrator for Financial Assistance, Small Business Administration, 911 Walnut Street, 23rd Floor, Kansas City, MO 64016, Telephone: (816) 374-3210.

Region VIII—Mr. James Chuculate, Assistant Regional Administrator for Financial Assistance, Small Business Administration, 1405 Curtis Street, Executive Tower Building, 22nd Floor, Denver, CO 80202, Telephone: (303) 837-3686.

Region IX—Mr. Larry J. Wodarski, Deputy Assistant Regional Administrator for Financial Assistance, Small Business Administration, 450 Golden Gate Avenue, San Francisco, CA 94102, Telephone: (415) 556-7782.

Region X—Mr. Jack Welles, Regional Administrator, Small Business Administration, 710 2nd Avenue, Dextor Horton Bldg., 5th Floor, Seattle, WA 98104, Telephone: (206) 442-1455.

In addition to the Economic Injury Loan Program, the Small Business Investment Act, as amended by P.L. 94-305, authorizes SBA to guarantee the payments on qualified contracts entered into by eligible small businesses to acquire needed pollution facilities when the financing is provided through tax-exempt revenue or pollution control bonds. This program is open to all eligible small businesses as defined by the Small Business Administration. Bond financing with SBA's guarantee of the payments makes available long term (20-30 years), low interest (7 percent) financing to small businesses. For further details on this program write to the SBA, Pollution Control Financing Division, Office of Special Guarantees, 1815 North Lynn Street, Magazine Bldg., Rosslyn, VA 22209, (703) 235-2900.

Dated: December 31, 1980.

Douglas M. Costle,

*Administrator.*

**Appendix A—Abbreviations, Acronyms and Units Used in This Notice**

Act—The Clean Water Act.

Agency—The United States Environmental Protection Agency.

BADT—Best Available Demonstrated Technology under Sections 304(c) and 306 of the Act.

BAT (BATEA)—The Best Available Technology Economically Achievable, under Section 304(b)(2)(B) of the Act.

BCT (BCPCT)—The Best Conventional Pollutant Control Technology, under Section 304(b)(4) of the Act.

BMP—Best Management Practices under Section 304(e) of the Act..

BOD—Biochemical Oxygen Demand.

BPT (BPCTCA)—The Best Practicable Control Technology Currently Available, under Section 304(b)(1) of the Act.

CPE (BFR)—Catastrophic Precipitation Event.

CWA—The Federal Water Pollution Control Act Amendments of 1972 (33 U.S.C. 1251 et seq.), as amended by the Clean Water Act of 1977 (Pub. L. 95-217).

FWPCA—Federal Water Pollution Control Act.

NPDES Permit—A National Pollutant Discharge Elimination System permit issued under Section 402 of the Act.

NSPS—New Source Performance Standards under Section 306 of the Act.

OSM—Department of Interior, Office of Surface Mining Reclamation and Enforcement.

POTW—Publicly Owned Treatment Works.

PSES—Pretreatment Standards for Existing Sources of indirect discharges, under Section 307(b) of the Clean Water Act.

PSNS—Pretreatment Standards for New Sources of indirect discharges, under Section 307(b) and (c) of the Clean Water Act.

RCRA—Resource Conservation and Recovery Act (Pub. L. 94-580) of 1976, Amendments to Solid Waste Disposal Act.

SMCRA—Surface Mining Control and Reclamation Act of 1977 (Pub. L. 95-87, 30 U.S.C. 1201 *et seq.*).

TSS—Total Suspended Solids.

*UNITS* g/kg—grams per kilogram; gpd—gallons per day; mgd—million gallons per day; mg/l—milligram(s) per liter; ug/l microgram(s) per liter; ml/l—milliliters per liter.

**Appendix B—Priority Organics Not Detected in Treated Effluents of Screening and Verifcation Samples**

1. acenaphthene
2. acrolein
3. acrylonitrile
4. benzidine
5. carbon tetrachloride (tetrachloromethane)
6. chlorobenzene
7. 1,2,4,-trichlorobenzene
8. hexachlorobenzene
9. 1,1-dichloroethane
10. 1,1,2-trichloroethane
11. chloroethane
12. bis(chlormethyl) ether
13. bis(2-chloroethyl) ether
14. 2-chloroethyl vinyl ether (mixed)
15. 2-chloronaphthalene
16. 2,4,6-trichlorophenol
17. parachlorometa cresol
18. 2-chlorophenol
19. 1,3-dichlorobenzene
20. 2,4-dichlorophenol
21. 1,2-dichloropropane
22. 1,2-dichloropropylene (1,3-dichloropropene)
23. 2,4-dimethylphenol
24. 2,4-dinitrotoluene
25. 2,6-dinitrotoluene
26. 1,2-diphenylhydrazine
27. bis(2-chloroisopropyl) ether
28. 4-chlorophenyl phenyl ether
29. 4-bromophenyl phenyl ether
30. methyl chloride (chloromethane)
31. methyl bromide (bromomethane)
32. bromoform (tribromomethane)
33. dichlorobromomethane
34. dichlorodifluoromethane
35. chlorodibromomethane
36. hexachlorobutadiene
37. hexachlorocyclopentadiene
38. isophorone
39. nitrobenzene
40. 2-nitrophenol
41. 4-nitrophenol
42. dimethyl phthalate
43. N-nitrosodimethylamine
44. N-nitrosodiphenylamine
45. N-nitrosodi-n-propylamine
46. benzo(a)pyrene
47. 3,4-benzofluoranthene
48. benzo(k)fluoranthane(11,12-benzofluoranthene)
49. acenaphthylene
50. vinyl chloride (chloroethylene)
51. dieldrin
52. chlordane (technical mixture and metabolites)
53. 4,4'-DDE (p,p'-DDX)
54. a-endosulfan-Alpha
55. b-endosulfan-Beta
56. endosulfan sulfate
57. endrin
58. endrin aldehyde
59. PCB 1242 (Arochlor 1242)
60. PCB 1254 (Arochlor 1254)
61. PCB 1221 (Arochlor 1221)
62. PCB 1232 (Arochlor 1232)
63. PCB 1248 (Arochlor 1248)
64. PCB 1260 (Arochlor 1260)
65. PCB 1016 (Arochlor 1016)
66. toxaphene
67. 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD)

**Appendix C—Priority Organics Detected in Treated Effluents at One or Two Mines Always at Levels Below 10 μg/l**

1. 1,2-dichloroethane
2. hexachloroethane
3. 1,1,2,2-tetrachloroethane
4. 1,4-dichlorobenzene
5. 3,3'-dichlorobenzidine
6. fluoranthene
7. bis(2-chloroethoxy) methane
8. 2,4-dinitrophenol
9. 4,6-dinitro-o-cresol
10. pentachlorophenol
11. di-n-octyl phthalate
12. benzo(a)anthracene
13. chrysene
14. anthracene
15. fluorene
16. phenanthrene
17. pyrene
18. benzo(g,h,i)perylene
19. aldrin
20. 4,4'-DDT
21. 4,4'-DDD
22. heptachlor
23. heptachlor epoxide

**Appendix D—Priority Organics Detected But Present Due to Contamination of Screening and Verification Samples by Sources Other Than Those Sampled**

1. benzene
2. chloroform
3. methylene chloride
4. phenol
5. bis(2-ethylhexyl) phthalate
6. butyl benzyl phthalate
7. di-n-butyl phthalate
8. diethyl phthalate
9. toluene
10. tetrachloroethylene

**Appendix E—Priority Organics Detected But Present in Amounts Too Small To Be Effectively Reduced**

1. 1,1,1-trichloroethane
2. 1,1-dichloroethylene
3. 1,2-trans-dischloroethylene
4. ethylbenzene
5. trichlorofluoromethane
6. trichloroethylene
7. 1,2-dichlorobenzene
8. napthalene
9. dibenzo (a,h) anthracene
10. indeno (1,2,3-c,d) pyrene
11. BHC-Alpha
12. BHC-Beta
13. BHC-Gamma
14. BHC-Delta.

It is hereby proposed to revise Part 434 of Title 40 as follows:

## PART 434—COAL MINING POINT SOURCE CATEGORY BPT, BAT, BCT, LIMITATIONS AND NEW SOURCE PERFORMANCE STANDARDS

### Subpart A—General Provisions

Sec.



### Subpart B—Coal Preparation Plants and Coal Preparation Plant Associated areas

Authority: Sections 301, 304 (b), (c), (e), and (g), 306 (b) and (c), 307 (b) and (c), and 501 of the Clean Water Act (the Federal Water Pollution Control Act Amendments of 1972, as amended by the Clean Water Act of 1977), (the "Act"); 33 United States. 1311, 1314 (b), (c), (e), and (g), 1316 (b) and (c), 1317 (b) and (c), and 1361; 86 Stat. 816, Pub. L. 92-500; 91 Stat. 1567, Pub. L. 95-217.

## Subpart A—General Provisions

### § 434.10 Applicability.

This part applies to discharges from any coal mine at which the extraction of coal is taking place or is planned to be undertaken.

### § 434.11 General definitions.

(a) The term "acid or ferruginous mine drainage" means mine drainage which, before any treatment, either has a pH of less than 6.0 or a total iron concentration equal to or more than 10 mg/l.

(b) The term "active mining area" means the areas, on and beneath land, used or disturbed in activity related to the extraction, removal, or recovery of coal from its natural deposits. This term excludes coal preparation plants, coal preparation plant associated areas and post-mining areas.

(c) The term "alkaline mine drainage" means mine drainage which, before any treatment, has a pH equal to or more than 6.0 and a total iron concentration of less than 10 mg/l.

(d) The term "bond release" means the time at which the appropriate regulatory authority returns a reclamation or performance bond based upon its determination that reclamation work (including, in the case of underground mines, mine sealing and abandonment procedures) has been satisfactorily completed.

(e) The term "coal preparation plant" means a facility where coal is crushed, screened, sized, cleaned, dried, or otherwise prepared and loaded for transit to a consuming facility.

(f) The term "coal preparation plant associated areas" means the coal preparation plant yards, immediate access roads, coal refuse piles, and coal storage piles and facilities.

(g) The term "coal preparation plant water circuit" means all pipes, channels, basins, tanks, and all other structures and equipment that convey, contain, treat, or process any water that is used in coal preparation processes within a coal preparation plant.

(h) The term "mine drainage" means any drainage, and any water pumped or siphoned, from an active mining area or a post-mining area.

(i) The abbreviation "ml/l" means milliliters per liter.

(j) The term "new source coal mine" means a coal mine (excluding coal preparation plants and coal preparation plant associated areas):

(1) The construction of which is commenced after January 13, 1981; or

(2) Which is determined by the EPA Regional Administrator to constitute a "major alteration." In making this determination, the Regional Administrator shall take into account the occurrence of one or more of the following events, in connection with the mine for which the NPDES permit is being considered, after the date of proposal of applicable new source performance standards:

(i) A mine operation initiates extraction of a coal seam not previously extracted by that mine;

(ii) A mine operation discharges into a drainage area not previously affected by wastewater discharges from the mine;

(iii) A mine operation causes extensive new surface disruption;

(iv) A mine operation initiates construction of a new shaft, slope, or drift;

(v) A mine operation acquires additional land or mineral rights;

(vi) A mine operation makes significant capital investment in additional equipment or additional facilities; and

(vii) Such other factors as the Regional Administrator deems relevant.

(k) The term "post-mining area" means: (1) a reclamation area or (2) the underground workings of an underground coal mine after the extraction, removal, or recovery of coal from its natural deposit has ceased and prior to bond release.

(l) The term "reclamation area" means the surface area of a coal mine which has been returned to required contour and on which revegetation (specifically, seeding or planting) work has commenced.

(m) The term "settleable solids" is that matter measured by the volumetric method specified in the Appendix.

(n) The term "10-year, 24-hour precipitation event" means the maximum 24-hour precipitation event with a probable recurrence interval of once in ten years as defined by the National Weather Service and Technical Paper No. 40, "Rainfall Frequency Atlas of the U.S.," May 1961, or equivalent regional or rainfall probability information developed therefrom.

(o) The terms "treatment facility" and "treatment system" means all structures which contain, convey, and as necessary, chemically treat coal mine drainage, coal preparation plant process wastewater, or drainage from coal preparation plant associated areas, which remove pollutants regulated by this Part from such waters. This includes all pipes, channels, ponds, basins, tanks and all other equipment serving such structures.

## Subpart B—Coal Preparation Plants and Coal Preparation Plant Associated Areas

### § 434.20 Applicability.

The provisions of this subpart are applicable to discharges from coal preparation plants and coal preparation plant associated areas, as indicated, including discharges which are pumped, siphoned, or drained from the coal preparation plant water circuit and coal storage, refuse storage, and ancillary areas related to the cleaning or beneficiation of coal of any rank including, but not limited to, bituminous, lignite, and anthracite.

### § 434.21 [Reserved]

### § 434.22 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT).

(a) Except as provided in 40 CFR 125.30–125.32, and §§ 434.61, 434.62 and 434.63 of this part, the following limitations establish the concentration or quality of pollutants which may be discharged by any existing coal preparation plant and coal preparation plant associated areas subject to the provisions of this subpart after application of the best practicable control technology currently available if discharges from such point sources normally exhibit a pH of less than 6.0 prior to treatment:

**BPT Effluent Limitations**

[Concentration in μg/1]

| Pollutant of pollutant property | Maximum for any 1 day | Average of daily values for 30 consecutive days |
|---|---|---|
| Iron, total | 7.0 | 3.5 |
| Manganese, total | 4.0 | 2.0 |
| TSS | 70 | 35 |
| pH—Within the range of 6.0 to 9.0 at all times. | | |

(b) Except as provided in 40 CFR 125.30–125.32, and §§ 434.61 and 434.63 of this part the following limitations establish the concentration or quality of pollutants which may be discharged by any existing coal preparation plant and coal preparation plant associated areas subject to the provisions of this subpart after application of the best practicable control technology currently available if discharges from such point sources normally exhibit a pH equal to or greater than 6.0 prior to treatment:

**BPT Effluent Limitations**

[Concentration in μg/1]

| Pollutant of pollutant property | Maximum for any 1 day | Average of daily values for 30 consecutive days |
|---|---|---|
| Iron, total | 7.0 | 3.5 |
| TSS | 70 | 35 |
| pH—Within the range of 6.0 to 9.0 at all times. | | |

### § 434.23 Effluent limitations guidelines representing the degree of effluent reduction attainable by application of the best available technology economically achievable (BAT).

(a) Except as provided in 40 CFR 125.30–125.32, and §§ 434.61 and 434.63 of this part the following limitations establish the concentration or quality of pollutants which may be discharged by any existing coal preparation plant and coal preparation plant associated areas subject to the provisions of this subpart after application of the best available technology economically achievable if discharges from such point sources normally exhibit a pH equal to or greater than 6.0 prior to treatment:

**BPT Effluent Limitations**

[Concentration in μg/1]

| Pollutant of pollutant property | Maximum for any 1 day | Average of daily values for 30 consecutive days |
|---|---|---|
| Iron, total | 7.0 | 3.5 |
| Manganese, total | 4.0 | 2.0 |

(b) Except as provided in 40 CFR 125.30–125.32, and §§ 434.61 and 434.63 of this part the following limitations establish the concentration or quality of pollutants which may be discharged by any existing coal preparation plant and coal preparation plant associated areas subject to the provisions of this subpart after application of the best available technology economically achievable if discharges from such point sources normally exhibit a pH equal to or greater than 6.0 prior to treatment:

**BPT Effluent Limitations**

[Concentration in μg/1]

| Pollutant of pollutant property | Maximum for any 1 day | Average of daily values for 30 consecutive days |
|---|---|---|
| Iron, total | 7.0 | 3.5 |

### § 434.24 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT).

(a) Except as provided in 40 CFR 125.30–125.32, and §§ 434.61, 434.62 (in the case of discharges normally exhibiting a pH of less than 6.0 prior to treatment), and § 434.63, the following limitations establish the concentration or quality of pollutants which may be discharged by any existing coal preparation plant and coal preparation plant associated areas subject to the provisions of this subpart after application of the best conventional pollutant control technology (BCT):

**BPT Effluent Limitations**

[Concentration in μg/1]

| Pollutant of pollutant property | Maximum for any 1 day | Average of daily values for 30 consecutive days |
|---|---|---|
| TSS | 70 | 35 |
| pH—Within the range 6.0 to 9.0 at all times. | | |

### § 434.25 New source performance standards (NSPS).

The following new source performance standards (NSPS) shall be achieved by any new source coal preparation plant and coal preparation plant associated areas, as indicated:

(a) For new source coal preparation plants, there shall be no discharge of process wastewater pollutants from the coal preparation plant water circuit to surface waters.

(b) Except as provided in §§ 434.61, 434.62 and 434.63 of this part, the following new sources performance standards shall apply for discharges from new source coal preparation plant associated areas:

**NSPS Effluent Limitations**

[Concentration in μg/1]

| Pollutant of pollutant property | Maximum for any 1 day | Average of daily values for 30 consecutive days |
|---|---|---|
| Iron, total | 7.0 | 3.5 |
| Manganese | 4.0 | 2.0 |
| TSS | 70 | 35 |
| pH—Within the range 6.0 to 9.0 at all times. | | |

## Subpart C—Acid or Ferruginous Mine Drainage

### § 434.30 Applicability; description of the acid or ferruginous mine drainage subcategroy.

The provisions of this subpart are applicable to acid or ferruginous mine drainage from an active mining area resulting from the mining of coal of any rank including, but not limited to, bituminous, lignite, and anthracite.

### § 434.31 [Reserved]

### § 434.32 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT).

(a) Except as provided in 40 CFR 125.30–125.32, and §§ 434.61, 434.62 and, with respect to mine drainage from surface areas of a coal mine but not drainage from the underground workings of underground mines, § 434.63 of this part, the following limitations establish the concentration or quality of pollutants 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:

**BPT Effluent Limitations**

[Concentration in μ/l]

| Pollutant or pollutant property | Maximum for any 1 day | Average of daily values for 30 consecutive days |
|---|---|---|
| Iron, total | 7.0 | 3.5 |
| Manganese, total | 4.0 | 2.0 |
| TSS | 70 | 35 |
| pH—Within the range 6.0 to 9.0 at all times. | | |

### § 434.33 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology currently available (BAT).

(a) Except as provided in 40 CFR 125.30–125.32, and §§ 434.61, 434.62 and, with respect to mine drainage from surface areas of a coal mine but not drainage from the underground workings of underground mines, § 434.63 of this part, the following limitations establish the concentration or quality of pollutants which may be discharged by a point source subject to the provisions of this subpart after application of the best available technology economically achievable:

**BAT Effluent Limitations**

[Concentration in μg/l]

| Pollutant or pollutant property | Maximum for any 1 day | Average of daily values for 30 consecutive days |
|---|---|---|
| Iron, total | 7.0 | 3.5 |
| Manganese, total | 4.0 | 2.0 |

### § 434.34 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT).

(a) Except as provided in 40 CFR 125.30–125.32, and §§ 434.61, 434.62 and, with respect to mine drainage from surface areas of a coal mine but not drainage from the underground workings of underground mines, § 434.63 of this part, the following limitations establish the concentration or quality of pollutants which may be discharged by a point source subject to the provisions of this subpart after application of the best conventional pollutant control technology (BCT):

**BCT Effluent Limitations**

[Concentration in μg/l]

| Pollutant or pollutant property | Maximum for any 1 day | Average of daily values for 30 consecutive days |
|---|---|---|
| TSS | 70 | 35 |
| pH—Within the range 6.0 to 9.0 at all times. | | |

### § 434.35 New source performance standards (NSPS).

(a) Except as provided in §§ 434.61, 434.62, and with respect to mine drainage from surface areas of a coal mine but not drainage from the underground workings of underground mines, § 434.63 of this part, the following new source performance standards shall be achieved for any discharge from a new source subject to this subpart:

**NSPS Effluent Limitations**

[Concentration in μg/l]

| Pollutant or pollutant property | Maximum for any 1 day | Average of daily values for 30 consecutive days |
|---|---|---|
| Iron, total | 7.0 | 3.5 |
| Manganese, total | 4.0 | 2.0 |
| TSS | 70 | 35 |
| pH—Within the range 6.0 to 9.0 at all times. | | |

## Subpart D—Alkaline Mine Drainage

### § 434.40 Applicability; description of the alkaline mine drainage subcategory.

The provisions of this subpart are applicable to alkaline mine drainage from an active mining area resulting from the mining of coal of any rank including, but not limited to, bituminous, lignite, and anthracite.

### § 434.41 [Reserved]

### § 434.32 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT).

(a) Except as provided in 40 CFR 125.30–125.32, and §§ 434.61 and, with respect to mine drainage from surface areas of a coal mine but not drainage from the underground workings of underground mines, § 434.63 of this part, the following limitations establish the concentration or quality of pollutants 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:

**BPT Effluent Limitations**

[Concentration in μg/l]

| Pollutant or pollutant property | Maximum for any 1 day | Average of daily values for 30 consecutive days |
|---|---|---|
| Iron, total | 7.0 | 3.5 |
| TSS | 70 | 35 |
| pH—Within the range 6.0 to 9.0 at all times. | | |

### § 434.43 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology currently available (BAT).

(a) Except as provided in 40 CFR 125.30–125.32, § 434.61 and, with respect to mine drainage from surface areas of a coal mine but not drainage from the underground workings of underground mines, § 434.63 of this part, the following limitations establish the concentration or quality of pollutants which may be discharged by a point source subject to the provisions of this subpart after application of the best available technology economically achievable:

**BAT Effluent Limitations**

[Concentration in μg/l]

| Pollutant or pollutant property | Maximum for any 1 day | Average of daily values for 30 consecutive days |
|---|---|---|
| Iron, total | 7.0 | 3.5 |

**§ 434.44 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT).**

(a) Except as provided in 40 CFR 125.30–125.32, § 434.61 and, with respect to mine drainage from surface areas of a coal mine but not drainage from the underground workings of underground mines, § 434.63 of this part, the following limitations establish the concentration or quality of pollutants which may be discharged by a point source subject to the provisions of this subpart after application of the best conventional pollutant control technology (BCT):

**BCT Effluent Limitations**

[Concentration in μg/l]

| Pollutant or pollutant property | Maximum for any 1 day | Average of daily values for 30 consecutive days |
|---|---|---|
| TSS | 70 | 35 |
| pH—Within the range 6.0 to 9.0 at all times. | | |

**§ 434.45 New source performance standards (NSPS).**

(a) Except as provided in § 434.61 and, with respect to mine drainage from surface areas of a coal mine but not drainage from the underground workings of underground mines, § 434.63 of this part, the following new source performance standards shall be achieved for any discharge from a new source subject to this subpart:

**BCT Effluent Limitations**

[Concentration in μg/l]

| Pollutant or pollutant property | Maximum for any 1 day | Average of daily values for 30 consecutive days |
|---|---|---|
| Iron, total | 7.0 | 3.5 |
| TSS | 70 | 35 |
| pH—Within the range 6.0 to 9.0 at all times. | | |

## Subpart E—Post-Mining Areas

**§ 434.50 Applicability.**

The provisions of this subpart are applicable to discharges from post-mining areas.

**§ 434.51 [Reserved]**

**§ 434.52 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT).**

(a) *Reclamation Areas.* The limitations in this subsection apply to discharges from reclamation areas until bond release.

(1) Except as provided in 40 CFR 125.30–125.32, and § 434.61 of this part, the following limitations establish the concentration or quality of pollutants which may be discharged by a point source subject to the provisions of this subsection after application of the best practicable control technology available:

**BPT Effluent Limitations**

| Pollutant or pollutant property | Maximum for any 1 day | Average of daily values for 30 consecutive days |
|---|---|---|
| Settleable solids | 0.5 ml/l | |
| pH—Within the range 6.0 to 9.0 at all times. | | |

(2)(i) Any overflow, increase in volume of a discharge or discharge from a bypass system caused by precipitation within any 24-hour period greater than the 10-year, 24-hour precipitation event (or snowmelt of equivalent volume) shall comply with the following limitations instead of the limitations set forth in paragraph (a)(1):

**BPT Effluent Limitations**

| Pollutant or pollutant property | Maximum for any 1 day | Average of daily values for 30 consecutive days |
|---|---|---|
| pH—Within the range 6.0 to 9.0 at all times. | | |

(ii) The alternate limitations provided in paragraph (a)(2)(i) shall apply only if:

(A) The treatment facility is designed, constructed, operated and maintained to contain the volume of water which would drain into the treatment facility during a 10-year, 24-hour or larger precipitation event (or snowmelt or equivalent volume);

(B) The treatment facility is designed, constructed, operated and maintained to achieve the effluent limitations set forth in paragraph (a)(1) at all times except during precipitation events greater than the 10-year, 24-hour precipitation event (or snowmelt of equivalent volume); and

(C) The pH in the final effluent remains in the range of 6.0 to 9.0 during the precipitation event (or snowmelt). The operator shall have the burden of proof that the preceding conditions have been met in order qualify for the alternate limitations in paragraph (a)(2)(i).

(b) *Underground Mine Drainage.* The limitations in this subsection apply to discharges from the underground workings of underground mines until bond release.

(1) Except as provided in 40 CFR 125.30–125.32, and §§ 434.61 and 434.62 of this part, the following limitations establish the concentration or quality of pollutants in acid or ferruginous mine drainage subject to the provisions of this subsection after application of the best practicable control technology currently available:

**BPT Effluent Limitations**

[Concentration in μg/l]

| Pollutant or pollutant property | Maximum for any 1 day | Average of daily values for 30 consecutive days |
|---|---|---|
| Iron, total | 7.0 | 3.5 |
| Manganese, total | 4.0 | 2.0 |
| TSS | 70 | 35 |
| pH—Within the range 6.0 to 9.0 at all times. | | |

(2) Except as provided in 40 CFR 125.30–125.32, and § 434.61 of this part, the following limitations establish the concentration or quality of pollutants in alkaline mine drainage subject to the provisions of this subsection after application of the best practicable control technology currently available:

**BPT Effluent Limitations**

[Concentration in μg/l]

| Pollutant or pollutant property | Maximum for any 1 day | Average of daily values for 30 consecutive days |
|---|---|---|
| Iron, total | 7.0 | 3.5 |
| TSS | 70 | 35 |
| pH—Within the range 6.0 to 9.0 at all times. | | |

**§ 434.53 Effluent limitations guidelines representing the degree of effluent reduction attainable by application of the best available technology economically achievable (BAT).**

(a) *Reclamation Areas.* The limitations of this subsection apply to discharges from reclamation areas until bond release.

(1) Except as provided in 40 CFR 125.30–125.32, and § 434.61 of this part, the following limitations establish the concentration or quality of pollutants which may be discharged by a point source subject to the provisions of this subsection after application of the best available technology economically achievable:

**BAT Effluent Limitations**

| Pollutant or pollutant property | Maximum for any 1 day (μl/l) | Average of daily values for 30 consecutive days |
|---|---|---|
| Settleable solids | 0.5 | |
| pH—Within the range 6.0 to 9.0 at all times. | | |

(2)(i) Any overflow, increase in volume of a discharge from a bypass system caused by precipitation within any 24-hour period greater than the 10-year, 24-hour precipitation event (or snowmelt of equivalent volume) shall comply with the following limitations instead of the limitations set forth in paragraph (a)(1) of this section:

**BAT Effluent Limitations**

| Pollutant or pollutant property | Maximum for any 1 day | Average of daily values for 30 consecutive days |
|---|---|---|
| pH—Within the range 6.0 to 9.0 at all times. | | |

(ii) The alternate limitations provided in paragraph (a)(2)(i) shall apply only if:

(A) The treatment facility is designed, constructed, operated and maintained to contain the volume of water which would drain into the treatment facility during a 10-year, 24-hour or larger precipitation event (or snowmelt of equivalent volume);

(B) The treatment facility is designed, constructed, operated and maintained to achieve the effluent limitations set forth in paragraph (a)(1) at all times except during precipitation events greater than the 10-year, 24-hour precipitation event (or snowmelt of equivalent volume); and

(C) The pH in the final effluent remains in the range of 6.0 to 9.0 during the precipitation event (or snowmelt). The operator shall have the burden of proof that the preceding conditions have been met in order to qualify for the alternate limitations in (a)(2)(i).

(b) *Underground Mine Drainage.* The limitations in this subsection apply to discharges from the underground workings of underground mines until bond release.

(1) Except as provided in 40 CFR 125.30–125.32, and §§ 434.61 and 434.62 of this part, the following limitations establish the concentration or quality of pollutants in acid or ferruginous mine drainage subject to the provisions of this subsection after application of the best available technology economically achievable:

**BAT Effluent Limitations**

[Concentration in μg/l]

| Pollutant or pollutant property | Maximum for any 1 day | Average of ge a13ja2.030 daily values for 30 consecutive days |
|---|---|---|
| Iron, total | 7.0 | 3.5 |
| Manganese, total | 4.0 | 2.0 |

(2) Except as provided in 40 CFR 125.30–125.32, and § 434.61 of this part, the following limitations establish the concentration or quality of pollutants in alkaline mine drainage subject to the provisions of this subsection after application of the best available technology economically achievable:

**BAT Effluent Limitations**

[Concentration in μg/l]

| Pollutant or pollutant property | Maximum for any 1 day | Average of daily values for 30 consecutive days |
|---|---|---|
| Iron, total | 7.0 | 3.5 |

**§ 434.54 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT).**

(a) *Reclamation Areas.* The limitations of this subsection apply to discharges from reclamation areas through bond release.

(1) Except as provided in 40 CFR 125.30–125.32, and § 434.61 of this part, the following limitations establish the concentration or quality of pollutants which may be discharged by a point source subject to the provisions of this subsection after application of the best conventional pollutant control technology (BCT):

**BCT Effluent Limitations**

| Pollutant or pollutant property | Maximum for any 1 day | Average of daily values for 30 consecutive days |
|---|---|---|
| pH—Within the range 6.0 to 9.0 at all times. | | |

(b) *Underground Mine Drainage.* The limitations of this subsection apply to discharges from the underground working of underground mines until bond release.

(1) Except as provided in 40 CFR 125.30–125.32, and §§ 434.61 and 434.62 of this part, the following limitations establish the concentration or quality of pollutants which may be discharged by a point source subject to the provisions of this subsection after application of the best conventional pollutant control technology:

**BCT Effluent Limitations**

Concentration in μg/1

| Pollutant or pollutant property | Maximum for any 1 day | Average of daily values for 30 consecutive days |
|---|---|---|
| TSS | 70.0 | 35.0 |
| pH—Within the range 6.0 to 9.0 at all times. | | |

**§ 434.55 New source performance standards (NSPS).**

The following new source performance standards shall apply to the post-mining areas of all new source coal mines:

(a) *Reclamation Areas.* The standards of this subsection apply to discharges from reclamation areas at new source coal mines until bond release.

(1) Except as provided in § 434.61 of this part, the following new source performance standards shall be achieved for a discharge subject to the provisions of this subsection:

**NSPS Effluent Limitations**

| Pollutant or pollutant property | Maximum for any 1 day (ml/l) | Average of daily values for 30 consecutive days |
|---|---|---|
| Settleable solids | 0.5 | |
| pH—Within the range 6.0 to 9.0 at all times. | | |

(2)(i) Any overflow, increase in volume of a discharge or discharge from a bypass system caused by precipitation within a 24-hour period greater than the 10-year, 24-hour precipitation event (or snowmelt of equivalent volume) shall comply with the following limitations instead of the limitations set forth in paragraph (a)(1):

**NSPS Effluent Limitations**

| Pollutant or pollutant property | Maximum for any 1 day | Average of daily values for 30 consecutive days |
|---|---|---|
| pH—Within the range 6.0 to 9.0 at all times. | | |

(ii) The alternate limitations provided in paragraph (a)(2)(i) shall apply only if:

(A) The treatment facility is designed, constructed, operated and maintained to contain the volume of water which would drain into the treatment facility during a 10-year, 24-hour or larger precipitation event (or snowmelt of equivalent volume);

(B) The treatment facility is designed, constructed, operated and maintained to achieve the effluent limitations set forth in paragraph (a)(1) at all times except during precipitation events greater than the 10-year, 24-hour precipitation event (or snowmelt of equivalent volume); and

(C) The pH in the final effluent remains in the range of 6.0 to 9.0 during the precipitation event (or snowmelt).

The operator shall have the burden of proof that the preceding conditions have been met in order to qualify for the alternate limitations in paragraph (a)(2)(i).

(b) Underground Mine Drainage

The standards in this subsection apply to discharges from the underground workings of new source underground mines until bond release.

(1) Except as provided in §§ 434.61 and 434.62 of this part, the following new source performance standards shall be achieved for the discharge of any acid or ferruginous mine drainage subject to this subsection:

**NSPS Effluent Limitations**

Concentration in μg/1

| Pollutant or pollutant property | Maximum for any 1 day | Average of daily values for 30 consecutive days |
|---|---|---|
| Iron, total | 7.0 | 3.5 |
| Manganese, total | 4.0 | 2.0 |
| TSS | 70 | 35 |
| pH—Within the range 6.0 to 9.0 at all times. | | |

(2) Except as provided in § 434.61 of this part, the following new source performance standards shall be achieved for the discharge of any alkaline mine drainage subject to this subsection:

**NSPS Effluent Limitations**

Concentration in μg/1

| Pollutant or pollutant property | Maximum for any 1 day | Average of daily values for 30 consecutive days |
|---|---|---|
| Iron, total | 7.0 | 3.5 |
| TSS | 70 | 35 |
| pH—Within the range 6.0 to 9.0 at all times. | | |

## Subpart F—Miscellaneous Provisions

### § 434.60 Applicability.

The provisions of this subpart F apply to this Part 434 as specified in subparts B, C, D and E.

### § 434.61 Commingling of waste streams.

Where waste streams from any facility covered by this Part are combined for treatment or discharge with waste streams from another facility, the concentration of each pollutant in the combined discharge may not exceed the most stringent limitations for that pollutant applicable to any component waste stream of the discharge.

### § 434.62 Alternate effluent limitation for pH.

Where the application of neutralization and sedimentation treatment technology results in inability to comply with the otherwise applicable manganese limitations, the permit issuer may allow the pH level in the final effluent to exceed 9.0 to a small extent in order that the manganese limitations can be achieved.

### § 434.63 Effluent limitations during precipitation events.

(a) Any overflow, increase in volume of a discharge or discharge from a bypass system caused by precipitation within any 24-hour period less than or equal to the 10-year, 24-hour precipitation event (or snowmelt of equivalent volume) shall comply with the following limitations instead of the otherwise applicable limitations:

**Effluent Limitations During Precipitation**

| Pollutant or pollutant property | Maximum for any 1 day (ml/l) | Average of daily values for 30 consecutive days |
|---|---|---|
| Settleable solids | 0.5 | |
| pH—Within the range of 6.0 to 9.0 at all times. | | |

(b) Any overflow, increase in volume of a discharge or discharge from a bypass system caused by precipitation within any 24-hour period greater than the 10-year, 24-hour precipitation event (or snowmelt of equivalent volume) shall comply with the following limitations instead of the otherwise applicable limitations:

**Effluent Limitations During Precipitation**

| Pollutant or pollutant property | Maximum for any 1 day | Average of daily values for 30 consecutive days |
|---|---|---|
| pH—Within the range of 6.0 to 9.0 at all times. | | |

(c) The alternate limitations provided in subsections (a) and (b) shall apply only if:

(1) The treatment facility is designed, constructed, operated and maintained to contain at a minimum the volume of water which would drain into the treatment facility during the 10-year, 24-hour precipitation event (or snowmelt of equivalent volume);

(2) The treatment facility is designed, constructed, operated and maintained to consistently achieve the effluent limitations set forth in subsections (a) and (b) during periods of no precipitation (or snowmelt); and

(3) The pH in the final effluent remains in the range of 6.0 to 9.0 during the precipitation event (or snowmelt).

The operator shall have the burden of proof that the preceding conditions have been met in order to qualify for the alternate limitations in subsections (a) and (b).

### Appendix—Determination of Settleable Solids

The following procedure is used to determine settleable solids:

Fill an Imhoff cone to the one-liter mark with a thoroughly mixed sample. Allow to settle undisturbed for 45 minutes. Gently stir along the inside surface of the cone with a stirring rod. Allow to settle undisturbed for 15 minutes longer. Record the volume of settled material in the cone as milliliters per liter. Where a separation of settleable and floating materials occurs, do not include the floating material in the reading.

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