

**40 CFR Part 434**

[FRL 1381-4]

**Coal Mining Point Source Category Effluent Limitations Guidelines for Existing Sources and Standards of Performance for New Sources****AGENCY:** Environmental Protection Agency.**ACTION:** Final rules.

**SUMMARY:** These regulations establish an exemption from otherwise applicable effluent limitations guidelines and new source performance standards for the coal mining point source category. The exemption applies to increases in the volume of discharges, overflows and discharges from by-pass systems, caused by precipitation or snowmelt, from facilities meeting the criteria set forth in the exemption.

**EFFECTIVE DATE:** December 28, 1979.

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**SUPPLEMENTARY INFORMATION:****Background**

On April 28, 1977, EPA promulgated final effluent limitations guidelines, based on best practicable control technology currently available (BPT) for existing sources in the coal mining point source category. 42 FR 46932. These regulations included the following exemption from otherwise applicable requirements:

Any untreated overflow, increase in volume of a point source discharge, or discharge from a by-pass system from facilities designed, constructed and maintained to contain or treat the discharges from the facilities and areas covered by this subpart which would result from a 10-year 24-hour precipitation event, shall not be subject to the limitations set forth in paragraph (a) of this section. 40 CFR 434.22(c), 434.32(b), and 434.42(b).

Thereafter, on January 12, 1979, the Agency promulgated new source performance standards (NSPS) applicable to new sources in the coal mining point source category. 44 FR 2588. These regulations contained a storm exemption which differed from the BPT exemption. The NSPS exemption provided:

*Upon satisfactory demonstration by the discharger, any overflow, increase in volume of a discharge, or discharge from a by-pass system, resulting from a 10-year/24-hour or larger precipitation event or from a snow melt of equivalent volume, from facilities designed, constructed, and maintained to contain or treat the volume of water which*

would result from a 10-year/24-hour precipitation event, shall not be subject to the limitations set forth in paragraph (a) of this section. 40 CFR 434.25(b), 434.35(b), and 434.45(b). (emphasis added).

As the underscored language indicates, the NSPS exemption differed from the BPT exemption in that (1) the burden of proof was placed on the operator to demonstrate that the preconditions to an exemption had been met, and (2) an exemption could only be granted if a 10-year/24-hour or larger precipitation event (or snowmelt of equivalent volume) actually occurred. In contrast, the BPT storm exemption required only that the treatment facility be designed, constructed, and maintained to contain or treat a given volume of water; there was no requirement that a precipitation event (or snowmelt) of a given magnitude occur.

As stated in the preamble to the NSPS regulations, the Agency had not viewed these two provisions as substantially different. Therefore, the Agency announced that the BPT regulations would be amended to conform to the NSPS storm exemption provision. 44 FR at 2588. Accordingly, on April 2, 1979, EPA amended the BPT storm exemption provisions. 44 FR 19193. As stated in the preamble to the BPT amendment, the Agency also took that action to make its regulations consistent with regulations promulgated by the Department of the Interior, through the Office of Surface Mining (OSM), pursuant to the Surface Mining and Reclamation Act of 1977 (SMCRA), Pub. L. 95-87.

Subsequent to these actions, the Agency received substantial criticism of the NSPS and revised BPT storm exemption provisions. The National Coal Association (NCA) filed a petition for review in the United States Court of Appeals for the Fourth Circuit challenging the BPT revision, and filed a similar petition in the Third Circuit challenging the NSPS storm exemption. In addition, the NCA and American Mining Congress (AMC) have filed a petition for review in the District Court for the District of Columbia challenging, among other things, the OSM's storm exemption provision. They have also directly petitioned the OSM requesting it, among other things, to reconsider its storm exemption.

Industry claims that, regardless of EPA's original intent, there is a vast difference between granting relief to a facility designed, constructed and maintained to contain or treat the volume of water that would result from a 10-year 24-hour precipitation event, as opposed to requiring, in addition, that specific effluent limitations be achieved

during all storm events short of the 10-year 24-hour event. It has argued that the Agency's data supporting the BPT and NSPS limitations is based on "average" (i.e., non-storm) flow conditions, and provides no support for the requirement that the limitations be attained during all storms smaller than a 10-year 24-hour storm.

In order to air these issues and develop a more fully informed administrative record, on July 6, 1979, the Agency initiated a new rulemaking proceeding, and suspended that portion of the exemptions which required that a 10-year 24-hour or larger precipitation event (or equivalent snowmelt) actually occur. 44 FR 39391. Concurrently, EPA established a two-stage public comment process. First, it solicited comments for thirty days on the general issues posed by the various storm provisions, and particularly solicited alternative suggestions. In addition, the Agency announced that it was incorporating into its record certain materials cited and discussed in the preamble to OSM's regulations regarding this issue, and solicited comments on that material as well.

Subsequently, on August 14, 1979, the Agency circulated and made available for public comment two new technical reports concerning this issue. 44 FR 47595. These reports were "Evaluation of Performance Capability of Surface Mine Sediment Basins," prepared by Skelly and Loy, and "Evaluation of Sedimentation Pond Design Relative to Capacity and Effluent Discharge," by D'Appolonia Consulting Engineers, Inc. At the request of several persons, the Agency extended the comment period on these studies to October 19, 1979. 44 FR 55223 (September 25, 1979). As a result of that extension and the need to adequately address the issues and comments, the Agency extended this rulemaking to December 21, 1979. 44 FR 64082 (November 6, 1979). The regulations promulgated today are based on the record developed in the above rulemaking process and the previous rulemaking proceedings concerning the Agency's BPT and NSPS regulations.

The legal authority for these regulations include sections 306, 301, and 304 of the Clean Water Act, as amended, 33 U.S.C. 1316, 1311, and 1314, and is discussed in detail in the preambles to EPA's BPT and NSPS regulations.

**Summary and Basis of Regulations; Treatment Technology and the Need for a Storm Exemption**

The water pollution problems and treatment technologies prevalent in coal

mining and processing operations are discussed in detail in EPA's "Development Document for Interim Final Effluent Limitations Guidelines and New Source Performance Standards" (May, 1976), previously made available for public comment, and in the preambles to the Agency's BPT and NSPS regulations. The following discussion provides a summary of that material and the supplemental reports and comments received by the Agency since July 6, 1979.

Process waste waters generated from coal preparation plants include fine coal and mineral particles such as clays, which may remain suspended in the waste water and cause serious pollution problems for receiving waters. Water is not generally used in, and in fact interferes with, coal mining operations. Water enters surface and underground mines through precipitation, ground water infiltration and surface runoff, and can become polluted by contacting materials in the coal, overburden materials and mine bottom. Water which enters mining areas is generally pumped out and discharged after treatment to receiving waters. Management of mine drainage is an integral part of mine planning and engineering.

Water which carries mining-related pollutants may cause serious environmental harm if discharged directly to streams and rivers. Of primary concern are solids; mining operations, particularly surface mining operations, frequently generate large volumes of sediment, which may be washed away by water passing through the mine.

The elementary technique for removing suspended solids from mine drainage and preparation plant process waste water involves the use of a sediment basin. The polluted water is diverted to one or a series of ponds, where natural gravitational settling results in removal of solids. The clarified water is then decanted and discharged. In addition, raw mine drainage in some areas of the country and raw process waste water may be highly acidic or contain unacceptable levels of metals, which may require pH adjustment and chemical precipitation, primarily by using lime, in conjunction with removal of suspended solids. In addition, many facilities recycle all or part of their preparation plant process waste water.

A sediment pond operates on the principle that as the sediment loaded water passes through the pond, the solid particles will settle to the bottom and be trapped. The particle will accelerate vertically until the friction with the fluid

is approximately equal to the impelling force, at which time the particle will reach a constant velocity known as the settling velocity ( $V_s$ ). Settling velocity is a function of the density, size and shape of the particle and viscosity of the fluid, as defined by Stoke's Law.

The size of a particle greatly affects its settling velocity. For example, whereas a 10 mm particle requires 0.3 seconds to settle one foot, a particle of .001 mm requires 35 hours to settle the same distance (Hill, 1976). Thus, in designing and sizing a sediment pond, the minimum particle size to be removed is critical. The basin must be designed so that all particles having a settling velocity equal to  $V_s$  will be detained in the pond long enough to settle. The basic equation can be expressed as:  $V_s = Q/A$  where A is the surface area of the pond ( $m^2$ ) and Q is the overflow rate or hydraulic load on the pond ( $m^3/sec$ ). (Hill, 1976).

Thus, in order to meet a specific TSS effluent quality, the pond will have to be constructed and operated to detain sediment-laden water long enough to settle all particles of a specific size (and larger). This "detention time" is a critical factor in sediment pond efficiency and effluent quality, and is a function primarily of the pond surface area and flow rate into the pond.

The effectiveness of a given sediment pond will depend upon the specific design features and practices employed to optimize detention time. For example, the pond should be designed and operated to maximize the opportunity for quiescent settling of solids; minimize turbulence which can stir up solids off the bottom of the pond; reduce the potential impacts of climatological factors such as wind; and minimize the potential for "short-circuiting"—that is, the condition where influent to the pond may move rapidly to the discharge point without being detained in the pond long enough to permit optimal settling of solids.

Further, the pond must be of a large enough capacity to handle the mine drainage which can be expected to flow into it from the relevant drainage area. The location of a given pond is thus also an important factor, since large volumes of sediment-bearing storm runoff can inundate a well-designed facility and substantially diminish the pond's effectiveness. However, the location of the pond will often be constrained by topographical factors; particularly (but not solely) in the steep-sloped terrain of Appalachia, a sediment pond may have to be located in valleys or ravines which collect large volumes of sediment-laden drainage during even routine storms.

Consequently, the Agency has always recognized the need for relief from BPT and NSPS requirements during some storm conditions. The original BPT provision gave relief if the operator experienced an overflow, increase in volume of a discharge or discharge from a bypass system caused by any precipitation event, if the operator had designed, constructed, and maintained the facility to contain or treat a given volume of water—the volume which would result from a 10-year 24-hour storm. However, the issue raised by the NSPS and revised BPT storm exemptions is whether sufficient information exists to require, in addition, that a storm event of a particular magnitude occur as an additional prerequisite to an exemption.

As the Skelly and Loy report indicates, and as several public comments and other record material confirm, sediment pond efficiency during storm events is, to a large extent, dependent on site-specific factors. The inflow hydrograph (i.e., the volume of water delivered to a pond at any given moment during or immediately after a storm) of a given storm event, and the volume and concentration of sediment delivered, will depend in each case on, among other things, the soil erodibility, length and steepness of the terrain, and cover and management practices employed at a given watershed.

Moreover, the specific total suspended solids concentration in the effluent of a given sediment pond will depend on the particle size distribution of the solids delivered to the pond. As the Skelly and Loy study demonstrates, theoretical detention times in excess of 24 hours may not be sufficient to permit settling of fine, colloidal solids. Thus, as that study shows, even if all of the larger solids settle, TSS effluent concentrations can vary widely depending upon the amounts of fine material present in the influent. The particle size distribution of the sediment delivered at a particular site is thus a critical factor, largely beyond the control of the operator, affecting effluent quality. This distribution will vary not only from site to site for a given storm event, but at the same site during the course of that storm.

It is therefore an extremely difficult task to determine a particular magnitude storm event during which the BPT and NSPS effluent limitations can be achieved on a generic basis. Although the record contains some data demonstrating compliance during storms, these data do not provide a systematic basis to impose any

particular storm event as the generic test for obtaining an exemption.

The Agency is now in the process of remedying this information gap. In cooperation with the National Coal Association and its member companies, EPA is engaged in a monitoring program at approximately 12 representative surface coal mines across the country. As part of this program, the participating companies are required to take influent and effluent samples during and after storm events. The Agency expects that this information will provide a systematic basis to determine (1) during which storms the BPT and NSPS requirements can be met, and (2) if those requirements cannot be met during some storms, what limitations on settleable solids (generally recognized as 20 microns or larger) may be reasonable. In addition, the Agency recognizes that removal of the finer materials may be possible with the use of chemical flocculants or other treatment. As the Agency has stated previously, such treatment has not generally been in use for coal mine drainage in the past, and hence the BPT effluent limitations guidelines and new source performance standards were not based on flocculation. However, as part of its ongoing efforts to promulgate BAT/BCT regulations, the Agency is examining the feasibility and treatment potential of flocculants, and the extent to which their use may bear on the storm exemption issue. It is expected that the Agency will propose BAT, BCT, and revised NSPS regulations for this industrial category in the spring of 1980. At that time, the Agency may also propose a revised storm provision, based upon the results of the monitoring program previously discussed.

However, until these empirical data are collected and reviewed, the Agency believes it appropriate to utilize the results of the Skelly and Loy report. Skelly and Loy utilized a computer model known as DEPOSITS (Deposition Performance of Sediment in Trap Structures), developed by the University of Kentucky, to predict the effluent quality which would result from sediment ponds designed according to OSM's design criteria at six representative coal mines in Appalachia during 10-year, 5-year, and 2-year 24-hour storm events. During the 5-year and 10-year events, all ponds modeled fail to meet the BPT and NSPS requirements for total suspended solids (TSS) by a large margin. During the 2-year storm event, the model predicts that there will be no TSS in the effluent. This is due to the model's assumption of "plug flow"—that is, it assumes that water is

discharged on a "first in, first out" basis. As a result, the DEPOSITS model predicts that a 2-year storm will merely displace the standing pool of water previously in the pond, which is assumed to be perfectly clear and free of TSS. In the real world, of course, ponds do not operate on a "plug flow" basis, and any standing pool of water would not be free of TSS. There is no record basis to assume that properly operated sediment ponds can meet the BPT or NSPS requirements on a generic basis during a 2-year 24-hour storm.

Several factors corroborate the Agency's judgment to rely on the Skelly and Loy study until sufficient empirical data are collected. First, it corroborates industry's claims that, in practice, attainment of the effluent limitations during certain storm events may be difficult or impossible. Second, the comments confirm that the DEPOSITS model is a state-of-the-art technique. Third, no commenter claimed that the effluents discharged were unrealistically "worst case" results. On the contrary, several commenters confirmed that, in several critical respects, the assumptions employed lead to unrealistically ideal pond performance, and *underestimate* the TSS effluent concentrations which would result. For example, the model assumes that the pond exhibits no short circuiting. Further, it was assumed that the ponds had been recently cleaned of all sediment and the full sediment storage volume was available. The "plug flow" concept also idealizes pond performance.

Although several commenters criticized other aspects of the Skelly and Loy study—for example, the assumptions regarding particle size distributions and the use of the Modified Universal Soil Loss Equation to compute the inflow hydrograph and sediment delivery as inputs to DEPOSITS—the Agency is satisfied that the assumptions and methodologies employed were as reasonable, if not more reasonable, than the suggested alternatives. Further, if these commenters' suggestions had been used, they would only have served to make TSS effluent concentrations higher, and thus do not affect Skelly and Loy's central conclusions that the ponds cannot meet the BPT and NSPS requirements during storm events.

Thus, based on the information presently available to the Agency, EPA believes that the need for a storm exemption is clear, and that there is no reasonable way, at this time, to tie such an exemption to a storm of any particular magnitude.

## Western Mines

Several commenters noted that the Skelly and Loy study focused exclusively on the Appalachian region, and therefore provide no basis for establishing an exemption for western coal mines. While it is true that topographical constraints may be more prevalent in Appalachia, other commenters have previously noted that some western mines are situated in topography similar to eastern coal fields. See preamble to NSPS regulations, 44 FR 2588. In addition, as commenters have also pointed out, snowmelt may pose severe problems in the west. Therefore, there is no basis at this time upon which to limit the storm exemption to a specific geographic region.

## Summary of Major Changes

The storm exemptions promulgated today for BPT and NSPS are essentially the same as the Agency's original BPT storm provision, with minor modifications. First, the regulations place the burden of proof on the mine operator to demonstrate that it has met the prerequisites for an exemption—that is, that he has designed, constructed, and maintained his facility in accordance with the design criteria set forth in the exemption provision. This burden of proof requirement was contained in the original NSPS and revised BPT storm exemption, and no commenter argued against it. In fact, the comments urge the Agency to retain this requirement in order to facilitate enforcement.

Second, the regulation has been clarified to state that the operator is only entitled to an exemption if the overflow, increase in volume of a point source discharge or discharge from a bypass system is actually caused by a hydrological event—that is, rainfall or snowmelt. This is consistent with the explicit language of the NSPS storm provision, and with the intent of the original BPT exemption as explained in the BPT preamble (See 42 FR 21381).

## Costs and Economic Impact

The costs and economic impact of the BPT and NSPS regulations, including the storm provision promulgated today, have previously been considered in detail and discussed by EPA. See 42 FR 21383. The Agency has determined that this regulation does not require any additional economic analyses or the preparation of a Regulatory Analysis under Executive order 12044.

### Coordination With Office of Surface Mining

After EPA initiated this rulemaking proceeding and circulated the Skelly and Loy and D'Appolonia studies for public comment, the NCA and AMC commenced an action against EPA in the District Court for the District of Columbia (*National Coal Association et al. v. EPA, Civil No. 79-2406*). In this suit, plaintiffs seek to invalidate EPA's previous concurrence in OSM's regulations, which was given on February 14, 1979, pursuant to section 501 of SMCRA. Plaintiffs claim, among other things, that OSM's storm exemption may not differ from EPA's, and that the Skelly and Loy study requires EPA to withdraw its concurrence. The Agency does not believe that the Skelly and Loy study or the regulation promulgated today requires such an action. First, the District Court has previously held that OSM's storm exemption may differ from EPA's. In *Re Surface Mining Litigation*, 456 F. Supp. 1301, 1314-15 (D.D.C. 1978). This case is presently on appeal to the Court of Appeals for the District of Columbia, and a decision is pending.

Second, the NCA and AMC have petitioned OSM to reconsider portions of its regulations in light of the Skelly and Loy study. The decision to grant or deny that petition is now pending before OSM. The agencies will work closely to minimize, to the greatest practicable extent, duplication and inconsistencies in government regulation.

Dated: December 20, 1979.

Douglas M. Costle,  
Administrator.

Part 434, §§ 434.22(c), 434.32(b), 434.42(b), 434.25(b), 434.35(b), and 434.45(b) are amended to read as follows:

\* \* \* \* \*

Any overflow, increase in volume of a discharge or discharge from a by-pass system caused by precipitation or snowmelt shall not be subject to the limitations set forth in paragraph (a) of this section. This exemption shall be available only if the facility is designed, constructed and maintained to contain or treat the volume of water which would fall on the areas covered by this subpart during a 10-year 24-hour or larger precipitation event (or snowmelt of equivalent volume). The operator shall have the burden of demonstrating to the appropriate authority that the prerequisites to an exemption set forth in this subsection have been met.

### Appendix A—Summary of Public Participation

The storm exemption issue has been subject to public comment and review at several stages. The Agency received substantial comments on this issue during its initial BPT and NSPS rulemaking efforts. Those comments have been previously summarized and addressed by the Agency, and will not be addressed here. See 42 FR 21388 (April 26, 1977) (BPT) and 44 FR 2591 (January 12, 1979) (NSPS).

In addition, in its notice of July 6, 1979, the Agency solicited general comments on the storm exemption issue. 44 FR 39391. That comment period closed on August 6, 1979. Thereafter, on August 14, 1979, the Agency solicited comments on the Skelly and Loy and D'Appolonia reports. 44 FR 47595. That comment period closed on October 19, 1979. A summary of the comments received since July 6 follows.

The following parties submitted timely comments pursuant to the July 6th or the August 14th notice or both: Dow Chemical U.S.A., Mapco Coals, Inc., Monterey Coal Company, National Coal Association, Northern Energy Research Co., Pennsylvania Department of Environmental Resources, Reynolds Aluminum, James Spotts, Thorp, Reed and Armstrong, Virginia State Water Quality Control Board, and Wyoming Department of Environmental Quality.

#### General Comments on Storm Exemption Issue

(1) One commenter suggested that there is no need to have a storm exemption because of the infrequency of the "events or constellation of events which could justify the granting of any such exemption in an individual case." Alternatively, this commenter argued that any exemption should be limited to "truly unusual catastrophic precipitation events" in order to induce industry to improve its present treatment practices. However, the Skelly and Loy report and other data in the record suggest that it may not be feasible to meet the BPT and NSPS requirements during precipitation events. In addition, other comments pointed out that the most severe soil erosion can occur from short duration, high intensity storms which are not infrequent. It should be noted that the storm exemption is tied to a design criterion—i.e., 10-year, 24-hour storm containment or treatment—which represents an improvement over present industry practice.

(2) One commenter suggested that any exemption should apply only to total suspended solids, and not to the other pollutants (i.e., metals) covered by the

regulations. The Agency does not agree with this comment. The BPT and NSPS requirements apply to total metal concentrations—that is, metals in solution (dissolved) and metals in suspension as part of the suspended solids loading. It is the judgment of the Agency's technical personnel that, given the high TSS effluent concentrations resulting from precipitation events, the total metals limitations may not be met either.

(3) Several commenters urged that any exemption be limited to mines located in Appalachia, and not apply to western mines where topography is not as constraining a factor. As discussed in the preamble, there is no basis at this time on which to make such a distinction.

(4) One commenter argued that EPA must propose specific language for public comment before promulgating a storm exemption. The Agency does not agree with this assertion. The public notice attending informal rulemaking must include "either the terms or substance of the proposed rule or a description of the subjects and issues involved," 5 U.S.C. § 553(b)(3), but it need not specify "every precise proposal which the Agency may ultimately adopt as a rule." *California Citizens Band Association v. United States*, 375 F.2d 43, 48 (9th Cir.), cert. denied 389 U.S. 844 (1967); *Action for Children's Television v. F.P.C.*, 564 F.2d 458, 470 (D.C. Cir. 1977).

The notices and extensive opportunity for public comment provided on this issue meet this test. Moreover, the regulation promulgated today is virtually identical to the Agency's original BPT storm exemption; the only changes are either for purposes of clarifying the original exemption or in response to public comments. Accordingly, the public notice requirements of the Administrative Procedure Act have been fully met.

(5) Several commenters suggested that a storm exemption will not be enforceable unless tied to an actual storm event. Although tying the exemption to a specified precipitation event might facilitate enforcement, the requirement that a treatment pond be designed, constructed, and maintained in a specified manner will alleviate enforcement problems. Moreover, enforcement will be substantially facilitated by placing the burden of proof on the operator to demonstrate that it has met the prerequisites to an exemption. This burden of proof requirement was urged by one commenter; it was also a requirement in the Agency's NSPS and revised BPT

regulations, and no commenter argued against such a provision.

(6) One commenter suggested that effluent requirements during storm events should reflect the mirror image of the settleable solids concentration entering the pond during the course of a 2-year, 24-hour storm. While this approach is theoretically sound, it would be difficult, if not impossible, to enforce. It would require the operator to take samples of influent and effluent at every step of the storm. Aside from the costs involved, this approach is obviously impractical.

(7) Several commenters stated that sediment pond performance during storm events is inherently site-specific. The Agency agrees with this comment, which is supported by the Skelly and Loy study.

(8) One commenter suggested that the Agency consider the feasibility of chemical treatment to abet suspended solids removal. The Agency is in the process of assessing the costs, feasibility, and pollution reduction benefits of chemical treatment as part of its BAT rulemaking efforts. Forthcoming BAT and revised NSPS regulations may reflect chemical treatment technology. The Agency does not believe, however, that BPT requirements should be based on chemical treatment because it is generally not practiced in the industry and insufficient data presently exists on which to base a national regulation.

(9) One commenter claimed that the Agency did not consider tying an exemption to both a design capacity and a specific flow rate, as it had stated in its July 6 Federal Register notice. This is incorrect; the Skelly and Loy study examined the performance of sediment ponds of a given capacity under different storm events, that is, under different flow rates.

(10) Several commenters urged that a settleable solids limit be established during precipitation events. The validity of such an approach is suggested by the Skelly and Loy study, which shows that properly designed and operated ponds will remove the larger (settleable) solids, but not the finer, colloidal material. Therefore, the Agency is now undertaking a sampling program, in cooperation with industry, to determine what settleable solids limitation may be appropriate during storm conditions. However, until these data are analyzed, the Agency agrees with those commenters who contended that the Skelly and Loy study does not provide sufficient information to establish a settleable solids limitation.

(11) One commenter suggested that an operator be given credit for demonstrating a good faith attempt to

control sediment rather than be required to achieve a specific effluent limitation. The Agency rejects this suggestion as vague and unenforceable.

#### *Comments on Skelly and Loy and D'Appolonia Studies*

(1) Several commenters urged that any storm exemption must account for consecutive storm events, none of which equals a 10-year 24-hour storm, but which collectively cause an overflow from a sediment pond. However, as one commenter pointed out, the D'Appolonia study demonstrates that the probability of such multiple storm occurrences is extremely remote. Moreover, although several industry comments endorse other conclusions of the D'Appolonia study (specifically, the conclusions concerning the costs of building a pond to contain such multiple storm events, the increased pond size that would be needed, and the inability of any pond to assure attainment of the effluent limitations in these multiple storm scenarios), no commenter disputed D'Appolonia's conclusions or methodology concerning the probabilities of these multiple storm scenarios. In fact, while one commenter submitted a study purporting to demonstrate that the runoff from several lesser storm events can exceed the runoff from the 10-year 24-hour storm event, this study did not address the *likelihood* of these successive storm events occurring within a time period short enough to cause an overflow of a sediment pond.

(2) One commenter questioned the Agency's use of a computer modeling technique rather than empirical data to justify a storm exemption. The Agency agrees that empirical data would be preferable. As noted above, EPA is now in the process of collecting influent and effluent data during storm events at coal mine sites throughout the country. However, until such data are collected and analyzed, the Agency believes that the computer model utilized in the Skelly and Loy study corroborates industry's contention that relief during precipitation events is appropriate. As the Skelly and Loy report and several comments indicate, the assumptions used in the model, on balance, yield unrealistically low TSS effluent concentrations for the sites studied. In this regard, no commenter argued that the effluent concentrations reported by Skelly and Loy are unrealistically high. No commenter criticized the DEPOSITS model itself or disputed that it is state-of-the-art. Therefore, until a more adequate empirical data base is collected, the Agency believes it is reasonable to rely on the Skelly and Loy

study as an indicator of the need for a storm exemption provision.

(3) One commenter claimed that it was unable to provide substantive comments on the Skelly and Loy and D'Appolonia reports in the absence of a specific proposed regulation. This comment is difficult to accept, since numerous other commenters did submit helpful and substantive comments on these reports.

(4) Several commenters stated that the Skelly and Loy report used assumptions which led to unrealistically ideal or optimal sediment pond performance. One commenter, on the other hand, claimed that this study underestimated pond performance by focusing solely on pond size, whereas other measures are available and may be crucial to control sediment and erosion (e.g., the use of jute matting, mulch, rip rap, check dams, energy dissipators, and other management practices).

On balance, the Agency believes that the assumptions used by Skelly and Loy optimize sediment removal at the sites examined. Most importantly, the model assumed "plug flow" and no "dead storage," which essentially means that the ponds exhibited *no* short circuiting and perfect displacement of water. These conditions generally cannot be achieved in the real world and, therefore, the model overstates sediment pond efficiency.

With respect to the other practices which are available to control sediment and erosion, it is extremely difficult to translate these measures into specific improvements in effluent quality. For example, it is virtually impossible to predict, on an industry-wide basis, how much improvement in effluent quality will result from using "X" bales of hay upstream of a sediment pond. More fundamentally, while these practices may reduce the concentration of the larger suspended solids before mine drainage enters the pond, they will do little to reduce the volume or concentration of finer, colloidal solids. As industry has claimed, and the Skelly and Loy study confirms, fine particles are the primary factor which prevents even an optimally designed and operated pond from meeting the effluent limitations during precipitation events. In addition, the ideal conditions discussed in the preceding paragraph effectively incorporate many of these management practices.

(5) Several commenters challenged the use of the Modified Universal Soil Loss Equation (MUSLE) for computing sediment delivery. One commenter suggested that the MUSLE is not state-of-the-art, and recommended instead the use of a model which is now being

developed at Purdue University. MUSLE is a more widely accepted model, and is derived from a larger data base than any other model presently in use. In addition, its use requires less site-specific information for many parameters in the equation; thus, use of other models would require even more assumptions concerning various "representative" factors which would necessarily be arbitrary. In short, there is no reason to believe that the use of the Purdue (or any other) method would appreciably change the results of the study; particularly, there is no reason to believe that other methodologies would alter the conclusion that the ponds studied cannot achieve the effluent limitations during precipitation events.

One commenter suggested that MUSLE is not appropriate for estimating sediment loadings for downstream pond locations, and that the use of "delivery ratio techniques" might be more suitable. This commenter also challenged the use of a composite curve number ("CN") in the MUSLE, and recommended use of a distributed parameter approach which would account for discrete areas of the drainage area. Although this commenter submitted revised calculations using a distributed parameter approach, he did not explain the technique which he used. Therefore, there is no basis for the Agency to conclude that this commenter's method is preferable. In short, there is no basis for the Agency to doubt that use of MUSLE was as reasonable as, and probably preferable to, any other approach. Even if this commenter's suggestions were adopted, moreover, they would only have served to increase TSS concentrations in the effluent, and therefore would not change the report's central conclusion.

(6) Several commenters argued that there is no basis for the Skelly and Loy recommendation that a sediment pond be designed according to OSM's design criteria, since the study shows that those design criteria will not ensure attainment of the effluent limitations during precipitation events. The Skelly and Loy study took OSM's design requirements as given. This approach was entirely appropriate. In addition, OSM's regulations permit reduction of pond size if other measures are taken.

(7) Several commenters challenged the cost estimates contained in the Skelly and Loy report as unrealistically low. One commenter submitted site-specific cost estimates which were higher than Skelly and Loy's. Cost estimates are necessarily imprecise, and the Agency is unable to conclude that Skelly and Loy's cost estimates are necessarily

unreasonable, or that other cost assumptions are more reasonable. In any event, these comments are moot in light of the regulation promulgated today.

(8) Several commenters criticized the Skelly and Loy report's failure to address the necessity or desirability, from the standpoint of water quality, of achieving an effluent concentration of 35 and 70 mg/l. The Agency is required to establish technology based limitations without regard to water quality considerations.

(9) One commenter challenged the report's assumptions concerning particle size distributions. As the Skelly and Loy report indicates, particle size distributions are inherently site-specific. The Agency is satisfied that Skelly and Loy utilized reasonable assumptions in this regard, and the commenters have not pointed to any data or literature which demonstrate otherwise.

(10) One commenter claimed that Skelly and Loy failed to take into account whether the designed sediment ponds could physically be constructed at the locations modeled. This is incorrect. Skelly and Loy located all ponds based upon their site-specific knowledge of the mine sites examined.

[FR Doc. 79-39032 Filed 12-27-79; 8:45 am]  
BILLING CODE 6560-01-M

#### 40 CFR Part 436

[1380-8]

#### Mineral Mining and Processing Point Source Category; Revocation of BPT Regulations

AGENCY: Environmental Protection Agency.

ACTION: Final amendments to rules.

SUMMARY: EPA has published "best practicable technology" (BPT) regulations under the Clean Water Act for several subcategories of the mineral mining industry (40 CFR Part 436). In *National Crushed Stone Association v. EPA*, 601 F.2d 111 (4th Cir. 1979), the U.S. Court of Appeals for the Fourth Circuit invalidated certain portions of the BPT regulations for the (1) crushed stone and (2) construction sand and gravel subcategories. 601 F.2d at 125. EPA is accordingly revoking the invalidated portions below.

DATES: The revocations are effective as of June 18, 1979. (This date corresponds to the Court decision requiring today's revocations.)

FOR FURTHER INFORMATION CONTACT: Barry S. Neuman (A-131), Office of General Counsel, 401 M Street SW., Washington, D.C. 20460, (202) 755-0753.

Dated: December 21, 1979.

Douglas M. Costle,  
Administrator.

#### §§ 436.22 and 436.32 [Amended]

1. 40 CFR § 436.22(a)(1) is amended by deleting the following from the table therein:

TSS \_\_\_\_\_ 45 mg/l \_\_\_\_\_ 25 mg/l

2. 40 CFR § 436.22(a)(2) is revoked.

3. 40 CFR § 436.22(a)(3) is redesignated as 40 CFR § 436.22(a)(2) and is amended by deleting the following from the table therein:

TSS \_\_\_\_\_ 45 mg/l \_\_\_\_\_ 25 mg/l

4. 40 CFR § 436.32(a)(1) is amended by deleting the following from the table therein:

TSS \_\_\_\_\_ 45 mg/l \_\_\_\_\_ 25 mg/l

5. 40 CFR § 436.32(a)(2) is revoked.

6. 40 CFR § 436.32(a)(3) is redesignated as 40 CFR § 436.32(a)(2) and is amended by deleting the following from the table therein:

TSS \_\_\_\_\_ 45 mg/l \_\_\_\_\_ 25 mg/l

[FR Doc. 79-39633 Filed 12-27-79; 8:45 am]

BILLING CODE 6560-01-M

#### FEDERAL EMERGENCY MANAGEMENT AGENCY

#### 44 CFR Part 64

[Docket No. FEMA 5759]

#### List of Communities Eligible for the Sale of Insurance Under the National Flood Insurance Program

AGENCY: Federal Insurance Administration, FEMA.

ACTION: Final rule.

SUMMARY: This rule lists communities participating in the National Flood Insurance Program (NFIP). These communities have applied to the program and have agreed to enact certain flood plain management measures. The communities' participation in the program authorizes the sale of flood insurance to owners of property located in the communities listed.

EFFECTIVE DATES: The date listed in the fifth column of the table.

ADDRESSES: Flood insurance policies for property located in the communities listed can be obtained from any licensed property insurance agent or broker serving the eligible community, or from the National Flood Insurance Program (NFIP) at: P.O. Box 34294, Bethesda, Maryland 20034, Phone: (800) 638-6620.

FOR FURTHER INFORMATION CONTACT: Mr. Richard Krimm, National Flood Insurance Program, (202) 755-5581 or