FEDERAL REGISTER: 48 FR 44032 (September 26, 1983)

DEPARTMENT OF THE INTERIOR
AGENCY: Office of Surface Mining Reclamation and Enforcement (OSM)

30 CFR Parts 816 and 817
Surface Coal Mining and Reclamation Operations; Permanent Regulatory Program; Siltation Structures

ACTION: Final rule.

SUMMARY: OSM is promulgating today the final rules for siltation structures. These new criteria differ from previous sedimentation pond criteria in that some design requirements have been deleted. Instead of such criteria, the regulatory authorities, operators and the registered professional engineers who design the sedimentation ponds or other siltation structures must meet performance standards that ensure compliance with the effluent limitations published by the Environmental Protection Agency (EPA) and adopted by OSM.

EFFECTIVE DATE: October 26, 1983.

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SUPPLEMENTARY INFORMATION:

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I. BACKGROUND

On December 13, 1977, OSM published initial program rules under the Surface Mining Control and Reclamation Act of 1977 (the Act), *30 U.S.C. 1201* et seq., which contained sedimentation pond design criteria, 30 CFR 715.17(e) and 717.17(e) *(42 FR 62639).* Revised initial program sedimentation pond design criteria were promulgated February 27, 1978 *(43 FR 8090).* In its decision on the case challenging the initial program rules, the U.S. District Court for the District of Columbia enjoined application of the sedimentation pond design criteria to allow further public comment and judicial review. In re: *Surface Mining Regulation Litigation, 452 F. Supp. 327; 456 F. Supp. 1301 (D.D.C. 1978).*

On March 13, 1979 *(44 FR 15312),* OSM published revised sedimentation pond design criteria for the permanent regulatory program. Section 816.46 applied to surface mining activities and Section 817.46 applied to underground mining activities. These same design criteria were proposed for inclusion in the interim program on May 25, 1979 *(44 FR 30610).* Both of these rulemaking actions were subjected to court challenges, as well as to substantial criticism, on sedimentation pond sizing criteria.

To check the validity of OSM's sedimentation pond design criteria in relation to the total suspended solids (TSS) effluent limitations, OSM and EPA commissioned two studies which were made available in August 1979. These 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. The studies concluded that ponds designed according to OSM design criteria could not always meet effluent limitations criteria. On September 21, 1979, the Joint National Coal Association/American Mining Congress Committee of Surface Mining Regulations (NCA/AMC) petitioned OSM to suspend the TSS effluent limitations and the sedimentation pond design criteria, and consider those regulations in light of the new studies.

On December 31, 1979, OSM suspended the sedimentation pond design criteria concerning sediment storage volume, detention time, dewatering devices, and sediment removal frequency in both the interim and permanent programs *(44 FR 77447).* Also in the December 31, 1979 notice, OSM announced its intent to commence rulemaking to establish revised sedimentation pond design criteria *(44 FR 77456).*

Two significant court decisions relating to these issues were rendered in May 1980. The first, on May 2, was by the U.S. Court of Appeals for the District of Columbia, in In re: *Surface Mining Regulation Litigation , 627 F. 2d 1346 (D.C. Cir. 1980).* In that decision, the Court of Appeals ruled that OSM may not alter the variances and exemptions adopted by EPA, under the Federal Clean Water Act, by promulgating more stringent provisions for effluent discharges from surface coal mining operations. The second was on May 16, in which the U.S. District Court for the District of Columbia ruled that OSM did not have a sufficient record upon which to base its application of the same effluent limitations both to actively mined areas and areas under reclamation. In re: Permanent Surface Mining Regulation Litigation , No. 79-1144, (D.D.C. 1980), Mem. opin at 19-20. In compliance with this ruling, OSM published a notice partially suspending Sections 816.42(a) (1) and (7) and 817.42(a) (1) and (7), at *45 FR 51547,* August 4, 1980. These rules were suspended to the extent that they required the runoff from the reclaimed area to meet the same effluent limitations as those imposed on the active mining area.

On January 13, 1981, EPA published proposed best available technology economically achievable (BAT) effluent limitations and revisions to the coal mining point-source effluent limitations guidelines for existing sources and new source performance standards (NSPS), *46 FR 3136.* This proposal was subsequently amended on May 29, 1981, *46 FR 28873.* On July 2, 1981, OSM proposed rules which paralleled EPA's proposed rulemaking on effluent limitations and which addressed the sedimentation pond issues raised in OSM's December 31, 1979, notice of intent, *46 FR 34784.* On October 13, 1982, EPA issued final rules setting effluent limitations for coal mines *(47 FR 45382)* and on October 22, 1982, OSM revised its effluent limitation rules to be consistent with the new EPA rules *(47 FR 47216).*

In this final rule, OSM has revised previous Sections 816.46 and 817.46 by removing most of the specific design criteria, and replacing them with performance standards. Also, Sections 816.42 and 817.42 are revised by removing paragraphs (a) (1) through (6) and (c). These sections mainly dealt with provisions for sedimentation ponds which are now addressed under Sections 816.46 and 817.46.

Also, the headings of Sections 816.46 and 817.46 have been changed from Sedimentation ponds to Siltation structures to be more consistent with the wording of section 515(b)(10)(B)(ii) of the Act and to reflect rule changes which allow certain siltation structures other than sedimentation ponds.

Public hearings were held on the proposed rule on the following dates at the following locations: (1) July 14, 1981, Indianapolis, IN; (2) July 16, 1981, Lexington, KY; (3) July 21, 1981, Charleston, WV; (4) July 23, 1981, Washington, DC; (5) July 28, 1981, Kansas City, MO; (6) July 30, 1981, Denver, CO. A total of 27 persons testified at these hearings. A summary of the hearings is on file in the OSM Administrative Record. A 60-day comment period was held on the proposed rule from July 2, 1981, to September 3, 1981. A subsequent Federal Register notice, on May 13, 1982, providing notice of the preparation of a supplemental Environmental Impact Statement (EIS) for the permanent regulatory program, reopened the public comment period until further notice, *47 FR 20631.* On July 13, 1982, a notice was issued indicating that those portions of Sections 816.42 and 817.42 which parallel EPA's effluent limitation rulemaking would not be analyzed in OSM's supplemental EIS, *47 FR 30266.* The notice specified that the comment period on Sections 715.17(a), 717.17(a), 816.42, and 817.42 would accordingly be closed on July 26, 1982. That notice also stated however, that the sections dealing with sedimentation ponds were discussed in the supplemental EIS and therefore the comment period remained open until August 25, 1982. The comment period for the draft EIS and the proposed rules covered by the EIS was reopened on September 7, 1982, to allow for consideration of the relevant comments from the Oversight Hearing of the U.S. House of Representatives Committee in Interior and Insular Affairs, *47 FR 39201-39202.* The comment period closed on September 10, 1982. All comments received during these comment periods on the July 2, 1981, proposal have been included in the Administrative Record and considered in this final rulemaking.

A related proposal governing the permanent program performance standards for impoundments was issued on June 21, 1982 *(47 FR 26754).* The final rule on impoundments is expected to be issued contemporaneously with this final rule. Because sedimentation ponds are impoundments, references are made in this final rule to the performance standards for impoundments which will be set forth in Sections 816.49 and 817.49, as revised. This preamble discusses various aspects of the impoundments rule as OSM expects it to be issued. Any changes in the final impoundments rule that are inconsistent with this rule could require conforming changes to this rule.

II. DISCUSSION OF COMMENTS AND RULES ADOPTED

A. SUMMARY OF FINAL RULES

SECTION 816.42

Proposed Section 816.42(a)(3) has been separated from this rule and was published as a final rule as Section 817.42(b) on October 22, 1982, at *47 FR 47216.* A similar rule was published at Section 816.42(b) for underground mines. In this final rule, remaining Sections 816.42 (a)(1) through (6) and (c) of the previous rule are removed, because these provisions are now addressed in Section 816.46. Section 816.42(b) is renumbered Section 816.42.

SECTION 816.46

The final rule is substantially reorganized from the proposed rule. Some provisions of the previous rules relating to sedimentation ponds, that did not appear in the proposed rule, are retained in this final rule. Separate rules relating to hydrologic balance for underground mining are promulgated from the existing and proposed rules even though the proposed rule would have merely referenced the rules for surface mining activities. These new rules are found at Section 817.46.

The final rule consists of five paragraphs in each of Sections 816.46 and 817.46: definitions, general requirements, sedimentation ponds, other treatment facilities, and exemptions.

Sections 816.46 and 817.46 are renamed "Hydrologic balance: Siltation structures" instead of the proposed "Hydrologic balance: Sedimentation ponds." This is consistent with the wording of the Act at section 515(b)(10)(B)(ii), and allows certain other point-source siltation structures besides sedimentation ponds to be used to minimize disturbances to the hydrologic balance.

Provisions similar to those of Sections 816.42(a) (1) through (4), 816.42(a)(6) and parts of 816.42(c) of the March 13, 1979, rules are incorporated into final Sections 816.46 and 817.46 since these provisions relate to siltation structures rather than to effluent limitations.

The discussion which appears under the heading C. Response to Comments, including all comments and responses, applies to Sections 816.46 and 817.46 except where otherwise indicated, since provisions for both surface and underground mining activities are essentially the same.

When OSM proposed changes to the effluent limitations and sedimentation pond rules on July 2, 1981, amendments to both the initial and permanent programs were included. Since that time, each major coal-producing State has received approval or conditional approval of its permanent regulatory program. Thus, any new permit incorporating the standards of this rulemaking must be issued under the permanent regulatory program. For this reason, the proposal to amend the initial regulatory program (30 CFR 715 and 717) is withdrawn and only the permanent program is amended.

B. ALTERNATIVES

In the July 2, 1981 proposal, OSM considered the following alternatives in addition to the proposed rules. It should be noted at the outset of the discussion of the alternatives that the effluent limitations portion the of July 2, 1981, proposal was finalized in a separate rulemaking on October 22, 1982 *(47 FR 47216).* This final rule is consistent with that earlier rulemaking. As a result certain aspects of the alternatives discussed in the July 2, 1981, proposal are no longer relevant.

1. ALTERNATIVE NUMBER 1. Under this alternative, OSM would adopt a modified rainfall exemption under Sections 816.42 and 817.42, that either lowers or increases the rainfall frequency level required to qualify for a rainfall exemption, retain Sections 816.46 and 817.46 as they existed before the December 31, 1979 suspension and promulgate Sections 715.17(e) and 717.17(e) as proposed in the Federal Register of May 25, 1979, at *44 FR 30610.*

This alternative presented the problem of determining what rainfall frequency should be adopted to meet both the effluent limitations and the minimum design criteria for sedimentation ponds. The two studies referenced earlier, Skelly

and Loy, 1979, at p. 4 and D'Appolonia, 1979, at p. 9, showed that sedimentation ponds designed to contain or treat a 10-year, 24-hour precipitation event may not meet the effluent standards for TSS during any rainfall event.

If OSM had elected to adopt this alternative, an exemption from the effluent limitations would have been given for all precipitation events.

OSM has elected to discard this alternative and adhere to the revised effluent limitations promulgated by EPA on October 13, 1982 *(47 FR 45382).* In those rules, EPA requires that the discharge from a siltation structure during dry weather flow not exceed 35/70 mg/1 of TSS; during wet weather flow up to the 10-year, 24-hour precipitation event, discharges cannot exceed 0.5 ml/1 of settleable solids (SS). For an event greater than the 10-year, 24-hour event, a pH of 6 to 9 is required to be met. EPA has also deleted the requirement that a sedimentation pond be designed, constructed and maintained to contain a 10-year, 24-hour precipitation event in order to be eligible for a rainfall exemption.

Because the effluent limitations have been changed, going back to the rules that existed prior to December 31, 1979, would not be possible, particularly since it has been shown that during a precipitation event it may not be possible to comply with those rules. (Skelly and Loy, 1979 and D'Appolonia, 1979). Furthermore, OSM has also removed many of the design criteria for sedimentation ponds and replaced specific design criteria with general requirements, thereby giving the operator more flexibility to adopt a site-specific design that will comply with the effluent limitations.

Because of the above stated reasons, OSM has discarded this alternative.

2. ALTERNATIVE NUMBER 2. This alternative was to adopt a modified rainfall exemption that reflects the conclusions reached by Skelly and Loy, 1979, at p. 4, and to modify the sedimentation pond size and trapping efficiency criteria. This alternative is similar to alternative 1, but differs in its modifications of the design criteria.

OSM partially adopted this alternative in that it has deleted, in these final rules, most of the design criteria previously promulgated, and required that the operator meet more general design and performance standards. The rationale for this change has been explained in the previous section. The rejection of a modified rainfall exemption has been explained above in Alternative No. 1.

3. ALTERNATIVE NUMBER 3. The third alternative would have modified the effluent limitations to exempt any discharge from meeting the TSS effluent limitations during certain precipitation events if the facilities are designed, constructed, and maintained according to OSM criteria. For steep slope mining the pond size design criteria would have been modified to take into consideration situations where a suitable site is not available or where construction of a sedimentation pond would pose a safety hazard.

Section 702(a)(3) of the Act provides that is does not supersede, amend, modify or repeal any rule or regulation promulgated under the Clean Water Act. EPA, under 40 CFR 434, has promulgated the coal mining point source category effluent limitations. Sedimentation ponds are point source discharges; therefore OSM has adopted the effluent limitations promulgated by EPA under 40 CFR 434. To comply with the EPA effluent limitations, each point source must meet the promulgated effluent limitations regardless of design. Therefore, OSM has not adopted a rule that would exempt mining operations from meeting effluent limitations if certain design criteria are met. The final rule emphasizes compliance with the effluent limitations. Thus, the size and shape of the sedimentation pond are left up to the operator and the regulatory authority provided that certain design criteria with respect to safety are met and the design is shown to be consistent with the requirement to meet specified effluent limitations.

4. ALTERNATIVE NUMBER 4. The fourth alternative would have reinstated the effluent limitations as they existed before the December 31, 1979 suspension, but would have deleted the pond size and efficiency design criteria.

This alternative has not been adopted because EPA which has lead responsibility for setting effluent limitations under the Clean Water Act, has published revised effluent limitations. In addition, it has been shown that a sedimentation pond, even if it is designed in accordance with the design specifications of the prior rule, may not be able to meet the effluent limitations.

C. RESPONSE TO COMMENTS AND DISCUSSION OF RULES ADOPTED

In its December 31, 1979, notice of intent to establish revised effluent limitations and sedimentation pond design criteria *(44 FR 77456),* OSM solicited public comments on the several possible alternatives. Numerous comments were received in response to these notices. All comments received have been reviewed and considered in the development of these final rules.

On July 2, 1981, OSM published proposed rules, *46 FR 34784-34790,* which solicited public comments on the proposed rules, as well as the four alternatives discussed under Section II.B. of this preamble. The following discussion addresses the substantive comments and questions received.

SECTION 816.46

SECTION 816.46(a) - DEFINITIONS

As part of the reorganization of the rule, OSM has placed all definitions of terms that will apply only to Section 816.46 at the beginning of the rule.

SECTION 816.46(a)(1)

Section 816.46(a)(1) has been added. It defines siltation structures as a sedimentation pond, a series of sedimentation ponds or certain other treatment facilities.

Section 515(b)(10)(B)(i) of the Act requires that the best technology currently available (BTCA) be used to prevent additional contributions of suspended solids to streamflow or runoff outside the permit area. OSM believes that siltation Structures as defined in these rules represent the BTCA. A definition has been added to clarify what siltation structures will be allowed. Although OSM has previously specified that sedimentation ponds are the BTCA *(44 FR 15149,* March 13, 1979), it recognizes in these rules that the use of other treatment facilities such as flocculation or clarifiers can accomplish the same goals as a sedimentation pond and also qualify as the BTCA. Also, a combination of different siltation structures is sometimes more effective than use of a pond alone. Finally, section 515(b)(10)(B)(ii) of the Act uses the term "siltation structures" in recognition that certain sediment control techniques other than sedimentation ponds may qualify as BTCA in some instances.

Use of the term "siltation structure" rather than the proposed term "sediment pond" was also suggested by a commenter, who said that because other sediment control measures may be more effective than sediment ponds, the decision on which structure to use should be left to the engineer. OSM wishes to emphasize that only certain siltation structures, defined in Sections 816.46(a)(1) and (a)(3) will satisfy the requirements of Section 816.46(b).

SECTION 816.46(a)(2)

Section 816.46(a)(2), which defines "disturbed area" for purposes of Section 816.46, did not appear in the proposed rule but is retained from Section 816.42(a)(4) of the previous regulations. Areas in which the only surface or underground mining activities consist of diversion ditches, siltation structures, and roads that are designed, constructed, and maintained in accordance with OSM's rules and for which the upstream area is otherwise undisturbed by the operator are excluded from the "disturbed area" for the purposes of Section 816.46. This is necessary because disturbances due to diversions and siltation structures are created for the purpose of water treatment, and the nature of roads make it infeasible that their drainage be passed through sedimentation ponds. Drainage control for roads is regulated in 30 CFR 816.150-816.151 *(48 FR 22110,* May 16, 1983).

Some commenters suggested that OSM retain the exclusions from the "disturbed area" in regard to sedimentation ponds. OSM has done so for the reasons stated above.

SECTION 816.46(a)(3)

Under the rules promulgated today, other treatment facilities may serve as the required siltation structure if they can meet EPA's effluent limitations and satisfy the other requirements of Section 816.46(d). Under the previous rules

(Section 816.42(a)(2)), other treatment facilities were also allowed. However, no definition was given in the previous rules. For added clarification, OSM has added the definition of "other treatment facilities" under Section 816.46(a)(3). Other treatment facilities are defined to mean chemical treatments, such as flocculants, or mechanical structures, such as clarifiers, that have a point-source discharge and are used to prevent additional contributions of suspended solids to streamflow or runoff outside the permit area. This is a new definition and did not appear in the proposed rules. OSM recognizes that such other treatment facilities can be designed to achieve the effluent limitations imposed under 40 CFR 434 and does not intend to preclude the use of these measures if the operator wishes to use them.

SECTION 816.46(b) - GENERAL REQUIREMENTS

New Section 816.46(b)(1) requires that additional contributions of suspended solids and sediment to streamflow or runoff outside the permit area be prevented to the extent possible using the best technology currently available. This language is taken from section 515(b)(10)(B)(i) of the Act. Similar language appeared in proposed Section 816.42(a)(2). This standard complements the effluent limitations appearing in Section 816.42 that apply independently.

One commenter recommended deletion of the phrase "best technology currently available" because this means that the best technology available anywhere in the world would have to be used, at any cost. The commenter believed this phrase negates the use of alternative measures. Another commenter said that use of this phrase might restrict the use of alternative sediment control measures, depending on how best technology currently available (BTCA) is defined. Another commenter suggested that OSM use the term as defined by EPA because EPA uses the concept of practicability.

The phrase "best technology currently available" is taken from section 515(b)(10(B)(i) of the Act and therefore will be retained in these rules. The EPA is required by the Clean Water Act, *33 U.S.C. 1251*-1311, to promulgate effluent limitations based on best practicable control technology currently available (BPT), best available technology economically achievable (BAT), best conventional technology (BCT), and new source performance standards (NSPS) using best available demonstrated technology (BADT). BPT limitations reflect the average of the best performance by existing coal mines of various types. The total cost of applying the technology is balanced against the effluent reduction in arriving at BPT limitations. BAT generally represents the best existing performance for the control of toxic compounds, while BCT is based upon the relationship of cost and removal for conventional pollutants. BADT represents the best available demonstrated technology on which NSPS are developed. EPA has established effluent limitations based on data developed from the use of sedimentation ponds in achievement of the BPT limitations. The EPA has also determined that BAT and NSPS (except for new preparation plants) limitations should be set at the same level as BPT limitations. Development Document, EPA, 1982, and *47 FR 45382* (October 13, 1982).

Based on these EPA findings, OSM has determined that compliance with the effluent limitations of 40 CFR 434 will also satisfy BTCA for purposes of Section 515(b)(10) of the Surface Mining Act. In these rules, OSM is also allowing the use of certain other siltation structures, in addition to sedimentation ponds, as BTCA, as long as the effluent limitations established by EPA (October 13, 1982, *47 FR 45382)* are met. (These effluent limitations were adopted by OSM on October 22, 1982 at *47 FR 47216.)* Other treatment facilities are allowed as BTCA because treatment technologies such as flocculation and use of clarifiers have been demonstrated to be effective in controlling sediment. Development Document, EPA, 1982.

SECTION 816.46(b)(2)

New Section 816.46(b)(2) requires all surface drainage from the disturbed area to be passed through a siltation structure before leaving the permit area except as provided for in Section 816.46 (b)(5) or (e). This is similar to the first sentence of proposed Section 816.42(a)(1), except that "siltation structure" replaces "sedimentation pond, a series of sedimentation ponds, or a water treatment facility."

The other requirement of proposed Section 816.42(a)(1) that point source discharges from underground workings be passed through a siltation structure, is moved to Section 817.46(b)(7) because it refers to underground mine discharges only. The allowance for use of alternate sediment control measures is not adopted because there is not, at this time, a sufficient technical base for use of alternatives other than siltation structures, which OSM considers to be BTCA.

The preamble to the proposed rule stated that the rule would have given flexibility to the regulatory authority to allow the use of alternate sediment control measures such as barriers, dams and excavated depressions in lieu of sediment

ponds or treatment facilities. The proposed rule would have required that the alternate measures meet certain criteria and that they represent BTCA. Numerous comments were received on this issue.

Commenters who opposed the use of alternate measures pointed out that OSM had said in a previous rulemaking *(44 FR 15159,* March 13, 1979) that sedimentation ponds represented "state-of-the-art" technology for controlling sediment. They argued further that OSM had not yet refuted this statement. Some commenters felt that sedimentation ponds provided an effective means of controlling sediment, and that the allowance of alternate sediment control measures, in lieu of sedimentation ponds, is not supported. A commenter recommended that OSM not allow alternate measures until they are better defined. Another commenter pointed out that OSM, in responding to Illinois' proposal to substitute "siltation structure" for "sedimentation pond" in its State program, said this was unacceptable unless Illinois could show that a particular siltation structure represented BTCA. The commenter stated that OSM should likewise be required to demonstrate what standards constitute BTCA, and require those standards for all operators.

Two commenters were against relaxing previous standards for hydrologic balance because studies show that mines can comply with these standards. They stated that properly built and maintained ponds can comply in most instances, and chemical treatment can be added when the pond is insufficient. One commenter called sediment ponds an integral part of the best sediment control systems.

Other commenters endorsed the acceptance of alternate control measures instead of sedimentation ponds. Several commenters asked for clarification in the rule that alternate measures could be used "in lieu of" sedimentation ponds. Some commenters asked that the requirement for sedimentation ponds be removed, or that OSM change the rule language so that sedimentation ponds are not mandatory.

Several commenters felt that sedimentation ponds are not advisable or appropriate for arid and semi-arid regions in the West. Some said that the disturbance created by sedimentation ponds in dry Western areas causes environmental harm that is contrary to sections 515 and 102(d) of the Act. They maintained that releasing clean water from a sedimentation pond into a stream causes erosion because the clean water tends to pick up sediment equal to its carrying capacity which causes downstream erosion. A commenter pointed out that containment of water in ponds in the West allows more evaporation and can conflict with State laws which do not allow "willful waste of water." Some commenters said that the need to obtain water rights waivers from downstream users to impound water also makes sedimentation ponds a less viable alternative. Some commenters concluded that sedimentation ponds do not represent "best technology currently available" in the West. One commenter cited three studies (Wells, 1981, Simons and Li, 1981 and D'Appolonia, 1980) to support this allegation. Some commenters recommended letting the States decide what is BTCA.

One commenter felt that alternate control measures should be allowed if it can be shown that the environmental effects caused by the alternate measures are less harmful than those caused by use of a sedimentation pond. Another supported use of alternate measures, but wanted clarification on how the operator will demonstrate that the alternate measures represent BTCA. One commenter advocated that the rule require regulatory authority approval for use of alternate measures. Another commenter contended that use of "best management practices" was the preferable way to handle sediment control. Another supported the use of treatment facilities and control measures as they appeared in the previous rules.

Section 515(b)(10)(B)(i) of the Act requires that additional contributions of suspended solids to streamflow or runoff outside the permit area be prevented to the extent possible using the best technology currently available. OSM, at this time, considers sedimentation ponds and certain other siltation structures to be BTCA. OSM is requiring sedimentation ponds, or other chemical and mechanical treatment facilities that have a point-source discharge to be used as the "best technology currently available" to prevent, to the extent possible, additional contributions of suspended solids to streamflow or runoff outside the permit area and to achieve and maintain the effluent limitations at Sections 816.42 and 817.42. EPA has shown that the addition of flocculants to detained runoff and the use of clarifiers can effectively control sediment. Therefore OSM will accept these and other facilities that have a point source discharge and a similar record of effectiveness as BTCA. OSM will not allow the use of other alternate sediment control measures because of a lack of a technical basis on which to judge the effectiveness of alternative measures.

For further discussion of why OSM considers sedimentation ponds to be BTCA see the preamble to the previous rules at *44 FR 15159* (March 13, 1979).

Although sedimentation ponds are generally BTCA for controlling sediment, in some instances certain other siltation structures may better achieve the effluent limitations and are therefore allowed. Any siltation structure must be approved by the regulatory authority and must comply with the effluent limitations as promulgated under Sections 816.42 and 817.42. Although OSM is not rejecting the possibility of allowing alternate measures in the future, current data are insufficient to support such a regulatory change at this time. Thus, this final rule continues to require the use of specified siltation structures.

OSM is aware that the use of sedimentation ponds and other siltation structures in the West presents some problems. However, the effluent limitations promulgated by EPA are technology-based and not water-quality based. This is required by the Clean Water Act. Present technology points to the use of such structures in achieving the requirements of the Clean Water Act. In order to minimize evaporation from ponds in the West, operators should consider using additional sediment control measures such as limiting the size of the disturbed area or use of "other treatment facilities" to reduce the size of the pond needed to meet the effluent limitations. In response to the suggestion that the choice of BTCA be left to the States, Section 501 of the Act requires OSM to promulgate performance standards which are applicable nationwide. In this instance, it is feasible to determine a technical standard that may be applied nationwide. Under this standard, the regulatory authority is given substantial flexibility to approve the sediment control system as long as siltation structures are used and effluent limitations are met.

Several commenters suggested that rather than relying principally on sedimentation ponds, a dual system consisting of sediment traps and water treatment systems would be more appropriate because the systems must be designed for minimum maintenance due to the remote location of the structures.

These rules allow for this type of system to be approved provided that the effluent from the system complies with Sections 816.42 and 817.42 and the other requirements of Section 816.46(d).

Under certain circumstances sedimentation ponds are not the best alternative and therefore, other treatment facilities must be utilized. The selection of those other treatment facilities depends upon the characteristics of the soil and the overburden, the sedimentation goals that must be met, the surface coal mining operation's characteristics, temperature, climate, and other site-specific factors. The primary function of the other treatment facility is the same as that of a sedimentation pond: to decrease the velocity of the flow, thereby enhancing deposition (Barfield, and others 1981).

Two commenters recommended that OSM change proposed Section 816.42(a)(1) (final Section 816.46(b)(2)) to eliminate "or treatment facility." The commenters suggested this language: "The term sediment ponds shall include bench control systems and excavated sediment ditches which provide sufficient detention time to achieve effluent limits." The commenters suggested OSM eliminate proposed Sections 816.42(a)(1) (i), (ii), and (iii) which allowed alternate measures.

New Section 816.46(b)(2) allows the use of siltation structures which includes sedimentation ponds and other treatment facilities as defined in paragraph (a)(3). These facilities are allowed by OSM as BTCA if they will achieve the effluent limitations specified under Section 816.42, but the use of other alternate measures will not be allowed.

It is not clear what the commenters meant by excavated ditches. If the commenters meant an excavated depression, this type of structure could be considered a sedimentation pond under 30 CFR 701.5 and could be designed to meet the effluent limitations. (A revised definition of the term "sedimentation pond" is included in the final rules on temporary and permanent impoundments. Under the revised definition, "sedimentation pond" will mean "an impoundment used to remove solids from water in order to meet water quality standards or effluent limitations before the water leaves the permit area." The revised rules for impoundments are expected to be issued contemporaneously with these final rules.)

Bench control systems are generally secondary sedimentation control structures and may be used in conjunction with an authorized "siltation structure" under the final rule, but generally do not alone meet the requirements for use of "siltation structures" as defined in Sections 816.46 (a)(1) and (a)(3).

Several commenters suggested that sedimentation pond sizing should reflect only the disturbed watershed and not the entire watershed, because this is beyond the intent of the Act. Others felt that mining operations should divert runoff from unaffected areas away from the active mining operation so as to allow the design to be based only on the area

tributary to them. One commenter said that runoff from undisturbed areas should be considered in designing a sedimentation pond.

Ponds and other siltation structures must be sized to reflect the expected runoff from the entire area that drains into the structures. However, 30 CFR 816.43 does allow water from undisturbed areas to be diverted away from the actively mined area. If this is done, the siltation structures would not need to be designed to handle the diverted runoff, but only that runoff that passes through the disturbed area. As stated earlier, Section 816.46(a)(2) excludes from the disturbed area, for purposes of Section 816.46, the disturbances associated with such diversions.

SECTION 816.46(b)(3)

Section 816.46(b)(3) states that siltation structures must be constructed before beginning any surface mining activities and, upon construction, must be certified by a qualified registered professional engineer to be constructed as designed and as approved in the reclamation plan. This is required by section 515(b)(10)(B)(ii) of the Act. The construction requirement appeared in proposed Section 816.46(a)(1). The certification requirement appeared in proposed Section 816.46(c).

One commenter suggested that the rule require the structure to be built "before disturbing any portion of the drainage area to be handled by the pond." OSM agrees that all siltation structures need not be built for the entire life of a mine if separate drainage areas will be encountered. However, adequate siltation structures must be constructed prior to any mining activities in a new drainage area to ensure that sediment is controlled and that the effluent limitations will be met. For this reason the final rule has been revised to specify that siltation structures for an area shall be constructed before beginning any surface mining activities in that area. This language is consistent with the requirement of section 515(b)(10)(B)(ii) of the Act, without requiring the useless act of constructing siltation structures for areas that may not be disturbed until some time in the future. However, siltation structures must nevertheless be constructed prior to any surface mining activities in such areas.

Another commenter suggested allowing site-specific temporary structures to be constructed prior to construction of permanent structures. The regulations do not preclude the use of temporary structures, provided that the requirements to meet effluent limitations as well as the other requirements for siltation structures are met. Use of temporary structures is not encouraged by these rules, however, since construction and dismantling of temporary structures could cause undue additional disturbance and expense.

SECTION 816.46(b)(4)

Section 816.46(b)(4) requires all siltation structures which impound water to be designed, constructed and maintained in accordance with the revised impoundment rules of Section 816.49. This provision replaces the portions of proposed Section 816.46(c) which would have required that siltation structures be designed by, and inspected during construction by or under the supervision of, a registered professional engineer as meeting performance standards. All sedimentation ponds and most other siltation structures are impoundments that must meet the performance standards for impoundments. The revised impoundment safety design standards, as established in Sections 816.49 and 817.49, will include standards similar to those proposed in Section 816.46 for certification of the design by a qualified registered professional engineer and for regular inspections. The specific requirements will be explained in the preamble to the impoundments rules.

The requirements in final Section 816.49(a)(2) differ from the proposed rule in that language is added to clarify that the engineer must use current, prudent engineering practices in designing the structure. Also, the engineer is not required to certify that the completed structure meets performance standards as would have been required in the proposed rule. This is in response to a comment which is further discussed below.

A few commenters suggested that OSM rely more on the judgment of the professional engineer in designing sediment control systems. OSM agrees that the professional engineer should be allowed more design freedom so long as the design of the structure or system conforms with requirements of the Act, and these rules, and the regulatory authority approves the design.

One commenter suggested that the words "or engineers" be added to proposed Section 816.46(c) because the language as proposed can be construed to mean that one engineer must design, inspect and certify any given sedimentation pond.

New Sections 816.46(b) and 816.49(a) do not require that the same engineer design, inspect, and certify a sedimentation pond.

One commenter suggested that the regulations be changed so as to allow a qualified registered professional engineer to certify that the sedimentation pond will meet the construction but not the performance standards. Certification as to meeting performance standards, it was argued, is beyond the scope of a professional engineer.

The regulations have more than one certification requirement. The siltation structure will be designed to meet the effluent limitations of Section 816.42, the requirements of Section 816.46, and, if and impoundment, the requirements of Section 816.49. Under revised Section 816.49(a)(2), the design of impoundments must be certified by a qualified registered professional engineer as designed to meet the requirements of Part 816 using current, prudent engineering practices and any design criteria established by the regulatory authority. Certifications are required upon construction for all siltation structures under Section 816.46(b)(3), and for siltation structures that are impoundments under Section 816.49(a)(10)(ii). If properly designed, constructed and maintained, a siltation structure will meet the performance standards. However, OSM agrees with the commenter that the engineers' certifications do not serve as a guarantee that the siltation structure will meet the performance standards. Failure of the final siltation structure to meet the effluent limitations or other requirements is the responsibility of the operator and the engineers' certifications do not relieve the operator from compliance with the applicable standards. If the constructed siltation structure fails to meet the effluent limitations, the operator must incorporate some remedial measures to correct the deficiency.

Final 816.46(b)(4) also incorporates the requirement in revised 816.49(a)(10) that the structure be inspected during construction by the qualified under the engineer's direction. The engineer or specialist registered professional engineer or a qualified specialist must be experienced in construction of similar structures. The qualified registered professional engineer is responsible for ensuring that all impounding structures and impounding treatment systems are constructed according to the design plans and specifications. A provision is added to require that the qualified registered professional engineer inspect the structure during and after construction and annually thereafter. The engineer must submit a certified report of these inspections. This requirement will ensure that siltation structures impounding water will be maintained in good operating condition, will meet the performance standards and will avoid hazardous conditions. Section 816.49(a)(10)(iii) requires that a copy of the inspection report be retained at or near the minesite.

Section 816.49(a)(10) is based, in part, on section 515(b)(10)(B)(ii) of the Act. Sections 816.49(a)(10)(i)-(iii) retain the essential requirements of previous Section 816.46(r) and proposed Section 816.46(c). The preamble to the March 13, 1979, regulations discusses these previous requirements, at *44 FR 15167*.

One commenter stated that OSM should specify clearly that facilities must be constructed according to the approved design, and that revisions are subject to regulatory authority approval.

New Section 816.46(b)(3) requires that each siltation structure be constructed as designed and according to the approved reclamation plan. Any deviations from the plan must be approved by the regulatory authority as revisions to the reclamation plan.

One commenter agreed with the change from quarterly to annual inspections. OSM wishes to clarify that, under revised Section 816.49(a)(10)(i), the annual inspection of impoundments by the engineer will be required in addition to the weekly or quarterly structural examinations required by Section 816.49(a)(1) or Section 816.49(a)(11).

Proposed Section 816.46(e) would have required that all sedimentation ponds be inspected for structural weakness, erosion and other hazardous conditions on a schedule approved by the regulatory authority or in accordance with 30 CFR 77.216-3 for structural weakness, erosion, and other hazardous conditions. Separate listing of these requirements is unnecessary since all sedimentation ponds must meet the impoundment rules which will contain similar provisions in revised Sections 816.49(a) (1), (10), and (11).

The revised impoundment rules will require that large or hazardous impoundments (meeting the size or other qualifying criteria in 30 CFR 77.216(a)) be examined in accordance with 30 CFR 77.216-3, the Mine Safety and Health Administration (MSHA) requirements for examination of structures by the operator at least every seven days. Such impoundments include those with a storage volume of 20 acre-feet or more, those that impound to an elevation of 20 feet or more above the upstream toe, or those that present a hazard to coal miners. Section 816.49(a)(11) will require that other impoundments must be examined at least quarterly by a qualified person, for structural weakness or hazardous conditions and proper functioning. The small size and shorter period of operation for such other impoundments make weekly inspections unnecessary. If more frequent inspections are warranted in a particular case, this determination may be made by the inspecting engineer.

Several commenters requested that structural examinations for small impoundments be required quarterly. OSM agrees that quarterly examinations are generally sufficient for small impoundments not meeting the criteria of 30 CFR 77.216.

One commenter requested clarification that the inspections required by proposed Sections 816.46 (d) and (e) would be solely MSHA inspections. Reference in final Section 816.46(b)(4) to the impoundment rules and MSHA inspection frequency for large or hazardous siltation structures is not meant to imply that inspections under OSM's rules are for compliance with MSHA requirements. Rather, the inspections are to ensure compliance with the requirements under the Surface Mining Control and Reclamation Act. However, each inspection may serve a dual purpose and the operator need not conduct duplicative inspections. It should be noted that these examinations are separate and distinct from the inspections by the regulatory authority to ensure compliance with the regulatory program. OSM does not intend to limit the regulatory authority in any way as to the extent or thoroughness of its inspections.

One commenter said the proposed Section 816.46(e) which required inspection in accordance with 30 CFR 77.216-3 or on a schedule approved by the regulatory authority, might lead to the conclusion that inspection will not be done every 7 days. This interpretation might lead to increased danger to public safety. By reference to new Section 816.49, final Section 816.46(b)(4) incorporates Section 816.49(a) which requires examination of large or hazardous impoundments in accordance with 30 CFR 77.216-3 (which means every 7 days) and examination of small, non-hazardous impoundments at least quarterly.

SECTION 816.46(b)(5)

Final Section 816.46(b)(5) retains the language from the first part of proposed Section 816.42(a)(2), with editorial changes. Final Section 816.46(b)(5) requires that siltation structures be maintained until removal is authorized by the regulatory authority and the disturbed area has been stabilized and revegetated. This prerequisite to removal is required by Section 515(b)(10(C) of the Act. New Section 816.46(b)(5) also states that the siltation structures shall be removed no sooner than two years after the last augmented seeding. The first year after commencement of reclamation yields the largest amount to sediment. According to one study, "sediment accumulation in debris basins below surface-mined lands in eastern Kentucky shows highest sediment yield during the first 6 months after mining. The erosion rate diminishes to fairly low levels within 3 years. . . ." (Curtis, 1974, p88) Curtis also demonstrates graphically that by 24 months after mining the sediment yield is very low. Id. at 90. In most cases sediment generated from the area draining into a siltation structure will have decreased to relatively low levels by two growing seasons after the last augmented seeding. Removing siltation structures at this time could in many cases be the most efficient manner of protecting the environment.

One commenter urged OSM to replace the concept of retaining sedimentation ponds until two years after last augmented seeding with that of requiring construction of an approved permanent erosion and sediment control system. It was argued that this approach would result in improved erosion and sediment control after reclamation.

OSM disagrees that this would necessarily result in improved erosion and sediment control. According to most available technical literature, once the disturbed area has been successfully revegetated, the amount of sediment per acre leaving the reclaimed area should be the same as that of the adjacent undisturbed areas. Therefore, it is unnecessary to require such additional erosion and sediment control.

Any permanent erosion and sediment control systems must be maintained to avoid any malfunctioning. The operator cannot be held responsible for maintenance of such systems for an indefinite period. However, under Section 519(c)(2) of

the Act, where a silt dam is to be retained as a permanent impoundment, Phase II bond release cannot occur until provisions for sound future maintenance by the operator or the landowner have been made with the regulatory authority.

A commenter wanted clarification that, if alternative sediment control measures are used following removal of the sediment pond, these measures would not require the 5 or 10 year liability period to begin anew.

OSM does not anticipate that alternate sediment control measures will be necessary following removal of siltation structures, but in the event they are used, they would not necessarily affect the liability period. The period of liability for revegetation success begins after the last year of augmented seeding, fertilizing, irrigation or other revegetation work. Alternate sediment control measures would cause the liability period to start anew only if the above-described revegetation measures will have to be done again.

The preamble to the proposed rule discussed the use of alternate sediment control measures following removal of the siltation structure. Under normal circumstances, use of such control measures should not be necessary because after two years following the last augmented seeding, sediment yields should be at, or close to, their normal pre-disturbance levels, and will not require sediment control measures. If, however, revegetation has not been successful in certain limited areas, but the conditions of Section 816.46(b)(5) are met for the entire disturbed area, some additional sediment control measures on a limited scale may be appropriate. This determination may be made on a case-by-case basis by the regulatory authority.

Some commenters requested clarification of proposed Section 816.42(a)(2) with regard to removal of siltation structures two years after the last augmented seeding. Several suggested language changes to clarify that structures could be removed no sooner than 2 years after the last year of augmented seeding. OSM has made editorial changes to the provision to clarify that the sediment ponds and other treatment facilities cannot be removed before the end of the two years after the last augmented seeding.

One commenter suggested that allowing removal of a sediment pond two years after revegetation is not appropriate in all regions. The commenter said that premature removal of a pond would create problems if vegetation later failed and the pond had to be rebuilt. The commenter said that previous OSM rules were more appropriate for the West. Another commenter said that the regulatory authority should decide when a pond may be removed, and that the two years requirement is not supported by a demonstrated need.

OSM does not intend that the regulatory authority must allow removal of the siltation structure two years after the last augmented seeding. The regulatory authority is in the best position to judge when vegetation is sufficiently well established to allow removal of the structure; however, at a minimum it may not be before two years following the last augmented seeding. The purpose of the siltation structure is to prevent additional contributions to the streamflow that are caused by mining disturbances.

Although OSM agrees that premature removal of a siltation structure could be disadvantageous, removal of a siltation structure before final bond release on the remaining reclaimed area could be beneficial. Removal of a siltation structure before such final bond release would allow the operator to reclaim the siltation structure site while waiting for the liability period to expire on the remainder of the site. Site-specific conditions and possible failure of revegetation attempts after two years following the last augmented seeding should be considered by the operator, the engineer and the regulatory authority when deciding the best time for removal of a siltation structure.

One commenter said that mined areas should be controlled during reclamation with the same size pond as during active mining. The commenter said that erosion can be greater after backfilling than during mining.

OSM agrees that the sediment pond size should be the same after backfilling as during active mining. But after two years following the last year of augmented seeding, revegetation will in most cases be stable enough that sediment loads will be similar to pre-mining conditions and the sediment pond will no longer be necessary.

One commenter felt that OSM should encourage retention of sedimentation ponds because removal of ponds causes additional disturbance of the area, and sediment ponds can improve the wildlife habitat.

OSM does not encourage retention of sedimentation ponds or other siltation structures as a general rule. In fact, siltation structures must be removed before final bond release can be approved, unless a pond has been approved for retention as a permanent impoundment. Sedimentation ponds and other siltation structures are constructed for the purpose of trapping sediment. They require maintenance to keep acceptable storage volumes and to ensure structural stability, and can be dangerous if allowed to remain without provision for maintenance.

Another commenter suggested that the rule should specify that sedimentation ponds be removed and the affected area revegetated.

Although the rule does not explicitly state that siltation structures shall be removed by a certain time, structures not approved for permanent retention must be removed before the performance bond may be fully released. Also, OSM has added language at Section 816.46(b)(6) to require that the area be stabilized and revegetated following removal of the structure.

Some commenters remarked that the proposed provision which allows removal of sediment ponds after two years following the last augmented seeding does not protect against acid seeps which usually occur sometime after revegetation. One said that the water quality limits for non-point-source discharges during postmining make it doubtful that any of the seeps will ever be treated or abated.

It is true that acid seeps could develop sometime after revegetation. Section 519 of the Act requires that the potential for water quality problems be considered prior to bond release. In any case, the requirements for protection of the hydrologic balance require that mining operations not cause or contribute to any violation of Federal or State water quality standards for receiving waters. Additional provisions ensure compliance with the requirements for revegetation of disturbed areas. Thus, if an acid seep develops during the periods specified above, the operator must meet other applicable performance standards regarding protection of the hydrologic balance, and must ensure that acid drainage does not prevent the revegetation from meeting the performance standards. The bond cannot be released if such problems exist.

Two commenters suggested adding a new paragraph in proposed Section 816.42(a)(2) (final Section 816.46(b)(5)). The commenters suggested the paragraph be changed to read: "Sediment ponds shall be maintained until the disturbed area has been regraded and a sampling of water entering the pond over a one-year period indicated that the untreated discharge will not degrade the quality of the receiving stream as determined by appropriate upstream and downstream sampling allowing for dilution, by an amount in excess of EPA effluent limits applicable to that discharge and also will not cause a violation of water quality standards. However, the regulatory authority shall require a pond to be maintained for a longer period if there is a significant probability that an acid discharge will occur in the future." Other commenters also wanted OSM to require that sediment control measures be retained until untreated drainage meets water quality standards for receiving streams.

As stated above, OSM's hydrology rules require that mining operations not cause or contribute to violations of applicable water quality standards for receiving waters. Those rules apply both before and after removal of the siltation structure. These final rules implement the requirements of sections 515(b)(10)(B) (i) and (ii) and include effluent limitations from point-source discharges (siltation structures). They do not explicitly address the water quality of the receiving streams. The effluent limitations are based on technology. Runoff from disturbed areas must be passed through a siltation structure and therefore technology-based effluent limitations for point-source discharges must be met. Once the disturbed areas are stabilized and revegetated, the runoff from these areas becomes less and less sediment-laden until it reaches normal premining sediment loads. At this time, the siltation structure can be removed and effluent limitations will no longer apply.

As indicated in the proposed rule *(46 FR 34784),* OSM does not agree that specific numerical discharge limits are appropriate as a basis for removal of sedimentation ponds. In many areas of the country application of the effluent limitations will result in a discharge that meets lower standards than discharges that occur from undisturbed natural areas. Thus, the runoff from reclaimed land should not be based upon limitations determined through the use of a treatment technology. Additionally, many areas of the country have preexisting conditions, not caused by the new mining operation, that would result in the natural discharge from a mined area not meeting numerical water quality standard limitations. In such instances, the criteria for sedimentation pond removal should not be tied to such limitations. The primary function of a siltation structure is the control of additional contributions of suspended solids to streamflow during mining. The final

rule reflects this objective and ensures that the sedimentation pond will be maintained until no longer required to control siltation.

On the other hand, OSM agrees that mining operations should not be allowed to cause violations of the water quality standards of the downstream receiving waters. The general requirements for protection of the hydrologic balance of Sections 816.42 and 817.42 clearly include such a prohibition. *(47 FR 47216,* October 22, 1982.) Additionally, the potential for long term water quality problems and the need to treat any water from the mine site must be considered prior to bond release. Thus, there is no need to add further provisions to this rule to ensure compliance with water quality standards and to ensure that the potential for acid mine drainage is considered prior to bond release. If the regulatory authority determines that retention of a siltation structure is the appropriate method of handling any acid seeps that may develop, the regulatory authority can require continued retention of such treatment facilities or require installation of an alternative treatment facility to treat such drainage. Additional language has been added to the final rule to indicate that the siltation structures must be maintained until removal is authorized by the regulatory authority.

One commenter said that the two-year period for maintaining sedimentation ponds after the last augmented seeding is based on one study in eastern Kentucky. The commenter maintained that this is not an adequate basis on which to set national standards. Another commenter stated that the two-year period was not supported by a demonstrated need.

While it is true that the two-year standard is based on one study, the study data represent a sufficient base on which to establish a minimum requirement for retention of a siltation structure during the reclamation period of mining. The regulatory authority will need to consider site-specific characteristics in order to decide whether, and for how long, the structures must be retained past the two-year period.

One commenter stated that a small area which required revegetation should not hold up removal of the sediment pond.

The final rule does not necessarily require retention of the siltation structure for revegetation of small areas. However, the entire disturbed area which drains into the siltation structure must be stabilized with enough vegetative growth to reduce sedimentation. Further, if "augmented seeding" of the disturbed area is necessary then there must be a period of at least two years following this augmented seeding before the structure into which the area drains may be removed.

SECTION 816.46(b)(6)

Section 816.46(b)(6) is added for clarification. The requirement to regrade and revegetate the land on which the siltation structure was located following removal of the siltation structure is retained from the second sentence of previous Section 816.46(u). Approved permanent impoundments are exempt, but must meet the standards for such structures in Sections 816.49 and 816.56.

A commenter suggested that the rule specify that the area be regraded and revegetated following removal of a siltation structure. OSM agrees that this needed clarification and has added Section 816.46(b)(6).

SECTION 816.46(c) - SEDIMENTATION PONDS.

New Section 816.46(c) adopts language from proposed Sections 816.46 (a), (b), (d), and (e) and retains general provisions from previous Sections 816.46 (i) and (j) with modifications. Paragraph (c) sets forth requirements for sedimentation ponds in addition to those in Section 816.46(b) applicable to all siltation structures.

SECTION 816.46(c)(1)

Section 816.43(c)(1)(i) (proposed Section 816.46(a)) requires that sedimentation ponds when used, be used individually or in series. Section 816.46(c)(1)(ii) (proposed Section 816.46(a)(2)) requires that ponds be located as near as possible to the disturbed area and out of perennial streams unless approved by the regulatory authority. Section 816.46(c)(1)(iii)(A)-(I) require that sedimentation ponds be designed, constructed and maintained to: provide adequate storage volume; provide adequate detention time to meet effluent limitations; contain or treat the 10-year, 24-hour precipitation event or other event approved by the regulatory authority based on site-specific conditions and a demonstration that effluent limitations will be met; provide a nonclogging dewatering device; minimize short circuiting; provide periodic sediment removal; ensure against excessive settlement; be free of sod, large roots, frozen soil and

acid- or toxic-forming coal processing waste; and be compacted properly. Sections 816.46(c)(1)(iii)(A)-(F) are retained from proposed Sections 816.46(a)(3) (i) through (vi). Section 816.46(c)(1)(iii) (G), (H) and (I) are adopted as proposed at Section 816.46(b), except that the final rule has been broken into subsections for easier reading, and duplicative requirements of the proposal, including the static safety factor and prohibition on organic matter in the foundation, have been moved to Section 816.49(a) of the impoundment rules.

One commenter requested clarification that the operator is not required to use sedimentation ponds. The commenter suggested that proposed Section 816.46(a) (new Section 816.46(c)(1)) be changed to "sedimentation ponds, when used, . . ." OSM has adopted this suggestion to clarify that certain other siltation structures may be used instead of sedimentation ponds if approved by the regulatory authority.

One commenter asserted that OSM's proposal to publish technical memoranda on design of sedimentation ponds, could become unofficial rules. The commenter also said that this appears to be an attempt by OSM to circumvent court decisions by issuing technical memoranda instead of rules.

The publication of technical memoranda is not an attempt to promulgate unofficial rules. Technical memoranda are merely guidance in how to cope with specific technical problems and should not be construed to be rules. Technical memoranda suggest methods, designs, or tests which OSM believes present solutions to specific problems identified after evaluation of the Act, regulations, technical literature and on-the ground experience. Regardless of any technical memoranda, the operator is responsible for compliance with the applicable requirements of an approved regulatory program and the Act.

Another commenter agreed that regulatory authorities and professional engineers are knowledgeable enough to design and approve sedimentation ponds, but suggested that OSM should follow up with a handbook of design criteria. Another commenter suggested that professional engineers be relied on to design sedimentation ponds until OSM publishes new design criteria.

OSM is considering the development of a handbook on design of siltation structures for use by regulatory authorities, operators and engineers. Nevertheless, regardless of whether or not OSM issues a handbook on design of siltation structures, it is appropriate to use qualified professional engineers to design such facilities.

A commenter requested deletion of the requirement at proposed Section 816.46(a)(2) (final Section 816.46(c)(1)(ii)) that the sedimentation pond be located as near as possible to the disturbed area because proximity to the disturbed area is not necessarily the best criteria for effectiveness, and it can be burdensome and costly.

Authorities on hydrology and sedimentation specify that sedimentation ponds should be located as close as possible to the sediment source and before the drainways reach the mainstream (Grim and Hill, 1974, at 103). The final rule does not specify any particular distance limitation, and site-specific conditions must be considered prior to approval of a location by the regulatory authority. However, continued inclusion of a provision on location of sedimentation ponds is appropriate in order to ensure that the drainage area served is minimized and that a sedimentation pond no larger than necessary is constructed. Further discussion of this topic can be found in the preamble to the previous rules *(44 FR 15159,* March 13, 1979).

One commenter wanted to know the basis for rejection of ponds in streams and the methods that will be used by the regulatory authority to recognize special situations.

Section 816.46(c)(1)(ii) follows the language of previous Section 816.46(a)(2) which was explained in the earlier preamble as follows:

"Generally, such structures should be located out of perennial streams to facilitate the clearing, removal and abandonment of the pond. Further, locating ponds out of perennial streams avoids the potential that flooding will wash away the pond. However, under design conditions, ponds may be constructed in perennial streams without harm to public safety or the environment. Therefore, the final rules authorize the regulatory authority to approve construction of ponds in perennial streams on a site specific basis to take into account topographic factors. Hill at 11 (1976); Erosion and Sediment Control at 54 (19767)." *(44 FR 15159,* March 13, 1979)

The second question was addressed in the same preamble as follows:

"The operators have the burden of providing adequate assurance or proof that the methods proposed [for meeting sedimentation pond standards] are effective and safe. Such proof can be presented for approval by the regulatory authority in many different forms. . . [which] may generally include. . .

a. Maps, graphs, or charts.
b. Valid reports of similar work performed by others.
c. Testimony by recognized professionals, or
d. Actual laboratory experiments, and controlled field plot demonstrations.

"The operator has the option of electing the most advantageous method. Final approval is still vested in the regulatory authority." *(44 FR 15159,* March 13, 1979)

Section 816.46(c)(1)(iii) sets the minimum performance standards that the sedimentation pond must meet.

Section 816.46(c)(1)(iii)(A) requires that the sedimentation pond be designed, constructed and maintained to provide adequate sediment storage volume. The adequate sediment storage volume provided should be large enough to contain the sediment that will accumulate in the pond between scheduled sediment removal periods. The storage volume should be sufficient to avoid excessive, frequent and costly sediment removal. The sediment storage volume must also be distinct from the volume provided for the design event under Section 816.46(c)(1)(iii)(F). Within these constraints, the determination of actual sediment storage volume is left to the professional engineer. This requirement differs from that of Section 816.46(b) of the previous rules in that it requires an adequate sediment storage volume rather than a minimum sediment storage volume. The words "to account for accumulated sediment" have been removed from the proposed regulations of July 2, 1981, since they are redundant.

One commenter asked that sediment storage volume requirements be deleted. Another said that the requirement for adequate storage volume is too vague and will result in ponds that are not large enough to contain accumulated sediment. Some commenters asked that the detailed requirements of previous Section 816.46(b) be retained.

It is necessary to consider sediment storage volume when designing a sedimentation pond since the effectiveness of the pond depends in part on storage volume and since the settling of sediment in the pond affects the remaining capacity of the pond. It is to the operator's advantage to provide for storage so that the pond does not have to be cleaned too frequently. However, OSM is deleting specific methods on how to calculate storage volume contained in previous Section 816.46(b) because this design parameter is best left to the professional engineer. The engineer should consider all aspects of design in drawing plans for a pond and will have a better perspective on how storage volume is affected by site conditions, secondary structures used in conjunction with the pond, and other relevant factors. In approving the design, the regulatory authority will have to be satisfied that the storage volume is adequate.

Section 816.46(c)(1)(iii)(B) was proposed at Section 816.46(a)(3)(ii) and requires that the sedimentation pond must be designed to provide sufficient detention time to allow the structure to meet the applicable effluent limitations. Detention time is critical to the functioning of sedimentation ponds for it allows sediment particles to settle out. If the pond is not designed and constructed to provide the appropriate detention time, discharges from the sedimentation pond will not be likely to meet EPA's effluent requirements.

This section differs from proposed Section 816.46(a)(3)(ii) in that it requires that the discharge meet effluent limitations rather than "water quality standards." Sedimentation ponds are point source discharges and therefore subject to compliance with effluent limitations. These effluent limitations are established in 40 CFR 434 of EPA's regulations. More stringent effluent limitations, however, may be imposed on a case-by-case basis if necessary to ensure compliance with water quality standards in downstream receiving waters.

Several commenters agreed that this rule should require "adequate" detention time and not a more specific time, but most of these commenters disagreed with the references to Ward's formula for calculating detention time in the preamble to the proposed rule *(46 FR 34786).* They pointed out that Ward's calculations are based on structures designed to meet total suspended solids (TSS) limits for storm events, and were therefore not applicable, since EPA effluent limitations now require that settleable solids (SS) limits be met during storm events. Some commenters stated that detention time

need not be based on inflow from a precipitation event as required in the preamble to OSM proposed rules, so long as the structure achieved effluent limitations.

One commenter was concerned that the proposed rule did not have a basis for determining "adequate detention time" and the wide range allowed could result in some ponds not meeting performance standards. Another thought that the rule is too imprecise as to detention time. Several felt that disturbed and undisturbed areas that drain into the pond should be figured in when calculating detention time. Some commenters supported allowing credits for detention time for control features used elsewhere in the permit area. Others thought that operators using gabions and straw bales should not be given credits because when these objects become sediment laden, they are no longer effective. One commenter felt that detention time should not be mentioned in the rules.

One commenter suggested that detention time be defined as "the volume weighted average theoretical detention time for the design storm event in the pond." One suggested, "a volume weighted detention time of the design event in the sediment pond as determined by recognized hydrologic techniques." Another suggested a formula to use to determine detention time. One commenter suggested that the minimum detention time be 14 hours because 85% of the particles above 5 microns will settle out within a 14-hour period. Another suggested a 10-hour maximum detention time because this will be sufficient to met the environmental objectives of the Act.

Under this final rule, sedimentation ponds must be constructed and maintained to provide adequate detention time to allow the effluent from the ponds to meet State and Federal effluent limitations. As long as the effluent limitations are met, the determination of detention time is up to the qualified registered professional engineer, with approval of the regulatory authority this allows the engineer to use professional judgment in designing a structure for a specific site. OSM agrees that the Ward formula may not be appropriate for purposes of this rule and the EPA/OSM effluent limitations. OSM does not agree that greater specificity is needed with respect to the detention time. Although detention time is an important consideration in designing a sedimentation pond, it is only one of several variables which must be considered by the design engineer to ensure that the performance standards and the effluent limitations are met.

The regulatory authority may establish guidelines to use in determining detention time, or the regulatory authority may allow the engineer to choose design parameters. The design of the pond and detention time chosen must account for all drainage into the structure, including undiverted drainage from undisturbed areas. Credit can be given for certain sediment control measures (used in conjunction with a pond) such as leaky dams, gabions, and straw bales, as long as the effluent limitations will continue to be met. These measures must be approved by the regulatory authority and properly constructed and maintained. Such credits are appropriate because these additional sediment control measures, when properly constructed and maintained, can reduce the time needed to meet the effluent limitations.

Proposed Section 816.46(a)(3)(iii) is adopted in final Section 816.46(c)(1)(iii)(C) with some changes. The proposed rule required that a pond be constructed for a "design event" to be based on site-specific conditions. Final Section 816.46(c)(1)(iii)(C) requires that sedimentation ponds be designed, constructed, and maintained to contain or treat the 10-year, 24-hour precipitation event ("design event"), unless a lesser design event is approved by the regulatory authority. In this context, the word "contain" is used to mean the water storage volume, not counting sediment storage volume, of the pond up to the principal spillway.

EPA, in its final effluent limitation rule for the coal mining point source category (40 CFR 434), requires that specific settleable solids (SS) limitations be met for discharges caused by any precipitation event up to a 10-year, 24-hour event. See 40 CFR 434.63 *(47 FR 45382,* October 13, 1982). These limitations are based on the performance of properly designed sedimentation ponds capable of containing the runoff from a 10-year, 24-hour precipitation event. Therefore, unless the operator can satisfy the regulatory authority that a pond designed for a lesser event will satisfy EPA effluent limitations, a pond designed for a 10-year, 24-hour event will be required. In fact, EPA's data base shows that smaller ponds are also capable of meeting the limitations. All sedimentation ponds must ensure compliance with EPA's final effluent limitation *(47 FR 45382,* October 13, 1982).

Because the available data indicate that a sedimentation pond designed to contain the 10-year, 24-hour event will meet EPA's effluent limitations, OSM is using this event for its requirement for design of sedimentation ponds. However, if an operator can show that a structure or series of structures sized for an event other than the 10-year, 24-hour event can meet the effluent limitations established by EPA, the regulatory authority may approve such a structure as long as it is a

siltation structure that meets the other requirements of final Section 816.46. Also, if the structure that is designed for a 10-year, 24-hour event is not sufficient to meet the EPA effluent limitations, the operator must use other means in conjunction with the siltation structure to meet EPA effluent limitations. This may require the addition of secondary structures and/or chemical flocculants to aid in settling out sediment.

Several commenters supported the deletion in the proposed rule of the requirement in previous Section 816.46 for a 10-year, 24-hour design event. One suggested that a smaller pond be allowed as long as effluent standards are met. Some said the pond should not be required to contain a 10-year, 24-hour event, because that would require too large a pond which would be extremely expensive to maintain and reclaim. One commenter said that OSM should not limit the size exemption to steep slope areas, but should only require ponds in all areas to meet effluent limitations.

Some commenters thought that OSM should not require a pond based on a 10-year event, if the life of the pond was expected to be less than 10 years. Several agreed that the engineer should decide how large the pond should be, based on site-specific conditions. Two commenters said that a reduction in pond size should only be allowed where pond failure would damage life or property. These commenters said that the standards should not be lowered from previous rules, except that ponds located in steep slope areas may need relaxed standards. One commenter said that the variance from the design to control a 10-year storm is vague and contradictory. Another said OSM should not grant such variances because most States are unwilling or unqualified to judge if effluent limits are being met at all times. Another commenter said that if OSM does not adopt EPA's 10-year, 24-hour design event, then it should give the States more definite criteria to develop a "reasonable design event."

OSM agrees that it may be possible, based on local conditions to meet the effluent limitations with smaller ponds. In some instances smaller ponds may be more desirable for safety reasons and could minimize disturbance of the land. However, ponds designed to contain lesser events should also be justified based on site-specific conditions and on a demonstration that the effluent limitations will be met.

For the reasons stated above, OSM is requiring a sedimentation pond sized for the 10-year, 24-hour event, unless otherwise approved by the regulatory authority. However, OSM intends that this rule will give the regulatory authority flexibility in allowing siltation structures that are sized for other events, so long as the regulatory authority is satisfied that the effluent limitations will be met.

Several commenters objected to the effluent limitations standards. One supported pond size criteria but not effluent limitations. Another said the operator should be required to have a pond that would meet either the total suspended solids (TSS) limits or the settleable solids (SS) limits, but not both. One commenter said that a pond must be designed for the 10-year, 24-hour event in order to meet effluent limitations, and that the effluent limits themselves are arbitrary and too expensive. This commenter felt that the rule should leave the pond design to the engineer, the regulatory authority and the operator to meet "more reasonable effluent standards for the different conditions."

OSM has adopted (October 22, 1982, *47 FR 47216)* EPA's effluent limitations promulgated October 13, 1982, at *47 FR 45382* and refers these commenters to the Federal Register preambles of those rules *(47 FR 47216,* October 22, 1982 and *47 FR 45382,* October 13, 1982) for discussions of why these effluent limitations were adopted. OSM notes that operators are not required to meet both the TSS and SS limits. Rather, any discharge caused by precipitation events less than or equal to the 10-year, 24-hour event may comply with the SS limits of 40 CFR 434.63 instead of the TSS limits which are applicable during base flow conditions.

One commenter asked that the requirement for an automatic neutralization device be reinstated for acidic mine discharges. The commenter said that such a device makes compliance with pH standards more likely. The commenter said that a variance could be allowed if "certain showings were made" as in the previous rules.

As long as effluent limitations standards are met, the use of an automatic neutralization device is left to the discretion of the engineer and the regulatory authority.

Several commenters suggested that operators who design the sedimentation ponds according to State criteria should be entitled to the EPA rainfall exemptions since EPA findings hold that such size sedimentation ponds will meet the TSS and the SS effluent limitations and by definition they are BTCA.

The rainfall exemption is deleted because EPA has established separate, achievable effluent standards for base flow (TSS), for precipitation events less than the 10-year, 24-hour event (SS), and for events greater than the 10-year, 24-hour event (pH). Siltation structures must be designed to achieve these effluent limitations.

One commenter requested that an option be given to design sediment ponds according to either a design standard or an effluent standard, because Skelly and Loy, 1979, and D'Appolonia, 1979, proved that sedimentation ponds cannot meet both.

OSM has made its choice: Siltation structures must be designed to meet the EPA effluent limitations. The final rule provides flexibility to the regulatory authority in approving various designs.

One commenter asked that "or treat" be deleted since sedimentation ponds are not flocculant systems. OSM does not adopt this suggestion since sedimentation ponds can either be used alone to contain water long enough to allow sediment to settle out, or be used in conjunction with treatment of the sediment so that it settles out more quickly.

A commenter suggested that OSM add language which would prevent the regulatory authority from requiring a design volume which exceeds the 10-year, 24-hour event. OSM rejects this comment because the regulatory authority has the option to require rules more stringent than those required by OSM. However, in most circumstances a pond designed for the 10-year, 24-hour event will be sufficient to meet the effluent limitations.

Final Section 816.46(c)(1)(iii)(D), proposed at Section 816.46(a)(3)(iv), requires that a nonclogging dewatering device be provided. Such a device must be able to achieve the design detention time and thereby allow the sedimentation pond to meet the effluent limitations. A nonclogging dewatering device is needed to avoid unnecessary use of the emergency spillway or overtopping of the embankment, either of which can create hazardous conditions downstream by allowing the flooding of the receiving stream or by structurally weakening, eroding or breaching the embankment. This requirement is retained from Section 816.46(d) of the previous rules, except that the location of the dewatering device is decided by the qualified registered professional engineer.

Several commenters requested deletion of the requirement for a dewatering device. Some said that this requirement implies use of a dry pond and that wet ponds are often preferable. One commenter suggested changing "dewatering device" to "decant device" or "primary spillway." Some said that a single spillway is adequate for flood routing and sediment control, and should be allowed instead of a dewatering device. One commenter said a dewatering device has little to do with detention time. Another said it is not always needed, and the decision on whether to use one should be left to the engineer. One commenter said the rule should require that dewatering devices, "when used," should be of a non-clogging type. One commenter said that dewatering devices do not increase detention time, and that they increase the chance of short circuiting, obstruct cleaning of the pond, and are a high maintenance item, not worth the cost.

By requiring a dewatering device, OSM is not advocating or imposing the use of a dry pond. OSM is requiring a device through which water exits the pond. This is necessary to ensure that the detention time for which the pond is designed will be maintained. If water accumulates in the pond and is not allowed to exit, the water level will rise and may not recede sufficiently to assure adequate detention time in the event of increased inflow to the pond. As long as the detention time is sufficient at all times to meet the effluent limitations of Section 816.42, any device which allows water to exit the pond will fulfill this requirement. In some cases the principal spillway and the nonclogging dewatering device may be one and the same. Single spillways are allowed at Section 816.46(c)(2)(ii) for certain ponds not meeting the criteria of 30 CFR 77.216(a) and may be used in conjunction with the nonclogging dewatering device, or may be considered to be the nonclogging dewatering device as long as detention time is adequate.

A commenter suggested that OSM should add, "Perforated risers shall not be allowed unless the operator can show that applicable effluent limits will be achieved at all times."

The suggestion to ban perforated risers from being used as principal spillways is contrary to standard engineering practice. Furthermore, whether or not such devices are used, environmental protection is ensured because the operator must meet the effluent limitations imposed by Section 816.42. The commenter did not explain why the use of perforated risers would prevent compliance with effluent limitations.

Two commenters suggested that dewatering devices should be required to take water only from close to the water's surface because these devices can achieve better quality effluent without increasing cost. The final rule leaves the precise design of the dewatering device to the qualified registered professional engineer and to the regulatory authority. The commenters' suggestion is not the only method capable of achieving the performance standards.

Nevertheless, the method of dewatering must be such that it complies with the effluent limitations imposed under Sections 816.42 and 817.42 and under 40 CFR 434.

One commenter argued that OSM should require a dewatering device that would be maintenance free so that the sediment storage capacity would always be available for use. OSM is requiring the use of nonclogging dewatering devices to ensure that they remain functional. Beyond this requirement, the qualified registered professional engineer must address the maintenance issue when preparing the design.

Final Section 816.46(c)(1)(iii)(E) (proposed Section 816.46(a)(3)(v)) requires that the sedimentation pond be designed, constructed, and maintained to minimize, to the extent possible, short-circuiting. Short-circuiting transports sediment through a pond in less time than is required to allow sediment to settle out. It can be caused by improper pond design or construction. This requirement is taken from previous Section 816.46(e). The preamble to that section further explains this requirement *(44 FR 15164)*.

Proposed Section 816.46(a)(3)(v) required that ponds be constructed to avoid short circuiting. One commenter said that short circuiting cannot be avoided, rather, it can only be minimized because short circuiting is a natural phenomenon resulting from flow and channel characteristics.

OSM agrees that short circuiting cannot be avoided totally, without undue difficulty and has changed the wording to "Minimize, to the extent possible. . . ."

Final Section 816.46(c)(1)(iii)(F) (proposed Section 816.46(a)(3)(vi)) requires that sediment be removed on a periodic basis to maintain adequate volume for the design event. This is necessary to avoid overtopping, breaching or failure to meet the effluent requirements. The "timely removal and disposal of accumulated sediment, cleaning of clogged outflow pipes, repair of emergency spillways and embankment repair are extremely important for the proper functioning of the whole sedimentation pond system, but are usually overlooked." (Kathuria, and others 1976.)

This regulation is taken from previous Section 816.46(h), except that the previous requirements to remove the sediment from the sediment storage when that volume is 60 percent full has been removed. This is a maintenance procedure which the qualified registered professional engineer must address in the design to ensure compliance with effluent limitations and the safety of the structure.

Several commenters asked that the operator be given the option to design a pond with adequate storage volume so that periodic sediment removal would not be necessary. If the engineer finds it appropriate, and the regulatory authority approves, a pond may be designed to hold all sediment expected to accumulate during the life of the pond, so that periodic sediment removal is not necessary, as long as the pond meets all other requirements. This is allowable under the regulatory language adopted because the design provides for sufficient sediment storage volume that adequate volume for the design event is maintained without sediment removal.

Proposed Section 816.46(a)(3)(vii)(B) would have required provision of an adequate freeboard at all times. The purpose of the freeboard is to protect the embankment against overtopping being caused by wave action. The freeboard requirement was based on previous Section 816.46(j). Since Section 816.49(a)(4) of the revised impoundment rules will require adequate freeboard for all impoundments, OSM has decided a separate provision in the sedimentation pond rules is unnecessary. The final impoundment rules do not specify freeboard height.

Some commenters asked that the 1 foot freeboard requirement be retained from previous rules. Some commenters asked that the 1.5 static safety factor be retained. Two suggested addition of this language: "All ponds shall have at least one foot freeboard and meet a static safety factor of 1.5" One commenter felt that the engineer should be allowed to design for overtopping control.

OSM is adopting the proposed requirement for adequate freeboard, but placing it in the impoundment rules, in an effort to reduce design constraints and allow design flexibility to the engineer. Overtopping will continue to be prevented by the requirement that freeboard be adequate.

The requirement that the structure meet the 1.5 static safety factor from previous Section 816.46(q)(2) is also covered in the impoundment rules at Section 816.49(a)(3) and need not be duplicated in Section 816.46. It appeared in proposed Section 816.46(b) as a requirement for an "acceptable" static safety factor. OSM has decided to retain the 1.5 factor in revised Section 816.49(a)(3) because this factor of safety is standard engineering practice for earth structures located where failure could cause loss of life or property damage. (See the March 13, 1979 preamble at *44 FR 15167 and 15205* for further discussion).

Proposed Section 816.46(a)(3)(viii) would have required that all embankments and surrounding disturbed areas be stabilized and revegetated. This requirement was taken from Section 816.46(s) of the previous permanent program rules. OSM has decided that a similar provision applicable to all impoundments, at revised Section 816.49(a)(7), will serve the same purpose as the proposed rule and therefore a specific rule for sedimentation ponds is unnecessarily duplicative. Covering of exposed surfaces with vegetation avoids further erosion and contribution of suspended solids and sediment to the stream by wind or wave action. Technical support for this requirement can be found in SCS (1977) at 378-7, Schwab, and others, 1966 at 314-315, and in EPA (1976), Vol. 2 at 71. These references conclude that protective vegetative cover should be established on all exposed surfaces if climatic conditions allow it. Otherwise, nonvegetative cover such as mulches and gravel may be used to achieve proper stabilization.

Some commenters suggested that OSM retain erosion controls specified in previous Section 816.46(s). Those provisions would: require all areas be stabilized by vegetative cover; allow the use of rip-rap of the active upstream face of the embankment where water will be impounded; and require that all areas where rills and gullies develop be repaired and revegetated in accordance with Section 816.106 of the March 13, 1979, rules. One commenter said the rule should require that, after construction of the sediment pond, surrounding areas should be seeded and mulched.

OSM agrees with the first suggestion and the new impoundment rules will allow rip-rap to be used on faces where water will be impounded. This is also consistent with the provision in the revised topsoil rules that will not require topsoil to be placed on the embankments of impoundments if such placement would increase sedimentation and the embankments will be otherwise stabilized. The reason for requiring a vegetative cover can be found in the preamble to the proposed regulations of July 2, 1981 *(46 FR 34787).* The use of rip-rap can be allowed by the regulatory authority since it is standard engineering practice. Repair and revegetation of rills and gullies are required by revised Section 816.95(b) *(48 FR 1163,* January 10, 1983) and by the revegetation rules. The areas surrounding sedimentation ponds must be reclaimed in accordance with the revegetation rules, as is required for any other disturbed area. The fact that surrounding areas are disturbed during construction of a pond does not mean that they should be reclaimed in a different manner except where the special characteristics of ponds come into play.

One commenter suggested that "stabilized" as referenced in the proposed rules, is not environmentally appropriate when dealing with arid and semi-arid regions. In many areas of the West, and especially the Southwest, the ephemeral streams are characterized by deeply incised channels whose vertical banks are generally free of vegetation. Bank failure and gullying along stream boundaries are common features and play an integral part in the regional geomorphology. The commenter recommended adding the phrase "compatible with the existing environment" to modify the requirement for stabilization.

Soil stabilization means using any method to ensure that the soil will not have excessive shrinkage and that it will be resistant to erosion. If sedimentation pond embankments are not stabilized, a hazardous condition might be created which might jeopardize life, eco-systems and environmental values. This is prohibited by Section 102(a) of the Act. Sedimentation ponds are man-made, not natural structures, and must be constructed to maintain safety and environmental integrity. Therefore, this comment is rejected.

The final rules at Sections 816.46(c)(1)(iii) (G), (H) and (I) require adherence to normal design construction, and maintenance procedures, such as ensuring against excessive settlement (Section 816.46(c)(1)(iii)(G)), freeing the foundation from sod, large roots, frozen soil and acid- and toxic-forming coal processing wastes (Section 816.46(c)(1)(iii)(H)), and providing proper compaction (Section 816.46(c)(1)(iii)(I)). These provisions include requirements from previous Sections 816.46 (k), (o), and (p). The requirement at previous Section 816.46(n) that the

entire embankment foundation be scarified and the requirements at previous Section 816.46(p) for placement and spreading of the fill, have been deleted from the rules. However, they can be included as necessary by the engineer in the sedimentation pond design. The other requirement of previous Section 816.46(n) that the foundation be cleared of all organic matter duplicates Section 816.49(a)(5) of the new impoundment rules and is therefore not needed in this rule.

Two commenters expressed concern that clarification is needed as to requirements of proposed Section 816.46(a)(3)(viii) (new Section 816.49(a)(7)) and proposed Section 816.46(b) (new Section 816.46(c)(1)(iii)(H)) as some persons might construe these objectives to be contradictory.

Under new Section 816.49(a)(7) all embankments must be revegetated or riprapped to avoid erosion. The requirement that the embankment foundation be free from sod, large roots, frozen soil, and acid- or toxic-forming coal processing waste is found under Section 816.46(c)(1)(iii)(H). The two are different in that one requires that the surface of the embankment be stabilized while the other prohibits the existence of vegetative matter in the foundation. The first minimizes erosion-caused instability while the second relates to the integrity of the foundation.

Thus, the regulations are specific enough and need no further clarification.

One commenter said that the removal of vegetative material from the low height structure sub-base will virtually guarantee failure of the structure because it will remove the support for the foundation. The commenter said that broad shallow ponds in combination with chemical flocculants can provide excellent control.

The bulk of evidence points to removal of vegetative matter from the foundation as the preferable practice. The Bureau of Reclamation has found that 40 percent of all earth fill dam failures are attributable to foundation failure. U.S. Department of the Interior, 1977, at 211. Furthermore, the minimum treatment any earth fill dam foundation should have is the removal of topsoil with high organic matter content or the removal of other unsuitable material. id at 212. The removal of vegetative material ensures that a semi-pervious base for the earth dam is attained. Organic matter decays and forms voids which can be conducive to piping. Also, the Soil Conservation Service believes that trees, logs, brush, stumps, roots and sod should be cleared from the foundation. U.S. Department of Agriculture, 1977, at 7.

Foundation preparation has been further described as follows: "The minimum requirement for foundation stripping is the removal of vegetation, sod, topsoil with high organic content, and other unsuitable material that can be removed by opencut excavation. In cases where the overburden is comparatively shallow and composed of soft clays, loose fine sands and silts, or extremely pervious sands and gravels, the entire foundation area of the dam may be stripped to bedrock." U.S. Department of the Interior, 1974, at 215. Foundation excavations are necessary to remove residuals and weathered rock to form a semi-pervious base for earth fill dams. (Church 1980, at 5-6).

SECTION 816.46(c)(2)

Proposed Section 816.46(d) required that sedimentation ponds meeting certain size criteria must comply with the standards of the Mine Safety and Health Administration (MSHA) set forth in 30 CFR 77.216 and have principal and emergency spillways capable of safety passing a 100-year, 24-hour precipitation event. The proposed rule would have described the ponds included by repeating the 20 foot embankment height or 20 acre-feet of storage volume criteria of the MSHA rules. Proposed Section 816.46(d) is moved to new Section 816.46(c)(2)(i) with changes.

Final Section 816.46(c)(2)(i) requires that ponds meeting the size or other qualifying criteria of 30 CFR 77.216 must comply with all requirements of that section. The final rule also requires that these large or hazardous ponds have principal and emergency spillways that in combination will safely pass a 100-year, 6-hour precipitation event. The proposed rule and previous Section 816.46(g)(1) were similar except that they used the 100-year, 24-hour event as the design storm.

A related provision was proposed in Section 816.46(a)(3)(vii)(A) and would have required that all sedimentation ponds must have principal and emergency spillways that would safely discharge a 25-year, 24-hour precipitation event. The proposal derived from previous Section 816.46(i), the reasoning for which was explained at *44 FR 15165* (March 13, 1979). This provision, as modified, appears in final Section 816.46(c)(2)(ii).

Final Section 816.46(c)(2)(ii) applies only to sedimentation ponds that do not meet the criteria of 30 CFR 77.216(a) because those that meet such criteria are covered by the larger 100-year, 6-hour event under Section 816.46(c)(2)(i). Final Section 816.46(2)(ii) specifies a 25-year, 6-hour event rather than the 25-year, 24-hour event, as proposed, for consistency with the requirement for temporary impoundments in revised Section 816.49(c) of the impoundment rules. In addition, if a sedimentation pond does not meet the criteria of 30 CFR 77.216(a), but will be retained as a permanent impoundment, then the combination of principal and emergency spillways must safely pass the 50-year, 6-hour event under revised Sections 816.49 (a)(8) and (b)(7) of the impoundment rules.

A commenter asked whether the 20 acre-feet volume mentioned in proposed Section 816.46(d) (new Section 816.46(c)(2)(i)) applies to each individual pond in a series of ponds. If each individual sedimentation pond meets the criteria specified by MSHA under 30 CFR 77.216(a), it must comply with the requirements of that section.

One commenter said that the references to MSHA criteria concerning sedimentation pond embankments is unnecessary and should be deleted. OSM disagrees. The standards promulgated by MSHA under 30 CFR 77.215 through 77.217 have proven to be successful and are based on good engineering judgment and techniques. Also, section 702(a)(2) of the Act specifies that OSM cannot amend, repeal, supersede or modify any rule promulgated under the Federal Coal Mine Safety Act of 1969 (and by implication, its successor, the Federal Mine Safety and Health Act of 1977). Therefore, MSHA's rules apply to sedimentation ponds that meet their criteria. It may be true that the reference to MSHA rules is duplicative in that they are applicable by their own terms. However, such a cross reference will be helpful in making operators and the public aware of MSHA's rules and providing consistent standards for implementation by the regulatory authority.

One commenter advocated the use of more appropriate design standards where there is potential for loss of human life and claimed that the 100-year, 24-hour event in proposed Section 816.46(d) is not appropriate where failure of the structures might result in the loss of a human life. The commenter suggested requiring design standards in the Federal Guidelines to Dam Safety or 33 CFR Part 22, Engineer and Design; National Program for Inspection of Non-Federal Dams when there was potential for loss of human life.

The causes of failure of impoundments and embankments range from poor design to improper construction and maintenance. A qualified registered professional engineer, experienced in the design, construction, and maintenance of these types of structures, should determine most construction criteria, with regulatory authority approval. OSM uses the Federal Guidelines for Dam Safety in implementing its own portion of the National Program for Inspection of dams and agrees that these guidelines can be useful in implementing a dam safety program. However, while it is not necessary to incorporate such guidelines as enforceable regulations under this program, the safety criteria of these regulations are consistent with the Dam Safety guidelines. In addition, the certifications described earlier provide further assurance of safety.

Final Section 816.46(c)(2)(i) makes one change in requiring sedimentation ponds meeting the size criteria of 30 CFR 77.216 to safely pass a 100-year, 6-hour event rather than a 100-year, 24-hour event as proposed. This change has been made to be consistent with MSHA requirements and the impoundments rule for which the spillway requirements are all 6-hour events. The combination of the principal and emergency spillways that will safely pass a 100-year, 6-hour precipitation event is a safety standard that has proven successful. For a further related discussion of the differences between a 24-hour event and a six-hour event, see the "Final Environmental Impact Statement OSM EIS-1: Supplement," Volume I, p. IV-17.

One commenter recommended that proposed Section 816.46(d) be deleted and substituted with: "The criteria of the Mine Safety and Health Administration as published in 30 CFR 77.216 shall be met." The rationale given for this recommended change is that MSHA has adequately covered this issue in U.S. Department of Labor, MSHA, 1979 Design Guidelines for Coal Refuse Piles and Water Sediment or Slurry Impoundments and Impounding Structures, at 29, and with 30 CFR 77.216-3(f).

Although MSHA covers the design storm in its Design Guidelines, such guidelines are optional. OSM has decided that the requirement for the emergency and principal spillways to safely pass a 100-year, 6-hour precipitation event is a safety factor that should be specified in the regulation.

In response to comments, a sentence is included in Section 816.49(c)(2)(ii) to allow a single spillway to be used for ponds not meeting the size criteria of 30 CFR 77.216(a) if the spillway is an open channel of nonerodible construction and capable of maintaining sustained flows, and is not an earth- or grass-lined spillway. OSM has added the second sentence to Section 816.46(c)(2)(ii) because it recognizes that for small ponds the use of a single spillway should not be precluded. At present, Virginia allows a single spillway for small sedimentation ponds.

One commenter felt that the requirement for separate principal and emergency spillways was a design requirement not necessarily applicable to all ponds. The commenter said that many ponds are constructed with a single spillway which serves as both principal and emergency spillway. The commenter said that wet ponds which have a spillway designed to route the 25-year, 24-hour storm and allow a regulated flow for storms of lower intensity by maintaining a constant water level, can meet effluent standards and should be allowed. Another commenter felt that spillway requirements should be left to the operator. Another said that the single spillway can be designed to handle the 25-year, 24-hour event and should be allowed as long as the spillway is non-clogging.

OSM agrees with these commenters to the extent that it believes small ponds (those not meeting the criteria of Section 77.216(a)) can function effectively and safely with a single spillway. Such ponds can also be designed with a single spillway capable of discharging the 25-year, 6-hour event. The design engineer and the regulatory authority will be able to decide on a site-specific basis which small ponds can function safely with a single spillway and meet the effluent limitations.

SECTION 816.46(d)

Final Section 816.46(d)(1) requires that other treatment facilities, as defined under Section 816.46(a)(3), be designed to treat the 10-year, 24-hour precipitation event unless a lesser design event is approved by the regulatory authority under certain conditions. This is similar to the requirement for sedimentation ponds at Section 816.46(c)(1)(iii)(C).

Section 816.46(d)(2) requires that other treatment facilities be designed in accordance with the criteria set for sedimentation ponds whenever these criteria can be appropriately applied to other treatment facilities. Paragraph (b) of Section 816.46 contains general requirements for design, construction, maintenance and inspection that apply to all siltation structures. Paragraph (c) refers specifically to sedimentation ponds, but under Section 816.46(d)(2), all of those requirements that can be applied to other treatment facilities must be applied. The regulatory authority must decide which provisions will apply depending on the type of treatment facility chosen. In every case, it is intended that Sections 816.46(c)(1)(ii), and (c)(1)(iii) (A), (B), (E) and (F) will apply to all other treatment facilities.

EPA commented that throughout the rule and preamble, OSM implies that "treatment facilities" are an alternative to sedimentation ponds and do not include sedimentation ponds. EPA considers a sedimentation pond a treatment facility.

OSM also considers sedimentation ponds to be treatment facilities, but in this rule distinguishes them from "other treatment facilities," which are defined at Section 816.46(a)(3).

SECTION 816.46(e)

Section 816.46(e) allows exemptions from the requirement of Section 816.46 to use siltation structures or alternate sediment control measures under certain conditions. Exemptions may be granted if the disturbed drainage area within the total disturbed area is small, and the mining operator demonstrates that the measures are not necessary to meet the effluent limitations under Section 816.42 and the applicable State and Federal water quality standards for the receiving waters. This section did not appear in the proposed rule, but it is retained from Section 816.42(a)(3) of the previous regulations except for minor editorial changes.

SECTION 817.42

Section 817.42(b) on water quality standards and effluent limitations for underground mining activities was published as a final rule on October 22, 1982 at *47 FR 47216.* In this rulemaking, the remaining Sections 817.42(a) (1) through (6) and (c) are removed, because these provisions are now addressed in Section 817.46. Section 817.42(b) is renumbered as Section 817.42.

SECTION 817.46

All paragraphs of final Section 817.46 are the same as final Section 816.46 except that Section 817.46(b)(7) is added and the reference in Section 816.46(a)(2) to "surface mining activities" is changed to "underground mining activities." Section 817.46(b)(7) requires that any point-source discharge from underground workings that does not meet the effluent limitations must be passed through a siltation structure before leaving the permit area. This provision appeared in proposed Section 816.42(a)(1) and is taken from previous Section 817.42(a)(1). The reason for the rule is to control discharges from underground mines that may deteriorate the quality of surface waters. No comments were received on this provision and it is promulgated as proposed with minor changes for clarity.

Comments that applied to both surface and underground mine operations are addressed under the Section 816.46 discussion.

Comments which apply specifically to underground operations are addressed below.

One commenter argued that sedimentation ponds should not be required for surface effects of deep mining operations which do not commingle. This would recognize the difference between surface and underground mining activities.

The effluent limitations at Section 817.42 apply to any point-source discharge of water from underground workings to surface water. If these discharges do not naturally meet the effluent limitations, they must be passed through a siltation structure and effluent limits must be met.

Some commenters advocated the removal of the requirement for sediment control structures for small underground mines because analysis from twenty small mines shows a high incidence of compliance.

OSM has accepted this comment in part by allowing point-source discharges of water from underground workings to surface water to be exempted under final Section 817.46(b)(7) provided that sedimentation ponds are not needed to meet the effluent limitations imposed by Section 817.42.

Another commenter felt that the requirement for settling of solids before allowing water to enter an underground mine would be unnecessary, because an underground mine in this case would act as a large underground settling-filtration basin and most of the time no water would be discharged.

The effluent limitations established at Section 817.42 are applicable only when there is a point source discharge from a permit area; they do not apply to water entering an underground mine.

One commenter stated that operators should not be held liable for nonconforming discharges from abandoned deep mines, if the discharge area is not to be mined through.

The operator is not responsible for any discharge generated by an abandoned mine that is not covered under his or her permit area. On the other hand, if the abandoned mine discharge cannot be diverted from the area disturbed by the new operation, the operator is responsible for ensuring that the commingled discharge meets the effluent limitations.

GENERAL COMMENTS

Many comments were received which discussed general issues related to rules governing protection of the hydrologic balance, effluent limitations and sediment control. These are summarized and discussed below.

COMMENTS RELATING TO EPA

EPA has asked OSM to clarify that these rules do not supersede EPA's regulations pertaining to non-coal mining waste under the Resource Conservation and Recovery Act of 1976, as amended (RCRA), *42 U.S.C. 6921* et seq. Operators are required to comply with those regulations where applicable. As for coal mining waste, OSM and EPA have undertaken a joint study under Subtitle C of RCRA. Until that study is completed, OSM has no responsibility for regulating coal mining waste under Subtitle C of RCRA.

Two commenters said that the omission of "practical" in the OSM definition of "best technology currently available" may have serious consequences and should be addressed because EPA in its definitions for best practicable control technology currently available (BPT), uses the word practical. Another commenter recommended that OSM and EPA

use the same terminology and the same technology for sediment control. The commenter noted that OSM uses "best technology currently available" while EPA uses "best technology economically achievable."

Section 515(b)(10)(B)(i) of the Act requires the use of the "best technology currently available." The Act does not use the word "practical." It should be noted that EPA has adopted the same effluent limitations for BPT and best available technology economically achievable (BAT), effectively eliminating any distinctions between levels of technology. OSM, by rulemaking on October 22, 1982, adopted EPA's standards at 40 CFR Part 434 by cross reference. Under the conditions where there is a point source discharge OSM has interpreted the "best technology currently available" to be the equivalent of BAT as used by the EPA. Since OSM has adopted EPA effluent limitations, which are technology-based, both agencies require the same level of technology.

Some commenters asked that the disparity between EPA's and OSM's regulations be resolved. EPA proposed requiring compliance with effluent standards for reclaimed areas until bond release (and potentially beyond bond release), and OSM proposed allowing sedimentation ponds to be decommissioned two years after the last augmented seeding. The commenters reasoned that, therefore, OSM does not require meeting the effluent limitations. The commenters believed that regulations should allow for early removal of sediment control measures when this can be shown to be environmentally appropriate.

OSM realizes that there have been discrepancies between OSM and EPA requirements in previous rules. In order to eliminate these discrepancies, OSM has adopted the EPA effluent limitation rules. The rules adopted today allow the sedimentation pond to be removed if the disturbed area has been stabilized and revegetated successfully and no sooner than 2 years after the last augmented seeding. This provision is not inconsistent with EPA's requirements regarding effluent limitations. Under either OSM or EPA rules any point source that exists either prior to or after removal of sedimentation ponds must comply with EPA effluent limitations until bond release. After bond release, applicable effluent limitations may be established on a permit-by-permit basis by the National Pollution Discharge Elimination System (NPDES) permitting agency.

One commenter stated that no design criteria can be developed to meet EPA's or OSM's effluent limitations. The commenter cited studies by Skelly and Loy (1979) and D'Appolonia (1979). Therefore, best management practices (BMP) should be enforced by OSM at the permitting stage, whenever possible.

OSM does not agree that the effluent limitations imposed by OSM and EPA are unachievable. EPA in its development document (1982) concludes from its study of data submitted on 24 sedimentation ponds, that the final effluent limitations are achievable using properly designed, constructed and maintained sedimentation ponds. The studies cited by the commenter showed that a pond designed to meet the design criteria in the previous rules would not necessarily meet limitations on TSS. For this reason EPA has developed alternate limitations for pH and settleable solids applicable to discharges caused by precipitation. OSM has deleted most design criteria, except those related to safety, and has relied on new effluent limitation performance standards.

COMMENTS ON COMPLIANCE AND ENFORCEMENT

One commenter questioned what method of testing is in order for evaluating "all applicable performance standards," as proposed in Section 816.46(c) of July 2, 1981.

As explained earlier, final Section 816.46(b)(3) does not require a certification that the siltation structure meets "all applicable performance standards," but includes a certification that the structure is constructed as designed and as approved in the reclamation plans. Certification of stages of construction is required under revised Section 816.49(a)(10).

The engineering profession has standard methods of evaluating performance. Some of them are: American Society of Testing Materials (ASTM); U.S. EPA; U.S. Department of Agriculture, Soil Conservation Service; and U.S. Department of the Interior, Bureau of Reclamation. It is up to the qualified registered professional engineer to require the applicable

test for the specific part of construction. The regulatory authority should also be aware of all the tests and standard methods used and has the responsibility to reject a test method if it is deemed inappropriate.

One commenter asked how performance standards could address various specific circumstances such as: Wrong materials used to build a pond; ponds located in unstable areas; compaction standards and stability; spillways that are not located properly; specific preventive techniques to prevent spillways washing away; acid drainage and undercutting; and placement of sedimentation ponds in stream beds. The commenter felt that Soil Conservation Service standards should be used at a minimum.

OSM agrees that Soil Conservation Service standards are valuable guides for sedimentation pond design and construction. This final rule does not attempt to address every possible design and construction consideration. Rather, it establishes minimum safety design criteria which must be used in meeting the established performance standards (effluent limitations). These criteria set minimum standards to be met under any circumstances. These criteria establish sufficient guidelines and yet give sufficient leeway, to allow the regulatory authority and the qualified registered professional engineer to design an efficient, safe sediment control system which meets the effluent limitations.

Some commenters believed that guidelines for field inspectors will be essential in performing inspections for structural weakness, erosion, or other hazardous conditions as set forth in proposed Section 816.46(e).

The inspections required by revised Sections 816.49(a) (10) and (11) and 817.49(a) (10) and (11) of the impoundments rules must be conducted by the professional engineer or qualified specialist. In order to be considered "qualified," such a person should be familiar with the proper techniques for determining instability, structural weakness or other problems. These inspections are separate and distinct from the inspections made by the regulatory authority under its regulatory program, which are not addressed by these rules. OSM is considering the development of guidance to aid in evaluating problems that may occur during sedimentation pond construction.

One commenter felt that OSM should maintain regulatory flexibility, and must assure that the States will be equipped to effectively monitor, inspect, and enforce the rules and regulations.

OSM reviews that State proposals for assuming primacy. In its submission the State describes the staffing and program requirements that would be used if primacy is approved. With this information OSM is assured that the State program will be adequate to implement the regulatory requirements. After primacy is approved, OSM assumes an oversight role which entails annual review of the States' accomplishments and an assessment of the effectiveness of the program. In addition OSM's technical personnel are available to the regulatory authority for consultation and guidance in difficult cases. This procedure ensures that the requirements of the Act and OSM rules are met.

One commenter suggested that a problem in compliance and enforcement may result from the replacement of design standards with performance standards. The commenter wondered how performance standards will ensure that necessary design criteria will be met in the areas of sedimentation ponds, haul roads, backfilling and grading, and fills.

By emphasizing the use of performance standards rather than design criteria, except those related to safety, OSM is minimizing the difficulties in ensuring that design criteria for sedimentation ponds will be met. The regulatory authority must approve all plans and specifications submitted by the operator, and the structures must be inspected during construction and use. The regulatory authority will have this documentation as well as the results of compliance inspections to judge the performance of the structure. Therefore, replacing design criteria with performance standards will not present a significant enforcement problem. A further discussion of the generic issues attendant to the replacement of design criteria with performance standards is contained in the "Final Environmental Impact Statement OSM EIS-1: Supplement," Volume I, chapter IV, pp. 4-7.

Some commenters were concerned that the proposed rules deleted the numerical specificity of the previous rules, and contended that this can be devastating because compliance will depend on the operator and the registered engineer and therefore, oversight and enforcement will be difficult. For example, the commenter felt that without specific standards for detention times and storage volume, site-specific requirements would be complicated and confusing for the company or regulatory authority to follow.

OSM has deleted the numerical specificity of the design criteria to give more flexibility to the operator and to the qualified registered professional engineer in designing a system that is site-specific and that will meet the performance standards. The regulatory authority must approve the design submitted. The inspector should be familiar with the approved design and should not have problems enforcing the rules. The method of specifying performance standards in lieu of design standards has been proven successful by EPA in the enforcement of its NPDES regulations.

One commenter stated that the proposed standards and regulations do not meet the intent of the Surface Mining Control and Reclamation Act of 1977, that very little protection will be provided to the environment, and that the rules will not require or promote BTCA. The commenter felt that sedimentation ponds will revert back to meaningless paper exercises.

Congress intended that society and the environment be protected against the adverse impacts of surface coal mining operations. *(30 USC 1202*(a), Section 102(a) of the Act). In its previous regulations, OSM promulgated both design criteria and performance standards for effluent limitations and sedimentation ponds. Two studies showed that if a sedimentation pond is designed and constructed to those design criteria the effluent limitations may not be met during precipitation events. Skelly and Loy, 1979 and D'Appolonia, 1979. To avoid this kind of incident, OSM now requires compliance with performance standards and leaves the majority of design requirements to the qualified registered professional engineer. Thus the rules governing effluent limitations and siltation structures provide for the protection of society and the environment that was intended by Congress.

One commenter stated that for larger sediment pond dams, requirements for construction and inspection are stringent, while proposed standards for smaller dams are vague and difficult to enforce, with only annual inspection for structural stability.

Both these final rules and the revised impoundment rules establish criteria that apply to large and small siltation structures unless specifically stated otherwise. Small non-hazardous structures must be inspected by a qualified engineer or other qualified professional specialist annually under Section 816.49(a)(10)(i), and examined by the operator at least quarterly for structural weaknesses, hazardous conditions, and proper functioning under Section 816.49(a)(11). These standards are clear and enforceable.

III. PROCEDURAL MATTERS

Approval of other Agencies

OSM has obtained all necessary comments and concurrences from other agencies. Sections 501 (a)(B) and (b) of the Act require the written concurrence of the Administrator of the Environmental Protection Agency on regulations relating to air or water quality standards promulgated under the Clean Air Act and the Clean Water Act. The Administrator of the Environmental Protection Agency has concurred in the issuance of this regulation. Section 516(a) of the Act requires the written concurrence of the head of the department that administers the Federal Coal Mine Health and Safety Act of 1969 -- the Assistant Secretary for Mine Safety and Health, U.S. Department of Labor -- in OSM regulations concerning the surface effects of underground mining. The Assistant Secretary for Mine Safety and Health has concurred in the issuance of this regulation.

Federal Paperwork Reduction Act

The information collection requirements contained in Parts 816 and 817 have been approved by the Office of Management and Budget under *44 U.S.C. 3507* and assigned clearance numbers 1029-0047 and 1029-0048. The information being required is to meet section 515 of the Act and the obligation to respond is mandatory.

National Environmental Policy Act

OSM has analyzed the impacts of these final rules in the "Final Environmental Impact Statement OSM EIS-1: Supplement" (FEIS) according to Section 102(2)(c) of the National Environmental Policy Act of 1969 (NEPA) *(42 U.S.C. 4332*(2)(C)). The FEIS is available in OSM's Administrative Record in Room 5315, 1100 L Street, NW, Washington, DC, or by mail request to Mark Boster, Chief, Branch of Environmental Analysis, Room 134, Interior South Building, U.S. Department of the Interior, Washington, DC 20240. This preamble serves as the record of decision under NEPA. The final rule is different from the draft final rules published in Volume III of the final EIS in that some paragraphs have been reorganized and additional clarifying language has been added to the rule which does not change the findings of the FEIS analysis. In addition, requirements for inspections and examinations of siltation structures are no

longer spelled out in these rules but instead are established by reference to the final rules for inspection and examination of impoundment structures at Sections 816.49 and 817.49. These changes have no environmental effect because effluent limitations at Sections 816.42 and 817.42 must still be met, and safety standards have not been changed.

Executive Order 12291 and Regulatory Flexibility Act

The Department of the Interior (DOI) has examined these rules according to the criteria of Executive Order 12291. OSM has determined that these are not major rules and do not require a regulatory impact analysis because they will impose minor costs on the coal industry and coal consumers. In addition, the rules emphasize the use of performance standards instead of design criteria, which will allow operators to utilize the most cost-effective means of achieving compliance.

The Department has also determined pursuant to the Regulatory Flexibility Act, *5 U.S.C. 601* et seq., that these rules will not have a significant economic impact on a substantial number of small entities. The rules will allow small coal operators increased flexibility in meeting performance standards and should especially ease the regulatory burden on small coal operators in Appalachia.

Administrative Record

Copies of materials in the administrative record are available at OSM's Administrative Record, Room 5315, 1100 L Street, NW, Washington, DC.

IV. REFERENCES CITED

1. American Public Health Association, American Water Works Association, Water Pollution Control Association, 1975, Standard Methods for Examination of Water and Wastewater, Fourteenth Edition, New York, 1193 pp.

2. American Society of Civil Engineers, 1975, Sedimentation Engineering, Manual and Reports on Engineering Practice -- No. 54, New York, NY, 745 pp.

3. Barfield, B.J., Warner, R.W., and Haan, C.T., 1981, Applied Hydrology and Sedimentology for Disturbed Areas, Oklahoma Technical Press, Stillwater, OK, 603 pp.

4. Church, Horace K., 1980, Reclamation Handbook McGraw Hill, New York, NY, Various pages.

5. Curtis, W.R., 1974, Sediment Yield from Strip Mined Watersheds in Eastern Kentucky, in Second research and applied technology symposium on mined-land reclamation, at Coal and the Environment Technical Conference, October 22-24, Louisville, KY, National Coal Association, Washington, DC, pp. 88-100.

6. D'Appolonia, 1979, Letter Report, Task 8, Evaluation of Sedimentation Pond Design Relative to Capacity and Effluent Discharge, Project No. 78-334-D, Pittsburgh, PA, 21 pp.

7. del Rio, J.R., 1981, Is Sediment a Pollutant?, 3 pp Symposium on Surface Mining, Hydrology, Sedimentology and Reclamation, Univ. of Kentucky, Lexington, KY, Dec. 7-11, 1981, pp. 435-438.

8. Grim, E.C., and Hill, R.C., 1974, Environmental Protection in Surface Mining of Coal, U.S. Environmental Protection Agency, EPA 670/2-74-093, 277 pp.

9. Haan, C.T., and Barfield, B.J., 1978, Hydrology and Sediment Control from Surface Mined Lands, College of Engineering, University of Kentucky, Lexington, KY, 286 pp.

10. Hill, R.C., 1976, Sedimentation ponds -- A critical review. U.S. Environmental Protection Agency, Resource Extraction and Handling Division, Industrial Environmental Research Laboratory, Cincinnati, OH, 21 pp. (Also published in 6th Symposium on Coal Mine Drainage Research, 1976, Louisville, KY) National Coal Association, Washington, DC, pp 190-199.

11. Hittman Associates, Inc., 1981, Erosion and Sediment Control Measures for Coal Mines, Contract No. H-C 1022/001-81-1008D, Columbia, MD, 240 pp.

12. Jansen, Robert B., 1980, Dams and Public Safety, U.S. Department of the Interior, Water and Power Resources Service, A Water Resources Technical Publication, 322 pp.

13. McGraw Hill, June 17, 1982, Floods Drown 19 Dams, Engineering News-Record, pp 46 and 47.

14. New York State, Department of Environmental Conservation, 1978, Guidelines for Design of Small Dams, Information Circular, EA-P14(5M-5/78), Albany, NY, 12 pp.

15. Rich, Linvil G., 1974, Unit Operations of Sanitary Engineering, Clemson, SC, 308 pp.

16. Schwab, G.O., Fierert, R.K., Edminister, T.W., and Barnes, K.K., 1966, Soil and Water Conservation Engineering, Second edition, John Wiley & Sons, New York, NY, 683 pp.

17. Skelly and Loy, 1979, Evaluation of Performance Capacity of Surface Mine Sediment Basins, Harrisburg, PA, 67 pp.

18. U.S. Department of Agriculture, Soil Conservation Service, 1977, Pond 378, 7 pp.

19. U.S. Department of Agriculture, Soil Conservation Service, 1981, Earth Dams and Reservoirs, Technical Release No. 60, Washington, DC, Various pages.

20. U.S. Environmental Protection Agency, 1976, Erosion and Sediment Control, Surface Mining in the Eastern U.S., Planning, EPA 625/3-76-006, 102 pp.

21. U.S. Environmental Protection Agency, 1980a, Economic Impact Analysis of Proposed Effluent Limit Guidelines, Volumes I-III, EPA-440/2-80-085, Washington, DC.

22. U.S. Environmental Protection Agency, 1980b, Environmental Assessment For The Coal Mining Industry, Draft Final Report, 26 pp. plus appendices 5-A through E.

23. U.S. Environmental Protection Agency, 1981, Proposed Development Document for Effluent Limitations and Standards for the Coal Mining Point Source Category, EPA 440/1-81/057b, Washington, DC, 429 pp.

24. U.S. Environmental Protection Agency, 1982a, Development Document for Effluent Limitation Guidelines and Standards for the Coal Mining Point Source Category, EPA 440/1-82/057, Washington, DC, 429 pp.

25. U.S. Environmental Protection Agency, 1982b, Use of Vegetative Filter Zone to Control Fine-Grained Sediments from Surface Mines, EPA 600/7-81-117, Cincinnati, OH, 158 pp.

26. U.S. Department of the Interior, 1974, Earth Manual, A Water Resources Technical Publication, Second Edition, Reprinted 1980, U.S. Government Printing Office, Washington, DC, 810 pp.

27. U.S. Department of the Interior, Bureau of Reclamation, 1977, Design of Small Dams, A Water Resources Technical Publication, U.S. Government Printing Office, Washington, DC, 816 pp.

28. U.S. Department of the Interior, Office of Surface Mining Reclamation and Enforcement, 1981, Sedimentation Pond Economic Analysis, Contract No. J5101104, Washington, DC, Various pages.

29. U.S. Department of Labor, Mine Safety and Health Administration, 1979, *IR 1109*, U.S. Government Printing Office, Washington, DC, Various pages.

30 U.S. Department of Labor, Mine Safety and Health Administration, 1981, Report of Investigation (Preparation Plant) Impoundment Accident (Failure of Refuse Pile), Preparation Plant (ID No. 15-11878) Eastover Mining Company, Brookside, Harlem County, Kentucky, Barbourville, KY, Various pages.

31. Ward, A. D., 1979, Surface Mine Sediment Control Reservoirs, Sizing for Theoretical Detention Time.

32. Ward A. D., Barfield, B. J., Tapp, J. S., 1979, Sizing Reservoirs for Sediment Control from Surface Mined Lands, 353 pp.

33. Weber, Jr., Walter J., 1972, Physiochemical Process for Water Quality Control, John Wiley & Sons, New York, NY, 640 pp.

34. Wilmouth, R., and Hill, R. D., 1979, Evaluation of Sedimentation Pond Performance, 33 pp.

LIST OF SUBJECTS

30 CFR Part 816
Coal mining, Environmental protection, Reporting and recordkeeping requirements, Surface mining.

30 CFR Part 817
Coal mining, Environmental protection, Reporting and recordkeeping requirements, Underground mining.

For the reasons set forth in the preamble, 30 CFR Parts 816 and 817 are amended as set forth herein.

Dated: September 15, 1983.
Joy R. Gwaltney, Acting Deputy Assistant Secretary, Energy and Minerals.

PART 816 -- PERMANENT PROGRAM PERFORMANCE STANDARDS -- SURFACE MINING ACTIVITIES

SECTION 816.42 [Amended]

1. Paragraphs (a) and (c) of Section 816.42 are removed.

2. Paragraph 816.42(b) is redesignated as Section 816.42.

3. Section 816.46 is revised to read as follows:

SECTION 816.46 - HYDROLOGIC BALANCE: SILTATION STRUCTURES.

(a) Definitions. For the purposes of this section only:

(1) Siltation structure means a sedimentation pond, a series of sedimentation ponds, or other treatment facility.

(2) Disturbed area shall not include those areas –

(i) In which the only surface mining activities include diversion ditches, siltation structures, or roads that are designed, constructed and maintained in accordance with this part; and

(ii) For which the upstream area is not otherwise disturbed by the operator.

(3) Other treatment facilities means any chemical treatments, such as flocculation, or mechanical structures, such as clarifiers, that have a point-source discharge and that are utilized to prevent additional contribution of suspended solids to streamflow or runoff outside the permit area.

(b) General requirements.

(1) Additional contributions of suspended solids sediment to streamflow or runoff outside the permit area shall be prevented to the extent possible using the best technology currently available.

(2) All surface drainage from the disturbed area shall be passed through a siltation structure before leaving the permit area, except as provided in paragraph (b)(5) or (e) of this section.

(3) Siltation structures for an area shall be constructed before beginning any surface mining activities in that area and, upon construction, shall be certified by a qualified registered professional engineer to be constructed as designed and as approved in the reclamation plan.

(4) Any siltation structure which impounds water shall be designed, constructed and maintained in accordance with Section 816.49 of this chapter.

(5) Siltation structures shall be maintained until removal is authorized by the regulatory authority and the disturbed area has been stabilized and revegetated. In no case shall the structure be removed sooner than 2 years after the last augmented seeding.

(6) When siltation structure is removed, the land on which the siltation structure was located shall be regraded and revegetated in accordance with the reclamation plan and Sections 816.111-816.116 of this chapter. Sedimentation ponds approved by the regulatory authority for retention as permanent impoundments may be exempted from this requirement.

(c) Sedimentation ponds.

(1) When used, sedimentation ponds shall --

(i) Be used individually or in series;

(ii) Be located as near as possible to the disturbed area and out of perennial streams unless approved by the regulatory authority, and

(iii) Be designed, constructed, and maintained to --

(A) Provide adequate sediment storage volume;

(B) Provide adequate detention time to allow the effluent from the ponds to meet State and Federal effluent limitations;

(C) Contain or treat the 10-year, 24-hour precipitation event ("design event") unless a lesser design event is approved by the regulatory authority based on terrain, climate, other site-specific conditions and on a demonstration by the operator that the effluent limitations of Section 816.42 will be met;

(D) Provide a nonclogging dewatering device adequate to maintain the detention time required under paragraph (c)(1)(iii)(B) of this section;

(E) Minimize, to the extent possible, short circuiting;

(F) Provide periodic sediment removal sufficient to maintain adequate volume for the design event;

(G) Ensure against excessive settlement;

(H) Be free of sod, large roots, frozen soil, and acid- or toxic-forming coal-processing waste; and

(I) Be compacted properly.

(2)(i) Sedimentation ponds meeting the size or other qualifying criteria of Section 77.216(a) of this title shall comply with all the requirements of that section, and shall have principal and emergency spillways that in combination will safely pass a 100-year, 6-hour precipitation event.

(ii) Sedimentation ponds not meeting the size or other qualifying criteria of Section 77.216(a) of the title shall provide a combination of principal and emergency spillways that will safely discharge a 25-year, 6-hour precipitation event. Such ponds may use a single spillway if the spillway (A) is an open channel of nonerodible construction and capable of maintaining sustained flows; and (B) is not earth- or grass-lined.

(d) Other treatment facilities.

(1) Other treatment facilities shall be designed to treat the 10-year, 24-hour precipitation event unless a lesser design event is approved by the regulatory authority based on terrain, climate, other site-specific conditions and a demonstration by the operator that the effluent limitations of Section 816.42 will be met.

(2) Other treatment facilities shall be designed in accordance with the applicable requirements of paragraph (c) of this section.

(e) Exemptions. Exemptions to the requirements of this section may be granted if --

(1) The disturbed drainage area within the total disturbed area is small; and

(2) The operator demonstrates that siltation structures and alternate sediment control measures are not necessary for drainage from the disturbed area to meet the effluent limitations under Section 816.42 and the applicable State and Federal water quality standards for the receiving waters.

PART 817 -- PERMANENT PROGRAM PERFORMANCE STANDARDS -- UNDERGROUND MINING ACTIVITIES

SECTION 817.42 [Amended]

4. Paragraphs (a) and (c) of Section 817.42 are removed.

5. Paragraph 817.42(b) is redesignated Section 817.42.

6. Section 817.46 is revised to read as follows:

SECTION 817.46 - HYDROLOGIC BALANCE: SILTATION STRUCTURES.

(a) Definitions. For purposes of this section only:

(1) Siltation structures shall mean a sedimentation pond, a series of sedimentation ponds, or other treatment facility.

(2) Disturbed area shall not include those areas

(i) in which the only underground mining activities include diversion ditches, siltation structures, or roads that are designed, constructed and maintained in accordance with this part; and

(ii) for which the upstream area is not otherwise disturbed by the operator.

(3) Other treatment facilities means any chemical treatments, such as flocculation, or mechanical structures, such as clarifiers, that have a point-source discharge and that are utilized to prevent additional contribution of suspended solids to streamflow or runoff outside the permit area.

(b) General requirements.

(1) Additional contributions of suspended solids and sediment to streamflow or runoff outside the permit area shall be prevented to the extent possible using the best technology currently available.

(2) All surface drainage from the disturbed area shall be passed through a siltation structure before leaving the permit area, except as provided in paragraph (b)(5) or (e) of this section.

(3) Siltation structures for an area shall be constructed before beginning any underground mining activities in that area and, upon construction, shall be certified by a qualified registered professional engineer to be constructed as designed and as approved in the reclamation plan.

(4) Any siltation structure which impounds water shall be designed, constructed and maintained in accordance with Section 817.49 of this chapter.

(5) Siltation structures shall be maintained until removal is authorized by the regulatory authority and the disturbed area has been stabilized and revegetated. In no case shall the structure be removed sooner than 2 years after the last augmented seeding.

(6) When the siltation structure is removed, the land on which the siltation structure was located shall be regraded and revegetated in accordance with the reclamation plan and Sections 817.111-817.116 of this chapter. Sedimentation ponds approved by the regulatory authority for retention as permanent impoundments may be exempted from this requirement.

(7) Any point-source discharge of water from underground workings to surface waters which does not meet the effluent limitations of Section 817.42 shall be passed through a siltation structure before leaving the permit area.

(c) Sedimentation ponds.

(1) Sedimentation ponds, when used, shall –

(i) Be used individually or in series;

(ii) Be located as near as possible to the disturbed area and out of perennial streams unless approved by the regulatory authority; and

(iii) Be designed, constructed, and maintained to --

(A) Provide adequate sediment storage volume;

(B) Provide adequate detention time to allow the effluent from the ponds to meet State and Federal effluent limitations;

(C) Contain or treat the 10-year, 24-hour precipitation event ("design event") unless a lesser design event is approved by the regulatory authority based on terrain, climate, other site-specific conditions and on a demonstration by the operator that the effluent limitations of Section 817.42 will be met;

(D) Provide a nonclogging dewatering device adequate to maintain the detention time required under Paragraph (c)(1)(iii)(B) of this section;

(E) Minimize, to the extent possible, short circuiting;

(F) Provide periodic sediment removal sufficient to maintain adequate volume for the design event;

(G) Ensure against excessive settlement;

(H) Be free of sod, large roots, frozen soil, and acid- or toxic-forming coal-processing waste; and

(I) Be compacted properly.

(2)(i) Sedimentation ponds meeting the size or other qualifying criteria of Section 776.216(a) of this title shall comply with all the requirements of that section, and shall have principal and emergency spillways that in combination will safely pass a 100-year, 6-hour precipitation event.

(ii) Sedimentation ponds not meeting the size or other qualifying criteria of Section 77.216(a) of this title shall provide a combination of principal and emergency spillways that will safely discharge a 25-year, 6-hour precipitation event. Such ponds may use a single spillway if the spillway (A) is an open channel of nonerodable construction and capable of maintaining sustained flows; and (B) is not earth- or grass-lined.

(d) Other treatment facilities. --

(1) Other treatment facilities shall be designed to treat the 10-year, 24-hour precipitation even unless a lesser design event is approved by the regulatory authority based on terrain, climate, other site-specific conditions and a demonstration by the operator that the effluent limitations of Section 817.42 will met.

(2) Other treatment facilities shall be designed in accordance with the applicable requirements of Paragraph (c) of this section.

(e) Exemptions. Exemptions to the requirements of this section may be granted if --

(1) The disturbed drainage area within the total disturbed area is small; and

(2) The operator demonstrates that siltation structures and alternate sediment control measures are not necessary for drainage from the disturbed drainage areas to meet the effluent limitations under Section 817.42 and the applicable State and Federal water quality standards for the receiving waters.

(30 U.S.C. 1201 et seq.)

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