

972.101 Applicability.

The provisions of this subpart shall apply to all offerors/bidders, contractors, and subcontractors which are expected to have access to:

- (a) Classified information;
 - (b) A significant quantity of special nuclear material as defined in 10 CFR Part 710; or
 - (c) Unclassified information covered by section 148 of the Atomic Energy Act, which includes, but is not limited, to the following:
 - (1) The design of production facilities or utilization facilities;
 - (2) Security measures (including security plans, procedures, and equipment) for the physical protection of (i) production or utilization facilities, (ii) nuclear material contained in such facilities, or (iii) nuclear material in transit; or
 - (3) The design, manufacture, or utilization of any atomic weapon or component if the design, manufacture, or utilization of such weapon or component was contained in any information declassified or removal from the Restricted Data category.
- For the purposes of this subpart, the information described in paragraph (c) shall be referred to as "unclassified sensitive information."

972.102 Definitions.

- (a) A foreign interest is any of the following:
 - (1) Foreign government or foreign government agency or instrumentality thereof;
 - (2) Any form of business enterprise organized under the laws of any country other than the United States or its possessions;
 - (3) Any form of business enterprise organized or incorporated under the laws of the U.S., or a State or other jurisdiction within the U.S. which is owned, controlled, or influenced by a foreign government, agency, firm, corporation, or person.
 - (4) Any natural person who is not a U.S. citizen.
- (b) Foreign ownership, control, or influence (FOCI) will be considered to exist when the degree of ownership, control, or influence over an offeror/bidder or a contractor by a foreign interest is such that a reasonable basis exists for concluding that compromise of classified information, special nuclear

material, or unclassified sensitive information may possibly result.

(c) Contracting Officer means the DOE contracting officer.

972.103 Disclosure of foreign ownership, control, or influence.

(a) If a contract requires a contractor to have access to classified information, unclassified sensitive information, or a significant quantity of special nuclear material, the contracting officer must determine whether access to the information or material by a contractor who is or may be subject to FOCI may have a significant adverse effect on the national security or public health and safety before a contract can be awarded. It is possible for a contractor under FOCI to propose a method of isolating the foreign interest allowing DOE to determine that a risk is eliminated or mitigated.

(b) If during the performance of a contract, the contractor comes under FOCI, then the contracting officer must determine whether any further access to the classified or unclassified sensitive information or special nuclear material may have a significant adverse effect on the national security or on the public health and safety through the possible compromise of that information or material. If the contracting officer determines that such a threat or potential threat exists, the contracting officer shall consider the alternatives of negotiating an acceptable method of isolating the foreign interest which owns, controls, or influences, the contractor, such as a voting trust, or terminating the contract.

(c) It is essential for DOE to obtain information about foreign ownership, control, or influence which is sufficient to enable DOE to determine whether award of a contract to a firm, or the continued performance of a contract by a firm, may have a significant adverse effect on the national security or public health and safety. Therefore, the provision specified at 952.272-1 shall be included in solicitations that involve offerors/bidders or contractors that are subject to 972.

(d) The contracting officer shall not award or extend any contract subject to this subpart, exercise any options under a contract, modify any contracts subject to this subpart, or approve or consent to a subcontract subject to this subpart

unless: (1) The contractor provides the information required by the solicitation provision, at 952.272-1 if applicable, and (2) the contracting officer has made a positive determination in accordance with 972.105.

972.104 Findings, determination, and contract award or termination.

(a) Based on the information disclosed by the offeror/bidder or contractor, and after consulting with the DOE Office of Safeguards and Security, the contracting officers must determine the award of a contract to an offeror/bidder or continued performance of a contract by a contractor will not have a significant adverse effect on the national security or public health and safety. The contracting officer need not prepare a separate finding and determination addressing FOCI; however, the memorandum of negotiation should include a discussion of the applicability of this subpart and the resulting determination.

(b) In those cases where FOCI does exist, and the contracting officer determines that a threat to national security or public health and safety may exist, the offeror/bidder or contractor may propose and the contracting officer may consider proposals to avoid or mitigate the foreign influences by isolation of the foreign entity. If the offeror/bidder or contractor does not timely propose an arrangement which in the contracting officer's discretion satisfactorily isolates the offeror/bidder or contractor from foreign influence, then the offeror/bidder shall not be considered for contract award and affected existing contracts with a contractor shall be terminated.

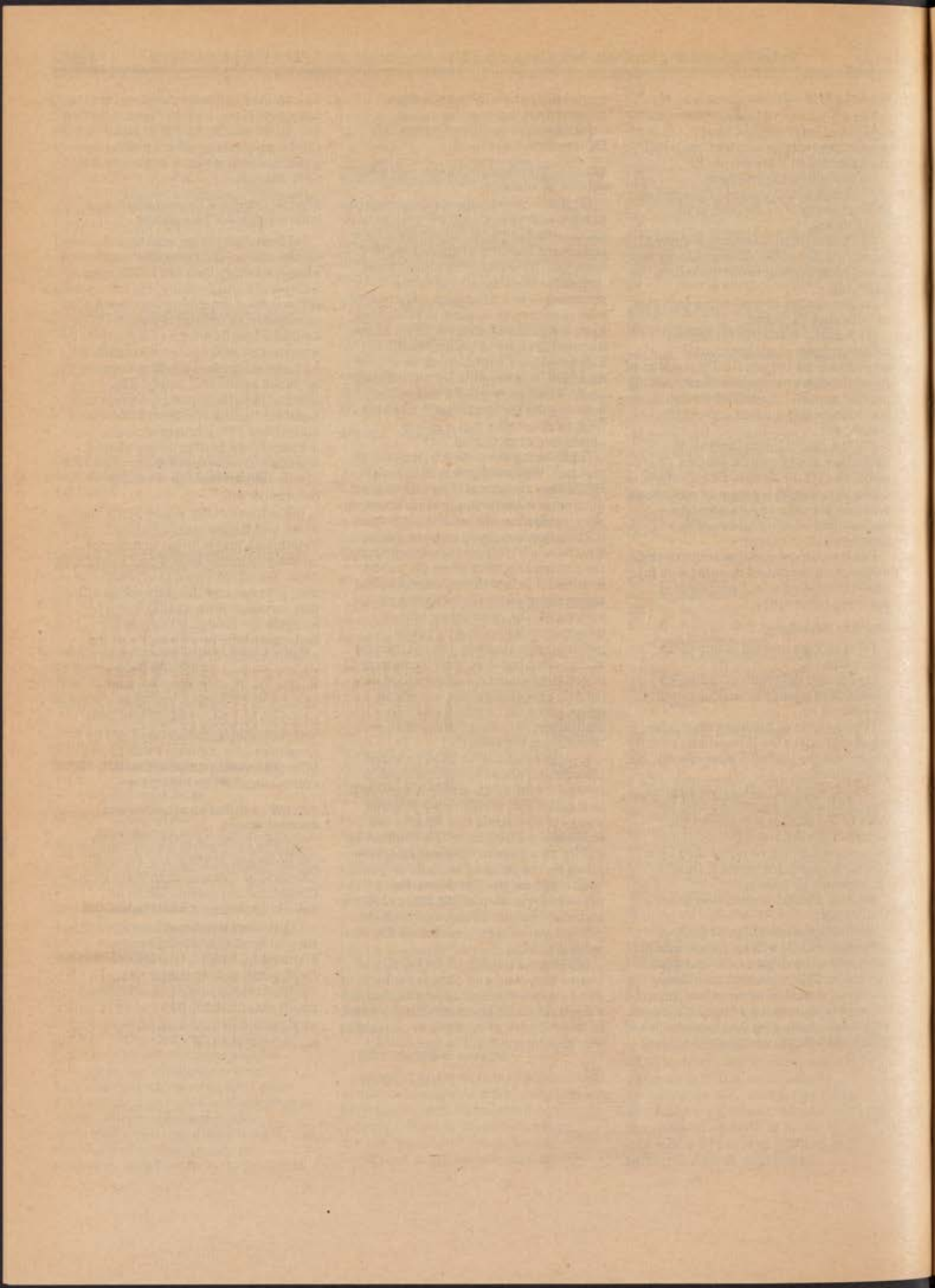
972.105 Solicitation provision and contract clause.

(a) The contracting officer shall insert the provision at 952.272-1, Foreign Ownership, Control, or Influence Over Contractor, representation in all solicitations for contracts subject to 972.

(a) The contracting officer shall insert the clause at 952.272-2, Foreign Ownership, Contract, or Influence Over Contractor, in new contracts and contract modifications to existing contracts subject to 972.

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Part III

Department of the Interior

**Office of Surface Mining Reclamation and
Enforcement**

**Surface Coal Mining and Reclamation
Operations:**

**Permanent Regulatory Program;
Hydrology Permitting and Performance
Standards; Geology Permitting**

**Permanent and Temporary Impoundments
Permanent Regulatory Program; Coal
Mine Waste**

**Permanent Regulatory Program; Siltation
Structures**

Final Rules

DEPARTMENT OF THE INTERIOR

30 CFR Parts 701, 779, 780, 783, 784, 816, and 817

Surface Coal Mining and Reclamation Operations; Permanent Regulatory Program Hydrology Permitting and Performance Standards; Geology Permitting

AGENCY: Office of Surface Mining Reclamation and Enforcement, Interior.
ACTION: Final rules.

SUMMARY: The Office of Surface Mining Reclamation and Enforcement (OSM) is issuing final rules governing the hydrology and geology permitting requirements and hydrology performance standards under the Surface Mining Control and Reclamation Act of 1977 (the Act). The rules consolidate previously scattered requirements and clarify the hydrologic and geologic requirements stipulated in the Act. The rules focus primarily on premining data collection and analysis, monitoring, reclamation planning to ensure protection of the hydrologic balance, and design of diversion structures. Greater flexibility is provided to both the operator and the regulatory authority to design and implement surface mining and reclamation operations which address site-specific hydrologic and geologic conditions.

EFFECTIVE DATE: This regulation is effective October 26, 1983. The incorporation by reference of the publication listed in the regulations is approved by the Director of the Federal Register as of October 26, 1983.

FOR FURTHER INFORMATION CONTACT: John Mosesso, Division of Engineering Analysis, Office of Surface Mining, U.S. Department of the Interior, 1951 Constitution Avenue, NW., Washington, DC 20240; (202) 343-2168.

SUPPLEMENTARY INFORMATION:

I. Introduction

II. Background

III. Discussion of Comments and Rules Adopted

- A. Definitions
- B. Geologic Information
- C. General Comments on Hydrology Rules
- D. Hydrology Permitting Rules
- E. Hydrologic Balance Protection Performance Standards
- F. Diversions

IV. Procedural Matters

I. Introduction

Protection of the integrity of the Nation's surface- and ground-water resources from the potential adverse impacts of coal mining is one of the major objectives of the Surface Mining Control and Reclamation Act of 1977. 30

U.S.C. 1201 *et seq.* (the Act). Sections 507 (b)(11), (b)(14) and (b)(15), 508 (a)(5), and (a)(13), 510(b)(3), 515(b)(10), 516 (b)(4), (b)(9) and (b)(12), 517 (b)(2), and 717 of the Act are the primary hydrologic and geologic requirements for permitting, mining, and reclaiming a surface coal mining operation.

Hydrologic and geologic systems are, in most cases, exceedingly complex, and their protection from the adverse impacts of mining activities is often difficult and subject to uncertainty. OSM believes that the best approach to meeting the goals of the Act is through a premining analysis of the potential impacts of mining on the hydrologic balance, application of environmentally protective mining and reclamation practices, and monitoring. To this end, the final rules establish basic permitting and performance standards with nationwide applicability, provide operators the opportunity to apply cost-effective hydrologic and engineering techniques to their particular mining situation, and provide the regulatory authority latitude to prescribe, on a case-by-case basis, additional elements for permit conditions which it deems necessary to protect the hydrologic balance.

The protections prescribed by the Act for surface- and ground-water resources from both surface and underground mining are similar. The final permitting requirements for hydrologic and geologic information for surface mining (Part 780) and underground mining (Part 784) are essentially identical. The hydrologic performance standards for surface mining activities (Part 816) and underground mining activities (Part 817) for the most part are also identical. The primary differences appear in the performance standards for discharges from underground mines and in not requiring the identification and replacement of water supplies that may be impacted by underground mine operations. The following discussion of the rules adopted and the public comments received will reference surface mining requirements unless a specific issue concerning underground mining was raised or is otherwise appropriate. However, the discussion is equally applicable to the requirements for both surface and underground mines.

II. Background

On June 25, 1982 (47 FR 27712), OSM proposed rules for hydrology and geology permitting requirements and hydrology performance standards. This action was taken primarily to clarify the essential hydrologic and geologic concepts contained in the Act, to reorganize the rules so that hydrology

and geology requirements would be set in distinct sections rather than being dispersed throughout the permanent program, and to take advantage of the experience gained by OSM over the years by way of updating the rules and providing improved direction to the regulatory authorities and applicants.

The proposed rules were based upon and referenced OSM's Permanent Regulatory Program promulgated on March 13, 1979 (44 FR 14902, 15311). Readers should consult the cited Federal Register notices for additional background information regarding hydrologic and geologic requirements and supporting technical references. The reader should also note that, as a result of the district court's decision in *In re: Permanent Surface Mining Regulation Litigation*, C.A. No. 79-1144 (D.D.C. May 16, 1980), certain of the March 13, 1979, permanent program rules for hydrology were amended or suspended. See 45 FR 51548, August 4, 1980. Where appropriate these final rules address the court's decision in that case.

Numerous modifications to the rules affecting hydrology were proposed in the June 25 Federal Register notice referenced above. Discussion of the public comments received are addressed in Part III of this preamble.

Public meetings were held in Washington, D.C., on July 1, 20, 23, and 27, 1982 and in Pittsburgh, Pennsylvania, on July 22 and 23, 1982. On July 13, 1982 (47 FR 30266), OSM issued a notice closing the public comment period for the hydrology and geology rules, effective August 25, 1982. During the comment period, OSM received comments from sources representing industry, environmental groups, associations, and Federal and State agencies. The OSM Administrative Record for these rules was reopened to allow insertion of the comments made at the oversight hearings held by the House Interior and Insular Affairs Committee on September 9 and 10, 1982.

III. Discussion of Comments and Rules Adopted

- A. Definitions
- B. Geologic Information
- C. General Comments on Hydrology Rules
- D. Hydrology Permitting Rules
- E. Hydrologic Balance Protection Performance Standards
- F. Diversions

A. Definitions (Section 701.5)

Definitions for the terms "cumulative impact area" and "gravity discharge" were proposed in the June 25, 1982, rulemaking. A third term, "potentially impacted offsite areas," was proposed in an earlier OSM rulemaking (47 FR 42-

43, January 4, 1982). The phrase "potentially impacted offsite areas" was used throughout the June 25, 1982, proposed rules. However, in response to comments, OSM did not adopt the proposed definition. Rather, the final rule uses the term "adjacent area," which was defined in a Federal Register notice issued on April 5, 1983. (48 FR 14814-14822). The reader is referred to the preamble on that final rule for a discussion of the comments received and the meaning of the term "adjacent area."

1. *Cumulative impact area.* Final § 701.5 defines "cumulative impact area" to mean "the area, including the permit area, within which impacts resulting from the proposed operation may interact with the impacts of all anticipated mining on surface- and ground-water systems." The definition for "cumulative impact area" also contains an explanation of "anticipated mining" as including, at a minimum, the entire projected lives through bond release of the proposed operation; all existing operations; any operation for which a permit application has been submitted to the regulatory authority; and all operations required to meet diligent development requirements for leased Federal coal for which there is actual mine development information available.

Thus, the final definition for "cumulative impact area" consists of two parts: The first sets out the extent of the area which the regulatory authority will evaluate when preparing the required cumulative hydrologic impact assessment (CHIA). This area will include those areas where there would be an interaction between the hydrologic impacts from the proposed operation and the impacts of all other anticipated mining. The second part of the definition clarifies the meaning of the term "anticipated mining" and identifies the minimum extent of mining, both existing and proposed, which must be included in the CHIA evaluation.

The final definition modifies the proposal to clarify the definition and to emphasize the delineation of minimum boundaries for the area to be covered by the CHIA. Included among the changes are the following: The introductory phrase in the proposal referring to "the assessment of probable cumulative hydrologic impacts" has been removed as unnecessary. OSM has chosen the phrase "may interact with" to describe the relationship between the impacts on hydrology which the proposed operation may have with the impacts of all anticipated mining. This addresses criticism that OSM used the same words

in the definition that it was attempting to define. The proposed phrase "surface- and ground-water basin(s)" has been replaced with the phrase "on surface- and ground-water systems." The former phrase was inappropriate as it suggested consideration of areas which could be well beyond the reach of any impacts on hydrology that need be studied by the regulatory authority in order for it to fulfill its statutory obligations. The phrase adopted is flexible enough to allow the evaluation of the full reach of impacts on hydrologic systems without suggesting unnecessary analysis.

Several alternatives were included in the preamble to the proposal for the definition of "anticipated mining" as follows:

The proposed language, which included all existing operations, the proposed operation over its entire projected life, and any operations which the regulatory authority reasonably expected to be permitted during the projected life of the proposed operation.

Limiting anticipated mining to the operation covered by the permit and other existing operations.

Including only those operations for which a permit has been issued or for which a permit has been officially applied.

Including the entire life of the proposed mine and other existing operations.

In the West, including any leased Federal coal.

Comments were specifically requested on these and any other alternatives a commenter felt should be considered.

In the final rule, OSM adopts a technically and environmentally sound definition for "anticipated mining" that avoids requiring the regulatory authority to attempt to assess the hydrologic impacts of operations that are merely speculative rather than actually anticipated, while assuring that all operations receive thorough analysis prior to commencement of mining. The definition includes all operations which have a reasonable expectation of receiving regulatory authority approval to mine and for which there is sufficient mine development information available to allow adequate analysis.

OSM recognizes that under the definition adopted some person could submit a permit application to conduct a future mining operation which was not included in an earlier CHIA. However, any such future operation or operations could not be permitted until after the completion of a new CHIA which would have to consider the newly proposed operation and any other "anticipated" mines. "Thus, any cumulative-risk to the

environment will be identified and could be mitigated." (47 FR 27714.) If any material damage would result to the hydrologic balance from the cumulative impacts of a newly proposed operation and any previously permitted operation, the new operation could not be permitted.

Several commenters have confused the relationship between the definition for "cumulative impact area" and the analysis performed by the regulatory authority known as the cumulative hydrologic impacts assessment. As described above, the cumulative impact area refers to the area of concern, that is, the areal extent of cumulative hydrologic impacts. The CHIA refers to the required assessment of cumulative impacts.

The major provisions defining the scope of the required CHIA are contained in sections 507(b)(11) and 510(b)(3) of the Act. These sections require data for the "mine site and surrounding areas" so that the regulatory authority can make the CHIA (section 507(b)(11)); specify that this assessment not be required until the necessary information on the "general area" is available, but that the permit not be approved unless such information is available (section 507(b)(11)); and require the assessment of the cumulative impact of "all anticipated mining in the area" (section 510(b)(3)). These provisions are implemented in § 782.21(g).

The term "cumulative impact area" is not defined in the Act, but, as used in these rules, it is intended to be in accord with the use of the terms "mine site and surrounding area" and "general area" appearing in section 507(b)(11) of the Act. These terms define the areal extent of baseline data requirements for the CHIA.

The term "general area," in previous § 770.5, is being deleted as part of the revised permitting rule which removes 30 CFR Part 770. This rule uses the term "cumulative impact area" to circumscribe the baseline data requirements for the CHIA. The use of the new term in the rules is not intended to change the scope of the Act's requirements. Rather, it is intended to help clarify the extent of the area for which a CHIA must be completed and to reduce some of the confusion resulting from the application of the term "general area" in the previous rules. The nature and scope of cumulative hydrologic impact assessments will be discussed in greater detail later in this preamble.

One commenter viewed the previously used term "general area" as more precise for describing the area of

concern for protection of hydrologic resources than the proposed definition of "cumulative impact area." Also, the commenter believed that the proposed definition would not cover area-type operations or account for long-term ground-water impacts.

The final definition for "cumulative impact area" will prove to be workable and can effectively replace the term "general area" in the previous rules. The final definition for "cumulative impact area" allows for the delineation of an area which must be analyzed for cumulative impacts occurring outside the permit area of the proposed operation. Furthermore, because the definition encompasses offsite impacts from all anticipated mining, all hydrologic resources which may be impacted will be included in the assessment regardless of the type of coal mining operation. Long-term impacts are no different under either the definition for "cumulative impact area" or the previously used term "general area." The definition adopted provides the regulatory with the necessary flexibility and guidance to protect the hydrologic balance of an area. This, coupled with monitoring information and predictive methodologies, will allow detection of potential problems and suggest remedial or preventive actions.

Several commenters considered the proposed definition of "cumulative impact area," and particularly the explanation of the term "anticipated mining," to be too broad. Most focused on the speculative nature of hydrologic predictions, the scarcity of hydrologic data for many areas of the country, the difficulty in obtaining data considered proprietary, and the ease and benefits associated with basing a cumulative assessment on data available through the permitting process. Some commenters argued that the proposed broad-based assessment would be ambiguous, beyond statutory requirements, unscientific, and open to challenge because it would lack reasonable standards to guide the applicant and the regulatory authority. Others contended that the regulatory authority would have an impossible burden in assessing cumulative impacts, especially in situations where rapid development was possible. They believed that without the benefit of permit data, the regulatory authority would be forced to rely on clairvoyance. Also, they viewed the definition as encompassing areas that would make the analysis meaningless.

Suggestions for changing the definition of "cumulative impact area"

included limiting "anticipated mining" to existing operations and those for which a permit application had been filed. State commenters who objected to the breadth of the proposed definition, nevertheless wanted the regulatory authority to have the discretion to include additional areas in the assessment. Advocates for limiting the definition believed that since a cumulative hydrologic impact assessment must be completed for each new permit application prior to issuing a permit, remedial and mitigative efforts for new impacts could be addressed at that time. Some commenters thought the definition should not require the assessment to cover the entire life of the proposed mine. Others believed that life-of-the-mine impacts could be reasonably projected.

Some commenters felt the proposed definition was too narrow and suggested other changes. Some viewed the phrase "projected life of the proposed operation" as too restrictive because it did not include postmining operation impacts. Another commenter thought that limiting the scope of "anticipated mining" to the projected life of the mine, as proposed, ran contrary to congressional intent. A State commenter suggested that the definition should establish a uniform national minimum standard but allow the regulatory authority to consider a period of analysis longer than the life of the operation. Another commenter thought that reasonably anticipated mining would include coal areas under diligent development requirements.

OSM has considered all of the comments submitted and has revised the proposal as indicated above. The final rule does not require the regulatory authority to speculate or to use "clairvoyance" to evaluate potential impacts. Rather, it provides a definition which will allow a meaningful technical analysis, while ensuring that mining will not be permitted until the hydrologic impacts of all operations have been assessed.

The definition of "cumulative impact area" is structured to allow the regulatory authority to delineate an area of concern within which impacts from coal mining upon hydrologic systems will be assessed. Consideration of which mining operations must be included in the CHIA can be divided into three parts, as follows:

Pre-existing operations which have completed mining and reclamation;
Existing operations; and
Future operations.

The final does not specifically require that preexisting operations be identified

and included in the cumulative impact area. Inclusion of such operations is unnecessary since any preexisting hydrologic impacts would become part of the baseline hydrologic conditions. Data covering such conditions will be provided with the permit application.

Both the proposed and final definitions include all existing operations. No comments were received which suggested that existing operations be excluded. Some difference of opinion among commenters existed with respect to potential future development at existing operations. OSM believes that future activities of existing operations should be included as "anticipated" operations. For such operations a plan for future mining will be available, along with hydrologic data submitted with the permit application for the existing mine. The comments suggesting that postmining operation impacts be considered has also been accepted. The final rule requires consideration of the entire life through bond release of all operations which are considered anticipated mining. Upon bond release all reclamation requirements of the Act must be fully met.

OSM rejects those comments suggesting that the definition be limited to operations already permitted. Moreover, the impacts of unpermitted operations such as operations of less than two acres for which a permit may not be required, must be included in the assessment.

In addition to future stages of existing operations, the definition also includes certain other "anticipated" future operations. Specifically, the definition includes the proposed operation; any other operations for which a permit application has been submitted to the regulatory authority; and any operations required to meet diligent development requirements for leased Federal coal and for which there is actual mine development information available. This definition is not intended to preclude the regulatory authority from including additional areas in the assessment at its discretion.

The basis for including the proposed operation and other operations with a permit application pending over their entire projected lives is the same as the reasoning behind including future stages of existing operations; that is, for such operations a plan for mining will be available as well as data submitted with the permit application and there will be a reasonable "anticipation" that such operations would receive permits and commence mining.

In the case of operations mining leased Federal coal, OSM thought it

necessary to modify its proposal (47 FR 27714) in order to exclude operations for which data are speculative. Only operations for leased Federal coal which have hydrologic, geologic and mine development information available (for example: planned mining and reclamation techniques, processes, schedules) will allow for accurate hydrologic impact assessments.

The language of the proposed definition could have been read to require consideration of operations for which there was no plan for the mine and for which projected impacts were highly speculative. To focus analysis, instead, on non-speculative operations, OSM has listed operations which reasonably can be evaluated in interaction with the impacts of the proposed operation. The definition for anticipated mining does not, however, include merely possible or speculative operations for which the regulatory authority reasonably has no available information upon which to base its assessment.

One commenter thought that the limited definition of "cumulative impact area" might result in the exclusion from the CHIA of some watersheds which might be mined. Other commenters felt that this definition focused too much on anticipated mining rather than on all areas which might be impacted.

In proposing the definition it was not OSM's intent to exclude the consideration of any hydrologic system that might be impacted. The final rule requires that, before approval of any permit for a surface coal mining and reclamation operation, a CHIA must be completed to determine whether the proposed operation has been designed to prevent material damage to the hydrologic balance outside the permit area. No exclusion of areas which may be impacted as stated or implied. The proposed definition was revised to allow consideration of all areas outside the permit area which would likely be impacted.

One commenter suggested that the use of the term "basin(s)" in the definition posed an impractical, if not impossible, task for the regulatory authority. Because of the vast size of some surface- and ground-water basins, the lack of information regarding boundaries and hydrologic properties and the overall complexity of large systems, the commenter thought that assessments of basins would be of little value, extremely costly, and time-consuming. Other commenters suggested that because mining impacts might be localized, the regulatory authorities should have discretion to delineate areas of analysis without set spatial

limits and should focus attention on areas with overlapping impacts.

OSM agrees with these comments and has revised the final definition by substituting the more general term "systems" for the word "basin." This substitution conforms with usage in section 507(b)(11) of the Act and signifies that impacts are to be assessed on the hydrologic resources which may be impacted without set spatial limits which may be unmanageable. This change, however, will not restrict the area of analysis. It will allow the regulatory authority flexibility to define a meaningful cumulative impact area.

Other commenters thought the language of the proposed definition was confusing as to whether the CHIA was confined to the permit area. Changes have been made to the definition to clarify that the cumulative hydrologic impacts, both inside and outside of the proposed permit area, must be considered in the CHIA. Probable hydrologic impacts within the permit and adjacent areas which derive solely from the proposed operation will be included in the probable hydrologic consequences (PHC) determination for that mine.

One commenter suggested that the proposed definition was unworkable because it established a "circular test" by defining the cumulative impact area to be the area in which cumulative impacts may occur. Further, the commenter noted that the definition assumed that one might predict what the cumulative impacts would be prior to the analysis.

OSM has made changes in the language of the definition to address the commenter's first criticism. However, OSM disagrees with the commenter's second point.

OSM believes that the commenter has misunderstood the purpose of the "cumulative impact area" definition. Application of the definition will help a regulatory authority to establish the boundaries of the area to be analyzed. In establishing the physical scope of the cumulative impact area, the regulatory authority will look at the likely areas affected by the proposed operation, the likely areas affected by all anticipated mining and the likely areas to be affected by the interaction of impacts among the various operations. At this stage of establishing the area of concern, the regulatory authority need not determine the cumulative impacts on the hydrology of the area. Such analysis will occur during the CHIA process.

This is a workable approach. An educated judgment based upon available hydrologic, geologic and mine development information is the most feasible way to delineate an area in

which there may be cumulative impacts. Furthermore, boundaries established for the assessment can later be changed by the regulatory authority if subsequent analyses or data reveal impacts beyond those in the area initially described.

One commenter thought that the cumulative impact area should be defined by the regulatory authority as the area of probable impacts developed through the use of standard hydrologic prediction techniques (modeling).

The cumulative impact area definition must be as specific as possible to reflect the intent of Congress but need not specify analytical techniques to be used in the CHIA. OSM expects that regulatory authorities will use modeling techniques, where appropriate, as tools for assessing cumulative impacts during the CHIA process.

One commenter wanted OSM to make it clear that when a proposed mine would be the first in an area, there would be no cumulative impacts and therefore no need for a CHIA.

While it may be possible that for a single hydrologically isolated mine the probable hydrologic consequences determination made by the operator would be adopted by the regulatory authority as the CHIA, nevertheless such a conclusion must be reached by the regulatory authority on a case-by-case basis.

Several commenters did not think that the proposed definition clarified the responsibility for preparation of the CHIA.

Responsibility for preparation of the CHIA lies with the regulatory authority as provided in § 780.21(h). This requirement does not, however, preclude the applicant from submitting information on the cumulative impact area as part of a permit application (§ 780.21(d)).

2. Gravity discharge. The term "gravity discharge" is defined in the final rule as mine drainage in underground mines that flows freely in an open channel downgradient. It does not include mine drainage that occurs as a result of flooding a mine to the level of the discharge.

Several commenters disagreed with the second sentence of the proposed definition which excluded mine drainage occurring solely as a result of hydrostatic pressure from a mine flooded to the level of discharge. Various suggested changes were offered. Some recommended deleting the words "solely" and "flooded to the level of discharge." These commenters felt the proposed language could be misinterpreted in two aspects: First, the words "solely" and "flooded to the level

of discharge" could be read to mean that a mine could not be flooded above the level of discharge; and, second, the term "solely" could be interpreted to preclude "elbow" shaped mines where the lowest part of the roof at the elbow was below the level of the discharge. Such mines inhibit the free flow of fresh air into the mine workings, but do not result in all workings being flooded after mining ceases.

OSM agrees with these comments and has revised the final definition of gravity discharge to help eliminate these ambiguities. The word "solely" has not been adopted. OSM does not agree, however, with the commenters' suggestion to delete the words "flooded to the level of discharge." Since all water flows through a mine as a result of hydrostatic pressure, defining gravity discharge in terms of only hydrostatic pressure could result in exactly the form of misinterpretation the commenters sought to avoid. For this reason, the final definition retains these words, but does not include the words "hydrostatic pressure" in the final language.

One commenter stated that sufficient evidence was not available to be sure that acid mine drainage would not occur in flooded mines. According to this reviewer, the second sentence of the proposed definition would allow the development of mines which would discharge and therefore could produce acid mine drainage. Two commenters stated that the proposed definition would not stop the discharge, but would block air return and restrict channel flow only until section 516(b)(12) of the Act no longer applied. The commenters felt such a result would be contrary to congressional intent.

OSM believes that Congress did not intend to ban all mining of potentially acid- or toxic-forming coal seams or to have all discharges from underground mines considered as gravity discharges. Section 516(b)(12) of the Act is concerned primarily with "up-dip" mining in the Appalachian coal fields that results in an open channel with water flowing downgradient unimpeded to the mine opening. That provision requires mine planning that will result in the creation of barriers to air and water flow through the mine by selective placement of mine openings and sound mine drainage control.

Because the availability of air is a major factor in the production of acid mine drainage, mine flooding is a generally accepted technique to minimize this problem. Congress did not prohibit the use of this control practice. The definition adopted is consistent with this approach. It is not, however, intended to preclude the use of "elbow"

mines or the flooding of mines above the level of discharge.

Merely because a mine will discharge water is an insufficient basis to conclude that the mine should not be permitted. Since as a practical matter all mines do discharge water, such a provision would amount to a complete prohibition on underground mining, a result Congress clearly did not intend. As indicated above, mine flooding is a generally accepted technique to minimize acid and toxic discharges from underground mines. The final regulations encourage this technique. As one commenter noted, fresh air is an important ingredient in the formation of acid mine drainage. A principal objective of the second sentence of the definition of "gravity discharge" is to minimize the free flow of oxygen within a mine after closure and thus minimize the amount of oxidation. While it may not be possible, with existing technology, to totally prevent oxidation from occurring, a properly designed mine should be able to minimize the rate of oxidation of acid- or toxic-forming materials within a mine.

The latter commenters apparently felt that the proposed rule would allow a gravity discharge after a mine is closed. This is unfounded. Under section 516(b)(12) of the Act, mine openings for new drift mines in acid-producing or iron-producing seams must be located to prevent gravity discharge. OSM interprets this provision and the final rule to require the mine to be designed to prevent such discharges both during mining operations and after mine closure.

One commenter felt that OSM was expressing a preference for "wet seals." Another commenter felt the proposal would allow discharge past "ineffective seals." These conclusions are incorrect. While OSM is expressing a preference for mine flooding after closure, the final rule is not intended to encourage "wet seals." Rather, mine design that would allow flooding of potentially acid- or toxic-forming material, while allowing dry seals, may in most cases be preferable. The rules for mine seals, either "wet" or "dry," however, are contained in §§ 817.14 and 817.15. These requirements are unaffected by the definition of gravity discharge. Thus, the definition will not restrict the effectiveness of mine seals.

B. Sections 780.22 and 784.22 Geologic information.

The geologic information required by these rules will give the regulatory authority an adequate geologic description of all lands that may be affected throughout a surface coal

mining and reclamation operation. They will also assist the regulatory authority in determining whether compliance with a number of performance standards can be achieved, and, after permit issuance, whether the standards are being met. Principal among these performance standards is protection of the hydrologic balance. Others include casing and sealing of drilled holes, coal recovery, backfilling and grading, etc.

Sections 780.22(a) and 784.22(a)

Paragraph (a) establishes the general requirements for submission of geologic information and sets forth the purposes for which the specific information required in paragraph (b) is to be used. The general purposes for the data are: (1) To assist the applicant in the preparation of the probable hydrologic consequences (PHC) determination; (2) to identify locations for surface- and ground-water monitoring and to develop the monitoring and hydrology protection plans required under §§ 780.21 and 784.14; (3) to identify potentially acid- or toxic-forming strata within the permit area down to and including the stratum immediately below the lowest coal seam to be mined; (4) to assist the regulatory authority in its permit review responsibilities under section 510(b) of the Act to determine whether reclamation as required by the permanent regulatory program can be met and whether the proposed operation has been designed to prevent material damage to the hydrologic balance outside the permit area; and (5), in the case of underground mining operations, to assist in determining whether a subsidence control plan under 30 CFR 784.20 is required.

Paragraph (a) differs from proposed paragraph (a) in several ways. First, it contains a more complete list of uses for the geologic information, thus emphasizing the relationship which the data will have with certain responsibilities of the applicant and the regulatory authority. This change was made in response to a commenter suggestion that the rule indicate the contexts in which the geologic data will be used to fulfill statutory requirements.

Final paragraph (a)(1) differs from proposed paragraph (a)(1) by utilizing the terms "permit and adjacent areas," rather than "potentially impacted offsite area." Several commenters objected to use of the phrase "potentially impacted offsite area" which appeared in the proposed rules for hydrology and geology information. As discussed elsewhere in this preamble, OSM has not adopted the proposed phrase. The areal coverage of the PHC determination

is the "permit area" and the "adjacent area", which are terms defined in § 701.5, and the language of the geology rule has been changed to conform to the use of these terms.

Final paragraph (a)(2) is adopted from proposed paragraph (a)(2) and requires the geologic information to be sufficient to determine all potentially acid- or toxic-forming strata down to and including the stratum immediately below the lowest coal seam to be mined. For underground mines, the requirement includes both the permit area and the area covered by underground workings to ensure that all potentially acid-forming or toxic-forming seams that may be mined are identified in the permit application.

Paragraph (a)(3) summarizes how the regulatory authority will use the information being provided. Paragraph (a)(4) of § 784.22 is based on proposed § 784.22(a)(3) and links the collection of the baseline geologic information with the preparation of the subsidence control plan.

Several commenters objected to the adoption of the proposed subsidence information collection requirement. They thought relevant information would be supplied in the subsidence control plan. OSM disagrees. The general geologic information required by § 784.22 is applicable generally to subsidence concerns as well as to hydrology. The subsidence control plan will supplement this information with information more specifically related to subsidence.

One of these commenters thought that the proposed language, "conditions that may influence ground subsidence . . ." was alarmingly open-ended and could result in unwarranted requests for information. OSM disagrees. Paragraph (a) generally outlines the general objectives to be achieved in the submission of geologic information. However, since § 784.20 more precisely describes the subsidence control permitting requirements, the final rule adopts more precise language which focuses attention and limits the scope of the information to be requested to that necessary to prepare the subsidence control plan.

OSM did not adopt the recommendation of several commenters to include language in paragraph (a) authorizing operators to "reference" geologic information in the application. OSM is sympathetic to the concern raised by the commenters about supplying voluminous data already in the possession of the regulatory authority. However, the waiver provided for in paragraph (d) is broad enough to address this situation.

Sections 780.22(b) and 784.22(b)

Except for certain differences in the information collection requirements for underground operations where the strata above the coal seams to be mined will not be removed, the requirements of paragraph (b) for surface and underground mining activities are similar. Paragraph (b) sets forth the minimum requirements for the collection, analysis, and description of geologic information.

Sections 780.22(b)(1) and 784.22(b)(1) require the permit application to include a general description of the geology of the proposed permit area and adjacent areas. Final paragraph (b)(1) combines the requirements of proposed paragraphs (b)(1) and (b)(2) to simplify the wording of the regulation and make the requirements more easily understood. The description must extend to all strata down to and including the deeper of either the stratum immediately below the lowest coal seam to be mined or any aquifer below the lowest coal seam to be mined which may be adversely impacted by mining. The description is to include the areal and structural geology as well as other parameters which influence the required reclamation and the occurrence, availability, movement, quantity, and quality of potentially impacted surface and ground waters. It is to be based upon the cross sections, maps, and plans required by §§ 779.25 and 783.25; drill holes, core samples, and other data required under paragraphs (b)(2), (b)(3) and (c); and geologic literature and practices.

One commenter suggested that surface- and ground-water quantity be added to the list of features that should be considered in describing the geology of the permit and adjacent areas. This comment was accepted and paragraph (b)(1) has been revised accordingly.

Sections 780.22(b)(2) and 784.22(b)(2) deal with the analysis of samples collected from portions of the permit area where the overburden has been or must be removed. In such situations the samples may be collected from test borings; drill cores; or from fresh, unweathered, uncontaminated samples from the rock outcrops. The depth of the samples to be taken must extend to the deeper of either (1) the stratum immediately below the lowest coal seam to be mined or (2) any aquifer below the lowest coal seam to be mined which may be adversely impacted by mining.

Paragraphs (b)(2) (i) to (iii) identify the information which must be provided from the collection and analysis of the various overburden and coal samples and are adopted from proposed

paragraph (b)(3). The data to be obtained will show the lithologic characteristics of the strata, including physical properties and thickness. The chemical analyses of each stratum will provide information on the potential presence and content of acid-, toxic- or alkaline-forming materials. The regulatory authority may determine that analysis for the presence and content of alkaline-forming material is unnecessary. The coal seams will be analyzed for the presence of acid- and toxic-forming materials, including total sulfur and pyritic sulfur. In case of pyritic sulfur, the regulatory authority may find that determining its content is unnecessary. Finally, the resulting data will indicate the location of all ground water, including aquifers.

Redundancy as to the location for sample collection has been eliminated. Under paragraph (b)(2), samples are to be obtained from the permit area. In addition to obtaining samples from test borings or drill cores, the rule allows the collection of "fresh, unweathered, uncontaminated samples from rock outcrops . . ." This addition was made in response to the suggestion of two commenters to allow collection by hand from rock outcrops or excavations at or near the faceup areas, especially at existing mines. While authorizing such a practice, OSM considers it important that the samples be fresh or recently collected before analysis. Also, the sample must be taken from rocks that are in place and have not naturally slumped or been weathered. Under such circumstances, the carefully collected samples should be representative of the rock in the overburden.

In keeping with the intent expressed in the June 25, 1982, preamble to the proposed rule (47 FR 27719) and with modifications made in the hydrology information rule, OSM has adopted language which describes the depth for sample collection. The prior rule at § 779.14(a) was vague and subject to differing interpretation. The language of the proposed rule did not carry out fully the intentions as expressed in the June 25, 1982, preamble to include in the geologic description and analysis all strata down to the stratum below the lowest coal seam to be mined or a lower aquifer that may be impacted by mining.

Commonly, the stratum immediately below a coal seam consists of very fine grained, sedimentary rock which has a low transmissivity or does not have the hydrologic properties necessary to transmit or yield ground water. This stratum may range in thickness from less than 2 feet to several feet and has been variously referred to locally as

"underclay" or "fire clay." Although this "underclay" or "fire clay" stratum is generally not considered an aquifer, the next lower (i.e., underlying) stratum commonly has improved hydraulic capabilities and may be an aquifer. Depending upon site geology and operating procedures, such an aquifer may have the potential of being adversely impacted by surface coal mining activities such as blasting, which may fracture any stratum between this aquifer and the coal seam (44 FR 15031). Therefore, the applicant has the responsibilities for determining the presence or absence of such an aquifer below the coal seam "underclay" and for assessing its potential for being adversely impacted by the mining activity.

The language of the final rule clarifies the applicant's responsibilities. It sets forth the vertical depth for geologic information collection. It requires data from the deeper of either the stratum immediately below the lowest coal seam to be mined or any aquifer below the lowest coal seam to be mined which may be adversely impacted by mining.

In paragraph (b)(2)(i), some commenters objected to combining the collection of geologic and hydrologic data from the same drilling program. As one pointed out, combining the two requirements would require drilling to be halted, the well bore to be cleaned and developed, and the well allowed to stabilize before meaningful data could be obtained. Well stabilization could take a considerable amount of time before drilling for lithologic information could resume. OSM agrees that requiring water quality to be included with the drill hole or core sample logs may not be reasonable. Ground-water quality analysis is covered by a separate section and need not be repeated here. The final rule still requires, however, the drill logs to include identification of the occurrence of ground water. Such identification does not require special preparation of the drill hole and stabilization to collect samples.

One commenter objected to the deletion of the requirement for data on the compaction and erodibility properties of strata within the overburden which appeared in the prior rules at §§ 779.14(b)(1)(iii) and 783.14(a)(1)(iii). The commenter thought this omission would preclude some potential for postmining variations in land use. However, the commenter did not explain how having such information about the overburden would be relevant to variations in the postmining use of the overburden material.

Collecting information on compaction and erodibility of the undisturbed overburden is not precluded by the language of the final rule at paragraph (b)(2)(i), which requires information about the "physical properties" * * * of each stratum * * *. However, obtaining such information about every stratum may be unnecessary. Usually obtaining information about the geotechnical engineering properties of overburden is relevant when designing certain engineered structures. The professional engineer who plans the structures must determine if testing overburden materials is needed and the kinds of tests to be performed.

Two commenters proposed deleting entirely the requirement in paragraph (b)(2)(ii) to collect data on alkaline-forming materials because the Act does not specifically call for alkalinity information. This suggestion has been rejected. Knowing the alkaline-forming potential of the overburden and substrata will be helpful when planning revegetation efforts in arid and semi-arid areas of the country and when determining the buffering capacity of the strata to neutralize or mitigate acid drainage. (See Chapter 1 of the U.S. Department of Agriculture Handbook No. 60 (1954); and 44 FR 15032-15033, March 13, 1979).

While the Act does not specifically list potential alkalinity, Section 508(a)(12) does call for "an analysis of chemical properties * * * of the mineral and overburden * * *." OSM views this language, coupled with section 507(d) and 508(a)(14), as sufficient authority for this regulatory requirement. To the extent that information on potential alkalinity may not be relevant in a particular situation, the final rule allows the regulatory authority to waive the requirement.

Proposed paragraph (b)(3)(iii) called for the preliminary analysis of the coal seam for total sulfur content. This analysis would have been followed by analyses for sulfate sulfur, pyritic sulfur, and organic sulfur when the regulatory authority considered such action to be necessary because the total sulfur content was sufficiently high to indicate the likely presence of acid-forming materials (47 FR 27720). In response to a comment which pointed out the important relationship between the presence of pyritic materials and the acid-forming potential of coal, OSM has modified the final rule so that final paragraph (b)(2)(iii) requires the chemical analysis of the coal seam for the presence and contents of acid- and toxic-forming materials including total sulfur and pyritic sulfur. As written, the

regulation assumes analysis for pyritic material except in those instances when the applicant can demonstrate to the regulatory authority that providing such information is unnecessary.

When analyzing coal for acid- and toxic-forming potential, determining the total sulfur content will include the sulfur chemically combined as part of organic matter and as part of inorganic sulfides (such as pyrite and marcasite) and inorganic sulfates (such as calcium sulfate and iron sulfate). Therefore, analysis for the contents of total sulfur and pyritic sulfur according to established procedures, such as those developed by the American Society for Testing Materials (1981), will provide sufficient baseline information about the acid-producing potential of the coal. If the regulatory authority finds it to be necessary, it can require additional analysis for sulfate sulfur or organic sulfur under paragraph (c).

OSM has not adopted a commenter recommendation to require analysis for the mineral marcasite. Being the less stable orthorhombic form of iron disulfide, marcasite generally changes to the mineral pyrite, the more stable isometric form. The additional procedures that would be needed to determine the separate content of each mineral would involve x-ray and/or optical techniques. Yet, the results would provide no more information on the acid-producing potential of the coal seam than is learned from the combined pyritic sulfur (pyrite and marcasite) content.

Section 784.22(b)(3) in the underground mining regulations takes into account certain differences posed by those operations for areas in which overburden is not removed. It is based on proposed § 784.22(b)(4). In contrast to §§ 780.22(b)(2) and 784.22(b)(2), it requires the collection of samples only from test borings or drill cores taken from strata that may be impacted by the underground mining activities above and below the coal seams to be mined, including impacts to the hydrologic balance. Samples must be taken from the adjacent area as well as the permit area. In addition to providing physical and chemical analyses similar to that required for surface operations, where standard room-and-pillar mining methods will be used, the application must contain information on the thickness and engineering properties of those strata immediately above and below the coal seams to be mined if they contain clays or soft rock such as clay shale. This information is intended to assist in evaluating roof and floor

rock characteristics that may affect subsidence.

One commenter recommended deleting the entire proposed § 784.22(b)(4). The commenter argued that the decision in *In re: Permanent Surface Mining Regulation Litigation*, C.A. No. 79-1144 (D.D.C., May 18, 1979) at page 12, ruled against such an information collection requirement because underground mining activity only disturbs the surface with respect to surface facilities and roads.

OSM rejects this limited interpretation for a number of reasons. First, surface impacts from underground mining activities occur from more than roads and support facilities. Section 516 of the Act recognizes this fact. Second, the commenter misstated the effect of the court's decision in *In re: Permanent Surface Mining Regulation Litigation*. The court did not rule on this matter. Rather, in response to the plaintiff's allegation of overbreadth in the regulatory language of 30 CFR 783.14(a) (44 FR 15363 (1979)), OSM amended the rule to narrow its application (45 FR 51550, August 4, 1980). The language of final § 784.22(b)(3) is consistent with the approach adopted by OSM in 1980 in that it calls for geologic information about particular strata above and below the coal seam to be mined as opposed to all strata, down to the coal seam. And third, § 784.22(b)(3) will assist the underground mining operator and the regulatory authority to meet various other statutorily imposed responsibilities as well.

Proposed § 784.22(b)(4)(iv) generated favorable and unfavorable comments. One commenter applauded the requirement to determine the engineering properties of the clay or soft rock underlying the coal seam. The commenter suggested that the information be collected for the life of the mine. OSM has not adopted this suggestion for the reasons outlined below.

Another commenter objected to the requirement for the engineering properties of materials underlying the coal seam. The commenter thought that this kind of information had in most cases already been obtained. Another commenter believed this information would be addressed in the subsidence control plan. OSM agrees that the requirements of proposed § 784.22(b)(4)(iv) could have been required in the subsidence control plan rather than in the general geology section. However, OSM does not agree that this requirement should be deleted entirely. The engineering properties of materials underlying coal seams vary. The objective of the requirement is to

alert the regulatory authority and the operator of possible bearing-capacity failure of the pillars and excessive deformation of the floor beneath the pillars. (See *Cummins* (1973).)

One commenter thought the information requirement should apply to materials *overlying* as well as underlying the coal seam. The final rule adopts this suggestion.

Some commenters believed that the geologic description and information collection requirements should extend to an area covering the life of the mine. These commenters thought that such an extension was necessary for the PHC determination and CHIA which in the commenter's opinion also covered the life of the mine. Another commenter argued that the Act only requires operators to obtain hydrologic information from outside the permit area in relation to issues of hydrology.

OSM has specified that the minimum area from which geologic information must be gathered is the permit area and permit and adjacent areas as appropriate. The language of sections 507(b)(15) and 508(a)(12) of the Act point to the "permit area" as the site for test borings or core samples. To the extent that geologic information collected from off the permit area is needed to fulfill the statutory requirements to protect the hydrologic balance, to minimize or prevent subsidence, or to meet other performance standards which may have offsite effects, this serves as the basis for § 784.22(b)(3) and for the regulatory authority requiring the collection of such additional information under § 780.22(c) and § 784.22(c).

OSM does not accept the argument that the data automatically should be collected from an area covering the life of the mine. As is discussed in Parts C and D of this preamble, the applicant is responsible for collecting information sufficient to make the PHC determination. This determination is required for the permit and adjacent areas. While OSM agrees that geologic information covering the life-of-the-mine area will likely be necessary to complete the CHIA, this information is not specifically required to be submitted by the applicant until it is available from an appropriate Federal or State agency. On the other hand, the permit may not be approved under section 507(b)(11) of the Act until this information is available. Recognizing that the lack of such information may delay permit approval, §§ 780.21 (c) and (g) and 784.21 (c) and (f) provide that this information may be submitted by the applicant with the permit application. The reader is referred to the preamble to

those sections for additional discussion of this issue.

Sections 780.22(c) and 784.22(c)

Final paragraph (c) makes clear that the regulatory authority may require supplementation of the baseline geologic information to be collected, analyzed, and described pursuant to paragraph (b). The regulatory language for the surface and underground rules are essentially identical. The final rule establishes the test that the regulatory authority must apply when deciding whether any supplemental information is needed.

Three commenters objected to the latitude in proposed paragraph (c) that would allow the regulatory authority to require the collection of samples outside the permit area. They argued that an operator cannot be required to go on land not covered by the bond or not controlled by the operator. OSM disagrees. The final rule establishes a test which the regulatory authority must apply before requiring the additional information. Because there is considerable potential for impacts to the hydrologic balance and to surface areas outside the permit area resulting from underground mining operations, the regulatory authority must be able to obtain adequate information concerning these areas if it is to perform its permit application review responsibilities effectively.

One commenter was concerned that proposed paragraph (c) would allow the regulatory authority to require the collection of nonessential information from greater depths resulting in loss of time and great expense. OSM rejects the assertion that regulatory authorities will seek nonessential information. Having the flexibility provided in paragraph (c) is important because geologic conditions and the proximity of aquifers to mining operations may lead to serious impacts on water quality and quantity which, in turn, could affect the hydrologic balance. In order to develop meaningful PHC determinations, deeper analyses may be necessary. The final language of paragraph (c) is not expected to result in abuse of that discretion by the regulatory authorities.

Sections 780.22(d) and 784.22(d)

Paragraph (d) allows the regulatory authority to waive, in whole or in part, the requirements of §§ 780.22(b)(2) and 784.22 (b)(2) and (b)(3), upon the request of an applicant, provided the regulatory authority makes a written finding that the information is unnecessary because other equivalent information is available to it in a satisfactory form. When

making this request, the applicant should provide appropriate references in the application to identify the sources of the substitute information.

As written, the language of the final rule is more precise than the proposal which would have allowed a waiver if the information was unnecessary. The rule makes clear that the waiver applies only to the collection and analysis requirements for test borings and drill cores. The rule specifies the rationale derived from section 508(a)(12) of the Act which the regulatory authority must apply before approving any waiver. It is retained from previous §§ 779.14(b)(3) and 783.14(b), with editorial changes.

One commenter misunderstood the purpose of the waiver provision. The commenter believed it applied when overburden analysis was unnecessary because of the nature of the surface mining activities (i.e., gob piles, loading facilities, processing plants). However, the geology rule does not require test borings or drill cores of strata that will likely be unaffected by particular mining activities. For example, if the surface mining activity consisted solely of a loading facility, the breadth and depth of the geologic information to be collected would reflect this fact.

One commenter thought that the proposal relaxed the requirement for the regulatory authority to have access to equivalent information. The commenter feared the substitution of irrelevant data. The language of the final rule takes into account the requirements of both sections 507(b)(15) and 508(a)(12) of the Act. OSM does not construe the word "equivalent" which appears in section 508(a)(12) as simply meaning "identical." Rather, the substitute material to be considered by the regulatory authority must be of equal value or effect.

As was pointed out in the June 25, 1982, preamble, regulatory authorities may have access to other kinds of relevant information, such as past mining and reclamation experience with particular areas or strata, which would make part or all of the information collection and analysis unnecessary (47 FR 27720). The regulatory authorities should be able to judge whether material to be substituted has the same significance as the material being replaced. This degree of flexibility is consistent with the Act.

Another commenter wanted it made clear that analyses are necessary and must be available in the application. The commenter thought section 507(b)(15) of the Act only authorized waivers from collecting data anew.

OSM disagrees with the commenter's reading of the statutory language.

Neither section 507(b)(15) nor the legislative history prohibit waiver of analysis as well as data collection where the regulatory authority finds that it has access to material having a corresponding value. Section 507(b)(15) is quite specific that all the requirements appearing in the provision are eligible for waiver. This includes data collection and analysis. OSM has not, however, included the general geologic description requirements in the paragraph (d) waiver.

C. General Comments on Hydrology Rules

When referring to the analyses required by the Act, OSM has adopted the nomenclature of the Act. These analyses are now referred to as the "probable hydrologic consequences determination" (PHC) and the "cumulative hydrologic impact assessment" (CHIA).

Many commenters supported the proposed hydrology rules, citing improved clarity and organization, a more logical approach to permit requirements, greater flexibility for the regulatory authority, reduced burdens for operators, and emphasis on performance standards rather than design criteria.

Other commenters had general criticisms for the proposed changes. One disagreed with OSM's determination that the proposed rules would not have a "significant economic impact on a substantial number of small entities." The commenter thought the studies which the operator must perform were unnecessary and unrealistic with no benefit other than to satisfy the regulation.

OSM rejects these assertions. The analysis conducted under the Regulatory Flexibility Act was based upon the proposed changes from the previous rules and was thorough and accurate. Further, the information and analytical requirements included in the rule are based on requirements of the Act and are aimed at protection of hydrologic resources, and therefore cannot be considered unnecessary or unrealistic.

One commenter objected to all of the proposed rules which authorized the regulatory authority to prescribe requirements. This commenter feared that the regulatory authority would have too much latitude and would make "frivolous requests for non-essential information * * *."

OSM disagrees. There is no basis to believe that regulatory authorities will make frivolous requests for information. It is important for the regulatory authority to be able to prescribe the

necessary conditions for any coal mining operation. This flexibility allows response to unique or unusual situations without the need for across the board requirements affecting all operators.

One commenter believed that the rules focused on areas of the country where surface water availability was low. The commenter thought that the rules should emphasize local and regional differences as required by the Act. Another commenter wanted the rules to provide the regulatory authority with greater flexibility to prescribe geologic, hydrologic, and monitoring requirements because it would be in the best position to evaluate need.

The final rules call for basic permitting baseline information, specific analyses, and performance standards in accordance with the requirements of the Act. The hydrologic, geologic, and monitoring data required represent a framework of detail needed by the operator and the regulatory authority for the design and evaluation of a mining and reclamation plan. These requirements are consistent with sections 507, 508, 510, 515, 516, and 717 of the Act. At the same time, the rules give the regulatory authority flexibility to fill information gaps in response to site-specific conditions when the national requirements are insufficient.

One commenter asserted that all hydrology information requirements and assessments made should cover the life of the mine and should include offsite areas.

OSM agrees that the CHIA required under sections 507(b)(11) and 510(b)(3) of the Act should cover the life of the mine and should include offsite areas. Otherwise, hydrologic and geologic permitting data are required, under the rules, for the permit area and any adjacent areas which may be impacted by the proposed mining operation. This is consistent with the ruling of the U.S. District Court for the District of Columbia in *In re: Permanent Surface Mining Regulation Litigation*, No. 79-1144 (D.D.C.), Slip op. at pp. 35-36 (February 26, 1980) and Slip op. at pp. 57-58 (May 16, 1980).

The following provides an outline of the timing and areal extent of required hydrologic information and assessment requirements.

(1) Baseline hydrologic information is collected prior to the mining operation, is included in the permit application, and describes the existing conditions in the proposed permit and adjacent areas (§ 780.21(b)).

(2) The probable hydrologic consequence determination is included in the permit application and covers all

mining authorized under the permit until bond release (§ 780.21(f)) and describes any impacts of that mining in the permit area and adjacent areas.

(3) Information for the cumulative hydrologic impact assessment is compiled from existing sources where such information is available. In the event sufficient data are not available, the applicant may provide the necessary supplemental material. The information and assessment, at a minimum, cover the cumulative impact area for the life of the proposed operation and all anticipated mining (§ 780.21 (c) and (g)).

(4) The monitoring plans for surface- and ground-water resources appear in the application. They reflect the PHC determination and the CHIA. They cover impacts both within the permit area as well as outside the permit area (§ 780.21 (i) and (j)).

(5) The plan to protect the hydrologic balance is described in the application. The steps to be taken are based on the PHC determination and CHIA. The goal of the plan is to minimize disturbance to the hydrologic balance in the permit area and adjacent area, and to prevent material damage outside the permit area. The plan remains in effect until bond release (§ 780.21(h)).

One commenter wanted it made clear that the PHC determination and the CHIA were required for each application for a permit or revision.

A PHC determination and CHIA must be made for each new permit application. Under the revised final regulations concerning applications for permit revisions, the regulatory authority will determine whether a new or updated PHC determination and CHIA are necessary.

Several commenters stated that the proposed rules deleted critical data requirements and sufficient detail necessary for reclamation and operating planning. In their opinion, this, coupled with weakened monitoring requirements, would make permit review more difficult and adverse hydrologic impacts more likely.

OSM disagrees with both assertions. While the reorganization of the hydrology rules has resulted in fewer parameters being listed and fewer analyses or plans required across the board, nevertheless all changes are in keeping with provisions of the Act, and sound environmental practices. Furthermore, the rules authorize the regulatory authority to add requirements, as necessary, to assure that each operation is designed, operated, and reclaimed to protect the hydrologic balance. Moreover, as described below, monitoring is not weakened.

One commenter suggested that design criteria developed at a State level might be very useful, especially to small operators, and that OSM should make this point in the preamble to the hydrology rules.

OSM has included some basis design criteria. It has authorized regulatory authorities to provide additional design criteria where such would be appropriate. For further discussion about OSM's position on performance standards and design criteria, the reader is referred to the "Final Environmental Impact Statement OSM-EIS-1: Supplement," Volume 1, pp. IV 5-7.

One commenter believed that the complexity of the information process had been increased by separating the hydrology and geology information requirements from other resource information sections.

To the contrary, the information process has been enhanced by pulling together all hydrologic and geologic information requirements and relating them to each other. However, none of the information collection requirements for the permit application should be treated in a vacuum. Operators and regulatory authorities should rely on all relevant information at their disposal.

The same commenter thought that the concept of creating a body of baseline information on which to evaluate compliance with performance standards had the defect of relying on the regulatory authority's ability to foresee problems in order to frame its response in the application analysis.

The baseline hydrologic and geologic information will be sufficient to provide the regulatory authority with information from which to determine operator compliance with required performance standards. Moreover, the rules allow for the regulatory authority to require additional information should that prove necessary. While it may be difficult at the permit review stage to predict all possible environmental problems that could develop, the regulatory authority will be applying its best judgment that the operation has been designed to prevent material damage to the hydrologic balance outside the permit area. The ongoing monitoring will provide the regulatory authority with operational data so that adjustments to the hydrologic protection plan or other permit conditions may occur.

Generally, commenters believed that the proposed standards for sampling and analyses would improve the quality of permit applications. However, two commenters suggested, in keeping with the spirit of proposed § 780.21(a), that OSM inspectors, contractors and others

be required to follow the prescribed procedures and methodologies as well as to make split samples available to operators and to file them for verification of their quality.

OSM agrees that hydrologic information should be collected and analyzed according to standard procedures by all parties. All OSM inspectors are required to follow prescribed agency procedures; and State regulatory programs are required to be consistent with OSM regulations. In most cases this will result in the use of the methodologies listed in § 780.21(a). Although OSM cannot set requirements for "other" parties, including permit challengers, scientifically sound information is imperative to evaluate compliance with the regulatory standards. However, requiring a regulatory authority to retain samples for every inspection of every operation and to make sample splits available would place an unreasonable burden upon regulatory authorities. If a person has reason to question the validity of an analysis or sample, he or she may request appropriate administrative and judicial review. Additionally, any citizen who believes a violation may continue to exist may request that further inspections be made.

The U.S. Environmental Protection Agency (EPA) has asked OSM to clarify that these rules do not supersede EPA's regulations pertaining to non-coal mine 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 where applicable. As for coal mine 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 mine waste under Subtitle C of RCRA.

In a number of instances, activities subject to the hydrology regulations may involve discharges of dredged or fill material into surface waters, including wetlands, subject to section 404 of the Clean Water Act. A question was raised whether, in those instances, OSM would itself determine whether the activity complied with the requirements of section 404 or whether OSM instead expected the applicant to furnish evidence that the Corps of Engineers had made such a determination.

The Corps of Engineers has issued an interim final nationwide permit for certain surface mining activities. OSM is in the process of reviewing the requirements of the Surface Mining Regulatory Program, including permitting requirements and performance standards, to determine if

they are sufficient to satisfy the requirements of section 404. OSM expects to work with EPA and the Corps of Engineers to ensure that if the nationwide permit for surface mining activities is retained, OSM's regulations are consistent with such a permit.

D. Hydrology Permitting Rules (Sections 780.21 and 784.14)

Generally, comments addressed both sets of rules for surface and underground mining. Unless otherwise indicated, the following discussion will be deemed applicable to both. The references provided will be made to the rules for surface mining activities.

Section 780.21 has ten paragraphs; § 784.14 has nine. Paragraph (a) prescribes water quality sampling and analysis methodologies. Paragraph (b) prescribes the baseline hydrologic information to accompany each permit application. Paragraph (c) describes the baseline cumulative impact area information. Paragraph (d) allows the use of modeling techniques. Paragraph (e) specifies alternative water source information for surface mining activities only (and is not required in Part 784). Paragraph (f) specifies the requirements for the PHC determination. Paragraph (g) describes the CHIA. Paragraph (h) includes the requirements for the hydrologic reclamation plan. Paragraph (i) specifies the ground water monitoring plan. Paragraph (j) specifies the surface water monitoring plan. Each of these paragraphs is described in detail below.

*Sections 780.21(a) and 784.14(a)
Sampling and analysis methodology.*

Paragraph (a) incorporates by reference the 15th edition of "Standard Methods for the Examination of Water and Wastewater" and references 40 CFR Parts 136 and 434 which rely upon EPA's publication "Methods for Chemical Analysis of Water and Wastes". These water-quality sampling and analysis methodologies are to be used when providing the baseline hydrologic information for the proposed permit and adjacent areas in the application. Either of these methodologies must be used for all required water-quality analyses. These are to be used for required water-quality sampling when feasible. References to baseline information which appeared in the proposed paragraph have been deleted. The requirements for baseline information are set out in paragraph (b).

One commenter suggested that OSM should not reference "the most current editions" in the rule but should provide the date of publication for each reference.

OSM agrees with the commenter and notes that the Office of the Federal Register requires the current edition be specified. OSM will publish a notice in the *Federal Register* of any change in these publications (i.e., a new edition of a reference or a new reference).

One commenter objected to OSM's use of the term "feasible" in connection with the collection of water-quality sampling, believing the word could be interpreted as providing a "loophole" for operators from doing water-quality sampling.

OSM disagrees. Paragraph (a) merely provides guidance on methods of data collection and analysis, and does not diminish an applicant's responsibility under the other paragraphs of § 780.21 to submit information and analysis. Sampling methodologies may vary based upon the water source being sampled and other site-specific conditions. The documents referenced on sampling procedures were not developed to provide strict methods for hydrologic data collection. Rather, they establish guidance and general standards for good practice. As these publications become more widely accepted and revised to cover all circumstances, it may be appropriate to make their use mandatory in all cases. However, at this point the rules appropriately acknowledge that the sampling procedures outlined may not be feasible in all circumstances where sample collection may be necessary.

One commenter criticized OSM's use of the phrase "hydrologic data representative of * * *", pointing to the March 13, 1979, preamble to the permanent regulatory program which stated that modeling had not yet reached a state of art to be a universally accepted tool. The commenter viewed the proposed rule as allowing modeling everywhere.

Although the final paragraph describing the baseline information no longer includes this language, paragraph (d) continues the principle of previous § 779.13(c) to allow use of modeling where appropriate. The comment appears to be based on two misconceptions. First, the language cited in the March 1979 preamble was an extraction from commenter ideas regarding modeling techniques. It was not an OSM position. Second, OSM is not promoting the use of modeling techniques in all cases. The application of modeling techniques may be acceptable based on site-specific conditions, the parameter being modeled, and what other data may be available. All techniques used by an applicant will be reviewed by the

regulatory authority who has the option to require actual data even when modeling techniques are used.

Another commenter felt that OSM provided no defined procedure for determining what data to include in the baseline information collection effort and that use of the phrase "representative of" in the proposal rendered the rule vague and uncertain.

OSM disagrees with this assertion because guidance is provided regarding hydrologic information requirements in paragraphs (b), (c), (d), and (f). Also, the regulatory authority may set additional site-specific information requirements. Authorizing the use of "representative data" allows for the use of cost effective methods for describing some hydrologic conditions without collecting additional data. The limitations on the use of such data are discussed under paragraphs (d) and (f). However, OSM agrees that the proposed rule caused confusion by including both a general statement on data requirements and specific requirements for collection and analysis methodologies in the same paragraph. For this reason the first sentence of proposed paragraph (a) is not included in the final rule. This sentence was unnecessary since data requirements are set out in subsequent paragraphs.

Sections 780.21(b) and 784.14(b) Baseline ground-water information and baseline surface-water information.

Many commenters addressed both surface- and ground-water baseline information requirements jointly. OSM agrees that there is some redundancy between the requirements for surface- and ground-water baseline hydrologic information requirements.

To simplify the rule and reduce unnecessary wording, the final rule combines proposed paragraphs (b) and (c) in one paragraph (b) dealing with baseline data. No substantive change is intended by this reorganization. However, the initial sentence does specify that the regulatory authority may call for additional information beyond that specified as minimum, because site-specific conditions may necessitate such additional data. This preamble combines the comment responses on the two proposed information collection requirements.

Final paragraph (b) describes the baseline information requirements for ground- and surface-water resources in paragraphs (b)(1) and (b)(2), respectively. Paragraphs (b)(1) and (b)(2) call for certain fundamental information of all applicants. Under paragraph (b)(1), an applicant shall

provide information for the proposed permit and adjacent areas about the location and ownership of existing wells, springs and other ground-water resources; water usage; as well as specific descriptive parameters relating to ground-water quantity and quality, including total dissolved solids (TDS) or specific conductance corrected to 25° C, pH, total iron, and total manganese. These requirements differ from the proposal in that ground-water quantity information must include "approximate rates of discharge or usage and depth to the water in each water bearing stratum" rather than "discharge rate and depth to water in each significant water-bearing strata * * *". The first change was made because calculating water usage will generally provide an adequate gauge for determining the status of the resource without the more costly and environmentally disruptive process of always calculating the discharge rates. The second change, i.e., deletion of the word "significant," was made in response to comments and to ensure the collection of all necessary information.

Under paragraph (b)(2) an applicant must provide fundamental information about surface-water location, usage, quality and quantity. The requirement differs from the proposal in that an applicant is asked to provide information about ownership of surface-water bodies, and the location of any discharges into them. Identification of ownership will make paragraph (b)(2) consistent with (b)(1) and meet information requirements of section 507(b) of the Act. Identifying the location of discharges is necessary to fulfill effluent limitation requirements. Surface water quality baseline information must describe total suspended solids (TSS) in addition to the parameters enumerated for ground water. Baseline acidity and alkalinity information must be provided if there is a potential for acid drainage from the proposed mining information. Water quantity description must include, at a minimum, baseline information on seasonal flow rates.

Paragraph (b)(3) calls for certain supplemental information if an operator finds in the probable hydrologic consequences (PHC) determination that adverse impacts on or off the permit area may occur to surface-water resources or to strata that serve as aquifers which significantly ensure the hydrologic balance, or that acid-forming or toxic-forming materials are present that could result in contamination of ground- or surface-water supplies.

The requirements for supplemental information have been revised in response to comments, to specify that any supplemental information which is necessary to complete the PHC determination and evaluate adverse impacts on the hydrologic balance and potential contamination of water supplies must be included in the permit application. The requirement extends to both surface-water and ground-water resources, because both make up the hydrologic balance and because they often interconnect.

One commenter thought that the preamble to the final rule should point out the relationship between the hydrology and geology information requirements and that the permit application should contain appropriate cross-references and maps.

A thorough understanding of the geologic setting is necessary to understand the hydrologic systems encountered. Although OSM has separated these information requirements for clarity in the permitting process, the two are interrelated and have been emphasized throughout the permitting rules. Hydrologic/geologic cross-sections and maps remain part of the application as required by existing §§ 779.24, 780.14, 784.23, and other rules in 30 CFR Chapter VII. No further cross-references are necessary.

One commenter approved of OSM's emphasis in the proposed rules on significant water resources but suggested that it might be more expedient for the operator to collect more data and perform more analyses than the stated minimum to supplement the regulatory authority's cumulative hydrologic impacts assessment.

As was described above, OSM has modified the test for supplemental baseline information to extend to all adverse impacts on the hydrologic balance and not just significant water resources. The more general statement is deemed appropriate since the PHC determination is an analysis of impacts generally. It should be noted, however, that this section merely relates to hydrologic impact analysis and does not set standards for environmental protection of nonsignificant water resources. With respect to the question of an operator providing additional information for purposes of the CHIA process, both paragraphs (c) and (g) authorize this. It is important to point out the differences between baseline information collection and cumulative impact area information collection. The first will give the regulatory authority specific data about the proposed permit and adjacent areas so that impacts of

the operations proposed to be authorized by the permit can be determined. The second will enable the regulatory authority to evaluate the interaction of the proposed operation with all anticipated mining on the hydrology of the area and to predict cumulative hydrologic impacts.

One commenter questioned the relationship of baseline information to the PHC determination and the completeness of a permit application.

Baseline information on surface- and ground-water resources is intended to provide a description of existing hydrologic conditions at a particular proposed mine site and in the adjacent area. This information in conjunction with the operator's specific mining and reclamation plans will be used to develop the PHC determination by the applicant. Both the baseline information and the PHC determination must be included in the permit application. Although the rules set minimum requirements for baseline hydrologic information, the regulatory authority's familiarity with the hydrologic and geologic conditions of a particular area and the proposed design and operation submitted in the mining and reclamation plans will dictate the type and amount of information necessary for a "complete and accurate permit application" as that term has been defined at 30 CFR 701.5. The completeness of a permit application is determined by the regulatory authority prior to approval.

Two commenters saw the proposed rules as cutting back too far on initial baseline analyses. One thought proposed paragraphs (b)(1) and (c)(1) omitted information requirements which would be essential for completing the PHC determination and CHIA. By way of example the commenter claimed that surface-water information must be collected showing water quality as related to seasonal, peak, and low-flow conditions in order to relate quality to quantity. The other commenter believed that the regulatory authority would not be able to determine if performance standards were being met.

OSM disagrees with these conclusions. Final paragraph (b) is more complete and flexible than previous baseline information requirements. All essential information requirements from the previous rules have been incorporated in the final rules. Moreover, the regulatory authority has the prerogative to expand information requirements when necessary. Along with basic information and analysis, the final rules also require supplemental information when necessary in the PHC

determination process. This approach assures protection of the hydrologic balance without placing unnecessary burdens on all operators. Adjustments in proposed monitoring and hydrologic protection plans may be included if necessary to eliminate any potential material damage outside the permit area based on the regulatory authority's CHIA. Preparation of the CHIA in many cases may involve data beyond that obtained for the PHC determination. However, since preparation of the analysis is the responsibility of the regulatory authority from available information, such cumulative impact area data have not been included as a mandatory permit application requirement.

One commenter interpreted proposed paragraph (b)(2) as creating a mechanism whereby an operator could avoid gathering hydrologic data necessary to determine whether a resource was significant or currently used.

The baseline information called for under paragraph (b)(1) will be collected for each water-bearing stratum. Data obtained under paragraph (b)(3) do not supplant the data collection requirements of paragraph (b)(1). The information collected under paragraphs (b)(1) and (b)(2) will aid the regulatory authority when it evaluates the likely adverse effects of the proposed operation and when it examines the proposed hydrologic protection plan for adequacy.

One commenter wanted the minimum information requirements eliminated because in some cases the commenter thought they would be unnecessary and burdensome.

Although the regulatory authority must have the prerogative to specify information requirements for each proposed permit area, there is a minimum of information which will be necessary for descriptive and monitoring purposes as well as for serving as a basis for the PHC determination. The minimum requirements specified are essential for most operations and they likely will be expanded by the regulatory authority to account for local hydrologic conditions.

Several commenters supported use of the proposed phrase "currently used or significant" to modify ground-water information requirements. Some viewed it as a screening process in the development of sound data bases. Other commenters objected to the application of this test prior to requiring an operator to secure supplemental data. They noted that the term "significant" was not defined, that there was no indication that enough data could be collected to

determine significance and that the Act required protection of the hydrologic balance without regard to the significance or use of the water.

OSM has taken all of these comments into account and modified the final rule to eliminate vagueness and yet retain the limited distinction it believes should be made. As revised, baseline information is mandated for all water-bearing strata. The only kind of ground-water resource that may not require the securing of supplemental information is one that does not affect the overall hydrologic balance, for example, a hydrologically isolated water zone.

One commenter feared that failure to obtain relevant data to establish the need for monitoring would be compounded because proposed paragraph (g) allowed the operator in making the PHC determination "to use only data statistically representative of the site or data collected near (but not on) the site."

OSM believes that the relationship between the requirements of final paragraphs (b), (f) and (i) is reasonable. Under final § 780.21(f), the PHC determination must be based on the baseline information collected under paragraph (b). Adequate onsite data will be available for the operator to make the PHC determination. Under § 780.21(i), waivers from the general requirement to monitor will be sufficiently restricted.

Two commenters thought proposed paragraph (b)(2), related to supplemental information requirements, was a problem since the requirement was based on a finding in the PHC determination of likely adverse impacts. However, the commenters were concerned that this finding could not be made without the information required in paragraph (b)(2). Thus, the commenters viewed OSM as putting "the cart before the horse" by requiring the operator to make the PHC determination before deciding whether or not to collect certain data.

This comment reflects an incomplete understanding of the content and purpose of the hydrology permitting rules. The necessary baseline information for all operations is outlined in the final rules and is intended to serve as a reference point of existing conditions. It is entirely appropriate to provide for a relationship between the baseline data requirements and the required analytical evaluation, in this case the PHC determination. Otherwise, the operator would either be required to collect an insufficient or an excessive amount of data to make the necessary determinations. Since no area of the country is totally without some

hydrologic and geologic information being available, qualified professionals should be able to determine baseline data needs to complete the PHC determination early in the permit application preparation process. Further, variations in hydrologic and geologic conditions from site to site and in different regions render it virtually impossible to write a rule of nationwide applicability that covers all possible baseline conditions and types of mining. If an applicant is uncertain as to the conditions in a particular locale and the extent of information required, he or she may consult with the regulatory authority to receive additional guidance.

The regulatory authority has the option to expand these basic requirements if necessary to protect the hydrologic balance or otherwise to understand the potential impacts of the operation. Moreover, the preparation of the PHC determination should reflect the input of any other relevant information requirements provided for in the rules.

The information requirements listed in final paragraphs (b)(1), (b)(2), and (e), in combination with the geologic information required by § 780.22, are sufficient to prepare the initial PHC determination. Moreover, throughout the application stage the regulatory authority may require additional information necessary to assure that the proposed operation will protect the hydrologic balance. All hydrologic information and evaluations by the operator in the PHC determination are subject to review and approval by the regulatory authority (30 CFR 773.15(c)(1)). If deemed warranted, additional information requirements or conditions to the mining and reclamation plans may be established.

Commenters thought that since iron and manganese did not usually represent a health hazard and, that since these elements in a dissolved state might be carried away from the mine site, analysis should focus on dissolved rather than total concentrations.

Total concentrations serve as an appropriate nationwide requirement because they can indicate potential problems with both dissolved and suspended constituents. As a practical consideration, both manganese and iron tend to precipitate out of solution upon storage so that dissolved concentrations are more difficult to determine than total levels.

In a related vein, another commenter stated that the combination of total plus dissolved iron provided information previously determined by OSM to be necessary (43 FR 41695, 41839,

September 18, 1978). The commenter viewed the reasoning in the preamble to the proposed rule for requiring only total concentrations as insufficient in comparison to the earlier analysis.

The individual and relative merits of the various iron analyses are not specifically discussed in the earlier preamble. While analysis for both total and dissolved iron may be appropriate in some situations, the objective of the requirements of paragraphs (b)(1) and (b)(2) is to alert the regulatory authority and the operator to problems that may be encountered at the site. Since the total analyses include both suspended and dissolved constituents, adequate information will be provided for this purpose. If additional analysis is necessary to complete the PHC, it will be furnished under paragraph (b)(3). No adverse consequences are expected as a result of this change, especially since the regulatory authority can obtain additional analytical information if total levels appear high.

One commenter offered two suggestions. First, the term "ground water" should not include mere infiltration or percolation of rainfall but only permanent bodies of underground water. Second, ground water should be evaluated for quality in comparison to the quality of its source.

No changes have been made based on these comments. First, the definition of ground water found in the existing rules at § 701.5 is environmentally sound and workable in the context of surface mining activities. This definition includes all saturated rock or soil materials but does not include percolating water in the zone of aeration. Second, quality comparisons between a ground-water resource and its origins may be appropriate in some circumstances but in most cases would likely be irrelevant to the goal of predicting impacts on the hydrologic balance from a proposed mining operation. If adverse impacts are possible, monitoring of changes from baseline conditions will usually be a better measure of the impacts from mining than comparisons of baseline conditions with water origins.

Two commenters were concerned that the requirement for "discharge rates" as part of the ground-water baseline information might result in unproductive expense and significant environmental disturbance.

OSM agrees and has reworded the final rule to require "approximate rates of discharge or usage." This modification will give the regulatory authority an idea of the quantity of water in each water-bearing stratum and the importance of this quantity to

various users without adversely affecting the environment or placing an undue burden on the applicant where there is an existing water usage.

One commenter suggested that the minimum requirements for ground-water information be expanded to include temperature and direction of ground-water movement. The commenter gave no reason for the suggested change.

OSM disagrees with the commenter's suggestions. Its intent in listing required parameters is to provide a basic understanding of hydrologic conditions and to alert the operator and regulatory authority to potential problems and impacts on the hydrologic balance that may occur due to mining. Temperature changes do not generally result from coal mining and, therefore, no general requirement relating to temperature has been included in the final rule. On the other hand, analysis for specific conductance levels does require consideration of temperature. Therefore, in accordance with the references cited in paragraph (a), paragraphs (b)(1) and (b)(2) have been revised to clarify that specific conductance levels are to be corrected to 25° C. This will necessitate a temperature reading of the sample to determine any necessary correction. If additional temperature data are appropriate in a particular situation, these may be required by the regulatory authority. Further, while flow direction is possible to estimate through water-level fluctuations and knowledge of geologic formations, it is a most difficult parameter to measure accurately. Also, determining flow patterns in complex geologic settings would be costly and would likely produce inexact data of questionable value to the operator or regulatory authority. Since flow direction can generally be determined from information otherwise required, no change has been made to the final rule based on this comment.

Two commenters suggested modifying the requirements for seasonal ground-water quantity and quality information with the phrase "when obtainable." They thought that this information might be difficult to determine and verify because of well construction and filters.

OSM understands that certain wells may pose problems for sampling. However, seasonal variation is essential to an understanding of the dynamic nature of the hydrologic regime. And seasonal variation data are required by sections 507(b) and 508(a) of the Act.

One commenter believed that drawdown effects resulting from mining and ground-water development associated with mining should not be considered adverse impacts unless protected by State law.

Water-rights issues, especially in the Western States, may complicate surface mining activities. In some instances, State requirements pertaining to such issues have been incorporated into State regulatory programs. Nevertheless, the Act prescribes protection of the hydrologic balance. Since water-level drawdown may affect both onsite and offsite areas, the impacts of ground-water development or dewatering will have to be considered in the PHC determination and may result in supplemental information requirements as noted in paragraph (b)(3). These steps are necessary so that the design and conduct of mining activities will protect the hydrologic balance.

Two commenters suggested substituting the word "or" for the word "and" with respect to additional information requirements specified by the regulatory authority in proposed paragraph (b)(2). The commenters noted that all of the listed information may not be necessary in every case.

OSM agrees with this comment and has rephrased paragraph (b)(3).

Two commenters suggested that OSM emphasize the use of extrapolation and interpolation techniques especially with respect to seasonal variation and clarify that permit approvals were not precluded in areas where actual low-flow and seasonal-variation information was unavailable.

Flow and seasonal variation information is required for all permit applications as prescribed in the Act. If this information is unavailable, the applicant must obtain it. OSM agrees that the use of modeling and other techniques are useful to the applicant for predictive and descriptive purposes. Their use is authorized in paragraphs (d) and (f), but use of modeling is at the discretion of the regulatory authority.

One commenter suggested that the reference to impoundments in proposed paragraph (c)(1) be qualified by the phrase "important or significant."

The intent of the Act is to protect and understand the nature of all surface-water resources. The final rule calls for basic information regarding these resources. This does not impose undue hardships on the applicant and has been retained in the final rule.

Sections 780.21(c) and 784.14(c) Cumulative impact area information.

Paragraph (c) describes the kind of hydrologic and geologic information that the regulatory authority must consider when preparing the cumulative hydrologic impacts assessment (CHIA) required by paragraph (g). The provision has been modified to reflect changes

made to the final definition for "cumulative impact area." References to geologic information have been included in response to commenter requests for integration of the two kinds of data requirements. As with the proposed rule, the regulatory authority may obtain the information from appropriate State or Federal agencies. In order to help expedite the permitting process, the operator may gather and submit the necessary information as part of the permit application. As required by section 507(b)(11) of the Act, a permit cannot be approved until the necessary information is available to the regulatory authority.

Several commenters thought the proposed provision allowing an applicant to gather and submit data on the cumulative assessment could be construed as being mandatory. Also, they thought the assessment was not cost-effective and of questionable value.

Paragraphs (c) and (g) make it clear that preparation of the CHIA is the responsibility of the regulatory authority. Under paragraph (c)(1), however, the operator is required to identify and provide to the regulatory authority data available from appropriate Federal or State agencies on the cumulative impact area. Submission of these data is mandatory and will be used by the regulatory authority in preparing the CHIA. Paragraph (c)(2) gives operators the option to collect and submit the cumulative impact area information with the permit application where the information is not available from such agencies. Generally, it is to the applicant's advantage, particularly with respect to timing, to assist the regulatory authority by providing the necessary hydrologic and geologic information when possible. Preparation of a CHIA prior to approval of a permit is mandated by the Act.

One commenter suggested rephrasing proposed paragraph (d) pertaining to cumulative impact area information to specify that the applicant would be responsible only for information regarding the potential consequences of his operation and that the CHIA would be limited to existing mines and potential aggravation of existing or predicted impacts resulting from those mines.

OSM disagrees. Sections 507(b) and 510(b) of the Act require a cumulative impact assessment (CHIA) for "all anticipated mining." As discussed above, the "anticipated mining" is defined to include more than just existing mines. Therefore, the CHIA cannot be limited to only existing mines. (See discussions for definition of "cumulative impact area" and

paragraph (f). The final rule reflects this conclusion, but allows the operator to assist the regulatory authority in securing needed cumulative impact area information.

Sections 780.21(d) and 784.14(d) Modeling.

Paragraph (d) allows an operator to use modeling techniques, interpolation, or statistical techniques when developing material for the permit application. However, the provision does not eliminate the possibility that actual surface- and ground-water information also may be required. Minor editorial changes have been made in the final rule from proposed paragraph (e).

One commenter thought that proposed paragraph (e) took no notice of the complexities associated with the modeling of hydrologic systems. The commenter viewed this coupled with the allowance for "representative data" in proposed § 780.21(a) as adversely affecting the level of environmental protection.

OSM disagrees with this conclusion. The language of final paragraph (d) is basically the same as previous § 779.13(c). OSM disagrees with the commenter's assessment that the new rule ignores the complexities of modeling or that OSM's allowance of modeling will have an adverse environmental effect. OSM recognizes the complexities associated with modeling and statistical analysis. However, the application of modeling may be acceptable based on site-specific conditions, the parameter being modeled, and what other data may be available. Techniques used by the applicant will be reviewed by the regulatory authority, who may require collection of actual data even when models are used. Under paragraph (f) statistically representative data may form the basis of the PHC determination only when used in conjunction with baseline hydrologic, geologic and other information collected for the permit application.

Section 780.21(e) Alternative water-source information.

Paragraph (e) of the final rule applies only to surface mining activities and aids in fulfilling the requirements of sections 508(a)(13)(C) and 717(b) of the Act. It requires the operator to provide information on water availability and alternative water sources if the PHC determination under paragraph (f) indicates that the proposed operation may proximately result in contamination, diminution, or interruption of water used for domestic, agricultural, industrial, or other

legitimate use within the proposed permit or adjacent areas. Except for minor editorial changes, the paragraph for surface mining is adopted essentially as proposed.

The final rule requires alternative water-source information only for surface mining activities, since application of section 717(b) of the Act to underground mining was ruled improper in *In re: Permanent Surface Mining Regulation Litigation*, No. 79-1144 (May 16, 1989). The related performance standard at § 817.54 of the March 1979 rules was suspended by OSM on August 4, 1980 (45 FR 51547).

Section 508(a)(13)(C) of the Act is one permitting standard which implements section 717(b) of the Act. Because section 717(b) applies only to surface mining activities, information on alternative water sources for underground mining activities, which would otherwise be required under section 508(a)(13)(C) of the Act, is not needed and has not been provided for. This difference between Parts 780 and 784 is authorized by section 516(d) of the Act.

One commenter wanted proposed paragraph (e) to require information on the legal and physical availability of alternative water sources and assurance that water uses during mining would be recognized and protected.

The language of the paragraph is broad enough to cover adequately all legal and physical concerns which the regulatory authorities may have. Protection of water uses during mining operations is addressed by this and other provisions in the permitting and performance standard sections for surface coal mining operations.

Sections 780.21(f) and 784.14(e) Probable hydrologic consequences determination.

Final paragraph (f) requires the operator to make a determination of the probable hydrologic consequences (PHC) of the proposed operation upon the quantity and quality of ground water and surface water under seasonal flow in the proposed permit and adjacent areas. This determination is a predictive estimate of potential impacts on the hydrologic balance. It serves as one source of basic information for the regulatory authority when preparing the CHIA. It will be used by the regulatory authority to evaluate whether the operation has been designed to minimize disturbances to the hydrologic balance both within and outside the permit area and to prevent material damage to the hydrologic balance outside the permit area. The paragraph

specifies minimum analytical findings and estimates and allows the regulatory authority to expand the findings to be made. The findings which go into the PHC determination have a direct bearing on remedial measures, monitoring requirements, and supplemental baseline information requirements that will be set for an applicant.

A number of changes were made from the proposed rule. The areal coverage of this provision is specified in the first sentence, that is, the proposed permit and adjacent areas. Other references to spatial extent have been deleted as redundant. As mentioned earlier, the proposed phrase "potentially impacted offsite areas" has been replaced with the term "adjacent area." Under § 780.21(f)(2) the PHC determination must rely upon the baseline hydrologic, geologic, and other information collected for the application. Statistically representative data may be used to supplement other baseline data collected for the permit application.

Specific findings to be included in the PHC determination and alluded to in other paragraphs of § 780.21 have been summarized in §§ 780.21(f)(3) and 784.14(f)(3). The first two findings are required for both surface and underground mining. These are: (1) Whether adverse impacts may occur to the hydrologic balance, and (2) whether acid-forming or toxic-forming materials are present that could result in the contamination of surface- or ground-water supplies. The third finding requires a determination of whether the proposed operation may proximately result in contamination, diminution, or interruption of certain water uses. This finding is included only in § 780.21, for surface mining activities since, as discussed earlier, the requirements of section 717 of the Act for replacement of such water uses is applicable only to surface mines and not to underground mines. The fourth finding under § 780.21(f)(3) requires determination of impacts on sediment yield, total suspended and dissolved solids, flooding or streamflow alteration, ground-water and surface-water availability and other characteristics required by the regulatory authority. The finding related to ground-water and surface-water availability should pertain to impacts on future uses, where known, as well as to impacts on existing uses.

As noted above, paragraph (f)(3) includes a requirement that the PHC include a determination of the probable impacts of the mining operation on total dissolved solids. Salinity (total

dissolved solids) predictions can be extremely useful as an indicator of potential problems for which remedial measures can be prescribed. Also, along with total suspended solids, it is one of the parameters specifically required by section 507(b)(11) of the Act. In order to clarify the actual analysis desired, OSM has modified the final rule to add a requirement for suspended solids and to replace the requirement for salinity with one of total suspended and dissolved solids. Other changes made between the proposed and final language are of an editorial nature.

To ensure that the probable hydrologic impacts of any changes to the original plan for mining are evaluated throughout the life of the mining and reclamation operation, paragraph (f)(4) clarifies that the regulatory authority must review applications for permit revisions to determine whether a new or updated PHC determination is necessary. This is consistent with the revised application review procedures of § 774.13.

One commenter suggested that because the determination of probable hydrologic consequences (PHC) by the operator is limited to a 5-year period and because the CHIA is made for the life of the mine, a major data gap was created which made it difficult to assess individual impacts for the life of the mine. Another commenter thought that limiting the PHC determination to the 5-year term of the permit was contrary to congressional intent.

The commenter's interpretation of OSM's intent regarding the time frame of the PHC determination is incorrect. Section 507(b)(11) of the Act calls for a determination of probable hydrologic consequences both "on and off the mine site." OSM interprets this phrase as including the permit and adjacent areas. This is consistent with the previous rules (30 CFR 780.21(c)). The activities whose impacts are examined in the PHC determination include the mining and reclamation activities proposed under the permit. However, the impacts resulting from such activities may extend beyond the time required to complete actual mining and reclamation. The predictive analysis in the PHC determination must cover the full extent of such impacts. The time frame for other areas and activities for the cumulative impacts of all anticipated mining will be covered by the CHIA.

Under the final rules, the regulatory authority is required to obtain the necessary information so that, through its CHIA process, it can determine whether the proposed operation has been designed to prevent material

damage to the hydrologic balance outside the permit area. The CHIA must include consideration of all "anticipated mining"; as discussed above, the definition of anticipated mining includes the entire projected life of the proposed operation through bond release.

Possible gaps in data between those which may be required for the PHC and those which may be required for the CHIA, under section 507(b)(11) of the Act, cannot be required from the applicant until they are made available from an appropriate Federal or State agency. Nevertheless, the permit may not be approved until such information is available and incorporated in the application. If necessary information on likely impacts within the cumulative impact area is not available to the regulatory authority from State or Federal sources, then the applicant may gather and submit the data.

One commenter wanted it made clear that both the PHC determination and the CHIA were means to decide whether an operation was designed to prevent material damage to the hydrologic balance as required by section 507(b)(11) of the Act.

The PHC determination and CHIA are pre-mining analyses which allow the operator and regulatory authority to design an operation to minimize hydrologic impacts in the permit and adjacent areas and to prevent material damage to the hydrologic balance outside the permit areas. Their relationship to each other is covered in § 780.21 (f), (g), and (h) of the final rules. Section 507 (b)(11) of the Act describes the relationship between the PHC determination and CHIA and requires this analysis to take place prior to application approval.

One commenter thought that proposed paragraph (g) did not require sufficient information to ensure that all performance standards would be met.

OSM disagrees. Final paragraph (f) is written broadly to cover all probable hydrologic impacts. This would cover the relevant performance standards of sections 515 and 516 of the Act. Also, additional information may be required by the regulatory authority.

One commenter considered the term "statistically representative" ambiguous in a regulatory sense because data from any coal field could be considered statistically representative and because such data could not be used responsibly as a substitute for actual analyses. This reviewer also commented that natural systems data were often statistically independent and that the proposed rule did not consider this fact or the needed

precision when using these terms in a regulatory context.

In conjunction with the collection of actual baseline data, an applicant may use representative data from sites in close proximity to the proposed operation which have similar hydrologic and geologic conditions. While natural systems can vary from place to place, when sound statistical procedures are employed in conjunction with data from hydrologically and geologically similar sites and the baseline data for the proposed site, this variability can be recognized and accounted for so that accurate projections can be made and verified. Furthermore, the accuracy and usefulness of the PHC determination will be assured because the regulatory authority must review the use of the statistical and modeling methods and may require collection of actual information in addition.

Two commenters wanted OSM to provide a clearly stated methodology for conducting PHC determinations.

In the preamble to the proposed rule, OSM expressed general guidance regarding PHC analysis. Because OSM believes that analyses must be based on local hydrologic conditions, inclusion of PHC methodologies in a regulation of nationwide application would be inappropriate. The combination of the permit information requirements, knowledge of local conditions and typical surface mining impacts, and guidance from the regulatory authority can be used to prepare the PHC determination and to develop an environmentally sound mining and reclamation plan.

One commenter suggested that the PHC determination should be a "description" rather than an estimate of potential impacts.

OSM agrees that descriptions as well as numerical estimates can be used in the PHC determination depending upon the factor being considered and local conditions. Section 507(b)(11) of the Act gives guidance regarding the scope of the PHC determination. It is to be used as a tool for structuring a sound plan for mining and reclamation and must include a determination of probable impacts. The final rule has been revised to require such a determination. Some discretion is necessarily left to the regulatory authority regarding its precise content. However, OSM expects that the PHC determination will include numerical estimates of most impacts.

One commenter proposed the use of data from "more distant locations" if the data reflected regional trends or was otherwise useful in the PHC determination.

Data collected at a distance from a proposed operation may well be useful as an indicator of regional trends and could be used as part of the information used in the PHC determination or the CHIA conducted by the regulatory authority. However, the further one moves from the proposed permit site, the more difficult it is to correlate the data obtained to the proposed site or to estimate impacts from the proposed operation. In most cases, the utility of data used in the PHC determination will be inversely proportional to the distance from the proposed permit area. OSM believes that allowing the use of data "statistically representative of the site" is sufficiently flexible and workable.

One commenter concluded, after reading the preamble to the proposed rules, that OSM did not view the PHC determination as contributing to environmental protection. Instead it was treated as an exercise between the operator and the agency. However, the commenter believed that the PHC determination was intended for the benefit of the public's review.

OSM did not intend to give such an impression in the preamble to the proposed rules. The preamble to the proposal stressed the importance of baseline data and its relationship to an accurate and useful PHC determination. The specific requirements of final paragraph (f) and its direct links with other permitting and performance standard requirements clearly illustrate OSM's belief in the importance of the PHC determination. The main function of the PHC determination is to describe potential hydrologic impacts which can then be dealt with in the various plans prepared for the mining and reclamation operation and to serve as a basis for the broader cumulative hydrologic impacts assessment. OSM agrees with the commenter that it can serve as a useful document for public information and participation as well and must be included in the permit application which is available for public review.

*Sections 780.21(g) and 784.14(f)
Cumulative hydrologic impact
assessment.*

Final paragraph (g) requires the regulatory authority to prepare an assessment of the probable cumulative hydrologic impacts of the proposed operation and all anticipated mining upon the surface- and ground-water systems within the cumulative impact area. The assessment must be sufficient to determine, for purposes of permit approval, whether the proposed operation has been designed to prevent material damage to the hydrologic balance outside the permit area.

Changes were made in the regulatory language of proposed Paragraph (h) to make the final rule consistent with, and to emphasize its relationship to, the definition for "cumulative impact area" (§ 701.5) and to the requirements of paragraph (c) for "baseline cumulative impact area information."

As with the requirements for the probable hydrologic consequences determination, a provision has been included in paragraph (g) to assure that the CHIA will be updated, if necessary, whenever there are changes to the approved permit. Thus, an application for permit revision must be reviewed by the regulatory authority to determine whether a new or updated CHIA is required. This is consistent with the revised application review procedures of § 774.13.

OSM is aware of the complexities associated with the evaluation of existing and anticipated mining operations and the preparation of cumulative hydrologic impact assessments (CHIA). OSM's experience with cumulative assessments on Federal lands over the years has shown that sound hydrologic assessments can be made for potential mining impacts on both surface- and ground-water resources. Further, methodologies for making cumulative hydrologic impact assessments are steadily developing and improving as data bases expand. While OSM believes that the CHIA can be accomplished in an environmentally and scientifically sound fashion, the CHIA process cannot reasonably be extended to include remote and speculative impacts. Rather it should be based upon those impacts that have a reasonable likelihood of occurring and which are sufficiently defined to enable the regulatory authority to reach a decision for permit approval.

OSM agrees with some commenters that the Act envisions a portion of the process to be sequential rather than collective because an assessment is required for each application for a permit or permit revision. The cumulative hydrologic impact assessment for any given area will most likely be redefined with each new permit application because the scope of all anticipated mining will be changing.

Under the final rules, the cumulative hydrologic impact assessment need not be a land use planning tool nor result in judgments balancing current coal development and possible future development. The final rule allows a "first come first served" analysis with each subsequent operation being based upon its potential for material damage with respect to any preceding

operations. This approach is not inconsistent with the Act's intent to protect the environment, because no later or revised operations can be approved until a cumulative hydrologic impact assessment is completed indicating that there will be no material damage to the hydrologic balance outside the permit area.

OSM is aware that some States may wish to use the CHIA process as a land use planning tool by accounting for impacts from possible future mining development in their permit reviews. The language of the final definition for cumulative impact area and the final rules for the CHIAs do not preclude regulatory authorities from establishing such a procedure.

One commenter wanted proposed paragraph (h) to allow the regulatory authority to establish criteria to measure "material damage." Others urged OSM to define the term or establish guidelines to evaluate whether material damage would occur from the proposed operation.

Evaluating the probable consequences of the proposed operation upon the hydrologic balance outside the permit area is a very important step in the review of a permit application by the regulatory authority. OSM agrees that the regulatory authorities should establish criteria to measure material damage for purposes of the CHIAs.

However, because the gauges for measuring material damage may vary from area to area and from operation to operation, OSM has not established fixed criteria, except for those established under §§ 816.42 and 817.42 related to compliance with water-quality standards and effluent limitations.

Several commenters opposed the proposal to allow the applicant to submit a draft CHIA with the permit application. For some, the proposal was unclear as to who was responsible to collect data and to prepare the assessment. For others the proposal had the potential for conflict between applicants and regulatory authorities regarding the validity of the draft document, variation in assessment approach, availability of data, and expertise. Suggestions were made to delete the provision and to allow the applicant to submit relevant data.

In response to the comments, the final rule has been revised to allow submittal of data and relevant analysis. However, even where an applicant does submit analysis with the permit application, final responsibility for the CHIA rests with the regulatory authority.

One commenter thought that the preamble to the proposed rule pointed out difficulties with attempting to make

cumulative impact assessments of future operations. The commenter believed that the proposed rules did not address the difficulties.

While projections of probable cumulative hydrologic impacts may be difficult, the Act requires the regulatory authority to make this effort. OSM has tried to address some of the problems of projection by developing the concept of the cumulative impact area which defines "anticipated mining" to include only non-speculative coal mining operations.

Two commenters thought that there were dissimilarities in intent between proposed paragraph (h) and previous 30 CFR 786.19(c) and that because the proposed section was not one of findings relevant to the basic tenets of the Act, it violated the spirit and intent of the Act.

OSM has included final paragraph (g) in § 780.21 because the section allows the operator to collect information which can be useful to the regulatory authority in its CHIA process. The concept of "findings" by the regulatory authority regarding compliance with the Act, especially with respect to the question of material damage, has been preserved in the revised general permitting procedure rules at § 773.15(e)(5) as well as in § 780.21(g).

Some reviewers suggested adding the phrase "outside the permit area" to the end of the second sentence to make the paragraph consistent with section 510(b)(3) of the Act. OSM has adopted this suggestion.

One commenter thought that this rulemaking provided an opportunity for delineating a methodology for preparing a CHIA and offered seven steps for OSM's consideration.

It is inappropriate to dictate methodologies of CHIA analysis in a regulation of nationwide application. Although some CHIA criteria will be generally applicable, others will be of local value. Therefore, each regulatory authority must adopt a CHIA methodology when reviewing a permit application which will reflect the particular hydrologic and geologic conditions in their area of concern.

Sections 780.21(h) and 784.14(g) Hydrology reclamation plan.

Paragraph (h) sets out the elements to appear in the hydrology reclamation plan which must be submitted with the permit application. This plan must contain maps and descriptions indicating the steps to be taken during mining and reclamation through bond release to meet the requirements of Part 816, including §§ 816.41 to 816.43; to minimize disturbance to the hydrologic

balance within the permit and adjacent areas; to prevent material damage to the hydrologic balance outside the permit area; to meet applicable Federal and State water quality laws and regulations; and, for surface mining activities, to protect the rights of present water users. Measures to be included among the steps to be outlined in the plan are those that will be implemented to: Avoid acid or toxic drainage; prevent, to the extent possible using the best technology currently available, additional contributions of suspended solids to streamflow; provide water-treatment facilities when needed; control drainage; restore approximate premining recharge capacity; and, for surface mining activities, protect or replace rights of present users. Also, the plan must specifically address any potential adverse hydrologic consequences identified in the PHC determination by including preventive and remedial measures.

The final rule reflects a number of editorial changes. The list of particular measures which must be addressed in the plan are based on the requirements of section 508(a)(13) of the Act and the performance standards outlined in section 515(b)(10) of the Act. The relationship between the findings in the PHC determination and the coverage of the protection plan for the hydrologic balance has been made more specific.

A commenter recommended changing the language in proposed paragraph (i) from "onsite and offsite areas" to "mine site and associated offsite areas," in order to make the provision more consistent with sections 507(b)(14), 515(b)(10), 516(b)(9), and 701(28)(B) of the Act. The same commenter thought that the water systems mentioned in section 508(a)(13) referred to water delivery systems and, therefore, did not apply to most coal mining operations. The commenter considered OSM's reliance on this section to support offsite reclamation planning as inappropriate.

OSM agrees that the wording of proposed paragraph (i) should be clarified. However, rather than accepting the commenter's suggestion, the final rule is revised in accordance with terms defined elsewhere in the rules. Thus, the language used in final paragraph (h) revises the proposal to reflect the operator's responsibility to protect the hydrologic balance by minimizing disturbances within the permit and adjacent areas and by preventing material damage outside the permit area. This language is consistent with the intent of the Act in the sections cited by the commenter. OSM disagrees, however, with the commenter's

interpretation of section 508(1)(13) of the Act. While this section does address the rights of water users and alternative water sources, OSM does not interpret the language "surface and ground water systems" to apply to "developed and operating surface and groundwater delivery systems for water uses." Rather, OSM interprets this language to refer to surface- or ground-water hydrologic units, such as a drainage basin, aquifer, soil zone, lake, or reservoir. The hydrologic balance is the relationship between the quality and quantity of water inflow to, water outflow from, and water storage in such systems. Thus, section 508(a)(13) requires the reclamation plan to include a description of the measures to be taken to assure the protection of such systems both within the permit area and the adjacent area. Neither the Act nor legislative history suggests a narrower interpretation for reclamation plan requirements.

One commenter thought that OSM was incorrect in requiring the PHC determination to occur prior to completion of the reclamation plan.

OSM disagrees. The order of the requirements for PHC determination and the reclamation plan in the regulation is inconsequential. The two requirements are naturally interrelated. An operator must determine what adverse impacts to the hydrologic balance are likely to occur from a planned operation and include protective steps to prevent or minimize such impacts.

Monitoring plans

The following discussion covers the rules which prescribe how monitoring plans for surface and ground water must be developed and implemented so that adverse mining impacts can be minimized and so that those impacts due to mining will be distinguishable from those due to other causes.

Sections 780.21(i) and 784.14(h) Ground-water monitoring plan.

Final paragraph (i)(1) requires the operator to develop a ground-water monitoring plan based upon the PHC determination and relevant information appearing in the permit application. It must provide for the monitoring of parameters that relate to the suitability of the ground-water for current and approved postmining uses and to the objectives set forth in the hydrology reclamation plan. The monitoring plan must identify the quantity and quality parameters, sampling frequency, and site locations. It must describe how the data may be used to determine the impacts of the operation upon the hydrologic balance. Minimum

parameters are: total dissolved solids or specific conductance corrected to 25°C, pH, total iron, total manganese and water levels. Reports for each monitoring location must be submitted every 3 months. The regulatory authority may require additional monitoring and may adjust monitoring frequency on a case-by-case basis. Specific conductance has been included as an alternative to TDS because it is a measurable parameter indicating the same constituents and may be correlated to TDS.

In certain limited circumstances monitoring may be unnecessary. Such cases may occur in an area having limited perched ground-water zones or where the resource is of marginal quality or quantity and where other ground-water resources are available for current and future uses. Under paragraph (i)(2), if an operator can demonstrate to the regulatory authority, using the PHC determination and other available data, that a particular ground-water resource fits into this narrow exception, then the regulatory authority may waive monitoring of that particular water. All such decisions must be carefully evaluated by the regulatory authority in view of the statutory requirements to maintain the hydrologic balance, to protect water rights, and to replace water supplies.

Numerous commenters criticized the proposed rule for vagueness as to which ground-water resources need not be monitored. Section 517(b)(2) of the Act describes the characteristics of ground-water resources that must be monitored. They are all strata "that serve as aquifers which significantly insure the hydrologic balance * * *."

This statutory phrase, which has been included in § 780.21(i)(2), properly directs the attention of the operator and the regulatory authority to the relationship of the ground-water resource to the hydrologic balance.

Several commenters criticized the proposed rule pertaining to ground-water monitoring for a number of other reasons. Some thought the reference to "significant ground-water resource" was vague. Others believed that the proposed rule would illegally limit the monitoring requirement. OSM has made adjustments in the language of the final rule to address these concerns.

Under the proposed rule, if the PHC determination indicated that adverse onsite or offsite impacts might occur to a significant ground-water resource or if required by the regulatory authority, then the application would include a ground-water monitoring plan. The preamble made clear that it was OSM's intent that such action would be

approved by the regulatory authority only after careful evaluation and that the foregoing of monitoring would apply only to water supplies of "marginal use or when no appreciable adverse impacts are anticipated." [47 FR 27718].

The final rule more clearly provides for OSM's expressed intention for a limited monitoring exemption with close review by the regulatory authority as to whether the particular resource at issue will not serve "as an aquifer which significantly insures the hydrologic balance within the cumulative impact area * * *." As an added protection, the regulatory authority has the discretion to deny a request for a waiver for a particular resource if it determines that the resource has significance for the hydrologic balance.

One commenter objected to eliminating the requirements for monitoring such parameters as ground-water levels, infiltration rates, subsurface flow, and storage characteristics. The reviewer thought that OSM was letting the post-mining land use be the controlling factor for monitoring. The commenter urged consideration of ground water in the support of fish and wildlife and other resources.

The final rules do not require analysis or monitoring of all the parameters specified by the commenter in every case. Rather, depending upon the results of the PHC determination, part or all of this kind of supplemental information may be necessary at the discretion of the regulatory authority as provided for in § 780.21(b). As for the commenter's second point, the postmining land use is only one of several factors governing actions to protect ground water.

One commenter thought that adverse effects to "currently used" ground-water resources as well as "significant" resources should be included so that even lower yielding and/or quality aquifers would be protected, an important consideration in the western States.

OSM agrees with this reasoning. The final rule is broad enough to allow for such consideration.

Several commenters supported the proposed ground-water monitoring exclusion believing that it would result in a more realistic and workable monitoring program.

OSM believes that monitoring will be the general rule. It has defined the very limited circumstances when monitoring of a ground-water resource may not be required.

One commenter objected to deleting the general requirement for monitoring all water resources in order to determine

the effects of surface mining activities, which appeared in previous § 816.52(a).

Generally the final rules require the monitoring of ground-water resources. The exemption which OSM has provided has been narrowly drawn and requires the operator seeking the exemption to demonstrate to the regulatory authority that a particular resource has a limited effect, if any, on the hydrologic balance. In any event, baseline information will be available for all ground-water resources.

Numerous commenters suggested that although a ground-water resource may be determined not to be "significant" in its own right, nevertheless it may supply water to other ground- or surface-water resources that are significant. Commenters feared that relaxation of monitoring requirements might allow contamination of significant resources by the acidic, toxic, or other poor qualities of non-significant ground water. Commenters especially feared that these marginal resources might be the only supplies available for fish and wildlife.

As was discussed above, OSM has modified the final rule to focus on the relationship the ground-water resource has to the hydrologic balance. Issues of the interconnected nature of the water bodies and use by wildlife have to be resolved to the satisfaction of the regulatory authority. The number of ground-water resources eligible for the waiver will be limited. No lowering of environmental protection or loss of resources which will be useful in the future is expected. Finally, regardless of the site specific conditions which might appear to allow a ground-water monitoring exemption, the regulatory authority has the responsibility to require monitoring if it determines that such action is necessary to protect the hydrologic balance of the area.

Similarly, several commenters suggested that the ground-water monitoring exclusion should include consideration of surface-water resources as well as ground-water resources. They argued that this inclusion would help minimize potential for ground-water contamination through interconnected and contaminated surface waters.

OSM agrees with this reasoning. The final rule takes into account adverse effects to surface-water resources because they are part of the total hydrologic balance.

Several reviewers wanted OSM to provide guidance regarding the terms "significant" and "marginal" as used in the proposed rule and the preamble. Suggestions included using the term "ecologically significant" and taking

into account both present and future uses of ground-water resources.

OSM has modified the rule so that the focus is on adverse effects to the hydrologic balance rather than the significance or marginality of an individual resource. Current and potential uses of the ground-water resource would be relevant to any decision for waiver of monitoring.

A number of commenters suggested that OSM replace the proposed quarterly monitoring requirements with a more flexible schedule. Reasons offered in support of this position included: the burden and expense of monitoring, the slowness of detectable changes in ground-water quality, the lack of quality changes following the first year of operation, variability of local hydrologic and seasonal conditions which affect monitoring such as ice and snow cover, and the regulatory authority's knowledge of local conditions.

OSM agrees that a variety of factors can affect schedules for monitoring. However, the quarterly monitoring requirement does not impose an undue burden on operators and it will help identify any hydrologic problems that may develop during mining. The final rule allows the regulatory authority to require more frequent monitoring on a case-by-case basis. Such decisions should rely on baseline hydrologic and geologic information, PHC findings and the CHIA. If during mining and reclamation the monitoring has demonstrated that the hydrologic protection requirements are met or that monitoring is no longer necessary to achieve its purposes, the monitoring frequency may be adjusted in accordance with § 816.41(c)(3).

Three commenters wanted to see all ground-water resources monitored. They thought that the protection requirements of the Act could not be met without monitoring and that early-warning capabilities would be lost.

OSM disagrees with the commenter's characterization of Congress' intent with respect to the amount of required monitoring. Throughout the legislation, the focus is on the protection of the hydrologic balance as a whole. Therefore, attention to an individual water resource relates to its connection with this larger issue of protection of the hydrologic balance.

The narrow exception to monitoring, which the final rules provide, requires careful scrutiny of the effects such action may have on the hydrologic balance. The regulatory authority will be able to take into account a broad range of considerations before authorizing a particular waiver.

Commenters have raised numerous areas of concern, for example, potential use, current use, wildlife, interconnectedness of resources, and early-warning factors. OSM views these as relevant to the regulatory authority's decision.

One commenter wanted to see the reporting requirements contained in previous § 816.52(a)(3) added to the final rule.

The final rule includes provisions requiring operators to report both surface- and ground-water monitoring information to the regulatory authority.

Several commenters wanted OSM to delete the list of parameters to be monitored. Others thought the measurement for total manganese was inappropriate under alkaline conditions. They also suggested using "settleable solids" instead of suspended solids.

As was discussed previously, the monitoring required under the final rule is not considered to be excessive and will serve the operator and regulatory authority as a standard against which impacts can be measured. With respect to the analysis of manganese, the predictability of the occurrence of manganese does not directly correlate with typically "alkaline conditions." Although in many cases alkaline conditions make manganese less important, no clear line of applicability can be drawn. This, coupled with the relatively low cost of the analysis, lends support for the adoption of this test.

The suggestion to require monitoring of settleable solids has not been accepted where ground water is concerned. Settleable and suspended solids are associated almost exclusively with surface waters, but not ground water since they become naturally filtered by subsurface ground-water movement. Thus, the analysis of total dissolved solids is most applicable for routine ground-water evaluation. Analysis of total dissolved constituents along with other baseline information will serve as indicators of potential problems and may point to the need for additional or more specific analysis, which can be done at a relatively low cost. For surface waters, monitoring requirements for settleable solids will be established by the NPDES permitting authority.

Two commenters proposed deleting provisions allowing the regulatory authority to add monitoring requirements and instead only authorize considering "significant" impacts to water resources. The commenters thought that section 517(b)(2) of the Act specified when ground water must be monitored and that since the regulatory

authority approved monitoring plans the provision regarding additional requirements was redundant.

The commenters have misunderstood the meaning of section 517(b)(2) of the Act. It does not limit monitoring to situations where there are significant impacts to water resources. Instead it calls for monitoring when an operation will remove or disturb strata which serve as aquifers which have significance for the hydrologic balance. Given OSM's recognition of the importance of considering specific conditions, it is necessary for the regulatory authority to have the flexibility to require the appropriate level of monitoring.

*Sections 780.21(j) and 784.14(i)
Surface-water monitoring plan.*

Final paragraph (j) requires the application to contain a surface-water monitoring plan. This plan will be based upon the findings of the PHC determination and analysis of the baseline hydrologic, geologic, and other relevant information included in the application.

The plan must relate to the suitability of the surface water for current and approved postmining land uses, to the objectives set forth in the hydrologic protection plan under paragraph (h), and to U.S. Environmental Protection Agency (EPA) effluent limitations found at 40 CFR Part 434. The application must identify the surface-water quality and quantity parameters to be monitored, sampling frequency, and monitoring site locations and must describe how the data collected will be used to determine the impacts of the operation upon the hydrologic balance.

At all monitoring locations in surface-water bodies which may be potentially affected by the impacts of the operation or into which water is to be discharged and at upstream monitoring locations, the following parameters must be monitored: total dissolved solids or specific conductance corrected to 25°C, pH, total suspended solids, total iron, total manganese, and flow. Additionally, in the case of all point source discharges, monitoring must be conducted in accordance with EPA permitting and monitoring requirements (40 CFR Parts 122, 123 and 434) and as required by the National Pollutant Discharge Elimination System permitting authority.

These data must be reported to the regulatory authority every 3 months. The regulatory authority may require additional monitoring on a case-by-case basis.

Some changes were made to the language of the paragraph to clarify the

interrelationship between the surface-water monitoring plan and certain other findings and data included in the permit application. In response to comment from the U.S. Environmental Protection Agency (EPA), monitoring of point source discharges must be conducted to accord with the requirements of 40 CFR Parts 122, 123, and 434 and as otherwise required by the National Pollutant Discharge Elimination System permitting authority.

One commenter thought that proposed paragraph (k) did not recognize the need, as stated in prior § 816.52, for monitoring to be adequate to measure and record the quality and quantity of discharges from the permit area. The commenter feared that restricting required accuracy to that sufficient to meet postmining land uses would not recognize the continuing need to analyze changes in numerous parameters so as to anticipate and prevent unforeseen changes. The commenter also objected to an alleged deletion of a requirement for joint NPDES/OSM permits, contending that this flew in the face of regulatory reform.

The final rule for the surface-water monitoring plan does not inappropriately limit the degree of accuracy required for monitoring. Monitoring is to be based on the PHC determination and must be sufficient to measure the suitability of the surface water for current and approved postmining land uses, to meet the objectives for protecting the hydrologic balance as set forth in the plan required by paragraph (h), as well as to meet EPA effluent limitations. Monitoring for these objectives should result in the data necessary to indicate any unforeseen changes. In turn, this paragraph, coupled with the requirements of § 816.41(e), will allow for prompt response to indications of changes in the form of noncompliance with permit conditions. Finally, previous § 816.52 did not involve the issuance of joint permits between EPA and OSM. OSM has advanced the goal of regulatory reform by clarifying the monitoring procedures it will expect from an operator.

One commenter proposed deleting the monitoring locations for impoundments "into which water will be discharged." The commenter thought that potential impacts would have been brought out in the PHC determination and that impoundments would be monitored as point source discharges under the EPA rules adopted by OSM at § 816.42.

The commenter misunderstands the intent of the referenced language. Whether or not monitoring is conducted of all impoundments into which water is discharged will be determined by the

regulatory authority based upon the PHC and the need to protect the hydrologic balance. If monitoring of such bodies of water is appropriate, paragraph (j)(2) indicates the minimum parameters to be reported. Additionally, receiving waters may not always involve a point source discharge covered by an NPDES permit, and monitoring of discharges only may not indicate possible problems with meeting the water-quality standards of the receiving stream. Therefore, monitoring at such sites is included in the final rule.

*E. Hydrologic Balance Protection
Performance Standards (§ 816.41 and
817.41)*

*Sections 816.41(a) and 817.41(a)
General.*

Paragraph (a) outlines the general goals for the hydrologic balance section which are to minimize disturbance to the hydrologic balance within the permit and adjacent areas, to prevent material damage to the hydrologic balance outside the permit area, and to support approved postmining land uses in accordance with the terms and conditions of the approved permit and other relevant performance standards in Parts 816 and 817. In the case of surface mining activities, the conduct of the operation must also assure the protection or replacement of water rights. (This distinction comports with the decision in *re: Permanent Surface Mining Regulation Litigation*, C.A. No. 79-1144 (D.D.C. May 18, 1979)). Also under paragraph (a), the regulatory authority may impose additional preventive, remedial, and monitoring measures to ensure that material damage outside the permit area is prevented. Finally, the rule indicates that mining and reclamation practices that minimize water pollution and changes in flow are preferable to water treatment.

The final rule highlights the distinction which the Act draws between minimizing disturbance to the hydrologic balance in the permit and adjacent areas and preventing material damage to the hydrologic balance outside the permit area. (See sections 510(b)(3) and 515(b)(10) of the Act.)

Two commenters raised an issue specific to the underground mining performance standard (§ 817.41(e)). They recommended that the phrase "to assure protection of water rights" be deleted because section 515(b)(9) of the Act did not mention protection of water rights. The commenters referred to Judge Flannery's decision, *In re: Permanent Surface Mining Regulation Litigation*,

C.A. No. 79-1144 (D.D.C. May 16, 1979), which ruled that operators of underground mines were not required to replace water if it were lost. A similar argument was raised for § 817.41(c). These comments have been accepted and the appropriate deletions have been made.

Sections 816.41(b) and 817.41(b)
Ground-water protection.

Paragraph (b) begins by stating the goals of this performance standard, namely to protect the hydrologic balance by following the plan approved under § 780.21(h) or 784.14(g).

Ground-water quality must be protected by handling earth materials and runoff so as to minimize acidic, toxic or other harmful infiltration into the ground-water systems. Excavations and other disturbances must be managed to prevent or control the discharge of pollutants into such systems. Ground-water quantity must be protected by handling earth materials and runoff in order to restore the approximate premining recharge capacity of the reclaimed area, excluding coal mine waste disposal areas and fills, so as to allow for the movement of water to the ground-water system.

Changes have been made from the proposed rule to specifically include reference in the final rule to the hydrology protection plan required by §§ 780.21(h) and 784.14(g) and to simplify the language of paragraph (b)(2) by simply referencing restoration of the recharge capacity of the reclaimed area as required by the Act and as was provided in previous § 816.51.

The proposed reference to "coal-processing wastes" has been replaced by the more general phrase "coal mine waste." This accords with OSM's revised rules dealing with disposal of coal mine waste.

Two commenters stated that the new provision which emphasized water availability rather than recharge capacity would have the potential to add significant new responsibilities for operators in restoring subsurface storage and flow capability. The commenters contended that OSM had not provided a justification in law or fact for the change. The commenters believed that restoration of recharge capacity was sufficient to assure that ground-water supplies would continue to be adequate for meeting postmining land use needs.

Another commenter stated that OSM had not defined or explained the use of the term "water availability" in the proposed rules and questioned its use as

a substitute for the term "recharge capacity."

The final rule has been revised to specify restoration of recharge capacity rather than water availability. This change is in accord with section 515(b)(10)(D) of the Act. OSM disagrees, however, with the commenter's reasoning on water availability. OSM's emphasis in the proposed rule on water availability rather than recharge capacity accords with Congress' intent for water availability in ground-water systems after mining and reclamation to be similar to that which existed prior to mining. This comports with the requirement of section 507(b)(11) of the Act that the regulatory authority assess "the probable cumulative impacts of all anticipated mining in the area upon the hydrology of the area and particularly upon water availability" prior to issuing a mining and reclamation permit. [Emphasis added] However, OSM has redrafted paragraph (b)(2) to specifically reference recharge capacity as was set forth in the previous rules and has included an introductory paragraph in final § 816.41(b) referencing required compliance with the hydrology protection plan of §§ 780.21(h) and 784.14(g). Although recharge capacity is only one characteristic of the reclaimed area's ability to transmit water to ground-water systems, if this characteristic is assured, the availability of water in most cases will likewise be assured. Additional measures necessary to protect ground-water quantity beyond re-establishing premining recharge capacity will be identified in the PHC and CHIA for the mine and included in the hydrology protection plan.

One commenter suggested that the language in proposed paragraph (b)(2) should be rephrased to allow the regulatory authority to take into consideration the feasibility of restoring subsurface storage and flow capability of the reclaimed area.

Reclamation considerations are basic to the issue of whether a proposed operation can be permitted. Although requirements for restoration of subsurface storage and flow capability have not been included in the final rule, restoration of approximate recharge capacity is required. The requirement comports with the environmental protection performance standards of the Act, particularly section 515(b)(10)(D). Any additional requirements necessary to protect ground-water quantity will be included in the hydrology protection plan under §§ 780.21(h) and 784.14(g).

One commenter recommended that the proposed requirement to restore approximate premining water

availability be modified to account for water level drawdown induced by ground-water development by other industrial, commercial, and residential users which occurred during the period of the mining operation.

Reference to "water availability" has been deleted from the final rule as explained above. However, if the situation described by the commenter were to occur, then the regulatory authority would take the baseline data on water availability and withdrawals by the mine operator into account at the time of reclamation. Obviously, the mine operator cannot be held responsible for water that has been withdrawn by other industrial, commercial, and residential users.

Two commenters recommended substituting the words "water resources" for "water availability" in proposed paragraph (b)(2). The commenters thought that this would clarify that the water resource must be protected. They contended that OSM did not have the authority to require restoration of private water supplies.

As indicated, the final rule deletes the use of the term "water availability." Replacement of private water supplies is, however, required under § 816.41(h) and section 717 of the Act for surface mining activities.

One commenter suggested replacing the phrase "storage and flow capability" with the phrase "flow system" in proposed paragraph (b)(2). According to the commenter, since the overburden which is backfilled in place of the removed resource has different physical and chemical properties, its storage and flow capabilities would differ.

OSM agrees with the commenter's view regarding the character of backfilled materials. Under the final rule, these changes can be considered in completing the required PHC and CHIA for the mine.

Sections 816.41(c) and 817.41(c)
Ground-water monitoring.

Paragraph (c) requires that ground-water monitoring be conducted according to the approved monitoring plan. The regulatory authority may require additional monitoring. The monitoring data must be submitted on a quarterly basis or more frequently as prescribed by the regulatory authority. When the analysis indicates noncompliance with permit conditions, then the operator must promptly notify the regulatory authority and take the actions prescribed under revised §§ 773.17(e) and 780.21(h) or 784.14(g).

The ground-water monitoring must continue until bond release. Consistent

with the permit revision rule (§ 774.13), the regulatory authority may modify the requirements if the operator demonstrates, using the already collected monitoring data, that: (1) The operation has minimized disturbances to the hydrologic balance in the permit and adjacent areas and prevented material damage outside the permit area; the water quantity and quality are suitable for supporting approved postmining land uses; and the water rights of others have been protected or replaced (in the case of surface mining operations); or (2) monitoring is no longer necessary to achieve the purposes which were set out in the approved monitoring plan. Paragraph (c) also requires the proper installation, operation, maintenance, and removal of monitoring equipment or structures so that the landowners do not have to assume such costs.

The final rule is substantially similar to the proposed rule. Paragraph (c)(2) elucidates what the monitoring reports must contain. The language adopted appeared in proposed paragraph (e)(2) for surface-water monitoring. Paragraph (c)(2) also identifies what actions must be taken when the analysis from monitoring indicates noncompliance with permit conditions. This addition was prompted by a comment from the EPA. Such actions are spelled out generally in the permitting requirements at § 773.17(e) and more particularly for hydrologic concerns in the hydrology-protection plan under § 780.21(h) (784.14(g)). The conditions to be met prior to regulatory authority approval for modification of monitoring requirements have been clarified. A reference to the permit revision requirements has been added to illustrate that modifications to the monitoring plan must be considered to be a permit revision.

One commenter suggested that the word "availability" in proposed paragraph (c)(3)(i) be replaced by "quantity." OSM has accepted this suggestion.

One commenter thought that OSM did not present any evidence to support the decision to allow the regulatory authority, in the absence of monitoring, to decide on bond release. The commenter observed that monitoring is conducted not only to meet the requirements of the monitoring plan but also to check on the mining and postmining conditions on and off the site.

Section 816.41 does not establish standards for bond release. However, under paragraph (c)(3) monitoring is required to continue until bond release unless the operator demonstrates that monitoring is no longer needed for its intended purpose or to demonstrate

compliance. Such a change may only be made in accordance with the requirements for permit revisions. If there are conditions or events on a specific site that require monitoring for longer periods of time, then continued monitoring would be required by the regulatory authority.

Standards for bond release are contained in section 519 of the Act and are implemented in 30 CFR 800.40 (48 FR 32962, July 19, 1983). While monitoring is not specifically required to allow bond release, the regulatory authority must evaluate the completed reclamation operations, including considering whether pollution of surface or ground water is occurring and the probability of continuance of such pollution before releasing the bond. Section 816.41(c) provides the regulatory authority sufficient flexibility to require monitoring in support of this evaluation when necessary. Under § 800.40(c)(3) no bond shall be fully released until reclamation requirements of the Act and permit are fully met.

Sections 816.41(d) and 817.41(d)
Surface-water protection.

The reorganization of paragraph (d) parallels that of the ground-water protection paragraph. The general goal and requirement to comply with the hydrology protection plan of §§ 780.21(h) and 784.14(g) are summarized at the beginning because they apply to surface-water quality and quantity protection. Some of the language of paragraph (d)(1) has been changed to follow the statutory language found at section 515(b)(10) of the Act. Also certain redundant language has been removed. Actions to protect surface-water quantity will be identified in the surface-water protection plan. The connection between this plan and the performance standard are made more clear.

Paragraph (d)(1) requires operators to protect surface-water quality by minimizing the formation of acidic or toxic drainage and by preventing, to the extent possible using the best technology currently available, the contributions of suspended solids to streamflow outside the permit area and by otherwise preventing water pollution. If reclamation and remedial practices are not adequate to meet the requirements of §§ 816.41 and 816.42, then water-treatment facilities or water-quality controls must be used. Surface-water quantity and flow rates must be protected by following the steps outlined in the approved surface-water protection plan.

One commenter thought that Congress intended to control erosion and

suspended solids only during active mining. The commenter questioned why OSM was requiring perpetual sediment and erosion control after reclamation had been completed.

The commenter has misunderstood the intent of the Act and the rules. Section 701(27) of the Act coupled with section 515(b)(10)(B) make it clear that the responsibility of the operator to prevent additional contributions of suspended solids to streams continues through reclamation until bond release.

Sections 816.41(e) and 817.41(e)
Surface-water monitoring.

Paragraph (e) requires that surface-water monitoring be conducted according to the approved monitoring plan. The regulatory authority has flexibility to require additional monitoring. The monitoring data must be submitted on a quarterly basis to the regulatory authority, or more frequently as prescribed by the regulatory authority. It must include analytical results from each sample taken during the reporting period. In the case of a permit violation, sampling results must be submitted promptly to the regulatory authority and the protective steps taken as set forth in §§ 773.17(e) and 780.21(h). The reporting requirements of paragraph (e) in no way exempt an operator from complying with NPDES reporting requirements.

Monitoring must proceed through bond release. However, if certain conditions are met, the regulatory authority may modify monitoring requirements, except those required by the NPDES permitting authority. To allow a modification, the conditions which must be demonstrated by the operator using the monitoring data are: (1) That the operation has minimized disturbance to the hydrologic balance in the permit and adjacent areas and prevented material damage outside the permit area; that the quality and quantity of the water are suitable for approved postmining land uses; and that, in the case of surface coal mining activities, the water rights of other users have been protected or replaced; or (2) monitoring is no longer necessary to achieve the purposes which were set out in the approved monitoring plan (§ 780.21(j)). Finally, monitoring equipment and structures must be properly installed, operated, and maintained and must be removed by the operator when no longer needed.

Some commenters thought that in contrast to the prior rule, § 816.52(b), the proposed rule lowered the standards for monitoring and thereby limited the ability of the regulatory authority to

assess the impact of mining upon the hydrologic balance and to notice sub-critical changes in water quality and quantity that might be indicators of damage to other resources.

OSM disagrees. Monitoring must be conducted in accordance with the approved monitoring plan under which key parameters must be monitored to protect the hydrologic balance and which has to be based upon the PHC determination and other baseline information. The final rule gives more discretionary power to the regulatory authority to adjust monitoring requirements to match the conditions that may occur at an individual mine site. This flexibility will result in better protection of the environment because it allows site specific adjustments. Such action fully complies with the Act.

Two commenters opposed the proposed 3-month reporting requirement. One of these also suggested substituting the phrase "any surface-water sample" which appeared in proposed paragraph (e)(2) with the phrase "point source discharges."

These comments are rejected. First, it is reasonable to require monitoring on a quarterly basis to identify hydrologic impacts that may occur during mining and provide the operator with an opportunity to institute remedial measures if necessary. (Quarterly reporting was also required under previous § 816.52(b)(1)(iii).) The final rule also gives the regulatory authority the discretion to require submission of monitoring data at a more frequent interval when appropriate. Second, use of the phrase "point source discharges" in this paragraph would not be sufficiently inclusive. OSM's intent is to have monitoring for point source discharges as well as other surface-water bodies.

Another commenter believed that the deletion of the requirement to report NPDES noncompliance would complicate both the applicant's and the regulatory authority's part in coal resource development.

The commenter has misinterpreted the intent of the proposed rules. Compliance with NPDES standards is part of the terms and conditions of a SMCRA permit. Noncompliance with any term or condition of a permit requires prompt notification of the regulatory authority.

One commenter questioned allowing the discontinuance of monitoring at bond release even when the disturbance to the hydrologic balance had been minimized, the post-mining land uses had been supported, and water rights were protected. The commenter feared that some areas could still show contamination of effluent quality that

might be injurious to other resources or indicative of problems that were still unsolved.

Under the final rules for bond release, the regulatory authority must determine that disturbance to the hydrologic balance has been minimized in the permit and adjacent areas and that material damage has been prevented outside the permit area. While the performance standards for surface- and ground-water monitoring allow a regulatory authority to modify monitoring requirements based on certain showings, nevertheless it retains the responsibility to determine that the regulatory requirements have been met prior to bond release.

*Sections 816.41(f) and 817.41(f)
Drainage from acid- and toxic-forming materials.*

Paragraph (f) appeared as § 816.41(g) in the proposed rules.

The final rule requires that the drainage from acid- and toxic-forming material be avoided by identifying, treating or burying, and, when necessary, burying and treating such materials in order to prevent adverse effects to water quality, to vegetation, or to public health. Section 817.41(f) also applies to underground development waste. Storage of such materials must be limited to the period until burial and/or treatment first become feasible and so long as storage will not result in any risk of water pollution or other environmental damage. Storage or treatment must be conducted in a manner that will protect the surface water and ground water by preventing erosion and polluted runoff. The practices used for storage, burial, or treatment must be consistent with other material handling and disposal provisions of 30 CFR Chapter VII.

Paragraph (f) has been adopted substantially as proposed. By including the word "and" in the last sentence of paragraph (f)(1)(ii), OSM is emphasizing that in no case will storage be permissible if to do so will result in water pollution or other environmental damage. Paragraph (f)(2) points out that practices for dealing with acid- or toxic-forming materials must be consistent with other material handling and disposal provisions in the final rules.

Two commenters supported not setting the 30-day storage limitation which appeared in the previous rules at § 816.48. They considered such a requirement as frequently impractical.

One of these also endorsed the concept that both treatment and burial of acid- and toxic-forming materials may not be required.

Under the previous rules, treatment and burial were not required in all cases. And temporary storage of spoil was permissible under § 816.48 if approved by the regulatory authority upon a finding that such action would not result in any material risk of water pollution or other environmental damage. Although OSM has deleted the 30-day limit on storage, the final rule continues to require that water quality and the environment must be protected.

Noting the proposed elimination in the backfilling and grading rule of the requirement to cover toxic- and acid-forming materials with 4 feet of soil (§ 816.103(a)), one commenter thought it would be difficult for the applicant to decipher what the regulatory authority would accept with regard to protection of the hydrologic balance from the adverse effects of offensive spoil. The commenter believed that the modifications proposed for § 816.41(g), together with the elimination of the 4-foot cover requirement in § 816.103(a) would have the cumulative effect of lowering the protection afforded the environment.

OSM disagrees with this conclusion. The final rule requires burial and/or treatment of acid- and toxic-forming materials so that no pollution of surface or ground water occurs, and so that no harm comes to the environment or public health and safety. Paragraph (f)(2) requires the management practices to be consistent with provisions that direct the handling and disposal of materials.

OSM is aware of the many potential problems that attend the proper disposal of toxic materials. However, a national standard for cover thickness is not the solution or solutions to these problems. Instead the regulatory authority should set whatever standards, specific or otherwise, provide the best solution or solutions within the State. In some instances, 4 feet of cover may be inadequate to provide the requisite protection. The difficulties operators may have in understanding the requirements can be avoided by allowing the State regulatory authorities to set, and encouraging them to explain, standards designed for local conditions.

The same commenter opposed deleting the requirement that acid- or toxic-forming materials be stored on impermeable material (previous § 816.48(c)), fearing that with proposed changes in the monitoring provisions the detection of environmental damage would be difficult.

This comment was rejected. The final rule requires storage of potentially acid- or toxic-forming material in a manner

that will protect surface and ground water. While this may require impermeable liners in some cases, such a general requirement is overbroad and would impose undue expense and potential disturbance of otherwise undisturbed areas in order to obtain the impermeable material. Under the final rule, the regulatory authority can require impermeable liners where necessary. Additionally, the final rules require sufficient monitoring to ensure that the hydrologic balance is protected.

One commenter suggested including "treatment" along with storage as a method for dealing with the problem of drainage from acid or toxic materials.

OSM has accepted this suggestion because if storage of toxic- and acid-forming material is expected to cause water pollution or other environmental damage prior to its safe burial, then treatment of such material may be necessary.

Section 816.41(g) and 817.41(g) Transfer of wells

Paragraph (g) appeared as § 816.41 (h) in the proposed rule. The final rule provides that exploratory or monitoring wells must either be sealed in accordance with §§ 816.13 to 816.15, or, with the prior approval of the regulatory authority, be transferred to another party for further use. The conditions of the transfer must comply with State and local law. The permittee will remain responsible for the proper management of the transferred well until bond release in accordance with the requirements of §§ 816.13 to 816.15.

One commenter observed that unlike the prior rule the proposed rule did not address the question of liability. The commenter argued that under the proposal, determinations of liability based on local and State laws would be difficult because of confusion or deliberate maneuverings.

Based on the language of section 515(b)(10)(A)(iii) of the Act, the permittee retains responsibility for the proper casing, sealing, and managing of wells during all surface coal mining and reclamation operations. So long as the permittee remains responsible, there is no need for the rule to address the responsibility of the transferee or to establish categories of primary and secondary liability. The final rule does not preclude the permittee and the transferee from entering into private arrangements whereby the transferee could assume contractual obligations regarding the well. Similarly the final rule does not prevent a State from imposing additional obligations on a transferee. The final rule clarifies the operator's responsibility by specifying

that the permittee remains responsible under the Act for proper management of the well until bond release.

Sections 816.41(h) Water rights and replacement

Final § 816.41(h) appeared as proposed § 816.41(i) and requires any person who conducts surface mining activities to replace the water supply of an owner of interest in real property who obtains all or part of his supply for domestic, agricultural, or other legitimate use from an underground or surface source which has been adversely impacted by contamination, diminution, or interruption proximately resulting in from the surface mining activity. The impact of the mining operation on the water resource must be determined by using the baseline information developed during the permitting process.

One commenter recommended deleting the proposed word "suitable" because it was a subjective term. The commenter suggested that the second sentence read "The water supplies shall be replaced with an alternative source of equal or better quality and quantity to the per-impacted supply." Another commenter suggested modifying the language in the second sentence of proposed paragraph (i), so that the operator need supply water of a suitable quality or quantity only if the water supply in question previously could have met the requirements of the postmining land use.

OSM has responded to these comments by deleting the second sentence of the proposed rule which contained the language objected to by the commenters. This sentence is unnecessary since it is implicit in the requirements of section 717(b) of the Act, which are repeated in the first sentence of paragraph (h), that the alternative water supply must be capable of restoring the water user's supply which was lost due to surface mining impacts. The requirements of paragraph (h) to replace water supplies are thus tied to pre-existing uses and not the postmining land use.

One commenter believed that the issue of water rights operated strictly in accordance with State water law and suggested language changes to emphasize the point.

OSM agrees that water rights operate in accordance with State water law and that the requirements under the Act do not change these rights except for requiring operators of surface coal mines to replace affected water supplies. First, section 717(a) of the Act makes this clear by providing that the Act does not affect the right of any

person to enforce or protect, under applicable law, his or her interest in water resources. Second, section 717(b) of the Act and paragraph (h) require that a use be a "legitimate" use before it can qualify for replacement. Any use that would be in violation of State water rights would not be a "legitimate" use. Thus, no change is required in the final rule to accommodate the commenter's concern.

Sections 816.41(i) and 817.41(h) Discharge of water into an underground mine.

Final §§ 816.41(i) and 817.41(h) appeared as §§ 816.41(j) and 817.41(i) in the proposed rules. The final rules provide that the discharge of water into an underground mine is prohibited, unless it can be demonstrated to the satisfaction of the regulatory authority that the discharge will minimize disturbance to the hydrologic balance on the permit area, prevent material damage outside the permit area, meet with the approval of the Mine Safety and Health Administration, not violate applicable water-quality standards and effluent limitations, and be of known quality and quantity to meet the effluent limitation in §§ 816.42 and 817.42 for pH and total suspended solids. The pH and TSS standards may be exceeded if they are approved by the regulatory authority. Permissible discharge materials are limited to the six kinds of material listed in the previous rules, with the addition of a seventh, water. The final rule is substantially similar to the previous rule, which was codified at §§ 816.55 and 817.55.

OSM has moved language appearing in proposed § 817.41(j)(1) to final § 817.41(h)(3). The rule allows water from an underground mine to be diverted into other underground workings provided the requirements of the section are met. The transfer of the language from paragraph (j) to (h) was made for organizational purposes and has no substantive effect.

One commenter suggested that trash and garbage be added to the list of wastes that could be discharged into an underground mine. The commenter asserted that this method of disposal might in many cases be more environmentally sound than disposal by incineration or burial in a surface landfill.

OSM rejects this suggestion because of the potential of degrading the quality of ground water. Revised §§ 816.89 and 817.89 govern the disposal of non-coal mine waste. Also, the disposal of such materials is regulated by other laws.

The U.S. Environmental Protection Agency asked OSM to note in this rule that discharges into underground mine workings must be in compliance with any applicable requirements of the Underground Injection Control Program promulgated under Part C of the Safe Drinking Water Act (Pub. L. 93-523, as amended, 42 U.S.C. 300f *et seq.*). The list of Class V wells in 40 CFR 146.05(e) includes sand backfill and other backfill wells used to inject a mixture of water and sand, mill tailings or other solids into mined out portions of subsurface mines whether what is injected is a radioactive waste or not. This provision may apply to the underground disposal method described in § 816.81(f). At this time, the only requirements that apply to Class V wells are: (1) The inventory reporting requirement in 40 CFR 122.37(c)(1); and (2) the general prohibition against contamination of underground sources of drinking water in 40 CFR 144.12.

Section 817.41(i) Discharge of water from underground mines.

Section 817.41(i) for underground mines was proposed as § 817.41(j) and replaces previous § 817.50. The essential requirements of the previous rule have been retained. The final rule requires that surface entries and accesses to underground workings be managed to prevent or control gravity discharges of water from the mine. Except for drift mines, the gravity discharge of water from an underground mine may be approved by the regulatory authority upon the demonstration that the untreated or treated discharge complies with the performance standards of Part 817 and any additional NPDES permit requirements.

Section 817.41(i) also provides that surface entries and accesses to drift mines which are used after the implementation of State, Federal, or Federal lands programs and which are located in acid- or iron-producing coal seams must be located in such a manner as to prevent any gravity discharges from such mines.

One environmental group thought that rewording the proposed rule by deleting the requirement of previous § 817.50 for untreated discharges to meet effluent limitations could result in the need for perpetual treatment at mines, a requirement the commenters felt was not practicable under any circumstances.

OSM disagrees with this interpretation of the meaning of § 817.41(i). This rule requires the untreated or treated gravity discharge from an underground mine to comply with the requirements of Part 817

performance standards and NPDES permit requirements. Under the requirements of §§ 817.41(a) and 817.42, point source discharges from underground mines must meet applicable effluent limitations and water-quality standards; minimize disturbances to the hydrologic balance; and support the approved postmining land use. Treated discharges must meet similar applicable requirements. The final rule merely combines the requirements for untreated and treated discharges into one sentence. It does not impose a requirement for perpetual treatment at mines.

The same commenter thought that the proposed definition of gravity discharge, when coupled with the provisions of proposed § 817.41(i)(2) for drift mines, would defeat the intent of the Act to protect against discharges from iron- or acid-bearing seams.

OSM does not agree with the conclusion reached by this commenter with respect to drift mines. Section 516(b)(12) of the Act requires that openings for all new drift mines be located to prevent a gravity discharge of water if the mine is located on an acid- or iron-producing seam. The definition for "gravity discharge" is in accord with the requirements of section 516(b)(12). This definition is discussed earlier in this preamble and, together with the requirements of this section, will provide the protection intended by Congress.

Two commenters recommended deleting proposed paragraph (i)(1) because in their opinion section 516(b)(12) of the Act did not authorize such regulation.

OSM disagrees with this assessment of its statutory authority. Section 516(b)(9) of the Act outlines what steps mine operators must take to minimize disturbance to the hydrologic balance including avoiding acid or other toxic mine drainage. Regulating all gravity discharges from underground mines comes within the scope of this statutory directive.

F. Diversions (Sections 816.43 and 817.43)

The material covered in final §§ 816.43 and 817.43 for diversions appeared as §§ 816.41(f) and 817.41(f) in the proposed rules. The final rules for diversions have been adopted basically as proposed except as discussed below. Because the performance standards for diversion of intermittent and perennial streams and miscellaneous flows are identical except for two requirements, the rule has been restructured to reflect the similarities and to eliminate redundancy. Other minor language

changes were also made for purposes of clarity.

In accord with the combination of previous §§ 816.43 and 816.44 and 817.43 and 817.44 into final §§ 816.43 and 817.43, respectively, the final rule also corrects the citations to these sections in §§ 780.29 and 784.22 of the permitting rules. § 784.22 is also renumbered as § 784.29. No substantive change is intended by these revisions.

Sections 816.43(a) and 817.43(a) General requirements.

Under paragraph (a)(1) a regulatory authority may approve the diversion from disturbed areas, by means of temporary or permanent diversion, of any flow from a mined area abandoned prior to May 3, 1978, and any flow from undisturbed or reclaimed areas after meeting the criteria of § 816.46 for siltation-structure removal. To grant approval, a regulatory authority must find that the diversion is designed to minimize adverse impacts to the hydrologic balance within the permit area, to prevent material damage to the hydrologic balance outside the permit area, and to assure the safety of the public. Diversions may not be used to divert water into underground mines unless the regulatory authority approves such action in accordance with § 816.41(i).

The final rule revises the proposal to be in accord with the final definitions of permit area and adjacent area and the rule establishing requirements for sedimentation ponds.

Paragraph (a)(2) requires that the design, location, construction, maintenance, and use of the diversion and its appurtenant structures will ensure stability; provide protection against flooding and resultant damage to life and property; prevent additional contributions of suspended solids to streamflow outside the permit area; and comply with applicable Federal, State, and local regulations.

Final § 816.43(a)(3) provides that when no longer needed, temporary diversions must be removed and the disturbed land restored in accordance with the requirements of Part 816. Prior to removing a temporary diversion, the operator must remove or modify, as necessary, downstream water-treatment facilities that would be adversely affected. This requirement will not alter the operator's responsibility to maintain required water-treatment facilities.

The design and construction of a permanent diversion and the reclamation of a stream after removal of a temporary diversion must restore or approximate the premining

characteristics of the original stream and the natural riparian vegetation so as to promote the recovery and enhancement of the aquatic habitat.

The regulatory authority may specify additional design criteria for diversions.

Two commenters noted that unlike the prior rules at § 816.44(d)(1), proposed paragraph (f)(1)(iv) did not call for the consideration of restoring riparian habitat during construction of permanent diversions and stream channels following removal of temporary diversions. They feared that this would lead to potentially significant impacts on riparian ecosystems and the esthetic quality of natural streams. OSM accepts this comment and has revised the rule accordingly.

Several commenters expressed concern with how the proposed rules dealt with assurances for the recovery of aquatic habitat. One thought that simply to augment the recovery and enhancement of aquatic habitat would result in significant environmental damage. Another thought the aquatic habitat requirements should not be applied to ephemeral streams as it was doubtful that such habitat existed on ephemeral streams in arid or semi-arid regions. Other commenters thought the recovery standard should be to minimize disturbance of the hydrologic balance and enhance the aquatic habitat where practical. They thought that such a standard would be more in line with section 515(b)(24) of the Act.

OSM's objective in paragraph (a)(3) is to achieve a condition after mining at least as good as the original condition. The requirements adopted will achieve this objective and at the same time will provide the operator with sufficient flexibility. Additionally, OSM disagrees with the commenters' characterization of the intent of section 515(b)(24) of the Act. That section calls for minimizing adverse impacts of fish, wildlife, and related environmental values to the extent possible using the best technology currently available and "enhancement of such resources where practicable." The language in the final rule allows operators to make technical innovations and improvements to achieve these goals without specifying all aspects of stream channel reconstruction.

One commenter argued that in the semi-arid West, restoring the erosional balance of the reconstructed stream was more important to successful reclamation than restoring aquatic habitat. He suggested including the requirement to restore or augment the natural erosional balance of the original stream channel.

Although OSM agrees that erosional balance is an important aspect of stream channel reconstruction, it is not of nationwide applicability. Moreover, because the erosional balance is not usually known and because land disturbances during the operations alter the characteristics of the materials used in reclamation, restoring the original erosional balance may be unwise or impossible. Section 816.95(a) of the final rules calls for stabilization of all surface areas to control erosion. This requirement would apply in the situation described by the commenter.

One commenter suggested deleting the provision authorizing the regulatory authority to specify design criteria. The commenter thought that the statement was unnecessary as the regulatory authority could reject any design not conforming to established criteria.

OSM rejects this comment. The final rules generally do not specify design criteria. They authorize the regulatory authority to prescribe criteria if requested to do so or if it considers such action necessary. For a further discussion related to design criteria, the reader is referred to OSM's "Final Environmental Impact Statement OSM-EIS-1: Supplement."

Two commenters objected to the language of the proposal giving regulatory authorities discretion to set design criteria. One of them seemed to suggest that the authority to specify design criteria be limited to case-by-case situations at the request of operators.

This approach would be impractical. The rules provide that the regulatory authority may, if it chooses, specify and publish design criteria for diversions. Such criteria would be available to all mine operators within the jurisdiction of the regulatory authority, and each mine operator would have to comply.

One commenter viewed OSM's decision not to include restrictions on locations, sediment control measures, and design of the diversion as being unhelpful to first-time applicants when they prepared a permit application and to regulatory authorities when they reviewed and approved such applications.

Setting nationwide design criteria with respect to location, sediment control measures, etc., is unnecessary. These criteria should be known by qualified registered professional engineers who specialize in mining and reclamation operations. The final rules provide for professional engineers to certify the design and construction of the stream channel diversions and provide regulatory authorities the discretion to develop detailed design,

construction, and maintenance standards for diversion structures.

Sections 816.43(b) and 817.43(b) Diversion of perennial and intermittent streams.

In addition to the general requirements of paragraph (a), paragraph (b) sets the performance standards for the diversion of perennial and intermittent streams within the permit area. Diversions may be approved by the regulatory authority after finding that they will comply with findings in 30 CFR 816.57 related to stream buffer zones that there will be no adverse effect on water quantity and quality and related environmental resources of the stream.

The design capacity of channels for temporary and permanent diversions of perennial and intermittent streams must be at least equal to the capacity of the unmodified stream channel immediately upstream and downstream from the diversion. The requirement for a diversion to provide protection against flooding, as set forth at § 816.43(a)(2)(ii), will be met if the diversion is designed so that the combination of channel, bank, and flood-plain configuration is adequate to pass safely the peak runoff of a 10-year, 6-hour precipitation event for a temporary diversion and a 100-year, 6-hour precipitation event for a permanent diversion.

OSM modified the proposed design criteria by substituting a 6-hour precipitation event for a 24-hour storm event. This change makes the diversion rules consistent with the rules for sedimentation ponds, § 816.46(b), and permanent and temporary impoundments, § 816.49. The rationale for the change in the design criteria is based on the following analysis.

The storm design event being adopted is consistent with the criteria of the Mine Safety and Health Administration (MSHA) published as "Design Guidelines for Coal Refuse Piles and Water, Sediment, or Slurry Impoundments and Impoundment Structures" (IR 1109). OSM recognizes that for some basins, depending on location, the 24-hour duration storm may result in a runoff volume somewhat higher than the 6-hour storm for the same area (See 44 FR 15207). However, for most mining situations, a 6-hour event is more likely to result in a higher peak flow. For a given storm frequency, the time of concentration and watershed shape can be more influential in determining the peak flow than the storm duration. Therefore, in most cases the differences in any increased volume of peak flows will be minor from a

practical design and construction standpoint. Any computed increase in peak flow volume would most likely not result in any significant change in flow depth or flow velocities and, correspondingly, any alteration in drainage channel design.

A qualified registered professional must certify stream channel diversion design, construction, and maintenance of diversions and their appurtenant structures as conforming to the performance standards of Part 816 and any design criteria set by the regulatory authority.

Two commenters endorsed proposed paragraph (f)(1)(ii), which keyed the capacity of the diversion to the capacity of the natural stream rather than national design standards.

Based on field experience, OSM believes that it is technically sound and environmentally safe to require that the flow carrying capacity of a stream channel diversion be equal to that of the undiverted channel. Therefore, OSM has given more discretion to the regulatory authority to prescribe requirements suited to local geographical and meteorological conditions.

One commenter took issue with OSM's reasons as expressed in the preamble to the proposed rule (47 FR 27723) for not establishing national standards for diversion capacity. The commenter asserted that a diversion with a larger capacity than that of the natural stream channel would prevent some overtopping and would help to prevent sediment contributions downstream during non-flood periods.

While diversion capacities larger than the natural stream's capacity may prevent some overtopping, nevertheless, size alone does not provide any guarantees for meeting these problems. Moreover, the land disturbance associated with construction and removal of larger diversions could very well nullify any benefits from their greater capacities. The rules fully meet the environmental protection provisions of the Act in a feasible and cost effective manner.

Some commenters objected to requiring the supervision of a registered professional engineer over the design, construction, and maintenance of diversions. The commenter thought that the requirement did not contribute to environmental protection or coal development in any significant manner. Also because little guidance in selecting the appropriate design was provided, the requirement would result in delay and costly design changes at the time of permit review.

Section 102(a) of the Act declares that one of its purposes is " * * to protect

society and the environment from the adverse effects of surface coal mining operations." The requirement for the certification of the design and construction of stream channel diversions by a registered professional engineer is in accord with section 515(a) of the Act and will help achieve this goal. However, OSM agrees that requiring engineer certification of routine maintenance of stream channels and designs of diversions of miscellaneous flows may not be necessary. The final rule is thus changed accordingly so that the certification requirement applies only to the design and construction of perennial or intermittent streams.

Sections 816.43(c) and 817.43(c) Diversion of miscellaneous flows.

Paragraph (c) provides standards for the diversion of miscellaneous flows. The final rule is based on the language appearing in proposed § 816.41(f)(2). Paragraph (c)(1) clarifies what OSM means by the term "miscellaneous flows."

The performance standards of paragraph (c)(2), for diversions of miscellaneous flows, are the same as those for perennial and intermittent streams with certain exceptions. When reviewing the proposed diversion, the regulatory authority need not make the finding concerning stream buffer zones since these are not applicable to miscellaneous flows. In addition, the design storm events for temporary and permanent diversions of miscellaneous flows are a 2-year, 6-hour precipitation event, and a 10-year, 6-hour precipitation event, respectively, rather than 10- and 100-year events. Further, as stated above, there is no requirements for professional engineer certification of the design and construction for diversion of miscellaneous flows.

One commenter thought that the proposed rule for miscellaneous flow concerning the application of the best technology currently available to prevent additional contributions of suspended solids to streamflows outside the permit area should be revised to take into account the water quality of the ultimate receiving stream.

OSM rejects this suggestion. The requirement is derived from section 515(b)(10) of the Act and the statutory language is included verbatim in § 816.43.

One commenter thought that a mine operator should be able to divert any flow if it came from upstream areas that he or she had not disturbed. The commenter objected to the requirement to obtain the prior approval of the regulatory authority.

OSM considers that prior regulatory authority approval of diversions of flow is appropriate because unregulated diversions could lead to environmental damage, unsafe conditions, and disruption of the hydrologic balance. This approval may be granted as part of the permitting process.

Another commenter objected to OSM not providing specific reasons for allowing diversions of overland flows as was the case in the previous rule (§ 816.43). The commenter believed that by allowing diversion of all flows, without the limitations listed at that section, the task of the regulatory authority would be more difficult.

OSM discussed the reason for allowing diversions of any flow, including those from abandoned or undisturbed areas or reclaimed areas, in the preamble to the proposed rules. (47 FR 27723, June 25, 1982). The language of previous §§ 816.43 and 816.44 led to confusion as to when diversions would be approved or required and what elements of the performance standards applied to miscellaneous flows as opposed to perennial and intermittent flows. The final rule adopts the provision that the regulatory authority may require, as well as approve, diversions of miscellaneous flows. This authorization was inadvertently left out of the proposed rule. Changes made between the previous and final rules are intended to provide additional flexibility in allowing diversion of miscellaneous flows.

It is not possible to categorically list all situations where it may be environmentally desirable to divert such flows. For instance, it may be necessary to divert miscellaneous flows to prevent infiltration into spoils and protect the stability of fills or backfilled areas. The previous rule could have prohibited such diversions. The final rules provide the regulatory authority with sufficient authority to address environmental concerns with respect to miscellaneous flows without necessitating the listing of limitations as previously was the case.

One commenter was concerned that an operator could be released from the requirement to make miscellaneous diversions at least as large as the natural stream channel, should design values for handling flood flows of proposed paragraph (f)(2)(iii) prove to be smaller. The commenter thought that diversions of miscellaneous flows should have the capacity of the stream channel in all cases. Two other commenters suggested adding language regarding the proper sizing of channels for temporary and permanent diversion of miscellaneous flows, when no defined

stream channel existed. Under such conditions, they thought that the rule should provide: "The diversion shall be capable of conveying the flow from the design precipitation event."

OSM agrees that for intermittent and perennial streams, keying the size of the diversion channel to the natural stream channel is appropriate. Such a requirement is included in final paragraph (b)(2). However, for miscellaneous flows, natural stream channels are often non-existent or irrelevant to the purposes of the diversion or to the size requirements for diversion safety. Safety is provided by specifying the design precipitation event for the combination of the channel, bank, and flood plain configuration. The final rule leaves flexibility to the operator and regulatory authority with respect to the precise channel size requirements for miscellaneous flow diversions provided the general requirements of paragraph (a) are met.

Cross-referencing

In a number of places in the final rule and preamble, OSM has cross-referenced other OSM rules, some of which have been proposed for revision and may not yet be finalized. If such rules are not finalized or are revised from those versions expected to be issued in the near future, conforming technical amendments may be necessary.

IV. Procedural Matters

Executive Order 12291

The Department of the Interior (DOI) has examined these proposed rules according to the criteria of Executive Order 12291 (February 17, 1981). OSM has determined that these are not major rules and do not require a regulatory impact analysis because they will impose only minor costs on the coal industry, coal consumers, and the public. In addition, the proposed rules emphasize the use of performance standards instead of design criteria, which will allow operators to utilize the most cost-effective means of achieving the performance standards.

Agency Approval

Section 516(a) of the Act requires that, with regard to rules directed toward the surface effects of underground mining, OSM must obtain written concurrence from the head of the department which administers the Federal Mine Safety and Health Act of 1977. OSM has obtained the written concurrence of the Assistant Secretary for Mine Safety and Health, U.S. Department of Labor.

Under section 501(a)(B) of the Act the Secretary may not promulgate and publish regulations relating to water quality standards promulgated under the authority of the Federal Water Pollution Control Act, as amended 33 U.S.C. 1151-1175, until he has obtained the written concurrence of the Administrator of the Environmental Protection Agency (EPA). The written concurrence has been received with respect to these rules.

Regulatory Flexibility Act

The DOI has also determined, pursuant to the Regulatory Flexibility Act, 5 U.S.C. 601 *et seq.*, that these rules will not have significant economic impact on a substantial number of small entities. The proposed 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.

Federal Paperwork Reduction Act

In accordance with the Federal Paperwork Reduction Act of 1980 (Pub. L. 96-511; 44 U.S.C. 3507), the information requirements in Parts 780, 784, 816, and 817 were approved by the Office of Management and Budget (OMB) and assigned clearance numbers 1029-0036, 1029-0039, 1029-0047, and 1029-0048, respectively. These approvals were codified under new sections in each of those parts that contain information collection requirements. The information required in these sections will be used by the regulatory authority to assess the impact of the proposed mining operation on the hydrologic balance of the permit and adjacent areas and cumulative impacts in the cumulative impact area. Submission of such information 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, D.C., 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 following substantive differences are noted between these final rules and the preferred alternative set forth in Volume III of the FEIS. Unless otherwise indicated the changes or additions have

resulted in a rule that is the same as or more environmentally protective than the FEIS preferred alternative.

1. The final definition for "cumulative impact area," appearing at § 701.5, differs from the preferred alternative primarily in its listing of activities that, at a minimum, constitute "anticipated mining." The list is more extensive than the preferred alternative.

2. Final §§ 780.21(a) and 784.14(a) deal only with sampling and analysis techniques. References to use of the data to be collected have been moved to later paragraphs.

3. Final §§ 780.21(b) and 784.14(b) require more baseline information for surface- and ground-water resources than the preferred alternative.

4. Final §§ 780.21(f) and 784.14(e) specifically list required minimum findings and note that applications for a revision will be reviewed by the regulatory authority to decide whether a new or updated PHC determination will be required.

5. Final §§ 780.21(g) and 784.14(f) note that an application for a permit revision will be reviewed by the regulatory authority to decide whether a new or updated CHIA will be required.

6. Final §§ 780.21(h) and 784.14(g) have more extensive requirements for the reclamation plan to protect the hydrologic balance than the preferred alternative.

7. Final §§ 780.21(i) and 784.14(h) narrow the scope of the possible exemption to the monitoring of ground water which would have been available under the preferred alternative.

8. Final §§ 780.22(a) and 784.22(a) provide a more extensive and clearer list of the uses for which the geologic data is to be collected than the preferred alternative.

9. Final §§ 780.22(b) and 784.22(b) require the collection, analysis and description of more geologic information and more clearly state the depth of the data collection than the preferred alternative.

10. Final §§ 780.22(c) and 784.22(c) specify the bases for the regulatory authority to require the collection, analysis and description of geologic information in addition to that required by paragraph (b). While the language of the preferred alternative was more open-ended, the bases listed in the final rules cover the principal environmental concerns for which the additional data would be needed.

11. Final §§ 816.41(a) and 817.41(a) are broader in their statement of how surface mining activities are to be conducted to protect the hydrologic balance.

12. Final §§ 816.41(b)(2) and 817.41(b)(2) require the handling of earth materials and runoff in a manner to restore the approximate premining recharge capacity rather than premining water availability. This was part of the no action/minimum action alternative in the FEIS.

13. Final §§ 816.41 (c) and (e) and 817.41 (c) and (e) specify what the operator must do if ground-water monitoring indicates noncompliance with permit conditions. Modifications of monitoring requirements shall be treated like permit revisions. The demonstration which an operator must make to obtain a modification in the monitoring requirements has been slightly broadened from that in the FEIS.

14. Final §§ 816.41(d) and 817.41(d) have increased the surface-water protection efforts an operator shall take when conducting surface mining activities.

15. Final §§ 816.41(g) and 817.41(g) require that a permittee shall remain responsible for the proper management of wells until bond release even though the ownership of the well has been transferred to another party.

16. Final § 816.41(h) does not specify, as does the preferred alternative, that the water being replaced shall be of equal or better quality and quantity than the pre-affected supply. Instead, the final rule requires replacement of the water supply adversely affected by the surface mining activity. This is equally as environmentally protective as the preferred alternative because, as described earlier in this preamble, the concept of replacement includes restoration of both quality and quantity.

17. Final §§ 816.41(i) and 817.41(h) add that discharges into an underground mine must prevent material damage outside the permit area.

18. Final §§ 816.43 and 817.43 add that diversions must be designed to prevent material damage to the hydrologic balance. Diversions of miscellaneous flows need not be designed, constructed or maintained under the direction of a registered professional engineer. This is consistent with Alternative B in the FEIS.

List of Subjects

30 CFR Part 701

Coal mining, Law enforcement, Surface mining, Underground mining.

30 CFR Parts 779 and 816

Coal mining, Environmental protection, Reporting and recordkeeping requirements, Surface mining.

30 CFR Part 780

Coal mining, Incorporation by reference, Reporting and recordkeeping requirements, Surface mining.

30 CFR Parts 783 and 817

Coal mining, Environmental protection, Reporting and recordkeeping requirements, Underground mining.

30 CFR Part 784

Coal mining, Incorporation by reference, Reporting and recordkeeping requirements, Underground mining.

Accordingly, 30 CFR Parts 701, 779, 780, 783, 784, 816, and 817 are amended as set forth herein.

Dated: September 15, 1983.

Joy R. Gwaltney,

Acting Deputy Assistant Secretary, Energy and Minerals.

PART 701—PERMANENT REGULATORY PROGRAM

1. Section 701.5 is amended by adding the following definitions in alphabetical order:

§ 701.5 Definitions.

Cumulative impact area means the area, including the permit area, within which impacts resulting from the proposed operation may interact with the impacts of all anticipated mining on surface- and ground-water systems. Anticipated mining shall include, at a minimum, the entire projected lives through bond release of: (a) The proposed operation, (b) all existing operations, (c) any operation for which a permit application has been submitted to the regulatory authority, and (d) all operations required to meet diligent development requirements for leased Federal coal for which there is actual mine development information available.

Gravity discharge means, with respect to underground mining activities, mine drainage that flows freely in an open channel downgradient. Mine drainage that occurs as a result of flooding a mine to the level of the discharge is not gravity discharge.

PART 779—SURFACE MINING PERMIT APPLICATIONS—MINIMUM REQUIREMENTS FOR INFORMATION ON ENVIRONMENTAL RESOURCES

§§ 779.13, 779.14, 779.15, 779.16 and 779.17 [Removed]

2. Sections 779.13, 779.14, 779.15, 779.16 and 779.17 are removed.

PART 780—SURFACE MINING PERMIT APPLICATIONS—MINIMUM REQUIREMENTS FOR RECLAMATION AND OPERATION PLAN

3. Section § 780.21 is revised to read as follows:

§ 780.21 Hydrologic information.

(a) *Sampling and analysis methodology.* All water-quality analyses performed to meet the requirements of this section shall be conducted according to the methodology in the 15th edition of "Standard Methods for the Examination of Water and Wastewater," which is incorporated by reference, or the methodology in 40 CFR Parts 136 and 434. Water quality sampling performed to meet the requirements of this section shall be conducted according to either methodology listed above when feasible. "Standard Methods for the Examination of Water and Wastewater," is a joint publication of the American Public Health Association, the American Water Works Association, and the Water Pollution Control Federation and is available from the American Public Health Association, 1015 15th Street, NW., Washington, DC 20036. This document is also available for inspection at the Office of the Federal Register Information Center, Room 8301, 1100 L Street, NW., Washington, D.C.; at the Office of the OSM Administrative Record, U.S. Department of the Interior, Room 5315, 1100 L Street, NW., Washington, D.C.; at the OSM Eastern Technical Service Center, U.S. Department of the Interior, Building 10, Parkway Center, Pittsburgh, Pa.; and at the OSM Western Technical Service Center, U.S. Department of the Interior, Brooks Tower, 1020 15th Street, Denver, Colo. This incorporation by reference was approved by the Director of the Federal Register on October 26, 1983. This document is incorporated as it exists on the date of the approval, and a notice of any change in it will be published in the Federal Register.

(b) *Baseline information.* The application shall include the following baseline hydrologic information, and any additional information required by the regulatory authority.

(1) *Ground-water information.* The location and ownership for the permit and adjacent areas of existing wells, springs, and other ground-water resources, seasonal quality and quantity of ground water, and usage. Water quality descriptions shall include, at a minimum, total dissolved solids or specific conductance corrected to 25°C, pH, total iron, and total manganese.

Ground-water quantity descriptions shall include, at a minimum, approximate rates of discharge or usage and depth to the water in the coal seam, and each water-bearing stratum above and potentially impacted stratum below the coal seam.

(2) *Surface-water information.* The name, location, ownership, and description of all surface-water bodies such as streams, lakes, and impoundments, the location of any discharge into any surface-water body in the proposed permit and adjacent areas, and information on surface-water quality and quantity sufficient to demonstrate seasonal variation and water usage. Water quality descriptions shall include, at a minimum, baseline information on total suspended solids, total dissolved solids or specific conductance corrected to 25°C, pH, total iron, and total manganese. Baseline acidity and alkalinity information shall be provided if there is a potential for acid drainage from the proposed mining operation. Water quantity descriptions shall include, at a minimum, baseline information on seasonal flow rates.

(3) *Supplemental information.* If the determination of the probable hydrologic consequences (PHC) required by paragraph (f) of this section indicates that adverse impacts on or off the proposed permit area may occur to the hydrologic balance, or that acid-forming or toxic-forming material is present that may result in the contamination of ground-water or surface-water supplies, then information supplemental to that required under paragraphs (b)(1) and (b)(2) of this section shall be provided to evaluate such probable hydrologic consequences and to plan remedial and reclamation activities. Such supplemental information may be based upon drilling, aquifer tests, hydrogeologic analysis of the water-bearing strata, flood flows, or analysis of other water quality or quantity characteristics.

(c) *Baseline cumulative impact area information.* (1) Hydrologic and geologic information for the cumulative impact area necessary to assess the probable cumulative hydrologic impacts of the proposed operation and all anticipated mining on surface- and ground-water systems as required by paragraph (g) of this section shall be provided to the regulatory authority if available from appropriate Federal or State agencies.

(2) If the information is not available from such agencies, then the applicant may gather and submit this information to the regulatory authority as part of the permit application.

(3) The permit shall not be approved until the necessary hydrologic and

geologic information is available to the regulatory authority.

(d) *Modeling.* The use of modeling techniques, interpolation or statistical techniques may be included as part of the permit application, but actual surface- and ground-water information may be required by the regulatory authority for each site even when such techniques are used.

(e) *Alternative water source information.* If the PHC determination required by paragraph (f) of this section indicates that the proposed mining operation may proximately result in contamination, diminution, or interruption of an underground or surface source of water within the proposed permit or adjacent areas which is used for domestic, agricultural, industrial or other legitimate purpose, then the application shall contain information on water availability and alternative water sources, including the suitability of alternative water sources for existing permining uses and approved postmining land uses.

(f) *Probable hydrologic consequences determination.* (1) The application shall contain a determination of the probable hydrologic consequences (PHC) of the proposed operation upon the quality and quantity of surface and ground water under seasonal flow conditions for the proposed permit and adjacent areas.

(2) The PHC determination shall be based on baseline hydrologic, geologic and other information collected for the permit application and may include data statistically representative of the site;

(3) The PHC determination shall include findings on:

(i) Whether adverse impacts may occur to the hydrologic balance;

(ii) Whether acid-forming or toxic-forming materials are present that could result in the contamination of surface or ground-water supplies;

(iii) Whether the proposed operation may proximately result in contamination, diminution or interruption of an underground or surface source of water within the proposed permit or adjacent areas which is used for domestic, agricultural, industrial, or other legitimate purpose; and

(iv) What impact the proposed operation will have on:

(A) Sediment yield from the disturbed area (B) acidity, total suspended and dissolved solids, and other important water quality parameters of local impact; (C) flooding or streamflow alteration; (D) ground-water and surface-water availability and, (E) other characteristics as required by the regulatory authority.

(4) An application for a permit revision shall be reviewed by the regulatory authority to determine whether a new or updated PHC determination shall be required.

(g) *Cumulative hydrologic impact assessment.* (1) The regulatory authority shall provide an assessment of the probable cumulative hydrologic impacts (CHIA) of the proposed operation and all anticipated mining upon surface- and ground-water systems in the cumulative impact area. The CHIA shall be sufficient to determine, for purposes of permit approval, whether the proposed operation has been designed to prevent material damage to the hydrologic balance outside the permit area. The regulatory authority may allow the applicant to submit data and analyses relevant to the CHIA with the permit application.

(2) An application for a permit revision shall be reviewed by the regulatory authority to determine whether a new or updated CHIA shall be required.

(h) *Hydrologic reclamation plan.* The application shall include a plan, with maps and descriptions, indicating how the relevant requirements of Part 816, including §§ 816.41 to 816.43, will be met. The plan shall be specific to the local hydrologic conditions. It shall contain the steps to be taken during mining and reclamation through bond release to minimize disturbances to the hydrologic balance within the permit and adjacent areas; to prevent material damage outside the permit area; to meet applicable Federal and State water quality laws and regulations; and to protect the rights of present water users. The plan shall include the measures to be taken to: Avoid acid or toxic drainage; prevent, to the extent possible using the best technology currently available, additional contributions of suspended solids to streamflow; provide water-treatment facilities when needed; control drainage; restore approximate premining recharge capacity and protect or replace rights of present water users. The plan shall specifically address and potential adverse hydrologic consequences identified in the PHC determination prepared under paragraph (f) of this section and shall include preventive and remedial measures.

(i) *Ground-water monitoring plan.* (1) The application shall include a ground-water monitoring plan based upon the PHC determination required under paragraph (f) of this section and the analysis of all baseline hydrologic, geologic and other information in the permit application. The plan shall provide for the monitoring of parameters

that relate to the suitability of the ground water for current and approved postmining land uses and to the objectives for protection of the hydrologic balance set forth in paragraph (h) of this section. It shall identify the quantity and quality parameters to be monitored, sampling frequency, and site locations. It shall describe how the data may be used to determine the impacts of the operation upon the hydrologic balance. At a minimum, total dissolved solids or specific conductance corrected to 25°C, pH, total iron, total manganese, and water levels shall be monitored and data submitted to the regulatory authority at least every 3 months for each monitoring location. The regulatory authority may require additional monitoring.

(2) If an applicant can demonstrate by the use of the PHC determination and other available information that a particular water-bearing stratum in the proposed permit and adjacent areas is not one which serves as an aquifer which significantly ensures the hydrologic balance within the cumulative impact area, then monitoring of that stratum may be waived by the regulatory authority.

(j) *Surface-water monitoring plan.* (1) The application shall include a surface-water monitoring plan based upon the PHC determination required under paragraph (f) of this section and the analysis of all baseline hydrologic, geologic, and other information in the permit application. The plan shall provide for the monitoring of parameters that relate to the suitability of the surface water for current and approved postmined land uses and to the objectives for protection of the hydrologic balance as set forth in paragraph (h) of this section as well as the effluent limitations found at 40 CFR Part 434.

(2) The plan shall identify the surface-water quantity and quality parameters to be monitored, sampling frequency and site locations. It shall describe how the data may be used to determine the impacts of the operation upon the hydrologic balance.

(i) At all monitoring locations in the surface-water bodies such as streams, lakes, and impoundments, that are potentially impacted or into which water will be discharged and at upstream monitoring locations the total dissolved solids or specific conductance corrected to 25°C, total suspended solids, pH, total iron, total manganese, and flow shall be monitored.

(ii) For point-source discharges, monitoring shall be conducted in accordance with 40 CFR Parts 122, 123

and 434 and as required by the National Pollutant Discharge Elimination System permitting authority.

(3) The monitoring reports shall be submitted to the regulatory authority every 3 months. The regulatory authority may require additional monitoring.

4. Section 780.22 is added to read as follows:

§ 780.22 Geologic Information.

(a) *General.* Each application shall include geologic information in sufficient detail to assist in determining—

(1) The probable hydrologic consequences of the operation upon the quality and quantity of surface and ground water in the permit and adjacent areas, including the extent to which surface- and ground-water monitoring is necessary;

(2) All potentially acid- or toxic-forming strata down to and including the stratum immediately below the lowest coal seam to be mined; and

(3) Whether reclamation as required by this chapter can be accomplished and whether the proposed operation has been designed to prevent material damage to the hydrologic balance outside the permit area.

(b) Geologic information shall include, at a minimum the following:

(1) A description of the geology of the proposed permit and adjacent areas down to and including the deeper of either the stratum immediately below the lowest coal seam to be mined or any aquifer below the lowest coal seam to be mined which may be adversely impacted by mining. The description shall include the areal and structural geology of the permit and adjacent areas, and other parameters which influence the required reclamation and the occurrence, availability, movement, quantity, and quality of potentially impacted surface and ground waters. It shall be based on—

(i) The cross sections, maps and plans required by § 779.25 of this chapter;

(ii) The information obtained under paragraphs (b)(2) and (c) of this section; and

(iii) Geologic literature and practices.

(2) Analyses of samples collected from test borings; drill cores; or fresh, unweathered, uncontaminated samples from rock outcrops from the permit area, down to and including the deeper of either the stratum immediately below the lowest coal seam to be mined or any aquifer below the lowest seam to be mined which may be adversely impacted by mining. The analyses shall result in the following:

(i) Logs showing the lithologic characteristics including physical properties and thickness of each stratum

and location of ground water where occurring;

(ii) Chemical analyses identifying those strata that may contain acid- or toxic-forming or alkalinity-producing materials and to determine their content except that the regulatory authority may find that the analysis for alkalinity-producing materials is unnecessary; and

(iii) Chemical analyses of the coal seam for acid- or toxic-forming materials, including the total sulfur and pyritic sulfur, except that the regulatory authority may find that the analysis of pyritic sulfur content is unnecessary.

(c) If determined to be necessary to protect the hydrologic balance or to meet the performance standards of this chapter, the regulatory authority may require the collection, analysis, and description of geologic information in addition to that required by paragraph (b) of this section.

(d) An applicant may request the regulatory authority to waive in whole or in part the requirements of paragraph (b)(2) of this section. The waiver may be granted only if the regulatory authority finds in writing that the collection and analysis of such data is unnecessary because other equivalent information is available to the regulatory authority in a satisfactory form.

§ 780.29 [Amended]

5. Section 780.29 is amended by replacing the reference "30 CFR 816.43-816.44" with the reference "§ 816.43 of this chapter."

PART 783—UNDERGROUND MINING PERMIT APPLICATIONS—MINIMUM REQUIREMENTS FOR INFORMATION ON ENVIRONMENTAL RESOURCES

§§ 783.13, 783.14, 783.15, 783.16 and 783.17 [Removed]

6. Sections 783.13, 783.14, 783.15, 783.16 and 783.17 are removed.

PART 784—UNDERGROUND MINING PERMIT APPLICATIONS—MINIMUM REQUIREMENTS FOR RECLAMATION AND OPERATION PLAN

7. Section 784.14 is revised to read as follows:

§ 784.14 Hydrologic Information.

(a) *Sampling and analysis.* All water quality analyses performed to meet the requirements of this section shall be conducted according to the methodology in the 15th edition of "Standard Methods for the Examination of Water and Wastewater," which is incorporated by reference, or the methodology in 40 CFR Parts 136 and 434. Water quality sampling performed to meet the

requirements of this section shall be conducted according to either methodology listed above when feasible. "Standard Methods for the Examination of Water and Wastewater," is a joint publication of the American Public Health Association, the American Water Works Association, and the Water Pollution Control Federation and is available from the American Public Health Association, 1015 Fifteenth Street, NW., Washington, DC 20036. This document is also available for inspection at the Office of the Federal Register Information Center, Room 8301, 1100 L Street, NW., Washington, D.C.; at the Office of the OSM Administrative Record, U.S. Department of the Interior, Room 5315, 1100 L Street, NW., Washington, D.C.; at the OSM Eastern Technical Service Center, U.S. Department of the Interior, Building 10, Parkway Center, Pittsburgh, Pa.; and at the OSM Western Technical Service Center, U.S. Department of the Interior, Brooks Tower, 1020 15th Street, Denver, Colo. This incorporation by reference was approved by the Director of the Federal Register on October 26, 1983. This document is incorporated as it exists on the date of the approval, and a notice of any change in it will be published in the *Federal Register*.

(b) *Baseline information.* The application shall include the following baseline hydrologic information, and any additional information required by the regulatory authority.

(1) *Ground-Water information.* The location and ownership for the permit and adjacent areas of existing wells, springs, and other ground-water resources, seasonal quality and quantity of ground water, and usage. Water quality descriptions shall include, at a minimum, total dissolved solids or specific conductance corrected to 25°C, pH, total iron, and total manganese. Ground-water quantity descriptions shall include, at a minimum, approximate rates of discharge or usage and depth to the water in the coal seam, and each water-bearing stratum above and potentially impacted stratum below the coal seam.

(2) *Surface-water information.* The name, location, ownership and description of all surface-water bodies such as streams, lakes, and impoundments, the location of any discharge into any surface-water body in the proposed permit and adjacent areas, and information on surface-water quality and quantity sufficient to demonstrate seasonal variation and water usage. Water quality descriptions shall include, at a minimum, baseline information on total suspended solids,

total dissolved solids or specific conductance corrected to 25°C, pH, total iron, and total manganese. Baseline acidity and alkalinity information shall be provided if there is a potential for acid drainage from the proposed mining operation. Water quantity descriptions shall include, at a minimum, baseline information on seasonal flow rates.

(3) *Supplemental information.* If the determination of the probable hydrologic consequences (PHC) required by paragraph (e) of this section indicates that adverse impacts on or off the proposed permit area may occur to the hydrologic balance, or that acid-forming or toxic-forming material is present that may result in the contamination of ground-water or surface-water supplies, then information supplemental to that required under paragraphs (b)(1) and (b)(2) of this section shall be provided to evaluate such probable hydrologic consequences and to plan remedial and reclamation activities. Such supplemental information may be based upon drilling, aquifer tests, hydrogeologic analysis of the water-bearing strata, flood flows, or analysis of other water quality or quantity characteristics.

(c) *Baseline cumulative impact area information.* (1) Hydrologic and geologic information for the cumulative impact area necessary to assess the probable cumulative hydrologic impacts of the proposed operation and all anticipated mining on surface- and ground-water systems as required by paragraph (f) of this section shall be provided to the regulatory authority if available from appropriate Federal or State agencies.

(2) If this information is not available from such agencies, then the applicant may gather and submit this information to the regulatory authority as part of the permit application.

(3) The permit shall not be approved until the necessary hydrologic and geologic information is available to the regulatory authority.

(d) *Modeling.* The use of modeling techniques, interpolation or statistical techniques may be included as part of the permit application, but actual surface- and ground-water information may be required by the regulatory authority for each site even when such techniques are used.

(e) *Probable hydrologic consequences determination.* (1) The application shall contain a determination of the probable hydrologic consequences (PHC) of the proposed operation upon the quality and quantity of surface and ground water under seasonal flow conditions for the proposed permit and adjacent areas.

(2) The PHC determination shall be based on baseline hydrologic, geologic and other information collected for the permit application and may include data statistically representative of the site.

(3) The PHC determination shall include findings on:

- (i) Whether adverse impacts may occur to the hydrologic balance;
- (ii) Whether acid-forming or toxic-forming materials are present that could result in the contamination of surface- or ground-water supplies; and
- (iii) What impact the proposed operation will have on:

(A) Sediment yield from the disturbed area; (B) acidity, total suspended and dissolved solids, and other important water quality parameters of local impact; (C) flooding or streamflow alteration; (D) ground-water and surface-water availability; and, (E) other characteristics as required by the regulatory authority.

(4) An application for a permit revision shall be reviewed by the regulatory authority to determine whether a new or updated PHC determination shall be required.

(f) *Cumulative hydrologic impact assessment.* (1) The regulatory authority shall provide an assessment of the probable cumulative hydrologic impacts (CHIA) of the proposed operation and all anticipated mining upon surface- and ground-water systems in the cumulative impact area. The CHIA shall be sufficient to determine, for purposes of permit approval, whether the proposed operation has been designed to prevent material damage to the hydrologic balance outside the permit area. The regulatory authority may allow the applicant to submit data and analyses relevant to the CHIA with the permit application.

(2) An application for a permit revision shall be reviewed by the regulatory authority to determine whether a new or updated CHIA shall be required.

(g) *Hydrologic reclamation plan.* The application shall include a plan, with maps and descriptions, indicating how the relevant requirements of Part 817, including §§ 817.41 to 817.43, will be met. The plan shall be specific to the local hydrologic conditions. It shall contain the steps to be taken during mining and reclamation through bond release to minimize disturbance to the hydrologic balance within the permit and adjacent areas; to prevent material damage outside the permit area; and to meet applicable Federal and State water quality laws and regulations. The plan shall include the measures to be taken to: avoid acid or toxic drainage; prevent

to the extent possible using the best technology currently available, additional contributions of suspended solids to streamflow; provide water-treatment facilities when needed; control drainage; and restore approximate premining recharge capacity. The plan shall specifically address any potential adverse hydrologic consequences identified in the PHC determination prepared under paragraph (e) of this section and shall include preventive and remedial measures.

(h) *Ground-water monitoring plan.* (1) The application shall include a ground-water monitoring plan based upon the PHC determination required under paragraph (e) of this section and the analysis of all baseline hydrologic, geologic and other information in the permit application. The plan shall provide for the monitoring of parameters that relate to the suitability of the ground water for current and approved postmining land uses and to the objectives for protection of the hydrologic balance set forth in paragraph (g) of this section. It shall identify the quantity and quality parameters to be monitored, sampling frequency and site locations. It shall describe how the data may be used to determine the impacts of the operation upon the hydrologic balance. At a minimum, total dissolved solids or specific conductance corrected to 25°C, pH, total iron, total manganese, and water levels shall be monitored and data submitted to the regulatory authority at least every 3 months for each monitoring location. The regulatory authority may require additional monitoring.

(2) If an applicant can demonstrate by the use of the PHC determination and other available information that a particular water-bearing stratum in the proposed permit and adjacent areas is not one which serves as an aquifer which significantly ensures the hydrologic balance within the cumulative impact area, then monitoring of that stratum may be waived by the regulatory authority.

(i) *Surface-water monitoring plan.* (1) The application shall include a surface-water monitoring plan based upon the PHC determination required under paragraph (e) of this section and the analysis of all baseline hydrologic, geologic and other information in the permit application. The plan shall provide for the monitoring of parameters that relate to the suitability of the surface water for current and approved postmining land uses and to the objectives for protection of the

hydrologic balance as set forth in paragraph (g) of this section as well as the effluent limitations found at 40 CFR Part 434.

(2) The plan shall identify the surface-water quantity and quality parameters to be monitored, sampling frequency and site locations. It shall describe how the data may be used to determine the impacts of the operation upon the hydrologic balance.

(i) At all monitoring locations in streams, lakes, and impoundments, that are potentially impacted or into which water will be discharged and at upstream monitoring locations, the total dissolved solids or specific conductance corrected at 25°C, total suspended solids, pH, total iron, total manganese, and flow shall be monitored.

(ii) For point-source discharges, monitoring shall be conducted in accordance with 40 CFR Parts 122, 123 and 434 and as required by the National Pollutant Discharge Elimination System permitting authority.

(3) The monitoring reports shall be submitted to the regulatory authority every 3 months. The regulatory authority may require additional monitoring.

§ 784.22 [Redesignated as § 784.29 and amended].

8. Section 784.22 is redesignated as § 784.29 and amended by replacing the reference "§§ 817.43-817.44" with the reference "§ 817.43 of this chapter."

9. A new § 784.22 is added to read as follows:

§ 784.22 Geologic Information.

(a) *General.* Each application shall include geologic information in sufficient detail to assist in—

(1) Determining the probable hydrologic consequences of the operation upon the quality and quantity of surface and ground water in the permit and adjacent areas, including the extent to which surface- and ground-water monitoring is necessary;

(2) Determining all potentially acid- or toxic-forming strata down to and including the stratum immediately below the coal seam to be mined;

(3) Determining whether reclamation as required by this chapter can be accomplished and whether the proposed operation has been designed to prevent material damage to the hydrologic balance outside the permit area; and

(4) Preparing the subsidence control plan under § 784.20.

(b) Geologic information shall include, at a minimum, the following:

(i) A description of the geology of the proposed permit and adjacent areas down to and including the deeper of either the stratum immediately below

the lowest coal seam to be mined or any aquifer below the lowest coal seam to be mined which may be adversely impacted by mining. This description shall include the areal and structural geology of the permit and adjacent areas, and other parameters which influence the required reclamation and it shall also show how the areal and structural geology may affect the occurrence, availability, movement, quantity and quality of potentially impacted surface and ground water. It shall be based on—

(i) The cross sections, maps, and plans required by § 783.25 of this chapter;

(ii) The information obtained under paragraphs (b)(2), (b)(3), and (c) of this section; and

(iii) Geologic literature and practices.

(2) For any portion of a permit area in which the strata down to the coal seam to be mined will be removed or are already exposed, samples shall be collected and analyzed from test borings; drill cores; or fresh, unweathered, uncontaminated samples from rock outcrops down to and including the deeper of either the stratum immediately below the lowest coal seam to be mined or any aquifer below the lowest coal seam to be mined which may be adversely impacted by mining. The analyses shall result in the following:

(i) Logs showing the lithologic characteristics including physical properties and thickness of each stratum and location of ground water where occurring;

(ii) Chemical analyses identifying those strata that may contain acid- or toxic-forming, or alkalinity-producing materials and to determine their content except that the regulatory authority may find that the analysis for alkalinity-producing material is unnecessary; and

(iii) Chemical analysis of the coal seam for acid- or toxic-forming materials, including the total sulfur and pyritic sulfur, except that the regulatory authority may find that the analysis of pyritic sulfur content is unnecessary.

(3) For lands within the permit and adjacent areas where the strata above the coal seam to be mined will not be removed, samples shall be collected and analyzed from test borings or drill cores to provide the following data:

(i) Logs of drill holes showing the lithologic characteristics, including physical properties and thickness of each stratum that may be impacted, and location of ground water where occurring;

(ii) Chemical analyses for acid- or toxic-forming or alkalinity-producing materials and their content in the strata

immediately above and below the coal seam to be mined;

(iii) Chemical analyses of the coal seam for acid- or toxic-forming materials, including the total sulfur and pyritic sulfur, except that the regulatory authority may find that the analysis of pyrite sulfur content is unnecessary; and

(iv) For standard room and pillar mining operations, the thickness and engineering properties of clays or soft rock such as clay shale, if any, in the stratum immediately above and below each coal seam to be mined.

(c) If determined to be necessary to protect the hydrologic balance, to minimize or prevent subsidence, or to meet the performance standards of this chapter, the regulatory authority may require the collection, analysis and description of geologic information in addition to that required by paragraph (b) of this section.

(d) An applicant may request the regulatory authority to waive in whole or in part the requirements of paragraphs (b)(2) and (b)(3) of this section. The waiver may be granted only if the regulatory authority finds in writing that the collection and analysis of such data is unnecessary because other information having equal value or effect is available to the regulatory authority in a satisfactory form.

PART 816—PERMANENT PROGRAM PERFORMANCE STANDARDS—SURFACE MINING ACTIVITIES

§§ 816.13 and 816.15 [Amended]

10. Sections 816.13 and 816.15 are amended by replacing the reference "§ 816.53" in each section with the reference "§ 816.41."

11. Section 816.41 is revised to read as follows:

§ 816.41 Hydrologic-balance protection.

(a) *General.* All surface mining and reclamation activities shall be conducted to minimize disturbance of the hydrologic balance within the permit and adjacent areas, to prevent material damage to the hydrologic balance outside the permit area, to assure the protection or replacement of water rights, and to support approved postmining land uses in accordance with the terms and conditions of the approved permit and the performance standards of this part. The regulatory authority may require additional preventative, remedial, or monitoring measures to assure that material damage to the hydrologic balance outside the permit area is prevented. Mining and reclamation practices that minimize water pollution and changes in

flow shall be used in preference to water treatment.

(b) *Ground-water protection.* In order to protect the hydrologic balance, surface mining activities shall be conducted according to the plan approved under § 780.21(h) of this chapter and the following:

(1) Ground-water quality shall be protected by handling earth materials and runoff in a manner that minimizes acidic, toxic, or other harmful infiltration to ground-water systems and by managing excavations and other disturbances to prevent or control the discharge of pollutants into the ground water.

(2) Ground-water quantity shall be protected by handling earth materials and runoff in a manner that will restore the approximate premining recharge capacity of the reclaimed area as a whole, excluding coal mine waste disposal areas and fills, so as to allow the movement of water to the ground-water system.

(c) *Ground-water monitoring.* (1) Ground-water monitoring shall be conducted according to the ground-water monitoring plan approved under § 780.21(i) of this chapter. The regulatory authority may require additional monitoring when necessary.

(2) Ground-water monitoring data shall be submitted every 3 months to the regulatory authority or more frequently as prescribed by the regulatory authority. Monitoring reports shall include analytical results from each sample taken during the reporting period. When the analysis of any ground-water sample indicates noncompliance with the permit conditions, then the operator shall promptly notify the regulatory authority and immediately take the actions provided for in §§ 773.17(e) and 780.21(h) of this chapter.

(3) Ground-water monitoring shall proceed through mining and continue during reclamation until bond release. Consistent with the procedures of § 774.13 of this chapter, the regulatory authority may modify the monitoring requirements, including the parameters covered and the sampling frequency, if the operator demonstrates, using the monitoring data obtained under this paragraph, that—

(i) The operation has minimized disturbance to the hydrologic balance in the permit and adjacent areas and prevented material damage to the hydrologic balance outside the permit area; water quantity and quality are suitable to support approved postmining land uses; and the water rights of other users have been protected or replaced; or

(ii) Monitoring is no longer necessary to achieve the purposes set forth in the monitoring plan approved under § 780.21(j) of this chapter.

(4) Equipment, structures, and other devices used in conjunction with monitoring the quality and quantity of ground water onsite and offsite shall be properly installed, maintained, and operated and shall be removed by the operator when no longer needed.

(d) *Surface-water protection.* In order to protect the hydrologic balance, surface mining activities shall be conducted according to the plan approved under § 780.21(h) of this chapter, and the following:

(1) Surface-water quality shall be protected by handling earth materials, ground-water discharges, and runoff in a manner that minimizes the formation of acidic or toxic drainage; prevents, to the extent possible using the best technology currently available, additional contribution of suspended solids to streamflow outside the permit area; and otherwise prevents water pollution. If drainage control, restabilization and revegetation of disturbed areas, diversion of runoff, mulching, or other reclamation and remedial practices are not adequate to meet the requirements of this section and § 816.42, the operator shall use and maintain the necessary water-treatment facilities or water quality controls.

(2) Surface-water quality and flow rates shall be protected by handling earth materials and runoff in accordance with the steps outlined in the plan approved under § 780.21(h) of this chapter.

(e) *Surface-water monitoring.* (1) Surface-water monitoring shall be conducted according to the surface-water monitoring plan approved under § 780.21(j) of this chapter. The regulatory authority may require additional monitoring when necessary.

(2) Surface-water monitoring data shall be submitted every 3 months to the regulatory authority or more frequently as prescribed by the regulatory authority. Monitoring reports shall include analytical results from each sample taken during the reporting period. When the analysis of any surface-water sample indicates noncompliance with the permit conditions, the operator shall promptly notify the regulatory authority and immediately take the actions provided for in §§ 773.17(e) and 780.21(h) of this chapter. The reporting requirements of this paragraph do not exempt the operator from meeting any National Pollutant Discharge Elimination System (NPDES) reporting requirements.

(3) Surface-water monitoring shall proceed through mining and continue during reclamation until bond release. Consistent with § 774.13 of this chapter, the regulatory authority may modify the monitoring requirements, except those required by the NPDES permitting authority, including the parameters covered and sampling frequency if the operator demonstrates, using the monitoring data obtained under this paragraph, that—

(i) The operation has minimized disturbance to the hydrologic balance in the permit and adjacent areas and prevented material damage to the hydrologic balance outside the permit area; water quantity and quality are suitable to support approved postmining land uses; and the water rights of other users have been protected or replaced; or

(ii) Monitoring is no longer necessary to achieve the purposes set forth in the monitoring plan approved under § 780.21(j) of this chapter.

(4) Equipment, structures, and other devices used in conjunction with monitoring the quality and quantity of surface water onsite and offsite shall be properly installed, maintained, and operated and shall be removed by the operator when no longer needed.

(f) *Acid- and toxic-forming materials.*

(1) Drainage from acid- and toxic-forming materials into surface water and ground water shall be avoided by—

(i) Identifying and burying and/or treating, when necessary, materials which may adversely affect water quality, or be detrimental to vegetation or to public health and safety if not buried and/or treated; and

(ii) Storing materials in a manner that will protect surface water and ground water by preventing erosion, the formation of polluted runoff, and the infiltration of polluted water. Storage shall be limited to the period until burial and/or treatment first become feasible, and so long as storage will not result in any risk of water pollution or other environmental damage.

(2) Storage, burial or treatment practices shall be consistent with other material handling and disposal provisions of this chapter.

(g) *Transfer of wells.* Before final release of bond, exploratory or monitoring wells shall be sealed in a safe and environmentally sound manner in accordance with §§ 816.13 to 816.15. With the prior approval of the regulatory authority, wells may be transferred to another party for further use. At a minimum, the conditions of such transfer shall comply with State and local law and the permittee shall remain responsible for the proper management

of the well until bond release in accordance with §§ 816.13 to 816.15.

(h) *Water rights and replacement.* Any person who conducts surface mining activities shall replace the water supply of an owner of interest in real property who obtains all or part of his or her supply of water for domestic, agricultural, industrial, or other legitimate use from an underground or surface source, where the water supply has been adversely impacted by contamination, diminution, or interruption proximately resulting from the surface mining activities. Baseline hydrologic information required in §§ 780.21 and 780.22 of this chapter shall be used to determine the extent of the impact of mining upon ground water and surface water.

(i) *Discharges into an underground mine.* (1) Discharges into an underground mine are prohibited, unless specifically approved by the regulatory authority after a demonstration that the discharge will—

(i) Minimize disturbance to the hydrologic balance on the permit area, prevent material damage outside the permit area and otherwise eliminate public hazards resulting from surface mining activities;

(ii) Not result in a violation of applicable water quality standards or effluent limitations;

(iii) Be at a known rate and quality which shall meet the effluent limitations of § 816.42 for pH and total suspended solids, except that the pH and total suspended-solids limitations may be exceeded, if approved by the regulatory authority; and

(iv) Meet with the approval of the Mine Safety and Health Administration.

(2) Discharges shall be limited to the following:

- (i) Water;
- (ii) Coal processing waste;
- (iii) Fly ash from a coal-fired facility;
- (iv) Sludge from an acid-mine-drainage treatment facility;
- (v) Flue-gas desulfurization sludge;
- (vi) Inert materials used for stabilizing underground mines; and
- (vii) Underground mine development wastes.

12. Section 816.43 is revised to read as follows:

§ 816.43 Diversions.

(a) *General requirements.* (1) With the approval of the regulatory authority, any flow from mined areas abandoned before May 3, 1978, and any flow from undisturbed areas or reclaimed areas, after meeting the criteria of § 816.46 for siltation structure removal, may be diverted from disturbed areas by means of temporary or permanent diversions.

All diversions shall be designed to minimize adverse impacts to the hydrologic balance within the permit and adjacent areas, to prevent material damage outside the permit area and to assure the safety of the public. Diversions shall not be used to divert water into underground mines without approval of the regulatory authority under § 816.41(i).

(2) The diversion and its appurtenant structures shall be designed, located, constructed, maintained and used to—

(i) Be stable;

(ii) Provide protection against flooding and resultant damage to life and property;

(iii) Prevent, to the extent possible using the best technology currently available, additional contributions of suspended solids to streamflow outside the permit area; and

(iv) Comply with all applicable local, State, and Federal laws and regulations.

(3) Temporary diversions shall be removed promptly when no longer needed to achieve the purpose for which they were authorized. The land disturbed by the removal process shall be restored in accordance with this part. Before diversions are removed, downstream water-treatment facilities previously protected by the diversion shall be modified or removed, as necessary, to prevent overtopping or failure of the facilities. This requirement shall not relieve the operator from maintaining water-treatment facilities as otherwise required. A permanent diversion or a stream channel reclaimed after the removal of a temporary diversion shall be designed and constructed so as to restore or approximate the premining characteristics of the original stream channel including the natural riparian vegetation to promote the recovery and the enhancement of the aquatic habitat.

(4) The regulatory authority may specify design criteria for diversions to meet the requirements of this section.

(b) *Diversion of perennial and intermittent streams.* (1) Diversion of perennial and intermittent streams within the permit area may be approved by the regulatory authority after making the finding relating to stream buffer zones that the diversion will not adversely affect the water quantity and quality and related environmental resources of the stream.

(2) The design capacity of channels for temporary and permanent stream channel diversions shall be at least equal to the capacity of the unmodified stream channel immediately upstream and downstream from the diversion.

(3) The requirements of paragraph (a)(2)(ii) of this section shall be met when the temporary and permanent diversions for perennial and intermittent streams are designed so that the combination of channel, bank and flood-plain configuration is adequate to pass safely the peak runoff of a 10-year, 6-hour precipitation event for a temporary diversion and a 100-year, 6-hour precipitation event for a permanent diversion.

(4) The design and construction of all stream channel diversions of perennial and intermittent streams shall be certified by a qualified registered professional engineer as meeting the performance standards of this part and any design criteria set by the regulatory authority.

(c) *Diversion of miscellaneous flows.*
(1) Miscellaneous flows, which consist of all flows except for perennial and intermittent streams, may be diverted away from disturbed areas if required or approved by the regulatory authority. Miscellaneous flows shall include ground-water discharges and ephemeral streams.

(2) The design, location, construction, maintenance, and removal of diversions of miscellaneous flows shall meet all of the performance standards set forth in paragraph (a) of this section:

(3) The requirements of paragraph (a)(2)(ii) of this section shall be met when the temporary and permanent diversions for miscellaneous flows are designed so that the combination of channel, bank and flood-plain configuration is adequate to pass safely the peak runoff of a 2-year, 6-hour precipitation event for a temporary diversion and a 10-year, 6-hour precipitation event for a permanent diversion.

§§ 816.44, 816.48, 816.50, 816.51, 816.52, 816.53, 816.54 and 816.55 [Removed]

13. Sections 816.44, 816.48, 816.50, 816.51, 816.52, 816.53, 816.54 and 816.55 are removed.

PART 817—PERMANENT PROGRAM PERFORMANCE STANDARDS—UNDERGROUND MINING ACTIVITIES

§§ 817.13 and 817.15 [Amended]

14. Sections 817.13 and 817.15 are amended by replacing the reference "§ 817.53" in each section with the reference "§ 817.41."

15. Section 817.15 is also amended by replacing the reference "§§ 817.13 and 817.50" with the reference "§ 817.13."

16. Section 817.41 is revised to read as follows:

817.41 Hydrologic-balance protection.

(a) *General.* All underground mining and reclamation activities shall be conducted to minimize disturbance of the hydrologic balance within the permit and adjacent areas, to prevent material damage to the hydrologic balance outside the permit area, and to support approved postmining land uses in accordance with the terms and conditions of the approved permit and the performance standards of this part. The regulatory authority may require additional preventative, remedial, or monitoring measures to assure that material damage to the hydrologic balance outside the permit area is prevented. Mining and reclamation practices that minimize water pollution and changes in flow shall be used in preference to water treatment.

(b) *Ground-water protection.* In order to protect the hydrologic balance underground mining activities shall be conducted according to the plan approved under § 784.14(g) of this chapter and the following:

(1) Ground-water quality shall be protected by handling earth materials and runoff in a manner that minimizes acidic, toxic, or other harmful infiltration to ground-water systems and by managing excavations and other disturbances to prevent or control the discharge of pollutants into the ground water.

(2) Ground-water quantity shall be protected by handling earth materials and runoff in a manner that will restore approximate premining recharge capacity of the reclaimed area as a whole, excluding coal mine waste disposal areas and fills, so as to allow the movement of water to the ground-water system.

(c) *Ground-water monitoring.* (1) Ground-water monitoring shall be conducted according to the ground-water monitoring plan approved under § 784.14(h) of this chapter. The regulatory authority may require additional monitoring when necessary.

(2) Ground-water monitoring data shall be submitted every 3 months to the regulatory authority or more frequently as prescribed by the regulatory authority. Monitoring reports shall include analytical results from each sample taken during the reporting period. When the analysis of any ground-water sample indicates noncompliance with the permit conditions, then the operator shall promptly notify the regulatory authority and immediately take the actions provided for in §§ 773.17(e) and 784.14(g) of this chapter.

(3) Ground-water monitoring shall proceed through mining and continue

during reclamation until bond release. Consistent with the procedures of § 774.13 of this chapter, the regulatory authority may modify the monitoring requirements including the parameters covered and the sampling frequency if the operator demonstrates, using the monitoring data obtained under this paragraph, that—

(i) The operation has minimized disturbance to the prevailing hydrologic balance in the permit and adjacent areas and prevented material damage to the hydrologic balance outside the permit area; water quantity and quality are suitable to support approved postmining land uses; or

(ii) Monitoring is no longer necessary to achieve the purposes set forth in the monitoring plan approved under § 784.14(h) of this chapter.

(4) Equipment, structures, and other devices used in conjunction with monitoring the quality and quantity of ground water onsite and offsite shall be properly installed, maintained, and operated and shall be removed by the operator when no longer needed.

(d) *Surface-water protection.* In order to protect the hydrologic balance, underground mining activities shall be conducted according to the plan approved under § 784.14(g) of this chapter, and the following:

(1) Surface-water quality shall be protected by handling earth materials, ground-water discharges, and runoff in a manner that minimizes the formation of acidic or toxic drainage; prevents, to the extent possible using the best technology currently available, additional contribution of suspended solids to streamflow outside the permit area; and otherwise prevent water pollution. If drainage control, restabilization and revegetation of disturbed areas, diversion of runoff, mulching, or other reclamation and remedial practices are not adequate to meet the requirements of this section and § 817.42, the operator shall use and maintain the necessary water-treatment facilities or water quality controls.

(2) Surface-water quantity and flow rates shall be protected by handling earth materials and runoff in accordance with the steps outlined in the plan approved under § 784.14(g) of this chapter.

(e) *Surface-water monitoring.* (1) Surface-water monitoring shall be conducted according to the surface-water monitoring plan approved under § 784.14(i) of this chapter. The regulatory authority may require additional monitoring when necessary.

(2) Surface-water monitoring data shall be submitted every 3 months to the

regulatory authority or more frequently as prescribed by the regulatory authority. Monitoring reports shall include analytical results from each sample taken during the reporting period. When the analysis of any surface-water sample indicates noncompliance with the permit conditions, the operator shall promptly notify the regulatory authority and immediately take the actions provided for in §§ 773.17(e) and 784.14(g) of this chapter. The reporting requirements of this paragraph do not exempt the operator from meeting any National Pollutant Discharge Elimination System (NPDES) reporting requirements.

(3) Surface-water monitoring shall proceed through mining and continue during reclamation until bond release. Consistent with § 774.13 of this chapter, the regulatory authority may modify the monitoring requirements, except those required by the NPDES permitting authority, including the parameters covered and sampling frequency if the operator demonstrates, using the monitoring data obtained under this paragraph, that—

(i) The operation has minimized disturbance to the hydrologic balance in the permit and adjacent areas and prevented material damage to the hydrologic balance outside the permit area; water quantity and quality are suitable to support approved postmining land uses; and

(ii) Monitoring is no longer necessary to achieve the purposes set forth in the monitoring plan approved under § 784.14(i) of this chapter.

(4) Equipment, structures, and other devices used in conjunction with monitoring the quality and quantity of surface water onsite and offsite shall be properly installed, maintained, and operated and shall be removed by the operator when no longer needed.

(f) *Acid- and toxic-forming materials.* (1) Drainage from acid- and toxic-forming materials and underground development waste into surface water and ground water shall be avoided by—

(i) Identifying and burying and/or treating, when necessary, materials which may adversely affect water quality, or be detrimental to vegetation or to public health and safety if not buried and/or treated; and

(ii) Storing materials in a manner that will protect surface water and ground water by preventing erosion, the formation of polluted runoff, and the infiltration of polluted water. Storage shall be limited to the period until burial and/or treatment first become feasible, and so long as storage will not result in any risk of water pollution or other environmental damage.

(2) Storage, burial or treatment practices shall be consistent with other material handling and disposal provisions of this chapter.

(g) *Transfer of wells.* Before final release of bond, exploratory or monitoring wells shall be sealed in a safe and environmentally sound manner in accordance with §§ 817.13 and 817.15. With the prior approval of the regulatory authority, wells may be transferred to another party for further use. However, at a minimum, the conditions of such transfer shall comply with State and local laws and the permittee shall remain responsible for the proper management of the well until bond release in accordance with §§ 817.13 to 817.15.

(h) *Discharges into an underground mine.* (1) Discharges into an underground mine are prohibited, unless specifically approved by the regulatory authority after a demonstration that the discharge will—

(i) Minimize disturbance to the hydrologic balance on the permit area, prevent material damage outside the permit area and otherwise eliminate public hazards resulting from underground mining activities;

(ii) Not result in a violation of applicable water quality standards or effluent limitations;

(iii) Be at a known rate and quality which shall meet the effluent limitations of § 817.42 for pH and total suspended solids, except that the pH and total suspended solids limitations may be exceeded, if approved by the regulatory authority; and

(iv) Meet with the approval of the Mine Safety and Health Administration. (2) Discharges shall be limited to the following:

- (i) water;
- (ii) Coal-processing waste;
- (iii) Fly ash from a coal-fired facility;
- (iv) Sludge from an acid-mine-drainage treatment facility;
- (v) Flue-gas desulfurization sludge;
- (vi) Inert materials used for stabilizing underground mines; and
- (vii) Underground mine development wastes.

(3) Water from one underground mine may be diverted into other underground workings according to the requirements of this section.

(i) *Gravity discharges from underground mines.* (1) Surface entries and accesses to underground workings shall be located and managed to prevent or control gravity discharge of water from the mine. Gravity discharges of water from an underground mine, other than a drift mine subject to paragraph (i)(2) of this section, may be allowed by the regulatory authority if it is

demonstrated that the untreated or treated discharge complies with the performance standards of this part and any additional NPDES permit requirements.

(2) Notwithstanding anything to the contrary in paragraph (i)(1) of this section, the surface entries and accesses of drift mines first used after the implementation of a State, Federal, or Federal Lands Program and located in acid-producing or iron-producing coal seams shall be located in such a manner as to prevent any gravity discharge from the mine.

17. Section 817.43 is revised to read as follows:

§ 817.43 Diversions.

(a) *General requirements.* (1) With the approval of the regulatory authority, any flow from mined areas abandoned before May 3, 1978, and any flow from undisturbed areas or reclaimed areas, after meeting the criteria of § 817.46 for siltation structure removal, may be diverted from disturbed areas by means of temporary or permanent diversions. All diversions shall be designed to minimize adverse impacts to the hydrologic balance within the permit and adjacent areas, to prevent material damage outside the permit area and to assure the safety of the public. Diversions shall not be used to divert water into underground mines without approval of the regulatory authority in accordance with § 817.41(h).

(2) The diversion and its appurtenant structures shall be designed, located, constructed, and maintained to—

- (i) Be stable;
- (ii) Provide protection against flooding and resultant damage to life and property;

(iii) Prevent, to the extent possible using the best technology currently available, additional contributions of suspended solids to streamflow outside the permit area; and

(iv) Comply with all applicable local, State, and Federal laws and regulations.

(3) Temporary diversions shall be removed when no longer needed to achieve the purpose for which they were authorized. The land disturbed by the removal process shall be restored in accordance with this part. Before diversions are removed, downstream water-treatment facilities previously protected by the diversion shall be modified or removed, as necessary, to prevent overtopping or failure of the facilities. This requirement shall not relieve the operator from maintaining water-treatment facilities as otherwise required. A permanent diversion or a stream channel reclaimed after the

removal of a temporary diversion shall be designed and constructed so as to restore or approximate the premining characteristics of the original stream channel including the natural riparian vegetation to promote the recovery and the enhancement of the aquatic habitat.

(4) The regulatory authority may specify additional design criteria for diversions to meet the requirements of this section.

(b) Diversion of perennial and intermittent streams.

(1) Diversion of perennial and intermittent streams within the permit area may be approved by the regulatory authority after making the finding relating to stream buffer zones called for in 30 CFR 817.57 that the diversions will not adversely affect the water quantity and quality and related environmental resources of the stream.

(2) The design capacity of channels for temporary and permanent stream channel diversions shall be at least equal to the capacity of the unmodified stream channel immediately upstream and downstream from the diversion.

(3) The requirements of paragraph (a)(2)(ii) of this section shall be met when the temporary and permanent diversions for perennial and intermittent streams are designed so that the combination of channel, bank and flood-plain configuration is adequate to pass safely the peak runoff of a 10-year, 6-hour precipitation event for a temporary diversion and a 100-year, 6-hour precipitation event for a permanent diversion.

(4) The design and construction of all stream channel diversions of perennial and intermittent streams shall be certified by a qualified registered professional engineer as meeting the performance standards of this part and any design criteria set by the regulatory authority.

(c) Diversion of miscellaneous flows.

(1) Miscellaneous flows, which consist of all flows except for perennial and intermittent streams, may be diverted away from disturbed areas if required or approved by the regulatory authority. Miscellaneous flows shall include ground-water discharges and ephemeral streams.

(2) The design, location, construction, maintenance, and removal of diversions of miscellaneous flows shall meet all of the performance standards set forth in paragraph (a) of this section.

(3) The requirements of paragraph (a)(2)(ii) of this section shall be met when the temporary and permanent diversions for miscellaneous flows are designed so that the combination of channel, bank and flood-plain configuration is adequate to pass safely

the peak runoff of a 2-year, 6-hour precipitation event for a temporary diversion and a 10-year, 6-hour precipitation event for a permanent diversion.

§§ 817.44, 817.48, 817.50, 817.52, 817.53, 817.54 and 817.55 [Removed]

18. Sections 817.44, 817.48, 817.50, 817.52, 817.53, 817.54 and 817.55 are removed.

Authority: Pub. L. 95-87, 30 U.S.C. 1201 *et seq.*

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30 CFR Parts 701, 816, and 817

Surface Coal Mining and Reclamation Operations: Permanent and Temporary Impoundments

AGENCY: Office of Surface Mining Reclamation and Enforcement, Interior.

ACTION: Final rule.

SUMMARY: The Office of Surface Mining Reclamation and Enforcement (OSM) is adopting final rules to simplify the requirements for design and construction of impoundments, which include all water, sediment, slurry or other liquid or semi-liquid holding structures and depressions, either naturally formed or artificially built. These rules provide design latitude to professionals, remove inconsistencies among previous rules, and clarify definitions. This action is being done to resolve conflicting and overlapping rules, and eliminate duplication.

EFFECTIVE DATE: October 26, 1983.

FOR FURTHER INFORMATION CONTACT: Robert A. Wiles, Technical Services and Research, Office of Surface Mining Reclamation and Enforcement, U.S. Department of the Interior, South Building, 1951 Constitution Avenue, NW., Washington, D.C. 20240, 202-343-2185.

SUPPLEMENTARY INFORMATION:

- I. Background
- II. Discussion of Comments and Rules Adopted
- III. Procedural Matters

I. Background

Section 515(b)(10) of the Surface Mining Control and Reclamation Act of 1977, 30 U.S.C. 1201 *et seq.* (the Act), requires surface coal mining operations to minimize disturbances to the prevailing hydrologic balance and to the quality and quantity of water in surface- and ground-water systems. Section 515(b)(8) of the Act requires that permanent impoundments be of adequate size, that the stability of an

impoundment be compatible with that of the structures constructed under the Watershed Protection and Flood Prevention Act, Pub. L. 85-566, that the quality of the impounded water be permanently suitable for its intended use and impoundment discharges not degrade the water quality of the receiving waters below the standards established in applicable Federal and State law, that the final grading provide adequate safety and access for proposed water users, that the water level be reasonably stable, and that the impoundment not diminish the quality or quantity of water used by adjacent or surrounding landowners for agricultural, industrial, recreational, or domestic uses.

Sections 516(b) (9) and (10) of the Act impose similar requirements on the surface effects of underground mining. Section 516(b)(10) also provides that consideration should be given to the distinct differences between surface and underground mining. OSM has considered potential differences and has decided to promulgate identical impoundment rules for surface and underground mining, because the environmental and safety concerns that affect the design, construction, and maintenance of surface impoundments are the same whether associated with surface or underground mines.

On March 13, 1979, OSM published permanent program rules (44 FR 15312) that contained standards for permanent and temporary impoundments (30 CFR 816.49, 816.56, 817.49, and 817.56).

On June 21, 1982, OSM proposed amendments to some of these rules (47 FR 26754). Written and oral comments on these proposed rules were received during the comment period which closed on September 10, 1982. OSM is now adopting the final rules and amendments to §§ 701.5, 816.49, 816.56, 817.49 and 817.56. OSM has adopted rules different in some respects from those proposed, in response to the public comments received. The rules adopted and the comments on the proposed rules are discussed below.

Previous §§ 816.49 and 817.49 read essentially the same, as did §§ 816.56 and 817.56, except that sections from Part 816 referred to surface mining and sections from Part 817 referred to underground mining. Under this rulemaking the final sections of Parts 816 and 817 governing impoundments will continue to read essentially the same, as will those sections of Parts 816 and 817 concerning postmining rehabilitation of sedimentation ponds, diversions, impoundments and treatment facilities.

To simplify this preamble, OSM will discuss the comments and rules of §§ 816.49 and 816.56 with the understanding that the discussion will also apply to §§ 817.49 and 817.56. Generally comments have been discussed in the context of the final rule, and where no comments were received there is no discussion. In some instances OSM has combined the discussion of comments on more than one paragraph for convenience and readability.

One other related rulemaking should be mentioned. On July 2, 1981, OSM published a proposal concerning effluent limitations and sedimentation pond design criteria (46 FR 34784). The effluent limitations portion of that proposal has already been finalized (47 FR 47216, October 22, 1983). A final rule on sedimentation ponds and other

siltation structures is expected to be issued shortly. The July 1981 proposal duplicated certain requirements of the impoundments rule because all sedimentation ponds are impoundments. The approach taken in the revised sedimentation ponds rule is to avoid unnecessary duplication. Thus such rules will cross reference this final rule. The preamble to the revised siltation structure rules will respond to comments that relate to both those rules and the impoundments rules and is part of the basis for the rules on impoundments.

To assist the reader in understanding the changes in the final rule, the following derivation table shows the relationship of the final rules to the previous rules and the proposed rules. The same changes apply for Part 817—*Underground mining activities*.

DERIVATION TABLE—IMPOUNDMENTS

Final rule	Previous rule	Proposed rule
Section 816.49		Section 816.49
(a)(1)	816.49(b), 816.49(c)(4), 704.16 (a) and (c)	(b) and (b)(1)(i).
(a)(2)	816.49(b), 816.49(b)—816.49(i)	(b)(2)(vi)(A) and (b)(2)(v).
(a)(3)	816.49(a)(5), 816.49(b)—816.49(c)(2)	(b)(2)(vi)(A) and (b)(2)(v)(B).
(a)(4)	816.49(a)(5), 816.49(b)—816.49(i)	(b)(2)(vi)(C).
(a)(5)(i)	816.49(a)(5), 816.49(b)—816.49(m)	(b)(2)(vi)(D).
(a)(5)(ii)	816.49(a)(5), 816.49(b)—816.49(n)	(b)(2)(vi)(E).
(a)(6)	816.49(a)(5) and (c), 816.49(b)—816.49(a)	(b)(2)(vi)(F).
(a)(7)	816.49(a)(5) and (e), 816.49(b)—816.49(a)	(b)(2)(vi)(G).
(a)(8)	816.49(a)(5), 816.49(b)—816.49(i)	(b)(2)(vi)(H).
(a)(9)	816.49(a)(3)	(b)(2)(vi)(I).
(a)(10)	816.49(i)	(b)(2)(vi)(J).
(a)(10)(i)	816.49(b)	(b)(2)(vi)(B, D and E).
(a)(10)(ii)	816.49(b), 816.49(b)—816.49(i)	(b)(2)(vi)(C, D and E).
(a)(11)	816.49(i), 816.49(b)—816.49(i)	(c).
(a)(12)	816.49(a)	(b)(2)(ii).
(b)	816.49(a)(9)	(a)(1).
(b)(1)	816.49(a)(9)	(a)(1)(i).
(b)(2)	816.49(a)(1)	(a)(1)(ii).
(b)(3)	816.49(a)(2)	(a)(1)(iii).
(b)(4)	816.49(a)(3)	(a)(1)(iv).
(b)(5)	816.49(a)(4)	(a)(1)(v).
(b)(6)	816.49(a)(7)	(a)(1)(vi).
(b)(7)	816.49(a)(5)	(a)(1)(vii) and (b)(2)(vi)(A).
(c)	816.49(b)—816.49(i)	(b), (b)(1), and (b)(2).
816.56	816.49 (i) and (j)	816.56

II. Discussion of Comments and Rules Adopted

General Comments

Performance Standards vs. Design Criteria. Several commenters believed that the proposed elimination of specific design criteria in the previous rules in favor of performance standards would weaken the implementation and enforceability of the regulatory requirements and increases the possibility of impoundment failure. Other commenters applauded the increased design flexibility.

OSM has placed emphasis on performance standards rather than on design criteria because it believes that performance standards, which will allow more site-specific flexibility, will be at least as effective or more effective

at achieving the requirements and standards required by the Act. OSM intends to place more responsibility on the operator and qualified registered professional engineers. So long as satisfactory performance is achieved, the design of the structure may be left to the engineer's discretion. A more extensive discussion of the relative merits of the use of design criteria versus the use of performance standards is set forth in Volume I of the "Final Environmental Impact Statement OSM EIS-1: Supplement" (FEIS) at pp. II-7 to II-8 and IV-5 through IV-7. Moreover, these final rules will not increase the possibility of impoundment failure because there are detailed inspection requirements, and both the design and construction of impoundments will be

subject to certifications by qualified registered professional engineers and approval by the regulatory authority.

Commenters objected to OSM's proposal to delete specific provisions concerning slope steepness, erosion, embankment stability, and repair of rills and gullies, contained in previous § 816.49(c)-(h). The commenters felt that the Act required these provisions and that the rules should also address them.

OSM has adopted final rules with regard to erosion and embankment stability. A specific design criterion for slope steepness, which appeared in previous § 816.49(c) is unnecessary in view of the performance standards contained in these rules. The repair and revegetation of rills and gullies are addressed by revised § 816.95(b) (see 48 FR 1160, January 10, 1983) and §§ 818.111-818.118. Thus, OSM has not eliminated any requirement necessary to ensure compliance with the Act.

Section 701.5 Definitions.

MSHA: OSM proposed to amend 30 CFR 701.5 by adding a definition of the term "MSHA" as an abbreviation for the Mine Safety and Health Administration. OSM has adopted that definition as proposed. This allows the use of the abbreviation rather than the lengthy full title throughout OSM's rules. No comments were received on this provision.

Permanent Impoundments and Temporary Impoundments: In addition, OSM received comments that some terms included in the proposed rules, but not previously defined, were confusing. Accordingly, OSM is adopting new definitions of the terms "permanent impoundment" and "temporary impoundment." The distinction adopted between permanent and temporary impoundments parallels the definition already adopted for permanent and temporary diversions and implements the statutory distinction created by section 515(b)(6) of the Act.

"Permanent impoundment" is defined to mean an impoundment which is approved by the regulatory authority and, if required, by other State and Federal agencies for retention as part of the postmining land use.

"Temporary impoundment" is defined to mean an impoundment used during mining and reclamation but not approved by the regulatory authority to remain as part of the approved postmining land use.

Impoundment: OSM is also amending the definitions of "impoundment" and "sedimentation pond" for clarity.

The word "impoundments" is defined to mean all water, sediment, slurry or

other liquid or semi-liquid holding structures and depressions, either naturally formed or artificially built. The words "closed basin" have been removed as unnecessary and the definition has been reworded, but the definition of impoundment is still intended to include all structures or basins included in the previous definition.

Sedimentation Pond: The term "Sedimentation Pond" is defined to 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 revision to the definition is included in this final rule rather than the siltation structure rule so as to keep the definitional changes relating to impoundments together.

OSM's previous rules had defined sedimentation pond without making it clear that all sedimentation ponds were impoundments. It did list certain structures that were not sedimentation ponds and it referenced the performance requirements for sedimentation ponds. The definition has been simplified by rewording, removing reference to § 816.46, which was unnecessary, and by removing the list of secondary sediment control structures. Secondary sediment control structures, such as straw dikes, riprap, check dams, or mulches, are not impoundments, and thus are not sedimentation ponds under the new definition, even without an express exclusion.

The definition adopted for "sedimentation pond" establishes that all sedimentation ponds are impoundments. Thus, all sedimentation ponds must satisfy the requirements for impoundments. Sedimentation ponds must also satisfy the additional requirements for siltation structures in revised 30 CFR 816.46. Thus, there is no need to cross-reference § 816.46 in the definition of "sedimentation pond."

Sections 816.49 and 817.49 Impoundments.

As proposed, the title of final §§ 816.49 and 817.49, "Impoundments," has been modified by deleting the phrase "Hydrologic balance" to more precisely describe the content of the rules.

The format of final § 816.49 has been changed from the previous rules and from the proposed rules. Final § 816.49 contains three paragraphs. Paragraph (a) contains the general requirements applicable to all impoundments. Cross-reference is made to those portions of MSHA's rules at 30 CFR 77.216 which provide standards for impoundments. Paragraph (b) contains those additional

requirements applicable specifically to permanent impoundments. Paragraph (c) contains the additional standard applicable only to temporary impoundments.

This reorganization is consistent with the suggestion of one commenter who favored a reorganization to clarify the requirements for permanent impoundments and temporary impoundments.

The previous rules for temporary impoundments, § 816.49(b), cross-referenced the performance standards for sedimentation ponds. The June 21, 1982, proposal attempted to establish certain performance standards for impoundments that would not have applied to sedimentation ponds. Under this final rule, the performance standards apply to impoundments regardless of whether the particular structure is also a sedimentation pond.

In the June 21, 1982, proposal, OSM had solicited comments on the question of whether the sedimentation pond rules should cross-reference the impoundment rules. Some commenters felt that cross-referencing would add an unnecessary duplication. They felt that the sedimentation pond rules should be applicable whenever an impoundment was used as a sedimentation pond and that the test for whether an impoundment was a sedimentation pond should be related to use, with only one set of standards applicable to either. Other commenters noted that in some parts of the country most impoundments serve a sedimentation function. Therefore, they suggested that the impoundments rules should cross-reference the sedimentation pond rules. OSM has decided that there is no need for § 816.49 to reference § 816.46. The sedimentation pond rules (now called the siltation structure rules) will also apply by their own terms. On the other hand, final § 816.46 will cross-reference § 816.49. This is discussed further in the siltation structure rule.

Relationship to MSHA. With these final rules OSM is attempting to clarify the relationship between OSM and MSHA regarding the responsibility for regulating impoundments. The previous rules required duplicative reviews of impoundment plans by MSHA and OSM, and duplicative enforcement and emergency notification. In an attempt to reduce this duplication, OSM proposed to allow MSHA primary responsibility for impoundment design review and emergency action. OSM received many comments on this issue.

MSHA's rules require it to review and approve the design, construction, and maintenance of those impoundments which meet the size or other qualifying

criteria of 30 CFR 77.216(a). MSHA's rules apply to an impoundment if the impounding structure can impound water, sediment or slurry to an elevation of 5 feet above the upstream toe of the structure and has a storage volume of 20-acre feet or more, if it can impound those liquids to an elevation of 20 feet or more above the upstream toe of the structure, or if it is determined to present a hazard to coal miners. If a proposed structure qualifies for MSHA review, plans for its design, construction and maintenance must be submitted to and approved by the MSHA District Manager prior to construction. MSHA requires that the plans must include details on size, foundation, freeboard, spillways, diversions, outlets, slope protection, and materials, and requires that a registered engineer certify that the impounding structure will be constructed in accordance with current, prudent engineering practices for the maximum volume of water sediment or slurry which can be impounded considering the size, use, and location of the structure. Thus, for nearly every design criterion contained in OSM's previous rules, there is a review of the plan for that element in MSHA's rules governing large impoundments.

Several commenters were concerned that more than one agency (MSHA, OSM, and/or State regulatory authorities) could continue to retain authority over a single impounding structure. Some liked the proposed rule in that it would reduce existing duplication of regulatory control. Other commenters felt that MSHA was properly the lead agency in dam approvals, and applauded OSM's proposal. One commenter noted that MSHA implementation of emergency provisions would clarify MSHA's responsibility. Some State regulatory authorities felt that the rules gave authority to MSHA which should be delegated to the States; some States were concerned that their authority would be preempted unless the language was amended. Other commenters felt that OSM was improperly relinquishing the approval or enforcement authority of the State to another Federal agency. Several commenters believed that OSM intended to defer all decisions on impoundments to MSHA and objected to OSM's willingness to defer or allow regulatory authorities to defer to MSHA for decisions on impoundments.

The proposed provisions, which commenters perceived as an attempt to defer OSM's responsibility to MSHA, have not been adopted. The final rule retains independent regulatory authority responsibility under section 515, 506,

507, 508 and 510 of the Act for permitting and ensuring operator compliance with the performance standards found in section 515(b)(8) of the Act and with Pub. L. 83-568. Under the final rule, MSHA's approval of the design and construction of impoundments subject to the Act will not satisfy the requirement for approval by the regulatory authority. Thus, under final § 816.49 and the permitting rules, the regulatory authority must review and approve plans for impoundments to ensure that the structures are designed to be in compliance with appropriate standards. Final § 816.49(a) requires that plans for the construction of large impoundments must be submitted both to MSHA and the regulatory authority. The regulatory authority may consider MSHA's action on plans for impoundments, but is independently charged to make its own findings with regard to plan approval.

In addition, because sections 515(b)(8) and 515(b)(10) of the Act apply to all impoundments, and not just those regulated by MSHA, the regulatory authority must regulate the design, construction and maintenance of impoundments that do not meet the size or other qualifying criteria of 30 CFR 77.216.

One commenter wanted clarification as to whether OSM or MSHA would regulate impoundments used as sediment ponds. Because most sediment ponds will not meet the criteria in 30 CFR 77.216(a), generally only OSM's rules at 30 CFR 816.49 and 816.46 and those included in the regulatory program will apply. Should a sedimentation pond meet the 30 CFR 77.216(a) criteria, it will be subject to MSHA's requirements as well.

Some commenters did not like OSM's proposal to cross-reference MSHA's rules because OSM is statutorily obliged to promulgate its own rules governing impoundments and also because MSHA's standards would not provide the statutorily required level of environmental protection. These commenters noted the requirement in section 501 of the Act to promulgate rules and indicated that OSM referencing MSHA standards would not satisfy OSM's responsibility to promulgate rules, and to provide for enforcement of the Act.

OSM's responsibility under section 501(b) of the Act is to "promulgate and publish . . . performance standards based on and conforming to the provisions of Title V . . ." OSM has determined that its statutory goals will be achieved in part by referencing the rules already promulgated by MSHA. The standards included in MSHA's rules, which were promulgated primarily

to protect miners, will also help to protect the environment and public health and safety. Thus, OSM may reference MSHA's standards in its rules governing these same topics, while at the same time reducing unnecessary conflict and duplication between regulatory schemes.

One commenter asserted that the regulatory authorities should not have the responsibility to monitor or enforce compliance with provisions of 30 CFR Part 77 for those impoundments which meet the criteria of 30 CFR 77.216.

OSM has not adopted proposed § 816.49(b)(1)(iii) which would have required the regulatory authority to regulate for compliance with MSHA requirements. Under these final rules, the regulatory authority is responsible for assuring compliance with requirements imposed under the Act. However, to the extent that MSHA's rules are referenced, they will be enforced under the Act.

One commenter suggested that OSM require that impoundments subject to 30 CFR 77.216 must be approved by MSHA for compliance with 30 CFR Part 77 before the regulatory authority may approve them.

Because impoundments subject to 30 CFR 77.216 must obtain approval from both MSHA and the regulatory authority prior to construction it does not matter whether the regulatory authority or MSHA approves first. However, since MSHA reviews only that part of the mining application concerning impoundments it will, in most cases, issue its decision first. Furthermore, in many cases the regulatory authority may wish to wait for MSHA decisions which may be helpful to the regulatory authority in its own review.

Section 816.49(a) General requirements.

Final § 816.49(a) sets forth the general requirements applicable to all impoundments.

Section 816.49(a)(1)

Final § 816.49(a)(1) was proposed as the first paragraph of § 816.49(b). It has been revised for clarity and to reflect the fact that all impoundments which meet MSHA's criteria at 30 CFR 77.216(a) must satisfy the requirements of 30 CFR 77.216, as well as the other applicable requirements of § 816.49. The proposed phrase "excluding sedimentation ponds" has not been adopted in final § 816.49(a)(1) to reflect that sedimentation ponds are impoundments. Under the final rule, the plan required to be submitted to the District Manager of MSHA under 30 CFR 77.216 must also be submitted to

the regulatory authority as part of the permit application.

A number of commenters appear to have been confused by a typographical error. In proposed § 816.49(b) the phrase "impoundments . . . that meet the size or other criteria in 30 CFR 77.216(a) . . ." was incorrectly reproduced as "impoundments that meet the size of other criteria in 30 CFR 77.216(a) . . ." (Emphasis added). Because of the error, commenters suggested organizational changes. OSM has organized the final rule along the lines suggested by the commenters as well as that intended by OSM.

One State regulatory authority felt that the criteria in 30 CFR 77.216(a) should be included in OSM's regulatory text, rather than referenced.

OSM has decided to cross-reference MSHA's rules. The regulatory text need not be reproduced in full because, generally, operators should have MSHA's rules available when they are applicable. If a State regulatory authority wishes to include the full text of MSHA's criteria in its own rules, it may do so.

Section 816.49(a)(2)

OSM's previous rules set design criteria for the construction of impoundments. OSM had proposed, in § 816.49(b)(2)(v)(A) that dams and embankments for water impoundments be designed by a qualified registered professional engineer or other certified professional with respect to critical dimension, stability and hydraulic performance.

Under final § 816.49(a)(2), the design of impoundments must be certified by a qualified registered professional engineer experienced in the design and construction of impoundments.

The engineer must certify that the impoundment is designed to meet OSM's performance standards using current, prudent engineering practices and any design criteria set by the regulatory authority.

The requirement is applicable to all impoundments, not just water-holding ones, to reflect that the definition of impoundments includes all liquid-holding structures. The requirement includes all aspects of design, not only critical dimension, stability and hydraulic performance, as proposed, because other elements of impoundment design may affect safety and environmental protection resulting from an impoundment.

Commenters objected to the proposed requirement for a qualified registered engineer or other certified professional to design dams and embankments for

impoundments. One commenter suggested that in some cases, such professionals may be unqualified to perform the needed work, whereas other company employees who are not engineers may be more experienced and able.

Under the final rule, OSM intends to ensure that the certifying professionals have experience and are qualified to complete the necessary certification. Under final § 816.49(a)(2), others who are qualified, rather than professional engineers, may design impoundments. However, the design must be certified by a qualified registered professional engineer. Thus, in some instances operators may minimize the expense of hiring design professionals by relying on non-engineers for the design work, but the approval of engineers must be obtained in order to ensure proper design.

One commenter objected to the certification requirement because it would not guarantee the work, it would not be cost-effective and because State regulatory authorities would not have the expertise or ability to rule on personnel qualifications.

OSM disagrees. Although a design certification is not a "guarantee," it will increase the likelihood that impoundments will be designed properly. Also a properly designed impoundment will likely reduce the necessity for expensive remedial action in the future. Under the Act, regulatory authorities have the responsibility for assuring that qualified registered professional engineers are involved in a number of aspects of the design and construction of surface coal mining operations. Thus, requiring certifications for impoundments does not impose any burden on regulatory authorities for which they are unequipped. Under the final rule, the regulatory authority will not review general personnel qualifications, but will determine whether engineers have sufficient experience to certify the design of the impoundment.

OSM had also proposed that qualified registered professional engineers or other certified professionals be required to "accept professional liability * * *" for design and certification functions. Commenters were unsure of the meaning of that proposal.

The proposed statement of engineer liability has not been adopted. In certifying a design or that construction has complied with a design, an engineer may be liable for his action if his certification has been incorrect. The degree of liability may vary with State law. OSM's proposal was intended to require engineers to recognize this

liability. However, the specific statement that the engineer accepts liability is unnecessary because such liability exists independently of OSM regulation. It should also be noted that OSM did not, by its proposal, intend to limit an operator's responsibilities.

Section 816.49(a)(3)

Final § 816.49(a)(3) requires impoundments to have a minimum safety factor of 1.5 for the normal pool with steady seepage saturation conditions, and a seismic safety factor of at least 1.2.

OSM's previous rules referenced different static safety factors for different types of impoundments. Temporary impoundments were required to meet a 1.5 static safety factor by reference to previous § 816.46(q)(2). Permanent impoundments were required to meet standards contained in one of two technical publications depending on whether they were subject to 30 CFR 77.216 or not.

OSM had proposed to eliminate this confusing static safety factor system, in favor of a more general system of requiring static safety factors as determined "by prudent engineering design."

Two commenters felt the proposed requirement in § 816.49(b)(2)(iv)(B) that the factor of safety be "adequate" was vague and open to interpretation. One of the commenters suggested a specific static safety factor be set, finding it to be reasonable and necessary to ensure minimum national regulation and enforcement. Another commenter asked that the 1.5 static safety factor of the previous rule be retained.

Accordingly, OSM has adopted safety factors comparable to those in the previous rules, but which have been simplified. Only a single static safety factor (1.5) is required for all impoundments; but regulatory authorities may increase that factor. A seismic safety factor of at least 1.2 is required.

Based on examination of U.S. Department of Agriculture, Soil Conservation Service guidelines, "Earth Dams and Reservoirs" (Technical Release No. 60, June 1976), OSM has determined that impoundments constructed under these final rules are in accordance with section 515(b)(8)(B) of the Act and "will be designed as to achieve necessary stability with an adequate margin of safety compatible with structures constructed under Pub. L. 83-566" (The Watershed Protection and Flood Prevention Act).

Section 816.49(a)(4)

Final § 816.49(a)(4) adopts the requirement proposed as § 816.49(b)(2)(iv)(C) which requires that impoundments have adequate freeboard to resist overtopping by waves or by sudden increases in storage volume.

One commenter believed that the proposed freeboard requirement was vague and should be replaced by a more concrete statement. The commenter suggested that such technical requirements be addressed by stating that designs be based on recognized professional standards and any design criteria established by the regulatory authority. Another commenter requested specific requirements be set. OSM disagrees that specific freeboard requirements should be set. Under final § 816.49(a)(2) impoundments must be designed using current, prudent engineering practices and any design criteria established by regulatory authority. In this context, qualified engineers, working within the stability and storm event criteria will be able to determine freeboard requirements without further specification. Because site-specific conditions determine the water levels, these determinations need to be made on a site-specific basis. Therefore, national freeboard design criteria would be inappropriate.

Section 816.49(a)(5)

In § 816.49(b)(2)(iv)(D), OSM proposed that impoundment foundations be excavated and prepared to resist failure and cutoff trenches be installed if necessary for stability. Final § 816.49(a)(5)(i) provides more specificity than what was proposed. Impoundment foundations must be designed to be stable under all conditions of construction and operation. Sufficient foundation investigations and laboratory testing must be performed to determine the design requirements for foundation stability. Final § 816.49(a)(5)(ii) follows the proposed rule and requires that in constructing foundations all vegetative and organic materials must be removed and foundations must be excavated and prepared to resist failure. Furthermore, cutoff trenches must be installed, if necessary to ensure stability. The emphasis in the final rule on proper design and construction of foundations recognizes the crucial role that a sound foundation plays in preventing failures. Such safety considerations must be reflected in the certification of the design and the certification of the construction of impoundments. No

comments were received on this provision.

Section 816.49(a)(6)

Final § 816.49(a)(6), adopted as proposed in § 816.49(b)(2)(iv)(E), require that slope protection must be provided to protect against surface erosion at the site and protect against sudden drawdown. No comments were received on this provision.

Section 816.49(a)(7)

Final § 816.49(a)(7), which was proposed as § 816.49(b)(2)(iv)(F), requires that embankment faces and surrounding areas be vegetated except that where water is impounded they may be ripped or otherwise stabilized in accordance with accepted design practices. No comments were received on this provision and it is adopted as proposed.

Section 816.49(a)(8)

Final § 816.49(a)(8), which was proposed as § 816.49(b)(2)(iv)(G), requires that impoundments must include a combination of principal and emergency spillways designed and constructed to safely pass the design precipitation event. The design precipitation events are specified separately. These are discussed further below. The proposed provision was changed to clarify that all impoundments must have a combination of principal and emergency spillways. It should be noted that revised § 816.46(c)(2)(ii) will allow certain sedimentation ponds to be constructed with only one spillway.

The Environmental Protection Agency (EPA) raised one concern regarding spillways. The EPA effluent limitations require zero discharge for new source preparation plant water circuits. The closed-loop water circuits sometimes include impoundments such as slurry ponds. Although impoundments at new source preparation plants must have spillways under these rules, their discharges should be recycled and flow back to the facility to meet EPA requirements.

Section 816.49(a)(9)

Final Section 816.49(a)(9), proposed in § 816.49(b)(2)(iv)(H), requires that the vertical portion of any remaining highwall must be located far enough below the low-water line along the full extent of the highwall to provide adequate safety and access for the proposed water users. The proposed provision requiring excavated ponds to meet the requirements of § 816.49(a) is unnecessary because excavated ponds

are impoundments and thus already subject to such standards.

OSM has reworded the requirement from the proposed rule to clarify that the intent of the requirement is to ensure safety and access as well as stability and protection of exposed surfaces. OSM's proposal included language indicating that stability and problems from exposure and spalling were to be avoided. These will be assured if adequate safety and access are provided. The other performance standards of the rule will also protect against these concerns.

One State commenter found the requirement acceptable as long as "top of the highwall" is meant to be that portion that has not sloped to anticipated mean water elevation and the sloped upper section is not considered to be highwall. Another commenter agreed with the proposed version.

Other commenters suggested modifying the proposal to clarify that all of the vertical highwalls are to be covered. The commenters also suggested deleting language "far enough below" finding the remaining phrase, "the remaining vertical portion of the highwall shall be below the annual low-water line * * *," sufficient to ensure the proper coverage and stability of the highwall.

OSM has revised the provision in order to apply it only to the vertical portion of highwalls. OSM has retained the language "far enough below" to ensure that water coverage is adequate even during the low-water periods. One purpose of this provision is to prevent the exposure of vertical impoundment walls and, thus, ensure stability.

Section 816.49(a)(10)

OSM had proposed, in § 816.49(b)(2)(v)(B-E) and (b)(2)(vi), various requirements dealing with inspections and the qualifications of those who make inspections. Similar requirements have been adopted in final § 816.49(a)(10)(i-iii).

Under final § 816.49(a)(10), all impoundments must be inspected by a qualified registered professional engineer or other qualified professional specialist under the direction of a professional engineer. The person conducting the inspection must be experienced in the construction of impoundments. This final rule follows previous § 816.49 (f) and (h) which required that inspections be conducted by qualified registered professional engineers.

Section 816.49(a)(10)(i)

Final § 816.49(a)(10)(i) requires inspections be made regularly during construction, upon completion of construction, and at least yearly until removal or release of the performance bond. One commenter suggested that for those situations where the impoundment will be below the natural gradeline (as for example, at the site of a final pit in a low topographic area), the proposed requirement (§ 816.49 (b)(2)(v)(B)) that impoundments are to be inspected during construction could be interpreted to require inspection of normal mine "pit cuts" and in-pit spoil placement. The commenters requested that the rules state that professional certification is only required for the final regraded slopes at the time of creation of the permanent impoundment.

OSM has reworded the rules for clarity. The final rules require inspections of impoundments by a qualified registered professional engineer or other certified professional to ensure that all construction specifications are met. Normal pit cuts need not be inspected under this section because they will not be impoundments.

OSM had proposed in § 816.49(b)(2)(v)(D) to require inspection by a qualified person of impoundments which do not meet the 30 CFR 77.216(a) criteria during construction and every 30 days thereafter, with certification required after construction and again at least annually. (Impoundments meeting the criteria of 30 CFR 77.216(a) must, under 30 CFR 77.216-3, be examined every seven days.)

Commenters on the proposal suggested that inspection every 30 days would be too often and unnecessary for small impoundments. One commenter suggested that quarterly inspections would suffice. Another suggested that "routine" inspections would be adequate. One commenter thought that the regulatory authority should establish inspection frequency. In the previous rules small impoundments were exempt from all inspection subsequent to construction. OSM also received comments and testimony from congressional hearings that suggested that impoundments too small to meet MSHA's criteria might nonetheless constitute a hazard.

Under final § 816.49(a)(10)(i) OSM has also adopted a post-construction annual inspection requirement because the potential impact resulting from changing seasonal weather conditions, or changes of sediment volume for sedimentation ponds, might change the stability of the impoundment or suitability for its use. A

requirement for a quarterly examination of small non-hazardous impoundments is adopted in final § 816.49(a)(11).

OSM had proposed in § 816.49(b)(2)(v)(D) that impoundments be inspected for water quality as well as for stability, maintenance and performance. A commenter noted that previous rules required only discharged water leaving the permit area to meet certain water quality standards and was confused as to which OSM rule governed the quality of water held in an impoundment.

OSM has not adopted the explicit requirement that inspections consider on-site water quality. Nonetheless, under 30 CFR 816.42 and final § 816.49(b)(2), which is discussed below, the water quality standards for water discharged from impoundments, and for water remaining in permanent impoundments, must be achieved.

Section 816.49(a)(10)(ii)

Final § 816.49(a)(10)(ii) states the qualified registered professional engineer must promptly, after each inspection, provide to the regulatory authority a certified report that the impoundment has been constructed and maintained as designed and in accordance with the approved plan and 30 CFR Chapter VII. The report must contain discussion of any appearance of instability, structural weakness or other hazardous conditions, depth and elevation of any impounded waters, existing storage capacity, any existing or required monitoring procedures or instrumentation and any other aspects of the structure affecting stability. The phrase "after each inspection" was added to final Section 816.49(a)(10)(ii) to clarify when certified reports are to be provided to the regulatory authority.

Section 816.49(a)(10)(iii)

Final § 816.49(a)(10)(iii) requires a copy of the report to be kept at or near the minesite. This latter requirement has been adopted to enable those visiting or close to the site of the impoundment to become aware of any hazards, and to assist the regulatory authority and OSM in enforcement of the regulations.

Section 816.49(a)(11)

Instead of the 30-day inspection requirement proposed as § 816.49(b)(2)(v)(D), OSM has adopted an examination requirement in final Section 816.49(a)(11). All impoundments must be examined. Those that meet the criteria of 30 CFR 77.216 must be examined in accordance with 30 CFR 77.216-3, i.e., at least every seven days. Under final § 816.49(a)(11), small non-hazardous impoundments must be

examined at least quarterly by a qualified person designated by the operator for any appearance of structural weakness or other hazardous conditions. Small impoundments generally pose less threat to safety and environment and a less frequent inspection will suffice. In addition, the quarterly examination required to be conducted by final § 816.49(a)(11) will identify hazardous situations.

Section 816.49(a)(12)

Under final § 816.49(a)(12), should any examination or inspection disclose a potential hazard, the person who examined the impoundment must notify the regulatory authority promptly of the finding, and of the emergency procedures formulated for public protection and of the remedial action taken. If procedures adequate to protect the public cannot be implemented by the operator, the regulatory authority must be notified immediately. The regulatory authority must then immediately notify the appropriate agencies that other emergency measures are required to protect the public.

Commenters objected to OSM's proposed § 816.49(b)(2)(iii) which would have required that regulatory authorities ensure that operators develop emergency procedures to protect the public should potentially hazardous conditions develop, because that provision would have required emergency procedures for impoundments which were not subject to 30 CFR 77.216 and which were unlikely to present significant safety hazards.

The rules adopted herein provide for the implementation of emergency procedures at both large and small impoundments if a hazard develops. They will properly ensure protection of health and safety of all persons, as well as the protection of the environment. The requirement for periodic examination of all impoundments, and for implementation of procedures when hazards are discovered, will ensure that public, as well as miner, health and safety are protected. Should a hazard develop at any impoundment, large or small, emergency procedures must be immediately implemented. Thus, prudent operators will develop procedures commensurate with foreseeable risks.

Commenters were confused by two apparently conflicting OSM statements with regard to MSHA responsibility for health and safety. In the preamble accompanying proposed § 816.49(b)(1)(iv), OSM noted that MSHA's regulatory scheme did not provide for the safety and health of the

public during emergency situations. Later, in the preamble accompanying proposed § 816.49(c), OSM would have required operators to follow MSHA emergency procedures, even for those impoundments which do not meet MSHA criteria.

The statements do not conflict. In examining the design of impoundments, regulatory authorities must ensure not only that the MSHA standards will be met (which will ensure the health and safety of miners and will accomplish part of OSM's regulatory responsibility with regard to the protection of public health and safety), but also that the impoundment will meet the additional standards set out in § 816.49. These additional standards are intended to protect public health and safety to the extent that MSHA standards alone may not.

Should a hazard actually develop, MSHA procedures provide for the notification of appropriate persons and implementation of emergency procedures which protect miners and the general public. In this regard, MSHA's rules are not limited to the protection of mine personnel. Accordingly, OSM had proposed that MSHA's procedures be followed in emergency situations. However, as discussed above, OSM has adopted an emergency procedure somewhat different from the one proposed, which does not reference MSHA's procedure but assures public protection.

Commenters noted that OSM asserted in the preamble to the proposed rules that MSHA's current regulatory scheme does not sufficiently address public safety during emergency situations. These commenters felt that OSM should coordinate with MSHA and arrange for MSHA to administer all safety programs in order to eliminate duplication.

While OSM agrees that the elimination of duplication is desirable, a completely centralized system is impossible to develop at this time. While MSHA's responsibilities may have some overlap with OSM's, this overlap has not been fully eliminated through this rulemaking.

Section 816.49(b) Permanent impoundments.

Final § 816.49(b), which was proposed as § 816.49(a)(1), permits the creation of permanent impoundments of water, if authorized by the regulatory authority, provided certain demonstrations are made that are specified in section 515(b)(8) of the Act. These standards, proposed as § 816.49(a)(1)(i)-(vii) and made final as § 816.49(b)(1)-(7), do not apply to temporary impoundments.

Under the final rules the regulatory authority must find that: (1) The size and configuration of the permanent impoundment will be adequate for its intended purpose; (2) the quality of the impounded water will be suitable on a permanent basis for its intended use and, after reclamation, will meet applicable State and Federal water-quality standards, and that discharges from the impoundment will meet applicable effluent limitations and will not degrade the quality of receiving water below State and Federal water-quality standards; (3) the water level will be sufficiently stable and capable of supporting the intended use; (4) final grading will provide for adequate safety and access for proposed water users; (5) the impoundment will not result in the diminution of the quality and quantity of water utilized by adjacent or surrounding landowners for agricultural, industrial, recreational or domestic uses (6) the impoundment will be suitable for the approved postmining land use; and (7) that the design precipitation event for the spillways for a permanent impoundment will be a 50-year, 6-hour event, or such larger event as the regulatory authority may require. The storm event requirement was proposed as § 816.49(b)(iv)(A).

Section 816.49(b)(1)

One commenter suggested deletion of the requirement that the configuration of a permanent impoundment be adequate for its intended purpose, because "configuration" is not mentioned in section 515(b)(8) of the Act.

OSM has adopted language which requires regulatory authority approval of "configuration" in final § 816.49(b)(1) because the determination of permanent impoundment suitability for intended use and stability, which are required to be considered under section 515(b)(8) of the Act, may require consideration of impoundment configuration. Further, the configuration of the permanent impoundment must be considered in relation to the surrounding postmining land uses and the water quality within the impoundment may be affected by its final configuration. Thus, configuration can be an important factor in ensuring that the requirements of section 515(b)(2) and (b)(6) of the Act are met.

Section 816.49(b)(2)

The Environmental Protection Agency was concerned that the OSM rules should assure that the quality of water in permanent impoundments would meet applicable State and Federal water-quality standards and that discharges would meet applicable effluent limitations. Final § 816.49(b)(2)

has been revised to reflect these concerns. In other respects, final § 816.49(b)(2) is adopted essentially as proposed.

Section 816.49(b)(3)

Commenters were concerned about the requirement for a reasonably stable water level proposed as § 816.49(a)(1)(iii). The commenter felt that regional variations in water use and precipitation or recharge events could result in significant variations of water level. Commenters felt this should be acceptable so long as the quantity of water available would meet the intended use.

Section 515(b)(8)(D) of the Act explicitly requires that a finding be made prior to the authorization of permanent impoundments that a reasonably stable water level will be maintained. In designing impoundments, operators should take into account factors which might tend to cause variation in the water level, and plan to minimize these impacts.

Other commenters suggested deletion of the proposed requirement in § 816.49(a)(1)(iii), that permanent impoundments have water levels capable of supporting the intended use, because that language was not found in sections 515(b)(8) of the Act. OSM has included the requirement that water levels be adequate for the intended use in final § 816.49(b)(3). The inclusion of this requirement is authorized by section 515(b)(2) and 515(b)(8) of the Act.

Section 816.49(b)(4)

Final § 816.49(b)(4) is adopted as proposed in § 816.49(a)(1)(iv). No comments were received on this provision.

Section 816.49(b)(5)

OSM has adopted proposed § 816.49(a)(1)(v) in final § 816.49(b)(5).

One commenter suggested modifying and deleting portions of proposed § 816.49(a)(1)(v) to allow diminutions of water quality so long as water met standards imposed by the appropriate State or Federal regulations. The commenter noted that all impoundments have the potential to diminish the quality and quantity of a downstream water supply. The suggestion has not been adopted. Final § 816.49(b)(5) implements section 515(b)(8)(F) of the Act which requires that impoundments not result in the diminution of water quality or quantity used by adjacent or surrounding landowners.

Section 816.49(b)(6)

Final § 816.49(b)(6) adopts proposed § 816.49(a)(1)(vi). One commenter

suggested the deletion of proposed § 816.49(a)(1)(vi) which would have required a finding that impoundments be suitable for the approved postmining land use prior to approval. The commenter felt such specific conditions were not authorized by section 515(b)(8) of the Act and therefore were unauthorized and unsupportable. OSM has not adopted the suggestion. Section 515(b)(8) (A) and (C) of the Act specifically requires OSM to consider postmining land use in approving permanent impoundments. Furthermore, any change in the land use must be approved by the regulatory authority and meet the requirements of section 515(b)(2) of the Act.

Section 816.49(b)(7)

Final § 816.49(b)(7) adopts part of the proposed requirement in § 816.49(b)(2)(iv)(A) that permanent impoundments be designed for the 50-year, 6-hour event as part of the general requirements for impoundments. The design precipitation events for spillways, listed together in the proposed rule, are separately established for permanent impoundments in final § 816.49(b) and for temporary impoundments in final § 816.49(c). This was done to reflect their applicability more clearly. In addition, if any impoundment is a sedimentation pond meeting the criteria of 30 CFR 77.216(a), then the design event will be a 100-year, 6-hour precipitation event under revised § 816.46, rather than the events prescribed under § 816.49.

Commenters objected to OSM's proposed use of design storms for the sizing of impoundments, because these commenters felt that they were design criteria rather than performance standards. One suggested that the proposed provision be revised so that the discharge structure is designed for the intended use instead of a particular precipitation event.

OSM has continued to specify the storm events for which the combination of principal and emergency spillways must be designed. Any structure which is designed to hold water, or other liquids or semi-liquids, must be designed to accommodate the magnitude and frequency of the appropriate design storm in order to ensure safety, stability, and erosion control. While the discharge structure does have some effect on the retention volume, it does not affect the inflow volume characteristics. The sizing and location of the discharge structure principally determines the detention time and accordingly the quantity of water discharged. The

combination of principal and emergency spillways must be such as to prevent over-topping of the embankment and subsequent erosion failure. This protection should be assured, in addition to compatibility with the intended use, and thus design events for such spillways have been specified.

Commenters suggested that specification of a design event would require operators to construct larger structures than necessary. One suggested replacing the proposed design storms with the following provision: "Excavations designed for less than a 25-year, 6-hour event may be incorporated into the postmining land use with approval of the regulatory authority." The commenter asserted that such a provision would allow the construction of small stock ponds.

Design precipitation events are necessary for the reasons explained above. OSM believes that the 50-year, 6-hour event provides the requisite safety margin for all permanent impoundments. However, in the context used in this rulemaking, the specified design events will not necessarily determine the holding capacity of the impoundment. Not all impoundments constructed in accordance with a particular design storm will be of the same size or complexity. Depending upon the intended use, the impoundment may or may not be constructed to hold the specified event. The impoundment must, however, be capable of handling the design storm event in terms of the spillway design.

A commenter wanted to limit the flexibility given to regulatory authorities in specifying larger storm events than those set forth in OSM's rules. It was suggested that, rather than allowing larger events "if site specific conditions warrant" as proposed in § 816.49(a)(1)(iv)(A), that larger events be allowed only if "based on medium to high hazard potential with respect to loss of life as defined by the National Dam Inspection Act (Pub. L. 92-367)."

The final rules provide broad discretion to the regulatory authority. Under section 505(b) of the Act, States may prescribe laws or regulations that are more stringent than OSM's rules. Thus, an attempt to circumscribe the regulatory authority's discretion to set more stringent standards would be inappropriate.

Section 816.49(c) Temporary impoundments.

Final § 816.49(c) provides for the regulation of temporary impoundments. It was proposed as § 816.49(a)(2). Temporary impoundments may be authorized by the regulatory authority

as part of the surface coal mining operation under the approved permit. Temporary impoundments must meet the requirements for all impoundments set out in paragraph (a). In addition, the design event for spillways for temporary impoundments will be the 25-year, 6-hour storm event or such larger event as the regulatory authority may require. As with permanent impoundments, the design event for temporary impoundments meeting the criteria of 30 CFR 77.216(a) that are sedimentation ponds will be a 100-year, 6-hour precipitation event under revised § 816.46.

OSM received various comments on its proposed rule with regard to temporary impoundments. One commenter applauded OSM's proposal to subject temporary impoundments to the same design standards as permanent impoundments. Other commenters felt that temporary impoundments should not be regulated at all.

Without proper design and construction, even temporary structures may cause environmental, health or safety problems. Thus, the standards in final § 816.49(a) are applicable to all impoundments because these fundamental standards are necessary to ensure the protection of the environment and public health and safety. OSM has not subjected temporary impoundments to all the requirements in § 816.49(b) because these standards relate to permanent structures, such as suitability for the postmining land use, and thus are inappropriate to temporary impoundments.

Sections 816.56 and 817.556 Postmining rehabilitation of sedimentation ponds, diversions, impoundments, and treatment facilities.

Final §§ 816.56 and 817.56 address the requirements for sedimentation ponds, impoundments, diversions and treatment facilities after reclamation is completed. It amplifies the requirements of the previous rules and is similar to the proposed rule, but does not include the certification in proposed § 816.56.

Under final § 816.56, before abandoning a permit area or seeking final bond release, the operator must ensure that all temporary structures are removed and reclaimed, and that all permanent sedimentation ponds, diversions, and treatment facilities meet the requirements for permanent structures, have been maintained properly, and meet the requirements of the approved reclamation plan for permanent structures and impoundments. The operator must renovate such structures if necessary to meet the requirements of this chapter

and to conform to the approved reclamation plan.

Commenters made reference to OSM's proposed rules permitting certain small depressions after backfilling and grading (see 30 CFR 816.102(c)). The commenter questioned whether it was possible to treat a permanent impoundment which did not meet the design storm size requirements as a small depression, subject only to the § 816.102(c) requirements.

Section 816.102(c) provides a limited exception to the approximate original contour restoration requirements for small depressions. Small depressions are not expected to hold water and must be revegetated. A small depression which is capable of holding water would be an impoundment. Thus, it would not be possible for any impoundment to be treated only as a small depression. In order to allow a permanent impoundment, §§ 816.49, 816.56 and 816.133 or §§ 817.49, 817.56 and 817.133 must be satisfied.

One commenter anticipated problems with reconstruction of existing permanent structures to meet original design standards for permanent existing diversions. Previous § 816.56 required renovation of all structures. It did not specifically state that temporary structure had to be removed and reclaimed. The new final rule only requires renovation of the structures if renovation or reconstruction is necessary to meet OSM's requirements or to conform to the approved reclamation plan.

This revision makes clear that renovation of structures will not be required where the structures are already in compliance with the applicable rules and conform to the approved reclamation plans. These rules will ensure that the ponds and other permanent facilities will be suitable for the intended postmining land use and allow bond release.

One State suggested that proposed § 816.56 implied that the regulatory authority would be able to devise criteria needed to determine when the impoundment is ready for bond release. The commenter is correct to the extent that under 30 CFR Part 800, bond release is allowed for any aspect of reclamation only after a determination by the regulatory authority that reclamation is complete.

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

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.

Reference Materials:

Reference materials used to develop these final rules are as follows:

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Sherard, J. L., Woodward, R. J., Gizienski, S. F., and Clevenger, W. A., 1963, Earth and earth-rock dams: John Wiley and Sons, Inc., New York, 725 pp.

III. Procedural Matters.

Executive Order 12291

The Department of the Interior (DOI) has examined these rules according to the criteria of Executive Order 12291 (February 17, 1981). OSM has determined that this is not a major rule and does not require a regulatory impact analysis because it will impose only minor costs on the coal industry and coal consumers.

Regulatory Flexibility Act

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

Paperwork Reduction Act

OSM has received approval from the Office of Management and Budget under 44 U.S.C., 3507 for the information collection requirements in Parts 816 and 817 and have been assigned clearance Nos. 1029-0047 and 1029-0048. These approvals have been codified under §§ 816.10 and 817.10.

The information required by 30 CFR Parts 816 and 817 will be used by the regulatory authority in monitoring and inspecting impoundments associated with surface and underground mining. The obligation to respond is mandatory.

National Environmental Policy Act

OSM has analyzed the impacts of these final rules in the final supplement to "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, D.C. or by mail request from Mark Boster, Chief, Branch of Environmental Analysis, Room 134, Interior South Building, U.S. Department of the Interior, Washington,

D.C. 20240. The preamble serves as the record of decision under NEPA. This final rule differs from the draft final rule set forth in Volume III of the FEIS in the following respects:

A number of grammatical or editorial changes have been made which do not alter the substance of the rules. The rules have also been reorganized for clarity.

An introductory statement has been added to § 816.49(a) which clarifies the applicability of the paragraph to all impoundments.

In the draft final rules published in the FEIS, the plans for impoundments meeting the criteria of 30 CFR 77.216(a) were to be submitted to MSHA and to OSM concurrently. The final rule requires that such plans be submitted to OSM as part of permit applications. In some cases this would require earlier submission to OSM; in others it would be later. This change will not have any environmental effects.

In addition to the design certification requirement included in the draft final rules, which has been reworded, the final rule requires that the design be certified as meeting the requirements of Part 816. In addition, the qualified registered professional engineer must be experienced both in the design and construction of impoundments, rather than just design. These changes are not expected to have any environmental impacts.

The word "static" has been added to the stability requirement, to indicate that the static safety factor must meet or exceed 1.5. This was intended by the draft final rule, and assumed in the FEIS analysis.

In final § 816.49(a)(7), OSM has adopted the requirement that areas surrounding faces of embankments be vegetated. This is comparable to the previous rules governing sedimentation ponds and temporary impoundments and is thus covered under Alternative B in the FEIS.

Final § 816.49(a)(9) does not include the statement that excavated ponds must meet the requirements of paragraph (a). The phrase was redundant and its elimination has no effect.

In final § 816.49(a)(10)(i), OSM has adopted language requiring inspections yearly until removal of the structure or release of the performance bond. The draft final rules included the language "abandoning the permit area," rather than "release of the performance bond." Since abandonment of the permit area prior to release of the performance bond is not allowed, this change will have no impacts.

In final § 816.49(a)(12), the emergency procedures requirement has been reworded to more accurately reflect that either examinations or inspections might trigger the requirements for emergency actions. This was intended by the draft final rules and contemplated in the FEIS analysis. The words "from the coal processing waste area" have been removed. They were included by mistake.

Under final § 816.49(b)(2), water impounded in permanent impoundments after reclamation must meet applicable State and Federal water quality standards. Under the draft final rules impounded water quality was only required to be suitable for the post-mining land use. This is expected to have a beneficial environmental impact.

The draft final rules would have required permanent impoundments to be designed, constructed, and maintained on the basis of 50-year, 6-hour events or such larger events as the regulatory authority would require. Final § 816.49(b)(7) requires that spillways be sufficient to discharge that event. The difference is not expected to have any impact, since design and construction of impoundments in accordance with the other performance standards will ensure stability and environmental protection.

The draft final rules with regard to temporary impoundments would have required that they be designed, constructed, and maintained on the basis of the 25-year, 6-hour event or such larger event as the regulatory authority would require. Final § 816.49(c) requires that spillways for those impoundments be designed for those events. This is not expected to have any impacts based on the reasoning discussed above concerning the same change in final § 816.49(b)(7).

The changes to § 817.49 are identical to those of § 816.49.

Agency Approval

Section 516(a) of the Act requires that, with regard to rules directed toward the surface effects of underground mining, OSM must obtain written concurrence from the head of the department which administers the Federal Mine Safety and Health Act of 1977. OSM has obtained the written concurrence of the Assistant Secretary for Mine Safety and Health, U.S. Department of Labor.

One commenter cautioned OSM to carefully coordinate with MSHA officials with respect to proposed automatic incorporation of MSHA rules which were not appropriate or applicable. As discussed elsewhere OSM has established contact with several agencies, including MSHA, and discussed the effect of OSM's reference

to their rules. Thus, OSM has accepted the suggestion by the commenter.

Under Section 501(a)(B) of the Act the Secretary may not promulgate and publish regulations relating to water quality standards promulgated under the authority of the Federal Water Pollution Control Act, as amended 33 U.S.C. 1151-1175, until he has obtained the written concurrence of the Administrator of the Environmental Protection Agency (EPA). The written concurrence has been received with respect to these rules.

List of Subjects

30 CFR Part 701

Coal mining, Law enforcement,
Surface mining, Underground mining;

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.

Accordingly, 30 CFR Parts 701, 816
and 817 are amended as set forth herein.

Dated: September 15, 1983.

Joy R. Gwaltney,

Acting Deputy Assistant Secretary, Energy
and Minerals.

PART 701—PERMANENT REGULATORY PROGRAM

1. Section 701.5 is amended by adding definitions of "MSHA," "permanent impoundments," and "temporary impoundments" in alphabetical order and revising the definitions of "impoundments" and "sedimentation ponds" to read as follows:

§ 701.5 Definitions.

Impoundments means all water, sediment, slurry or other liquid or semi-liquid holding structures and depressions, either naturally formed or artificially built.

MSHA means the Mine Safety and Health Administration.

Permanent impoundment means an impoundment which is approved by the regulatory authority and, if required, by other State and Federal agencies for retention as part of the postmining land use.

Sedimentation pond means 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.

Temporary impoundment means an impoundment used during surface coal mining and reclamation operations, but not approved by the regulatory authority to remain as part of the approved postmining land use.

PART 816—PERMANENT PROGRAM PERFORMANCE STANDARDS— SURFACE MINING ACTIVITIES

2. Section 816.49 is revised to read as follows:

§ 816.49 Impoundments.

(a) *General requirements.* The requirements of this paragraph apply to both temporary and permanent impoundments.

(1) Impoundments meeting the criteria of § 77.216(a) of this title shall comply with the requirements of § 77.216 of this title and this section. The plan required to be submitted to the District Manager of MSHA under § 77.216 of this title shall also be submitted to the regulatory authority as part of the permit application.

(2) *Design certification.* The design of impoundments shall be certified by a qualified registered professional engineer as designed to meet the requirements of this part using current, prudent engineering practices, and any design criteria established by the regulatory authority. The qualified registered professional engineer shall be experienced in the design and construction of impoundments.

(3) *Stability.* Impoundments shall have a minimum static safety factor of 1.5 for the normal pool with steady seepage saturation conditions, and a seismic safety factor of at least 1.2.

(4) *Freeboard.* Impoundments shall have adequate freeboard to resist overtopping by waves and by sudden increases in storage volume.

(5) *Foundation.* (i) Foundation and abutments for the impounding structure shall be designed to be stable under all conditions of construction and operation of the impoundment. Sufficient foundation investigations and laboratory testing shall be performed in order to determine the design requirements for foundation stability.

(ii) All vegetative and organic materials shall be removed and foundations excavated and prepared to resist failure. Cutoff trenches shall be installed if necessary to ensure stability.

(6) Slope protection shall be provided to protect against surface erosion at the

site and protect against sudden drawdown.

(7) Faces of embankments and surrounding areas shall be vegetated, except that faces where water is impounded may be riprapped or otherwise stabilized in accordance with accepted design practices.

(8) Impoundments shall include a combination of principal and emergency spillways which shall be designed and constructed to safely pass the design precipitation event specified in paragraph (b) or (c) of this section.

(9) The vertical portion of any remaining highwall shall be located far enough below the low-water line along the full extent of highwall to provide adequate safety and access for the proposed water users.

(10) *Inspections.* A qualified registered professional engineer or other qualified professional specialist, under the direction of the professional engineer, shall inspect the impoundment. The professional engineer or specialist shall be experienced in the construction of impoundments.

(i) Inspections shall be made regularly during construction, upon completion of construction, and at least yearly until removal of the structure or release of the performance bond.

(ii) The qualified registered professional engineer shall promptly, after each inspection, provide to the regulatory authority a certified report that the impoundment has been constructed and maintained as designed and in accordance with the approved plan and this chapter. The report shall include discussion of any appearances of instability, structural weakness or other hazardous conditions, depth and elevation of any impounded waters, existing storage capacity, any existing or required monitoring procedures and instrumentation and any other aspects of the structure affecting stability.

(iii) A copy of the report shall be retained at or near the minesite.

(11) Impoundments subject to § 77.216 of this title must be examined in accordance with § 77.216-3 of this title. Other impoundments shall be examined at least quarterly by a qualified person designated by the operator for appearance of structural weakness and other hazardous conditions.

(12) *Emergency procedures.* If any examination or inspection discloses that a potential hazard exists, the person who examined the impoundment shall promptly inform the regulatory authority of the finding and of the emergency procedures formulated for public protection and remedial action. If adequate procedures cannot be formulated or implemented, the

regulatory authority shall be notified immediately. The regulatory authority shall then notify the appropriate agencies that other emergency procedures are required to protect the public.

(b) *Permanent impoundments.* A permanent impoundment of water may be created, if authorized by the regulatory authority in the approved permit based upon the following demonstration:

(1) The size and configuration of such impoundment will be adequate for its intended purposes.

(2) The quality of impounded water will be suitable on a permanent basis for its intended use and, after reclamation, will meet applicable State and Federal water quality standards, and discharges from the impoundment will meet applicable effluent limitations and will not degrade the quality of receiving water below applicable State and Federal water quality standards.

(3) The water level will be sufficiently stable and be capable of supporting the intended use.

(4) Final grading will provide for adequate safety and access for proposed water users.

(5) The impoundment will not result in the diminution of the quality and quantity of water utilized by adjacent or surrounding landowners for agricultural, industrial, recreational, or domestic uses.

(6) The impoundment will be suitable for the approved postmining land use.

(7) The design precipitation event for the spillways for a permanent impoundment will be a 50-year, 6-hour precipitation event, or such larger event as the regulatory authority may require.

(c) *Temporary impoundments.* (1) The regulatory authority may authorize the construction of temporary impoundments as part of a surface coal mining operation.

(2) The design precipitation event for the spillways for a temporary impoundment is a 25-year, 6-hour precipitation event, or such larger event as the regulatory authority may require.

3. Section 816.56 is revised to read as follows:

§ 816.56 Postmining rehabilitation of sedimentation ponds, diversions, impoundments, and treatment facilities.

Before abandoning a permit area or seeking bond release, the operator shall ensure that all temporary structures are removed and reclaimed, and that all permanent sedimentation ponds, diversions, impoundments, and treatment facilities meet the requirements of this chapter for permanent structures, have been

maintained properly, and meet the requirements of the approved reclamation plan for permanent structures and impoundments. The operator shall renovate such structures if necessary to meet the requirements of this chapter and to conform to the approved reclamation plan.

PART 817—PERMANENT PROGRAM PERFORMANCE STANDARDS—UNDERGROUND MINING ACTIVITIES

4. Section 817.49 is revised to read as follows:

§ 817.49 Impoundments.

(a) *General requirements.* The requirements of this paragraph apply to both temporary and permanent impoundments.

(1) Impoundments meeting the criteria of § 77.216(a) of this title shall comply with the requirements of § 77.216 of this title and this section. The plan required to be submitted to the District Manager of MSHA under § 77.216 of this title shall also be submitted to the regulatory authority as part of the permit application.

(2) *Design certification.* The design of impoundments shall be certified by a qualified registered professional engineer as designed to meet the requirements of this part using current, prudent engineering practices and any design criteria established by the regulatory authority. The qualified registered professional engineer shall be experienced in the design and construction of impoundments.

(3) *Stability.* Impoundments shall have a minimum static safety factor of 1.5 for the normal pool with steady seepage saturation conditions, and a seismic safety factor of at least 1.2.

(4) *Freeboard.* Impoundments shall have adequate freeboard to resist overtopping by waves and by sudden increases in storage volume.

(5) *Foundation.* (i) Foundation and abutments for the impounding structure shall be designed to be stable under all conditions of construction and operation of the impoundment. Sufficient foundation investigations and laboratory testing shall be performed in order to determine the design requirements for foundation stability.

(ii) All vegetative and organic materials shall be removed and foundations excavated and prepared to resist failure. Cutoff trenches shall be installed if necessary to ensure stability.

(6) Slope protection shall be provided to protect against surface erosion at the site and protect against sudden drawdown.

(7) Faces of embankments and surrounding areas shall be vegetated, except that faces where water is impounded may be riprapped or otherwise stabilized in accordance with accepted design practices.

(8) Impoundments shall include a combination of principal and emergency spillways which shall be designed and constructed to safely pass the design precipitation event specified in paragraph (b) or (c) of this section.

(9) The vertical portion of any remaining highwall shall be located far enough below the low-water line along the full extent of highwall to provide adequate safety and access for the proposed water users.

(10) *Inspections.* A qualified registered professional engineer or other qualified professional specialist, under the direction of the professional engineer, shall inspect the impoundment. The professional engineer or specialist shall be experienced in the construction of impoundments.

(i) Inspections shall be made regularly during construction, upon completion of construction, and at least yearly until removal of the structure or release of the performance bond.

(ii) The qualified registered professional engineer shall promptly, after each inspection, provide to the regulatory authority, a certified report that the impoundment has been constructed and maintained as designed and in accordance with the approved plan and this chapter. The report shall include discussion of any appearances of instability, structural weakness or other hazardous conditions, depth and elevation of any impounded waters, existing storage capacity, any existing or required monitoring procedures and instrumentation and any other aspects of the structure affecting stability.

(iii) A copy of the report shall be retained at or near the minesite.

(11) Impoundments subject to § 77.216 of this title must be examined in accordance with § 77.216-3 of this title. Other impoundments shall be examined at least quarterly by a qualified person designated by the operator for appearance of structural weakness and other hazardous conditions.

(12) *Emergency procedures.* If any examination or inspection discloses that a potential hazard exists, the person who examined the impoundment shall promptly inform the regulatory authority of the finding and of the emergency procedures formulated for public protection and remedial action. If adequate procedures cannot be formulated or implemented, the regulatory authority shall be notified immediately. The regulatory authority

shall then notify the appropriate agencies that other emergency procedures are required to protect the public.

(b) *Permanent impoundments.* A permanent impoundment of water may be created, if authorized by the regulatory authority in the approved permit based upon the following demonstration:

(1) The size and configuration of such impoundment will be adequate for its intended purposes.

(2) The quality of impounded water will be suitable on a permanent basis for its intended use and, after reclamation, will meet applicable State and Federal water quality standards, and discharges from the impoundment will meet applicable effluent limitations and will not degrade the quality of receiving water below applicable State and Federal water quality standards.

(3) The water level will be sufficiently stable and be capable of supporting the intended use.

(4) Final grading will provide for adequate safety and access for proposed water users.

(5) The impoundment will not result in the diminution of the quality and quantity of water utilized by adjacent or surrounding landowners for agricultural, industrial, recreational, or domestic uses.

(6) The impoundment will be suitable for the approved postmining land use.

(7) The design precipitation event for the spillways for a permanent impoundment will be a 50-year, 6-hour precipitation event, or such larger event as the regulatory authority may require.

(c) *Temporary impoundments.* (1) The regulatory authority may authorize the construction of temporary impoundments as part of underground mining activities.

(2) The design precipitation event for the spillways for a temporary impoundment is a 25-year, 6-hour precipitation event, or such larger event as the regulatory authority may require.

5. Section 817.56 is revised to read as follows:

§ 817.56 Postmining rehabilitation of sedimentation ponds, diversions, impoundments, and treatment facilities.

Before abandoning a permit area or seeking bond release, the operator shall ensure that all temporary structures are removed and reclaimed, and that all permanent sedimentation ponds, diversions, impoundments, and treatment facilities meet the requirements of this chapter for permanent structures, have been maintained properly, and meet the requirements of the approved

reclamation plan for permanent structures and impoundments. The operator shall renovate such structures if necessary to meet the requirements of this chapter and to conform to the approved reclamation plan.

Authority: Pub. L. 95-87, 30 U.S.C. 1201 *et seq.*

[FR Doc. 83-25662 Filed 9-22-83; 8:45 am]

BILLING CODE 4310-05-M

30 CFR Parts 701, 816, and 817

Surface Coal Mining and Reclamation Operations; Permanent Regulatory Program; Coal Mine Waste

AGENCY: Office of Surface Mining Reclamation and Enforcement, Interior.
ACTION: Final rule.

SUMMARY: The Office of Surface Mining Reclamation and Enforcement (OSM) has revised the rules on disposal of coal mine waste from surface and underground mining activities. The revised rules allow qualified registered professional engineers to design coal refuse disposal sites for site specific conditions and reduce duplication and conflicts between these rules and the requirements of the Mine Safety and Health Administration (MSHA). These revised rules also include requirements for disposal of noncoal waste at surface mining operations.

EFFECTIVE DATE: October 26, 1983.

FOR FURTHER INFORMATION CONTACT: C. Y. Chen, Division of Engineering Analysis, Office of Surface Mining, U.S. Department of the Interior, 1951 Constitution Avenue, NW., Washington, D.C. 20240, 202-343-2160.

SUPPLEMENTARY INFORMATION:

- I. Background
- II. Discussion of Comments and Rules Adopted
- III. Procedural Matters

I. Background

On June 18, 1982 (47 FR 26598) OSM published a notice of proposed rulemaking to amend 30 CFR Parts 701, 816 and 817 relating to coal mine waste definitions and the disposal of coal mine waste from surface and underground coal mining activities. The proposed rules were issued to remove specific design criteria and to reduce duplication with the Mine Safety and Health Administration (MSHA) rules for coal mine refuse piles and water, sediment, or slurry impoundments and impounding structures. These final rules cover the performance standards for the disposal of coal mine waste in nonimpounding structures, impounding structures and

other situations affecting the handling of coal mine waste. Also, one section sets the requirements for the disposal of noncoal mine waste.

The public hearing on the proposed rules scheduled for August 5, 1982, was not held since no one requested to speak at the hearing. Also, there were no requests to hold public meetings on the proposed rules.

When the rules were proposed on June 18, 1982, it was announced that the public comment period would remain open until further notice (47 FR 26598). A subsequent Federal Register notice (July 13, 1982, 47 FR 30266) announced that the public comment period would close at 5:00 p.m., August 25, 1982, to coincide with the closing of the public comment period on the draft supplemental Environmental Impact Statement on the proposed rules. In response to a request of the House Committee on Interior and Insular Affairs the public comment period was reopened on September 7, 1982, and closed again on September 10, 1982.

The Surface Mining Control and Reclamation Act of 1977 (Act), 30 U.S.C. 1201 *et seq.*, recognizes the threat posed by improper disposal of coal mine waste. Congress included in the Act several provisions concerning coal processing waste and underground development waste.

For the surface disposal of wastes in areas other than mine workings or excavations, section 515(b)(11) of the Act provides that waste piles are to be stabilized in designated areas through compaction. The final contour of waste piles must also be compatible with the natural surroundings and the site must be revegetated according to the provisions of the Act. Sections 515(b)(13) and 515(f) of the Act provide that all existing and new coal mine waste piles used as dams or embankments must be regulated in accordance with standards and criteria concurred in by the Corps of Engineers. Section 515(b)(8) requires that impoundments of water achieve stability compatible with that of structures constructed under Public Law 83-566 (16 U.S.C. 1006). In addition, section 515(b)(14) of the Act requires specific treatment or burial for all debris, acid-forming materials, toxic materials, or materials constituting a fire hazard. The Secretary also derives authority to regulate dams impounding waste from the requirements of section 515(b)(10) of the Act to protect the hydrologic balance.

The authority of the Chief of Engineers in assisting the Secretary to regulate new and existing coal waste piles as dams and embankments is contained in section 515(f) of the Act.

The standards and criteria used by OSM must conform to the standards and criteria used by the Corps of Engineers to ensure that flood control structures are safe and effectively perform their intended function.

There are three sections to the Act that address coal mine waste produced from underground coal mining operations. First, section 516(b)(3) regulates the return of mine and processing waste and tailings to the mine workings or excavations. Second, section 516(b)(4) covers the surface disposal of wastes in the same manner as section 515(b)(11). Third, section 516(b)(5) covers all new and existing coal mine waste piles in a manner similar to section 515(b)(13), with the same responsibilities for the Corps of Engineers.

To implement these requirements of the Act, permanent program regulations were promulgated on March 13, 1979 (43 FR 14901). These rules, in 30 CFR 816.81 through 816.93, covered all types of coal processing waste, coal mine waste and solid waste generated during surface coal mining activities. Identical rules were included in 30 CFR 817.81-817.93 for the surface effects of underground mining activities. A plan for the disposal of coal processing waste, whether to be placed in a waste bank, dam or embankment, was required to be submitted and approved by the regulatory authority under 30 CFR 780.25 for surface mining activities and 30 CFR 784.16 for underground mining activities.

Since the promulgation of the permanent program rules on coal mine waste in March 1979, there has been one addition to the coal waste rules. On November 20, 1980 (45 FR 76932), §§ 816.83(a) and 817.83(a) were revised to provide an exception from the subdrainage requirement for a coal processing waste bank if the operator could demonstrate to the regulatory authority that a subdrainage system is not required to ensure structural integrity and water quality. The change was promulgated as a result of litigation challenging the requirement, *In re: Permanent Surface Mining Regulation Litigation*, No. 79-1144, D.D.C. (filed 1979). Before the court ruled on the issue, OSM concluded that a subdrainage system may not be necessary in all cases as long as the operator is responsible for assuring the structural integrity of the coal waste bank.

Review of the previous rules under Executive Order 12291 revealed duplication and conflict between those rules and the Mine Safety and Health Administration (MSHA) rules for coal mine refuse piles and water, sediment,

or slurry impoundments and impounding structures. On June 18, 1982 (47 FR 26598), changes were proposed to the OSM rules to reduce this duplication by cross-referencing MSHA's rules, where applicable, and revising the previous OSM requirements.

Under the proposed rules, the disposal of coal mine waste in nonimpounding structures was governed by §§ 816.81 through 816.85. Proposed § 816.86 was a combination of previous §§ 816.91, 816.92 and 816.93 and covered impounding structures—dams and embankments constructed of coal mine waste and impounding water, slurry, sediment, etc. Proposed § 816.87 governed removal of burned or unburned coal mine waste from a disposal area and included, from previous § 816.86, standards for extinguishing a coal mine waste fire. Proposed § 816.88 governed the return of coal mine waste to underground workings and proposed § 816.89 set requirements for disposal of noncoal wastes. The same changes were proposed for Part 817 covering the disposal of coal mine waste from underground coal mining activities.

The final rules generally adopt the provisions of the proposed rules in §§ 816.81-816.89 that prescribe the performance standards for the disposal of coal mine waste from surface mining activities. However, the requirements in the final rules have been reorganized to more closely parallel similar requirements for disposal of excess spoil, editorial revisions have been made to clarify the requirements, and some changes have been made in response to comments received on the proposed rule.

In order to simplify the preamble, the following discussion of the rules in §§ 816.81-816.89 also applies to §§ 817.81-817.89, unless otherwise noted. The only difference to be noted is that surface mining activity rules refer to Part 780—Surface Mining Permit Applications and underground mining activity rules refer to Part 784—Underground Mining Permit Applications. For additional discussion, see the preamble to the proposed rules published June 18, 1982 (47 FR 26598).

II. Discussion of comments and rules adopted

A. General Comments

During the comment period, OSM received about 200 individual written comments on the proposed coal mine waste rules from 30 sources representing State agencies, private individuals, environmental groups, industry and

mining associations. All of the relevant comments received during the public comment period have been considered in the development of this final rule. Major comments are summarized below. There were several general comments that did not address specific sections of the rules which will be covered before discussing specific comments on the proposed rules.

NPDES Permits

One commenter pointed out the possible application of the National Pollution Discharge Elimination System (NPDES) to mine waste areas. The commenter indicated that NPDES would probably apply to an impounding structure with a discharge point and consequently, the possibility of conflict between OSM and EPA over the responsibility for the coal mine waste discharge from the structure. The commenter recommended a memorandum of understanding between OSM and EPA to reduce redundant enforcement which would reduce the conflict between agencies, reduce the operational costs, and increase the coordination between them.

If the mine waste impoundment issues a discharge from a point source, an NPDES permit is required before the waste area can be constructed. OSM recently published a final regulation adopting EPA's effluent limitations, by cross reference to 40 CFR Part 434, in an effort to eliminate any conflict between applicable OSM and EPA standards. (47 FR 47216, October 22, 1982). Elimination of duplication between the permitting requirements of the Act and NPDES permitting requirements is beyond the scope of this rulemaking. OSM will, however, continue to work to promote cooperation and elimination of duplication between the agencies involved.

Extension of the Comment Period

One commenter recommended that when options are presented in a proposal a comment period be opened following selection of an option for review and comment on the selection.

Both options for the proposed coal mine waste rule were open for comment from June 18, 1982, through September 10, 1982. An adequate time span was allotted for review of the options for the coal waste rules. For this rule, proposed Option 2 was primarily a reiteration of proposed Option 1 with the deletion of two paragraphs for § 816.88 concerning coal mine waste impounding structures, and both proposed options were easily understood. Thus, no additional comment period is necessary.

One commenter contended that it was difficult for citizens to be involved in the rulemaking process because the draft supplemental environmental impact statement (EIS) could only be reviewed in the Administrative Record Room in Washington, D.C.

The commenter was incorrect. The draft supplemental environmental impact statement was available for review in the OSM Technical Centers and Field offices. Also the notice on the availability of the EIS provided the name of a person to contact for further information and to receive a copy of the draft environmental statement by mail. Copies of the cumulative environmental assessment which was issued prior to the draft EIS were also available upon request to interested persons.

Availability of Reference Materials

One commenter complained that the reference material cited in the proposed rulemaking notice was available only in the Washington, D.C., area and that many of the libraries available to the public do not have the publications listed as references. Therefore, the commenter complained that it was difficult for the public to review the specific references.

Each reference was available in OSM's administrative record and the citation lists the source from which a particular publication of interest may be obtained. An individual may obtain copies of any of the listed documents from these sources. In addition, the phone number and mailing address of a responsible official was given on the first page of the notice of proposed rulemaking for the convenience of persons interested in receiving information on how to obtain copies of the references. Thus, adequate access to references was provided.

The same commenter was also concerned that no foreign publications were listed as references. In addition the commenter believes there were inadequate specific data on coal waste because there were only two documents related to coal refuse.

The commenter is mistaken. While only two documents in the coal waste reference list included the words "coal refuse" in the title, the others are engineering references that list techniques and approaches applicable to the construction of coal waste piles. Additionally, it is not necessary to conduct a worldwide search of available information or to include an exhaustive bibliography of all possible references. The commenter failed to cite any omitted references, either domestic or foreign, that should be considered in addition to those cited.

Design Flexibility

One commenter took issue with the elimination of design standards to afford qualified professional engineers flexibility to design coal mine waste structures. In the commenter's estimation, elimination of design standards should prompt a corresponding increase in the amount of permit application information so that the regulatory authority would be able to determine the adequacy of the design.

Design flexibility to meet needs of individual mine site conditions is inherent in the use of performance standards rather than extensive use of design criteria. Under OSM's permitting rules, regulatory authorities will have sufficient information to determine the adequacy of the design. However, the revised rules retain some design criteria where deemed appropriate to ensure the stability of the disposal site and to ensure public safety. In general, under these rules permit review of a specific design certified by the design engineer followed by inspection during construction to assure adherence to the design approved by the regulatory authority will help ensure compliance with the performance standards and protection of the public health and safety.

One commenter contended that loss of information input to the permit review process reduces agency capability to develop informed judgment on the merits of the reclamation plan. This commenter failed to point out specific areas of information loss considered necessary in the permit requirements. Parts 780 and 784 contain special informational requirements for coal waste disposal. These sections include requirements for submittal of relevant design information.

Two commenters favored reduction of design standards in the Federal rules. One pointed to solutions of mining reclamation problems tailored to specific site conditions as an advantage while the other advocated retention of the State option to develop design criteria to meet specific objectives. Another commenter agreed that rather than mandating design criteria, the engineer should have the flexibility to design more efficient and cost-effective coal refuse disposal sites. The commenter also cited the advantages of on-site knowledge of the conditions at the mine site and of qualifications to ensure the structural and environmental integrity of the mine.

The final rules emphasize the use of performance standards rather than design criteria. Under this approach, the

regulatory authority may develop additional design criteria or other standards that are appropriate to local conditions. This issue is further discussed in OSM's "Final Environmental Impact Statement, OSM EIS-1: Supplement."

Corps of Engineers Concurrence

Two commenters stated that coal mine waste rules must be developed with the active involvement of the Chief of Engineers of the Corps of Engineers. Section 515(f) of the Act requires the Chief of Engineers to concur in writing in the Secretary of Interior's standards and criteria. OSM has consulted with the Corps of Engineers in the development of these rules and has obtained the necessary concurrence. Sections 201 and 501 of the Act impose on the Secretary of the Interior the responsibility of developing regulations covering the permanent regulatory program. These rules are issued in accordance with that responsibility.

Use of MSHA Standards

Two organizations submitted lengthy comments questioning the reliance on the MSHA rules in OSM's proposed coal mine waste rules. The assertion of the commenters was that OSM must establish coal mine waste rules which supplement those of MSHA because the Surface Mining Act has as its objective the protection of the health and safety of the public, whereas MSHA has a limited mandate of protecting the miner on the mine site. The commenters argued that because of the separate regulatory objectives, Congress intended OSM to adopt coal mine waste rules which go beyond MSHA's.

The final rules adopted today do supplement the rules adopted by MSHA. Where applicable, however, MSHA standards which satisfy requirements under the Surface Mining Act have been adopted by cross-reference. Such cross-referenced standards are nevertheless enforceable under the Act by the surface mining regulatory authority and become requirements of the surface mining regulatory program as well as MSHA's program for coal mine health and safety.

It is undesirable to have two regulatory programs for the same subject that contain conflicting standards or which use fundamentally different terminology. The final rules help coordinate regulatory responsibilities under the Surface Mining Act with those of MSHA. Additionally, they help ensure that OSM's regulations do not supersede, amend, modify or repeal any standard under the Federal Coal Mine Health and Safety Act of 1969 (as revised in 1977).

The final rule is in accord with the requirements of the Act, clearly identifies areas of overlap between OSM and MSHA rules, and, by utilizing similar definitions and cross-referencing, eliminates conflicts between the two sets of rules. It should be noted, however, that the final rule does not fully eliminate duplicative regulatory requirements between the two programs. Rather, it recognizes areas of continued duplication and applies standards under the surface mining regulatory program which are consistent with those applied under the MSHA program for health and safety.

B. Specific Comments and Discussion of Rules Adopted

PART 701—PERMANENT REGULATORY PROGRAM

Section 701.5 Definitions.

The final rule adopts from the proposal revisions to the previous definition of "coal processing waste" and the three new definitions: "coal mine waste," "impounding structure," and "refuse pile." For a more complete explanation of the basis of the new definitions, the reader is referred to 47 FR 26600 (June 18, 1982). OSM received several comments on the proposed definitions. These comments are discussed below.

Coal Processing Waste

The final rule defines the term "coal processing waste" to mean earth materials which are separated and wasted from the product coal during cleaning, concentrating, or other processing or preparation of coal. An editorial change is made in the final definition to more closely track the language in the definitions of the terms "coal preparation plant" and "surface coal mining operation" in 30 CFR 701.5 and 700.5, respectively. Three commenters agreed with the proposed definition of coal processing waste.

Another commenter suggested the beginning of the definition read as follows: "Coal processing waste includes toxic- or acid-forming earth materials which are . . ." The commenter said this change would reflect the reason for coal processing waste being disposed of separately from spoil. The commenter indicated that the proposed definition seemed vague in its intent and would add excessively burdensome and expensive operation procedures. The commenter agreed with the need to protect surface and ground water from toxic- and acid-forming coal mine waste, but, the commenter argued, material that would not adversely affect the

surrounding area should not be treated any differently than spoil material.

Although OSM agrees with the commenter that there may be circumstances when coal processing waste may not be toxic or acid forming, the definition is not vague.

Congress intended that special consideration be given to disposal of coal mine waste regardless of whether it is potentially toxic or acid forming. Thus, OSM has continued to require that all coal processing waste be disposed of according to §§ 816.81-816.86. A revision has been made to the requirements for backfilling and grading and disposal of excess spoil to recognize that nontoxic- and nonacid-forming coal mine waste may be disposed of with other spoil materials.

One commenter was concerned that the definitions of "coal processing waste" and "coal mine waste" do not include materials other than wasted earthen materials, such as pieces of equipment, wire, rags, etc. The definition of "coal processing waste" is not intended to include such non-earthen materials since their disposal is covered in § 816.89 on noncoal mine waste. Similarly, the definition of "coal mine waste" is not intended to include such non-earthen materials.

Coal Mine Waste

In the final rule, "coal mine waste" means coal processing waste and underground development waste. Coal processing waste is defined in this rulemaking and underground development waste was defined in a separate rulemaking (48 FR 32925, July 19, 1983) as waste rock mixtures of coal, shale, clay stone, siltstone, sandstone, limestone, or related materials that are excavated, moved, and disposed of from underground workings in connection with underground mining activities, including the development of drifts, shafts and adits. Thus, coal mine waste includes the two materials most likely to contain coal and coal waste products.

A commenter argued that the proposed definition of "coal mine waste" did not include waste generated by surface mining operations, only included waste created during underground development of a mine, and thus overlooked many other sources of waste generated from mining operations.

The commenter further suggested that reliance on the definition of "underground development waste" gives the erroneous impression that coal mine waste is composed of only earthen materials and is confined to that which

is generated from only underground mines.

The revised definition includes two types of material: coal processing waste and underground development waste. This new definition more closely parallels the treatment of those materials by MSHA.

Earthen material excavated during surface mining activities other than material wasted during coal processing is classified as spoil. Disposal of such material is regulated under the backfilling and grading rules, 30 CFR 816.101-816.107 and 817.101-817.107; and under the rules for disposal of excess spoil, 30 CFR 816.71-816.75 and 817.71-817.75. Congress did not intend spoil material to be regulated as "coal mine waste" and OSM has, therefore, not included spoil in the final "coal mine waste" definition. The final definition has been revised slightly from the proposal to eliminate the perceived ambiguity that only coal processing waste from underground mining is included. The final definition of coal mine waste includes coal processing waste from either surface or underground mining activities.

Refuse Pile

The term "refuse pile" means a surface deposit of coal mine waste that does not impound water, slurry, or other liquid or semi-liquid material. Under this final definition, a refuse pile may contain coal processing waste and/or underground development waste. A spoil disposal facility would not be a refuse pile. The distinction is needed between coal mine waste and spoil since each material is treated differently in different sections of the rules. (Coal mine waste—§§ 816.81-816.86, and Spoil—§§ 816.102-816.105 and §§ 816.71-816.76).

One commenter proposed additional language in the definition of "refuse pile" to say that refuse piles do not include "temporary spoil piles of removed overburden material." The commenter understood that the proposed definition excluded overburden materials; but, by specifically excluding overburden in the definition, the commenter asserted OSM's intended exclusion would become definitive.

Language specifically excluding spoil from the definition of refuse pile would be redundant. The coal mine waste rules are intended to deal with a material which presents particular problems of combustibility and toxicity when disposed of in a fill or pile. Overburden materials when removed do not generally present such problems and are

regulated under the backfilling and grading rules and the excess spoil rules.

One commenter mistakenly thought OSM had classified underground development waste as excess spoil. OSM did propose the definition for underground development waste within the same rulemaking as excess spoil, but the proposed and final rules do not classify it as excess spoil.

One commenter wanted to know when a refuse pile is not an impoundment and vice versa.

Furthermore, the commenter asked whether refuse piles hold only dry wastes and what is meant by "dry."

In distinguishing between refuse piles and impoundments or impounding structures, the final rules do not characterize the deposits as "wet" or "dry." These terms are relative; almost every substance has some moisture content. Instead, the final rules distinguish the deposits as either containing existing or not containing material in a liquid or semi-liquid state. This is determinable from the physical characteristics of the material.

Impounding Structure

A definition for "impounding structure" is added to the final rules to differentiate between the structure itself and the total impoundment which is also defined in § 701.5. "Impoundment" refers to the entire facility including the impounding structure and the retaining area. "Impounding structure" refers to the structure of earth or other materials used to impound water, sediment, slurry or other liquid or semi-liquid material. MSHA rules use the term "impounding structure" rather than dams or embankments (30 CFR 77.216 *et seq.*). In order to reduce confusion of terminology and increase compatibility of regulations, OSM has adopted this definition. It should be noted that the rules governing impoundments in 30 CFR 816.49 and 817.49 apply to the entire impoundment which contains the impounding structure. Thus the final rules regarding coal mine waste impounding structures augment and do not replace the rules governing impoundments.

A commenter suggested that the definition of "impounding structure" was too broad, especially with the

phrase "or other materials", and should be limited. It could include piles of waste or structure built of earthen materials not normally considered as impoundments, such as any refuse pile associated with a coal preparation plant.

The definition is not too broad. Impoundments include dams and embankments designed to hold liquid or semi-liquid materials, including coal mine waste slurry or sediment in a semi-liquid state. To clarify the definition of "impounding structure," it has been revised to refer explicitly to dams, embankments, or other structures that impound water, slurry or other liquid or semi-liquid material. Final § 816.84 applies to all impounding structures constructed of coal mine waste or intended to impound coal mine waste in a liquid or semi-liquid state. If an impounding structure is not constructed of coal mine waste and is not intended to impound a slurry waste, it would not fall under final § 816.84.

Part 816—Permanent Program Performance Standards—Surface Mining Activities

Sections 816.81-816.89—Final Rule for Coal Mine Waste

Final § 816.81 contains the general requirements that apply to all methods of coal mine waste disposal—refuse piles and impounding structures. General provisions to be attained in the design, construction and maintenance of coal mine waste disposal facilities are included. The general requirements are supplemented by §§ 816.83 and 816.84. Dry refuse pile design, construction and maintenance are covered in § 816.83 which applies to nonimpounding structures. Impounding structures either constructed of or for retaining liquid or semi-liquid coal mine waste are covered in § 816.84. Final § 816.87 deals with coal mine waste fires and final § 816.89 governs the disposal of noncoal mine waste.

To assist the reader in understanding all the changes in the final rules, the following derivation table shows the relationship of the final rules to the previous rules and the proposed rules. The same changes apply for Part 817—Underground mining activities.

DERIVATION TABLE—COAL MINE WASTE

	Previous rule	Proposed rule
Final Section 816.81:		
(a)	816.81(a)	816.81(a) and 816.71(a)(1).
(a)(1)	816.81(b)(1) and 816.81(a)(1)-816.71(a)(1)	816.81(a)(3)(i) and 816.71(a)(1)(i)
(a)(2)	816.81(b)(3) and 816.81(a)(1)-816.71(f)	816.81(a)(3)(ii) and 816.71(a)(3).
(a)(3)	816.81(a)(1)-816.71(a)(3)	816.71(a)(1)(iii).
(a)(4)	816.81(b)(2)	816.81(a)(3)(iv).

DERIVATION TABLE—COAL MINE WASTE—Continued

	Previous rule	Proposed rule
(a)(5)	816.81(a)(2)	816.81(a)(3)(iv).
(b)	816.81(b)	816.81(b).
(c)(1)	816.81(a)(1)-816.71(b)	816.85(c), 816.86(d) and 816.71(a)(2).
(c)(2)	816.81(a)(1)-816.71 (f) and (m) and 816.93(a)(2-3)	816.85(e), 816.86(g) and (h) and 816.71 (a)(1)(ii) and (a)(2).
(d)	816.81(a)(1)-816.71(m)	816.85(e), 816.86(h) and 816.71(a)(2).
(e)	816.82(b)	816.82(b).
(f)	816.88	816.88.
Final Section 816.83:		
Intro		816.85(a).
(a)(1)	816.83(a)(1)	816.83 (a)(1) and (b) and 816.71 (a)(7) and (b)(1).
(a)(2)	816.83 (b) and (d) and 816.92(b)	816.83(b) and 816.71(a)(6).
(a)(3)	816.81(a)(1) and 816.85(a)	816.71(b)(1).
(b)	816.83(c)	816.83(b) and 816.71(a)(6).
(c)(1)	816.81(a)(1), 816.85(a) and 816.92(a)	816.85(d) and 816.71(a)(5).
(c)(2)	816.81(a)(1) and 816.85(a)	816.71 (a)(3) and (b)(5-6).
(c)(3)	816.81(a)(1) and 816.85(a)	816.71(b)(5).
(c)(4)	816.85(d)	816.85(g).
(d)	816.82(a)	816.82(a) and 816.71(a)(4).
(d)(1)	816.82(a)(1)	816.82(a)(1) and 816.71(a)(4).
(d)(2)	816.82(a)(2-3)	816.82(a)(3) and 816.71(a)(4).
(d)(3)		816.71(a)(4).
(d)(4)	816.82(a)(4)	816.82(a)(3) and 816.71(a)(4).
Final Section 816.84:		
Intro		816.86(a).
(a)	816.91(b)	816.86(a).
(b)(1)	816.93(a)	816.86(e).
(b)(2)	816.49(b)-816.46 (q)(1) and (q)(4) and 780.25(c).	816.49(b)(1).
(c)	816.93(b)	816.86(f).
(d)	816.92(b)	816.86(d).
(e)	816.93(c)	816.86(g).
Final Section 816.87:		
(a)	816.86	816.87(a).
(b)	816.87	816.87(b).
Final Section 816.89:		
(a)	816.89(a)	816.89(a).
(b)	816.89(b)	816.89(b).
(c)	816.89(c)	816.89(c).

Section 816.81(a)

Under final § 816.81(a) all coal mine waste must be placed in new or existing disposal areas that are within the permit area and approved by the regulatory authority.

The previous reference to hauling and conveyance of coal mine waste has been deleted because the Act does not require any particular means of material handling or method of transportation to the disposal area and because transportation is not one of the more important factors in determining the stability of the waste disposal site. Both the transportation method and placement techniques used at a particular site are more appropriately selected during the design of an individual disposal facility. Specifically the words "hailed or conveyed and" have been removed while leaving the broad description "placed" to cover any method of transportation the mine operator may choose. One commenter agreed with the deletion in the proposed rule of the reference to hauling and conveyance from previous § 816.81(a).

The background section of the preamble to the proposed rules (47 FR 26600) was cited by one commenter as containing the phrase "waste banks must meet the requirements of the rules for excess spoil fills and the

requirements for waste banks." The commenter believed that refuse disposal sites should not meet the same criteria as excess spoil fills because of different material properties, different areas of disposal, and different revegetation requirements.

The phrase quoted by the commenter was included in a discussion of the previous rules and is one of the reasons the rules were revised. In these final rules, only those portions of the excess spoil rules pertinent to refuse pile and impounding structure construction are used to guide the disposal of coal mine waste. However, it should be noted that the revegetation requirements of §§ 816.111-816.116 must be met by both types of facilities and that many of the engineering considerations applicable to disposal of excess spoil are also applicable to the disposal of coal mine waste.

One commenter contended that by the removal of the requirement that the coal waste be hauled or conveyed and placed in a controlled manner in the disposal site, OSM is rejecting a position which it specifically embraced in the promulgation of the former rule. The commenter asserted that removal of the requirements would run counter to Congressional intention, citing legislative history, H. Rep. No. 95-218,

95th Cong. 1st Sess., 101, 103 and 125 (1977).

In the preamble to the former rule, OSM specifically noted the problem with uncontrolled end- or side-dumping of waste onto disposal sites and chose not to allow it; instead OSM required that the waste be hauled and conveyed and placed in a controlled manner (44 FR at 15209-10). OSM has received this issue and believes it was wrong in not allowing *controlled* gravity placement of material.

The final rule is revised to require that the coal mine waste be placed in a controlled manner in a disposal area. The proposed rule only required the placement of the waste. The addition of the phrase "controlled manner" in § 816.81(a) is supported by the legislative history cited by the commenter, H. Rep. No. 95-218, at p. 125.

The legislative history does not indicate, however, that the means of transportation of material to the disposal site must be regulated or that the material must be hauled or conveyed to the disposal site. As stated in the discussion to the proposed rule (47 FR at 26600), any material handling technique consistent with the facility design could be acceptable. These rules retain the features necessary to maintain stability of the site and to minimize the potential for combustion after the material is placed in the disposal site.

One commenter took issue with the proposed exclusion of a sentence from previous § 816.81(a) that coal waste be disposed of within the permit area. The reason given for opposing the removal was that the explanation in the proposed rule suggested that the former rule was more precise. The commenter also felt the proposed removal leaves unclear a basic requirement of the Act.

The sentence was proposed to be removed because it was deemed unnecessary. Disposal of coal mine waste must be within the permit area. However, the commenter's suggestion has been accepted and the final rule has been revised to eliminate any possible ambiguity by requiring disposal "within a permit area."

One commenter took issues with the deletion of the reference to previous §§ 816.71 and 816.72 in proposed § 816.81(a). The commenter was concerned that the change would delete the incorporation of the design standards of the excess spoil rules which the commenter considered essential requirements for coal mine waste refuse pile construction. The commenter also urged that the reference to § 816.71 not be deleted from the final rule for refuse pile construction, since

that section sets basic engineering standards for refuse pile construction.

OSM agrees that many of the requirements for construction of excess spoil fills contained in revised final §§ 816.71 and 816.72, are basic engineering standards which are also applicable to construction of coal mine waste disposal structures. Because construction of coal mine waste disposal structures requires some different or additional requirements and because the revised refuse pile standards in § 816.83 reference the MSHA rules of §§ 77.214 and 77.215, the final rule does not reference §§ 816.71 and 816.72 in their entirety, but adds the applicable excess spoil requirements directly in §§ 816.81 and 816.83. Inclusion of these requirements directly, rather than by reference, should aid in understanding the final rules adopted. With the reference to the MSHA rules and use of specific provisions from the excess spoil rules that are also applicable generally to coal mine waste disposal and specifically to refuse pile construction, these rules meet the requirements of the Act.

To assist the reader in understanding the relationship between the requirements for refuse piles and those for excess spoil fills, the following table has been prepared to indicate where applicable provisions have been included in §§ 816.81 and 816.83 from §§ 816.71 and 816.72. The provisions in § 816.81 are applicable both to refuse piles and impounding structures. The same comparison applies to Part 817—Underground mining activities.

COMPARISON TABLE—EXCESS SPOIL RULES AND COAL MINE WASTE RULES

Excess spoil fills	Coal waste disposal and refuse pile rules
Section 816.71:	
(a) and (a)(1-3)	816.81 (a) and (a)(1-3)
(b)	816.81(c)
(c)	N/A
(d)(1)	816.81(d)
(d)(2)	N/A
(e)(1)	816.83(c)(1)
(e)(2)	N/A
(e)(3)	816.83(c)(2)
(e)(4)	816.83(c)(3)
(e)(5)	816.83(c)(4)
(f)(1)	816.83(a)(1)
(f)(2)	816.83(a)(2)
(f)(3)	816.83(a)(3)
(g)	816.83(b)
(h)	816.83(d)
(i)	N/A
(j)	816.81(f)
Section 816.72:	
(a)	816.83(a)(2)
(b)	N/A

Certain of the excess spoil requirements have not been included in the final coal mine waste rules. Section 816.71(c) of the excess spoil rules requires that the fill be located on the most moderately sloping and naturally

stable areas available. This requirement is adopted for excess spoil disposal from section 515(b)(22)(E) of the Act. The Act does not include a similar requirement for disposal of coal mine waste.

Under most circumstances the provisions of revised § 816.71(c) would also be appropriate for application with respect to construction of refuse piles. However, since the most moderately sloping areas in many areas of the country are also stream valley bottom or similar areas with more sensitive hydrologic features, it is not necessarily desirable to require the location of refuse piles in these areas. The objective of the requirement for location of excess spoil fills is to help ensure the stability of the final fill. When designing coal mine waste disposal facilities, protection of the hydrologic balance often can be as important a consideration in evaluating the appropriate location for the facility as locating the fill on the most moderately sloping area available. Stability of refuse piles will nevertheless be ensured through the requirements regarding minimum static factors of safety, placement of waste, design certification, construction inspections and other applicable provisions. For these reasons a parallel requirement to revised § 816.71(c) has not been included in the rules for coal mine waste.

Section 816.71(d)(20) of the revised excess spoil rules requires the construction of rock toe buttresses or keyway cuts to help ensure the stability of the fill where the toe of the fill rests on the downslope. This requirement is adopted for excess spoil disposal from section 515(b)(22)(F) of the Act. The Act does not include a similar requirement for disposal of coal mine waste.

The construction of a keyway cut or a rock toe buttress may help to ensure the stability of the fill and minimize the potential for mass movement of the spoil material. However, keyway cuts, if not used properly, may also adversely affect foundation conditions. Under the final rule, refuse piles must be constructed to a minimum factor of safety of 1.5 and meet other requirements applicable to ensuring the stability of the waste disposal facility. The use of keyway cuts or rock toe buttresses under the final refuse pile rule has been left to the discretion of the design engineer. Since these structures are not always necessary design features and the Act does not require their use in refuse piles, no equivalent provision to § 816.71(d)(2) has been included in the refuse pile rules.

Section 816.71(e)(2) of the revised excess spoil rules requires that spoil be placed in 4-foot lifts, unless otherwise

approved by the regulatory authority. This section is not consistent with the requirements of MSHA's rules at 30 CFR 77.215(h), which require that refuse piles be constructed in 2-foot lifts, unless otherwise approved. Since MSHA's rules supersede any less stringent provision in OSM's rules, the requirements of 30 CFR 77.215(h) have been relied upon in this final rule to govern refuse construction. Thus, § 816.71(e)(2) has not been made applicable to refuse piles.

Section 816.71(i) governs when coal mine waste may be disposed of in excess spoil fills. It is not necessary to include an equivalent provision in the coal mine waste rules.

One commenter noted that under previous § 816.71(k), coal waste could not be used in head-of-hollow or valley excess spoil fills and that the definitions of those terms in § 701.5 excluded coal waste. The commenter asserted that prudent engineering dictates that due to the inherent instability of the waste material it should not be used in steep slope areas.

OSM disagrees. The prohibition against use of coal mine waste in head-of-hollow and valley fills has been eliminated in the final rules pertaining to excess spoil disposal. The physical, chemical and engineering properties of coal mine waste can be adequately defined by proper testing techniques. This makes it feasible to analyze, design and properly apply the necessary construction controls to place coal mine waste in excess spoil fills so as to meet all performance standards of the Act and rules including the minimum long-term static safety factor of 1.5.

The rules adopted require the operator to use qualified registered professional engineers for analysis and design and that the construction be certified by a qualified registered professional engineer. In addition, the rules require site-by-site approval by the regulatory authority. They further specify that when coal mine waste materials are placed in excess spoil fills, such disposal must not only comply with the coal mine waste disposal requirements in §§ 816.81 and 816.83, but also must meet additional standards contained in final § 816.71(i). The reader is referred to the revised final excess spoil rule for additional discussion on these requirements.

In steep slope areas, where head-of-hollow and valley fill excess spoil facilities are normally constructed, coal mine waste has in the past been disposed of in the same or similar fill configurations. By allowing the combination of such materials in fills

under proper design and construction techniques, this rule should reduce unnecessary duplication of fills and reduce the number of valley fills while maintaining environmental and safety standards. Coal mine waste can be disposed of in such facilities without any increase in adverse impacts.

Section 816.72(b) governs the use of rock-core chimney drains in head-of-hollow excess spoil fills. OSM did not propose to make this provision applicable to refuse piles, nor did the prior rule specifically provide for the use of rock-core chimney drains in refuse piles. If at some time in the future it is determined that use of rock core chimney drains is appropriate for refuse pile construction, OSM will consider proposing a rule change at that time.

Proposed § 816.81(a)(2) provided that all coal mine waste shall be placed in structures that are designed, constructed, inspected and maintained in accordance with §§ 816.82 through 816.86. This proposed section did not include any substantive requirement and is unnecessary in the final rule. Therefore, it has not been adopted, and no change is intended by this omission.

Section 816.81(a)(1)

Final § 816.81(a)(1) requires that coal mine waste be placed in a manner to minimize adverse effects of leachate and surface runoff on surface and ground water and includes requirements proposed at § 816.81(a)(3)(i) with minor revisions.

Two commenters recommended that the phrase "not adversely affect ground or surface water quality or quantity" in § 816.81(a)(3)(i) should be changed to "minimize adverse effects to ground or surface water quality and quantity." This, according to the commenters, would be consistent with language found in similar rules throughout Parts 816 and 817.

The comment has been accepted. The suggested change conforms with the guidance presented in the hydrologic balance protection provisions of § 816.41. In this section, minimization of impact on ground and surface water quality and quantity is emphasized. Effluent from coal mine waste should be prevented or controlled so that the receiving system will still contain water that meets applicable Federal and State water quality standards and protects the hydrologic balance. In accordance with the hydrologic balance rules, the operator would use mining and reclamation techniques that minimize water pollution and changes in flow.

One commenter suggested that a clause be added to § 816.81(a) to tie it to

the National Pollution Discharge Elimination System Permit (NPDES).

OSM agrees that the NPDES permit requirements are applicable to point source discharges from coal waste facilities. This requirement is incorporated in §§ 816.41 and 816.42 and applies to all discharges from coal waste facilities. Therefore, although the commenter is correct, no change is needed in the final coal waste rules to accommodate the commenter's concern. Although these regulations require compliance with NPDES requirements, compliance with such standards will not alone ensure compliance with the hydrologic protection requirements of § 816.81(a).

Section 816.81(a)(2)

Final § 816.81(a)(2) requires that coal mine waste be placed in a manner to ensure mass stability and prevent mass movement during and after construction. The final rule includes aspects of proposed §§ 816.81(a)(3)(iii) and 816.85(e). Proposed § 816.81(a)(3)(iii) would have required that the structure be stable. The final rule revises this standard, in accordance with proposed § 816.85(e) (and the rule for excess spoil, § 816.71(a)(2)), to make it clear that the facility must not only be stable upon completion, but also during construction.

Section 816.81(a)(3)

Final § 816.81(a)(3) requires that coal mine waste be placed in a manner to ensure that the final disposal facility is suitable for reclamation and revegetation compatible with the natural surroundings and the approved postmining land use. This section has been added to the final rule in response to a commenter who requested reconsideration of the proposal to delete certain requirements included in previous §§ 816.71 and 816.72 and made applicable to coal mine waste be reference. The commenter pointed out that Section 515(b)(11) of the Act requires compatibility of the coal mine waste with the natural surroundings. The language of final § 816.81(a)(3) parallels requirements included in the final excess spoil rule and will ensure that the final postmining surface of the disposal facility is reclaimed to a condition compatible with the natural surroundings.

Section 816.81(a)(4)

Final § 816.81(a)(4) provides that coal mine waste shall be placed in a manner so as not to create a public hazard. This paragraph is the same as proposed § 816.81(a)(3)(ii).

One commenter suggested that "public hazard" be broadened to "public

health or safety hazards" consonant with the findings of Section 101(c) of the Act. The commenter argued that the Act requires consideration of both health and safety considerations, as well as protection of property and the quality of life in adjacent communities.

OSM agrees that coal mine waste should be disposed of in a manner that does not create hazards to the public health or safety. The provision in the final rule applies the public hazard consideration to coal mine waste within, as well as outside the permit area. Protection against creating a public hazard is sufficiently broad to refer to both health and safety. No change was made in the rule as a result of the comment.

Section 816.81(a)(5)

Final § 816.81(a)(5) requires that coal mine waste be placed in a manner to prevent combustion. This paragraph is the same as previous § 816.81(a)(2). One commenter agreed with the proposed wording change from "to prevent combustion" in the previous rule to "minimize the potential for combustion" as being more realistic. Another commenter opposed the change on the grounds that the goal of preventing combustion was set by Congress and the OSM cannot substitute its judgment in setting standards for environmental protection. The commenter also pointed out that the legislative history, H.R. Rep. 95-218 at 125, states that the goal of sections 515(b)(11) and 516(b)(5) of the Act is "to prevent combustion." Therefore, the commenter felt the rule cannot be changed in proposed § 816.81(a)(3)(iv) to minimizing the potential for combustion.

OSM agrees with the objective of preventing combustion in coal mine waste. The final rule which requires that coal mine waste disposal facilities be designed to prevent combustion has been changed to explicitly recognize this objective. As a practical matter there is little difference between the previous and proposed standards. The language "minimize the potential" for combustion would merely have recognized the impossibility of achieving an absolute.

Section 816.81(b)

Final § 816.81(b) permits placement, within the permit area, of coal mine waste from sources outside the permit area with the approval of the regulatory authority. This final language follows § 816.81(b) of the proposed rule and the reader is referred to the preamble of the proposed rule for additional discussion on the paragraph (47 FR 26601).

A commenter urged that coal mine waste from outside the permit area be approved by the regulatory authority only after a determination that such waste will not jeopardize the stability of the fill within the permit area. The commenter also urged that the phrase from the former rule mentioning waste from other mines and abandoned waste fills not be deleted since it suggests the type of waste an operator may have approved for disposal.

No specific provision is necessary in the final rule with regard to a stability determination. Regardless of the source of the coal mine waste, the requirements for stability must be satisfied. Further, the definition, in § 701.5, of "coal mine waste" is sufficiently specific with regard to the types of material covered by this paragraph. In addition, disposal of all waste must be approved by the regulatory authority in the reclamation plan, 30 CFR 780.18(b)(7) (toxic materials) and 780.25(d) (waste banks). The latter rule requires compliance with the coal mine waste rules which set stability as a performance standard that must be achieved.

The same commenter also urged that the hydrologic, geotechnical, physical and chemical analyses required in previous § 816.81(b), upon which the regulatory authority had to base its decision to allow disposal of coal mine waste from outside the permit area, not be deleted. In the commenter's view such analyses are necessary for the regulatory authority to make an informed judgment.

In order for such waste to be disposed of within the permit area, the regulatory authority's approval is required under § 816.81(b). The existing permitting standards require sufficient information to allow the regulatory authority to make the necessary determinations. Among those requirements which may be applicable are § 780.18(b)(7) which pertains to toxic materials, § 780.21 which pertains to protection of water, and § 780.25(d) for waste pile stability and hazards. Thus, sufficient analyses and information will be furnished to the regulatory authority under the permit application requirements. They need not be included in the performance standards.

Section 816.81(c)

Final § 816.81(c) contains requirements pertaining to the certification of the design of the facility by a registered professional engineer.

Final § 816.81(c)(1) requires that the disposal facility be designed using current, prudent engineering practices and that it meet any design criteria established by the regulatory authority.

A qualified registered professional engineer, experienced in the design of similar earth and waste structures, must certify the design of the disposal facility. This requirement parallels the requirement of proposed § 816.85(c) and § 816.86(e), which referenced a similar provision in § 816.49. No comments were received on this aspect of the proposal. However, the language of the final rule has been revised to more closely follow the language of similar provisions in the rules on excess spoil disposal. No major change in the section is intended by the modification from the proposal.

Final § 816.81(c)(2) sets a static safety factor of 1.5 as the necessary degree of stability and requires the foundation and abutments of the disposal facility to be stable under all conditions of construction. This provision parallels proposed §§ 816.85(e) and 816.86(g) and (h) and includes a similar provision from § 816.71(b)(2).

Two commenters requested inclusion of a requirement that refuse piles meet a minimum static safety factor of 1.5 as well as requiring impounding structures to meet a 1.5 safety factor. The commenters pointed out that under MSHA rules, refuse piles with slopes of less than 2h:1v which are built in 2-foot lifts would not necessarily be required to meet a minimum factor of safety. One of the commenters suggested that a demonstration of stability at a slope of 3h:1v be required. Several other commenters urged that all waste banks be constructed with a 1.5 safety factor as an indication of proper design. A commenter said that there are times when such fills may not be stable depending on the amount of fines and moisture in the material. Another commenter said no fill design should be approved unless it is demonstrated to be stable with a factor of safety of at least 1.5. The comments suggesting that all waste disposal facilities meet a factor of safety of 1.5 have been accepted and added to the final rule as a design requirement in new § 816.81(c)(2). This is one provision that augments MSHA's standards.

Section 816.81(d)

Final § 816.81(d) requires that sufficient foundation investigations and laboratory testing of foundation material be performed in order to determine the design requirements for foundation stability. The analyses of the foundation conditions must take into consideration the effect of underground mine workings, if any, upon the stability of the disposal facility. The final rule is adopted from proposed §§ 816.85(e) and 816.86(h).

One commenter proposed adding a new section containing the same provisions as proposed § 816.71(a)(2) of the excess spoil rules. In effect, this would apply requirements for testing and designing of foundation and abutments to coal mine waste facilities as well as to the excess spoil fills.

This comment was accepted and the provision included in the final rule in § 816.81(d).

A commenter pointed out that the testing requirement for refuse piles in proposed § 816.85(e) was confined to foundation materials. In the commenter's view, the materials used in the embankment, not just in the foundation of it, should also be analyzed.

Because of the importance of a refuse pile's foundation stability, specific provisions have been included relating to foundation evaluation. Inclusion of a section on foundation evaluation, however, is not intended to preclude necessary testing of the materials used in the embankment the stability of which must also be assured. The appropriate type and extent of embankment material testing can be determined by the qualified engineer under final § 816.85(c). Inclusion of a section specifically related to embankment material testing is not considered necessary in the final rule.

Section 816.81(e)

Under final § 816.81(e), should any examination or inspection disclose a potential hazard, the regulatory authority must be promptly notified of the finding, and of the emergency procedures formulated for public protection and remedial action to be taken. If procedures adequate to protect the public cannot be implemented by the operator, the regulatory authority must be notified immediately. The regulatory authority must then notify the appropriate agencies that other emergency measures are required to protect the public. Final § 816.81(e) adopts proposed § 816.82(b) with editorial revision, and it is made applicable to all coal mine waste disposal facilities.

One commenter thought the requirements of the proposal were unclear in that they referred to an emergency plan, yet did not require the development of such a plan. The commenter suggested that the emergency plan should be prepared before a potential hazard develops.

The use of the language "emergency plan" in the proposed rule was intended to refer to the plan that is formulated to respond to any observation that a

hazard may exist. Because the great majority of coal mine waste disposal facilities do not pose any significant threat to the public, the final rule does not include a general requirement that the operator develop an elaborate emergency plan in every case. Since prompt or immediate notification is required, the regulatory authorities will be in a position to implement necessary emergency procedures and ensure that appropriate actions are taken as needed. Additional requirements for development of emergency response plans are included in MSHA's rules which must also be met.

A commenter noted that proposed § 816.82(b) imposed the responsibility on the operator of promptly notifying the regulatory authority of potential hazards, but that there was no requirement that the regulatory authority provide names and addresses of persons to contact, especially during non-business hours. The commenter also noted that operators, all too often, are unaware of the existence of "appropriate" agencies and operators should be supplied with phone numbers, etc., for these agencies.

The final rule has not been changed based upon this comment. OSM experience indicates that in nearly every case operators are sufficiently familiar with the local regulatory authority personnel to be able to provide the necessary notifications without further elaboration in the final rule. Under the circumstances that exist within a particular locale or State, a regulatory authority may deem it appropriate to provide operators with names and addresses of persons that may be contacted during nonbusiness hours. However, no change in the final rule is considered necessary to accommodate such circumstances.

One commenter cited the failure of a slurry impoundment and the need for emergency diversion construction that would have temporary environmental impacts as a situation in which the agency personnel may have to make hard decisions in which short-term losses are balanced against long-term gains. The commenter used this theoretical situation to show the need for regulatory authority personnel to be trained in handling coal field emergencies and the need for the contact person at the regulatory authority to have the authority to make emergency decisions.

OSM agrees that there may be situations where, during emergencies, decisions may have to be made to balance short-term and long-term problems and solutions. OSM supports and encourages the training of

regulatory authority personnel in handling coal field emergencies.

Section 816.81(f)

Previous § 816.88 provided for coal processing waste to be returned to underground mine workings in accordance with a disposal program approved by the regulatory authority and MSHA under § 784.25 of this chapter.

As proposed, final § 816.81(f) revises the previous rule to clarify that "coal mine waste" may be returned to underground mine workings under a waste disposal program designed according to § 784.25 of this chapter and jointly approved by the regulatory authority and MSHA. The proposed terminology change of "coal processing waste" to "coal mine waste" would allow both coal processing waste and underground development waste to be returned to underground mine workings.

Because the definition of coal mine waste under the final rule includes underground mine development waste, the additional reference to § 784.19 in previous § 817.88 is redundant of the requirement in § 784.25 and is not needed. It has therefore been deleted as was proposed in § 816.88.

A commenter pointed out that MSHA rules do not provide for approval of plans to return coal mine waste to underground workings. The final rule has not been changed from the proposal. All underground mining activities require approval and/or coordination with MSHA. The final rule ensures such coordination and is in accordance with sections 516(a) and 515(b)(12) of the Act.

The U.S. Environmental Protection Agency asked OSM to note in this rule that disposal of coal mine waste in underground mine workings must be in compliance with any applicable requirements of the Underground Injection Control Program promulgated under Part C of the Safe Drinking Water Act (Pub. L. 93-523, as amended, 42 U.S.C. 300f *et seq.*) The list of Class V wells in 40 CFR 146.05(e) includes sand backfill and other backfill wells used to inject a mixture of water and sand, mill tailings or other solids into mined out portions of subsurface mines whether what is injected is a radioactive waste or not. This provision may apply to the underground disposal method described in § 816.81(f). At this time, the only requirements that apply to Class V wells are (1) the inventory reporting requirement in 40 CFR 122.37(c)(1); and (2) the general prohibition against contamination of underground sources of drinking water in 40 CFR 144.12.

Section 816.83 Coal mine waste: Refuse piles

Final § 816.83 contains standards that apply to coal refuse piles which supplement the general standards of § 816.81. It also requires that refuse piles also meet MSHA requirements at 30 CFR 77.214 and 77.215. Referencing of these MSHA standards makes them enforceable as part of OSM's permanent program regulations.

Section 816.83, by reference to 30 CFR 77.214, includes the four requirements of that section. Among these are the requirements that the refuse pile be located a safe distance from all underground facilities and surface installations and that the refuse pile not be located over abandoned mine openings or streamlines. Also 30 CFR 77.214 requires clay or inert material to be placed between new refuse piles and old refuse piles or exposed coal beds. Roadways to refuse piles must be fenced or otherwise guarded to restrict the entrance of unauthorized persons.

Among the ten referenced requirements of § 77.215 is the requirement for layering and compaction of the waste to minimize flow of air through the pile. Under § 77.215(b), new refuse is prohibited from being placed on an existing burning pile except as a fire control or extinguishing measure. Under § 77.215(c), sealants, such as clay, must be used to seal the surface of piles to inhibit further spontaneous ignition. Under § 77.215(d), such seals must be protected from erosion by drainage facilities to protect their integrity. Under § 77.215(e), impeding or impounding surface water flow is prohibited. Under § 77.215(g), addition of extraneous combustible materials to the piles, such as waste wood, paper, trash or lubricants, is not allowed.

Construction of the refuse pile in compacted lifts of 2-foot maximum thickness is required under § 77.215(h) and the external slopes cannot exceed 27 degrees. However, MSHA's District Manager may approve thicker layers and steeper slopes when maintenance of a 1.5 minimum safety factor is supported by engineering data.

Under § 77.215(i), foundations for new refuse piles and additions to existing refuse piles must be cleared of all vegetation and undesirable material that would adversely affect stability. Under § 77.215(j), all fires in refuse piles must be extinguished and the method used must be in accordance with a plan approved by the MSHA District Manager.

Three commenters supported using the MSHA refuse pile construction

standards under §§ 77.214 and 77.215 (a)-(h) in the OSM rules. The commenters felt the move to include MSHA rules was a more realistic approach, used rules that have withstood the test of time and eliminated duplication. Other commenters objected to the use of MSHA rules and argued that OSM rules should be stronger and more broadly aimed than the MSHA rules.

A commenter stated that it was an erroneous assumption that MSHA rules protect the environment or the public health and safety. The commenter asserted that MSHA's mandate only extends to protection of miner's health and safety at the mine site.

Although these final rules reference MSHA requirements for construction of coal refuse piles they also include a number of additional requirements in § 816.81, which were discussed earlier, and in § 816.83, which are discussed below. The rules recognize that the goals of the Surface Mining Act are achieved in part by rules already promulgated by MSHA. The standards included in MSHA's rules, which were promulgated primarily to protect miners, also help to protect the environment and public health and safety. Thus, OSM may reference MSHA's standards in its rules governing these same topics while at the same time reducing unnecessary conflict and duplication between regulatory schemes.

A commenter pointed out that MSHA's rule in § 77.214 does not prohibit refuse piles from being located over streams as was stated in the preamble discussion on proposed § 816.85(a).

MSHA rules require that a refuse pile not be located over abandoned openings and streamlines. The statement in the proposed rulemaking notice was in error.

One commenter protested that the inclusion of a reference to § 77.215(h) in § 816.85(a) would allow the construction of refuse piles in lifts greater than 2 feet thick. In the commenter's view, such an allowance is wrong from an engineering standpoint because, even with a 2-foot thick lift requirement, adequate compaction is difficult to achieve. Another commenter supported controlled placement of dry waste in 2-foot thick compacted lifts. A third commenter noted that although, as stated in the proposed rule (47 FR 26613), some refuse left in nonstructural, uncompacted lifts of greater than 5 feet have existed without burning, OSM did not indicate that spontaneous ignition has occurred within 10 days in refuse left in piles of less than 5-foot lifts.

OSM has retained reference to MSHA rules to govern lift thickness. While placement of coal mine waste in 2-foot thick lifts may be appropriate in most instances, there are also situations where such a restriction will not be necessary to achieve sound waste disposal. Additionally, as noted by one commenter, lift thickness alone is not necessarily the most important feature in preventing combustion. The final rule ensures the stability and sound disposal of the coal mine waste regardless of whether or not an exception is granted from the 2-foot lift requirement. Under any case, the final compacted fill must satisfy a safety factor of 1.5 and the disposal facility must be designed to prevent combustion.

A commenter objected to the statement in the preamble to proposed § 816.83 that "any material handling technique is acceptable as long as the material is placed in 2 foot lifts and compacted." The commenter continued by stating that if material 2 feet in diameter was being placed, little compaction would be obtained and that compaction has little meaning unless it is related to some standard such as Proctor or Modified Proctor measurement.

If the waste material is 2 feet or larger in diameter, under 30 CFR 77.215(h) the MSHA District Manager may approve lifts thicker than 2 feet and with slopes exceeding 27 degrees provided that engineering data substantiates that a minimum safety factor of 1.5 will be attained. Additionally, it is not necessary to specify a numerical compaction standard. The primary purpose of compaction is to ensure stability of the facility. Compaction also has the benefit of minimizing air movement through the fill. However, coal mine waste disposal facilities left in uncompacted lifts 5 feet thick have existed for many years without stability or burning problems (U.S. Mining Enforcement and Safety Administration, 1975, p. 8.69). The specific numerical requirement for compaction is thus more appropriately determined based upon the particular design, site conditions and waste characteristics. The final rule provides this flexibility while ensuring stability and compaction as necessary. Thus, the final rule does not include a specific compaction standard other than the MSHA requirement.

A commenter argued that difficulties may arise in complying with the explicit construction requirements for coal mine waste disposal where combinations of waste and spoil are disposed of in the same area.

OSM recognizes that where coal mine waste is disposed of in a backfill or

excess spoil disposal area, more restrictive requirements may apply to the entire disposal area. No change, however, has been made in these final rules based upon this comment. The final rule will help ensure that coal mine waste is properly disposed of regardless of where the final disposal location may be.

Section 816.83(a)

Final § 816.83(a) provides that if the disposal area contains springs, natural or manmade water courses, or wet weather seeps, the design shall include diversions and underdrains as necessary to control erosion, prevent water infiltration into the disposal facility, and ensure stability. Underdrains must comply with the requirements of § 816.71(f)(3). Runoff from areas above the refuse pile and runoff from the surface of the refuse pile must be diverted into stabilized diversion channels designed to meet the requirements of § 816.43 and to safely pass the runoff from a 100-year, 6-hour precipitation event. Uncontrolled surface drainage may not be diverted over the outslope of the refuse pile.

The water control measures of the final rule have been adopted from proposed § 816.83, except that the proposal which would have merely required control of surface runoff has not been adopted in favor of retaining the diversion channel requirement. Editorial revisions have been made to increase understanding and to more closely parallel similar provisions applicable to the disposal of excess spoil.

In response to one EPA comment, OSM has added language clarifying that the runoff diverted from undisturbed areas need not be commingled with runoff from the surface of the refuse pile.

One commenter maintained that not all coal seams and coal mine waste are acidic or toxic as implied in proposed § 816.83(a) and that in certain instances, water from refuse piles is in good or satisfactory condition. Therefore, the commenter suggested the requirements be revised to provide that the subdrainage system be covered so as to protect against the entrance or leachate from "any coal mine waste which is shown to be acidic or toxic."

OSM has not accepted the change proposed by the commenter because caution is necessary when dealing with coal mine waste. Also the objective of the subdrainage system is primarily to help ensure stability and is not related solely to the control of potentially acidic or toxic drainage.

One commenter concurred with the proposed change in the diversion design storm from a 100-year, 24-hour event to a 100-year, 6-hour event. Two other commenters disagreed with the change. One of the commenters believed that the proposed change would allow smaller diversions which would lead to certain failure of the channel. The other commenter contended that there is not justification to lower the storm event for design of diversion channels in § 816.23(b) to a 100-year, 6-hour event and that MSHA has no particular expertise in design of surface diversion structures that would justify reliance on the 6-hour event. The commenter believed the previous rule standard of the 100-year, 24-hour event would produce more long-term protection because the former standard is more likely to avoid ditch scouring and overtopping, thereby, reducing the chance of infiltration into the refuse pile.

These commenters provided no data to support their conclusions. The change from the 100-year, 24-hour event, to the 100-year, 6-hour event has been made to be consistent with MSHA requirements and the standards for excess spoil, valley, and head-of-hollow fills. Reliance upon the 100-year, 6-hour event is a safety standard that has proven successful. (See MSHA's 1979 Design Guidelines for Coal Refuse Piles and Water Sediment or Slurry Impoundments and Impounding Structures.)

OSM recognizes that the 24-hour duration storm usually results in a runoff volume and peak somewhat higher than the 6-hour storm for the same area (see 44 FR 15207). However, it also has been reported that in some watersheds, the 100-year, 6-hour event can result in a higher peak flow. For a given storm frequency, the time of concentration and watershed shape can be more influential in determining the peak flow than the storm duration. In most cases the differences in any increased volume of peak flows will be minor from a practical design and construction standpoint. Any computed increase in peak flow volume would most likely not result in any significant change in flow depth or flow velocities and, correspondingly, any alteration in channel design. For instance, in a rock riprap-lined channel, velocity increase from resulting increase in peak flows would not likely alter the specified rock size used in the design. Therefore, the change in precipitation event for design of diversions on refuse piles will not result in any significant change in the level of protection afforded.

A commenter misinterpreted the reference by OSM to the MSHA recommendation of the 100-year, 6-hour storm event for the design capacity of diversion ditches in proposed § 816.83(b). The commenter said OSM was incorrectly claiming that MSHA advocated that OSM adopt the standard. MSHA did not advocate the adoption of their standard. MSHA made a public recommendation which it published in a set of design guidelines. OSM proposed using the MSHA standard for consistency and because it establishes an adequate level of protection.

One commenter felt proposed § 816.83(b) presented a dilemma in that many refuse piles are constructed with the top edge sloping towards a hillside in order to minimize erosion. In doing so, however, it could result in the pile being considered an impoundment by OSM's definition.

If the final slope of the top of a refuse pile resulted in the creation of an impoundment, then the commenter is correct in concluding that the requirements for impounding structures in § 816.84 and for impoundments in § 816.49 would have to be met. A properly designed surface drainage system from a refuse pile should remove the drainage water from the top of the fill and not result in the creation of an impoundment. OSM foresees no conflict with this design technique and the definition of impoundments. Final § 816.83(c)(3) prohibits permanent impoundments on completed refuse piles.

One commenter argued against the removal of the requirement in previous § 816.83(b) to divert all surface runoff from the area above the refuse pile and from the refuse pile surface around the fill. The commenter suggests that the new rule will allow methods for controlling surface drainage which threaten the stability of the fill. Furthermore, the commenter argued that diverting surface water around the fill is in the operator's interest since infiltration into it brings water into contact with deleterious substances in the fill which would necessitate treatment of the discharge.

Another commenter believed it is essential that OSM provide for mandatory diversion of all surface drainage around refuse piles.

The final rule has included provisions similar to those in the previous rule requiring diversion of runoff from areas above the refuse pile. While such diversion may not always be necessary to ensure the stability of the fill, the requirement will also help minimize

water contact with any potentially acid-forming or toxic-forming materials that may be in the coal mine waste. Two commenters recommended that the flood plain capacity be included in the diversion capacity when the water stage elevation and velocity from a 100-year, 6-hour precipitation event will not interfere with embankment stability and public health and the environment is not endangered. One of these commenters also proposed including the capacity of existing channels and banks in the design of diversion channels.

OSM agrees. However, no change is deemed necessary in the final rule. Revised § 816.43 will provide that for purposes of meeting the required design storm, the combination of channel, bank and flood-plain configuration can be considered in the diversion design.

One commenter recommended changing the word "diversion channel" to "conveyance structure" in proposed § 816.83(b) and that the word "channel" be deleted. These changes would accommodate the use of other types of drainage systems such as lined ditches, conduits and other designs as discussed by OSM in the preamble to the proposed rule. OSM disagrees. For consistency with other rules, the words "diversion channels" have been retained in the final rule. This language is not, however, intended to limit the use of lined ditches or other designs, provided the standards of § 816.43 are met.

Section 816.83(b)

Final § 816.83(b) provides for surface area stabilization through revegetation of disturbed areas. Diversions may be riprapped or lined with alternative materials rather than being vegetated. The use of alternative materials as diversion liners follows the requirements of § 816.43 and increases the design engineer's capacity to meet particular site needs. Because some confusion resulted from the question on whether diversions were part of the disturbed area and, therefore, must be vegetated, this section has been reworded to clarify this point. The final rule incorporates the provisions of proposed § 816.83(c).

A commenter pointed out the inconsistency in proposed § 816.83(c) with respect to diversion ditches being part of a disturbed area for which there is a vegetation requirement, but for which there is an alternative to revegetation. Another commenter stated that diversion channels must be stabilized and that an alternative to riprapping and vegetation must be controlled by the regulatory authority.

OSM has accepted these comments and changed the final rule to avoid misinterpretations. The change clarifies that diversion channels may be riprapped or otherwise protected rather than revegetated. The method of lining the ditches must be part of the diversion design submitted as part of the permit application. Approval of the permit application by the regulatory authority and issuance of the permit constitutes approval of the diversion liner.

A commenter proposed adding to the provisions of the rule that temporary refuse piles use some other procedures approved by the regulatory authority to minimize surface erosion. The commenter pointed out that revegetation and adding a topsoil layer to a temporary pile is not very feasible. The commenter advocated that some type of alternative slope protection procedures should be allowed, particularly if the coal mine waste is to be disposed of in the pit prior to reclamation.

The final rule provides that slope protection must be provided to minimize erosion. This slope protection can consist of a variety of techniques and need not include topsoiling and revegetation during construction or of temporary piles, although a temporary cover may be appropriate in some circumstances. The refuse pile need not be fully revegetated in accordance with §§ 816.111-816.116 and 817.111-817.116 until completion of construction. Thus, the commenter's suggestion is allowed under the final rule and no further change is required.

Proposed § 816.83(d) would have included a provision requiring the control and minimization of water pollution through reference to the hydrologic balance protection provision of § 816.41. Since § 816.41 will apply by its own terms to all parts of the permit area, including refuse piles, it is not necessary to include reference to it in § 816.83. Proposed § 816.83(d) has, therefore, not been adopted in the final rule. No substantive change is intended by this deletion.

Two commenters urged that reference to existing §§ 816.52 and 816.55 on hydrologic balance should not be deleted from § 816.83(d) because they apply to all operations. The commenter noted that OSM cannot ignore the requirement of § 816.42(a), that all surface drainage from disturbed areas must pass through sediment ponds until water quality standards are met unless an exemption is granted under § 816.42(a)(3). A State regulatory authority felt OSM was exempting the coal mine waste discharge from the specific provisions of §§ 816.42 and 816.46 and objected to this provision.

OSM agrees that proposed § 816.83(d) was misleading by referring to one section on protection of the hydrologic balance and not to other applicable sections. Each of these sections is applicable to refuse piles by their own terms and therefore need not be listed in this section as well. Deletion of reference to only one of the applicable sections should help eliminate this confusion.

One commenter felt that coal mine waste materials should not be placed in locations which could cause significant degradation of the hydrologic regime.

OSM agrees. This concern is recognized in § 816.41, in which material placement practices are listed among aspects of hydrologic protection requiring consideration. Also, the reference to MSHA §§ 77.214 and 77.215 includes other practices to achieve this objective.

Section 816.83(c)

Final § 816.83(c) provides standards for the placement of coal mine waste materials in refuse piles. It includes requirements from proposed § 816.85.

Several commenters questioned the deletion of the 90-percent compaction requirement in previous § 816.85(c) from the proposed rule. One commenter took issue with the change because, in the commenter's estimation, the 90-percent dry density standard helps to achieve not only stability, but the prevention of spontaneous combustion, as well as goals indicated by Congress in the legislative history of the Act. The commenter felt that consideration of difficulty in testing should not be weighed against the public safety. Another commenter indicated that the 90-percent compaction figure should be retained and he believed the reason for the change in the requirement is that the coal companies are not able to actually achieve this level of compaction. One commenter agreed with dropping the 90-percent compaction requirement, but called for a statement of proof that the compaction conforms with the degree of compaction assumed in the design analysis of the structure.

The comments suggesting retention of the 90-percent dry density compaction standard have not been accepted. Heterogeneity of coal mine waste material resulting from variations in coal mining techniques, coal cleaning, processes, and coal lithology renders meaningless the application of standard compaction measures designed primarily for comparatively homogeneous construction materials. Change in character of the coal, coal inclusions, roof rock, and bottom strata from coal bed to coal, in a single coal

bed, and even within individual mine production sections, causes a wide range of physical and chemical properties of the mined product. Hardness, angularity, particle size, compressive strength, shear strength, and moisture content variations within the waste dictate the prescription of general objectives in consolidation practices rather than the setting of a precise standard which would not consider the characteristics of the material being disposed of.

While the potential variations in materials' properties and testing difficulties render a nationally established numerical compaction standard nearly meaningless, these factors can be considered on a case-by-case basis and necessary features incorporated in the site-specific design to ensure stability and minimize the potential for combustion or the creation of acid-mine drainage. Where a specific compaction level is an important aspect of a design, the inspection and certification requirements of § 816.83(d) will ensure that appropriate tests and/or observations are conducted including compaction measurements to support the engineer's certification that the facility is being constructed as designed and in accord with the approved plan.

Section 816.83(c)(1)

Final § 816.83(c)(1) requires the removal of all vegetative and organic materials from the disposal area prior to placement of coal mine waste. Topsoil must be removed, segregated and stored or redistributed in accordance with § 816.22. If approved by the regulatory authority, organic material may be used as mulch or may be included in the topsoil to control erosion, promote growth of vegetation or increase the moisture retention of the soil. Final § 816.83(c)(1) adopts the requirements of proposed § 816.85(d).

A commenter questioned the requirement to remove all vegetation and organic materials for refuse pile sites. The commenter suggested leaving the removal determination to the regulatory authority on a site-by-site basis because in some instances the structural integrity need not be affected if not all were removed. The same commenter questioned the requirement to remove all topsoil in proposed § 816.85(d), explaining that in some areas this may be a minor operation, but asked what should be done in areas with thick topsoils 20 feet deep or more.

Removal of topsoil and organic material is generally consistent with good engineering practices. The requirement is also in accord with the

provisions of Sections 515 (b)(5), (b)(13), and (b)(22), and 515(f) of the Act. The necessity and extent of topsoil removal is set forth in final § 816.22.

Additionally, when disposing of coal mine waste, removal of organic material from the disposal area will help lower the amount of combustible material in the fill, help avoid the creation of voids within the fill that could lead to spontaneous combustion or production of acid or toxic mine drainage, and help ensure the long-term stability of the refuse pile. For these reasons, the commenter's suggestion must be rejected. It should be noted that operators must comply with § 816.83(c)(1), even when it may impose obligations in addition to those in § 77.215(i) which also pertain to the clearance of vegetation.

Section 816.83(c)(2)

Final § 816.83(c)(2) requires that the final configuration of the refuse pile be suitable for the approved postmining land use. Terraces may be constructed on the outslope of the refuse pile if required for stability, control of erosion, conservation of soil moisture, or facilitation of the approved postmining land use. The grade of the outslope between terrace benches must not be steeper than 2h:1v (50 percent).

No provisions were included in the proposed rule relating to the use of terraces. However, several commenters requested that the provisions of §§ 816.71 and 816.72 for the disposal of excess spoil with were also appropriate as standards for refuse piles not be deleted from the requirements of the final rule. Section 816.83(c)(2) has been included in the final rule in response to these comments. It clarifies the requirements pertaining to the final configuration of the refuse pile and the conditions under which terraces may be used. The reader is referred to the preamble to the excess spoil disposal rule for additional discussion on the use of terraces.

Section 816.83(c)(3)

Final § 816.83(c)(3) prohibits permanent impoundments on the completed refuse pile. Small depressions may be allowed by the regulatory authority if they are needed to retain moisture, minimize erosion, create and enhance wildlife habitat, or assist revegetation; and if they are not incompatible with the stability of the refuse pile.

No provision was included in the proposed rule related to the use of impoundments or depressions on the final refuse pile. However, based upon a commenter's request that applicable

portions of § 816.71 continue to apply to refuse piles, final § 816.83(c)(3) has been included in the final rule. The reader is referred to the preamble to the excess spoil disposal rule for additional discussion on the use of small depressions.

Section 816.83(c)(4)

Final § 816.83(c)(4) requires the final refuse pile to be covered with a minimum of 4 feet of the best available non-toxic and non-combustible material, in a manner that does not impede drainage from the underdrains. The regulatory authority may allow less than 4 feet of cover material if physical and chemical analyses show favorable conditions for revegetation. The final rule continues the requirements of the previous rule, but differs from the proposed rule (§ 816.85(g)), which required that the final surface be covered with materials capable of sustaining adequate vegetation and provide environmental protection according to §§ 816.111–816.117.

Two commenters contended that the proposed deletion of the 4 feet of cover requirement did not take into consideration the vegetation being sustained over the long term. Revegetation must be successful over the long term and diverse enough to meet the requirements of Section 515(b)(19) of the Act, according to the commenter. Moreover, covering coal mine waste provides material for vegetation, but also provides a cap to prevent percolation into the coal mine waste and migration of toxic materials out of it. The commenter asserted that both scientific literature and the former rule support the 4 feet of cover requirement.

One commenter concurred with the proposed cover and revegetation requirements while another commenter agreed with replacing the specific 4-foot cover requirement with the more general statement, "as required to assure reclamation." However, continued the commenter, this places a much higher standard of proof upon the operator to demonstrate the appropriate depth of cover.

The final rule in § 816.83(c)(4) continues to apply the requirement that a coal refuse pile be covered by 4 feet of the best available material. Less than 4 feet of cover may be allowed by the regulatory authority if there is a demonstration that the pile will meet the revegetation and environmental protection provisions in revised final §§ 816.111 through 816.116. This requirement will ensure that the environmental protection required by

sections 515 (b)(11) and (b)(19) of the Act is provided in every case.

The final rule is not intended to require the operator to create borrow areas to obtain cover materials, unless such borrow areas are necessary to prevent combustion or ensure that the revegetation requirements are met. However, OSM agrees with the commenters that suggested that additional care must be taken when closing a coal mine waste disposal facility than for other backfilled areas. Historically, coal mine waste areas that were not properly reclaimed were difficult to revegetate and often had a potential for acid or toxic mine drainage. As a general rule, it is in accord with good engineering practice to use the best available material as a cover, rather than burying that material within the refuse pile.

On the other hand, OSM recognizes that in certain circumstances 4 feet of cover may not be necessary to meet the environmental protection requirements of the Act. The final rule thus continues the previous rule which sets a cover requirement as a general standard, but allows the regulatory authority to consider site-by-site variations.

Section 816.83(d)

Final § 816.83(d) establishes requirements for inspection of refuse piles. It requires that a qualified registered professional engineer or other qualified professional specialist inspect the fill during construction and the engineer certify that the fill has been constructed and maintained as designed and in accordance with the approved plan. Appearances of instability and other hazardous conditions must be reported. These inspection requirements were proposed in § 816.82.

Minor revisions have been made to the final inspection requirements to parallel similar inspection requirements for excess spoil disposal facilities. Among the revisions are the addition of a provision in the opening paragraph that the qualified engineer or specialist be experienced in the construction of similar earth and waste structures; revision of the requirement for inspections during placement of the waste material (the final rule requires regular inspections to be made during placement of fill, but does not provide that placement of fill must be considered a critical construction period); addition of provisions requiring photographs of underdrains prior to coverage with coal mine waste; and other minor and editorial revisions. The reader is referred to the preamble to the revised final excess spoil rules for additional

discussion relative to these changes (48 FR 32910, July 19, 1983).

A commenter took issue with the statement in the preamble to the proposed rule that the MSHA certification under § 77.215-3(a) may suffice for the inspection findings under this paragraph (47 FR 26601). This commenter also stated that as much as 6 months can lapse before the District Manager is required to be notified that a hazardous pile has been modified.

The statement in the preamble to the proposed rule merely indicated that the same report may be submitted to both MSHA and the surface mining regulatory authority with regard to hazards, provided that the report included all information required under the surface mining regulatory program. The commenter appears to have misunderstood the proposed preamble discussion. No change in the rules has been made in response to this comment.

Proposed § 816.82(a) provided for the inspection of all refuse piles by a qualified registered professional engineer or other qualified professional specialist who is under the direct supervision of the responsible qualified registered professional engineer. This requirement is included in the first paragraph of final § 816.81(d).

One commenter states that the same refuse pile inspections should be adequate for both MSHA and OSM. Requiring similar inspection requirements for both MSHA and OSM reduces duplicative efforts. In addition, confusion at the disposal site is reduced with a potential for decreased costs and accidents at the site.

Another commenter stated that MSHA does not require qualified persons to inspect refuse piles. MSHA does, however, require qualified persons to inspect impoundments of a size which they regulate.

OSM recognizes that there is an overlap between the MSHA inspection requirements and the inspection requirements of this final rule. The suggestion that OSM accept the MSHA inspection requirements as satisfying the requirements under the surface mining regulatory program has not been accepted. The MSHA rules are especially concerned with the safety of large impoundments. The relationship between the MSHA inspection requirements for impoundments and OSM's rules is addressed in the final rule dealing with impoundments. Because an impounding structure is part of an impoundment, the inspection requirements for impoundments will also apply to coal mine waste impounding structures. Requirements, in addition to those imposed by MSHA,

are appropriate for inspection of refuse piles under the surface mining regulatory program. For this reason, final § 816.83(d) continues to include specific requirements related to inspection of refuse piles that may exceed those required by MSHA.

Two commenters questioned the meaning of the word "qualified" in relation to the requirement that refuse piles shall be inspected by a qualified registered professional engineer or other qualified professional under the direct supervision of the responsible qualified registered professional engineer. One commenter wondered what would make a person qualified and how the engineer can be called "responsible" when conditions at the mine site are the responsibility of the operator. The other commenter contended that the provision for a qualified professional specialist to conduct refuse pile inspections is vague without indicating what fields of expertise such a person must possess and that requiring such a person to be under the direct supervision of the engineer is not a measure establishing much accountability since the engineering profession is not strongly self-policing.

The generally accepted meaning of "qualified person" is a person who is reliable and has the necessary background and expertise to conduct the necessary inspections. The term "qualified" implies some further qualification beyond the normal professional engineering registration. OSM has found through its enforcement activities that some practicing registered professional engineers do not have sufficient experience to certify all phases of the design and construction of a facility (Tipton, 1981). Therefore, with respect to coal mine waste facilities, the added requirement that the engineer not only be a registered professional engineer, but also be experienced in the design of similar earth and waste structures is justified.

OSM agrees that the operator bears the statutory responsibility for mine-site conditions. The final rule does not use the term "responsible" when referring to the engineer. This is not to imply, however, that the engineer does not continue to be professionally responsible for any inspections that he or she conducts or that are conducted under his or her supervision.

One commenter opposed the change in proposed § 816.82(a) that would allow persons who are not engineers to make inspections of coal mine waste fills if they are under the direct supervision of the responsible engineer. The expertise and accountability of the professional engineer are cited as critical factors in

assuring that the design is being implemented. The previous rule allowed such persons to make such inspections only after they were first approved by the regulatory authority. The commenter asserted that coal mine waste construction is complex and the highest degree of competence is needed in order to adequately perform inspections. The commenter felt that there was a need for the regulatory authority to pass upon a person's competence as an inspector.

Under previous § 816.82(a) there were no standards for the regulatory authority to determine whether a person who was not a qualified registered engineer was competent to perform inspections of refuse piles. By establishing a requirement that the person, who is not an engineer, be a qualified professional specialist and be under the engineer's direction, a standard of accountability is established which is better than the previous rule. If the regulatory authority is uncertain about the qualifications of a specialist, it may request additional proof of the specialist's background and experience. Thus, under final § 816.83(d) the regulatory authority will decide how permit applicants are to demonstrate that specialists are "qualified" and adequately experienced to handle the job. This could be done by oral interview, checking references, a written document, reputation or by other means.

One commenter thought proposed § 816.82(a) was vague in requiring a "specialist" without specifying what field of expertise is required and in stating that the supervision must be "direct" without clarifying whether on-site supervision is required.

The final rule has been revised to indicate that the specialist must be experienced in the construction of similar earth and waste structures. It does not, however, require actual on-site supervision of the qualified specialist by the engineer. The extent of direction or supervision given to the qualified specialist, either on-site or off-site, by the engineer will depend upon the scope of the activities conducted by the specialist and the engineer's needs in making the required inspection certification.

Section 816.83(d)(1)

Final § 816.83(d)(1) provides that inspections shall be at least quarterly throughout construction and during critical construction periods. The rule lists a minimum of four critical construction periods when inspections must be made: (i) Foundation preparation, including removal of all organic material and topsoil, (ii) placement of underdrains and protective

filter systems, (iii) installation of surface drainage systems, and (iv) the final graded and revegetated facility. Regular inspections must also be made during placement and compaction of coal mine waste material. Inspections may terminate when the refuse pile has been final graded and revegetated or at a later time required by the regulatory authority. In hazardous situations, more frequent inspections may be required. The final rule generally follows proposed § 816.82(a)(1), except for revisions to more closely parallel similar inspection requirements for excess spoil fills; simplification of the language providing for more frequent inspections in hazard situations; and extending the inspections until the facility has been revegetated.

A commenter suggested adding the words "when appropriate" before the proposed sentence that listed the critical construction periods for inspection of the disposal site. The commenter recommended the change because not all of the precautions are required in every situation and this suggested language change would provide flexibility to the engineer. OSM has not accepted the suggested language because inspections must be made during these stages of construction. If for some reason, one of the stages is not part of the construction sequence, it is understood there would be no requirement to inspect an aspect not included in the design of the disposal site.

Two commenters suggested that requiring inspections during removal of "all" organic material and topsoil implies that an inspector must be present for the whole length of those operations. The commenters indicated such a requirement is unnecessary and recommended that the word "all" be deleted. They did agree it is important that the site be inspected to see that undesirable materials are removed.

The provision in proposed § 816.82(a)(1) was not intended to require that an inspector be present during the entire time that organic material and topsoil are being removed. The term "all" is meant to refer to the material being removed not the time of inspection. An inspection upon the completion of the clearing, grubbing and topsoil removal operation would satisfy this requirement.

Another commenter proposed changing the designated critical construction periods by replacing the first period, "Removal of all organic material and topsoil," with "Site preparation." The commenter also asked for the deletion of inspections during periods of "(iv) placement and

compaction of fill materials," and "(v) revegetation." The commenter felt that "site preparation" is a more descriptive term than "removal of all organic material and topsoil" and that placement of the fill material and revegetation is a continuing process throughout the mining operation without a critical construction period, thus making the inspection period length unclear. The commenter believed these inspection items should be treated as part of the regulatory authority's general inspection organization plan and since the site plan has been approved, the inspections should be by a professional engineer on an "as needed" basis.

OSM realizes that many of the operations at a coal mine waste disposal site are of a continuing nature. The final rule revises the proposal by requiring regular inspections during placement of waste, but does not require that the entire time period be considered a critical construction period. OSM agrees that "site preparation" would be an acceptable alternative to the proposed language. To maintain consistency with the rules for disposal of excess spoil, however, this change was not accepted. Rather the final rule requires inspection of the foundation preparation, including the removal of organic material and topsoil.

One commenter, while supporting the addition of a provision allowing the regulatory authority to require more inspections if necessary, suggested it be specified that qualified registered professional engineers conduct the inspections. Another commenter pointed out that the sentence discussing more frequent inspections for hazardous situations is redundant and needs to be improved. A third commenter proposed replacing the word "shall" with "may" to give the regulatory authority discretion on requiring more frequent inspections for hazardous situations.

The final rule is modified to clarify the language and require that more frequent inspections must be conducted if a danger of harm exists to the public health and safety or the environment. The proposed rule was intended to require more frequent inspections when necessary. Under this standard, these inspections are required and the suggestion to use the discretionary "may" has not been accepted. The final rule places the responsibility for such additional inspections on the operator. The regulatory authority will have the flexibility to require more frequent inspections in hazardous situations or to require that they be conducted by a registered professional engineer.

A commenter proposed deletion of the phrase "... or at a later time as

required by the regulatory authority" from the requirement indicating when inspections may be terminated. The commenter reasoned that, following MSHA's lead, there is no requirement for inspections after the pile has been abandoned in accordance with an approved plan. The commenter continued by stating that since the plan must cover all aspects of long-term stability, further inspection is not necessary. Another commenter wanted clarification of the same sentence to make sure the owner was not responsible for long-term maintenance.

The purpose of the sentence discussed by the commenter is to reserve flexibility for site inspection at the completion of all requirements, or at some later date if necessitated by unusual circumstances or characteristics of a particular site. Therefore, the phrase "... at a later time" allows for additional inspections as site conditions warrant until final bond release after the waste disposal facility is completed or the mine is no longer actively operated. The language providing that the regulatory authority may require inspections to continue after final grading and revegetation therefore has been adopted in the final rule.

A commenter recommended a final inspection one year after the refuse pile has been covered and graded. The commenter maintained that a final inspection is necessary to provide a check on the stability and safety of the refuse pile and drainage structures. The final rule more clearly requires an inspection of the completed facility after final grading and revegetation. No specific time frame is provided, however, for this inspection. In addition, the regulatory authority has the authority under the last sentence of the paragraph to require a later inspection if appropriate.

A commenter urged that the previous reference to § 816.24 should be retained in proposed § 816.82(a)(1) in order to ensure that inspections continue until the refuse pile is capped with topsoil. The commenter said this reference would ensure that the final configurations will be capable of sustaining vegetation, diverting runoff and will be compatible with natural surroundings. Another commenter pointed out that a statement in the discussion of the previous § 816.82(a) (47 FR 26601) appears to indicate that once a refuse pile is covered with topsoil it does not have to be inspected.

While the reference to § 816.24 on topsoil redistribution has been deleted, the final rule includes language extending inspections until the facility

has been revegetated. The final inspection may be extended beyond this time if required by the regulatory authority.

Section 816.83(d)(2)

Final § 816.83(d)(2) requires the qualified registered professional engineer to provide the regulatory authority with reports certifying that the fill has been constructed and maintained as designed and in accordance with the approved plan and 30 CFR Chapter VII. Such reports, which have to be filed promptly after each inspection, must describe any apparent instability, structural weakness, and other hazardous conditions. This requirement is derived from proposed § 816.82(a)(3), but has been expended for clarity.

The requirements of proposed § 816.82(a)(2), which would have required observations necessary to evaluate the potential hazard to human life and property and verify that construction and maintenance are occurring in accordance with the approved plan, has not been adopted in the final rule. These requirements are implicit in the requirements of final § 816.83(d)(2).

One commenter questioned the deletion of the requirement of the previous rule to conduct tests as may be necessary to evaluate compliance with the approved plan.

While the final rule does not include the language of the previous rule, necessary observations and tests have to be conducted to support the engineer's certification of the inspection. The engineer's certification of the inspection is a feature that was not included in the previous rule. Such a certification will have to be supported by any necessary observations and/or tests. Thus, the same language included in the previous rule is not necessary in this final rule to ensure that observations and tests are conducted where necessary.

Another commenter disputed the deletion in the proposed rule of the requirement in previous § 816.82(a)(2), which provided for an inspection of the removal of all organic material and topsoil. The commenter urged that the final rule include such a provision.

The final rule does include requirements for inspection at this stage of construction. Removal of organic material and topsoil is considered a critical construction period under § 816.83(d)(1) of the final rule. An inspection of each critical construction period and submission of a certified report on the inspection results is required.

Two commenters recommended that in proposed § 816.82(a)(3), the qualified professional specialist be allowed to certify the inspection reports on the ground that this person is under the supervision of a responsible registered professional engineer. The commenters believed this change would provide uniformity between this paragraph and § 816.82(a), which allows inspection by a qualified professional specialist, and also they said the registered engineer is liable for his subordinates' actions.

The qualified specialist, who is in the position by reason of training or experience or a combination of both, should be capable of performing the inspection duties under the direction of the qualified registered professional engineer. The qualified specialist may sign the inspection report as the person doing the inspection but it ultimately must be certified by the qualified registered professional engineer with whom inspection responsibilities rest. Imposing a certification responsibility on qualified registered professional engineers, rather than on specialists, adds further assurance that environmental protection performance standards are satisfied.

Another commenter called for deletion of proposed § 816.82(a)(3) on certification of the inspection findings because the MSHA rules at § 77.215-3(a) require inspection and certification also. The commenter pointed out that the MSHA rules only require such certification for those refuse piles. The commenter seemed to indicate the procedures in § 816.82(a)(3) would be very costly and not necessary in most refuse piles.

This suggestion has been rejected. Proposed § 816.82(a)(3) is retained as final § 816.83(d)(2) because the provision is needed to assure continued stability of all refuse piles, and protection of the health and safety of people in mining communities.

Section 816.83(d)(3)

Final § 816.83(d)(3) requires that the certified report also include color photographs of the underdrain and sets the specific conditions for those photos. The final rule contains provisions similar to those included for excess spoil fills.

Two commenters recommended that the certification of the refuse pile include a color photographic record of the construction of underdrain system such as was proposed in § 816.71(a)(4) for excess spoil fills. The photographic record would provide proof of construction of the system in accordance with the rules because the system would be inaccessible for

inspection once it is covered with coal mine waste. In the opinion of one of the commenters, the underdrain system for a refuse pile is as critical as that for an excess spoil fill.

The suggestions from these two commenters have been accepted and incorporated in final § 816.83(d)(3), which requires a color photographic record of underdrain construction and certification that the phases of refuse pile construction proceeded in accordance with the design and of the plan approved under § 780.25 of this chapter. Photographs provide a valuable visual record of the construction history, since the drain system, once covered, cannot be visually examined again. Photographic documentation is currently used on most large construction projects and should not present special problems for the mining industry.

Section 816.83(d)(4)

Final § 816.83(d)(4) requires that inspection reports be retained at or near the mine site. The final rule is adopted from proposed § 816.82(a)(3).

Two commenters suggested keeping inspection records at locations other than the mine site. One suggested copies could be kept at various mine offices, such as the engineering department or the foreman's facilities. The other maintains that no inconvenience to the inspector should result if the inspection findings are maintained within "reasonable access."

It was anticipated under the proposed rule that the reports would be retained at the same location where other mine records, such as, licenses, approval plans, current permits and authorization to operate, were kept. OSM has previously ruled that mine records should be available at or near the mine site. Final § 816.83(d)(4) has been revised accordingly.

One commenter disagreed with OSM reasons for deleting previous § 816.82(a)(3), which called for the consideration during inspections of steepness of slopes, seepage and other visible factors that are indicators of potential failures. OSM said the provision required no action, set no standard, was only advisory in nature and therefore was unnecessary. The commenter said the previous rule should be retained because it called for proper consideration of key indicators and set a standard of adequacy of inspection in scope and depth. The commenter also said the adequacy of inspection should be monitored by the regulatory authority review of the inspection report at the mine sites.

The final rule has been revised to include a requirement that the inspection report include any appearances of instability, structural weakness, and other hazardous conditions. This revision should accommodate the commenter's concern. Steepness, seepage and other visible factors will still be among those aspects of the inspection that should be considered in this regard. Copies of the inspection reports must be sent to the regulatory authority as well as be maintained at or near the mine site. Thus, they will be reviewed by the regulatory authority under its inspection and enforcement responsibilities.

Section 816.84 Coal mine waste: Impounding structures

Section 816.84, which was proposed as § 816.86, contains standards that apply to impounding structures that are constructed of coal mine waste or are intended to impound coal mine waste. The requirements of final § 816.84 supplement the general standards of final § 816.81 and, because impounding structures are part of impoundments, supplement the standards of § 816.49.

The introductory paragraph includes requirements from previous § 816.91(a) and proposed § 816.86(a). Instead of stating that these rules apply whether the structures were completed before or after adoption of the regulatory program, the final rule simply states that it applies to all new and existing coal mine waste impounding structures with no change in meaning. There were no comments on this paragraph.

Final § 816.84 combines the requirements from previous §§ 816.91, 816.92 and 816.93 relating to the construction of dams made of coal mine waste or used to impound wastes. Proposed § 816.86 offered two different alternatives. Option 1 included performance standards from previous §§ 816.91, 816.92 and 816.93. Option 2 deleted the site preparation and diversion ditch requirements and included performance standards from only §§ 816.91 and 816.93. The resulting final rule in § 816.84 combines features of Option 1 and Option 2. The discussion in this preamble will refer to Option 1, unless otherwise noted.

Several commenters supported Option 2 because they believed that Option 2 provided design flexibility without lessening the effectiveness of the rules. Others supported Option 2 because they felt it decreased duplication of rules, and relied upon commonly accepted engineering practices. Other commenters supported Option 1, believing that the additional requirements of Option 1 would provide

definite control of surface water, ensure environmentally sound site preparation, and provide a higher level of engineering requirements.

One commenter opposed Option 2 because, in the commenter's view, it represented an abdication of the responsibility under Section 515(f) of the Act to establish standards and criteria which include engineering and technical specifications to regulate the design, location and construction of coal mine waste dams and embankments. The commenter said Congress made clear OSM was to promulgate regulations to implement Section 515 of the Act and that "the mere reproduction of statutory standards is clearly insufficient." The commenter added that to delete engineering and technical specifications on the basis that they are common practices is wrong because the rules are intended to mandate such practices in a manner enforceable enough to protect and assure public health and safety. Another commenter supported retention of the additional requirements of Option 1, but recommended alternative language.

The final rule retains the performance requirements in proposed § 816.86 (c) and (d) concerning site preparation and diversion requirements for the impounding structure. Under revised § 816.49(a), requirements for site preparation are applicable to all impoundments and need not be repeated in this rule. For convenience to the reader a reference to § 816.49 (a) and (c) is included in § 816.84(b). Standards for diversions are included in final § 816.84(c). The specific language adopted in § 816.84(c) is further discussed later in this preamble.

One commenter opposed the requirement of proposed Option 1 to remove all organic material from the site of the impoundment because the practice can, in some cases, promote runoff. In addition, this person pointed out that removal of organic material behind the embankment increases costs while adding nothing to improving water quality or structural strength. The commenter recommended site-by-site determinations on removal of materials as there are times it may not be practical to remove vegetation from areas covered by the waste if it does not affect the stability of the structure. Another commenter suggested that a qualified registered professional engineer would recognize the situation where it is necessary. A third commenter objected to this provision in its entirety as being unnecessary. A fourth commenter pointed to these provisions as being redundant with

other provisions of the chapter, but gave no specifics.

OSM agrees with the commenters who felt that site preparation is an important feature in the design and construction of impounding structures. Final § 816.49(a) requires that all vegetative and organic materials be removed and foundations excavated and prepared to resist failure. Cutoff trenches must be installed if necessary to ensure stability. Because the requirements of § 816.49(a) are applicable to coal mine waste impounding structures, the requirement has not been repeated in this rule.

One commenter contended that the change from design standards for coal mine waste impoundments to a requirement for employment of standard engineering practice is not substantiated by analysis, data or literature.

OSM disagrees. As indicated above under "General Comments," the final rules, while emphasizing the use of performance standards, continue to use design criteria where deemed appropriate. However, overuse of design standards are as likely to result in the underdesign as the overdesign of a structure. The regulatory authority and the design engineer are in the best position to ensure that the standards are applied to meet specific site conditions. The reader is referred to the additional discussion on this issue in OSM's "Final Environmental Impact Statement, OSM EIS-1: Supplement."

A commenter stated that the less stringent review of permits by the regulatory authority, coupled with the changes in design standards for impounding structures and elimination of related permit information from 30 CFR 780.25(e), would increase the uncertainty of adequate designs for coal mine waste impounding structures.

OSM has not proposed to change the information requirements of 30 CFR 780.25(e), nor is there any proposal related to less stringent review of permits by the regulatory authority. The commenter failed to point out specific areas of information loss considered necessary in the permit requirements. Parts 780 and 784 contain special information requirements for coal mine waste disposal. These sections include requirements for submittal of relevant design information and review of that information by the regulatory authority. No change was made in response to this comment.

Section 816.84(a)

Final § 816.84(a) prohibits the use of coal mine waste in the construction of impounding structures unless it has been

demonstrated to the regulatory authority that the stability of such a structure will conform to the requirements of § 816.84 and the use of the coal mine waste will not have a detrimental effect on downstream water quality or the environment due to acid seepage through the impounding structure. The stability of the structure and the potential impact of acid mine seepage through the impounding structure must be discussed in detail in the design plan submitted to the regulatory authority in accordance with 30 CFR 780.25 of the permitting requirements.

Final § 816.84(a) adopts proposed § 816.86(b) and revises previous § 816.91(b) which concerned the stability of the structure and the downstream detrimental effect of any acid seepage. This proposed rule would have deleted the provision in previous § 816.91(b) which required a demonstration before coal mine waste could be used in the construction of an impounding structure that the structure would be stable and the waste material would not have a detrimental effect on downstream water quality. The proposed deletion was not adopted and the final rule continues to require a demonstration with respect to the potential impacts of the coal mine waste on stability and water quality. This can be satisfied through the requirement that the potential impact of acid mine seepage through the impounding structure be discussed in detail in the design plan to be submitted to the regulatory authority in accordance with § 780.25.

Two commenters took issue with the emphasis on toxic material seepage in an impounding structure. In the commenter's view the proposed rule overlooked the importance of stability.

As indicated above, the proposal to delete the required demonstration on stability has not been adopted. Thus, the operator will have to indicate in detail in the design plan, not only the potential for acid mine seepage, but also the stability of the structure.

Section 816.84(b)

Final § 816.84(b) requires that each coal mine waste impounding structure, as well as structures intended to impound coal mine waste, be designed, constructed and maintained in accordance with § 816.49 (a) and (c). These sections include general and specific requirements applicable to temporary impoundments. It includes provisions from proposed § 816.86(e). The change in the sections referenced in the final rule reflects revisions to the final impoundments rule. This provision also explicitly recognizes that

impounding structures constructed of or impounding coal mine waste may not be retained permanently as part of the approved postmining land use.

One commenter objected to proposed changes in the impoundments rule and noted these changes would be made applicable to coal mine waste impounding structures as well. OSM has revised the proposed impoundments rules in response to comments received on that rule. The reader is referred to the preamble to that rule for additional explanation and responses to comments.

Another commenter proposed adherence to prudent engineering designs and practices in addition to methodologies referenced in previous § 816.49 (a)(5) and (e) through (i). The commenter said OSM was arbitrarily limiting the engineering methodologies to those contained in two U.S. Soil Conservation Service publications listed in previous § 816.49. The commenter felt the exclusion of all other methodologies contained in accepted professional engineering texts was unwarranted.

The final impoundments rule does not limit engineering methodologies to those included in the referenced publications. However, the reference to the two U.S. Soil Conservation Service publications was not arbitrary. The legislative history refers to the program administered by the U.S. Department of Agriculture to control erosion in rural areas and these two publications are used as guides in construction of impounding structures. These guides continue to be viable publications as guidance to the coal industry on appropriate considerations in impoundment design.

Section 816.49, by reference to 30 CFR 77.216, includes special requirements applicable to large impoundments and impounding structures. These are structures which impound water, sediment, or slurry to an elevation of 5 feet or more above the upstream toe of the structure and can have a storage volume of 20-acre feet or more; which impound water, sediment or slurry to an elevation of 20 feet or more above the upstream toe of the structure; or which are determined by the MSHA District Manager to present a hazard to coal miners. These structures must meet special requirements, including certification by registered engineer that the design of the impounding structure is in accordance with current, prudent engineering practices, and requirements for examinations and inspections of the structure during construction.

One commenter recommended adoption of MSHA requirements for impounding structures in place of the requirements of OSM's present rule.

The final rule does not rely totally on MSHA's regulations, but does acknowledge areas of overlap and attempts to minimize conflict in these areas by cross-referencing MSHA's requirements. In one instance where MSHA does not set a specific design event for spillways in its rules, but recommends a 100-year, 6-hour event in its guidelines for impoundments and impounding structures, OSM has explicitly adopted that standard. Final § 816.84(b)(2) includes the 100-year, 6-hour design event for spillways of coal mine waste impounding structures meeting the criteria of 30 CFR 77.216(a). This addition has been made to assure the safety of the public, taking into account the complexity of coal mine waste impounding structures and their potential hazards.

Section 816.84(c)

Final § 816.84(c) requires that spillways and outlet works be designed to provide protection against erosion and corrosion. Inlets must be protected against blockage. This section includes provisions from proposed § 816.86(i) and previous § 816.93(b). No comments were received on this provision and it has been adopted as proposed.

Section 816.84(d)

Final § 816.84(d) requires that runoff from areas above the disposal facility or runoff from the surface of the facility that may cause instability or erosion of the impounding structure must be diverted into stabilized diversion channels designed to meet the requirements of § 816.43 and designed to safely pass the runoff from a 100-year, 6-hour precipitation event. It includes requirements from proposed § 816.86(d) and previous § 816.92(b).

The final rule changes the design storm from a 100-year, 24-hour precipitation event, to a 100-year, 6-hour event. One commenter opposed changing the design storm in this section, as well as in § 816.83. The commenter believed OSM was in error to give the same reasons for the change in design storm criteria for the design of impoundments as it gave for the change in the criteria for diversions above fills. The commenter said the design storm event standard for impoundments was more critical due to the problems caused by water infiltration into an impounding structure as a result of an inadequately sized channel. This commenter preferred retention of the previous 100-year, 24-hour design precipitation event rather than the 100-year, 6-hour event.

One commenter suggested removal of the design criteria in proposed

§ 816.86(d) and reliance on prudent engineering principles in diversion design instead. A second commenter stated that these provisions appear directed toward diversions in the Appalachian Region where water impoundments are constructed in valleys with different conditions than those found in the Midwest. Another commenter opposed the 100-year, 6-hour precipitation event level. This commenter believed that retention of this specific design criteria was unnecessary. A third commenter opposed this paragraph on the basis of redundancy.

The final rule retains both the minimum design criteria for diversions and the change to the 100-year, 6-hour event. This change has been made to be consistent with MSHA requirements. Reliance upon the 100-year, 6-hour event is a safety standard that has proven successful. OSM disagrees with the commenter who thought this requirement might result in inadequately sized channels. The commenter submitted no data to support this conclusion and OSM has not found any support for such a finding. The reader is referred to the preamble discussion on § 816.83(a)(2) where a similar change has been made in relation to the requirements for refuse piles. The basis for the change in that section is also relevant to this rule.

The design precipitation event is not redundant of other requirements. No diversion requirement is provided for noncoal waste impoundments. However, such diversions are appropriate for impoundments constructed of or impounding coal mine waste to help prevent instability or erosion of the impounding structure and infiltration of excess water into the facility.

Another commenter recommended deletion of the last sentence in proposed § 816.86(d) which required sediment control measures be provided at discharge points of diversion ditches before the discharge enters natural waters. The commenter felt sediment control was not necessary if the diversion does not carry runoff from disturbed areas. Further, the commenter said the hydrology performance standards adequately cover this condition. OSM has accepted this comment. The provision for sediment control measures for diversions that do not intercept runoff from disturbed areas has not been adopted.

Section 816.84(e)

Final § 816.84(e) requires that impounding structures constructed of or impounding coal mine waste shall be designed so that at least 90 percent of

the water stored during the design precipitation event can be removed within a 10-day period. It includes requirements from proposed § 816.86(j) and previous § 816.93(c).

One commenter suggested deleting proposed § 816.86(j) and substituting a new rule requiring an operator to supply a statement on the runoff from the storm for which the structure is designed and the calculations used in determining such runoff. The commenter indicated that his recommended language was from 30 CFR 77.216-2(11) and recommended that this MSHA rule be adopted to prevent duplication. The commenter cited an example of two design precipitation events occurring within days of each other making the requirements of § 816.86(j) impossible to meet.

The MSHA rule suggested by the commenter merely requires a statement of the runoff attributable to the storm for which the structure is designed and calculations used in determining such runoff. There is no duplication between this MSHA requirement and § 816.84(e).

A commenter suggested changing "shall" to "can" in the last phrase of this paragraph to permit the alternative of storing water in case of low precipitation periods. This change has been adopted and the final rule revised accordingly.

Proposed § 816.85(f)

Proposed § 816.85(f) would have allowed variations for the disposal of dewatered fine coal waste (minus 26 sieve size) with approval of the regulatory authority. OSM has not identified features of the final rule requiring such variances. Proposed § 816.85(f) has, therefore, not been adopted in the final rule. OSM will reconsider this deletion if it finds that this conclusion is in error.

A commenter questioned whether the allowance of a variance for the disposal of dewatered fine coal mine waste would allow for the classification of an impounding structure as a refuse pile.

Under the final rule, if a structure which is constructed of coal mine waste impounds water or other liquid or semi-liquid material, then it is subject to the impounding structures rule in § 816.84 and the provisions of § 816.49. If it does not impound water or slurry, then it can be built as a refuse pile in accordance with § 816.83.

Proposed § 816.86(f)

Proposed § 816.86(f) included a requirement that impoundments have an adequate freeboard to protect the structure. Previous § 816.93(a)(1), which required at least 3 feet of design

freeboard between the lowest point on the embankment crest and the maximum water elevation, has been deleted. In the final rule, freeboard will be governed by § 816.49(a)(4) which requires that impoundments have adequate freeboard to resist overtopping by waves and by sudden increases in storage volume. There are current prudent engineering practices for designing freeboard height that should be used during design of the structure that would cover this requirement. (Scwab and others, 1966, pp. 311-314)

One commenter opposed the proposed deletion of the requirement of a maximum of 3 feet of design freeboard in previous § 816.93(a)(1). In the commenter's view, under Section 515(f) of the Act designing standards, such as that of the freeboard of 3 feet, are required in the rules. Pointing to the preamble discussion of the former rule (44 FR 15218-19, March 13, 1979), the commenter noted that the requirement was set by the Chief of the Corps of Engineers before his concurrence to the rules would be given. Presumably, the commenter said, the same standard would be required by the Chief of Engineers today. Another commenter indicated it was essential for OSM to publish standards for dam freeboard to prevent cresting of dams. Another commenter argued for a need for defining "maximum water elevation" when establishing freeboard. One commenter agreed that the rules should provide flexibility in establishing freeboard according to site conditions.

The 3-foot freeboard provision is not included in these rules, for which OSM has received the concurrence of the Chief of Engineers. OSM disagrees that a specific freeboard should be set. Under final § 816.49(a)(2), impoundments must be designed using current, prudent engineering practices and any design criteria established by the regulatory authority. In this context, qualified engineers, working within the stability and storm event criteria will be able to determine freeboard requirements without further specification. Because site-specific conditions determine the water levels, these determinations need to be made on a site-specific basis. Therefore, national freeboard design is inappropriate. Further, the final rule does not include the term "maximum water elevation" and therefore a definition for this term has not been included.

OSM disagrees with the commenter that felt that Section 515(f) of the Act requires these rules to include a specific numerical freeboard limit. These rules

are in accord with the requirements of the Corps of Engineers and are consistent with the requirements of Section 515(f) of the Act which does not mention freeboard.

Another commenter was concerned about the possibility of a storm exceeding the storm event.

OSM agrees that the potential impact of a storm exceeding the design storm event should be considered by the design engineer. In all but the most extraordinary circumstances, the combination of principal and emergency spillways should be able to handle any large storm that does occur.

Proposed § 816.86(g) Option 1.

Proposed § 816.86(g) would have required impounding structures to have a minimum factor of safety of 1.5, and a seismic safety factor of 1.2. Equivalent provisions are included in § 816.49(a)(3), which is applicable to impounding structures. The 1.5 safety factor is also a general requirement for all coal mine waste structures in § 816.81(c)(2).

Two commenters suggested changing "partial pool" to "design normal pool" because steady state seepage does not occur until the water level reaches the normal pool level. In addition, one of the commenters recommended that partial pool analysis be only for dams built with a nonporous core, a shell of coal refuse or other material.

These comments were accepted and § 816.49(a)(3) uses the "normal pool" level and not "partial pool." The use of the word "design" is not needed to identify the pool level.

Section 816.87 Coal mine waste: Burning and burned waste utilization

All rules relating to burning or burned coal mine waste (previous §§ 816.87 and 816.86) have been combined in final § 816.87.

Section 816.87(a)

Previous § 816.86, *Coal processing waste: Burning*, has been deleted and its provisions have been placed in final § 816.87 as Paragraph (a). This paragraph provides that when extinguishing coal mine waste fires, the person who conducts the surface mining activities must follow a plan approved by the regulatory authority and MSHA. The plan must ensure that only persons authorized by the operator and who understand the special fire extinguishing procedures shall be involved in extinguishing the fire.

This paragraph reiterates the requirements of § 77.215(j), but places the responsibility for plan approval jointly upon both agencies.

The word "waste" has been inserted between "mine" and "fires" in the first line of Paragraph (a) of the final version of § 816.87 to correct a misprint in the proposed version. Two commenters pointed out this inaccuracy. The term should be "coal mine waste fire" to indicate fires in surface deposits and the correction is made in the final rule.

Section 816.87(b)

Previous § 816.87, *Coal processing waste: Burned waste utilization*, has been modified and includes as § 816.87(b). The paragraph sets the conditions and approval process for the plan to remove burning or burned coal mine waste from a permitted disposal area. The plan must consider the needs of the local community and be approved by the regulatory authority.

One commenter suggested inserting the word "permitted" between "a" and "disposal" in proposed § 816.87(b). This comment has been accepted to clarify that these requirements apply to permitted surface coal mining and reclamation operations.

Another commenter suggested that the proposed phrase "which may be created by removal" modifying "potential hazards" be deleted from proposed § 816.87(b) since in removal operations there may be hazards which can occur other than during the actual removal. This comment has been accepted and the final rule revised accordingly.

The same commenter took issue with the requirement in § 816.87(b) that the disposal plan for burned and unburned coal mine waste be certified by a "qualified" registered professional engineer. The commenter contended that it would be difficult to find an engineer that would be "qualified" to fight such fires. This comment was accepted and the final rule revised by deleting the certification requirement.

Section 816.89 Disposal of noncoal wastes

Final § 816.89 provides standards for disposal of noncoal wastes at a surface coal mining operation.

Final § 816.89(a) specifies that noncoal mine wastes, such as garbage, lumber and other combustibles generated during surface mining activities, must be placed and stored in a controlled manner in a designated portion of the permit area. The placement and storage of noncoal mine wastes must be performed so as to ensure that surface or ground water is not degraded by leachate or surface runoff, that fires are prevented and that the area remains stable and suitable for reclamation and revegetation compatible with the natural

surroundings. No comments were received on this paragraph and it has been adopted as proposed.

Final § 816.89(b) states that final disposal of noncoal mine wastes must be in a designated site in the permit area or a State-approved solid waste disposal area. The site is to be constructed and operated according to sanitary landfill principles which include compacting and covering the noncoal waste materials to prevent combustion and wind-borne waste. Operation of the disposal site is to be conducted in accordance with all local, State and Federal requirements. When the disposal is completed, a minimum of 2 feet of soil cover must be placed over the site, slopes stabilized and revegetation accomplished in accordance with §§ 816.111-816.116.

Several commenters suggested adding the phrase "or a State approved solid waste disposal area," in § 816.89(b) to allow an operator to take advantage of controlled commercial or publicly operated solid waste disposal facilities within economical haul distance of the mine site.

Because these types of noncoal waste generally are comparable to other heavy industrial plant wastes this proposal is accepted. Such wastes may consist of worn machine parts, metal debris, lubricant containers, used cable, trash paper, worn track parts, spent reagent containers, old batteries, electrical component scrap, etc. A mine in the vicinity of an area served by a community trash disposal landfill may well be advised to take advantage of such a service as long the practice is approved by the regulatory authority and the local and State agencies responsible for waste disposal control. The suggested wording change is incorporated in this rule allowing disposal in approved off-permit area solid waste disposal areas where methods of deposition are controlled.

A second change from the proposal replaces the sentence in paragraph (b) to allow alternative techniques to barriers and to emphasize protection for surface and ground water systems. The language, offered by a commenter, is "Disposal sites shall be designed and constructed to ensure that leachate and drainage from the noncoal mine waste area does not degrade surface or ground water." The alternative to water barriers selected by the mine operator must be approved by the regulatory authority.

Section 816.89(c)

Final § 816.89(c) prohibits deposition of noncoal mine waste in a refuse pile or impounding structure or within 8 feet of

any coal outcrop or coal storage area. No comments were received on this paragraph and it is adopted as proposed.

Section 816.89(d)

The U.S. Environmental Protection Agency suggested that OSM include a provision that would delineate an operator's responsibility for disposal of noncoal mine waste that would be classified as "hazardous" under section 3001 of the Resource Conservation and Recovery Act (RCRA), Pub. L. 94-580, as amended, and 40 CFR Part 261. OSM has added the requested language that provides that notwithstanding OSM's other rules, any "hazardous" noncoal mine waste must be handled in accordance with Subtitle C of RCRA and any implementing regulations.

As to the relationship of coal mine waste and RCRA, 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 mine waste under Subtitle C or RCRA.

Reference Materials

Reference materials used to develop these final rules are as follows:

Schwab, G. O., Frevert, R. K., and Edminister, T. W. 1966. Soil and water conservation engineering. Second edition. The Ferguson Foundation Agricultural Engineering Series. John Wiley & Sons, New York. 683 pp.

U.S. Mining Enforcement and Safety Administration. 1975. Engineering and design manual—coal refuse disposal facilities. (Prepared by D'Appolonia Consulting Engineers, Inc., Pittsburgh, Pa.) U.S. Mining Enforcement and Safety Administration report.

U.S. Mining Safety and Health Administration. 1979. Design guidelines for coal refuse piles and water, sediment or slurry impoundments and impounding structures. U.S. Department of Labor, Mine Safety and Health Administration. IR 1109. 29 pp.

IV. Procedural Matters

National Environmental Policy Act

OSM has analyzed the impacts of these final rules in its "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, D.C., 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 following differences are noted between these final rules and the preferred alternative set forth in Volume III of the FEIS:

1. Final § 816.81(c) includes a design requirement for a long term static safety factor of 1.5 and requirement that the foundation and abutments of a coal mine waste disposal facility must be stable under all conditions of construction. Inclusion of these provisions is more environmentally protective than the preferred alternative.

2. The provision regarding inspection of coal mine waste disposal facilities has been moved from § 816.81(e) in the FEIS to § 816.83(d), for coal refuse piles, and to § 816.84(b) for impounding structures (which references the impoundments rules that contains a similar inspection requirement). This reorganization has no environmental effect.

3. Final § 816.81(e) imposes emergency procedures for both "examinations" and inspections. This is more protective than the FEIS preferred alternative.

4. Section 816.83(c)(5) in the FEIS, requiring revegetation of refuse piles in accordance with §§ 816.111-816.116, is not adopted. This has no environmental effect because the revegetation rules are applicable by their own terms.

5. Reference to the requirements of § 77.216, which was contained in the introductory language of § 816.84 in the FEIS preferred alternative has not been adopted. This has negligible environmental effect because § 816.49(a), which is referenced in § 816.84(b), references § 77.216.

6. Final § 816.84(b)(1) adds the requirement that coal mine waste impounding structures may not be retained permanently as part of the approved postmining land use. This is more protective than the FEIS preferred alternative.

7. Final § 816.84(b)(2) imposes a requirement for coal mine waste impounding structures that meet the criteria of § 77.216 to have spillways that can pass a 100-year, 6-hour precipitation event. This has similar impacts as the FEIS preferred alternative because even without such a requirement in OSM rules, it is contained in guidelines followed by MSHA in approving plans for impounding structures.

8. The general objective in final § 816.81(a)(5) has been changed to "prevent," rather than "minimize the potential for," combustion as was set forth in the FEIS preferred alternative. This language from the previous rule is part of the no action/minimum action alternative in the FEIS.

9. A new provision § 816.89(d) has been added regarding the disposal of noncoal mine waste classified as "hazardous" under RCRA. This provision has no environmental effect because RCRA applies to such waste regardless of OSM's rules.

10. The definition of the term "refuse pile" has been revised from the FEIS preferred alternative to provide that a deposit does not qualify as a refuse pile if it impounds a liquid or semi-liquid material. This revised definition is more protective than the FEIS preferred alternative to the extent it clarifies when deposits of coal waste are subject to the provision of § 816.83 or § 816.84.

11. The word "sediment" is not included in the final definition of "impounding structure," as was included in the FEIS preferred alternative. This will have no environmental effect because when sediment is impounded in a semi-liquid state, the structure would continue to qualify as an impounding structure.

12. A number of other editorial changes have been made which have little environmental effect.

Federal Paperwork Reduction Act

The information collection requirements in 30 CFR Parts 816 and 817 were approved by the Office of Management and Budget (OMB) under 44 U.S.C. 3507 and assigned clearance numbers 1029-0047 and 1029-0048. This approval is codified under the new §§ 816.10 and 817.10. The information required by 30 CFR Parts 816 and 817 would be used by the regulatory authority in monitoring and inspecting surface and underground mining activities to ensure that they are conducted in a manner which preserves and enhances environmental and other values under the Act. The information required by 30 CFR Parts 816 and 817 is mandatory.

Determinations Under Executive Order 12291 and the Regulatory Flexibility Act

The Department of the Interior (DOI) has examined these rules according to the criteria of Executive Order 12291 (February 17, 1981). OSM has determined that these are not major rules and do not require a regulatory impact analysis because they will impose only minor costs on the coal industry and coal consumers. In addition, the regulations emphasize the use of performance standards instead of design criteria which will allow operators to utilize the most cost-effective means of achieving the performance standards.

The DOI 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 regulations will allow small coal operators increased flexibility in meeting performance standards and should especially ease the regulatory authority burden on small coal operators in Appalachia.

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 or 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. As stated earlier, OSM has also received the written concurrence from the Chief of Engineers that is required under Section 515(f) of the Act.

List of Subjects

30 CFR Part 701

Coal mining, Surface mining, Underground mining.

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.

Accordingly, 30 CFR Parts 701, 816 and 817 are amended as set forth herein.

Dated: September 15, 1983.

Joy R. Gwaltney

Acting Deputy Assistant Secretary, Energy and Minerals.

PART 701—PERMANENT REGULATORY PROGRAM

1. In § 701.5 the definitions listed below are added alphabetically to read as follows:

§ 701.5 Definitions.

Coal mine waste means coal processing waste and underground development waste.

Impounding structure means a dam, embankment or other structure used to impound water, slurry, or other liquid or semi-liquid material.

Refuse pile means a surface deposit of coal mine waste that does not impound water, slurry, or other liquid or semi-liquid material.

2. In § 701.5, the definition of coal processing waste is revised to read as follows:

§ 701.5 Definitions.

Coal processing waste means earth materials which are separated and wasted from the product coal during cleaning, concentrating, or other processing or preparation of coal.

PART 816—PERMANENT PROGRAM PERFORMANCE STANDARDS—SURFACE MINING ACTIVITIES

3. Section 816.81 is revised to read as follows:

§ 816.81 Coal mine waste: General requirements.

(a) *General.* All coal mine waste shall be placed in new or existing disposal areas within a permit area, which are approved by the regulatory authority for this purpose. Coal mine waste shall be placed in a controlled manner to—

(1) Minimize adverse effects of leachate and surface-water runoff on surface and ground water quality and quantity;

(2) Ensure mass stability and prevent mass movement during and after construction;

(3) Ensure that the final disposal facility is suitable for reclamation and revegetation compatible with the natural surroundings and the approved postmining land use;

(4) Not create a public hazard; and

(5) Prevent combustion.

(b) Coal mine waste material from activities located outside a permit area may be disposed of in the permit area only if approved by the regulatory authority. Approval shall be based upon a showing that such disposal will be in accordance with the standards of this section.

(c) *Design certification.* (1) The disposal facility shall be designed using current, prudent engineering practices

and shall meet any design criteria established by the regulatory authority. A qualified registered professional engineer, experienced in the design of similar earth and waste structures, shall certify the design of the disposal facility.

(2) The disposal facility shall be designed to attain a minimum long-term static safety factor of 1.5. The foundation and abutments must be stable under all conditions of construction.

(d) *Foundation.* Sufficient foundation investigations, as well as any necessary laboratory testing of foundation material, shall be performed in order to determine the design requirements for foundation stability. The analyses of the foundation conditions shall take into consideration the effect of underground mine workings, if any, upon the stability of the disposal facility.

(e) *Emergency procedures.* If any examination or inspection discloses that a potential hazard exists, the regulatory authority shall be informed promptly of the finding and of the emergency procedures formulated for public protection and remedial action. If adequate procedures cannot be formulated or implemented, the regulatory authority shall be notified immediately. The regulatory authority shall then notify the appropriate agencies that other emergency procedures are required to protect the public.

(f) *Underground disposal.* Coal mine waste may be disposed of in underground mine workings, but only in accordance with a plan approved by the regulatory authority and MSHA under § 784.25 of this chapter.

§ 816.82 [Removed]

4. Section 816.82 is removed.

5. Section 816.83 is revised to read as follows:

§ 816.83 Coal mine waste: Refuse piles.

Refuse piles shall meet the requirements of § 816.81, the additional requirements of this section, and the requirements of §§ 77.214 and 77.215 of this title.

(a) *Drainage control.* (1) If the disposal area contains springs, natural or manmade water courses, or wet weather seeps, the design shall include diversions and underdrains as necessary to control erosion, prevent water infiltration into the disposal facility and ensure stability.

(2) Uncontrolled surface drainage may not be diverted over the outslope of the refuse piles. Runoff from the areas above the refuse pile and runoff from the surface of the refuse pile shall be

diverted into stabilized diversion channels designed to meet the requirements of § 816.43 to safely pass the runoff from a 100-year, 6-hour precipitation event. Runoff diverted from undisturbed areas need not be commingled with runoff from the surface of the refuse pile.

(3) Underdrains shall comply with the requirements of § 816.71(f)(3).

(b) *Surface area stabilization.* Slope protection shall be provided to minimize surface erosion at the site. All disturbed areas, including diversion channels that are not riprapped or otherwise protected, shall be revegetated upon completion of construction.

(c) *Placement.* (1) All vegetative and organic materials shall be removed from the disposal area prior to placement of coal mine waste. Topsoil shall be removed, segregated and stored or redistributed in accordance with § 816.22. If approved by the regulatory authority, organic material may be used as mulch, or may be included in the topsoil to control erosion, promote growth of vegetation or increase the moisture retention of the soil.

(2) The final configuration of the refuse pile shall be suitable for the approved postmining land use. Terraces may be constructed on the outslope of the refuse pile if required for stability, control or erosion, conservation of soil moisture, or facilitation of the approved postmining land use. The grade of the outslope between terrace benches shall not be steeper than 2h:1v (50 percent).

(3) No permanent impoundments shall be allowed on the completed refuse pile. Small depressions may be allowed by the regulatory authority if they are needed to retain moisture, minimize erosion, create and enhance wildlife habitat, or assist revegetation, and if they are not incompatible with stability of the refuse pile.

(4) Following final grading of the refuse pile, the coal mine waste shall be covered with a minimum of 4 feet of the best available, nontoxic and noncombustible material, in a manner that does not impede drainage from the underdrains. The regulatory authority may allow less than 4 feet of cover material based on physical and chemical analyses which show that the requirements of §§ 816.111-816.116 will be met.

(d) *Inspections.* A qualified registered professional engineer, or other qualified professional specialist under the direction of the professional engineer, shall inspect the refuse pile during construction. The professional engineer or specialist shall be experienced in the construction of similar earth and waste structures.

(1) Such inspections shall be made at least quarterly throughout construction and during critical construction periods. Critical construction periods shall include at a minimum: (i) Foundation preparation including the removal of all organic material and topsoil; (ii) placement of underdrains and protective filter systems; (iii) installation of final surface drainage systems; and (iv) the final graded and revegetated facility. Regular inspections by the engineer or specialist shall also be conducted during placement and compaction of coal mine waste materials. More frequent inspections shall be conducted if a danger of harm exists to the public health and safety or the environment. Inspections shall continue until the refuse pile has been finally graded and revegetated or until a later time as required by the regulatory authority.

(2) The qualified registered professional engineer shall provide a certified report to the regulatory authority promptly after each inspection that the refuse pile has been constructed and maintained as designed and in accordance with the approved plan and this chapter. The report shall include appearances of instability, structural weakness, and other hazardous conditions.

(3) The certified report on the drainage system and protective filters shall include color photographs taken during and after construction, but before underdrains are covered with coal mine waste. If the underdrain system is constructed in phases, each phase shall be certified separately. The photographs accompanying each certified report shall be taken in adequate size and number with enough terrain or other physical features of the site shown to provide a relative scale to the photographs and to specifically and clearly identify the site.

(4) A copy of each inspection report shall be retained at or near the minesite.

§§ 816.85 and 816.86 [Removed]

8. Sections 816.85 and 816.86 are removed.

7. Sections 816.91, 816.92, and 816.93 are combined, redesignated as new § 816.84 and revised to read as follows:

§ 816.84 Coal mine waste: Impounding structures.

New and existing impounding structures constructed of coal mine waste or intended to impound coal mine waste shall meet the requirements of § 816.81.

(a) Coal mine waste shall not be used for construction of impounding structures unless it has been demonstrated to the regulatory authority that the stability of such a structure

conforms to the requirements of this part and the use of coal mine waste will not have a detrimental effect on downstream water quality or the environment due to acid seepage through the impounding structure. The stability of the structure and the potential impact of acid mine seepage through the impounding structure shall be discussed in detail in the design plan submitted to the regulatory authority in accordance with § 780.25 of this chapter.

(b)(1) Each impounding structure constructed of coal mine waste or intended to impound coal mine waste shall be designed, constructed and maintained in accordance with § 816.49 (a) and (c). Such structures may not be retained permanently as part of the approved postmining land use.

(2) If an impounding structure constructed of coal mine waste or intended to impound coal mine waste meets the criteria of § 77.216(a) of this title, the combination of principal and emergency spillways shall be able to safely pass the 100-year, 6-hour design participation event.

(c) Spillways and outlet works shall be designed to provide adequate protection against erosion and corrosion. Inlets shall be protected against blockage.

(d) *Drainage control.* Runoff from areas above the disposal facility or runoff from surface of the facility that may cause instability or erosion of the impounding structure shall be diverted into stabilized diversion channels designed to meet the requirements of § 816.43 and designed to safely pass the runoff from a 100-year, 6-hour design precipitation event.

(e) Impounding structures constructed of or impounding coal mine waste shall be designed so that at least 90 percent of the water stored during the design precipitation event can be removed within a 10-day period.

8. Section 816.87 is revised to read as follows:

§ 816.87 Coal mine waste: Burning and burned waste utilization.

(a) Coal mine waste fires shall be extinguished by the person who conducts the surface mining activities, in accordance with a plan approved by the regulatory authority and the Mine Safety and Health Administration. The plan shall contain, at a minimum, provisions to ensure that only those persons authorized by the operator, and who have an understanding of the procedures to be used, shall be involved in the extinguishing operations.

(b) No burning or burned coal mine waste shall be removed from a

permitted disposal area without a removal plan approved by the regulatory authority. Consideration shall be given to potential hazards to persons working or living in the vicinity of the structure.

§ 816.88 [Removed]

9. Section 816.88 is removed.

10. Section 816.89 is revised to read as follows:

§ 816.89 Disposal of noncoal mine wastes.

(a) Noncoal mine wastes including, but not limited to grease, lubricants, paints, flammable liquids, garbage, abandoned mining machinery, lumber and other combustible materials generated during mining activities shall be placed and stored in a controlled manner in a designated portion of the permit area. Placement and storage shall ensure that leachate and surface runoff do not degrade surface or ground water, that fires are prevented, and that the area remains stable and suitable for reclamation and revegetation compatible with the natural surroundings.

(b) Final disposal of noncoal mine wastes shall be in a designated disposal site in the permit area or a State-approved solid waste disposal area. Disposal sites in the permit area shall be designed and constructed to ensure that leachate and drainage from the noncoal mine waste area does not degrade surface or underground water. Wastes shall be routinely compacted and covered to prevent combustion and wind-borne waste. When the disposal is completed, a minimum of 2 feet of soil cover shall be placed over the site, slopes stabilized, and revegetation accomplished in accordance with §§ 816.111-816.116. Operation of the disposal site shall be conducted in accordance with all local, State and Federal requirements.

(c) At no time shall any noncoal mine waste be deposited in a refuse pile or impounding structure, nor shall an excavation for a noncoal mine waste disposal site be located within 8 feet of any coal outcrop or coal storage area.

(d) Notwithstanding any other provision in this chapter, any noncoal mine waste defined as "hazardous" under section 3001 of the Resource Conservation and Recovery Act (RCRA) (Pub. L. 94-580, as amended) and 40 CFR Part 261 shall be handled in accordance with the requirements of Subtitle C of RCRA and any implementing regulations.

PART 817—PERMANENT PROGRAM PERFORMANCE STANDARDS—UNDERGROUND MINING ACTIVITIES

11. Section 817.81 is revised to read as follows:

§ 817.81 Coal mine waste: General requirements.

(a) *General.* All coal mine waste shall be placed in new or existing disposal areas within a permit area, which are approved by the regulatory authority for this purpose. Coal mine waste shall be placed in a controlled manner to—

(1) Minimize adverse effects of leachate and surface-water runoff on surface and ground water quality and quantity;

(2) Ensure mass stability and prevent mass movement during and after construction;

(3) Ensure that the final disposal facility is suitable for reclamation and revegetation compatible with the natural surroundings and the approved postmining land use;

(4) Not create a public hazard; and

(5) Prevent combustion.

(b) Coal mine waste materials from activities located outside a permit area may be disposed of in the permit area only if approved by the regulatory authority. Approval shall be based upon a showing that such disposal will be in accordance with the standards of this section.

(c) *Design certification.* (1) The disposal facility shall be designed using current, prudent engineering practices and shall meet any design criteria established by the regulatory authority. A qualified registered professional engineer, experienced in the design of similar earth and waste structures, shall certify the design of the disposal facility.

(2) The disposal facility shall be designed to attain a minimum long-term static safety factor of 1.5. The foundation and abutments must be stable under all conditions of construction.

(d) *Foundation.* Sufficient foundation investigations, as well as any necessary laboratory testing of foundation material, shall be performed in order to determine the design requirements for foundation stability. The analyses of the foundation conditions shall take into consideration the effect of underground mine workings, if any, upon the stability of the disposal facility.

(e) *Emergency procedures.* If any examination or inspection discloses that a potential hazard exists, the regulatory authority shall be informed promptly of the finding and of the emergency procedures formulated for public protection and remedial action. If

adequate procedures cannot be formulated or implemented, the regulatory authority shall be notified immediately. The regulatory authority shall then notify the appropriate agencies that other emergency procedures are required to protect the public.

(f) *Underground disposal.* Coal mine waste may be disposed of in underground mine workings, but only in accordance with a plan approved by the regulatory authority and MSHA under § 784.25 of this chapter.

§ 817.82 [Removed]

12. Section 817.82 is removed.

13. Section 817.83 is revised to read as follows:

§ 817.83 Coal mine waste: Refuse piles.

Refuse piles shall meet the requirements of § 817.81, the additional requirements of this section, and the requirements of §§ 77.214 and 77.215 of this title.

(a) *Drainage control.* (1) If the disposal area contains springs, natural or manmade water courses, or wet weather seeps, the design shall include diversions and underdrains as necessary to control erosion, prevent water infiltration into the disposal facility and ensure stability.

(2) Uncontrolled surface drainage may not be diverted over the outslope of the refuse pile. Runoff from areas above the refuse pile and runoff from the surface of the refuse pile shall be diverted into stabilized diversion channels designed to meet the requirements of § 817.43 to safely pass the runoff from a 100-year, 6-hour precipitation event. Runoff diverted from undisturbed areas need not be commingled with runoff from the surface of the refuse pile.

(3) Underdrains shall comply with the requirements of § 817.71(f)(3).

(b) *Surface area stabilization.* Slope protection shall be provided to minimize surface erosion at the site. All disturbed areas, including diversion channels that are not ripped or otherwise protected, shall be revegetated upon completion of construction.

(c) *Placement.* (1) All vegetative and organic materials shall be removed from the disposal area prior to placement of coal mine waste. Topsoil shall be removed, segregated and stored or redistributed in accordance with § 817.22. If approved by the regulatory authority, organic material may be used as mulch or may be included in the topsoil to control erosion, promote growth of vegetation or increase the moisture retention of the soil.

(2) The final configuration of the refuse pile shall be suitable for the approved postmining land use. Terraces may be constructed on the outslope of the refuse pile if required for stability, control of erosion, conservation of soil moisture, or facilitation of the approved postmining land use. The grade of the outslope between terrace benches shall not be steeper than 2h:1v (50 percent).

(3) No permanent impoundments shall be allowed on the completed refuse pile. Small depressions may be allowed by the regulatory authority if they are needed to retain moisture, minimize erosion, create and enhance wildlife habitat, or assist revegetation, and if they are not incompatible with stability of the refuse pile.

(4) Following final grading of the refuse pile, the coal mine waste shall be covered with a minimum of 4 feet of the best available, nontoxic and noncombustible material, in a manner that does not impede drainage from the underdrains. The regulatory authority may allow less than 4 feet of cover material based on physical and chemical analyses which show that the requirements of §§ 817.111-817.116 will be met.

(d) *Inspections.* A qualified registered professional engineer, or other qualified professional specialist under the direction of the professional engineer, shall inspect the refuse pile during construction. The professional engineer or specialist shall be experienced in the construction of similar earth and waste structures.

(1) Such inspection shall be made at least quarterly throughout construction and during critical construction periods. Critical construction periods shall include at a minimum: (i) Foundation preparation including the removal of all organic material and topsoil; (ii) placement of underdrains and protective filter systems; (iii) installation of final surface drainage systems; and (iv) the final graded and revegetated facility. Regular inspections by the engineer or specialist shall also be conducted during placement and compaction of coal mine waste materials. More frequent inspections shall be conducted if a danger of harm exists to the public health and safety or the environment. Inspections shall continue until the refuse pile has been finally graded and revegetated or until a later time as required by the regulatory authority.

(2) The qualified registered professional engineer shall provide a certified report to the regulatory authority promptly after each inspection that the refuse pile has been constructed and maintained as designed and in accordance with the approved plan and

this chapter. The report shall include appearances of instability, structural weakness, and other hazardous conditions.

(3) The certified report on the drainage system and protective filters shall include color photographs taken during and after construction, but before underdrains are covered with coal mine waste. If the underdrain system is constructed in phases, each phase shall be certified separately. The photographs accompanying each certified report shall be taken in adequate size and number with enough terrain or other physical features of the site shown to provide a relative scale to the photographs and to specifically and clearly identify the site.

(4) A copy of each inspection report shall be retained at or near the minesite.

§§ 817.85 and 817.86 [Removed]

14. Sections 817.85 and 817.86 are removed.

15. Sections 817.91, 817.92, and 817.93 are combined, redesignated as new § 817.84 and revised to read as follows:

§ 817.84 Coal mine waste: Impounding structures.

New and existing impounding structures constructed of coal mine waste or intended to impound coal mine waste shall meet the requirements of § 817.81.

(a) Coal mine waste shall not be used for construction of impounding structures unless it has been demonstrated to the regulatory authority that the stability of such a structure conforms to the requirements of this part and the use of coal mine waste will not have a detrimental effect on downstream water quality or the environment due to acid seepage through the impounding structure. The stability of the structure and the potential impact of acid mine seepage through the impounding structure and shall be discussed in detail in the design plan submitted to the regulatory authority in accordance with § 780.25 of this chapter.

(b) (1) Each impounding structure constructed of coal mine waste or intended to impound coal mine waste shall be designed, constructed and maintained in accordance with § 817.49 (a) and (c). Such structures may not be retained permanently as part of the approved postmining land use.

(2) If an impounding structure constructed of coal mine waste or intended to impound coal mine waste meets the criteria of § 77.216(a) of this title, the combination of principal and emergency spillways shall be able to safely pass the 100-year, 6-hour design precipitation event.

(c) Spillways and outlet works shall be designed to provide adequate protection against erosion and corrosion. Inlets shall be protected against blockage.

(d) *Drainage control.* Runoff from areas above the disposal facility or runoff from the surface of the facility that may cause instability or erosion of the impounding structure shall be diverted into stabilized diversion channels designed to meet the requirements of § 817.43 and designed to safely pass the runoff from a 100-year, 6-hour design precipitation event.

(e) Impounding structures constructed of or impounding coal mine waste shall be designed so that at least 90 percent of the water stored during the design precipitation event can be removed within a 10-day period.

16. Section 817.87 is revised to read as follows:

§ 817.87 Coal mine waste: Burning and burned waste utilization.

(a) Coal mine waste fires shall be extinguished by the person who conducts the surface mining activities, in accordance with a plan approved by the regulatory authority and the Mine Safety and Health Administration. The plan shall contain, at a minimum, provisions to ensure that only those persons authorized by the operator, and who have an understanding of the procedures to be used, shall be involved in the extinguishing operations.

(b) No burning or unburned coal mine waste shall be removed from a permitted disposal area without a removal plan approved by the regulatory authority. Consideration shall be given to potential hazards to persons working or living in the vicinity of the structure.

§ 817.88 [Removed]

17. Section 817.88 is removed.

18. Section 817.89 is revised to read as follows:

§ 817.89 Disposal of noncoal mine wastes.

(a) Noncoal mine wastes including, but not limited to grease, lubricants, paints, flammable liquids, garbage, abandoned mining machinery, lumber and other combustible materials generated during mining activities shall be placed and stored in a controlled manner in a designated portion of the permit area. Placement and storage shall ensure that leachate and surface runoff do not degrade surface or ground water, that fires are prevented, and that the area remains stable and suitable for reclamation and revegetation.

compatible with the natural surroundings.

(b) Final disposal of noncoal mine wastes shall be in a designated disposal site in the permit area or a State-approved solid waste disposal area. Disposal sites in the permit area shall be designed and constructed to ensure that leachate and drainage from the noncoal mine waste area does not degrade surface or underground water. Wastes shall be routinely compacted and covered to prevent combustion and wind-borne waste. When the disposal is completed, a minimum of 2 feet of soil cover shall be placed over the site, slopes stabilized, and revegetation accomplished in accordance with §§ 817.111-817.116. Operation of the disposal site shall be conducted in accordance with all local, State, and Federal requirements.

(c) At no time shall any noncoal mine waste be deposited in a refuse pile or impounding structure, nor shall any excavation for a noncoal mine waste disposal site be located within 8 feet of any coal outcrop or coal storage area.

(d) Notwithstanding any other provision to this chapter, any noncoal mine waste defined as "hazardous" under § 3001 of the Resource Conservation and Recovery Act (RCRA) (Pub. L. 94-580, as amended) and 40 CFR Part 261 shall be handled in accordance with the requirements of Subtitle C of RCRA and any implementing regulations.

(Pub. L. 95-87, 30 U.S.C. 1201 *et seq.*)

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30 CFR Parts 816 and 817

Surface Coal Mining and Reclamation Operations; Permanent Regulatory Program; Siltation Structures

AGENCY: Office of Surface Mining Reclamation and Enforcement (OSM), Interior.

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.

FOR FURTHER INFORMATION CONTACT:

Ranvir Singh, P.E., Division of Engineering Analysis, Office of Surface Mining, U.S. Department of the Interior, South Building, 1951 Constitution Avenue, NW., Washington, DC. 20240; Telephone (202) 343-2156.

SUPPLEMENTARY INFORMATION:

- I. Background
- II. Discussion of comments and rules adopted
- III. Procedural matters
- IV. References cited

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 §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 1348 (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 §§ 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).