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

(G) Ensure against excessive settlement;

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

(I) Be compacted properly.

(2) *Spillways.* A sedimentation pond shall include either a combination of principal and emergency spillways or single spillway configured as specified in § 816.49(a)(9).

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

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

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

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

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

[48 FR 44051, Sept. 26, 1983, as amended at 53 FR 43605, Oct. 27, 1988; 59 FR 53029, Oct. 20, 1994]

EFFECTIVE DATE NOTE: At 51 FR 41961, Nov. 20, 1986, paragraph (b)(2) of § 816.46 was suspended, effective Dec. 22, 1986. At 73 FR 75883, Dec. 12, 2008, an amendment removed § 816.46(b)(2) and redesignated (b)(3) through (6) as (b)(2) through (5), but could not be incorporated because paragraph (b)(2) is suspended.

§ 816.47 Hydrologic balance: Discharge structures.

Discharge from sedimentation ponds, permanent and temporary impoundments, coal processing waste dams and embankments, and diversions shall be controlled, by energy dissipators, riprap channels, and other devices, where necessary, to reduce erosion, to prevent deepening or enlargement of stream channels, and to minimize disturbance of the hydrologic balance. Discharge structures shall be designed according to standard engineering-design procedures.

§ 816.49 Impoundments.

(a) *General requirements.* The requirements of this paragraph apply to both temporary and permanent impoundments.

(1) Impoundments meeting the Class B or C criteria for dams in the U.S. Department of Agriculture, Soil Conservation Service Technical Release No. 60 (210-VI-TR60, Oct. 1985), ''Earth Dams and Reservoirs,'' 1985 shall comply with ''Minimum Emergency Spillway Hydrologic Criteria'' table in TR–60 and the requirements of this section. The technical release is hereby incorporated by reference. This incorporation by reference was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR Part 51. Copies may be obtained from the National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, Virginia 22161, order No. PB 87–157509/AS. Copies can be inspected at the OSM Headquarters Office, Office of Surface Mining Reclamation and Enforcement, Administrative Record, 1951 Constitution Avenue, NW, Washington, DC, or at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202–741–6030, or go to: *http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html.*

(2) An impoundment meeting the size or other criteria of § 77.216(a) of this title shall comply with the requirements of § 77.216 of this title and this section.

(3) *Design certification.* The design of impoundments shall be certified in accordance with § 780.25(a) of this chapter 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 or qualified, registered, professional, land surveyor shall be experienced in the design and construction of impoundments.

(4) *Stability*. (i) An impoundment meeting the Class B or C criteria for dams in TR–60, or the size or other criteria of § 77.216(a) of this title shall have a minimum static safety factor of 1.5 for a normal pool with steady state seepage saturation conditions, and a seismic safety factor of at least 1.2.

(ii) Impoundments not included in paragraph (a)(4)(i) of this section, except for a coal mine waste impounding structure, shall have a minimum static safety factor of 1.3 for a normal pool with steady state seepage saturation conditions or meet the requirements of § 780.25(c)(3).

(5) *Freeboard*. Impoundments shall have adequate freeboard to resist overtopping by waves and by sudden increases in storage volume. Impoundments meeting the Class B or C criteria for dams in TR-60 shall comply with the freeboard hydrograph criteria in the ''Minimum Emergency Spillway Hydrologic Criteria'' table in TR-60.

(6) *Foundation*. (i) Foundations and abutments for an impounding structure shall be stable during all phases of construction and operation and shall be designed based on adequate and accurate information on the foundation conditions. For an impoundment meeting the Class B or C criteria for dams in TR–60, or the size or other criteria of § 77.216(a) of this title, foundation investigation, as well as any necessary laboratory testing of foundation material, shall be performed 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.

(7) Slope protection shall be provided to protect against surface erosion at the site and protect against sudden drawdown.

(8) 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.

(9) *Spillways*. An impoundment shall include either a combination of principal and emergency spillways or a single spillway configured as specified in paragraph (a)(9)(i) of this section, designed and constructed to safely pass the applicable design precipitation event specified in paragraph (a)(9)(ii) of this section, except as set forth in paragraph (c)(2) of this section.

(i) The regulatory authority may approve a single open-channel spillway that is:

(A) Of nonerodible construction and designed to carry sustained flows; or

(B) Earth- or grass-lined and designed to carry short-term, infrequent flows at non-erosive velocities where sustained flows are not expected.

(ii) Except as specified in paragraph (c)(2) of this section, the required design precipitation event for an impoundment meeting the spillway requirements of paragraph (a)(9) of this section is:

(A) For an impoundment meeting the Class B or C criteria for dams in TR–60, the emergency spillway hydrograph criteria in the ''Minimum Emergency Spillway Hydrologic Criteria'' table in TR–60, or greater event as specified by the regulatory authority.

(B) For an impoundment meeting or exceeding the size or other criteria of § 77.216(a) of this title, a 100-year 6-hour event, or greater event as specified by the regulatory authority.

(C) For an impoundment not included in paragraph (a)(9)(ii) (A) and (B) of this section, a 25-year 6-hour or greater event as specified by the regulatory authority.

(10) 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.

(11) *Inspections*. Except as provided in paragraph (a)(11)(iv) of this section, a qualified registered professional engineer or other qualified professional specialist under the direction of a professional engineer, shall inspect each impoundment as provided in paragraph

(a)(11)(i) of this section. 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, or qualified registered professional land surveyor as specified in paragraph (a)(11)(iv) of this section, shall promptly after each inspection required in paragraph (a)(11)(i) of this section provide to the regulatory authority a certified report that the impoundment has been constructed and/or maintained as designed and in accordance with the approved plan and this chapter. The report shall include discussion of any appearance of instability, structural weakness or other hazardous condition, 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.

(iv) In any State which authorizes land surveyors to prepare and certify plans in accordance with §780.25(a) of this chapter, a qualified registered professional land surveyor may inspect any temporary or permanent impoundment that does not meet the SCS Class B or C criteria for dams in TR–60, or the size or other criteria of §77.216(a) of this title and certify and submit the report required by paragraph (a)(11)(ii) of this section, except that all coal mine waste impounding structures covered by §816.84 of this chapter shall be certified by a qualified registered professional engineer. The professional land surveyor shall be experienced in the construction of impoundments.

(12) Impoundments meeting the SCS Class B or C criteria for dams in TR–60, or the size or other criteria of §77.216 of this title must be examined in accordance with §77.216–3 of this title. Impoundments not meeting the SCS Class B or C criteria for dams in TR–60, or subject to §77.216 of this title, shall be examined at least quarterly. A qualified person designated by the operator shall examine impoundments for the appearance of structural weakness and other hazardous conditions.

(13) *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.

(c) *Temporary impoundments.* (1) The regulatory authority may authorize the construction of temporary impoundments as part of a surface coal mining operation.

(2) In lieu of meeting the requirements in paragraph (a)(9)(i) of this section, the regulatory authority may approve an impoundment that relies primarily on storage to control the runoff from the design precipitation event when it is demonstrated by the operator and certified by a qualified registered professional engineer or qualified registered professional land surveyor in accordance with § 780.25(a) of this chapter that the impoundment will safely control the design precipitation event, the water from which shall be safely removed in accordance with current, prudent, engineering practices. Such an impoundment shall be located where failure would not be expected to cause loss of life or serious property damage, except where:

(i) Impoundments meeting the SCS Class B or C criteria for dams in TR–60, or the size or other criteria of § 77.216(a) of this title shall be designed to control the precipitation of the probable maximum precipitation of a 6-hour event, or greater event specified by the regulatory authority.

(ii) Impoundments not included in paragraph (c)(2)(i) of this section shall be designed to control the precipitation of the 100-year 6-hour event, or greater event specified by the regulatory authority.

[48 FR 44004, Sept. 26, 1983, as amended at 50 FR 16200, Apr. 24, 1985; 53 FR 43605, Oct. 27, 1988; 59 FR 53029, 53030, Oct. 20, 1994; 66 FR 14317, Mar. 12, 2001]

§ 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.

[48 FR 44005, Sept. 26, 1983]

§ 816.57 Hydrologic balance: Activities in or adjacent to perennial or intermittent streams.

(a)(1) *Buffer requirement.* Except as provided in paragraph (b) of this section and consistent with paragraph (a)(2) of this section, you, the permittee or operator, may not conduct surface mining activities that would disturb the surface of land within 100 feet, measured horizontally, of a perennial or intermittent stream, unless the regulatory authority authorizes you to do so under § 780.28(e) of this chapter.

(2) *Clean Water Act requirements.* Surface mining activities, including those activities in paragraphs (b)(1) through (b)(4) of this section, may be authorized in perennial or intermittent streams only where those activities would not cause or contribute to the violation of applicable State or Federal water quality standards developed pursuant to the Clean Water Act, as determined through certification under section 401 of the Clean Water Act or a permit under section 402 or 404 of the Clean Water Act.

(b) *Exception.* The buffer requirement of paragraph (a) of this section does not apply to those segments of a perennial or intermittent stream for which the regulatory authority, in accordance with § 780.28(d) of this chapter or § 816.43(b)(1) of this part, approves one or more of the activities listed in paragraphs (b)(1) through (b)(4) of this section.

(1) Diversion of a perennial or intermittent stream. You must comply with all other applicable requirements of the regulatory program, including the requirements of § 816.43(b) of this part for the permanent or temporary diversion of a perennial or intermittent stream.

(2) Placement of bridge abutments, culverts, or other structures in or within 100 feet of a perennial or intermittent stream to facilitate crossing of the stream by roads, railroads, conveyors, pipelines, utilities, or similar facilities. You must comply with all other applicable requirements of the