**Section 1816.49 Impoundments**

a) The requirements of this subsection 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, October 1985), "Earth Dams and Reservoirs," shall comply with "Minimum Emergency Spillway Hydrologic Criteria" table in TR-60 and the requirements of this Section.

2) Impoundments meeting the size and other qualifying criteria of 30 CFR 77.216(a) shall comply with the requirements of 30 CFR 77.216 (1998) and this Section. 30 CFR 77.216 does not include any later editions or amendments. The plan required to be submitted to the District Manager of the Mine Safety and Health Administration (MSHA) under 30 CFR 77.216 shall also be submitted to the Department as part of the permit application insofar as the MSHA informational design standard requirements are duplicative of the requirements of 62 Ill. Adm. Code 1780. In addition, the permittee shall submit to the Department any certification issued by MSHA with respect to the design plan.

3) The design of impoundments shall be sealed in accordance with 62 Ill. Adm. Code 1780.25(a) as designed to meet the requirements of this Part using current, prudent engineering practices. The qualified registered professional engineer shall be experienced in the design and construction of impoundments.

4) Stability

A) An impoundment meeting the Class B or C criteria for dams in TR-60, or the size or other criteria of 30 CFR 77.216(a), 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.

B) Impoundments not included in subsection (a)(4)(A), except for a coal mine waste impounding structure, and located where failure would not be expected to cause loss of life or serious property damage shall have a minimum static safety factor of 1.3 for a normal pool with steady state seepage saturation conditions, or meet the design, construction and maintenance requirements of U.S. Natural Resources Conservation Service Practice Standard IL 378, "Ponds," June 1992. Practice Standard 378 is hereby incorporated by reference and does not include later editions or amendments.

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

6) Foundations

A) 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 30 CFR 77.216(a), foundation investigation, as well as any necessary laboratory testing of foundation material, shall be performed to determine the design requirements for foundation stability.

B) 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) 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 subsection (b) or (c).

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, as evidenced by the placement of a registered professional engineer's seal on the inspection report.

A) Impoundments meeting the SCS Class B or C criteria for dams in TR-60, or the size or other criteria of 30 CFR 77.216(a), shall be inspected, examined and certified in accordance with 30 CFR 77.216. Annual status reports required under 30 CFR 77.216-4 shall be submitted to the Department within 30 days after the reporting period.

B) All other impoundments shall be inspected at least quarterly during construction, provided at least one inspection is conducted for impoundments completed in less than one quarter, and upon completion of construction. The qualified registered professional engineer shall submit to the Department within 30 days after each inspection, a sealed report that the impoundment has been constructed as designed and in accordance with the approved plan and these regulations.

C) A copy of the reports required in subsections (a)(10)(A) and (B), and the examination reports required in subsection (a)(11), shall be retained at or near the mine site. The Department may approve reports being retained at a different location if there is no permanent mine office.

11) Impoundments which do not meet the SCS Class B or C criteria for dams in TR-60, or subject to 30 CFR 77.216, shall be examined at least quarterly by a qualified person designated by the permittee for appearances of instability, structural weakness or other hazardous conditions. At least one of the quarterly examinations conducted during the calendar year shall be sealed by a qualified registered professional engineer and shall include a discussion of any appearances of instability, structural weakness or other hazardous conditions, and any other aspects of the structure affecting stability, and a statement indicating the pond has been maintained in accordance with the approved plan and these regulations. This examination shall be conducted during the period of October 1 through December 31 of each calendar year. The sealed examination report shall be submitted to the Department within 30 days after the examination. Impoundment examinations shall be conducted until the impoundment has been removed or until final bond release in accordance with 62 Ill. Adm. Code 1800.40. If the permittee can demonstrate that failure of the structure would not create a potential threat to public health and safety or threaten significant environmental harm, the following impoundments shall be exempt from all examination requirements of this subsection, following approval by the Department:

A) Impoundments that are completely incised;

B) Water impounding structures that impound water to a design elevation no more than five feet above the upstream toe of the structure and that can have a storage volume of not more than 20 acre-feet; provided the exemption request is accompanied by a report sealed by a registered professional engineer licensed in the State of Illinois, accurately describing the hazard potential of the structure. Hazard potential must be such that failure of the structure would not create a potential threat to public health and safety or threaten significant environmental harm. The report shall be field verified by the Department prior to approval and periodically thereafter. The Department may terminate the exemption if so warranted by changes in the area downstream of the structure or in the structure itself; and

C) Impoundments that do not facilitate mining or reclamation including, but not limited to, sewage lagoons, landscaping ponds, pools or wetlands in replaced stream channels, existing impoundments not yet used to facilitate mining, ephemeral waterbodies, active mining pits and differential settlement pools.

12) If any examination or inspection discloses that a potential hazard exists, the person who examined the impoundment shall promptly inform the Department of the finding and of the emergency procedures formulated for public protection and remedial action. If adequate procedures cannot be formulated or implemented, the Department shall be notified immediately. The Department 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 Department in the approved permit, based upon the following demonstration:

1) The size and configuration of the impoundment is 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 water quality standards set forth in Section 1816.42, and discharges from the impoundment will meet applicable effluent limitations and will not degrade the quality of receiving water below water quality standards set forth in Section 1816.42.

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 post-mining land use.

7) The impoundment perimeter slopes shall be consistent with the intended use of the impoundment, not be steeper than the angle of repose and comply with subsection (a)(4). Where surface runoff enters the impoundment area, the side slope shall be protected against erosion.

A) Runoff from above the slope shall be diverted to erosion free outlets.

B) Grading of slopes shall be scheduled to be completed at the onset of the most favorable seeding period.

8) Embankment ponds, those having embankment heights of three feet or greater above natural ground elevation, shall have outslopes of 1v:2h or less and interior slopes to the normal pool elevation of 1v:2h or less.

9) Permanent impoundments

A) Permanent impoundments not meeting the Class B or C criteria for dams in TR-60, or the size or other qualifying criteria of 30 CFR 77.216(a), shall be provided with a spillway that will safely discharge a 25 year, six hour precipitation event, or such larger event as may be specified by the Department based on factors such as terrain, topography and soil type.

B) Permanent impoundments meeting the size or other criteria of 30 CFR 77.216(a) shall be provided with a spillway that will safely discharge a 100 year, six hour precipitation event, or such larger event as may be specified by the Department based on factors such as terrain, topography and soil type.

C) Permanent impoundments meeting the Class B or C criteria for dams in TR-60 shall be provided with a spillway that meets the criteria in the "Minimum Emergency Spillway Hydrologic Criteria" table in TR-60, or such larger event as may be specified by the Department based on factors such as terrain, topography and soil type.

10) In lieu of the combination principal and emergency spillway requirements of Section 1816.49(a)(9), an impoundment may have a single spillway configured as set forth in subsections (b)(10)(A) and (b)(10)(B) that is designed and constructed to safely pass the applicable design precipitation specified in subsection (b)(9). The Department shall 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.

c) Temporary impoundments

1) Temporary impoundments not meeting the Class B or C criteria for dams in TR-60, or the size or other qualifying criteria of 30 CFR 77.216(a), shall be provided with a spillway that will safely discharge a 25 year, six hour precipitation event or such larger event as may be required by the Department based on factors such as terrain, topography and soil type. Temporary impoundments meeting the size or other criteria of 30 CFR 77.216(a) shall be provided with a spillway that will safely discharge a 100 year, six hour precipitation event, or such larger event as may be specified by the Department based on factors such as terrain, topography and soil type. Temporary impoundments meeting the Class B or C criteria for dams in TR-60 shall be provided with a spillway that meets the criteria in the "Minimum Emergency Spillway Hydrologic Criteria" table in TR-60 or such larger event as may be specified by the Department based on factors such as terrain, topography and soil type.

2) In lieu of the combination principal and emergency spillway requirements of Section 1816.49(a)(9), an impoundment may have either:

A) A single spillway configured as set forth in subsection (c)(2)(A)(i) or (c)(2)(A)(ii) that is designed and constructed to safely pass the applicable design precipitation specified in subsection (c)(1). The Department shall approve a single open-channel spillway that is:

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

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

B) Sufficient spillway capacity to safely pass, adequate storage capacity to safely contain, or a combination of storage capacity and spillway capacity to safely control the design precipitation event when it is demonstrated by the permittee and certified by a qualified registered professional engineer in accordance with 62 Ill. Adm. Code 1780.25(a) 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. Impounding structures relying on this method to control runoff shall be located where failure would not be expected to cause loss of life or serious property damage, except where:

i) In the case of an impoundment meeting the SCS Class B or C criteria for dams in TR-60, or the size or other criteria of 30 CFR 77.216(a), it is designed to control the precipitation of the probable maximum precipitation of a 6-hour event, or greater event as specified by the Department.

ii) In the case of an impoundment not included in subsection (c)(2)(B)(i) , it is designed to control the precipitation of a 100-year 6-hour event, or greater event as specified by the Department.

(Source: Amended at 24 Ill. Reg. 5967, effective March 21, 2000)