

CHAPTER 25. DAMS AND RESERVOIRS

SUBCHAPTER 3. RESPONSIBILITY, CLASSIFICATION AND DESIGN STANDARDS

785:25-3-6. Minimum spillways performance standards

(a) General performance standards.

- (1) Except as otherwise provided in this Chapter, all dams must meet or exceed the following performance standards as determined by analysis of plans and specifications for the dam and existing site conditions.
- (2) Owners of existing dams which do not meet the following performance standards must make necessary changes in the dam to meet the applicable performance standards.
- (3) The discharge capacity and/or storage capacity of the project shall be capable of passing the indicated spillway design flood without infringing on the minimum freeboard requirements, provided that a design which includes overtopping of the dam may be authorized if specifically approved by the Board.
- (4) The minimum performance standards expressed as magnitude of spillway design flood and minimum freeboard will be assigned to the various size and hazard potential classification determined under 785:25-3-3 as described in Appendix B.

(b) **Amending minimum freeboard.** The minimum freeboard requirement may be amended by the Board on a case-by-case basis for good cause shown by the owner.

(c) Probable maximum flood.

- (1) PMF means and refers to the Probable Maximum Flood and is defined as the flood that may be expected from the most severe combination of critical meteorologic conditions, defined as the Probable Maximum Precipitation (PMP), and critical hydrologic conditions that are reasonably possible in the region.
- (2) Since design floods are usually determined by using mathematical computations through computer modeling and since several different acceptable models are available, flood design calculations must fall within plus/minus 5% PMF of the Board's current model results.
- (3) The PMF storm should be the most conservative PMP storm type and duration to adequately reflect the size and hydrologic characteristics of the watershed in which the dam is located.
- (4) *Regional Probable Maximum Precipitation Study for Oklahoma, Arkansas, Louisiana, and Mississippi* (Applied Weather Associates, 2019) shall be used in determining precipitation depth, area, and duration relationships for the PMP. The location-specific precipitation depth-area-duration relationship shall be applied to the spatial and temporal distribution methods described in *Hydrometeorological Report No. 52* (National Oceanic and Atmospheric Administration, 1982).

(d) **PMF on dam designated for regulation.** A dam which the Board has determined is subject to regulation because of its high hazard potential, although otherwise considered too small, shall be required to safely pass 25% PMF with no minimum freeboard.

(e) Dams constructed prior to June 13, 1973.

- (1) Any dam constructed prior to June 13, 1973, classified as having high hazard-potential as described in 785:25-3-3 shall be required to pass a minimum design flood as follows:
 - (A) Small size - 25% PMF with one foot of freeboard.
 - (B) Intermediate size - 50% PMF with no minimum freeboard.
 - (C) Large size - 75% PMF with no minimum freeboard.
- (2) Proposed designs to enlarge, alter, or repair a spillway of any dam constructed prior to June 13, 1973, may be required meet the general performance standards set forth in 785-25-3-6(a) as determined by the Board. Provided that any dam constructed prior to June 13, 1973, that does not meet minimum spillway performance standards in Appendix B, and the spillway/spillways is/are proposed to undergo substantial modification, the minimum spillway performance standards defined in 785-25-3-6(a) shall be met by the proposed design.

(f) **Dams constructed after 1973 without Board approval.** An owner of a dam constructed after 1973 without prior approval by the Board shall remove the dam or may request a variance or waiver from the requirement for submittal of plans and specifications as provided for in 785:25-5-2 and 785:25-5-3, provided the owner of the dam shall submit an application containing the following:

- (1) A topographic map of the dam site showing the location of spillway and outlet works.
- (2) Drawings showing the length, width, and height of dam.
- (3) Detailed plans of spillway structures, spillway profile, and procedures for operating of the spillway structure.
- (4) Hydrologic and hydraulic analysis report as described in Hydrologic and Hydraulic Guidelines for Dams in Oklahoma, Oklahoma Water Resources Board, Dam Safety Program, August 2011.
- (5) Complete a dam breach inundation analysis and map if Board staff determines the dam may be a significant or high hazard-potential structure.
- (6) Inspection of the dam by a registered Professional Engineer and submit a written inspection report to the Board not later than 30 days after the inspection and shall contain information as set forth in a Board hazard inspection report.
- (7) Pay ~~minimum~~ application fee as provided in 785:5-1-9(a) ~~and 785:5-1-9(f)~~.
- (8) In addition, the applicant may be required to submit a detailed geotechnical investigation and analysis of the dam and report on such investigation. The geotechnical investigation shall include a minimum boring layout as follows:
 - (A) One (1) crest boring extending through the embankment and foundation materials to bedrock.

- (B) Two (2) crest borings extending through the embankment and foundation materials to bedrock, one near each abutment.
- (C) One (1) boring extending through the embankment and foundation materials to bedrock near the mid-height on the downstream slope of the dam.
- (D) One (1) boring extending through the embankment and foundation material to bedrock along the toe of the dam.

SUBCHAPTER 7. POST APPROVAL ACTIONS

785:25-7-8. Certificate of completion

- (a) **Issuance; revocation; amendments.** Certificates of completion shall be issued and may be revoked or amended as follows:
- (1) Upon filing of notice of completion of works by the applicant, the Board shall, within sixty (60) days, inspect or cause the dam to be inspected. The Executive Director or their designee shall approve the issuance of a certificate of completion if, based on the certification from the engineer in the Notice of Completion, the dam or reservoir is safe to impound water within the limitations prescribed in the certificate. However, no certificate of completion shall be issued until receipt of fee for certificate and all invoiced filing and inspection fees.
 - (2) Every certificate of completion issued shall contain *the date of approval of plans and specifications for the dam, date construction was completed on said dam, and* [82:110.8] any such terms and conditions as the Board may prescribe. The Board may revoke any such certificate whenever it is determined that the dam constitutes a danger to life and property. Whenever such action is necessary to safeguard life and property, the terms and conditions of any such certificate may be amended and a new certificate issued containing the revised terms and conditions.
 - (3) *Certificates of completion of works from the . . . Board shall be required before any water may be impounded by a new dam or before water may be impounded at an elevation higher than that previously authorized by the Board at an existing dam which has been modified* [82:110.8]
- (b) **Notice and action.** After the issuance of the certificate of completion, the Board shall provide notice to the owner, allowing opportunity for a hearing, prior to the issuance of any order revoking or modifying the previous Board certificate.

SUBCHAPTER 9. ACTIONS AFTER CONSTRUCTION

785:25-9-1. Inspections of dams

- (a) **Oversight vested in Board.** Oversight of the maintenance and operation of constructed dams and reservoirs insofar as necessary to safeguard life and property from injury by reason of the failure thereof is vested in the Board.
- (b) **Periodic inspections.** Except for low hazard potential dams, owners are required to have their dams inspected at their expense by qualified persons periodically according to a schedule prepared by the Board to meet the requirements of paragraphs (1) and (2) of this subsection. ~~Periodic inspections of dams shall be~~ Periodic inspections shall be conducted and the inspection report submitted to the Board by the end of the calendar year according to hazard potential classifications as follows:
- (1) High hazard. High hazard potential dams shall be inspected at least once ~~annually~~ each calendar year.
 - (2) Significant hazard. Significant hazard shall be inspected at least once every three years.
 - (3) Low hazard. Low hazard potential dams shall be inspected at least once every five years, which inspection shall be conducted by the owner and shall consist of a review of the hazard classification on forms provided by the Board.
 - (4) Significant or high hazard dams in an unsatisfactory or poor condition, described in Section 6 of the National Dam Safety Review Board's Guidelines for Updating the 2008 National Inventory of Dams (NID), April 2008, as determined by the Board shall be inspected by a registered Professional Engineer at the expense of the owner at least every six months until such time as the deficiencies have been corrected.
 - ~~(5) Periodic inspections shall be conducted by the end of the calendar year indicated by the schedule above.~~
- (c) ~~Expense of periodic inspections~~ Inspections by qualified persons. ~~Periodic inspections shall be at the owner's expense~~ Except for low hazard potential dams, periodic inspections shall be conducted by a Registered Professional Engineer hired by the owner, who is licensed in the state of Oklahoma, and shall have training and/or experience concerning the analysis, design, and/or construction of dams and reservoirs, or by an engineer of any United States governmental agency acting in his official capacity. Provided that inspections of low hazard classification dams may be conducted by persons who are not Registered Professional Engineers but who are trained in inspecting dams.
- (d) **Unscheduled inspections.** Unscheduled (non-periodic) inspections such, as those conducted in response to complaints, after major heavy precipitation events, after earthquakes within 50 miles of a high or significant hazard potential dam that measure 5.0 or greater on the Richter magnitude scale, or in emergency situations, may be conducted by Board staff, or the Board may require the owner to conduct an unscheduled inspection at the owner's expense. No fee for such inspection shall be due, provided that a request for inspection by other parties shall be governed by 785:25-9-6.
- (e) **United States dams not subject to inspection.** Any dam *constructed by the United States or its duly authorized agencies shall not be subject to inspection while under the supervision of officers or the United States.* [82:105.27]

(f) **Board to notify when inspection due; violation.** The Board shall notify persons shown by its records to own the dam of the date the periodic inspection of the dam is due. Failure to have the inspection completed shall constitute a violation of Board rules.

(g) **Minimum standards.** ~~For each inspection completed~~ ~~Except for low hazard potential dams,~~ qualified persons shall submit a written inspection report describing any dam safety deficiencies observed and outline remedial actions to be taken to address those deficiencies as follows:

- (1) Engineering inspection reports shall be prepared for each inspection completed. The inspecting engineer shall record their findings of the inspection and submit a written inspection report to the Board not later than 30 days after the inspection.
- (2) All inspections shall also include documentary digital photographs of the dam, auxiliary spillway, principal spillway inlet structure, principal spillway outlet, any other appurtenances, and any potential safety concerns. A condition rating of all appurtenances shall be assigned in the inspection report in accordance with Board dam inspection guidelines. When explanation is needed to identify or describe the safety concern, notes shall be included in the written report to provide this explanation. Photographs shall be attached to the completed inspection report.
- (3) Inspection reports shall include a schedule of corrective actions to be taken to address dam safety deficiencies.
- (4) Periodic inspection reports shall also include review of the Emergency Action Plan and of the operation and maintenance manual to assure they are still accurate and applicable, as well as any changes in downstream development or other conditions if applicable.