

## CHAPTER 25. DAMS AND RESERVOIRS

### SUBCHAPTER 3. RESPONSIBILITY, CLASSIFICATION AND DESIGN STANDARDS

#### 785:25-3-2. Owner's responsibility

- (a) **General.**
- (1) Owners of dams to which the provisions of this Chapter apply shall have the responsibility to provide for the safety of such works by making any necessary changes to put the works in a safe condition.
  - (2) Such responsibility includes but is not necessarily limited to the following: the filing of an application to construct, enlarge, alter or repair the dam pursuant to Subchapter 5; the modification of the dam to meet applicable minimum requirements in this Subchapter; and the adequate maintenance, operation, and inspection of an existing dam.
- (b) **Multiple owners.**
- (1) When there is more than one owner of a dam, the Board shall consider all such owners responsible for the safety of such dam unless evidence to the contrary shows otherwise.
  - (2) The Board shall provide copies of inspection reports to at least one owner of record at the Board and shall provide notice of hearing on dam safety related matters to such owner with an instruction that the notice shall be delivered or mailed to all owners.
  - (3) Unless otherwise agreed by all the owners and the Board, the Board may, after such notice and hearing, order all the owners to take whatever remedial action is necessary to put the dam in a safe condition.
  - (4) The Board will not attempt to delineate levels of responsibility or allocate particular items of action among the owners.
- (c) **Transfer of ownership.** Upon transfer of ownership of the works, both the new and previous owner shall notify the Board of such transfer.

#### 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.** Adam 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:
    - ~~(1)~~(A) Small size - 25% PMF with one foot of freeboard.
    - ~~(2)~~(B) Intermediate size - 50% PMF with no minimum freeboard.
    - ~~(3)~~(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.

**785:25-3-7. Minimum ~~outlet conduit~~ valley floor drain capacities**

- (a) **Requirements for ~~outlet conduit~~ valley floor drain capacity shall be as follows:**
  - (1) All dams subject to the Board's jurisdiction shall have at least one ~~outlet conduit~~ valley floor drain of sufficient capacity to prevent interference with natural streamflow and injury of downstream appropriators and domestic users. Absent evidence to the contrary, the minimum size of the ~~outlet conduit~~ valley floor drains shall be as set forth in subsection (d) of this section.
  - (2) The height of the ~~outlet conduit~~ valley floor drain shall be no more than five feet (5') above the natural stream channel unless otherwise ordered by the Board. The capacity of the reservoir below the ~~outlet conduit~~ valley floor drain shall be designated as the inactive pool.
- (b) **Conduit Valley floor drain operation.** All ~~conduits~~ valley floor drains shall be gate- or valve-operated on the upstream side and shall be maintained in an operable condition at all times.
- (c) **Conduit Valley floor drain design life.** The design life expectancy of the conduit shall be equal to or greater than the design life of the dam.
- (d) **Minimum size ~~outlet conduit~~ valley floor drain requirements.** The ~~outlet conduit~~ valley floor drain must be of sufficient size to draw down the entire reservoir to the inactive pool within twenty (20) days, provided that minimum size outlet requirements are as follows:
  - (1) For less than 100 acre-feet normal pool capacity (at principal spillway), the minimum size of ~~outlet conduit~~ valley floor drain is 6-inch pipe.
  - (2) For 101 to 150 acre-feet normal pool capacity (at principal spillway), the minimum size of ~~outlet conduit~~ valley floor drain is 8-inch pipe.
  - (3) For 151 to 200 acre-feet normal pool capacity (at principal spillway), the minimum size of ~~outlet conduit~~ valley floor drain is 10-inch pipe.

- (4) For 201-250 acre-feet normal pool capacity (at principal spillway), the minimum size of ~~outlet conduit~~ valley floor drain is 12-inch pipe.
- (5) For 251-300 acre-feet normal pool capacity (at principal spillway), the minimum size of ~~outlet conduit~~ valley floor drain is 14-inch pipe.
- (6) For 301-350 acre-feet normal pool capacity (at principal spillway), the minimum size of ~~outlet conduit~~ valley floor drain is 15-inch pipe.
- (7) For 351-500 acre-feet normal pool capacity (at principal spillway), the minimum size of ~~outlet conduit~~ valley floor drain is 16-inch pipe.
- (8) For more than 500 acre-feet normal pool capacity (at principal spillway), the minimum size of ~~outlet conduit~~ valley floor drain is 24-inch pipe.

(e) **Amendments of minimum requirements for good cause.** Minimum size requirements may be amended by the Board for good cause. However, ~~conduit~~ the valley floor drain must be of sufficient size to draw down the entire reservoir to the inactive pool within a period of not more than twenty (20) days.

## SUBCHAPTER 5. APPLICATIONS AND APPROVAL OF CONSTRUCTION

### 785:25-5-1. Application and fee required

(a) **General.**

- (1) Any person who shall desire to construct, enlarge, alter, remove, or repair any dam under the Board's jurisdiction shall submit an application upon printed forms which will be furnished by the Board upon request. Applicant must receive Board approval prior to the commencement of any construction activities other than clearing, grubbing, or other site preparation that will not have the effect of impounding water.
- (2) For the purposes of this subchapter, repair shall not be deemed to include routine normal maintenance.
- (3) The maps, plans, drawings, and specifications of the proposed work along with the required fee shall form a part of the application.
- (4) The application and attachments shall be filed in duplicate.
- (5) Notwithstanding the provisions of paragraph (1) of this subsection, *an owner who proposes to construct a new dam that will be considered an agriculture-exempt dam shall be required only to notify the Board of such construction and file a notice of completion in accordance with 785:25-7-6 [82:110.5].* An owner who proposes to enlarge, alter, remove, or modify an existing agriculture-exempt dam shall submit an application prepared with the assistance of a local conservation district or federal agriculture related agency, or shall submit an application for consideration by the Board in accordance with 785-25-5.

(b) **Signature Of applicant.** The application shall be signed as follows:

- (1) If the applicant is an individual, the application shall be signed by the applicant or his duly appointed agent, who shall present satisfactory evidence of his authority to represent the applicant.
- (2) A joint application shall be signed by each applicant or his duly authorized agent, provided that a joint application by husband and wife may be signed by either party (joint applicants are required to select one among them to act for and represent the others in dealing with the Board).

- (3) If the application is by a partnership, the applicant shall be designated by the firm name followed by the words "A Partnership" and the application shall be signed by each of the general partners or, if signed by one partner or other agent, a written statement of the agent's authorization to make the application, signed by the other parties of interest, shall be attached to the application.
- (4) In the case of an estate or guardianship, the application shall be signed by the duly appointed guardian or representative of the estate, and a certified copy of the letter issued by the court shall be attached to the application.
- (5) In the case of a water district, county, municipality, etc., the application shall be signed by a duly authorized official, and a certified copy of the resolution or other authorization to make the application shall be attached.
- (6) In the case of a private corporation, the application shall be signed by a duly authorized person and, if not attested by the secretary or assistant secretary, a copy of the authorization shall be attached to the application.
- (c) **Notary public required.** All applicants shall subscribe and swear to the application before a Notary Public, who shall also sign his name and affix his seal to the application.
- (d) **Water rights.** Water rights requested or required in connection with a planned dam or reservoir may be approved based on preliminary information; however, no construction, enlargement, alteration or repair shall proceed until the application required by this Section has been submitted and approved in accordance with the rules of this subchapter and until the water rights required are approved.

## SUBCHAPTER 7. POST APPROVAL ACTIONS

### **785:25-7-6. Notice of completion and filing of supplementary drawings or descriptive matter**

~~Immediately upon~~ Within thirty (30) days of completion of a new dam or reservoir or enlargement or repair of a dam or reservoir, the owner shall give notice of completion and as soon thereafter as possible shall file supplementary drawings or descriptive matter showing or describing the dam or reservoir as actually constructed, including the following:

- (1) A record of all grout holes and grouting;
- (2) A record of permanent location points and bench marks;
- (3) A record of tests of concrete soils, or other materials used in the construction of the dam or reservoir;
- (4) Any other items which may be of permanent value and have a bearing on the safety and performance of the dam or reservoir; and
- (5) For dams classified as high hazard-potential, a breach analysis report and map showing the breach inundation area utilizing the publication Hydrologic and Hydraulic Guidelines for Dams in Oklahoma, Oklahoma Water Resources Board, Dam Safety Program, August 2011.

### **785:25-7-7. Emergency action plans**

- (a) Owners of existing or proposed dams classified as high hazard-potential, regardless of the size of such dams, and any other dam as determined by the Board, shall create and maintain an EAP that utilizes the recommendations, as determined by the Board, of the "Federal Guidelines

for Dam Safety, Emergency Action Planning for Dams," published July 2013 by the Federal Emergency Management Agency. The owner shall submit a copy of the EAP to the Board.

(b) Owners shall ~~annually~~ review their EAPs annually to assure they are still accurate and applicable, ~~and submit any updates to the EAPs to the Board.~~ EAP updates shall be submitted annually as applicable, or at a minimum, once every five (5) years.

## 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) and~~ 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)~~(1) 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)~~(2) Inspection reports shall include a schedule of corrective actions to be taken to address dam safety deficiencies.

~~(4)~~(3) 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.

APPENDIX A. JURISDICTION OF BOARD BY SIZE AND ~~HAZARD~~HAZARD CLASSIFICATION

JURISDICTION OF BOARD BY SIZE AND HAZARD CLASSIFICATION





