

1 ENERGY AND ENVIRONMENT CABINET

2 Department for Environmental Protection

3 Division of Water

4 (Amendment)

5 401 KAR 4:030. Design and permitting criteria for dams and associated structures.

6 RELATES TO: KRS Chapters 146, 151, 177, 224, 322~~[151.250]~~

7 STATUTORY AUTHORITY: KRS 151.125, 151.250, 151.260, 151.280, 151.293,
8 151.295, 151.297~~[151.125, 224.01-110(6)(b), 224.10-100(17)]~~

9 NECESSITY, FUNCTION, AND CONFORMITY: KRS 151.125 requires the cabinet to
10 examine and approve or disapprove applications for the construction, enlargement, repair, or
11 alteration of a dam, establish standards for the safe construction, enlargement, repair, alteration,
12 maintenance, or operation of a dam or reservoir by administrative regulation, investigate and
13 inspect dams for compliance with KRS Chapter 151, and suspend or revoke inspection reports and
14 construction permits for failure to comply with KRS Chapter 151, and to enforce the provisions of
15 KRS Chapter 151. KRS 151.250 prohibits the construction or improvement of any dam or other
16 obstruction across a stream or floodway unless the plans and specifications have been approved
17 by the cabinet and a permit issued. KRS 151.260 authorizes the cabinet to prescribe the form and
18 manner of permit applications and to require owners of dams classified as Significant Hazard
19 through High Hazard to develop, exercise, and maintain an Emergency Action Plan. KRS 151.280
20 authorizes the cabinet to enforce issued permits. KRS 151.293 authorizes the cabinet to grant,

modify, or deny inspection reports, impose conditions relating to the inspection, operation, maintenance, alteration, repair, use, or control of a dam, and establish hazard categories for dams. KRS 151.295 authorizes the cabinet to conduct a dam inspection program. KRS 151.297 authorizes the cabinet to issue orders and take other actions in relation to dams that fail to comply with inspection reports or are abandoned. This administrative regulation is necessary to establish design criteria, a permitting program, operation and maintenance standards, and enforcement activities for dams and appurtenances or appurtenant works constructed in Kentucky [This administrative regulation is necessary to establish minimum design criteria for dams and associated structures constructed in Kentucky].

Section 1. Definitions. As used in this administrative regulation, terms not defined in this section shall have the meaning given them in KRS 151.100.

(1) "Appurtenances" or "Appurtenant works" means a structure that is an accessory to or supports a dam and includes:

(a) Spillways in or separate from a dam;

(b) The reservoir and its rim;

(c) Low level outlet works; and

(d) Water conduits through the dam or its abutment, including:

1. Tunnels;

2. Pipelines; and

3. Penstocks.

(2) "Professional engineer" is defined by KRS Chapter 322.010.

Section 2. General Provisions. (1) This administrative regulation shall apply to all dams.

(2) A person shall not deviate from plans approved by the cabinet for the construction,

1 reconstruction, relocation, or improvement of any dam, embankment, levee, or dike without first
2 obtaining an approved variance from the cabinet.

3 (3) Unless exempted by KRS 151.250(3), a person shall not commence construction,
4 reconstruction, relocation, or improvement of any dam, embankment, levee, or dike without having
5 received a permit from the cabinet.

6 (4) If a structure is not in compliance with the provisions of this administrative regulation
7 or if an unsafe condition exists as determined by a professional engineer, the cabinet may revoke
8 the authorization to impound water or take any other authorized measures to remove the unsafe
9 condition.

10 (5) A permit shall not be required for activities in and along a public water of the
11 Commonwealth of Kentucky, as defined by KRS 151.120, which involves a structure that is owned
12 or operated by the U.S. Army Corps of Engineers.

13 (6) Any change to an owner of a dam shall:

14 (a) Be reported in writing to the cabinet by the existing owner within ten (10) days of the
15 change; and

16 (b) Include the name, address, telephone number, email address, and any other contact
17 information for the new owner.

18 (7) Dam design and construction requirements shall be established in Kentucky Dam
19 Design Requirements (DEP 4_030_1, Date).

20 Section 3. Dam Hazard Classification. (1) The cabinet shall assign a hazard classification
21 to every dam in the Commonwealth of Kentucky as established in FEMA: Federal Guidelines for
22 Dam Safety Hazard Potential Classification System for Dams, April 2004.

23 (2) When failure of an upstream dam could cause failure of a downstream dam, the

1 upstream dam shall be classified at the same or a higher hazard level as the downstream dam.

2 Section 4. Dam Inspections. (1) The cabinet shall conduct inspections of each dam or
3 reservoir pursuant to the program of regular inspections within the state pursuant to KRS 151.295.

4 (2) The cabinet may require the owner of a dam to inspect, operate, maintain, alter, repair,
5 use, or control of a dam or reservoir as necessary for the protection of public health, safety, or
6 welfare pursuant to KRS 151.293(2).

7 Section 5. Emergency Action Plans. (1) The owner of a dam classified as High Hazard or
8 Significant Hazard shall maintain an Emergency Action Plan (EAP) for the dam as established in
9 in Kentucky Dam Design Requirements (DEP 4_030_1, Date):

10 (2) An EAP shall be provided to the cabinet for review within eighteen (18) months of
11 written notice from the cabinet that:

12 (a) The dam is classified or has been reclassified as a High Hazard or Significant Hazard;
13 or

14 (b) The cabinet has determined the previously approved EAP to be deficient.

15 (3) The cabinet shall approve or disapprove an EAP in writing within one hundred twenty
16 (120) days of receiving all information required by this section.

17 (4) If the cabinet disapproves an EAP, the cabinet shall notify the dam owner of all
18 deficiencies, and provide a date by which the owner of the dam shall correct the deficiencies and
19 submit a revised EAP within thirty (30) days to the cabinet.

20 (5) The owner of a High or Significant Hazard dam shall update and submit for cabinet
21 approval an EAP, in conformance with this Section, if the EAP contains inaccurate information or
22 annually after the date of approval by the cabinet.

23 (6) A dam owner may use EAP Template (DEP 4_030_2, Date) and other online mapping

1 tools provided on the cabinet's website to assist in completion of the EAP.

2 Section 6. Impoundment of Water. A permitted dam shall not be considered complete and
3 shall not begin impounding water or be operational until the cabinet has:

4 (1) Received and approved a copy of the as-built plans certified by a professional engineer;
5 and

6 (2) Issued written:

7 (a) Confirmation that the project is complete and operational; and

8 (b) Authorization to begin impounding water.

9 Section 7. Dam Inventory. The cabinet shall maintain an inventory of dams located in the
10 Commonwealth of Kentucky in an electronic format that is used to provide updates to the National
11 Inventory of Dams maintained by the U.S. Army Corps of Engineers.

12 Section 8. Dam Construction Permit Application.

13 (1)(a) An application for a permit to construct a new dam, or to modify an existing dam,
14 shall not be considered complete until the cabinet has received all applicable supporting
15 information, forms, drawings, and specifications included in the Dam Safety Permit Application
16 (DEP 4_030_3, Date); and

17 (b) If staged renovations are proposed within the application, the applicant must also
18 complete and submit to the cabinet along with the application required pursuant to subsection
19 (1)(a) of this section, the Continuous Financial Assurance Coverage form (DEP 4_030_4, Date).
20 The applicant may request, in writing and with supporting documentation, that the cabinet release
21 the financial assurance. The cabinet shall provide written notification of its decision on the
22 applicant's request for release of financial assurance within sixty (60) days of receipt.

23 (2) A dam owner may request a variance to design requirements required by this

1 administrative regulation based on the factors established in KRS 151.293(7) and the Dam Safety
2 Permit Application (DEP 4_030_3, Date).

3 (3) A dam owner may request cabinet authorization to renovate a dam to meet the safety
4 standards applicable to its hazard classification in a staged manner as established in KRS
5 151.293(7) and the Dam Safety Permit Application (DEP 4_030_3, Date).

6 (4)(a) If the cabinet determines that an application for a variance, or to construct a new dam
7 or modify an existing dam, does not include all information required by this section, or the
8 application fails to provide the engineering, geological, hydrological for a High or Significant
9 Hazard dam, or other scientific information necessary for the cabinet to determine whether to issue
10 a permit or variance, the:

11 1. Cabinet shall notify the applicant in writing of the reasons that the application is deficient
12 within forty-five (45) days pursuant to KRS 151.260; and

13 2. Applicant shall submit the information requested by the cabinet.

14 (b) If the information requested is not received by the cabinet within ninety (90) days of
15 the notice of deficiency, or another time period agreed upon by the applicant and the cabinet, the
16 application shall be dismissed.

17 Section 9. Public Notice and Comment. (1) Upon determining that an application for a
18 variance, or to construct a new dam or to modify an existing High or Significant Hazard dam, is
19 complete, the cabinet shall provide notice to the public of the permit application and proposed
20 activity or variance. The public notice shall:

21 (a) Be placed on the cabinet's website, <https://eec.ky.gov/Pages/index.aspx>, for a minimum
22 of thirty (30) days;

23 (b) Be sent to any person who has indicated to the cabinet their interest in receiving dam

1 permit notices; and

2 (c) Include the:

3 1. Name and address of each applicant;

4 2. Location and extent of the proposed dam construction or modification;

5 3. Cabinet website address at which the application, drawings, specifications, maps, and
6 other information regarding the dam can be located; and

7 4. Division of Water address and email address to which the public can submit comments.

8 (2) The public shall have an opportunity to comment on the application for a minimum of
9 thirty (30) days from the date of the first publication of the public notice. The cabinet may extend
10 the public comment period if it determines that additional public input is necessary for complete
11 review and analysis of the proposed dam construction or modification.

12 (3) The cabinet shall summarize and respond to comments received during the comment
13 period. The responses to comments shall be:

14 (a) Attached to the issued permit, issued variance, or application denial; and

15 (b) Distributed to persons who submitted comments and any person who requests a copy.

16 (4) The cabinet shall notify persons who filed comments or objections to the approval of a
17 dam construction permit application of their right to be heard pursuant to KRS 151.182(2).

18 (5)(a) The cabinet may waive the public notification requirement only for emergency dam
19 construction or modification that will not impede flow or result in significant property, flood, or
20 environmental impacts should a dam failure occur.

21 (b) The cabinet shall clearly explain its reason for granting the waiver of public notification
22 when it notifies the applicant of a complete application.

1 Section 10. General Maintenance Provisions. (1) A dam owner shall maintain a dam and
2 its appurtenances to:

3 (a) Ensure safety;

4 (b) Prevent deterioration; and

5 (c) Accommodate inspections by maintaining access roads at all times to allow vehicular,
6 equipment, and personnel access for inspection, operation, and maintenance of the dam and all
7 appurtenances.

8 (2) An owner of an earthen embankment dam shall maintain a dam and its appurtenances
9 as established in Kentucky Dam Maintenance Requirements (DEP 4_030_5, Date):

10 Section 11. Determination of Abandonment. A dam shall be deemed abandoned if the
11 owner of the dam:

12 (1) No longer exists, including:

13 (a) Dissolved business entities;

14 (b) Special purpose districts that are dissolved in accordance with the statutory provisions
15 that govern the district; and

16 (c) Decedents:

17 1. Who have no surviving heirs or successors; or

18 2. Whose heirs or successors have successfully disclaimed their interests in a probate or
19 similar judicial proceeding; or

20 (2) Cannot take responsibility to adequately maintain the dam or bring it into compliance
21 with regulatory standards for its hazard classification.

22 Section 12. Permit Validity Periods. (1) A permit to construct a new dam or modify an
23 existing dam shall become effective on the date of issuance and shall remain valid for a period

1 determined by the cabinet and stated in the permit.

2 (2) At least sixty (60) days prior to the expiration date of a dam construction permit, a dam
3 owner may request an extension of the permit validity date for up to one (1) year.

4 (3) The cabinet shall not approve more than two (2) extensions of one (1) year without
5 requiring a newly completed Dam Safety Permit Application (DEP 4_030_3, Date).

6 Section 13. Incorporation by Reference. (1) The following material is incorporated by
7 reference:

8 (a) Kentucky Dam Design Requirements (DEP 4_030_1, Date);

9 (b) EAP Template (DEP 4_030_2, Date);

10 (c) Dam Safety Permit Application (DEP 4_030_3, Date);

11 (d) Continuous Financial Assurance Coverage form (DEP 4_030_4, Date);

12 (e) Kentucky Dam Maintenance Requirements (DEP 4_030_5, Date); and

13 (f) FEMA: Federal Guidelines for Dam Safety Hazard Potential Classification System for
14 Dams, April 2004.

15 (2) This material may be inspected, copied, or obtained, subject to applicable copyright
16 law, at Division of Water, 300 Sower Boulevard, Frankfort, Kentucky 40601, Monday through
17 Friday, 8 a.m. to 4:30 p.m. This material is also available the division's website at
18 <https://eec.ky.gov/Environmental-Protection/Water/Pages/default.aspx>.

19 ~~[This administrative regulation applies to all dams as defined by KRS 151.100 and to all~~
20 ~~other impounding obstructions which might create a hazard to life or property.~~

21 ~~Section 2. Except as modified in this administrative regulation, the procedures outlined by~~
22 ~~the latest edition of "Design of Small Dams" (Second Edition, 1973), available from the U.S.~~
23 ~~Government Printing Office and the Department of Reclamation, herein filed by reference, shall~~

1 ~~be the minimum criteria.~~

2 ~~Section 3. The Division of Water Engineering Memorandum No. 5 (2-1-75) outlined as~~
3 ~~follows: Section A. Definitions; Section B. Structure Classification; Section C. Hydrologic~~
4 ~~Criteria; Section D. Sediment Storage; Section E. Principal Spillways; Section F. Emergency~~
5 ~~Spillways; Section G. Earth Embankments; and Section H. Utilities Under Embankments; is~~
6 ~~hereby incorporated by reference and made a part of this administrative regulation as if fully set~~
7 ~~out herein. Copies are available from the Division of Water upon request.~~

8 ~~Section 4. Structure types not generally used in Kentucky, i.e. gravity, buttress, steel,~~
9 ~~timber, etc., will be considered on an individual basis and reviewed in accord with prevailing~~
10 ~~practices that are currently accepted by the engineering profession.~~

11 ~~Section 5. In all cases the safety of the structure, the water and/or other material impounded~~
12 ~~therein, property and human life will be the principal governing factors. Under no circumstances~~
13 ~~will the proposed use of the structure and its contents, or the cost of providing an unquestionably~~
14 ~~safe structure be allowed to assume precedence over the possible hazard involved.~~

15 ~~Section 6. Structures which are to be repaired or reconstructed must be made to conform~~
16 ~~to the criteria established by this administrative regulation.~~

17 ~~Section 7. Each of the following stated criteria indicates whether the limit is a maximum~~
18 ~~or minimum limit and is not to be construed as being satisfactory design criteria at all sites.~~
19 ~~Professional judgment, state laws and administrative regulations, investigations, or analysis may~~
20 ~~dictate more conservative criteria.~~

21 ~~Section 8. (1) Approval of all plans and specifications shall be divided into two (2) distinct~~
22 ~~parts:~~

23 ~~(a) Issuance of a construction permit pursuant to KRS 151.250 shall constitute approval of~~

1 the final engineering documents to allow construction to be started; and

2 (b) Final written approval by the cabinet upon receipt of the "as built" plans and
3 specifications will constitute approval to impound.

4 (2) No approval to impound water and/or other material is implied or is in any way granted
5 until the "as built" plans and specifications have been approved, an on-site inspection has been
6 made, and a written statement of approval issued. It is recommended that the owner and/or his
7 engineer contact this division before initiation of final design for a predesign conference.

8 Section 9. All plans and specifications submitted for consideration must bear the seal and
9 signature of the responsible engineer as defined in KRS 322.010(2), except officers and employees
10 of the United States Government while engaged in engineering for the government. Each sheet of
11 the drawings shall bear the seal and signature of the engineer or engineers responsible for its
12 preparation.

13 Section 10. All structures, other than Class A as defined in Engineering Memorandum No.
14 5(2-1-75) shall have a complete subsurface investigation and soil analysis submitted as an integral
15 part of the drawings.

16 Section 11. (1) Elevation area capacity data and elevation discharge data must be submitted
17 as a part of the plans for each structure. This elevation area capacity data shall give the area and
18 capacities from the elevation of the lowest point in the impoundment area to at least the elevation
19 at the top of the dam. When the configuration of the structure will not allow the elevation discharge
20 relationship to be developed by methods accepted as standard by the engineering profession, the
21 structure must provide the storage necessary to contain the entire storm run-off without probable
22 damage to the structure or creating an unacceptable hazard to life or property.

23 (2) When this required basic information is furnished by the responsible design engineer,

1 the Division of Water will upon request assist the engineer in preparing the flood routings required
2 by Engineering Memorandum No. 5 (2-1-75).

3 (3) In the event that the elevation area capacity data is not furnished or the flood routings
4 show that insufficient floodwater storage has been provided, the plans will be returned to the design
5 engineer without being approved.

6 Section 12. All information concerning elevations shall refer to mean sea level and the use
7 of assumed elevations for any purpose is prohibited. Should an error in either the horizontal control
8 or vertical control become known during construction, the necessary information to correct the
9 distances and the elevations shall be referred to on the first sheet of the "as built" drawing or
10 referred to in the index. Clearly marked reference points and bench marks shall be maintained at
11 the job site by the responsible engineer until final written approval is received.

12 Section 13. Unless waived in writing by the cabinet, no structure shall be approved unless
13 a positive means is provided to pass water through the structure in sufficient quantity to satisfy the
14 needs of downstream users and to empty the reservoir within a reasonable length of time.
15 Conditions considered in determining downstream water requirements and required minimum time
16 to empty the impoundment shall be determined by the responsible engineer and referred to on the
17 drawings.

18 Section 14. Construction supervision and inspection must be performed by or under the
19 direction of the design engineer. Unless otherwise directed by the cabinet the engineer shall submit
20 monthly progress reports on forms to be supplied by the cabinet. Copies of all testing reports shall
21 be submitted with the progress reports.

22 Section 15. All "as built" documents shall be submitted by the responsible engineer in the
23 form of permanent type drawings of a standard and uniform size. Variations in size will be

1 ~~permitted for federal agencies in order that they may use their standard drawings. Drawings that~~
2 ~~do not conform to standard practices or drawings that are not easily legible will not be accepted.~~

3 ~~Section 16. Because of the cabinet's statutory duty to review federal projects for the~~
4 ~~Commonwealth under KRS 151.220, the United States Army Corps of Engineers is exempt from~~
5 ~~the provisions of this administrative regulation and KRS 151.250.]~~