6115.0410 NEW DAMS OR ENLARGEMENTS.

Subpart 1. **Waivers for Class III dams.** For Class III dams which are sponsored by a governmental agency which will be responsible for operation and maintenance or for which the design, construction supervision, and inspection is performed by a federal agency, the commissioner may waive certain details of the required submittals, provided that the federal agency will furnish the commissioner with adequate facts on the design and construction inspection to allow the commissioner to adequately evaluate the permit and approvals.

Subp. 2. **Permit application.** A separate application, including a preliminary report for each new dam or each dam proposed to be enlarged, shall be filed with the commissioner upon forms provided by the commissioner which shall contain the following:

A. name and address of the owner(s) or prospective owner;

B. purpose;

C. location, type, size, and height of the dam; and

D. storage capacity of the impoundment.

For waste impoundment dams, the permit application shall include facts necessary for the issuance of a permit which extends throughout the life of the impoundment project.

Subp. 3. **Preliminary report.** The preliminary report shall consist of:

A. A general statement setting forth the effect on the environment.

B. Maps showing the location of county, township, and section lines; the outline of the impoundments; the location of state, county, and township roads; the locations of utilities, e.g. pipelines, transmission, telegraph, and telephone lines; the topography; and other structure or facilities including dwellings affected by the proposed dam. State, county, and USGS maps and aerial photographs may be used for this purpose.

C. A written report of surface conditions, i.e. geology, topography, which is based on a field examination by the applicant's engineer and other qualified personnel.

D. Typical cross-sections of the dam accurately showing elevations, proposed impoundment levels, and top width.

E. Logs of borings in the foundation and in the borrow areas, and results of seismic and resistivity subsurface investigations, when they are readily available.

F. Preliminary design assumptions, operational aspects, tentative conclusions, and references. The design assumptions shall pertain to such hydrologic features as drainage area, rainfall data, runoff, inflow, area-capacity-elevation data, and flood routing, in addition to structural, geologic, and geotechnical assumptions.

G. A preliminary cost estimate.

H. Where applicable, future plans on ultimate project size including dams and impoundments.

I. A general description of all other activities and elements related to and part of the total dam project, such as operational plans and details of smaller dams, dikes, diversions, reclaim water facilities, and other facility and utility lines including pipelines, roads, and railroads. The report shall identify each element or activity of the total dam project which would require a permit under the provisions of parts 6115.0150 to 6115.0260.

Subp. 4. **Filing fees.** Each application for a permit must include a $15 fee in the form of a check or money order payable to the commissioner of management and budget.

Subp. 5. **Professional engineer's requirements.** The applicant must engage professional engineer(s) registered in the state of Minnesota or acting solely as officers or employees of the United States as provided in Minnesota Statutes, section 326.13, clause (3), who are proficient in dam engineering to prepare the engineering documents, plans, and specifications, to inspect the construction, or enlargement, and to establish operation and maintenance procedures for the structure.

Subp. 6. **Final design requirements.** Upon acceptance and agreement by the commissioner of the preliminary report, the applicant shall submit to the commissioner, for approval, a final design report, together with plans and specifications and the initial inspection fee. The final design report shall include, but is not limited to, the following:

A. general description of the project, such as its service life, production rates, required storage and area(s); geological considerations such as physiography, topography, geology, seismicity, groundwater conditions, and maps; hydrologic studies such as physical features, climatology, design, storm and design flood characteristics, flood routing, water-material balance, free-board requirements, dam-break flood; geotechnical information, such as rock-soil sampling and logging, geophysical investigations, field and lab testing, instrumentation data; considerations of construction materials and their properties, such as quantities required, borrow and aggregate locations and volumes, field and lab work and investigations, concrete, waste materials generation and placement techniques, investigation of the stored waste materials such as generations, transportation, mechanical/chemical/special testing, disposal practice;

B. analytical determinations, such as seepage and underseepage studies, stability, deformation and settlement analysis; analytical and design details of facilities, such as dam, foundation, impoundment, abutments, spillways (for the purpose of these rules, spillway means any facility appurtenant to the dam available to discharge excess water and/or waste from the impoundment) or decant facilities, diversions, outlet works, instrumentation; operational aspects, such as impoundment operating criteria, initial filling criteria, responsibility and coordination, emergency procedures and warning systems: air, water, and solid pollution controls, sedimentation, and erosion controls: operational and

postoperational maintenance and abandonment considerations; surveillance and inspection programs; and

C. a detailed cost estimate.

Subp. 7. **Plans and specifications.** Plans shall consist of a bound portfolio of the drawings with all sheets being of the same size, and shall be of such scale that specifications can be drafted, and construction accomplished. Specifications shall contain:

A. general provisions, specifying the rights, duties, responsibilities of the owner, designer, contractor; the prescribed order of work;

B. technical provisions describing approved work methods, equipment materials, and desired end results; and

C. special conditions.

Subp. 8. **Permit standards.** Approval or denial shall be based on the potential hazards to the health, safety, and welfare of the public and the environment including probable future development of the area downstream or upstream. The applicant may be required to take measures to reduce risks, and the commissioner shall furnish information and recommendations to local governments for present and future land use controls to minimize risks to downstream areas.

The commissioner shall determine if the proposal is adequate with respect to:

A. For Class I, a showing of lack of other suitable feasible and practical alternative sites, and economic hardship which would have a major adverse effect on population and socioeconomic base of the area affected.

B. For Class II, a showing of lack of other suitable feasible and practical alternative sites and that the dam will benefit the population or socioeconomic base of the area involved.

C. The need in terms of quantifiable benefits.

D. The stability of the dam, foundation, abutments, and impoundment under all conditions of construction and operation, including consideration of liquefaction, shear, or seepage failure, overturning, sliding, overstressing and excessive deformation, under all loading conditions including earthquake. This determination must be based on current, prudent engineering practice, and the degree of conservatism employed must depend on hazards.

E. Discharge and/or storage capacity capable of handling the design flood based on current, prudent engineering practice and the hazard classification.

F. Compliance with prudent, current environmental practice throughout its existence.

Subp. 9. **Work inspection and construction reports.** Work inspection and construction reports:

A. Conformity with approved designs, plans, and specifications.

(1) The permittee shall be responsible for providing adequate controls of construction and operation activities and for the development of data in the ordinary course of those activities on design, construction, and operation assumptions. The owner may engage a professional engineer to operate and inspect the construction, but the designer should also periodically monitor construction.

(2) All construction shall be carried out in accordance with the approved design, plans, and specifications. No alteration, modification, or addition to the approved designs, plans, and specifications that could adversely affect the safety or environmental impact of the dam shall be made by the permittee without prior permission of the commissioner. Such approvals shall be provided, if a proper margin of safety is maintained, as rapidly as possible to preclude interference with construction work schedules. Emergency short-term revisions may be made by the permittee followed by prompt notice to the commissioner. Records of alterations, modifications, or additions to the approved design, plans, and specifications, for which written approval of the commissioner was not required shall be submitted with the construction report as provided in item C.

(3) The commissioner shall make inspections for the purpose of securing conformity with approved designs, plans, and specifications and shall require the owner to perform, at the permittee's expense, work or tests as found necessary to disclose sufficient information to determine if there is conformity.

(4) If, at any time as work progresses, the commissioner finds that changes are necessary to protect health, safety, welfare, and the environment, the commissioner shall order the owner to revise designs, plans, and specifications.

(5) At the commissioner's discretion, the commissioner may observe and approve foundation preparation and may approve construction material placement on an intermittent or continuing basis when field conditions dictate. The commissioner shall be notified at least three days in advance of start of construction.

B. Permanent markers. At least one permanent marker for vertical and horizontal control shall be established in the natural ground by the permittee in the vicinity of each dam so as to be accessible and protected against disturbance throughout its existence. The permanent marker for vertical control must be based upon datum and degree of accuracy based upon considerations of the hazards involved and the size of the dam, as specified by the commissioner.

The permittee shall submit the locations of these permanent markers plotted on the best available maps or plans within time limits prescribed in the permit.

C. Construction report. The permittee may be required to submit monthly reports on construction observation and quality control, when construction is complex or hazardous, including: daily construction documentation; foundation preparation and treatment, quality control tests; records and summaries of actual tests of foundation and construction materials, cutoff trench, grouting, etc; instrumentation installation and maintenance of records and readings; geologic mapping, if any, of exposed foundations; of logs of drill holes and other exploration features, if any, completed during construction; review and evaluation of disclosed field conditions by the designer; and any other items which may be pertinent to a construction quality assurance program.

Subp. 10. **As-built plans and data.** Immediately upon completion of construction the permittee shall file supplementary drawings or descriptions of the dam as actually constructed, or any other items which may be of permanent value bearing on the adequacy and permanency of the dam. In enlargements the data need apply only to the new work.

Subp. 11. **Statement of completion and affidavit of cost.** Within 90 days following completion of construction, the permittee shall notify the commissioner, by certified mail, including a statement of the designer or professional engineer in charge of construction inspection that to the best of knowledge the dam was completed in accordance with the approved designs, plans, and specifications and any revisions thereof.

As soon as practicable thereafter, the permittee shall file an affidavit stating the actual cost in detail or that the permittee is unable to report the actual cost stating the reasons therefor. In the latter event the commissioner shall make at the owner's expense an appraisal of the cost of construction or enlargement and determine what further fee, if any, is required. If a further fee is required, the commissioner shall notify the owner by certified mail of the amount within 15 days including notice that permittee may appear within 60 days thereafter to protest the amount of the fee, in whole or in part and the sufficiency of the appraisal upon which such determination was based.

Subp. 12. **Issuance of impoundment approval.** Impoundment approvals may be necessary for Class I and Class II dams to allow adequate time for inspection before actual impoundment begins.

The type, location, hazard involved, and the purpose served by the dam will be considered in respect to the degree and nature of impoundment approval needed. Certain waste disposal dams which will not be constructed to maximum storage elevation in five years will require a series of impoundment approvals for various stages of construction.

Pending issuance of an impoundment approval (or reissuance in the event of termination) where required the owner of the dam shall not, through action or inaction, allow an impoundment.

The impoundment approval shall contain such terms and conditions as the commissioner may prescribe.

The commissioner may also revoke or amend the terms and conditions of any approval.

Subp. 13. **Performance reports.** The permittee may be required in the case of complex or hazardous dams to submit yearly a performance report detailing the instrumentation data and analysis and interpretation of these data as they relate to the safety of the dam and design assumptions. The frequency of submission may be modified if field conditions so dictate.

Statutory Authority: *MS s 105.535*

History: *17 SR 1279; L 2003 c 112 art 2 s 50; L 2009 c 101 art 2 s 109*

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