

Dam Safety Permit Guidelines



Key DNR Public Waters Resources rules referring to dam safety

- 6115.0320 Definitions
- 6115.0340 Classification of dams
- 6115.0350 General procedures for alteration, repair, or removal of a dam
- 6115.0370 Transfer of dam ownership
- 6115.0380 Operation and maintenance
- 6115.0390 Termination of operations and perpetual maintenance
- 6115.0410 New dams or enlargements
- 6115.0430 Liability of owner and permittee
- 6115.0500 Permit and hearing procedures
- 6115.0520 Inspection fees

www.revisor.mn.gov/rules/?id=6115

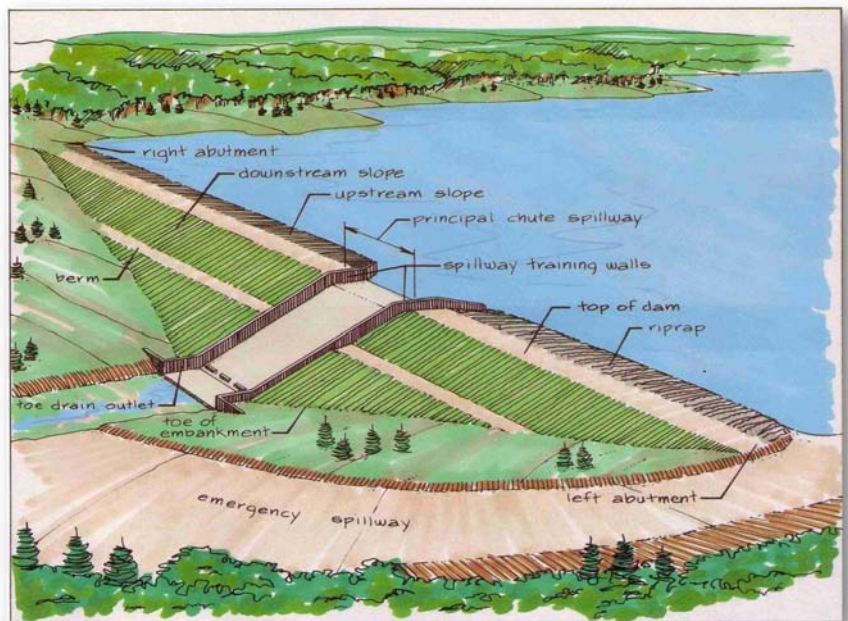
Dam Safety Grants

For information concerning dam safety grants for cities, counties, townships, and watershed districts, call Dam Safety staff in St. Paul at (651) 259-5715 or go to www.mndnr.gov/dams

These guidelines are for landowners and engineers involved in dam construction, repair, alteration, removal, and transfer of property containing a dam. These activities require a Dam Safety permit from the Department of Natural Resources – Division of Ecological and Water Resources (DNR-EWR). The complete Dam Safety rules (Parts 6115.0300-0520 of the DNR Public Waters Resources rules) can be accessed from the Dam Safety home page at www.mndnr.gov/dams.

What is a dam?

A dam is any artificial barrier capable of impounding water. The height of a dam is the vertical distance from the natural bed of the watercourse (at the toe of the dam) to the highest elevation at which water may be impounded during extreme flood conditions. The storage capacity of a dam is the maximum volume of water that can be impounded by the dam. Storage capacity is normally measured in acre-feet, which is the volume of water needed to cover one acre of land to a depth of one foot.



Why is a permit needed?

Dam Safety permits are required to ensure the safe design, construction, operation, and maintenance of dams in order to protect the health, safety, and welfare of the public. Dams remain in place for many decades and must be designed and built properly to remain safe and functional. If improperly designed or built, a dam may fail which can cause loss of life, property damage, environmental damage, and negative economic impacts. In addition, a permit is needed to address the possible impoundment of water on another person's property, alteration of a watercourse, or impacts to the environment.

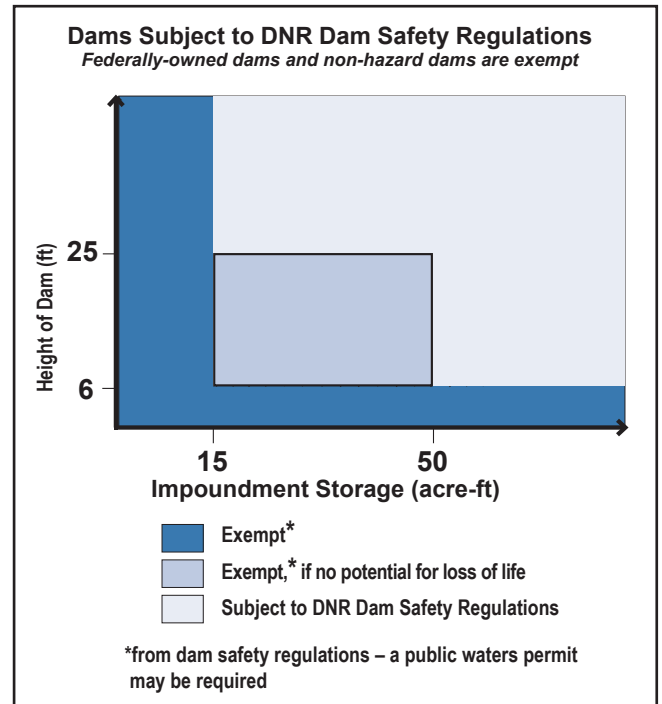
Dam Safety Permit Guidelines

Do I need a permit?

- A permit is needed from the DNR-EWR to construct, alter, repair, remove or transfer ownership of a regulated dam. Regulated dams subject to existing dam safety rules are shown on the graph of dam height and impoundment storage.
- Federally-owned dams and dams determined by the DNR-EWR to be non-hazardous are exempt from the dam safety rules.
- Dams not subject to the dam safety rules will still require state and federal permits if they involve filling of public waters or wetlands.

How do I obtain a permit application?

- You can download a copy from the Dam Safety home page www.mndnr.gov/dams, or call (651) 259-5715.
- The application and supporting project documentation should be submitted for review to the DNR-EWR office in the area where the dam is located. A \$150 application fee is required. Reviewing the application and issuing or denying the permit are normally completed in 60 days.



What is required of a permit applicant?

The applicant (dam owner or authorized agent) must:

- obtain all necessary land rights for the dam and impoundment area to the contour elevation of the top of the dam.
- understand that owning a dam brings significant responsibilities and can create liabilities in case of improper operation or dam failure.
- have the financial means to properly operate and maintain the dam.
- show that the dam will provide quantifiable benefits and will be in compliance with current environmental practice.
- obtain the services of a professional engineer registered in Minnesota, who has experience in dam engineering, to prepare the design, plans and specifications; inspect the construction; and establish operation and maintenance procedures for the structure. The permit application may be rejected if the engineer is not qualified or the design does not meet current dam safety standards. Engineering costs for a small dam typically range from 15-20% of the construction bid amount.
- obtain all other applicable permits.



Lanesboro Dam in Fillmore Co.

What is required in a permit application?

A detailed list of items that may be needed for the design report of a new dam or enlargement can be found in Parts 6115.0410. A design report submitted with the application must include, at a minimum, the following items:

- A map with an outline of the contributing drainage area and a property ownership map showing the outline of the dam, the normal pool, and the maximum pool for the design flood event.
- A topographic survey showing proposed dam elevations that are referenced to a National Geodetic datum (NAVD 88 or NGVD 29).

Dam Safety Permit Guidelines

(What is required in a permit application...continued)

- A computation of the normal and maximum impoundment volume. If a permit exemption based on a small impoundment volume is requested by the applicant, the computations must be based on a reservoir bottom contour interval of no more than two feet.
- A hydrologic/hydraulic analysis based on the hazard classification and design level approved by the DNR-EWR Dam Safety Engineer. The top of the dam must have appropriate freeboard above the design flood elevation. The spillway must be able to pass the design discharge at safe velocities to alleviate erosion on the downstream side of the dam.
- An evaluation of the consequences of a dam failure. This may require a dam break analysis determining the hazard classification and level of design standard for which the dam must be designed. The DNR-EWR Dam Safety Engineer will have to verify the hazard classification, so the designer should get this approved before proceeding with the final design and plans.
- A geotechnical analysis, including analysis of seepage, slope stability, and foundation stability. Appropriate soil borings and testing are needed to complete these analyses.
- A stress analysis of concrete, steel, or timber structural members.
- Final plans and specifications for construction that are signed and dated by the design engineer. They must include guidelines for foundation preparation, type of embankment fill, source of borrow material, and placement of fill.

The DNR Commissioner may waive certain details in permit submittals for low hazard dams sponsored by a government agency or engineered by a federal agency.

What is required after the permit is issued?

- For privately-owned dams, the permit must be recorded with the county before construction can proceed.
- The allowed construction activities will be specified in the permit.
- Before starting construction, the permittee will have to submit information on water diversions, cofferdams, erosion control measures, and construction procedures.
- The design engineer will be required to inspect the work during construction to ensure conformance with the approved design plans and specifications.
- The design engineer and permittee will be required to submit a final construction report, including as-built plans and certification of the construction.
- The dam owner will be responsible for safe operation and maintenance and may have to submit an appropriate plan for this.
- After completing construction, the owner may be required to get an “approval to impound water” from the State Dam Safety Engineer.
- An annual performance report containing instrumentation and monitoring data may be required for certain complex or hazardous dams.
- The project will have to comply with all regulations of other federal, state, or local agencies. An Environmental Assessment Worksheet (EAW) may be required by the Environmental Quality Board.

How do I transfer ownership of a dam?

Ownership transfer of a dam requires a permit from the DNR-EWR. Real estate sales may involve land on which a dam is located. The purchaser of the property must be aware of the dam, the responsibilities and liabilities of owning a dam, the structural condition of the dam and the repair costs that may be involved to bring the dam up to current safety standards.

Dam Safety Permit Guidelines

What are the permit fees?

In addition to the \$150 permit application fee, an initial construction/inspection fee may be required for privately-owned dams. This fee is based on a percentage of the construction cost, as specified in the dam safety rules. For example, the fee for a \$100,000 dam is \$2,500, and the fee for a \$1,000,000 dam is \$13,500. The state may also assess a periodic inspection fee for privately-owned dams.



Pike River Dam in St. Louis County

DNR Contact Information



DNR Ecological and Water Resources lists area office staff at www.mndnr.gov/waters and dam safety staff at www.mndnr.gov/dams.

DNR Ecological and Water Resources
500 Lafayette Road, Box 32, St. Paul, MN
55155-4032, (651) 259-5700 or 5100

DNR Ecological and Water Resources website provides information about dam safety permits and grants at www.mndnr.gov/dams or by calling (651) 259-5715.

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DNR Information Center

Twin Cities: (651) 296-6157
Minnesota toll free: 1-888-646-6367
Telecommunication device for the deaf (TDD): (651) 296-5484
TDD toll free: 1-800-657-3929

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This information is available in an alternative format on request.