



Fact Sheet: Dam Safety in Alaska

Who is ultimately responsible for the safety of dams in Alaska?

The capture of water is inherently a dangerous activity. Whoever impounds or diverts the water is generally liable for any damages caused by those actions. The dam owner is ultimately responsible for the safety of the dam. Under the Alaska Dam Safety Program, the Dam Safety and Construction Unit of the Department of Natural Resources (DNR) regulates dams in Alaska that meet certain jurisdictional criteria defined in Alaska Statutes (AS) to protect life and property.

What statutes and regulations cover dam safety in Alaska?

AS 46.17 (1987) and Article 3, *Dam Safety* of 11 AAC 93 (2004).

What dams are regulated under the Alaska Dam Safety Program?

AS 46.17.900 defines a dam as an “artificial barrier and its appurtenant works” which meets one or more of the following criteria:

- Impounds 50 acre-feet or more and is at least 10 feet high;
- Is 20 feet high or more; or
- Would threaten lives and property if the dam failed.

Federally owned or operated dams or hydroelectric dams regulated by the Federal Energy Regulatory Commission are exempt from state regulation under AS 46.17.100(c).

What dam safety permits are required to construct and operate a dam in Alaska?

A *Certificate of Approval to Construct, Modify, or Repair a Dam* is required prior to any new construction, or major modification or repair of an existing dam. A *Certificate of Approval to Operate a Dam* is required before a new or modified dam can be put into service. A *Certificate of Approval to Abandon a Dam* is required prior to removal or abandonment (de-regulation) of a dam.

What is required to obtain a Certificate of Approval?

To obtain a *Certificate of Approval to Construct, Modify or Repair a Dam*, an application and fee must be submitted to DNR in accordance with 11 AAC 93.171 which also requires plans, specifications, engineering reports and other

information prepared by a qualified civil engineer. After the construction is completed according to approved plans, a *Certificate of Approval to Operate a Dam* is issued by the department.

To renew an expired *Certificate of Approval to Operate a Dam*, a current *Periodic Safety Inspection* by a qualified engineer is required by 11 AAC 93.159. In addition, a current *Operations and Maintenance Manual* is required by 11 AAC 93.197, as well as an *Emergency Action Plan* required by 11 AAC 93.164 for Class I or Class II hazard potential dams as defined in 11 AAC 93.157.

To obtain a *Certificate of Approval to Remove or Abandon a Dam*, an application and fee must be submitted to DNR in accordance with the requirements of 11 AAC 93.172 including a determination by a qualified engineer whether the closed configuration remains a dam under the definition in AS 46.17.900.

A qualified engineer is defined in 11 AAC 93.193.

How long does it take to obtain a Certificate of Approval?

Regulations under 11 AAC 93.171 describe a multi-part application process that engages DNR early in the planning process to ensure the design meets certain criteria. DNR typically requests 180 days of review time during the application process. The total time is dependent on the size and complexity of the project and the design engineer’s schedule to conduct investigations and evaluations necessary to demonstrate a safe design.

DNR anticipates 30 days to renew a *Certificate of Approval to Operate a Dam* after current versions of the documents previously mentioned are received.

What determines the engineering criteria that must be used to design the dam?

Dams are given hazard potential classifications based on the danger the dam poses to lives, property, and anadromous fish habitat. The hazard potential classification reflects only the potential impacts were the dam to fail, and does not reflect the design, stability, or condition of the dam. The hazard potential classification influences the design criteria for engineering evaluations of the dam. Dams are classified as Class I (high), Class II (significant) or Class III (low) hazard potential based on the consequences

should the dam fail, as described in 11 AAC 93.157.

What general design procedures are acceptable for design of dams?

Standardized design procedures such as Corps of Engineers or National Resource Conservation Service guidelines are generally acceptable for use in designing dams in Alaska. The proposed design standards should be agreed upon with the DNR early in the application process described in 11 AAC 93.171.

When must a dam be inspected?

During construction, the dam owner or design engineer must perform regular quality assurance inspections, in addition to quality control inspections and testing conducted by the contractor. During operation, the dam owner must perform routine inspections at intervals specified in the *Operations and Maintenance Manual*. In addition, the dam owner must retain a qualified professional engineer, pre-approved by the department, to perform *Periodic Safety Inspections* required by 11 AAC 93.159. These must be performed every three years for Class I and II dams, and every five years for Class III dams. If the owner fails to provide for this inspection, the DNR may perform the inspection at the owner's expense, as provided under 11 AAC 93.161. *Periodic Safety Inspection* reports must be submitted to the department for review and approval. Additional inspections or evaluations may be required, or conducted by the DNR, based on findings described in the report, including monitoring, engineering analyses, studies, or other information.

What records must the owner of a dam maintain?

The owner of a dam must maintain a file of all records pertaining to the safety of the dam. These records may include construction plans and specifications, engineering reports, as-built drawings, construction completion reports, construction inspection reports, material test analyses, and reports of routine and *Periodic Safety Inspections*.

The department may inspect these records during the owner's regular business hours or at any time during an emergency. If denied access, the department may seek an administrative subpoena to require the owner to produce the records.

Does the DNR offer technical assistance to dam owners?

DNR offers some technical assistance and guidance to dam owners, but for construction, repair, or modifications to a dam, a qualified engineer must be retained by the owner.

Is an emergency plan required for dams?

For Class I and Class II dams, an *Emergency Action Plan* is required by 11 AAC 93.164. This plan details the actions the

owner will take in the event of a dam failure, potential dam failure, or other emergency involving the dam. The plan must have an inundation map and describe warning and evacuation procedures for affected persons. The plan must also include coordination with the local emergency management agency and DNR.

What are some indicators of dam emergencies and what should I do if I see them?

If water is flowing over the top of a dam outside of a spillway, the dam may be in danger of failure. At any time, if increased flow or cloudy or muddy water is observed from seeps or sand boils, or sinkholes are noted, there is a possibility that material is being eroded from the dam or dam foundation. Cracks in the dam may indicate movement in the structure, which can signal structural problems, especially after an earthquake. Notify the owner and the local emergency management agency at once and then DNR, if any of these conditions are observed.

What happens if there is a dam emergency?

In the event of an emergency at a dam, the dam owner is the primary entity responsible for taking steps to prevent failure of the dam and alert the local authorities to ensure the safety of the public downstream of the dam. If the owner does not take appropriate steps, DNR can seize control of the dam and take necessary action to protect the safety of the public and mitigate the emergency, including dewatering and breaching the dam, if necessary.

What should I do if I live below a dam?

Check with your local emergency management agency to get information on the dam. If the dam is a Class I or Class II dam, instructions for potentially affected persons during an emergency should be available. In general, determine the quickest way to reach a safe place on high ground above the potential flood zone. Make sure all members of your family are aware of where to go in the event of a dam failure.

For more information on the Alaska Dam Safety Program or to submit applications for construction, modification, repair, removal, or abandonment of dams, contact:

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