

12 - 0461

**LEGISLATIVE REPORT
MINNESOTA FALLS DAM
February 24, 2012**

- Location -** On the Minnesota River in Chippewa and Yellow Medicine counties, approximately three miles downstream of Granite Falls.
- Ownership -** Owned by NSP/Xcel Energy since the 1910's. Originally built in 1905.
- Function of Dam -** The dam was used to produce hydropower until 1961 and provided cooling water for the Minnesota Valley Generating plant up until a few years ago when the plant was shut down. Currently, the reservoir created by the dam is used for water supply and recreation.
- Size of Dam -** The dam consists of an earthen embankment, a rock overflow spillway, a concrete overflow spillway, the main concrete/masonry spillway, and stoplog bays. The dam is 17 feet high with a spillway length of 400 feet and an overall length of 600 feet.
- Condition of Dam -** The dam is in poor condition. Concrete is eroded, deteriorated, and cracked on the spillways, piers, stoplog bays, and abutments. The dam has not been fully inspected during drawdown conditions since 2006 due to recent high water conditions. The dam may not meet the recommended factor of safety against a sliding failure.
- Hazards -** The dam is classified as a high-hazard dam because failure of the dam during a flood event may result in the loss of life and significant property damage downstream.
- The hydraulic roller on the downstream side can trap and drown people and presents a safety hazard to users of the river and operations personnel. This summer, a worker drowned after falling from the dam while trying to clear debris off the dam.



Transfer of ownership to keep the dam from being removed

The current dam owner intends to remove the dam in 2012, but there is local interest in transferring ownership to a local government unit in order to keep the dam. Neither the state nor

any governmental unit may purchase or accept as a gift a privately owned dam until the provisions of Minnesota Statutes, section 103G.525 are met. Section 103G.525 requires legislative review of a report on the dam since dam ownership carries with it many potential liabilities. A Department of Natural Resources (DNR) permit is also required to transfer ownership of a dam per Minnesota Rules, part 6115.0370. Removal or repair of a dam requires a DNR permit per Minnesota Rules, part 6115.0350.

Repair vs. Removal

Dams can provide a useful purpose, but there are burdens that come with dams such as financial costs to the owner, safety hazards to people near the dam or downstream of the dam, and ecological degradation. Consequently, there are advantages and disadvantages of repair versus removal of the Minnesota Falls Dam.

The advantages of repairing the dam are generally related to the benefits of the reservoir, including not needing to alter the water intakes for Granite Falls Energy, the golf course, and residents along the reservoir; filling of the golf course pond via gravity flow; keeping sewer outfalls from being exposed; retaining the possibility of using the dam to produce electricity; and sustaining navigability on the reservoir pool.

Some advantages of dam removal include the least short term and long term cost to the owner; the least cost to the state; a reduction in the hazard risk; restoration of a historic falls; restoration of a riverine system, which will allow for easier migration of fish upstream to Granite Falls; and restoration of rare and critical habitat that may be some of the most unique fish habitat that historically existed on the Minnesota River. It is likely that this reach is critical for species of the Minnesota River and the Upper Mississippi River, where sturgeon, paddlefish, blue sucker, and many other rapids spawning species are in jeopardy (Figure 1).

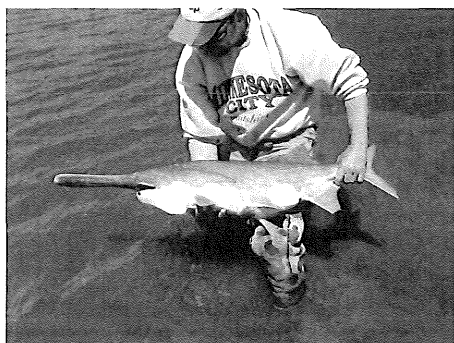


Figure 1. Paddlefish captured below Minnesota Falls. Paddlefish spawn in rapids and will travel long distances to reach these areas.

Short-term responsibilities

The dam is in poor condition due to the possible structural instability and the concrete deterioration. Since the owner is actively pursuing removal of the dam, the Minnesota DNR has not mandated that the dam be repaired. Should the process to remove the dam be stopped, or the dam ownership transferred to an entity that would pursue keeping the dam, several items would need to be addressed to ensure the dam meets current dam safety standards including:

- Inspect the entire dam during a drawdown and repair any deficiencies noted during that inspection;
- Assess the structural stability and possibly perform structural modifications to increase the factor of safety to an acceptable level;
- Repair or replace eroded, deteriorated, and cracked concrete on the spillways, piers, stoplog bays, and abutments;
- Update the Emergency Action Plan, dam break analysis, and inundation map
- Update the Operations and Maintenance manual; and
- Modify the downstream apron of the dam to eliminate the submerged hydraulic roller condition that can trap and drown people in the tailwater

Funding

A 2010 study of dam alternatives found that bringing the dam up to current dam safety standards would be roughly two to three times the cost of removal of the dam when future repair and maintenance costs are considered. The current estimated cost of removal is \$1.5 million. If the dam is transferred and repaired, it is expected that the current owner will assist financially in the repair costs since the state allowed the current owner to defer repairs while they were pursuing dam removal.

Since the dam is now privately owned, it is not eligible to receive state dam safety funding for repairs or removal. Local government owned dams are eligible to receive a grant of up to 50% of the costs of repair (Minn. Stat., sec. 103G.511, subd.3) and up to 100% of the costs of removal (Minn. Stat., sec. 103G.515, subd.5). The state is responsible for 100% of the costs of state owned dams. If ownership is transferred from a private entity to the public, the state may incur financial obligations it otherwise would not have had.

Long-term responsibilities

Ownership of a large high-hazard dam carries with it significant liabilities and long-term financial responsibilities. The State of Minnesota believes the costs and liabilities of owning the dam outweigh any benefits it provides and therefore it is not interested in taking over ownership of the dam. A dam owner must comply with dam ownership requirements of Minnesota Statutes, Chapter 103G and Minnesota Rules, Chapter 6115. A dam owner could be found liable for damages incurred from a dam failure or improper operation, as well as injuries to others because of dangerous conditions at the dam. Owners will be required to keep records and submit investigation reports. Unless the dam is removed, they must perpetually maintain, operate, and repair their dam to ensure the integrity of the structure. A non-state dam owner will need to do this without financial assistance from the state.