



Lower Granite Lock & Dam Interim Risk Reduction Measures

U.S. ARMY CORPS OF ENGINEERS

BUILDING STRONG®

Project Description

Lower Granite Lock and Dam is located on the Snake River at the upper end of Lake Bryan, upstream of Little Goose Lock and Dam. It is 107.5 miles above its confluence with the Columbia River and 24 miles northwest of Clarkston, Wash. Lower Granite Lake, with a drainage area of 103,200 square miles, extends behind Lower Granite Dam 39.3 miles to Lewiston, Idaho. It provides navigation, hydroelectric power, irrigation, and recreation. Flood control is incidental to other purposes.



Lower Granite includes a powerhouse, navigation lock, and fish passage facilities. The dam is about 3,200 feet long with a normal operating hydraulic height of 100 feet. Construction began in July 1965 and completed in 1984. Backwater levees related to Lower Granite were constructed around Lewiston, Idaho. The project generates 810 megawatts of power. The Corps manages approximately 4,802 acres for public recreation purposes, wildlife habitat, wildlife mitigation, and water-connected industrial development. Approximately 515 acres are licensed either to State or local park agencies. Port districts own lands adjacent to the project for industrial development.

Dam Safety Program & Public Safety

The U.S. Army Corps of Engineers owns and operates 635 dams nationwide. These dams serve a variety of purposes including navigation, flood risk management, water supply, irrigation, hydropower, recreation, and environmental enhancement. As part of the responsibility for managing these dams, the Corps has a comprehensive Dam Safety Program with public safety as its primary objective.

In 2005, the Corps initiated the Dam Safety Action Classification (DSAC) System as part of its overall dam safety program to optimize public safety. The DSAC system is a method of screening Corps dams to identify dam safety issues and deficiencies and establish a relative ranking of their potential risk to the public. The Corps then uses this rating system to establish a nationwide prioritization to focus funding first on dams and navigation locks that pose the greatest risks to the public.

Dam Safety Screening & Interim Risk Reduction Measures

The Corps is screening all its dams and assigning safety classification ratings based on two key factors: 1) an assessment of the probability (high, medium, low) of dam failure (based on confirmed or unconfirmed dam safety issues), and 2) the consequences if failure were to occur.

In May 2007, the Corps released Engineering Circular (EC) 1110-2-6064, *Interim Risk Reduction Measures (IRRM) for Dam Safety*. The circular includes a Dam Safety Action Classification Table to rate critical aspects of the dam based on known or suspected dam safety issues and engineering judgment. Using the DSAC rating system, each dam is classified from I to V, with DSAC-V being the “most safe” and DSAC-I posing the “most urgent” risk. The rating system also describes a policy for developing and implementing Interim Risk Reduction Measures (IRRM) to reduce the probability or consequences of unacceptable performance. These risk reduction measures may be either structural or non-structural. These interim measures are designed to minimize short-term risk to public safety while pursuing long-term, permanent solutions or further investigation reveals a potential failure mode is not probable.

Lower Granite Lock and Dam Status

Lower Granite Lock and Dam was classified as a DSAC-III “High Priority (Conditionally unsafe)” primarily for dam embankment failure due to navigation lock wall overtopping; right side overtopping at the railroad cut; and dam overtopping due to the spillway’s inability to pass flows during maximum flood conditions. Implementation of interim measures will reduce the probability and consequences of dam failure until long-term remediation is complete. Although the probability of dam failure is low, the consequences of failure are potentially high. Currently there is no evidence to suggest an emergency situation exists or is about to occur. However, the Corps identified conditions that don’t meet industry dam safety standards, and the risk to public safety is unacceptable. Therefore, we are taking priority actions to address potential dam failure.

Response to the DSAC Rating

In response to Lower Granite’s DSAC-III rating, the Walla Walla District assessed the lock and dam’s safety and developed an Interim Risk Reduction Measures Plan to address high priority risks identified in that assessment.

Interim measures include immediate, short-term and ongoing initiatives to minimize public risk. They are designed to better evaluate and reduce the probability of dam failure as well as reduce consequences of a failure. Prevention of loss of life is the first and foremost objective, followed by prevention of economic and environmental losses.

What the Corps is Doing Now

To optimize public safety, we are taking the following steps to reduce the potential of dam failure, loss of life, and economic and environmental impacts:

1. Perform a spillway hydrology/hydraulic study.
2. Develop a navigation gate and floating bulkhead placement and operations plan.
3. Develop a navigation lock equipment flood damage mitigation plan.
4. Develop right side stockpile placement procedure.
5. Perform tainter gate fit-for-service evaluation.
6. Perform potential failure mode analysis.
7. Update the dam surveillance plan to address high water and emergency-related event monitoring.
8. Create inundation maps in electronic format; include smaller events.
9. Update the emergency action plan.
10. Conduct emergency exercises.
11. Perform a stilling basin hydrographic inspection.

These and other short-term actions allow us to operate the dam, meet our public safety objectives, and continue to review the lock and dam and pursue long-term repairs as appropriate.



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