



# DAM SAFETY UPDATE

## LOWER GRANITE LOCK AND DAM

U.S. ARMY CORPS OF ENGINEERS

BUILDING STRONG.

### What residents near dams should know

Living with dams and along rivers comes with risk. Know your risk. One of the Corps' (USACE) primary missions is to ensure that inland navigation traffic can move safely, reliably, and efficiently and with minimal impact on the environment.

Living with locks and dams is a shared responsibility of residents, local emergency management, and USACE. Know your role. Listen to and follow instructions from local emergency management officials. Contact your local officials to learn about flood risk management decisions in your area. Consider purchasing flood insurance.

For additional information, see:



[http://www.damsafety.org/media/Documents/DownloadableDocuments/LivingWithDams\\_ASDSO2012.pdf](http://www.damsafety.org/media/Documents/DownloadableDocuments/LivingWithDams_ASDSO2012.pdf).

<http://www.usace.army.mil/Missions/CivilWorks/DamSafetyProgram.aspx>.

<http://www.nww.usace.army.mil/Missions/DamSafety.aspx>.

### Project Description

Lower Granite Lock and Dam is a run-of-river dam that maintains a navigable pool for river traffic but does not store flood waters. It is located on the Snake River 107.5 miles above its confluence with the Columbia River and 24 miles northwest of Clarkston, Wash. The dam is at the upper end of Lake Bryan, upstream of Little Goose Lock and Dam. Lower Granite Lake, with a drainage area of 103,200 square miles, extends upstream of Lower Granite Dam 39.3 miles to Lewiston, Idaho. Lower Granite provides navigation, hydroelectric power generation, recreation, and incidental irrigation.

Lower Granite consists of a spillway, powerhouse, navigation lock, an earth fill embankment, and fish passage facilities. Construction of Lower Granite began in August 1965 and the project was placed in operation in April 1975. Dam-related backwater levees were constructed around Lewiston, Idaho. The dam is about 3,200 feet long with a normal operating hydraulic height of 100 feet. The powerhouse has 810 megawatts of electrical generation capacity. 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.

### Risks Associated with Dams in General

Every day, thousands of vessels move people, animals, and products across the country via the nation's inland rivers and harbors. This water traffic is a vital component of the nation's economy. However, the navigation infrastructure is aging. Over half of the locks and dams are over 50 years old, and the consequences of this aging infrastructure are increasing incidents of downtime with disruption to river navigation, and a higher risk of major component failures, both of which have significant economic risks. To manage these risks, USACE has a routine program that inspects and monitors its locks and dams regularly. USACE implements short- and long-term actions such as interim risk reduction measures (IRRM), on a prioritized basis, when unacceptable risks are found at any of its dams. The status of Lower Granite Lock and Dam IRRM is provided below.

### Risk Associated with Lower Granite Lock and Dam

Based upon the most recent risk assessment of Lower Granite Lock and Dam in 2008, USACE considers this dam to be a moderate to high risk dam, among its more than 700 dams. The risks are primarily driven by embankment

failure due to navigation lock wall overtopping; right abutment overtopping at the railroad cut; and dam overtopping due to spillway gate failure during an extreme flood event. The potential for loss of life due to an extreme flood event are highest in Tricities, WA and Portland, OR, which are located downstream of the dam. Advanced warning of problems and events plays a major role in protecting life and property.

## **Status of Interim Risk Reduction Measures**

### **Completed/Resolved Interim Risk Reduction Measures** (as of January 2017)

- Develop a navigation gate and floating bulkhead placement and operations plan: Completed.
- Perform Tainter gate fit-for-service evaluation: Evaluation completed June 2012. Updates will be required as future inspections and data collection warrant.
- Update probable maximum flood: Update completed and approved August 2013.
- Perform a spillway hydraulic study: Cancelled; no life safety risk reduction benefit.
- Develop a navigation lock equipment flood damage mitigation plan: Cancelled; no life safety risk reduction benefit.
- Dam safety emergency action plan revised in December 2014.

### **Ongoing/Remaining Interim Risk Reduction Measures** (as of January 2017)

- Stockpile emergency material such as sand and gravel.
- Perform potential failure mode analysis.
- Develop dam surveillance plan to address high water and emergency-related events.
- Update emergency action plan inundation maps and generate water surface profile.
- Conduct emergency exercises.