DAM SAFETY UPDATE
McNARY 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.usace.army.mil/Missions/CivilWorks/DamSafetyProgram.aspx.
http://www.nww.usace.army.mil/Missions/DamSafety.aspx.

Project Description

McNary 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 in Oregon and Washington at river mile 292 on the Columbia River. Lake Wallula lies directly upstream of the dam and has a drainage area of 214,000 square miles. McNary is a multipurpose project providing navigation, hydroelectric power generation, recreation, wildlife habitat and incidental irrigation.

McNary consists of a spillway, powerhouse, navigation lock, two earth fill embankments, and fish passage facilities. Construction of McNary began in April 1947 and the project was placed in operation in November 1953.The dam is 7,365 feet long with a normal operating hydraulic height of 75 feet. This includes a 1,620-foot-long earth fill embankment between the Washington shore and the navigation lock and a 2,465-foot-long earth fill embankment between the Oregon shore and the powerhouse. The powerhouse has 980 megawatts of electrical generation capacity.

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 McNary Lock and Dam IRRM is provided below.

Risk Associated with McNary Lock and Dam

Based upon the most recent risk assessment of McNary Lock and Dam in 2015, USACE considers this dam to be a moderate to high risk dam, among its more than 700 dams. The risks are primarily driven by powerhouse and navigation lock failure modes, such as a navigation lock gate failure or powerhouse structural instability due to a significant seismic event. The potential for loss of life is highest at the dam with the loss of life concerns decreasing substantially 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)

- Repair navigation lock derrick cranes: Completed, derrick cranes are back in service.
- Perform spillway end sill undermining inspection: End sill diving inspection completed.
- Stockpile emergency sand and gravel: A purchase agreement has been established to obtain materials, supplies, and equipment from a local contractor in the event of an emergency.
- Update the dam safety emergency action plan: Revision completed September 2012.
- Complete navigation lock stoplog inspection and repairs: Downstream stoplogs have been inspected and repaired. Upstream stoplog repairs are complete.
- Perform potential failure mode analysis: Completed May 2015.

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

- Develop and implement north side protection procedure: Engineering scope developed, awaiting funding to complete.
- Install additional powerhouse foundation instrumentation: Project instrumentation evaluation recommended, which will include this item.
- Develop the Oregon and Washington fish ladders closure plan.
- Develop dam surveillance and monitoring plan for high water events.
- Conduct emergency exercises: An internal (Corps only) tabletop exercise was completed in FY2016. This is planned to be a recurring measure.