



# DAM SAFETY UPDATE MCNARY LEVEE SYSTEM

U.S. ARMY CORPS OF ENGINEERS

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## What residents near dams and dam-related levees should know

Living with flood risk-reduction infrastructure such as dams and levees comes with risk. Know your risk. Levees do not eliminate all flood risk, so it is important that residents downstream from the levees are aware of the potential consequences should a levee breach, not perform as intended, or be overtopped due to extreme river flows.

Living with dams and levees is a shared responsibility of residents, local emergency management, and the Corps. Know your role. Listen to and follow instructions from local emergency management officials. The Corps doesn't normally issue evacuation instructions. 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

The McNary Levee System, also known as the "Tri-Cities Levees," is an appurtenant or dam-related structure to McNary Lock and Dam, and consists of three groups of levee segments along the banks of the Columbia River that provide flood damage reduction for portions of Kennewick, Pasco and Richland, Washington. The levee group names are based on location and are identified as the Kennewick Levees, Pasco Levees, and Richland Levees. The McNary Levee System includes about 15 miles of levees. Lake Wallula behind McNary Lock and Dam is about 63 miles long and includes 242 miles of shoreline and a water surface area of 38,800 acres.

Construction of the McNary Levee System began in 1950 and was completed in 1954. Ownership and operational responsibility for two levees and a pumping plant were transferred to the Port of Pasco in 1963. A 1992 report estimated that the McNary Levee System prevented nearly \$59 million (1992 dollars) of flood damages annually.

## Public Safety is the Corps' Highest Priority

The U.S. Army Corps of Engineers' highest priority is public safety. While we cannot completely eliminate risk, we can reduce risk. The objective of the Corps' Dam Safety Program is to maintain public safety, make Corps dams safer and minimize risks. Since 2007, the Corps has used a risk-informed process to prioritize addressing dam safety deficiencies on a nationwide basis. Walla Walla District dams and appurtenant (dam-related) levees were screened and assessed for dam safety issues and deficiencies and their potential risk to the public. This led to a better understanding of specific conditions at dams, which has led to safety improvements.

After dams and dam-related levees were assessed, the Corps categorized dams into five Dam Safety Action Classifications (DSAC) based on individual dam safety risk:

- DSAC 1: Very High Urgency
- DSAC 2: High Urgency
- DSAC 3: Moderate Urgency
- DSAC 4: Low Urgency
- DSAC 5: Normal

The dam safety classifications assist the U.S. Congress and the Corps in prioritizing funding for dam safety infrastructure improvements.

### **McNary Levee System Status**

The levees at Kennewick, Pasco and Richland were each screened and classified as DSAC 2 “High Urgency” in September 2009. This is primarily because of potential seepage and piping due to failure at conduits through the levees under normal or extreme reservoir pool conditions. Also, during extreme water levels, potential overtopping and erosion of levees plus seepage and piping at embankments, foundations and abutments are concerns.

The McNary Levee System DSAC 2 means for confirmed and unconfirmed dam safety issues, the combination of life, economic or environmental consequences with likelihood of failure is high. The Corps considers this level of life-risk to be unacceptable except in extraordinary circumstances. Currently there is no evidence to suggest an emergency situation exists or is about to occur.

### **Risks Associated with Dams in General**

Dams and appurtenant levees reduce but do not eliminate the risk of economic and environmental damages and loss of life from flood events. A fully-functioning levee could be overtopped when a very rare or infrequent large flood occurs, or a levee could breach because of a deficiency, both of which pose risk of property damage and loss of life. This means there will always be flood risk to be managed. To manage these risks, the Corps routinely inspects and monitors its levees. The Corps 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 levees. McNary Levee System IRRM include:

#### **Completed Interim Risk Reduction Measures** (as of February 2015)

- Inspect and maintain levee system culverts: Completed for the Pasco Levee System.
- Create inundation maps: Completed. Maps are incorporated into updated emergency action plan.
- Update emergency action plan: Revision finalized March 2014 and distributed to local emergency management officials.

#### **Ongoing/Remaining Interim Risk Reduction Measures** (as of February 2015)

- Develop surveillance plan for high water events.
- Inspect and maintain levee system culverts for Kennewick and Richland Levee Systems.
- Complete vegetation maintenance (Richland Levee System only).

### **Ongoing Risk Management**

An Issue Evaluation Study (IES) is scheduled to begin in late FY2015, contingent upon resources. The purpose of an Issue Evaluation Study is to focus on significant potential failure modes when evaluating risk, verify the current DSAC, guide the selection of and gauge the effectiveness of interim risk reduction measures, and justify the need to pursue or not pursue a Dam Safety Modification Study.

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