McNary Levee System
Interim Risk Reduction Measures

U.S. ARMY CORPS OF ENGINEERS **BUILDING STRONG®**

Project Description

The McNary Levee System is a set of three levee systems built as part of the McNary Lock and Dam project to provide flood protection for portions of Kennewick, Pasco, and Richland, Wash. The System is on the Columbia River and tributaries and is sometimes identified as the “Tri-Cities Levees.” Lake Wallula, behind McNary Lock and Dam, is 63 miles long and includes 242 miles of shoreline and a water surface area of 38,800 acres.

The three McNary Levee Systems are individually referred to as “Kennewick Levee System”; “Pasco Levee System”; and “Richland Levee System.” Construction of the McNary Levee System began in 1950 and was complete in 1954. Ownership and operational responsibility for two levees and a pumping plant transferred to the Port of Pasco in 1963. A 1992 report estimated the McNary Levee System prevented nearly $59 million (1992 dollars) of annual flood damage.

Dam Safety Program & Public Safety

The U.S. Army Corps of Engineers owns and operates 635 dams and dam-related levees nationwide, plus other levees. These dams and levees 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 and levees, the Corps has a comprehensive Dam Safety Program with public safety as its primary objective. The McNary Levee System is included in this program.

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 and associated levees 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, dam-related levees 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 related levees and assigning safety classification ratings based on two key factors: 1) an assessment of the probability (high, medium, low) of dam or dam-related levee failure (based on confirmed or unconfirmed 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 each dam/levee based on known or suspected safety issues and engineering judgment. Using the DSAC rating system, each dam or levee 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 (IRRMs) 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.

McNary Levee System Status

McNary Levees at Kennewick, Pasco and Richland were each classified as a DSAC-II “Urgent” 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 Corps has identified conditions that don’t meet industry safety standards, and the risk to public safety is unacceptable. Therefore, we’re taking priority actions to address potential levee failures.

Response to the DSAC Rating

In response to the McNary Levee System’s DSAC-II rating, the Walla Walla District assessed the System’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 levee 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 at the McNary Levee System, we are taking the following steps to reduce the potential of levee failure, loss of life, and economic and environmental impacts:

1. Inspect and maintain levee system culverts.
2. Update emergency action plan.
3. Create inundation maps.
4. Increase monitoring and surveillance.
5. Complete vegetation management studies and maintenance (Richland Levee System only).

These and other short-term actions allow us to operate the levees in the Tri-Cities, meet public safety objectives, and continue to review the lock and dam while pursuing long-term repairs as appropriate.

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