



DAM SAFETY UPDATE

MILL CREEK STORAGE DAM

U.S. ARMY CORPS OF ENGINEERS

BUILDING STRONG®

What residents near dams should know

Living with flood risk-reduction infrastructure such as dams and levees comes with risk. Know your risk. Dams do not eliminate all flood risk, so it is important that residents downstream from the dam are aware of the potential consequences should the dam breach, not perform as intended, or experience major spillway or outlet works flows.

Living with dams is a shared responsibility of residents, local emergency management, and the U.S. Army Corps of Engineers. 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.usace.army.mil/Missions/CivilWorks/DamSafetyProgram.aspx>.

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



Mill Creek Project's Two Dams Divert and Store Flood Water

The Mill Creek Flood Control Project contains two dams—1) a “Diversion Dam” to divert water from the Mill Creek mainstem to a storage reservoir, and 2) a 3,050-foot long, 120-foot high “Storage Dam” to safely hold water in the Bennington Lake storage reservoir. Diverting flood water helps reduce potential flood damage to the city of Walla Walla and adjacent downstream areas bordering Mill Creek, Yellowhawk Creek and Garrison Creek. The two-dam system is designed to generally limit maximum creek flows into Walla Walla to approximately 3,500 cubic feet per second (cfs) as long as the storage reservoir has capacity to accept diverted flows.

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 better understanding of specific conditions at dams, which 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.

Mill Creek Storage Dam Status

The Mill Creek Storage Dam holding Bennington Lake was initially rated as DSAC 1 or “Very High Urgency” in August 2008 based on a brief one-day records-only review. The classification was primarily due to potential dam seepage and piping issues within the foundation of the dam when Bennington Lake is more than 17 percent full for an extended period of time.

In October 2009, the Storage Dam was upgraded to DSAC 2 or “High Urgency” by the Corps headquarters Senior Oversight Group after additional data gathering and the preliminary Issue Evaluation Study (IES) showed risk for dam failure under normal operations was not as high as originally estimated. The purpose of an IES is to focus on significant

potential failure modes when evaluating risk, verify current DSAC rating, guide selection of and gauge effectiveness of interim risk reduction measures, and justify the need to pursue or not pursue Dam Safety Modification studies.

In May 2011, Mill Creek Storage Dam received a more favorable or safer DSAC 3 or “Moderate Urgency” classification from the Senior Oversight Group based on the completed IES. The IES identified both 1) low likelihood of dam failure and 2) low estimated loss of human life due to dam failure.

The Mill Creek Storage Dam DSAC 3 means for confirmed and unconfirmed dam safety issues, the combination of life, economic or environmental consequences with likelihood of failure is moderate. The Corps considers this level of life-risk to be unacceptable except in unusual circumstances. Currently there is no evidence to suggest an emergency situation exists or is about to occur.

The separately classified Mill Creek Diversion Dam was initially screened and classified as DSAC 2 or “High Urgency” in January 2009. In May 2014, the Diversion Dam was reclassified as DSAC 4 or “Low Urgency” as a result of additional Corps study of the dam.

Risks Associated with Dams in General

Dams reduce but do not eliminate the risk of economic and environmental damages and loss of life from flood events. When a flood exceeds a reservoir's storage capacity such as during a large flood or storm, significant amounts of water may need to be released, causing damaging flooding downstream. A fully-functioning dam could be overtopped when a very rare or infrequent large flood occurs, or a dam 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 dams. 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 dams. Mill Creek Storage Dam IRRM include:

Completed Interim Risk Reduction Measures (as of February 2015)

- Modified diversion operations to reduce frequency of reservoir levels above elevation 1214 feet (above top of concrete cutoff wall inside the dam).
- Modified outlet conduit operations to leave 54-inch sluice gate in open position for all operations.
- Improved operations of intake canal headworks: installed electric motors on gates; increased gate height.
- Increased monitoring and surveillance for pools above elevation 1214 feet.
- Performed a potential failure modes analysis.
- Completed a hydrologic re-evaluation of a site-specific Standard Project Flood (SPF).
- Stockpiled emergency materials including coordinating with Walla Walla County on pre-positioning emergency supplies and contracts.
- Revised/updated dam safety emergency action plan.
- Conducted three emergency exercises on basis of DSAC 1 rating.
- Obtained portable floodlights and generator to assist with emergency operations at night.
- Completed inundation maps revision.
- Improved upstream gauge system.
- Verifying dam and project elevations: Survey was completed in 2011. A thorough evaluation of Project's operations found the design freeboard of 5 feet is still met. At its current elevation, there's no increase in flood risk.

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

- Continue to update and test the dam safety emergency action plan as needed.
- Working with Walla Walla County to develop a flood response plan including support for a county emergency alert system. A joint agency flood exercise was held in March 2011.
- Conducting comprehensive dam seepage and stability analysis: On hold until completion of Dam Safety Modification Study
- Evaluate increased channel capacity: On hold until completion of Dam Safety Modification Study.

Other Risk Reduction Measures (as of February 2015)

- Construction contract to install access to the Storage Dam toe drains for camera inspection purposes is near completion.

Ongoing Risk Management

The Corps will continue to monitor and examine Mill Creek Storage Dam. The Mill Creek System—including both the Storage Dam and the Diversion Dam—have been advanced into a Dam Safety Modification Study starting in FY2015 to address uncertain performance of the system at high pools.