



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 Corps (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>.

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

The Mill Creek Flood Control Project is located approximately 2.5 miles east of Walla Walla, Washington, at stream mile 11 on Mill Creek, a tributary of the Walla Walla River. The Mill Creek Flood Control Project provides flood risk reduction, recreation, and fish and wildlife conservation.

The Mill Creek Flood Control Project contains two dams: 1) a "Diversion Dam" to divert water from the Mill Creek mainstem to an off-stream storage reservoir (Bennington Lake), and 2) a "Storage Dam" to safely hold water in Bennington Lake. The Mill Creek Flood Control Project achieves flood risk reduction for the city of Walla Walla and adjacent downstream areas by using the Diversion Dam to divert Mill Creek flow into Bennington Lake where it is stored during flood events.

The Mill Creek Storage Dam consists of an earth fill embankment that is 3,200 feet long with a maximum height of 145 feet. The outlet works consist of a concrete intake tower built in the upstream toe of the Storage Dam and a 42-inch conduit that extends through the embankment. Discharge from the 42-inch outlet conduit is controlled by a butterfly valve system at the downstream toe of the dam that routes flow to either the Russell Creek Canal or the Mill Creek Return Canal.

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, large amounts of water may have to be released that could cause damaging flooding downstream. A fully-functioning dam could be overtopped when a rare, 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 that has to be managed. To manage these risks, USACE has a routine program that inspects and monitors its 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 Mill Creek Storage Dam IRRM is provided below.

Risk Associated with Mill Creek Storage Dam

Based upon the most recent risk assessment of Mill Creek Storage Dam in 2011, USACE considers this dam to be a moderate to high risk dam, among its more than 700 dams primarily due to increased potential for internal erosion of the embankment and foundation during extreme flood events. Currently there is no evidence to suggest an emergency situation exists or is about to occur.

Status of Interim Risk Reduction Measures

Completed/Resolved Interim Risk Reduction Measures (as of January 2016)

- 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.
- 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 January 2016)

- Continue to update and test the dam safety emergency action plan as needed: emergency action plan update is planned for FY2016.
- 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 January 2016)

- Construction contract to install access to the Storage Dam toe drains for camera inspection purposes was completed in 2015.

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 that started in FY2015 to address uncertain performance of the system at high pools.