



DAM SAFETY UPDATE

MILL CREEK DIVERSION DAM

U.S. ARMY CORPS OF ENGINEERS

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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 wild life 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 main components of the Mill Creek Diversion Dam are a diversion dike, a concrete spillway and headworks for diversion of flows to the Storage Dam. The diversion dike is a rolled earthfill embankment, 2,200 feet long with a maximum height of 23 feet. The concrete spillway is a hollow, or Ambursen type, structure that is 250 feet long, and 14 feet high. The intake head works leading from the Diversion Dam to Bennington Lake consists of four radial gates and a 1,800 foot long concrete lined canal leading from the headworks to the storage reservoir.

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 Diversion Dam IRRM is provided below.

Risk Associated with Mill Creek Diversion Dam

Based upon the most recent risk assessment of Mill Creek Diversion Dam in 2013, USACE considers this dam to be a low risk dam, among its more than 700 dams primarily due the potential for overtopping and erosion of the diversion dike during an extreme flood event. 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)

- Increased gate capacity to Bennington Lake.
- Stockpiled emergency supplies and equipment.
- Revised/updated emergency action plan.
- Performed an overtopping and conveyance study.
- Improve instrumentation: Additional instrumentation installed at Diversion Dam dike in September 2012.
- Perform a potential failure modes analysis: Completed in September 2013.

Ongoing/Remaining Interim Risk Reduction Measures (as of January 2016)

- Develop surveillance plan for high water events: planned for FY2016.
- Update inundation maps: Update completed in FY2014; distribution to local emergency management officials pending.
- Conduct diversion dike embankment and foundation seepage stability analysis: Based on the results of the recent semi-quantitative risk assessment, this measure is considered low priority and not recommended for implementation at this time.
- Conduct concrete spillway stability and foundation seepage analysis: Based on the results of the recent semi-quantitative risk assessment, this measure is considered low priority and not recommended for implementation at this time.

Other Risk Reduction Measures (as of January 2016)

- Installation of a new toe drain along the diversion dike.

Ongoing Risk Management

The Corps will continue to monitor Mill Creek Diversion 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.