



Mill Creek Diversion Dam Interim Risk Reduction Measures

U.S. ARMY CORPS OF ENGINEERS

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Background

The U.S. Army Corps of Engineers owns and operates 635 dams serving a variety of purposes including navigation, flood risk management, water supply, irrigation, hydropower, recreation, and environmental enhancement.

To ensure acceptable public safety levels for its dams, the Corps is using a risk-informed process to prioritize addressing dam safety deficiencies on a nationwide basis.

As part of this process, the Corps is screening its dams and assigning safety classification ratings.

History

Mill Creek Flood Control Project, which contains two dams, was completed in 1942.

The Mill Creek Diversion Dam works in concert with the Storage Dam to divert flood water from the Blue Mountains to a storage reservoir at Bennington Lake. 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. (*For more information on the Storage Dam see, separate fact sheet.*)

Dam Safety Screening & Interim Risk Reduction Measures

On May 31, 2007, the Corps released Engineer Circular (EC) 1110-2-6064, *Interim Risk Reduction Measures (IRRM) for Dam Safety*. This circular includes a Dam Safety Action Classification (DSAC) rating table. The screening for all District dams has been completed.

Based upon the assigned DSAC values, we develop, prepare, and implement interim risk reduction measures to reduce risk of damage to property and prevent loss of life. Interim risk reduction measures are our short-term efforts to reduce dam safety risks while we pursue long-term solutions.

Mill Creek Diversion Dam Status

Mill Creek Diversion Dam received a Dam Safety Action Classification (DSAC) rating of II primarily because there are potential dam seepage and piping issues with the foundation of the dam and dike during high flows. The highest recorded flows coming out of the Mill Creek Project were approximately 3,500 cubic feet per second (cfs) in 1996. The Diversion Dam experienced increased seepage then, but performed well and did not show signs of instability. Other significant high flows during the past 100 years occurred in 1906 and 1931 (which prompted the construction of the Mill Creek project).

These findings create an urgent requirement for interim risk reduction measures and system modifications to optimize public safety, our top priority. During routine operations there is no evidence to suggest an emergency situation exists, or is about to occur, at Mill Creek Diversion Dam.

Implementation of proposed IRRMs will reduce the probability and consequences of catastrophic dam failure to the maximum extent reasonably practicable until long term remediation is complete.

During high flows we anticipate higher risks. We will closely monitor the performance of Mill Creek Diversion Dam and modify operations to minimize risk to the public.



Diversion Dam Specific Deficiencies

Potential Failure Modes

1. Diversion dike embankment and foundation seepage and piping.
2. Concrete spillway foundation seepage and piping.
3. Concrete spillway structural instability.
4. Diversion dike embankment and foundation instability during earthquakes.
5. Diversion dike embankment and foundation instability during floods.
6. Diversion dike overtopping and erosion under extreme floods.
7. Flow capacity through gates to Bennington Lake.

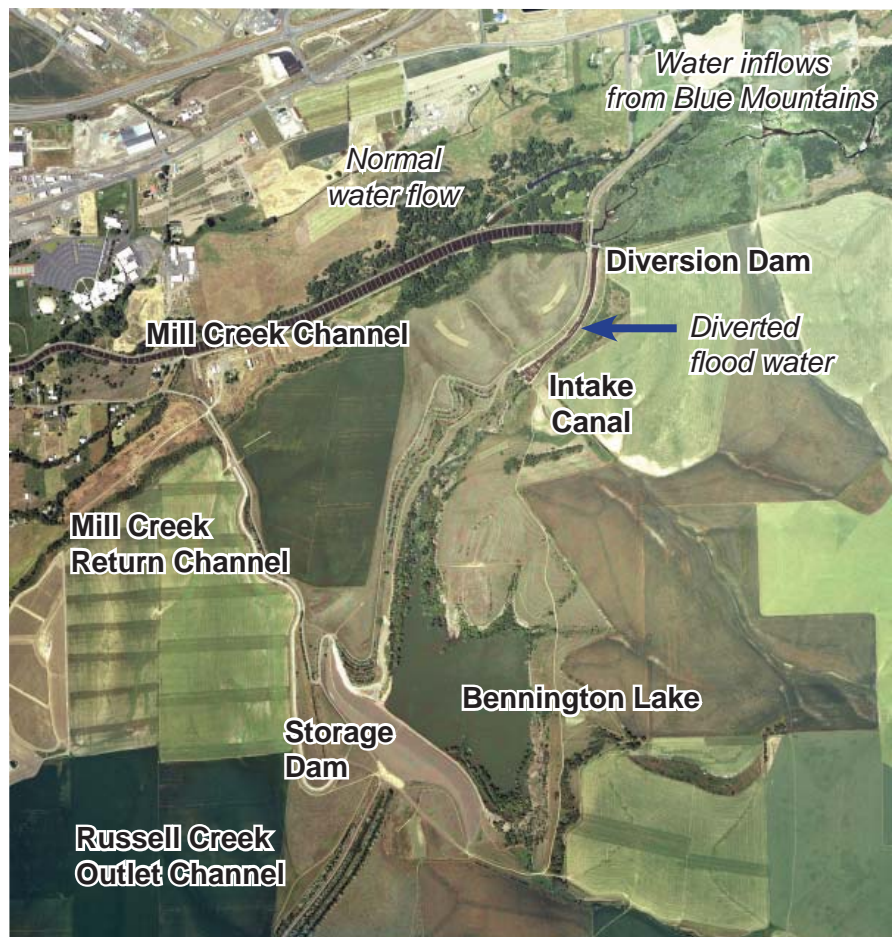
What the Corps is Doing Now

We are studying Mill Creek Diversion Dam and analyzing potential failure modes. Further engineering evaluations are planned to include field exploration and analysis to evaluate the seepage conditions. Although dam seepage is not uncommon, prudent management of dams includes increased monitoring when additional seepage is observed. A revised monitoring and surveillance program has been implemented for the Diversion Dam.

Throughout this process, the Walla Walla District will continue to keep the public informed of safety issues as the Corps determines whether or not the dam is in need of repairs. This evaluation is expected to take two to four years.

Our interim risk reduction measures include:

1. Increase gate capacity to Bennington Lake. Feb. 2011 Status: Completed.
2. Increase monitoring and surveillance. Feb. 2011 Status: In progress.
3. Stockpile emergency supplies and equipment. Feb. 2011 Status: Completed.
4. Emergency response planning
5. Create inundation maps
6. Perform a potential failure modes analysis
7. Improve instrumentation. Feb. 2011 Status: Engineering scope in progress.
8. Conduct a diversion dike embankment and foundation seepage stability analysis
9. Conduct a concrete spillway stability and seepage analysis. Feb. 2011 Status: In progress.
10. Perform an overtopping and conveyance study. Feb. 2011 Status: In progress.



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