



Wisconsin Dam Rehabilitation Project October 2003



Grout, a mixture of cement, water and clay, is injected through boreholes into voids in the rock. The grout curtain reduces water flow through rock in the dam foundation.

The watershed dams built through Public Law 83-566 are important to Wisconsin in many ways. They provide flood control to prime farmland, highways, communities and residences and conserve natural resources.

Wisconsin was chosen in 2000 as a pilot state to rehabilitate several aging watershed dams. Bad Axe Watershed Dam No. 24 is part of this national pilot rehabilitation project. Experience and information gained from this project is being used as other dams are rehabilitated across the nation.

During a heavy spring rainstorm water began to enter fractures in the rock foundation causing severe damage to the dam abutment. Rehabilitation of this dam ensures that it will continue to provide protection for property and natural resources in the watershed.

Rehabilitation has extended the life of Bad Axe Dam No. 24 for 50 years. Necessary repairs to the dam included grouting to reduce seepage flow through the left abutment, repair of the principal spillway pipe and enlargement of the plunge pool.

Bad Axe Watershed

From May 31 to June 1, 2000, 6.75 inches of rain fell in 36 hours in the watershed causing a partial failure of Bad Axe Dam No.24.

The USDA Natural Resources Conservation Service developed a supplement to the watershed plan recommending repairs to the site. The principal spillway pipe was repaired, the plunge pool was enlarged and high rates of seepage were reduced by implementing a grouting program. These repairs ensure that the dam will continue to provide benefits for another 50 years.

This dam provides flood protection to cropland and infrastructure downstream. In addition, the dam prevents sediment from entering Hornby Creek, a class II trout stream.

Construction project cost: \$415,646

Funding: Sixty-five percent of the project construction cost and 100% of the technical assistance was provided by the USDA Natural Resources Conservation Service. 17.5% of the project construction cost was provided by the State of Wisconsin and another 17.5% by the project sponsor.

Watershed Project Sponsor:
Vernon County Land Conservation
Department



Bad Axe Watershed

- ◆ Size: 132,000 acres or 206 square miles
- ◆ Dams: 7
- ◆ Project Primary Purpose: Repair of the dam provides flood protection to cropland and infrastructure downstream. In addition, the dam prevents sediment from entering Hornby Creek, a class II trout stream.
- ◆ History: In 1959, the main problems identified in the watershed were floodwater damage to croplands, roads, bridges and land by sedimentation. From 1963 to 1987, the planned flood control structures were built through the P.L.-566 program.

Wisconsin Watershed Program

Eighty-seven small flood control dams have been built in Wisconsin through the Watershed Protection and Flood Control Act of 1954 (Public Law 83-566). Most of these dams were built from the mid-1950's through the 1980's. These dams provide flood control to prime farmland, highways, and communities. They are an integral part of the communities and benefit people's lives every day.

Wisconsin Rehabilitation Needs

- ◆ Over thirteen dams in the state have deteriorating components, including pipe separations or cracked concrete pipe supports.
- ◆ Over 20 dams are known to be built in rock formations that have fractured bedrock, a condition that lead to a failure of a dam in 1978 and 2000.
- ◆ Increased hazards have been created downstream from more than 20 dams due to home development in or near the floodplains.
- ◆ Structural components like slide gates and principal spillway pipes have deteriorated.
- ◆ Sedimentation has reduced flood storage capacity in some structures.

National Rehabilitation Needs



Location of dams that are over 30 years old.

- ◆ Since 1948 over 11,000 small flood control dams have been built in 2,000 watersheds in 47 states.
- ◆ Many of these earlier constructed dams were designed for a 50-year life expectancy. Over one-half of the dams are over 30 years old.
- ◆ Today, many of these older dams need rehabilitation. Concrete and metal used in the principal spillways have deteriorated and in some situations public safety and health are at risk.
- ◆ Over the next five years it is anticipated that NRCS will receive 900 sponsor requests requiring 1,500 watershed assessments resulting in 700 watershed plans.
- ◆ There are currently 110 watershed rehabilitation projects in the Nation.

For additional information about this rehabilitation project contact the USDA Natural Resources Conservation Service office, 8030 Excelsior Drive, Suite 200, Madison, Wisconsin, 53717, (608) 662-4422.

Information about pilot rehabilitation projects in other states and about other issues related to aging watershed dams is available at the NRCS national web site (www.nrcs.usda.gov). Click on Programs then Watershed Rehabilitation

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, sex, religion, age, disability, political beliefs, sexual orientation, or marital or family status. (Not all prohibited bases apply to all programs). Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 1400 Independence Avenue, SW, Washington D.C. 20250-9410 or call (202)720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.