



Raleigh Dam

## 2015 Construction Update

During the 2015 construction season, the State Water Commission's (SWC) construction crew conducted repairs and modifications to water resource structures, as well as assisted in the operations of the state run outlets on Devils Lake. The following are two examples of many projects that were completed in 2015.

### Tolna Dam Repairs

Tolna Dam is an earthen embankment recreation dam in Nelson County. The structure is located down stream of the East Devils Lake Outlet. In addition to the earthen embankment, the dam also has a concrete low-head spillway chute and a low-level outlet system. During the spring of 2015, water was found flowing from under the downstream toe of the concrete spillway apron. This clearly indicated that there was internal erosion beneath the dam. The low-level system was opened to draw-down the reservoir, and efforts were made to plug the leak by placing sandbags in the sinkhole that was forming in the channel upstream of the concrete spillway. A cofferdam was constructed around the sinkhole to keep it from growing and reaching the main body of the reservoir. Once the flow through the sinkhole was cut off, a better

assessment of the issues was made. It was decided to fill the sinkhole with a fine aggregate concrete, and pump grout under the apron slab and any remaining voids under the spillway. A sheet pile cutoff wall was installed from the left side of the spillway into the embankment to cut off the flow paths the water had been taking. Additionally, a new concrete wing wall was constructed on the left side of the dam.



Repairs being made to Tolna Dam. The reservoir was drawn down and a cofferdam was constructed to allow access to areas needing repairs.



Water flowed underneath Tolna dam and caused internal erosion that can be seen here.



Members of the construction crew searching for voids underneath the spillway. When voids were found, grout was pumped into the structure to fill them.



Tolna Dam repairs were finished by the end of May 2015.

### Raleigh Dam

Constructed in 1988, Raleigh Dam is an earthen embankment, recreational use dam located in Grant County. Over the years, the construction joints in the principal spillway have spread apart, some gaps wider than two inches in places, causing some to seep water. Another problem that started a couple of years ago, is that the sluice gate, which controls the low-level drawdown system, would no longer close without special effort. The sluice gate is located underwater in the wet well of the outlet-structure, making access to it a challenge. More recently, to complicate the project further, a large rock found its way into the wet well, jamming the sluice gate in the open position. Because of these problems, the SWC construction crew undertook a project with the Grant County Water Resource District and the ND Game & Fish Department to correct these issues.

To resolve the issue with the sluice gate, it was decided to lower the reservoir. The gate was fully opened and the reservoir drained over the next several months. Once the water was down, the project only took about three weeks. The leaking joints were filled with a special grout and topped with a flexible caulk. The malfunctioning sluice gate was examined, and it was determined that the collar that provides the down force for closing the gate had broken off. The broken collar was retrofitted to provide the necessary down force. The project was completed in late September 2015.



Raleigh Reservoir was drained to a low level so that repairs could be made to the Dam.

### New Excavator

In the spring of 2015, SWC staff let bids for a new excavator to replace the construction crew's previous excavator that had been in service since 2001. The new excavator is a 2015 VOLVO EC250E. The crew looks forward to many years of use with this machine.



The new excavator.



# State Water Commission approves \$160 million for municipal, rural, and regional water supply projects



The North Dakota State Water Commission: (back row from left) Doug Vosper, George Nodland, Harley Swenson, Arne Berg, Larry Hanson, Maurice Foley, Robert Thompson. (front row from left) Agriculture Commissioner Doug Goehring, Governor Jack Dalrymple, State Engineer Todd Sando.

The State Water Commission met on Tuesday, October 6 and approved multiple cost-share requests for municipal, rural, and regional water supply projects across the state.

- Municipal water supply project cost-share approvals included the City of Dickinson, \$1.04 million; City of Mandan, \$2.29 million; City of Minot, \$3.63 million; Watford City, \$5.43 million; City of West Fargo, \$3.42 million; and the City of Williston, \$10.89 million.
- Rural water supply projects approved for funding were Stutsman Rural Water District, \$4.17 million; and North Prairie Rural Water District, \$3.45 million.
- Large regional water systems were also considered at the meeting, with \$70 million approved for Western Area Water Supply, and \$55 million for Southwest Pipeline.

“The Commission meeting was monumental in regards to the amount of funding we were able to approve through our cost-share program,” said State Engineer Todd Sando. “The State Water Commission approved \$160 million for water supply projects in rural areas and communities throughout the state.”

In other action items, the Commission approved funding for the North Dakota Irrigation Association, \$100,000; Thompson Bridge Outlet No. 4 in Griggs County, \$621,661; Robinwood Bank Stabilization in Ward County, \$256,449; Upper Swan Creek Channel Improvements in

Cass County, \$171,763; Forest River Watershed Study in Walsh County, \$114,100; and North Branch Park River Watershed Study in Walsh County, \$81,200.

Also approved at the meeting was federal Municipal, Rural, and Industrial (MR&I) water supply program funding of an additional \$160,000 for the Brush and Blue Lakes Expansion Project by the McLean-Sheridan Water District.

The Commission consists of Governor Jack Dalrymple as Chairman, Agriculture Commissioner Doug Goehring, and seven Governor appointed members: Arne Berg, Maurice Foley, Larry Hanson, George Nodland, Harley Swenson, Robert Thompson, and Doug Vosper.

The State Water Commission will utilize funds appropriated by the Legislature for the 2015-2017 biennium toward these water supply projects.



North Dakota State Water Commission  
Todd Sando, P.E., State Engineer  
900 East Boulevard Ave. • Bismarck, ND 58505  
(701) 328-2750 • <http://swc.nd.gov>

*The State Water Commission does not discriminate on the basis of race, color, national origin, sex, age, or disability in employment or the provision of services.*