



Sando Appointed ND's 17th State Engineer

By Patrick Fridgen

At their July 28 meeting, the North Dakota State Water Commission voted unanimously to hire Todd Sando as North Dakota's 17th State Engineer. He will replace Dale L. Frink, who retired in the end of June. Sando was recommended for the State Engineer position by a search committee, which was formed earlier in the summer at the request of Governor John Hoeven.

"We do have a lot of pressing water issues," Sando told the Commission after the vote. "I'll work closely with Commission members, and I'll work hard to communicate... We can make this a better place for future generations, and solve a lot of our issues out there."

Sando will assume responsibilities as State Engineer and Chief Engineer-Secretary to the Water Commission with a solid understanding of its workings, having been employed with the Commission for his entire professional career.

Sando began working for the Commission in 1985 as a Water Resource Engineer, following an internship there, and after receiving his Civil Engineering degree from the University of North Dakota. In 1997, after heading the Investigations Section for nine years, Sando was hired as Director of the Water Development Division. In 2001, he also assumed the role of Assistant State Engineer, in addition to his duties

as Division Director.

During his 25 years with the Commission, Sando has been actively involved in a number of water management and development issues. More specifically, Sando has become one of the state's most respected experts on Missouri River management issues, and he was instrumental in advancing many positive modifications to the Missouri River Master Water Control Manual.

Also during his tenure as Assistant State Engineer, and under his direction as Director of Water Development, numerous flood control projects were completed in communities throughout North Dakota – including the completion and recent expansion of the state's emergency Devils Lake outlet.

During major flood events that have plagued the state in recent decades, Sando has been on the front line of statewide flood response efforts, including the establishment of emergency levees that saved large sections of Grand Forks in 1997. During the more recent and unprecedented floods of 2009, Sando was also actively engaged in emergency



Todd Sando, P.E.

flood response efforts in numerous communities throughout the state, and at several dams that were at risk of failing.

When asked about water management issues that will be his primary areas of focus in the coming years, Sando said that flood control and dealing with the continuing wet cycle will most certainly be at the forefront. "We need to make sure the Fargo-Moorhead metro area gets a permanent solution to their flooding problems. And, we'll continue to work hard on Devils Lake flooding – including doing what we can to prevent an uncontrolled overflow," said Sando.

Unprecedented flooding in the spring of 2009 also brought a lot of flood control problems in smaller towns to light. Since then, the Water Commission has been working closely with them to assist in levee recertifications, and to move new projects and upgraded studies forward. "There are a lot of flood control needs in many of our smaller towns, too," Sando said. "We need to do what we can to make sure those people are safe."

In another area of focus, providing adequate municipal and industrial water supplies to support oil development (including a growing workforce) in the west, has become increasingly challenging, and time-consuming. "The best way for North Dakota to meet the growing water supply needs out west is to tap the Missouri River – and put it to use," said Sando.

When asked about some of the longer term critical issues facing North Dakota in the next decade, Sando talked about Missouri River management, including the development of that resource, interstate issues between basin states, and recent attempts by the Corps to implement storage fees on our Missouri River reservoirs.

Also related to Missouri River water issues is the advancement of

the Northwest Area Water Supply (NAWS) project, which is temporarily held up in court. “We need to focus on getting all of the lawsuit issues resolved, and then move forward,” said Sando. “I’m confident in the end that things will work out, and NAWS will deliver Missouri River water to people in the northwest,” he continued.

Sando also reiterated that flooding issues – particularly in the eastern

part of the state and in the Devils Lake region, will continue to be a challenge for years to come.

In talking about his new position, Sando said that it has been a goal of his for some time to ultimately become North Dakota’s State Engineer. “I was raised in a family that has always been involved in water management, so it’s something that’s always been a big part of my life,” said Sando. “I love North Dakota,

and I love working in the water management field, so this is a great opportunity that I’m excited about.”

In his spare time, Sando is an avid outdoorsman – enjoying fishing, hunting, and an occasional round of golf. Sando has been a resident of the Bismarck-Mandan community for most of his life, and he and his wife, Lunette, currently make their home in Mandan.

Devils Lake Outlet Expansion Completed and Operational

The new transition and filter structure at the Devils Lake outlet.



The new permanent intake structure and two 75 cfs pumps added at the Round Lake pumping station as part of the outlet expansion project.



By Michael Noone

Starting in late 2009, and finishing in June, the State Water Commission successfully completed an ambitious expansion of the Devils Lake outlet. With the rapid design, mobilization, and construction of the outlet, the state was able to increase the peak pumping capacity from 100 cubic feet per second (cfs) to 250 cfs. Increasing the capacity required substantial changes in the outlet infrastructure, including bringing in 6,000 more kilowatts of power; four new 75 cfs pumps; an expansion of the gravel filter; new facilities at Round Lake, including a permanent water intake; an expansion of the Josephine pump site; and modifications at the terminal structure, where the outlet flows into the Sheyenne River.

Despite all of the work required, good planning during the outlet’s initial construction and hard work by Commission staff limited costs, and the expansion was completed for approximately \$16 million - including only six months of construction time.

The outlet was originally sized for a maximum of a 100 cfs, because sulfate concentrations in the Sheyenne River limited outlet operations. This in turn impacted outlet effectiveness, and because Devils Lake has continued to reach record highs year after year, it was decided that more needed

to be done to combat the lake's rise.

Because of those operational limitations, in 2008 and 2009, the Water Commission began the process of working with the North Dakota State Health Department to raise the sulfate limitations by an emergency ruling for the Sheyenne River, in order to accommodate a greater flow from the outlet, and in the hopes of reversing or stalling Devils Lake's rise.

The process for changing sulfate standards for the Sheyenne River requires time and public comments. However, because of the emergency situation, a temporary permit was granted in advance of the final permit decision. As of 2010, the temporary sulfate standards for the Sheyenne River from the outlet insertion point to Lake Ashtabula allow a maximum combined sulfate concentration of more than 750 milligrams per liter for upstream gages, while below Lake Ashtabula remains a maximum combined sulfate concentration of less than 450 milligrams per liter. A final decision on the stream standard change in sulfates is expected sometime in late 2010.

Outlet operations began on May 21, and the rest of the system was brought on line with the 250 cfs capacity on June 24.

It is the Water Commission's intent to use the expanded outlet pumping capacity. This will hopefully slow the rise of Devils Lake as much as possible, and perhaps significantly lower the lake over time.



Erosion of the earthen emergency spillway at Absaraka Dam (2009).

SWC Approves Funding for Absaraka Dam

The Water Commission approved a \$114,783 cost-share request from the Maple River Water Resource District (WRD) at their July 28 meeting to help with the rehabilitation of Absaraka Dam in Cass County.

Absaraka was originally built back in 1960 by the Soil Conservation Service for flood control purposes, and is now owned and managed by the Maple River WRD.

During the spring floods of 2009 and 2010, Absaraka Dam sustained erosion damage to its emergency spillway (see photo). According to the Maple River WRD, the Natural Resources Conservation Service (NRCS) implemented emergency measures in 2009 to divert water away from the eroding spillway – resulting in a new erosion area forming.

After that occurred, the Maple River WRD hired a consultant to study whether the dam met current safety standards per the North Dakota Dam Design Handbook. It was determined the spillway did not meet requirements, and thus, needed to be repaired to bring it into compliance.

The NRCS is managing the rehabilitation of the Absaraka Dam emergency spillway, and they have agreed to move forward with the project through their Emergency Watershed Protection Program. As part of the project, the NRCS plans to improve the spillway with articulating concrete blocks to provide erosion protection, rather than repairing the spillway to its pre-disaster condition.

According to the Maple River WRD, the rehabilitation project will greatly increase the safety of the dam by decreasing the risk of loss of life and property to downstream residents.

The NRCS will provide 75 percent of the total project costs, with the remaining balance coming from the Maple River WRD, Game and Fish, and the Water Commission.



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