The Oxbow

FROM THE NORTH DAKOTA STATE WATER COMMISSION

Devils Lake overflows into Stump Lake

By James Landenberger

On May 10, 2001, Devils Lake reached an elevation of 1447.5 feet above mean sea level (amsl), and began overflowing into Stump Lake at a rate of 15 cubic feet per second (cfs) at the divide through the Jerusalem Channel. Due to some available water storage in wetlands located along the channel, a U.S. Geological Survey stream gage, located three miles downstream of the divide, recorded 10 cfs of flow.

Bruce Engelhardt, Head of the Investigations Section at the State Water Commission said, "We were nearly certain that Devils Lake would overflow to Stump Lake sometime this spring. Now it's no longer a question of when, but how much overflow we will see."

The National Weather Service's latest forecast predicts a 50 percent probability that Devils Lake will reach an elevation of 1448.1 feet amsl by August 1, 2001. At this elevation, Devils Lake will inundate an additional 13,000 acres and will increase in volume by 250,000 acre-feet. The lake currently covers 128,000 acres and stores 2.5 million acre-feet of water.

It has been determined by Water Commission staff that if Devils Lake reaches the predicted elevation of 1448.1 feet amsl, water will flow through the Jerusalem Channel to Stump Lake at a rate of 100 cfs. This would allow 37,000 acre-feet of water to flow into Stump Lake over the course of the year. This volume of water would raise Stump Lake five feet above its current elevation of 1411.1 feet amsl, flooding 600 acres of land. Currently, Stump Lake covers 7,700 acres and has a volume of 119,000 acre-feet. ■

Websites helpful in Red River Valley flood fight

By Patrick Fridgen

Since the spring flooding of 1997 and even in the last year, new websites have emerged to provide one-stop-shopping for pertinent Red River Basin flood information, making it more accessible and quicker to obtain than ever before. However, not only new sites are providing collaborative flood-related information for the Red River Basin, older sources have been updated as well.

Several government agency websites have been providing valuable flood-related information virtually since Internet use began, such as the United States Geological Survey, the National Weather Service, the U.S. Army Corps of Engineers, etc. However, in lieu of chronic flooding problems in the Red River Valley, the need was identified to provide Red River Basin specific information collectively at individual websites.

For example, internet users who may be seeking current flood stages in the Wahpeton/Breckenridge area, and projected flood levels in Fargo/Moorhead, can get that information quickly from Red River Basin specific websites. This is extremely valuable, as when floodwaters threaten the property of thousands, quick access to current flood information can mean the difference between staying dry and substantial losses.

Red River Basin flood information websites

USGS Red River Basin Flood Tracking:
www.nd.water.usgs.gov/rrflood.html

RiverWatch Online:
www.riverwatchonline.org

NWS Advanced Hydrologic Prediction Services:
www.crh.noaa.gov/fgf/ahps/ahpsmain.htm

Red River Basin Board:
www.redriverbasinboard.org

U.S. Army Corps Water Control:
www.mvp-wc.usace.army.mil/imagemaps/RRN.html

The following include new or updated websites that provide more accessible flood information for the benefit of Red River Basin residents.

The USGS 2001 Red River Basin Flood Tracking Website

Just as they did during the spring flood of 1997, the USGS provided a 2001 Flood Tracking Website for the Red River Basin. The Flood Tracking Website provides residents, emergency managers, and government officials with valuable hydrologic information. Visitors to the Flood Tracking Website can click on major streamflow gaging stations depicted on an interactive Red River Basin map or from a list of locations to receive real-time stream levels, seven day streamflow information, current stage relative to recorded peak stages, streamflow for the previous 18 months, station location, and length of record.

The current stage relative to recorded peak stage information, which compares current water levels with peak water levels from the five largest floods at each gaging station, is a new addition to the 2001 website. This information helps basin residents and emergency managers evaluate the level of risk associated with current flooding by making comparisons with past events.

RiverWatch Online

RiverWatch Online, which made its debut last fall and covered its first flood this spring, is a year-round website that was made possible through a two-year grant from the Otto Bremer Foundation. RiverWatch evolved as a partnership between Prairie Public Broadcasting, the International Flood Mitigation Initiative, and individuals from the general public who have an interest in issues concerning the Red River Basin. In regards to flooding in particular, RiverWatch provides comprehensive flood forecasting, flood mitigation, flood preparedness, flood response, and flood recovery information consistently and accurately.

A convenient feature available through the RiverWatch website is the RiverWatch Update. Visitors to the RiverWatch site can register to receive updates via email concerning projected flood stages, current river levels, clean-up efforts, and other major undertakings in their area related to flooding.

In cooperation with other community and government agencies, Prairie Public Broadcasting is also using its television and radio capabilities to relay critical flood information to basin residents. On March 5, 2001 Prairie Public Television premiered their RiverWatch television update. This included a multimedia flood information and education program that aired for five minutes, Monday through Friday, at approximately 9:55 p.m (CT) during the spring flooding months. Broadcast of this program will continue next spring.

National Weather Service Advanced Hydrologic Prediction Services

Another valuable source of flood-related information made available on the Internet in the last few years is the National Weather Service (NWS) Advanced Hydrologic Prediction Services. In the past, National Weather Service river forecasts only provided short-term (1-,2-, or 3-day) deterministic forecasts. In contrast, the new Advanced Hydrologic Prediction Services (AHPS) provide new forecast products (including visual displays) depicting the magnitude and uncertainty of occurrence for hydrologic events from hours to days to weeks.

AHPS can provide decision-makers with 5-day forecast hydrographs for rivers during flooding in addition to 90-day outlooks, which will assist decision-makers in planning whether to take action, which course of action to take, and when to take it. Additional information available on the AHPS website includes maps of the river at the forecast point, levels of past floods, and the nature of the river and surroundings that are likely to affect the flow of the river.

Red River Basin Board

The Red River Basin Board website, developed during the fall of 2000, provides an excellent source of links to various local, state, federal, and special interest organizations involved with resource management, including flood preparation, prevention, and recovery in the Red River Basin.

U.S. Army Corps of Engineers

In addition to the newly developed or updated sites discussed in this article, another valuable website that has been around for several years is the U.S. Army Corps of Engineers Water Control Page for the Red River Basin. This page also offers an interactive map of the basin with several steam and reservoir gaging stations. ■

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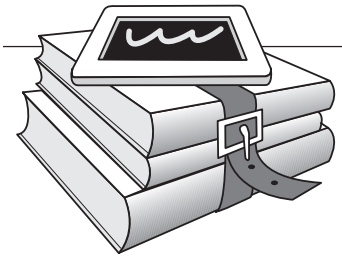

How will new federal arsenic standards impact North Dakota?

The U.S. Environmental Protection Agency (EPA) may finalize a regulation to reduce arsenic levels in drinking water from 50 parts per billion (ppb) to 10 ppb. A final ruling on this new standard was scheduled for January 1, 2001, however, as of May 22, 2001, that date was extended to February 22, 2002. The new mandate evolved as part of an amendment to the Safe Drinking Water Act, which required the EPA to reconsider the 50 ppb arsenic standard established in 1975.

The purpose behind the new arsenic standard is to protect Americans from health risks associated with long-term exposure to arsenic in drinking water. Scientists have linked several health-related problems to prolonged exposure to arsenic, including, cardiovascular disease, diabetes, and neurological disorders. However, it is highly contentious among scientists and water supply experts as to what levels of arsenic are actually harmful. Most agree that the 50 ppb standard should be lowered, but few agree that it should be as low as 10 ppb.

EPA Administrator Christine Todd Whitman announced in March, 2001 that an independent review of the science behind the 10 ppb standard would be conducted, including a look at the financial impact to communities. The impetus behind the independent review is to ensure that any arsenic standard imposed by the EPA is based on sound science and accurate cost estimates. As of late, there is little evidence to support an arsenic standard as low as 10 ppb. However, evidence does support that 10 ppb may be too low, and that the financial impact, especially to smaller communities, will be substantial. Nationwide, it is estimated that about 3,400 water systems will need to reduce arsenic levels to meet the 10 ppb standard at an estimated cost of $200 million per year. Whatever change is made to the arsenic standard, systems must comply as early as 2006.

With this many water systems impacted nationwide by a proposed 10 ppb arsenic standard for drinking water, what impact can be expected for water systems right here in North Dakota? According to the North Dakota Department of Health, 35 water systems will be in violation under a 10 ppb arsenic standard. For many water systems potentially in violation, options have been identified to bring them into compliance, including rural water, new plants, new wells, Northwest Area Water Supply system (commonly known as NAWS), or connections to other municipalities. However, for a few water supply systems, there are no feasible alternatives identified at this point.

The total estimated cost to bring the 35 water systems in North Dakota into compliance with the 10 ppb arsenic standard is approximately $25.3 million. The expected cost per system for upgrades ranges between $100,000 and $3 million.

Financial assistance for water systems is available through EPA's Drinking Water State Revolving Fund (DWSRF), which was established by Congress under 1996 Amendments to the Safe Drinking Water Act. The DWSRF was set up specifically to assist water supply systems with financing water infrastructure upgrades to achieve or maintain compliance with the Safe Drinking Water Act.

Here in North Dakota, the DWSRF is managed jointly by the North Dakota Department of Health and the North Dakota Municipal Bond Bank (Bond Bank). The Department of Health receives the federal grant money and provides technical and administrative services, while the Bond Bank serves as the financial agent of the program.

The revolving fund is operated as a leveraged program with restricted use of federal capitalization grants for direct loans. The state uses federal funds as security for the sale of state bonds, and then uses the bond proceeds to make loans for water system improvements. Public water systems eligible for DWSRF assistance include public or private community water systems, and nonprofit noncommunity water systems. Federally-owned water systems are not eligible to receive assistance through the DWSRF.

North Dakota's Municipal Rural and Industrial (MR&I) water supply program also provides funding for new rural water systems or expansions and updates to existing systems. The state MR&I program can help provide alternative water sources to communities in violation of new arsenic standards. ■