

Status Report on the Activities of the International Red River Board

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This status report provides highlights of active projects and issues for the period September 2001 to March 2002, and continues upon the International Red River Board's second annual report submitted to the International Joint Commission (IJC) in October 2001.

Background

During this reporting period, the Board completed nearly a full year working under the new directive of the IJC. Board membership, which now includes federal, state, provincial and local participation has facilitated greater stakeholder involvement. Establishment of the Board Secretariat has enabled more interaction with other Red River basin entities, increased Board visibility, and improved communications. The United States (U.S.) Board membership consists of its full compliment of nine members. The Canadian side has one appointment outstanding. That appointment is expected to be made in the coming months. The Board will hold its annual meeting July 9-10, 2002, in Detroit Lakes, Minnesota.

Soil Moisture and Flood Outlook

Red River

While the Red River basin experienced some rather heavy wet snows in the Fall of 2001, much of the subsequent winter has been mild and dry. According to National Oceanic and Atmospheric Administration's (NOAA) National Climate Data Center, the continental U.S. experienced its 14th driest winter and 5th warmest winter. NOAA's National Weather Service (NWS) reported that September 2001 through February 2002 winter precipitation was below normal. As of March 2002, there was little or no snow on the ground, particularly in the upper region of the basin (North Dakota and Minnesota). The region's crop moisture index (short-term need vs.

available water in 5 foot soil profile) for the period ending March 23, 2002, was reported to be within the range of slightly dry to favorable moist.

The NWS Advanced Hydrologic Prediction Services reported March 29, 2002, there is no significant basin flooding expected. The long-range probabilistic flood outlook indicates only a small chance of the Red River exceeding flood stage, which decreases at locations near the U.S./Canada border. Likewise, the Sheyenne, Roseau, Pembina, and other tributaries have a low likelihood of exceeding flood stage. Communities along the Red River have incorporated flood protection well above flood stage.

Devils Lake

As with the rest of the basin, winter in the Devils Lake sub-basin was mild and dry. The March 29, 2002, NWS report indicates the lake level is not expected to rise above the current level of 1447.1 feet during the remainder of 2002. However, an unexpected severe summer storm directly over the sub-basin, such as occurred during the summer of 1993, could alter this prediction.

Although lake levels are currently 10 feet below the existing top of the community levees, work is proceeding on the design of a possible levee raise of 3 feet. A study of alternative alignments for the tie-back levees and the public review of an Environmental Assessment Report have been completed. Funds to proceed with the design of the levee raise have been approved. Construction would proceed only if warranted by future lake levels.

Red River Basin - Issues and Activities

Devils Lake Emergency Outlet Proposals

Devils Lake is a closed basin nominally within the Hudson Bay drainage basin. It is believed that the lake has not overflowed in 800 to 1200 years. Since 1993, Devils Lake has risen over 25 feet and has expanded from an area of 70 square miles to 195 square miles. Currently, Devils Lake is at approximately 1447.1 feet above mean sea level, about a foot higher than the elevation on the same date last year. At 1447.1 feet, Devils Lake flows naturally toward Stump Lake. Devils Lake is currently iced over. According to the most recent NWS forecast, there is less than a 7 percent probability Devils Lake pool elevation will exceed 1448.3 feet within 180 days and less than a 5 percent probability that it will exceed 1449.2 feet. At these levels, a natural overflow to Stump Lake will occur.

State Sponsored Temporary Outlet

The State of North Dakota intends to begin construction of an emergency outlet from Devils Lake to the Sheyenne River along the Paterson Coulee route. In February, North Dakota State Water Commission authorized funding for the final design of the project and land acquisition. The outlet will be developed for phased construction with the initial capacity of 100 cfs. The ultimate capacity is 300 cfs. The design is scheduled to be completed in May, with construction to begin this June. Construction of the initial phase is scheduled to be completed next spring. The state is in the process of applying for a North Dakota Pollution Discharge Elimination System permit from the Department of Health and a drain permit from the State Engineer.

Devils Lake Study - Long-Term Solution

Public Involvement - The U.S. Army Corps of Engineers (COE) distributed their draft Integrated Planning Report/Environmental Impact Statement (EIS) for the Devils Lake Study in February 2002. The draft report identifies long-term alternatives to address flooding problems associated with the rising levels of Devils Lake and the relevant consequences of implementing various alternatives. The Report has been prepared to study methodology, alternatives evaluated, and findings. A “preliminarily selected outlet plan” (Pelican Lake 300 cfs outlet plan) is undergoing concurrent design as the report is being prepared and coordinated.

The document has been distributed to Federal and state agencies, interest groups, and individuals. The draft report has been filed with the U.S. Environmental Protection Agency (EPA). A notice of availability appeared in the Federal Register on March 8, 2002, officially starting the Federal 45-day public review and comment period, which ends on April 22, 2002.

As part of the studies, public meetings will be conducted in cooperation with the North Dakota State Water Commission. Four public meetings in the Devils Lake and downstream areas are scheduled from April 8-10, 2002.

Alternatives - The Devils Lake study area encompasses approximately 3,800 square miles of the Devils Lake drainage basin and almost 900 miles of the Sheyenne River and the Red River of the North extending into Canada. Structural and nonstructural alternatives to reduce urban, infrastructure and agricultural flood damages were developed, including upper basin storage and various infrastructure protection measures. A number of structural outlet alternatives were considered. Many of the alternatives would cause significant adverse impacts to terrestrial, wetland, aquatic, water quality, and cultural resources. The draft report does not include a recommended plan at this time, but instead provides an array of alternatives, along with their associated risks, and consequences to facilitate open discussion.

In response to Congressional direction, the COE selected the Pelican Lake 300 cfs outlet for their “preliminarily selected outlet plan.” This plan consists of pumping facilities, open channel, and buried pipeline; it has an estimated cost of \$97.7 million. The outlet would be operated annually for 7 months from May through November as constrained by Sheyenne River channel capacity and the 450 milligrams per liter sulfate water quality standard. (The benefit-cost ratio of the best outlet plan incorporating stochastic probabilities of occurrence is 0.37.)

Because of uncertainty of the differing scientific opinions regarding future climate conditions in the Devils Lake basin, a scenario based analysis was also performed. This scenario based analysis was used to specifically address potential solutions to the problems if the recent wet conditions continue.

A wet scenario, which assumed the recent wet conditions continued, estimated the lake would exceed elevation 1459 feet above mean sea level in about year 2016 and overflow into the Sheyenne River. Using data from the stochastic model, it is estimated there is about a 5 percent chance the lake will reach or exceed the overflow elevation of 1459 feet in the next 15 years, or about a 9.4 percent chance the lake will exceed the 1459 feet in the next 50 years. This gives some indication of the chance for occurrence of an event represented with this scenario. If the future wet condition occurs (not factoring in the actual probability of occurrence since a specific scenario is assumed to have a 100 percent chance of occurring), the benefit-cost ratio of the best outlet plan is 2.63. Two other more moderate scenarios were evaluated in a sensitivity analysis, with the maximum lake stage assumed to reach elevations of 1455 feet and 1450 feet. The benefit-cost ratios of these scenarios are 1.38 and 0.38, respectively. Infrastructure protection is economically justified using either the stochastic or the wet future scenario approach. On the basis of the stochastic analysis, upper basin storage is not economically justified, while net benefits result under the wet future scenario.

Devils Lake Unresolved Issues Identified Within the COE’s Study

Mitigation of Impacts - All of the impacts and associated mitigation needs have not been quantified in the Devils Lake Study. Long-term monitoring of various resources during project operation would be needed.

Feasibility of Constructing an Outlet - The preliminarily selected outlet plan may be difficult to construct because of the inability to meet water quality goals and standards. The preliminarily selected outlet plan is constrained by downstream channel capacity and water quality at the intersection point on the Sheyenne River, but would result in some increased flooding and some water quality degradation to downstream areas.

Water Quality Considerations - The present operation plan for the outlet structure does not meet all downstream water quality standards and objectives. Any revised operating plan that attempts to reduce water quality effects would likely result in less economic feasibility. Any permits needed for compliance with water quality criteria would need to be obtained prior to construction or operation.

Lack of Tribal Resource Information - Information is not available for all resources and may not be available until the final report or later. A programmatic agreement identifying needs and agency responsibilities needs to be drafted and finalized prior to the final report.

Transboundary and Boundary Water Treaty Effects - Water quality effects have been identified at the Canadian border. Effects in Canada have not been fully analyzed. Coordination needs to be completed to determine compliance with the Boundary Waters Treaty of 1909.

Permanent Outlet From Stump Lake to the Sheyenne

This proposal is no longer under consideration.

Pembina River, Aux marais, and South Buffalo Drainage

The Pembina River originates in the Turtle Mountain area of south-central Manitoba and flows easterly, then southerly into North Dakota, entering into the Red River about 3 kilometers south of the International Boundary. There is very little gradient in the lower reaches of the system and flooding has been widespread in Manitoba and North Dakota for several decades. Several joint flood mitigation studies have been undertaken in the U.S. and Canada. Proposals to build Pembina Dam in Manitoba and Pembilier Dam in North Dakota were evaluated in the early 1980s but could not be economically justified. A proposed floodway channel to the Red River in North Dakota was also evaluated. However, in addition to local opposition to the channel, it was determined the works would be only partially effective.

Flood control works such as dikes along the river and raised roads, such as the Manitoba road/dike along the international boarder west of Gretna, have changed the natural patterns of flood flows, reducing flooding in some areas and increasing flooding in others. The IJC, in its report Living With the Red, recommends work continue on developing a solution to the flooding problems working with local groups, such as the Pembina River Basin Advisory Board and other entities. Given the transboundary nature of the basin, the IJC recommends Federal agencies from both countries be involved in the process.

The Pembina County Water Resources District extended the order to remove non-permitted levees to more than just the 17 dikes described in their original order. They ordered all agricultural levees along the Pembina River within their District to be removed, unless they were permitted. Only one short segment may be able to obtain a permit. The District has indicated all non-permitted levees have now been removed. A set-back levee project is currently being studied.

A Flood Control Review Committee recommended culvert capacities for the six border crossings in 1975. Some of these are in place; some are not. The most recent discussion has been mainly concentrated on crossings 2 and 3. Design standards and culvert requirements for these two crossings have been agreed to. The extent of cost sharing to provide an adequate outlet has been discussed at length. One of the difficult issues has been the funding requirements for future maintenance. The cost sharing issue is close to agreement.

The Board's Hydrology Committee was assigned to develop recommendations, in consultation with IJC staff, on a policy to deal with interjurisdictional drainage. The experience with attempting to obtain an agreement for crossings 2 and 3 will be studied when preparing recommendations.

Over the past year, the Board had received a number of complaints relating to localized drainage problems along the International Boundary. The Board facilitated investigation and resolution of complaints through its member agencies. The Board will further define its role in dealing with these localized complaints, including consideration of appropriate protocol for Board involvement. The recommendations of the Board's Hydrology Committee and input from the IJC will help to provide resolution to this issue.

Red River Reconnaissance Study

The Red River basin encompasses parts of Minnesota, North Dakota, South Dakota, and Manitoba, covering some 48,490 square miles. This watershed area includes the Devils Lake subbasin, which is hydrologically isolated, and excludes the Assiniboine River basin. The Red River Reconnaissance Study was a 9-month 100 percent federally funded effort led by the COEs St. Paul District, and supported by Minnesota and North Dakota state agencies and various environmental and watershed organizations such as the Red River Basin Board and the National Audubon Society. A reconnaissance report developed with the assistance of basin stakeholders was submitted to the COEs authorities in September 2001. The report recommended a two-perspective approach to look at problems and opportunities both from a basin-wide holistic, comprehensive viewpoint and from a local, grass-roots, sub-basin angle. The report proposed three 50/50 cost shared feasibility studies:

1. The Basin-Wide/Main Stem Feasibility Study will address the broad perspective, assist local authorities with watershed planning, develop analytical tools and models, and focus on main stem issues not covered by tributary feasibility studies.
2. The Fargo-Moorhead-and-Upstream Feasibility Study will integrate local watershed management plans, screen flood damage reduction measures, develop water quality and economic models, and prepare detailed designs for projects that pass the initial screening.
3. The Wild Rice River (Minnesota) Feasibility Study will pick up where the Wild Rice Watershed District's systems approach planning process left off, identify potential flood damage reduction and natural resource enhancement measures that show promise for Federal partnership, and develop designs and National Environmental Policy Act documentation to move such projects toward implementation.

The COEs St. Paul District is in the process of collaborating with potential sponsors and other stakeholders in the development of Project Management Plan laying out the scopes for the three leadoff feasibility studies. The District hopes to sign Feasibility Cost Sharing Agreements with the non-Federal sponsors in the May/June time frame and to initiate these feasibility studies this summer.

Projects recommended by a feasibility study for implementation move into the preconstruction engineering and design and construction phases, which leverage non-Federal funds 65/35. If a leadoff feasibility study is completed in time to request project authorization in the Water Resources Development Act of 2004, it is possible that projects could seamlessly move into construction. In addition, the COE will look at opportunities to spin off projects into other programs that provide a faster track to implementation.

Auto-Monitor at Emerson, Manitoba

The auto-monitor was removed in the spring of 1977 as flooding of the facility became imminent. The monitor was not reinstalled at this site due to significant site flood damage. In addition, the equipment was old and scheduled for replacement. Manual sampling was conducted, providing a monthly record of conditions at the site.

During the spring of 2000, a new water quality monitor was collocated, on a temporary basis, at the existing hydrometric station at Emerson. The monitor was operated until freeze-up when manual sampling was once again undertaken. Operation of a temporary installation was resumed in the Spring of 2001, and as in the previous year, continued until freeze-up.

Final installation of the auto-monitor was deferred until the erosion and bank stability problems resulting from the 1997 flood could be corrected or an alternative site found. Subsequently, stabilization work was scheduled to coincide with low water conditions when the intake lines to the river could be installed. Due to persistent high water levels in the Red River throughout 2000 and 2001, this work was not initiated until early this year. The stabilization work and installation is presently nearing completion. It is expected the water level recorders will be operational prior to the date this report is presented and the water quality auto-monitor will be operational by the end of April 2002.

Watershed Information Network (WIN)

In consultation with the IJC and the Board, the EPA awarded a \$100,000 (U.S.) Grant to the Red River Basin Board (RRBB) in September 2001, and has provided significant resources to support the grant. The grant is intended to promote international, interregional, interstate, and locally-based efforts in dealing with basin-wide issues.

To date, the grant has enabled the RRBB to become a more effective player in coordinating resource management efforts, and in providing a connective link between the Federal and state jurisdictions and enhanced communication amongst the various entities in the basin with compatible needs and goals. More specifically, coordination of efforts in Minnesota and North Dakota in regard to total maximum daily load and source water protection programs, bridging research and policy interests, reporting on ambient water quality monitoring, and dissemination of a quarterly basin-wide newsletter, are amongst the current WIN activities. These activities are consistent with the views of the Board for collaboration and integrated problem-solving mechanisms, and continue to be supported.

These collaborative approaches also provide opportunity for the Board to become involved. The Board Secretariat regularly attends meetings of the RRBB to report on Board activities and to become apprised of basin issues of interest to the Board. Further, the basin newsletter provides a communications vehicle to inform basin residents of Board mandate and activities, to announce public meetings, and to foster public involvement in Board discussions. The interaction with the WIN watershed coordinator provides an ongoing linkage with organizational entities and interest groups in the basin. A key role of the Board Secretariat is to maintain these linkages, to regularly contribute to the basin newsletter, and to provide timely alerts, and updates to the Board.

Dakota Water Resources Act (DWRA)

The DWRA was passed by Congress in December 2000. The Bureau of Reclamation is the responsible agency for implementing the legislation. Section 8 of the DWRA directs the Secretary of the Interior to conduct an open and public comprehensive study of the water quality and water quantity needs of the Red River Valley in North Dakota and the possible options for meeting those needs. Section 8 specifically requires Congress to pass specific legislation if importing Missouri River water is adopted as the solution to meeting the water needs of eastern North Dakota (Red River Valley). The DWRA further requires consultation between the U.S. and Canada to meet the provisions of the 1909 Boundary Water Treaty.

In July 2000, Reclamation, based on the authority of the 1986 Garrison Diversion Unit Reformulation Act, signed a Memorandum of Understanding with the North Dakota State Water Commission and the Garrison Conservancy District to complete an EIS and technical study related to the water needs for the Red River Valley. Given the additional direction provided by the DWRA, Reclamation is presently preparing a new agreement with the State of North Dakota. The study and draft EIS are expected to be completed by the end of calendar year 2005.

Northwest Area Water Supply (NAWS)

NAWS is a municipal, rural and industrial water supply system designed to serve a 10-county area in northwestern North Dakota. It was authorized by the Garrison Diversion Unit Reformulation Act of 1986. The project will divert pretreated water from the Missouri River via pipeline that crosses the divide into the Red River basin, but ends in the Souris River Basin. As such, potential issues related to NAWS are the responsibility of the International Souris River Board. However, the Board will continue to be interested in activities associated with the NAWS project since it does cross into the Red River basin.

IJCs Report to Governments - Living With the Red

Canadian and U.S. Federal agencies have patterned numerous activities to be consistent with the 28 Recommendations within the IJCs report, Living With the Red. Activities include Federal support of basin initiatives, including the Red River Basin Board basin planning effort, the recommendations of the International Flood Mitigation Initiative, and the Red River Damage Reduction Work Group. Other activities include design and construction of flood control projects, flood damage reduction studies various locations, updating of hydrology and development of modeling calibrated to the 1997 flood, and installation of new gaging stations utilizing new technology in order to improve streamflow gage reliability. A more detailed description of agency activity will be included in the Board's annual report.

Hazardous Materials Management

Although it is indicated above, more details with respect to activities related to the IJCs report, Living With the Red would be included in the Board's annual report, an area of particular concern is hazardous waste management, (Recommendation 23). EPA's Region 8 has assisted the North Dakota Division of Emergency Management (NDDEM) in developing model language and supporting information for voluntary hazardous materials preparedness plans. Assistance included some protocols previously developed by Manitoba Conservation that were successfully implemented in their portion of the Red River flood plain during the 1997 flood.

Since then, the NDDEM has begun implementation of a four-prong flood related hazardous materials prevention program:

1. NDDEM staff are engaged in ongoing discussions, meetings, and presentations with the North Dakota based chemical industry. These efforts emphasize an inventory of hazardous chemicals in the flood plain, encouragement for reduction of chemical inventories in the flood plain, encouragement of flood protection efforts, and encouragement of the relocation of hazardous chemicals in anticipation of flood events.
2. Staff are working with the emergency planning coordinators in all 53 counties to update and merge each of the counties contingency plans into a consolidated emergency management plan, incorporating mitigation, preparedness (including prevention) response, and recovery.
3. NDDEM intends to develop and undertake an ongoing hazardous materials awareness campaign in conjunction with the consolidated county-wide emergency management plans.
4. NDDEM will continue to coordinate with the North Dakota Department of Agriculture for using their state funded "Project Safe" program to hold periodic collection and disposal efforts for getting rid of banned and obsolete chemicals in flood-prone areas.

It is anticipated the NDDEM will provide an updated presentation to the Board during its July 2002 meeting in Detroit Lakes, Minnesota.

International Red River Board Work Plan

A proposed 2-year work plan has been prepared for review by the IJC. With IJC concurrence and input, the plan will be transmitted to Board members and included as an agenda item for discussion during the Board annual meeting at Detroit Lakes, July 9-10, 2002. The work plan identifies a number of ongoing activities inherited from the International Souris-Red Rivers Engineering and Red River Pollution Control Boards,

as well as proposed activities that respond to the Board's expanded mandate. An important consideration in the development of the work plan is recognizing the need to manage the expectations that the IJC reference on basin flooding and its legacy initiatives, and merging of its former boards may have raised. As well, the work plan takes into consideration the capacity of its member agencies to support the work plan.

The work plan incorporated the Board's strategy to undertake a number of specific investigations through its technical committees. A 2-year work plan for the Hydrology Committee was approved by the Board in January 2002 and a corresponding work plan for the Aquatic Ecosystem Health Committee is expected to be approved at the Board's annual meeting in July.