STATUS REPORT ON THE ACTIVITIES OF THE INTERNATIONAL RED RIVER BOARD

Prepared for the
International Joint Commission
Spring Semi-Annual Meeting, April 11-14, 2005
Washington, DC

April 01, 2005

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1.0 Introduction

This status report provides highlights of active projects and issues for the period October 2004 to April 2005, and continues upon the International Red River Board's fifth annual report dated October 2004.

2.0 Flood Conditions

The Red River basin experienced a relatively moist summer in 2004 with many parts of the basin receiving above normal precipitation. While low soil moisture conditions initially attenuated surface runoff, by early June soil moisture conditions had become high in many parts of the basin resulting in ponding of agricultural lands. Although no major flooding occurred, streamflows on the Red River and many of its tributaries were generally above the upper decile level going into the fall period.

Snow cover was slow to develop over the basin but increased rapidly from late December 2004 onward with accumulated amounts ranging from below normal in the upper basin to 150% of normal in northeastern Minnesota and southeastern Manitoba. Initial flood forecasts issued in late January 2005 indicated approximately a one-in-ten chance of significant flood potential in the lower portions of the Red River basin, particularly along the eastern tributaries. By late March 2005, due to generally favourable weather conditions, flood potential had diminished substantially. By March 30th spring runoff was well underway in the U.S. portions of the basin with the expectation that the Red River would remain within its banks with peaks lower than those of 2001. Minor to moderate flooding on some tributaries and some localized flooding on the mainstem is expected. Currently (April 2), the Red River is expected to peak at the international boundary on April 8-9 and in the Winnipeg area some three days later at levels substantially lower that those experienced in 2001. This expectation assumes that no significant rainfall will occur over the basin in the interim.

The above average precipitation throughout the summer of 2004 caused Devils Lake to reach a new record high of about 1449.1 feet asl by mid June. The previous high of about 1448.1 feet asl was experienced in August 2002. The lake level receded slowly to about 1447.9 feet asl by early December where it has remained throughout the winter. As of April 2, 2005 the lake level is approximately 1448.0 feet asl.

It is estimated that more than 45,000 acre-feet of water flowed from Devils Lake into Stump Lake during 2004, leading to a continual rise in Stump Lake. The gauge height for Stump Lake on March 1, 2005, was approximately 1425.5 feet asl, about 10 feet higher than the previous peak of 1415.5 feet asl in July 2003. Natural overflow of Devils Lake via Stump Lake into the Sheyenne River would occur at about 1459.0 feet asl.

3.0 International Red River Board - Initiatives and Activities

3.01 Comprehensive Flood Mitigation Plan

In its report *Living with the Red*, the IJC noted that there is no single solution to reduce, mitigate and prevent harm from future flooding, and that comprehensive, integrated, binational approaches must be pursued and implemented. The report follows with the recommendation - "Governments immediately take steps, on a binational basis, to begin development of a comprehensive flood damage reduction plan for the Red River basin."

In January 2003, in cooperation with the IRRB and Red River Basin Commission (RRBC), the IJC organized a meeting of senior officials to discuss a strategy to move forward with development of a comprehensive plan for flood mitigation. Subsequent to this meeting, the IJC identified a number of specific activities integral to the development of such a plan. These included a status report on actions taken by governments with respect to flood mitigation, which was completed by the IRRB in October 2003, and a framework document setting out the vision and agreed-upon approach for the development of the comprehensive plan. Following

completion of these steps, a meeting with the Governors of North Dakota, Minnesota and South Dakota and the Premier of Manitoba would be sought to endorse the vision and framework and to initiate the real work of developing the comprehensive plan.

At the request of the IJC, a draft framework document was prepared by the RRBC in September 2004 in consultation with the IRRB, and further refined by the IJC for limited distribution and comment. The proposed flood mitigation plan is intended to build on the Memorandum of Understanding for Flood and Drought Mitigation on the Red River that was signed by the Governors of North Dakota, Minnesota and South Dakota and the Premier of Manitoba in April 2004. Further, the plan would recognize current efforts led by the RRBC to develop a Natural Resources Framework Plan (NRFP) for the basin that encompasses flood mitigation. Hence, while addressing the flood mitigation challenges outlined in *Living with the Red*, the proposed plan would contribute to and become an integral part of the NRFP.

A subsequent framework document titled 'Proposal for a Comprehensive Flood Mitigation Plan for the Red River Basin' was prepared by the IJC and re-circulated to attendees of the January 2005 RRBC Annual Water Conference for review and comment.

3.02 Lower Pembina River Flooding

The Pembina River originates in the Turtle Mountains area of south central Manitoba, flowing easterly than southerly into North Dakota, entering the Red River about three kilometers south of the international boundary. There is very little gradient in the lower reaches of the system and flooding has been a natural and common occurrence. The natural flood pattern is for breakout flows from the main stem of the Pembina River in the vicinity of Neche, North Dakota to move away from the river and overland into the Tongue River watershed to the south, or north toward Canada and eastward to the Red River. To some extent, these flow regimes are influenced by the timing and magnitude of flood levels on the Red River. Going back as early as the 1940s, control works such as dikes and raised roads have been implemented in the lower reaches of the Pembina River in an effort to mitigate flood impacts. These works cumulatively have changed the natural flow patterns in the basin reducing flooding in some areas and increasing flooding in others.

The IJC investigations on measures to develop the water resources of the Pembina River basin in the early 1960s resulted in a number of recommendations regarding flood control for the basin. Over the intervening years various follow-up studies and negotiations between Manitoba and North Dakota have taken place to improve drainage in the United States and to increase the capacities of the receiving channels such as the South Buffalo and Aux Marais systems in Manitoba. Issues related to cost-sharing of projects and differences regarding the efficacy of projects have militated against resolution of the problem. More recently, non-permitted levees along the Pembina River in North Dakota were removed and alternative set-back levees from the City of Niche to near the confluence with the Tongue River have been proposed. There is concern that these actions may exacerbate flooding in some areas if provision for the storage of water along the system, or diversion of water across the international boundary is not provided. Further, in May 2004, Pembina County communities served a statement of claim on the government of Manitoba for flood damages resulting from the boundary road-dike, and to effect its removal.

In July 2003, in light of the long-standing unresolved nature of the drainage and flooding issues in the watershed, the Pembina River Basin Advisory Board (PRBAB) formally requested the assistance of the IRRB to find an effective and acceptable solution. In response to this request, and with funding support from the IJC and Environment Canada, the IRRB assembled a three-person Pembina Study Team comprising one member from North Dakota, one member from Manitoba, and an independent team chairperson, to work with the PRBAB and its appointees. The Study Team was asked to define the drainage and flooding issues in objective terms and to recommend strategies for moving toward a resolution.

On April 13, 2004, the Pembina Study Team submitted its final report to the IRRB Secretariat. The report titled *'Lower Pembina River Flooding - A Report to the International Red River Board'* provides an historical review of drainage and flooding mechanisms in the basin, an assessment of flood control measures recommended in previous investigations and those that have been implemented, and an overview of the prevailing perceptions. The report presents eight conclusions with respect to a potential long-term solution to the flooding problem, and six recommendations for action by the IRRB and government agencies.

At its July 2004 annual meeting, the IRRB discussed the draft report with the Study Team and PRBAB. As a result of these discussions, the Study Team was asked to meet with affected communities for additional input, to consider all comments received, and to submit a final report to the Board. In September 2004, a final report representing the end result of this effort was submitted to the IRRB.

The conclusions and recommendations identify three potential components to any solution to lower Pembina flooding. The first is to flood-proof urban centers and rural buildings to a specified flood protection level, most likely the 100-year flood. To a considerable extent, this has already been accomplished. In effect, this flood-proofing transforms the problem to one of farmland and road protection. The second component would be set-back levees along a critical reach of the Pembina River to provide primarily summer flood protection to farmland. The third component would be adjustments to openings in the boundary road-dike and County Road 55, and to associated drainage systems, to accommodate natural flows.

The IRRB fully endorses the Study Team conclusions and recommendations. The IRRB further agrees with the Study Team that the recommendations represent a significant undertaking that encompasses a number of elements, including the determination of acceptable agricultural flood risk, development of watershed elevation models, development of hydrological models and reassessment of drainage patterns, design of set-back levees and drainage infrastructure, and implementation. The IRRB proposes to continue to work with the PRBAB and to lend its support to the U.S. Army Corps of Engineers for a planning study that would define the details of a solution. The IRRB also supports the Study Team recommendation that relevant agencies be prepared to participate in such a planning study and to contribute to the funding of solutions. The IRRB has asked the PRBAB for their response and suggestions.

In the near term, the IRRB has identified specific actions that would greatly advance progress in this matter. These actions include:

- hydraulic modelling of bridge structures on the Red River at the international boundary. This effort would confirm the hydraulic effect of the structures on water levels upstream;
- inventory of culvert structures and their conveyance capacity along the boundary road-dike and County Road 55; and
- Lidar mapping of lower Pembina River basin to facilitate hydrological model development and determination of drainage patterns and overflow requirements.

The IRRB has requested financial support from the IJC to initiate the short term activities with the expectation that appropriate funds will be available in early 2005. In the interim, with U.S. funding provided through the IJC, further hydraulic modelling of the Red and Pembina River systems at the international boundary, and inventory development of culvert structures along confining roadways to the north and south of the lower Pembina River, is presently being undertaken. The RRBC is directed to coordinate this work with the IJC, IRRB and contractors. Environment Canada is providing financial support for independent project consultation and oversight to the IJC and RRBC.

3.03 Biological Monitoring and Nutrient Management

At its annual meeting in July 2004, the IRRB endorsed a number of recommendations put forward by its Aquatic Ecosystem Health Committee (AEHC). These efforts constitute a significant part of the IRRB work

plan and represent important progress with respect to biological monitoring and nutrient management in the basin.

Biological Monitoring:

With IJC funding and co-sponsorship support from the Red River Basin Institute and U.S. Bureau of Reclamation, the AEHC held a workshop in 2004 focused on developing a framework for basin-wide biological monitoring based on reference sites. The AEHC reported acceptance of the approach by participating agencies and outlined the following recommended next steps, including funding requirements.

1. Conduct two biological assessment workshops to develop specific monitoring protocols and final work plan proposals:
    - wadeable tributaries - U.S. $20,000
    - mainstem Red River - U.S. $20,000
2. Conduct basin-wide aquatic ecosystem health assessment comprising:
    - 30 sites per jurisdiction (Minnesota, North Dakota, and Manitoba for a total of 90 sites)
    - estimated total cost of U.S. $300,000
    - request 50% financial support from IJC (U.S. $150,000)

Cost share options and time lines require further exploration in recognition that there is a level of compatible monitoring activity presently occurring in the basin.

Nutrient Management:

In March 2003, Manitoba Conservation requested the IRRB to consider setting new water quality objectives for nitrogen and phosphorous at the international boundary. These would be in addition to the five water quality objectives currently in effect, namely; dissolved oxygen, total dissolved solids (TDS), chloride, sulfate, and fecal coliform. The Manitoba proposal reflects concern about the continued eutrophication of Lake Winnipeg. It is noted that the current water quality objectives were adopted for the Red River by the IJC in 1969, and any changes or additions to these would involve a formal procedure requiring significant data analysis and review prior to any recommendations by the IRRB, and subsequent decisions by the IJC.

Given the current knowledge of the factors contributing to the trophic state of Lake Winnipeg and the technical challenge of establishing meaningful long-term nutrient objectives at the international boundary, the AEHC provided the following three recommendations and commitments from the participating agencies.

1. Protect/restore Lake Winnipeg trophic status.
2. Participating jurisdictions and water management agencies work toward reducing Red River nutrient loading to meet Manitoba's interim goal of reducing nutrient loading into Lake Winnipeg by 10% over the next five years.
3. Participating jurisdictions and water management agencies work toward replacing the interim goal with science based goals/targets.

The recommendations and commitments were fully endorsed by the IRRB and the IJC. Further, in letters to Canadian Ministers of Foreign Affairs and the Environment, and U.S. Secretary of State, the IJC acknowledged the nutrient issue with respect to Lake Winnipeg and encouraged basin jurisdictions to work toward implementing programs to achieve the AEHC recommended interim goals and longer term science-based objectives.

As evidenced by the work of the AEHC, there is a high level of cooperation and collaboration amongst participating agencies with respect to biological monitoring and nutrient management in the basin. The IRRB is exploring funding opportunities with the IJC, and other facilitation opportunities to enable tangible progress with respect to these recommendations.

In March 2005, the IRRB formally indicated to the U.S. Environmental Protection Agency (USEPA) its support of an International Water Institute (formerly Red River Basin Institute) proposal to undertake an aquatic ecosystem assessment of the Red River under the USEPA Regional Monitoring and Assessment Program. This undertaking would build upon the current efforts of the AEHC and Red River Basin Institute to provide an ability to determine ecosystem conditions and trends in the basin and would serve as a foundation for future monitoring programs in the basin. The proposed assessment if accepted by the USEPA would very substantively address IRRB's charge to its AEHC to develop monitoring objectives and strategies for the basin. The outcome of the proposal is not yet known.

Funding support for the Red River basin as identified in IJC's second report to governments under the International Watershed Board reference of November 1998 would enable the IRRB to effectively address its priorities in the basin related to secretariat support and outreach, biological monitoring, development of nutrient objectives, and resolution of the lower Pembina River drainage dispute.

4.0 Red River Basin - Activities and Issues

4.01 Devils Lake State Outlet Project

Work has continued on the North Dakota state outlet project. The first canal and pipeline contracts are 95% complete. The pumping station and structure contracts are 80% and 85% complete, respectively, while the second canal contract is 70% complete. The project as a whole is approximately 80% complete. Operation of the outlet could begin in June or July 2005. Downstream concerns relate to potential water quality, biological and ultimately economic consequences that could be caused by discharging Devils Lake water into the Sheyenne and Red Rivers and ultimately into Lake Winnipeg. The State outlet project has not been subject to an environmental assessment or U.S. federal oversight.

In August 2003, the North Dakota Department of Health first issued a U.S. Clean Water Act (Section 402) Water Quality Certification for the State outlet project. The State of Minnesota, the Government of Canada, Manitoba and citizens of North Dakota thereafter petitioned the Department to reconsider its decision. In February 2004, the Department issued its final notice regarding the permit and a 30-day appeal period. In March 2004, the Government of Manitoba and People to Save the Sheyenne launched a legal challenge of the 402 permit. In August 2004, North Dakota's Southeast District Court ruled against the action. Subsequently, the Government of Manitoba, People to Save the Sheyenne and Peterson Coulee Association have appealed this decision in North Dakota Supreme Court.

In June 2004, the governments of Manitoba and Minnesota and a number of U.S. NGOs requested the U.S. Army Corps to review whether the State outlet can proceed in the absence of a Clean Water Act Section 404 permit concerning wetlands. The U.S. Army Corps undertook an administrative review of the issue and concluded that Section 404 provisions were not violated. Manitoba has filed additional documentation with the U.S. Army Corps and is awaiting response.

There remains significant opposition to the State project from Canadian and U.S. entities. In March 2005, Manitoba indicated that it is suspending further cooperation with North Dakota on water issues and will no longer consult State officials on water projects within the Province. To date, Canada has been unable to obtain U.S. support for a joint IJC reference to undertake an impartial review of the project.

4.02 Northwest Area Water Supply Project

The Northwest Area Water Supply (NAWS) Project has been under construction since 2001 and is scheduled for completion in 2007. The project would pump pre-treated water from Lake Sakakawea in the Missouri River basin, to the City of Minot in the Hudson Bay/SourisRiver basin where it would be fully treated to meet drinking water standards and distributed to communities in the Souris River basin. The NAWS project was

authorized by the Garrison Reformulation Act of 1986 as a component of the Garrison Diversion Unit's Municipal, Rural, and Industrial (MR&I) program.

The U.S. Bureau of Reclamation issued an Environmental Assessment and Finding of No Significant Impact (FONSI) in April 2001. Manitoba and Environment Canada made an Administrative Appeal on the FONSI, which was reissued but included some modifications to the water treatment specifications. Subsequently, Manitoba filed a legal challenge in U.S. District Court in Washington, D.C. to compel the Department of Interior to complete an environmental impact statement (EIS) on the project and enjoin the use of Federal funds on the project until an EIS has been completed.

In February 2005, the court ordered "that the case be remanded to the agency for completion of an Environmental Assessment that considers an integrated analysis of the possibility of leakage and the potential consequences of the failure to fully treat the Missouri River water at its source given the agency's awareness of treatment-resistant biota. After doing so, the agency is ordered to revisit its finding of no significant impact." (The Government of the Province of Manitoba v. Norton, et. al., No. :02CV02057 (D.D.C.)). The court has so far deferred a ruling to enjoin construction of the project, but will make a decision after the briefs have been filed on the issue. The briefs were due by the end of March, 2005.

4.03 Red River Valley Water Supply Study

The Dakota Water Resources Act of 2000 (DWRA), authorized the Red River Valley Water Supply Project. The purpose of the project is to meet the "comprehensive water quality and quantity needs of the Red River Valley" [DWRA Section 8(c)(2)(A)]. The needs as specified in DWRA are municipal, rural, and industrial supplies (MR&I); water quality; aquatic environment; recreation; and water conservation measures [Section 8(b)(2)]. The objective of the Red River Valley Water Supply Project is to meet the MR&I water needs through year 2050 and to identify opportunities to meet water quality, aquatic environment, and recreation needs.

The project includes preparation of two documents: (1) the *Report on Red River Valley Water Needs and Options* (Needs and Options Report), which is a feasibility-level engineering study prepared by the Bureau of Reclamation on behalf of the Secretary of the Interior, and (2) a draft environmental impact statement prepared by Reclamation and Garrison Diversion representing the State of North Dakota. The draft Needs and Options Report will be released for public comment by May 2005; the final report will be completed by November 30, 2005.

The draft environmental impact statement evaluates the environmental effects of eight proposed alternatives and will be distributed to ensure the public has opportunities to review and comment on long-term water supply and management alternatives for the Red River Valley Water Supply Project. The Bureau of Reclamation and the State of North Dakota will complete the draft EIS by December 31, 2005. More information on the project is available at: www.rrvwsp.com.

4.04 Lake Winnipeg

Lake Winnipeg is the 10th largest freshwater lake in the world. The Lake's watershed spans an area from the eastern slopes of the Rocky Mountains to Lake Winnipeg and includes drainages arising in Ontario including Lake of the Woods and the Winnipeg River system. It embraces four provinces and four U.S. states.

In February 2003, Manitoba announced the Lake Winnipeg Action Plan. One objective of the plan is to reduce the levels of nitrogen and phosphorus in the lake to those concentrations that existed in the 1970s.

In March 2003, Manitoba requested the IRRB to consider setting water quality objectives for both nitrogen and phosphorus in the Red River at the international boundary. The Board's Aquatic Ecosystem Health

Committee recommended in July 2004 that participating jurisdictions and water management agencies work towards reducing the nutrient loading into the lake by 10% over the next five years and work towards replacing the interim goal with science based goals/targets. The IRRB accepted that recommendation and requested the IJC also endorse the recommendations.

In November 2004, the IJC chairs wrote governments to inform them that the Commission endorses these recommendations.

A workshop was held in November 2004 to identify the science required to develop an effective management plan for the Lake. The workshop was attended by Manitoba and Canadian federal agencies, as well as members of the AEHC from both Canada and the United States. The workshop results will be synthesized and made available to the respective government agencies to assist in the development of an appropriate Management Plan.

The federal government of Canada is currently assessing how it can best contribute to help improve the conditions in Lake Winnipeg.

The AEHC will provide a progress report on its related activities at the IRRB annual meeting in July.

5.0 International Red River Board Work Plan

The IRRB has undertaken a review and update of its October 2002 work plan to reflect the current status of activities. A number of these activities i.e. natural flow data base development, *Living with the Red* implementation survey and assessment, response to lower Pembina River flooding, biological monitoring review and development of nutrient objectives, are in progress or have been completed as noted in this and previous reports. Over the next two years, the primary focus of the IRRB will be on building momentum through the AEHC with respect to ecosystem health goals and monitoring objectives for the Red River basin and on completing the specific tasks assigned to the AEHC. The capacity of participating agencies is a fundamental consideration in establishing longer-term commitments to the work of the IRRB and will be reflected in the details of the updated work plan. Further, external financial support through the IJC will be a significant determining factor in the IRRB's ability to sustain momentum on its current activities, and to seize new opportunities as they arise.

The updated work plan will be presented for discussion and IRRB approval at its annual meeting in July 2005. Once approved, the work plan will be submitted to the IJC.

6.0 International Red River Board Membership

There were several retirements and new appointments to the International Red River Board during recent months. Colonel Robert Ball, U.S. Army Corps of Engineers, William Gummer, Environment Canada, Jeff Lewis, Minnesota Pollution Control Agency, Alain Vermette, Agriculture & Agri-Food Canada, and Bud Oliver, Red River Basin Commission, retired from the Board. These were replaced respectively by Colonel Michael Pfenning, Dr. Kevin Cash, William Haapala, Phil Adkins, and Herm Martens. Don Buckhout , Minnesota Department of Natural Resources was also appointed to the Board replacing the late Dr. Gale Mayer. During this period Mike Collins, U.S. Bureau of Reclamation replaced C.J. McKeral as U.S. Section Secretary. The current membership is summarized below.

United States Section

Maryanne C. Bach
U.S. Chair
Director, Research & Development
U.S. Bureau of Reclamation

Col. Michael F. Pfenning
District Engineer, St. Paul District
U.S. Army Corps of Engineers

Dennis Fewless
Division of Water
North Dakota Department of Health

William Haapala
Regional Director, Detroit Lakes Office
Minnesota Pollution Control Agency

Randy Gjestvang
Red River Water Resources Engineer
North Dakota State Water Commission

Gregg Wiche
District Chief, Bismark Office
U.S. Geological Survey

Max H. Dodson
Assistant Regional Administrator
Office of Ecosystems Protection
& Remediation, Region 8
U.S. Environmental Protection Agency

Daniel Wilkens
Administrator
Sand Hill River Watershed District, Minnesota
(Red River Basin Commission)

Don Buckhout
Red River Coordinator
Minnesota Department of Natural Resources

Mike Collins
U.S. Secretary
Manager, Resource Services
U.S. Bureau of Reclamation

Canadian Section

Richard L. Kellow
Canadian Chair
Executive Director
Transboundary Waters Unit
Environment Canada

Dwight Williamson
Manager, Water Quality Management Section
Manitoba Water Stewardship

Steven Topping
Director, Water Resources Branch
Manitoba Water Stewardship

Phil Adkins
A/Director Ag-Water Directorate
Agriculture & Agri-Food Canada

Dr. Kevin Cash
Chief, Ecological Science Division
Environmental Conservation Branch
Environment Canada

Terence Shortt
Manager, Environmental Science Division
Fisheries & Oceans Canada

Dr. Joseph O'Connor
Director, Fisheries Branch
Manitoba Water Stewardship

Herm Martens
Treasurer
Red River Basin Commission

Michael Kowalchuk
Canadian Secretary
Senior Engineer Advisor
Environmental Conservation Branch
Environment Canada

7.0 Annual Meeting Schedule

The 2005 IRRB annual meeting is scheduled for July 12-14, in Grand Forks, North Dakota. The meeting will be held at the Energy & Environmental Research Center (EERC) located on the campus of theUniversity of North Dakota. The EERC meeting location represents an appropriate science association for the IRRB, and at the same time, provides an opportunity for the Board to recognize the Center for its contribution towards building a watershed management capacity in the Red River basin, and elsewhere.

The first one half day of July 12th will be reserved for the IRRB Executive Session, while the afternoon of July 12th and July 13th will be open to a public audience. The public forum segment will be held in the morning of July 14.

The meeting agenda is presently under development including options for invited presentations and discussions. Further details will be provided in the following weeks.
