Manitoba

Water Stewardship

Water Science and Management
Branch
200 Saulteaux Crescent
Winnipeg MB R3J 3W3
CANADA

http://www.gov.mb.ca

June 30, 2006

Red River Valley Water Supply Project
Bureau of Reclamation
Dakotas Area Office
P.O. Box 1017
Bismarck ND 58502 - 1017

Dear Sir or Madam:

REVIEW AND COMMENT:
DRAFT ENVIRONMENTAL IMPACT STATEMENT
RED RIVER VALLEY WATER SUPPLY PROJECT
DECEMBER 30, 2005

Thank you for the opportunity to review and to provide comments on the Draft Environmental Impact Statement (draft EIS) for the Red River Valley Water Supply Project dated December 30, 2005.

Manitoba recognizes the importance of the transboundary waters of the Red River basin and we remain committed to working with other jurisdictions to manage these shared waters to the benefit of the basin as a whole. In this regard, Manitoba supports the recent initiative of the Red River Basin Commission to develop a drought plan for the Red River basin and urges the Bureau of Reclamation (Bureau) to consider the output of the Commission's efforts in selecting a preferred alternative which does not involve the importation of water from the adjacent Missouri River basin. If an out-of-basin alternative is eventually chosen as the preferred option, water from the Missouri River should be treated to a level acceptable to Manitoba in order to remove and inactivate foreign biota prior to transfer across the basin divide to the Hudson Bay basin.

Selection of either one of the two in-basin options proposed in the Red River Valley Water Supply Project as the preferred alternative would pose little risk to Manitoba's environment. These two options are consistent with sustainable water management principles that respect natural systems and that employ a combination of water management techniques, including water conservation. Contemporary water management principles also suggest that current and projected water supply needs should be met through the development of a

sustainable basin wide strategy, which favours the use of in-basin resources as a first priority. For these reasons, Manitoba's preference for a Red River valley water supply is one of the two in-basin alternatives.

With regard to out-of-basin water transfers, Manitoba believes that the greatest concern arises with respect to microbiological disease-causing organisms (viruses, bacteria, protozoa, myxozoa, etc.) and the microbiological early life stages of macro flora and fauna (like plants, fish, invertebrates, etc.). The following are some of the potential biota of concern that have been identified:

- Bacteria -- Bacterial Kidney Disease (*Renibacterium salmoninarum*), Furunculosis (*Aeromonas salmonicida*), Streptococcal fish infections (*Streptococcus faecalis*), Myxobacterial infections (*Flexibacter* spp.), *Pseudomonas* spp., Vibrio infections (*Vibrio* spp.), *Edwardsiella* spp., Mycobacterial fish infections (*Mycobacterium spp.)*, Enteric Redmouth Disease (*Yersinia ruckeri*).

- Viruses -- Infectious Pancreatic Necrosis Virus (*Aquabirnavirus spp.*), Infectious Hematopoietic Septic Viral Necrosis (*Rhabdoviridae*), Viral Haemorrhagic Septicemia (*Novirhabdovirus spp*.), Channel Catfish Virus, Spring Viremia of Carp (*Rhabdovirus carpio*).

- Parasitic Protozoa -- Flagellates (Phylum *Mastigophora*), Amoebae (Phylum *Rhizopoda*), Coccidia (Phylum *Apicomplexa*), Myxosporidia (Phylum *Myxozoa*, including *Myxobolus cerebralis*), Ciliates (Phylum *Ciliophora*).

- Fungi -- Branchiomycosis (*Branchiomyces sanguinis, Branchiomyces demigrans*), Oomycetosis (*Achlya spp., Saprolegnia spp*.), Ichthyophonosis (*Ichthyophonus hoferi*), *Exophiala spp*., Coelomycetosis (*Phoma herbarum).*

Because the process of identifying invasive species is a dynamic one, and because modification of water quality and characteristics in the Missouri River basin is likely to occur over time as a result of human activity, no one species of biota should be considered to be a surrogate for all potential threats. Rather, the soundest way to proceed is to incorporate the treatability of all *classes* of aquatic pathogens into the analysis of any treatment system's performance.

It is necessary to consider treatment system design based upon known classes of organisms of concern presently in the Missouri River basin and their related treatment characteristics. Adopting this approach will provide safeguards against future unknown organisms that may be discovered that have similar characteristics as these broad classes. Designs should be developed that provide for achievement of a suitable level of treatment within the Missouri River basin and for disposal of waste residuals from such a treatment process within that basin. Treated water goals are outlined below that should be applied in developing and assessing biota treatment alternatives:

Parameter	**Treated Water Goals for Biota Prior to Inter-basin Transfer**	**Comments**
Turbidity	<0.3 NTU	This is necessary to ensure effectiveness of disinfection against viruses.
Disinfection-resistant Protozoa such as *Myxobolus cerebralis*	3 log (99.9%) removal	This should be achieved in a minimum of two separate barriers including filtration followed by ultraviolet (UV) disinfection.
Other Protozoa with similar characteristics as *Giardia* and C*ryptosporidium*	4 log (99.99%) total removal/inactivation with a minimum of 3 log by removal	This should be achieved in three separate barriers with disinfection achieved by UV and chlorination or ozonation.
Organic carbon	50% reduction	This is necessary to ensure effectiveness of disinfection agents such as UV, to minimize disinfectant decay, and to minimize disinfection by products.
Viruses	4 log (99.99%) inactivation	This can be achieved through disinfection.
Transmissivity	90-95%	This is necessary to ensure effectiveness of UV disinfection against protozoa with characteristics similar to *Giardia* and *Cryptosporidium*

Because turbidity levels may significantly impact the effectiveness of disinfection systems, especially those that rely upon chlorine and UV treatment, turbidity goals should be established that provide sufficient assurance that disinfection-resistant organisms will not be released into the Hudson Bay basin ecosystem, either through the transmission system or the waste removal system.

Of principal interest to Manitoba is that some invasive species of concern, such as the protozoa responsible for whirling disease in fish, are resistant to both chlorine and UV disinfection, and have the potential to repair themselves and propagate after inactivation. In her February 3, 2005 ruling that overturned the Environmental Assessment and Finding of No Significant Impact for the NAWS project, Judge Collyer stated:

> *"Federal Defendants argue that the risks of leakage are low and, therefore, that no further study is necessary. They repeatedly provide varied estimates that more than ninety-nine percent of biota will be disinfected under NAWS. While facially compelling, the argument ignores the fact that certain biota have been identified that may be impervious or highly-resistant to the planned treatment measures. Therefore, even a low risk of leakage may be offset by the possibility of catastrophic consequences should any leakage occur. Without some reasonable attempt to measure these consequences instead of bypassing the issue out of*

indifference, fatigue or through administrative legerdemain, the Court cannot conclude that BOR (Bureau of Reclamation) took a hard look at the problem."

Inactivation is not as complete a defence against potential invaders as actual removal. For example, filtration systems, which are of proven effectiveness against *both Cryptosporidium* and *Myxobolus cerebralis*, are more consistently reliable in removing biota of concern from the water system, similar to the reliability that is provided in drinking water systems. Furthermore, a multi-barrier approach offers the most promise of success. The use of filtration followed by UV disinfection provides a multiple barrier system that would prove most effective in limiting foreign biota transfer.

Manitoba believes that the technology is available that can cost-effectively achieve this objective. The most promising of this technology appears to be Dissolved Air Flotation (DAF) combined with filtration in a single tank followed by UV disinfection. This is a system that offers cost and spatial savings with little impact on process flexibility and reliability. Such a system would provide a number of benefits, including improved removal of pathogens, colour, organic flocculants, and algae, reduced volume of higher concentrated waste, and lower capital cost and life cycle cost. If an importation alternative continues to be considered, Manitoba recommends that the Bureau develop, cost and fully assess this treatment technology that includes both filtration and disinfection in order to achieve an acceptable level of removal and inactivation of harmful biota before waters are transferred across the continental divide.

Three of the water supply alternatives identified for the Red River Valley Water Supply Project involve the importation of partially treated Missouri River water into the Hudson Bay basin, with the potential to transfer harmful biota to the Red River system. Manitoba's review of the Red River Valley Water Supply Project strongly suggests that the range of treatment options proposed for these three Missouri River inter-basin transfer alternatives, namely coagulation, flocculation, sedimentation, and ultraviolet disinfection, will not effectively and reliably provide an adequate level of treatment to remove and inactivate species of concern in the Missouri River water. Therefore, Manitoba does not believe that these three options comply with Article IV of the Boundary Waters Treaty, which requires that waters flowing across the boundary "shall not be polluted to the injury of health or property" on the other side of the boundary. In fact, the partially treated water provided by these three alternatives would not be regarded as safe for human consumption.

The assessment of the risks and consequences of biota transfer relies almost entirely on the documents prepared by the United States Geological Survey (USGS) in 2005 and forms an important component of the draft EIS. However, rather than setting out an assessment of real world scenarios, these documents only provide an analysis that uses questionable assumptions and does not accurately portray the risk associated with the Red River Valley Water Supply Project. The admittedly large number of uncertainties of the inputs, models used, and results highlights the inadequacy of this analysis. The only impact assessment is a theoretical analysis of economic impacts to the commercial fishery in Lake Winnipeg based on the damage inflicted by one "representative" species. There are many possible impacts to Lake Winnipeg and the Red River that have not been considered. The methods and assumptions used by the USGS in

preparing these documents have not been proven for biota risk assessment nor have they been employed by other jurisdictions in North America that lead efforts in the study and prevention of invasive species. Manitoba urges the Bureau to have the risk assessment evaluated in detail by other independent agencies that have expertise and are familiar with invasions of aquatic nuisance species, prior to finalization of the EIS.

It is implied in the draft EIS that water conservation methods would only be employed when drought is imminent. Modern water management practices suggest that water conservation programs are an integral part of water demand and should be implemented in conjunction with any supply option, so that the full benefit of these conservation measures is realized from the start of the project.

There are two significant process issues related to the present review under the National Environmental Policy Act that are important to draw to your attention. First, the draft EIS is inextricably linked to the earlier *Report on Red River Valley Water Needs and Options*. Comments were provided by Manitoba on the draft *Needs and Options* report (Williamson to Bureau, dated October 3, 2005), and the *Needs and Options* report was finalized. However, the Bureau's response to our comments on the *Needs and Options* report lacks detail and makes it impossible to determine why certain comments were not incorporated into the final *Needs and Options* report. Our review of the draft EIS would have been greatly aided by a more detailed response to our original comments on the *Needs and Options* study.

Second, the identification of the Garrison Diversion Conservancy District as the agency representing the State of North Dakota in the preparation of the draft EIS casts significant doubt upon the objectivity of the report. As you know, the Garrison Diversion Conservancy District was established by the State of North Dakota according to N.D. Century Code 61-24-01 to implement the Garrison Diversion Unit of the Missouri River project as authorized by Congress on December 22, 1944. The Garrison Diversion Conservancy District's charter requires that the District seek to deliver Missouri River water to the Red River valley via the Garrison Diversion Unit. Since the Garrison Diversion Conservancy District was established to utilize waters of the Missouri River, it does not appear possible that input from this agency on behalf of North Dakota would not have biased the draft EIS toward an outcome involving the importation of Missouri River water to the Red River basin in eastern North Dakota.

The Boundary Waters Treaty was signed in 1909 as a mechanism to prevent and resolve disputes between Canada and the United States regarding shared waters. The International Joint Commission was established under the Treaty to assist governments and, when requested, undertake investigations of issues of mutual concern.

Article IV of the Boundary Waters Treaty states:

> *"It is further agreed that the waters herein defined as boundary waters and waters flowing across the boundary shall not be polluted on either side to the injury of health or property of the other."*

The Red River, which flows across the United States-Canada border at Emerson, constitutes "*waters flowing across the boundary"* as set out in the Boundary Waters Treaty.

The Boundary Waters Treaty and the International Joint Commission have worked well for nearly a century to assist governments in preventing and resolving water disputes in the boundary region.

The four inter-basin transfer water supply options proposed in the Red River Valley Water Supply Project are similar in many respects to the original Garrison Diversion Project. The original Garrison Diversion Project was referred to the International Joint Commission for review in 1975. After a thorough investigation, the International Joint Commission made the following key recommendation to governments in 1977:

> *"That, if and when the Governments of Canada and the United States agree that methods have been proven that will eliminate the risk of biota transfer, or if the question of biota transfer is agreed to be no longer a matter of concern, then the construction of that portion of the Garrison Diversion Unit which would affect waters flowing into Canada may be undertaken provided the following conditions are met:*
>
> > *(a) Any agreed modifications or other measures required to resolve the interbasin transfer issue are incorporated into the project."*

Issues surrounding biota transfer are even more of a concern now than in 1977. The issue of invasive species is recognized as one of the most formidable environmental challenges facing governments in North America. An Executive Order on Invasive Species was issued by the President of the United States in early 1999, highlighting the serious nature of the issue and providing direction for preventive and coordinated actions. Both the United States and Canada are working cooperatively in many areas to control invasive species through ballast water programs, sharing of scientific information, and regional cooperation to implement the U.S. Aquatic Nuisance Species Act. Economic losses from invasive species can be staggering. A 1999 U.S. study estimates damages and losses caused by invading foreign species adding up to more than $138 billion per year. Zebra mussels cause damage in the U.S. that is estimated at $3 billion annually. The mussels have not yet invaded the Hudson Bay drainage area, but an impact of similar magnitude can be expected should zebra mussels make their way into the Hudson Bay basin.

Even though the Garrison Diversion Project has evolved over the years, the International Joint Commission's recommendation of 1977 is just as appropriate and meaningful in 2006 as it was in 1977.

As contemplated by the International Joint Commission in 1977, Manitoba believes that, if one of the Missouri River basin transfer alternatives is ultimately selected as the preferred alternative, modifications to "resolve the interbasin transfer issue" need to be incorporated into the project, and agreement must be reached on the level of treatment to be implemented prior to

diversion. No such agreement has been reached. If agreement cannot be reached, it is Manitoba's position that this matter should once again be referred to the International Joint Commission for assessment. Manitoba would abide by whatever recommendations the International Joint Commission may make in this matter.

Manitoba remains committed to working cooperatively with the Bureau, the State of North Dakota, and the U.S. Department of State in developing a mutually acceptable solution to the problem of potential drought in the Red River basin that protects the downsteam environments and natural resources and is consistent with modern water management principles.

Detailed comments on the draft EIS are as follows:

Insufficient Justification to Support Out-of-Basin Alternatives

(1) Fundamental to the Project are the estimates of water shortages and water demands based on population projections in the Red River valley to 2050. Water demand estimates referenced in the draft EIS were based on monthly per capita water use (primarily Fargo), population projections, and water conservation measures. Scenario One and Scenario Two were based upon these components, and we consider that per capita water use and population estimates have been overestimated while water conservation has been underestimated. Given these inaccuracies in estimation, Manitoba is concerned that the inflated water demands will be erroneously used as justification for one of the inter-basin transfer supply options.

The Manitoba Bureau of Statistics reviewed the models, adjustments, and calculations referenced in the draft EIS (pages 13, 14) and concluded that population projections for Scenario One and Scenario Two were much higher than expected. The set of projections provided by Northwest Economic Associates (NEA) seemed the most plausible. These projections were based on accepted, scientifically-sound modelling methods, while the projections used by the Bureau in the preparation of Scenario One and Two were not. However, the NEA projections were not used in determining final water demand.

(a) Water demands on a per-capita basis were calculated from a time frame (1988 to 2001) that would not have taken into consideration true water conservation measures (Figure 2.2.2 *Final Report on Red River Valley Water Needs and Options*). Thus, Manitoba questions the accuracy of future projections of water demands.

(b) It is unreasonable to estimate population growth and subsequent water-use projections for a 50 year planning horizon. As the projection period gets longer, the reliability of the estimates decrease. Therefore, we suggest that a smaller projection period such as 25 years is more realistic and would allow for more accurate estimates of municipal, rural, and industrial water-demand plans.

(c) Page 2-42 of the *Final Report on Red River Valley Water Needs and Options* estimates the cost and projected savings of implementing reasonable water conservation measures, yet no supporting details on estimating these costs and savings are provided.

(d) Page 2-42 of the *Final Report on Red River Valley Water Needs and Options* states, "The Project water conservation program may take a number of years to achieve the water savings goals, but the desired water demand reductions are not immediately needed for the Project to meet future water needs." This is counter-productive to the spirit of water conservation and implies that water conservation methods would only be employed when drought is imminent. Modern water management practices suggest that water conservation programs are an integral part of water demand and should be implemented in conjunction with any supply option, so that the full benefit of these conservation measures is realized from the start of the Project.

(e) Costs and savings due to water conservation measures ought to be re-evaluated and estimated with an approach that would strongly favour industries that would implement water conservation measures and those that are less water-reliant. It is strategically reasonable that North Dakota would plan for industries that are less dependent on water.

(2) The water demand scenarios do not take into consideration any drought contingency management plans. It would be reasonable to assume that during periods of drought, or expected drought, jurisdictions would put into place a contingency plan, as well as conservations methods, to evaluate and protect water use and demand by critical sectors. Water demand requirements need to be reviewed with a view towards implementing a drought contingency plan.

(3) Page 13: The conversion factors wrongly state that 1 cubic foot equals 325,851 gallons rather than 7.4805 gallons.

(4) Pages 43 to 45: It is acknowledged in the draft EIS that "the three in-basin alternatives offer the most construction flexibility" and that "the primary advantage in phasing is that project features that are not immediately needed could be built and funded later when the size of the features would be better understood and increased population and new industry could help finance these features." Given the uncertainty surrounding the population projections and the resulting water demands, Manitoba would expect that construction flexibility would be a significant factor favouring selection of one of the in-basin alternatives.

Risks and Consequences of Inter-basin Transfer of Biota

(5) The discussion of inter-basin transfer of biota in the draft EIS relies almost entirely on the two documents, *Risk and Consequence Analysis Focused on Biota Transfers*

Potentially Associated with Surface Water Diversions Between the Missouri River and Red River Basins, and *Supplemental Report: Risk Reduction Captured by Water Supply Alternatives and Preliminary Analysis of Economic Consequences Associated with Biota Transfers Potentially Realized from Interbasin Water Diversion*, both prepared by USGS in 2005. Both documents rely on assumptions, summaries, and methods that have not been proven for biota risk assessment or employed by other jurisdictions that advance and lead North American efforts in the study and prevention of invasive species. Since these documents provide the critical basis of risk assessment for biota transfer, they ought to be evaluated in detail by independent agencies that have the expertise and are familiar with invasions of aquatic nuisance species before the final EIS is prepared and submitted. These agencies would include but are not limited to the Aquatic Invasive Species Council, the Aquatic Invasive Species Task Force, and the Great Lakes Panel on Aquatic Invasive Species, plus others.

(6) Page 197: While the risk analysis evaluated a number of "representative" biota, Table 54, from Linder *et al.* 2005a, does not include a number of biota of concern that could impact the aquatic environment of the Hudson Bay drainage basin such as those set out above. Table 54 is incomplete, yet it forms the basis of numerous assumptions and subsequent calculations that are highly speculative.

(7) Page 106: States that "the most invasive species probably either have or will become established in the Hudson Bay basin with or without inter-basin water transfer from this Project." Similarly, page 207 states that "[c]ompeting pathways will likely lead to inter-basin biota transfers and subsequent species invasions in the near future…..even in the absence of imported water from the Missouri River basin." These statements make the erroneous assumption that very little or nothing has or will be done in controlling or preventing the introduction and spread of invasive species. Considerable resources have been expended in recent years by the governments of the United States and Canada as well as by state and provincial agencies to prevent introduction of invasive species through all pathways. These statements diminish the efforts by federal and local governments and leave the implied (and erroneous) conclusion that the transfer of invasive species to the Hudson Bay basin is likely to occur regardless of any preventative measures.

Further, while the discussion on page 106 emphasizes that the risk of transfer of foreign biota depends on species characteristics, it needs to be recognized that the risk associated with every pathway, including inter-basin water transfer, is progressively accumulative. Manitoba agrees with the statement that "whether or not an inter-basin water transfer would present a significant new invasion pathway is dependent on treatment and containment effectiveness" (page 106). Since this statement would apply to all potential pathways of biota transfer, all risks should be mitigated to the extent reasonably achievable.

(8) Page 209 and 210: Manitoba notes that the Bureau has estimated impacts within the Manitoba portion of the shared Hudson Bay drainage basin and thanks the Bureau for this

effort. However, estimates for biological dispersion for Lake Winnipeg are based on misrepresented data. Literature cited from Linder *et al.* 2005a does not include the possibility of dispersion for viruses, bacteria, cyanobacteria, phytoplankton, or protozoans, but rather only considers dispersion of plants and fish in riverine habitats. There appears to be no basis for the invasion rates (fast or slow). It is unlikely that fish species or algae would take as long as 17 years to disperse within Lake Winnipeg given the numerous possible ecological interactions affecting species dispersal. For example, *Eubosmina corigoni*, a copepod not native to Lake Winnipeg, was first discovered in the Winnipeg River in 1994. By 1999, *E. corigoni* was the most dominant species of zooplankton throughout the north basin of Lake Winnipeg. A further example is *Osmerus mordax* (rainbow smelt) which was firstly discovered in Lake Winnipeg in 1990. Rainbow smelt has subsequently spread throughout Lake Winnipeg and the Nelson River to Hudson Bay. Recent reports indicate that rainbow smelt may have spread along the Hudson Bay coastline from the Nelson River estuary northward to at least the Churchill River. These examples of widespread dispersion independent of human activities significantly bring into question the validity of the dispersion analysis and its many assumptions.

(9) Page 211: The applicability of the underlying assumptions in support of the Consequences (offsetting restoration) and the Habitat Equivalence Analysis (HEA) to quantify the value of ecological loss in Lake Winnipeg and the Red River due to biota transfer as a result of the Project is highly questionable. One of the key underlying assumptions of the HEA is that appropriate restorative measures are feasible and available - an assumption that the authors admittedly have not addressed. The HEA, as presented in the draft EIS, is used to quantify impacts as the cost of restoration that would be required should foreign biota be introduced. Further, the size of the restoration must be sufficient to offset the economic value of the lost services, yet the draft EIS does not include a discussion of what services might indeed be lost to Lake Winnipeg and the Red River.

The conventional use of the HEA provides restorative compensation to habitats that have undergone specific impacts. In this conventional use, recovery is used to restore, replace, rehabilitate, or acquire an equivalency of impacted habitat. However, once foreign biota from the Missouri River basin enter the Red River and Lake Winnipeg, it is extremely unlikely that the biota of concern can be eradicated. Once established in Lake Winnipeg, habitat recovery will be unlikely and the offsetting restoration principles will not apply.

Other assumptions associated with the Risk Consequence portion of the draft EIS are also highly questionable, specifically, the scope of the Regional Economic Impact Analysis as an economic approach to measure impacts to Lake Winnipeg. This approach severely underestimates the scope of impact to Lake Winnipeg for it neither considers the ecological functioning of Lake Winnipeg due to possible biota transfer nor adequately estimates the consequences of impacts to Lake Winnipeg other than to estimate projected losses to commercial fishers. For example, this analysis does not consider impacts with each new invasion to communities on Lake Winnipeg, including human health costs,

impacts to First Nations People, losses to recreation and tourism, and losses to the intrinsic value of Lake Winnipeg beyond commercial assets. There are many possible impacts to Lake Winnipeg and the Red River that have not been considered in the economic analysis, and we would encourage the Bureau to consider a broader scope in its evaluation of impacts in the final EIS.

While the cost of altering the ecological functioning of Lake Winnipeg is not quantifiable due to the countless possible system interactions, the disruptions to food webs, shifts in the guild of fish species, and the virtual extinction of some native species have been well documented from the Great Lakes and major North American river systems. We would also encourage the Bureau to include discussions in the final EIS of the potential impacts to natural systems resulting from biota transfer.

(10) Given the pipeline distances from the Missouri River to the Red River valley, and given the number of blow-outs, road crossings, and water-feature crossings, there is a relatively high probability of accidental release of untreated, or insufficiently treated, Missouri River water to the Hudson Bay basin during the expected lifetime of the Project. Emergency response measures for any of the importation alternatives have not adequately addressed accidental releases or catastrophic events resulting in unexplained leakages. Further, the Project does not include any monitoring program, implementation of performance standards, maintenance standards, or mitigation plan for foreign biota where accidental or intentional releases might occur. This is of particular concern given the Project's 50 year planning horizon.

(11) Page 202 to 203: The discussion of risk reduction is predicated on the assumption that "if control systems meet performance criteria, then risk associated with inter-basin biota transfers are substantially reduced relative to risks associated with a control system that does not meet these performance criteria." The range of treatment options proposed for the biota water treatment plants, namely coagulation, flocculation, sedimentation, and ultraviolet disinfection, will not effectively and reliably provide an adequate level of treatment to remove and inactivate species of concern in the Missouri River and would not meet the treated water goals outlined above by Manitoba. Given that treatment standards have not been established for foreign biota in bulk water transfers, Manitoba submits that the most reasonable approach is to provide for removal and inactivation of foreign biota.

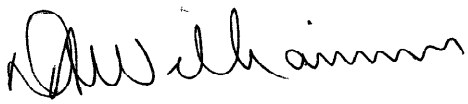
The draft EIS suggests that, while the International Joint Commission findings in 1977 of unacceptable risks associated with biota transfers consequent to water diversions were applicable given the best management practices for the time, revisiting those findings might be warranted since control technologies have improved over the past 30 years. Indeed, control and treatment strategies have improved since 1977. However, this level of treatment is represented in only one alternative in the draft EIS, and it is not the preferred alternative selected by North Dakota.

In the absence of established water treatment standards to minimize the risks of biota transfer, it is eminently reasonable that the treatment goal should be to effectively and reliably remove and inactivate organisms of concern. Only one of the import alternatives (*i.e.,* Garrison Diversion Unit Water Supply Replacement Pipeline) proposes treatment which will meet this objective. The other import alternatives will not effectively and reliably provide a level of treatment to remove and inactivate species of concern in the Missouri River water.

The essence of the International Joint Commission recommendation of 1977 is that either biota transfer is no longer an issue of concern or Canada and the United States have agreed on the methods necessary to eliminate the risk of biota transfer and that these are incorporated into the Project. Manitoba cannot agree that biota transfer is no longer of concern nor can it agree that the treatment methods proposed eliminate the risk of biota transfer. If a Missouri River transfer option is selected as the preferred alternative and no agreement has been reached on an appropriate level of treatment, Manitoba would expect that the International Joint Commission would be requested to evaluate the Project in light of the present up-to-date information.

It is hoped that you will find the above comments helpful as you further consider water supply options for eastern North Dakota.

Sincerely,



Dwight Williamson, Director
Water Science and Management
Branch

c. Don Norquay
Gerry Berezuk
Peter Fawcett
Wayne Dybvig