

Responses to the Coalition to Save the Assiniboine River

Comments on the Draft Report on the Red River Valley Water Supply Project Needs and Options

October 3, 2005

Via Facsimile

Red River Valley Water Supply Project
Bureau of Reclamation
PO Box 1017
Bismark, North Dakota
USA 58502-1017

Re: Public Review of “*Reclamation – Managing Water in the West*”, Draft Report on Red River Valley Water Needs and Options.

Please be advised that we object to all options, which call for the transport of water from outside of the Red River Basin boundary. Our objections are based on the identification of what we find as major deficiencies contained within the Needs and Options report:

1. The population prediction models are flawed.

All predictive models utilized in the demographic analysis assumed constant fertility rates and constant death rates over the 50-year period. North Dakota, like the US and all other developed countries in the world are entering or have entered a period of zero population growth or stage 4 of the demographic transition model. In this stage, the population is aging, which will slightly raise the death rate with the prevalence of degenerative diseases - and birth rates will slightly decline. Once the fertility rate falls below 2.1, a country's (or regions) rate of natural increase will become zero (known as zero population growth). Any growth in population in that particular country or region will be dependent on migration. The US has moved slightly below zero population growth since 2000. With a population of 642,200 (2000), North Dakota's population has slightly decreased since 1930, when the population was 680,845. The major factor that has influenced growth in urban centers such as Fargo and Grand Forks has been migration from rural North Dakota. One would expect this rural/urban migration pattern to stabilize over the next generation, and not as the predictive model suggests, give populations in Grand Forks and Fargo that are 2 to 3 times higher of what they are today. Any suggestion that there will be a major influx of people migrating into the region is contrary to North Dakota's historical population migration patterns.

2. A proper water budget has not been performed.

According to the North Dakota Economic Development and Finance department, irrigated acreage in North Dakota has increased to 245,000 acres (2002) which represents a 33% increase from a decade ago. The USGS Survey on Irrigation (2000) claims that 50% of water used for irrigation in North Dakota is sourced from aquifers. The proper accounting of irrigation within the Red River Valley and its possible interrelationship and impacts to downstream users for municipal, industrial and rural purposes, requires further evaluation.

Responses to the Coalition to Save the Assiniboine River

Response to Comment 1

Reclamation revised the *Report on Red River Valley Water Supply Project Needs and Options, Current and Future Population of the Red River Valley Region 2000 through 2050, Final Report* to provide additional clarification on population projections and identified where populations would reside in the future. Reclamation used the “optimistic” population projection of 417,600 (table 9) for the 13 eastern counties in North Dakota, but this was only 15,100 more than the results with migration shown in table 8, or a 3.8% increase. The difference was 27,079 or 6.9% higher than the projections provided by Northwest Economics Associates.

Two water demand scenarios used in the Needs and Options Report provide adequate data to understand the relationship between option costs and water demands. Additional water demand sensitivity analyses may be done for the FEIS (Final Environmental Impact Statement).

Response to Comment 2

Reclamation included conversion of irrigation water rights to MR&I (municipal, rural, and industrial) use in some of the options (Elk Valley Aquifer feature). The negative economic consequences of this type of conversion are discussed in the DEIS (draft environmental impact statement). Other than the Elk Valley aquifer, there are no other opportunities to convert irrigation to MR&I water use due to the remoteness of the groundwater from water demand locations. Furthermore, most irrigation permits using surface water are junior to existing MR&I permits. Under North Dakota law a junior permit holder may withdraw water only if it will not impact the ability of senior water right holders to access water.

For instance, our best estimate would suggest that 70,000 acre-ft is permitted annually to irrigators from aquifer sources.

Spiritwood	5,000
Hankinson	400
Milner	9,650
Sheyenne Delta	15,200
Page-Galesburg	16,385
Inkster	3,590
TOTAL	50,225

Elk Valley	??	(a value of \$93 million)
Other	??	

Best Estimate 70,000 acre-ft

Another 17,000 acre-ft is permitted annually from the Sheyenne River for irrigators.

Total	70,214 (subtract)
Municipal	52,553
Irrigation Total	17,622 acre-ft

And, 61,800 acre-ft is permitted from the Red River for irrigators.

Total	254,955 (subtract)
Municipal	183,064 (subtract)
Industrial	10,091
Irrigation Total	61,800

Total irrigation permits in the Red River Valley within North Dakota is therefore: 61,800 + 17,622 + 70,000 = 149,422 acre-ft annually.

Assuming that the historic records are correct whereby irrigation use is about 50 to 65% of permitted appropriations, the largest consumptive use of water in the Red River Basin in North Dakota is irrigation.

	Maximum Annual Demand	Annual Permitted Allocation
Irrigation	96,000	148,000
Municipal	48,359	244,240 (Municipal/Rural)
Rural	11,174	
Industrial	6,131	17,543
Total	161,000 acre-ft	261,931 acre-ft

Responses to the Coalition to Save the Assiniboine River

Observations:

- i) North Dakota has over allocated its water resource in the Red River Valley.
- ii) In the event of a water shortage Fargo, West Fargo, and Valley City are entitled to 52,180 acre-ft annually from the Sheyenne River and according to their water permits, first in right, the 17,622 acre-ft irrigation allocation would have to be forfeited for this beneficial use.
- iii) The Sheyenne Delta Aquifer has storage of 4 million acre-ft and an average recharge of 50,000 acre-ft annually. 15,200 acre-ft annually has been permitted for irrigation purposes.
- iv) Irrigation use that ranges from 50 to 65% of permitted appropriations can potentially provide up to 22,000 acre-ft annually in the Red River Valley in North Dakota.
- v) Irrigation is the most highly depletive consumptive use of water in the Prairies (and on the planet) where on average only 20 to 40% of water used returns to the watershed (in a degraded form).

In order for North Dakota to even consider importing water from other jurisdictions or other basins, it must get its own house in order. The Draft Needs and Options report does not identify efficiencies which can be gained from within the irrigation sector, nor does it provide any details as to how much water is used in this sector. Water rights may be gained for other higher beneficial uses by reallocating unused permit appropriations from the irrigation sector. Conversion of water rights from an existing beneficial use to a higher beneficial use has not been fully explored in the Sheyenne Delta, Milner Channel and Spiritwood Aquifers, those aquifers closest to where the municipal and industrial shortages may occur. From this rough water budget outline, it appears that adequate water is available in the Red River Basin system to accommodate municipal, rural and industrial needs in the event of a 1930's drought scenario, even if the over-inflated population and industrial activity predictions hold true.

3. The Industrial water needs assessment for the Red River Valley in North Dakota assumes that there is unlimited growth in the region and that the central plains region of North America is a global market hub.

The two reports, which were prepared for this assessment (one by the Bureau of Reclamation (BOR) and the other by the Department of Agribusiness and Applied Economics, North Dakota State University, (Bangsund and Leistriz, 2004)), varied in future water demand predictions significantly. BOR predicts that an additional 1,836 acre-ft annually will be required for future commercial and industrial growth under a high demand scenario. Bangsund and Leistriz (which included water intensive agricultural processing in their wish list) predicts that, dependent on the scenario, 22,566 to 38,983 acre-ft annually will be required for commercial, industrial and agribusiness growth. Bangsund and Leistriz' predictive model was included in the Draft Needs and Options report because, "Red River water users preferred using Bangsund and Leistriz high scenario results for planning purposes. They stated that this scenario best represented their goals for economic development. They wanted assurance that there would be

Responses to the Coalition to Save the Assiniboine River

Response to Comment 3

Potential efficiencies of irrigation water use as an alternate water source were not investigated in the Needs and Options Report for a number of reasons. The primary reason is that the majority of North Dakota irrigators use groundwater, and these water sources are often too remote and dispersed from demand areas to be economically developed. Furthermore, irrigation water permits, both surface and groundwater, are generally junior to MR&I permits, which mandates that these sources of water are cut off during a drought to protect senior MR&I water permits. Under North Dakota law a junior permit holder may withdraw water only if it does not impact the abilities of senior water right holders to withdraw their appropriated amount. Regardless of the availability of irrigation water, data on water use are presented in chapter three of the DEIS.

Response to Comment 4

Hydrologic modeling, which is based on historic and naturalized flow in the Red River Basin, indicates that there would not be adequate surface water in the system during a 1930s style drought using 2050 projections. The impacts of this are discussed in the DEIS as part of the effects of the No Action Alternative. There are some groundwater sources currently being used for irrigation, but analysis of the Elk Valley Aquifer conversion feature in the DEIS shows that the negative economic costs of such conversion are higher than the benefits received from its use as an alternate water source.

Response to Comment 5

The Bangsund and Leistritz report shows that value-added food processing has occurred in the Red River Valley and that this trend and the need for water would continue. From an agricultural production standpoint, North Dakota is already a global market hub.

adequate water quantity and quality to achieve their economic development goals.” This same predilection is contained in the support document entitled, “ Water-Use for the Red River of the North Basin, North Dakota, Minnesota and South Dakota 1979-2001, Macek-Rowland et al. (2004)”. This report explicitly states that “the availability of water from the Red River of the North and its tributaries has been important to population growth and distribution as well as to economic development in the Red River of the North Basin.”

In essence, the Draft Report on Red River Valley Water Needs and Options is no more than a business plan to attract additional water intensive agribusiness industries to help alleviate a static economy and declining population.

Both industrial water needs assessment reports fail to consider that approximately 11,000 acre-ft annually is available as unused industrial permitted appropriations. The Bangsund and Leistriz report assumes that no new efficiencies, conservation technologies or recycling systems will be developed or implemented over the 50-year period.

4. Using peak demands and 15 year averages overestimates true daily per capita demand and does not take into account water conservation efficiencies that have occurred over the 15-year time period.

It must be mentioned that the US has the highest per capita annual demand of all nations on the planet. The Water Conservation Potential Assessment does little to improve this situation. As an example, Europe’s highest water user is Spain at 260 litres/capita/day (69 gpc/d). Europe’s lowest water users are the Baltic countries at 100 l/capita/d (27 gpc/d).

5. No consideration or analysis has been performed for those users upstream in the Red River Basin in Manitoba, those users downstream in the Missouri River Basin and those users in the Lake of the Woods, an international water body.

6. We are also concerned about the lack of independence in conducting this review and the subjectively demonstrated in developing the overall water needs model.

In consideration of the options chosen to date and, given that the economic preference is leaning towards transferring water from the Missouri River system, we are calling on the US Department of the Interior to recommend that this project be referred to the International Joint Commission (IJC) for further review. The IJC will ensure that independence, fairness and objectivity is inherent in the process.

Thank-you for your consideration. We look forward to your response.

Glen Koroluk, Volunteer (204) 224-0933

On behalf of
Coalition to Save the Assiniboine River
c/o 142 Sherburn Street, Winnipeg, Manitoba Canada R3G 2K4

Responses to the Coalition to Save the Assiniboine River

Response to Comment 6

The Bangsund and Leistriz report documents that value-added food processing has occurred in the Red River Valley and that this trend and the need for water would continue. The intermediate water demand in the report follows historic trends. The high and intermediate water demands both are evaluated in the Final Needs and Options Report, so reviewers can understand the sensitivity of the industrial demand, as compared to water shortages and costs.

Response to Comment 7

The appropriation methods of the NDSWC (North Dakota State Water Commission) consider fluctuations in annual use. Unlike municipal and rural water permits that are granted based upon future growth, the NDSWC issues conditional water permits for industrial use. These conditional water permits incorporate contingency plans that direct surface water users to convert to groundwater during drought. Other industrial groundwater permits are conditional permits that have been issued to a water user for a period of time during to allow maturation of the water demand. In general, the NDSWC does not expect that all of the appropriated water would be used during any given year, or series of years, without having to discontinue water use by junior and conditional permit holders. It would be highly speculative and inappropriate to consider the unused portions of water use permits as available for reallocation.

Response to Comment 8

The water demands in the Final Needs and Options report were derived from actual historic use data. The *Water Conservation Potential Assessment* took a hard look at a wide variety of water conservation measures and assessed their future potential efficiency. Correcting past water use data to take into account the state of water conservation at the time of use was not a part of the study. The plan of study for the water conservation assessment was reviewed by members of the Technical Team, and this was not one of their recommendations.

Response to Comment 9

The Water Conservation Potential Assessment is a report used to assess opportunities to conserve water in the Red River Valley and to determine water savings used in calculating overall demands for the Project. The U.S. per capita water demand is not a relevant factor.

Response to Comment 10

Evaluation of the impacts of the proposed Project is disclosed in the DEIS.

Response to Comment 11

The Draft Needs and Options Report was distributed for a 120 review, as required by the Dakota Water Resources Act, so interested parties could draw their own conclusions about the study results. A Technical Team was formed to assist Reclamation in developing plans of study, providing technical evaluations, preparing portions of the Needs and Options Report, and reviewing draft study products. Over forty entities, including Environment Canada and Manitoba Water Stewardship, participated.

Response to Comment 12

We believe that it is premature at this time to refer this project to the IJC. If an alternative is selected that would have transboundary impacts, we will comply with the Boundary Waters Treaty.