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What Does the Future Hold in Store for the Republican River Basin

By LeRoy W. Sievers

It is not news that Nebraska is an agricultural state. It is not news that much of Nebraska's economy is dependant upon the relative health of its agricultural sector. Thus the future of agriculture in the Republican River Basin in Nebraska is important not only to the farmers in that region but to most other sectors of the economy which are affected by agriculture.

In the Republican River Basin in Nebraska the number of acres irrigated each year varies depending upon a variety of factors. Out of a total of approximately 6 million acres, in general approximately 1.1 million acres are irrigated with groundwater and, when the supply is available, approximately 91,000 acres are irrigated with surface water.

In the Republican River basin, Nebraska is not free to use any amount of water it chooses. Rather the amount is allocated by the Republican River Compact that was enacted in 1943. In 1998, Kansas sued Nebraska and eventually Colorado for allegedly violating the Republican River Compact. During the course of that litigation the Special Master appointed by the U.S. Supreme Court ruled, among other things, that the use of groundwater to the extent it affected the flow of a stream in the basin, should be counted against the share of the water allocated to the state where the well was located.

The case was resolved by a settlement in 2002, which provided an opportunity for Nebraska to implement whatever measures it deemed necessary to be in compliance with the Compact. The States of Colorado, Kansas and Nebraska jointly developed a computer model that would provide the quantity of groundwater used in each state that would count against each state's allocation. The State of Nebraska has had the opportunity to use that computer program to project how a variety of management scenarios would affect Nebraska's allocation and its consumption of water and ultimately whether it would in be compliance with the Compact. Additionally, each year the State of Nebraska, through the Department of Natural Resources (DNR), utilizes a variety of data sources to calculate the stream flows and consumption of water. This information is used to report to the other states Nebraska's use of water and whether it is in compliance with the Compact; and for its own internal use.

The DNR and each of the Republican basin Natural Resources Districts (NRDs) (Upper, Middle and Lower Republican Natural Resources Districts) developed Integrated Management Plans (IMP) for the use of surface water (by DNR) and groundwater (by the NRDs). Each of the

NRDs in their plans grant groundwater users the right to use a designated amount of water each year. DNR has the authority to disapprove the plan of any NRD and if it does so, the matter is referred to the Interrelated Water Review Board, an entity composed of the Governor, another person appointed by the Governor and 3 others appointed by the Governor from a pool of at least 6 persons recommended to the Governor by the Natural Resources Commission. This board then makes the final decision on the composition of each NRDs IMP.

In the IMPs approved by the DNR for use in 2005, 2006 and 2007, the LRNRD had allocations of 12 acre-inches for wells located west and 11 acre-inches for wells located east of U.S. Highway 183. The MRNRD had an allocation of 13 acre-inches and the URNRD had an allocation of 14.5 acre-inches. Subsequently the State of Nebraska reported to Kansas and Colorado that for 2005, Nebraska used 42,325 AF more water than it was allocated and in August of 2007 it reported that for 2006 Nebraska used 31,676 AF more than it was allocated. Previously Nebraska had represented that in 2003 it used 25,418 AF and in 2004 36,640 AF more than it was allocated. Thus the total excess consumption reported by Nebraska through 2006 equals 136,059 AF. Kansas believes the amount actually is more than 143,000 AF.

In the fall of 2007 or early 2008 DNR approved new IMPs for the three NRDs. In the plans the URNRD set its allocation at 13 inches/acre, the MRNRD at 12 inches/acre and the LRNRD at 9 inches/acre.

Since the groundwater model was developed, Nebraska has used it to project future water consumption and the effects of groundwater use on stream flows. Typically the effects of groundwater pumping take years to be reflected in decreased stream flows because of the slow movement of water underground. In 2005 DNR projected that depletions in stream flows would increase by approximately 50,000 AF year and would take 25 years to be fully reflected in decreased stream flows, based upon the assumption that the number of groundwater irrigated acres did not increase above the number that existed in 2000. At present more acres have irrigation rights than existed in 2000. In the summer of 2007 DNR proposed to the NRDs reducing the allocations to 6.5, 8 and 8.5 inches/acre in the Lower, Middle and Upper Republican NRDs under average conditions. However as noted previously the DNR later approved IMPs from those NRDs of 11, 12 and 13 inches/acre.

In December 2007 Kansas sent a letter to Nebraska stating that Nebraska needed to adopt measures to come into compliance with the Compact and pay damages to Kansas for Nebraska's over use and if necessary have a "river master" appointed by the U.S. Supreme Court. The measures included shutting down wells and groundwater uses in Nebraska within 2.5 miles of the river and its tributaries, shutting down acreage added after 2000 and such other measures as would bring Nebraska into compliance with the Compact. (Letter December 19, 1997 from David Barfield, Kansas Chief Engineer to Ann Bleed, Director of Nebraska DNR.) Nebraska's Governor and Attorney General have responded by issuing a press release. In it the Governor and the Attorney General expressed confidence that the new IMPs would have Nebraska be in compliance going forward and that the drastic measures identified by Kansas were not necessary. Subsequently the Director of Nebraska's Department of Natural Resources sent a letter to Kansas' counterpart. In the letter the Director disagreed with Kansas' analysis and expressed

confidence that the newly approved IMPs would result in Nebraska being in compliance with the Compact.

In the proposal from Kansas, the supporting information indicates that 514,510 currently groundwater irrigated acres need to be taken out of irrigation in Nebraska. A rough estimate is that that quantity of acres is 47% of groundwater irrigated acres or 43% of all the irrigated acres in the Nebraska portion of the Republican River basin. From this information it is apparent that the proposal of Kansas, if implemented, would have a significant impact on the economy of the basin and undoubtedly will spill over to the State as a whole.

What are the types of impacts that would be expected if Kansas is correct? Fewer irrigated acres translates into lower production, and likely conversion of most if not all acres to crops that can be raised without the benefit of irrigation in the dry climate of the region. The result will be significantly reduced purchases of seed, fertilizer, herbicides, fuel, repairs and multiple other impacts.

If 47% of the groundwater irrigated acres no longer pump water, there will be a drop in the purchase of energy to operate the pumps, the majority of which use electricity. Without this source of income with the same distribution system to operate and pay for, the public power districts in the basin likely will have to raise the rates that everyone pays. In Colorado where significant groundwater irrigated acres were idled in the South Platte River basin after well owners were required to mitigate the effects of their pumping, employment dropped at local co-ops and other businesses dependant upon the rural economy.

Revenues are likely to drop in many farming operations. Property values may drop. The ability to service lines of credit and maintain adequate security for loans may be adversely affected.

The ultimate magnitude of the effects remains to be seen. No matter the economic consequences, what is clear is that Kansas has no patience for Nebraska's lack of compliance with the Compact and statements that Nebraska will do better in the future. Kansas has begun raising its concerns using the dispute resolution process established by the prior settlement. In the meantime Nebraska officials have expressed the view that the State did not use more water than it was allocated in 2007, but instead recorded a surplus in an amount yet to be determined. The State also has said that it has no plan to purchase surface water as it did in 2006 and 2007.