# NEBRASKA COMPACT COMPLIANCE

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Patterson Reporting & Video

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## I. INTRODUCTION

This report summarizes Nebraska's efforts to ensure compliance with the Republican River Compact (Compact) through the integrated management process. Our primary conclusions are set forth in Section IV, which shows that under normal conditions, *and even under the assumptions used by Kansas in support of its proposed compliance plan*, Nebraska's existing Integrated Management Plans (IMP) will ensure Compact compliance during the presumptive life of those IMPs (*i.e.*, through 2012). We are aware of nothing that compels Nebraska to prove today that its existing IMPs will ensure compliance with the Compact for the next 50 years as Kansas suggests. The current IMPs will be reevaluated at least on a five year basis (and as often as necessary) to ensure they are effective and that the regulatory tools being employed to achieve their objectives are working. Attempting to predict both the likely hydrology and the regulatory mechanisms that may be in place well beyond the life of the current IMPs is not realistic. Moreover, as explained in Section VI, if Kansas' proposed compliance plan were imposed on Nebraska today to guard against projected shortfalls *over the next 50 years*, Kansas would receive approximately 1,700,000 acre feet more water than she is entitled to over this period, fundamentally altering the States' allocations under the Compact.

## II. DISTRIBUTION OF WATER MANAGEMENT RESPONSIBILITIES IN NEBRASKA.

Nebraska historically has managed the use of ground water and surface water under separate regimes. Surface water use has been regulated by the Department of Natural Resources (the "Department" or "NDNR") generally pursuant to the doctrine of prior appropriation. Ground water rights have been managed by Nebraska's 23 Natural Resource Districts (NRDs) against a Nebraska variation of the American Rule of reasonable use as modified by the doctrine of correlative rights.

More recently, ground water that is hydrologically connected to surface water has been managed jointly by *both* state and local authorities to protect long-term streamflow for the benefit of surface water appropriators, groundwater wells dependant on recharge from streamflow, and to ensure compliance with interstate obligations, including the Compact. The need to address interconnected waters came to the fore upon the passage of LB 108 in 1996,

execution of the Final Settlement Stipulation ("FSS") in 2002, and the ensuing passage of broad legislation in 2004 ("LB 962"). That legislation significantly revised a number of provisions regarding water management in the State to address the unique challenges presented by hydrologically connected waters.

A critical component of LB 962, building on the foundation laid in LB 108, was its requirement for IMPs within areas of the State determined to be fully or over appropriated. Because the Republican River Basin is one such area, IMPs and complementary rules and regulations implemented by the NRDs and NDNR are in place to govern the use of hydrologically connected waters in that Basin. These IMPs represent a blueprint for sustainable water management in the Basin and facilitate Nebraska's Compact compliance.

### A. Respective roles of the Department and the NRDs.

The Department is authorized to supervise and control the appropriation, diversion, and distribution of public waters. The Department has exclusive original jurisdiction to hear and adjudicate all matters pertaining to surface water rights. The Department ensures that the waters of natural streams are not wasted and that prior appropriators are protected against subsequent appropriators. With limited exception, groundwater as defined in Nebraska has included all subterranean flows of surface streams, which were governed by the ground water regime rather than the surface water regime. The Nebraska Groundwater Management and Protection Act creates a statutory framework for managing ground water issues in the state founded on a principle of local control administered through NRDs, with oversight authority in the Department. Every NRD is required to prepare a ground water management plan, which must be approved by the Department. The Act also allows the NRD to designate all or a portion of the district as a ground water management area to address ground water declines. Such a designation gives the NRD additional authority to regulate ground water use for quality and quantity issues.[1] Notably, NRDs may issue cease and desist orders to, collect penalties from, and

[1] NRDs can exercise the following control mechanisms: (1) allocating the amount of ground water that may be withdrawn by ground water users, (2) implementing a system for rotating ground water use, (3) adopting more restrictive well-spacing requirements, (4) requiring well meters to measure ground water use, (5) mandating reductions in irrigated acres, (6) requiring the use of best management practices, (7) requiring water quality monitoring, (8) implementing a moratorium on the construction of new wells, (9) and promulgating rules or regulations necessary to carry out the purposes of the management area.

revoke the rights of those who violate the rules they promulgate with regard to ground water management in these managements areas.

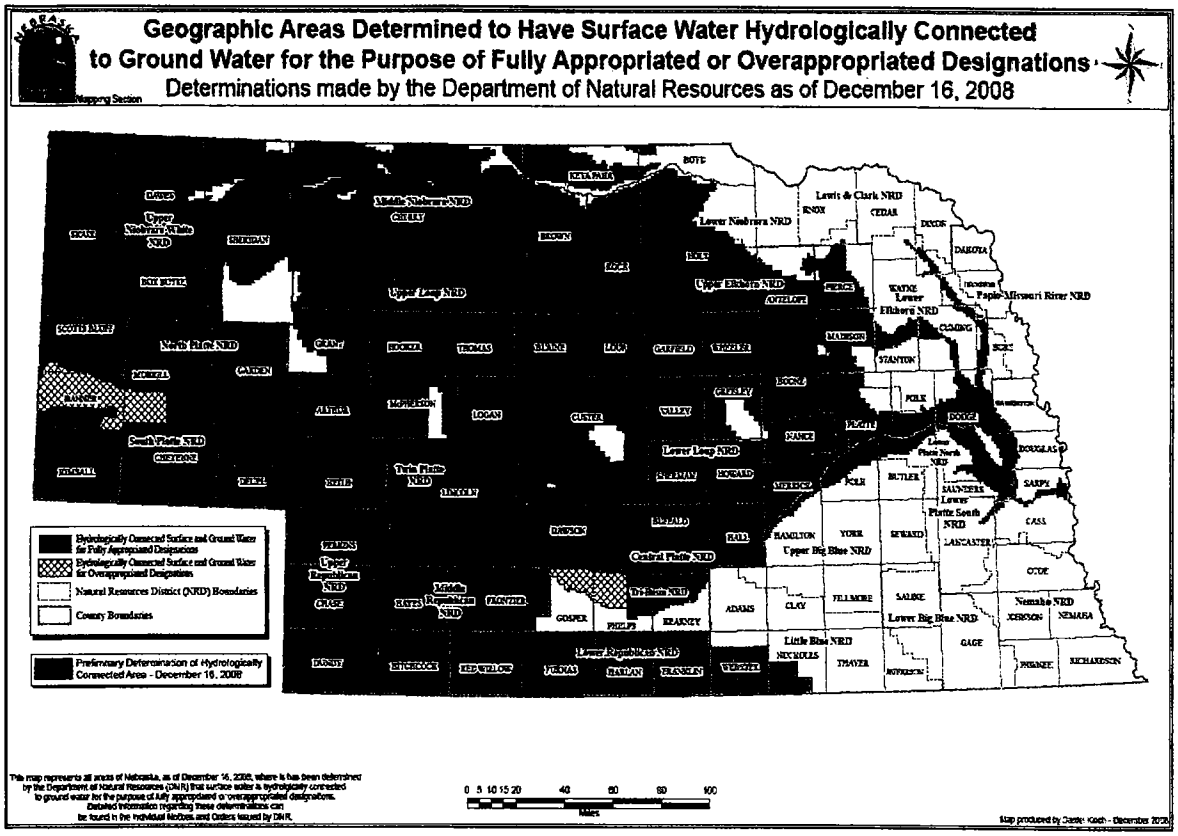
**B. Hydrologically-connected ground water and the implementation of IMPs.**

Active management of hydrologically connected waters began in 1996 when the Legislature passed LB 108. Within 30 days, all four NRDs in the Republican River Basin had requested determinations from the Department as to whether there were conflicts between surface water and ground water in the basin. The Department made a preliminary determination that such conflict existed in September of 1996 and that the conflict implicated Compact compliance. Some NRDs responded with moratoria on new irrigation wells and irrigated acres, but the process of integrated water management slowed in 1998 when Kansas sued Nebraska.

In 2002, the Legislature passed LB 103, mandating creation of a Water Policy Task Force to address conjunctive use management issues. The forty-nine Task Force members, appointed by the Governor from a statutorily specified mix of organizations and interests, were asked to discuss issues, identify options for resolution of issues, and make recommendations to the legislature and governor relating to any water policy changes deemed desirable. In December 2003, the Task Force provided the Legislature with draft legislation and suggested changes to statutes. The Legislature considered the Task Force recommendations in its 2004 session and subsequently passed LB 962, which incorporated most of the Task Force recommendations. Governor Mike Johanns signed the bill into law on April 15, 2004. LB 962 is codified as part of the Nebraska Groundwater Management and Protection Act.

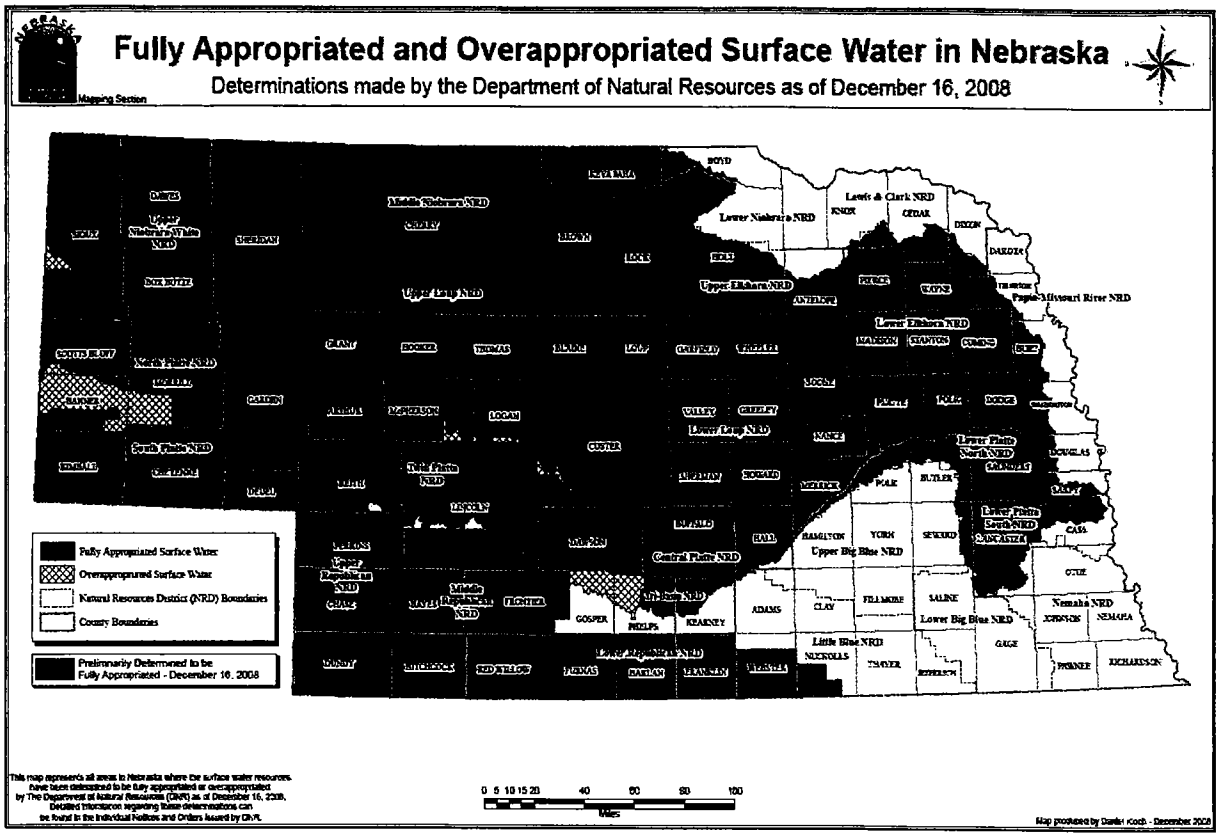
The significance of LB 962 is reflected in the findings of the Legislature, which include the fact that "[t]he management, conservation, and beneficial use of hydrologically connected ground water and surface water are essential to the continued economic prosperity and well-being of the state, including the present and future development of agriculture in the state" and that "[h]ydrologically connected ground water and surface water may need to be managed differently from unconnected ground water and surface water in order to permit equity among water users and to optimize the beneficial use of interrelated ground water and surface water supplies;" NEB. REV. STAT. § 46-703(1) and (2).

As a practical matter, the broad aquifer systems in Nebraska result in management programs under LB 962 that can extend far beyond alluvial boundaries. Indeed, virtually the entire Republican River Basin is treated as hydrologically connected under LB 962 (Map 1).




**Map 1. Geographic areas determined to have surface water hydrologically connected to ground water for the purpose of fully appropriated or overappropriated designations.**

LB 962 establishes a cooperative framework between local NRDs and the Department in furtherance of the overall goal of better managing the State's hydrologically connected ground water and surface water supplies. Under LB 962, the Department makes annual determinations of which basins, sub-basins or river reaches not previously designated as "fully appropriated" or "overappropriated" have since become "fully appropriated." NEB. REV. STAT. § 46-713(1). Whenever a basin is declared "overappropriated" or "fully appropriated," stays on new uses of ground water and surface water are imposed. Map 2 shows Nebraska's currently "designated" areas.




**Map 2. Fully appropriated and overappropriated surface water in Nebraska.**

In designated basins, including the Republican River Basin, the Department and the NRD involved are required to develop jointly and implement an IMP within 3 to 5 years of designation. A key goal of each IMP is to manage all hydrologically connected ground water and surface water for the purpose of sustaining a balance between water uses and water supplies so that the economic viability, social and environmental health, safety, and welfare of the basin, subbasin, or reach can be achieved and maintained for both the near and long term. In the overappropriated portions of the state, the IMP must provide for a reduction in current levels of water use so that it is possible to achieve a balance between water uses and water supplies. The IMPs are also required to address compliance with interstate compacts, decrees, and agreements. In addition, IMPs may rely on a number of voluntary and regulatory controls, including incentives, allocation of ground water withdrawals, rotation of use, and reduction of irrigated acres, among others.

If there are unresolved disputes between the Department and NRDs over the development or implementation of an IMP, a five member Interrelated Water Review Board ("IWRB") will resolve the dispute. To date, no conflicts have proved so irreconcilable as to necessitate intervention by the IWRB.

## III. INTEGRATED MANAGEMENT PLANS AND ANNUAL FORECASTING

As noted above, the primary tool through which Nebraska manages hydrologically connected waters is the IMP. The IMPs are dynamic and may be reevaluated or revised at any time. Additionally, the Republican Basin IMPs currently have a presumptive five-year span (2008-2012), after which they will be reevaluated.[2] This section describes the current IMPs and the annual forecast used to determine additional measures, if any, necessary for Compact compliance. Each IMP contains overarching goals that facilitate Compact compliance. A significant measure employed in the IMPs for the Republican Basin is the setting of allowable pumping allocations within each NRD. However, Nebraska employs additional tools (e.g., surface water purchases) on occasion to ensure it remains within its Compact allocation. These additional measures are addressed in detail in Section V below.

### A. Republican River Basin Integrated Management Plans

The original IMPs for the Republican River Basin were for the three-year period 2005 – 2007. During 2007 and early 2008 the Department, in conjunction with the NRDs, adopted revisions to their IMPs. The current IMPs presumptively cover the five-year period 2008 – 2012. These IMPs include a target pumping reduction of 20% from a baseline period (1998 – 2002). The IMPs and the rules and regulations implementing the objectives of the IMPs for each NRD are attached as Appendices A, B, and C.

In addition, to ensure Compact requirements will be met under any and all water supply conditions that may occur in the Basin, the IMPs contain provisions that limit the average net depletions due to ground water pumping to each NRD's allotted percentage of the allowable ground water depletions. The allowable ground water depletions are the maximum level of depletions to stream flow from groundwater pumping within the Compact area that can be allowed without exceeding the Compact allocation. This essentially amounts to the Nebraska

[2] Of course, if an IMP proves effective in meeting its objective, it need never be revised.

allocation plus imported water supply credit less all computed beneficial consumptive use due to surface water irrigation and reservoir evaporation. The remaining Nebraska allocation is then allotted between the NRDs based on the percentage of the depletions to streamflow caused by ground water pumping in each NRD during the baseline period (for the years 1998-2002).

### B. Annual Forecast of the Water Supply in the Republican River Basin

To aid the NRDs in their short and long-term water planning efforts, and in order to determine what (if any) additional efforts may be required to ensure Compact compliance in a given year, DNR annually, in consultation with the NRDs, forecasts the short-term and long-term water supply projected for the Basin. The forecast allows the NRDs to determine whether additional compliance measures are necessary. This is done pursuant to Nebraska Revised Statutes § 46-715.5 in consultation with the affected NRDs. As an example of how this forecast is conducted, the December 2008 forecast and transmittal letter is included in Appendix D.

## IV. PERFORMANCE OF IMPS

This section describes studies Nebraska completed to estimate the long-term performance of the current IMPs (e.g., including their 20% reduction in baseline pumping). The following are our conclusions:

- Under average climatic conditions, through 2012, Nebraska would maintain a positive five-year average of approximately 18,950 acre-feet. *See* Appendix E.

- Under the future scenario presented by Kansas, through 2012, Nebraska would maintain a positive five-year average, ranging from slightly positive in 2008 up to approximately 42,000 acre-feet in 2012. *See* Appendix F.

- Under an exceptionally (arguably unrealistic) scenario of repeated dry conditions through 2012, additional measures would be required to ensure Nebraska remains within its allocation by making up for a negative five-year average of between 340 acre feet (under normal year administration) and 8,288 acre-feet (under water-short year administration). *See* Appendix G.

### A. The measure of Compact compliance

Any discussion of how compliance will be achieved must, of course, begin with an understanding of how compliance is measured. It is important in this regard to recognize that the FSS does not require a state to have a positive balance (allocation - consumption + imported water supply) during each and every year. Instead, Compact compliance is based on a running average. Two and five year compliance periods are provided for in the FSS, and submission of a three-year plan is possible during Water-Short Years. Consistent with the Arbitrator's preliminary decision, the Nebraska scenarios take into account that Compact accounting and compliance is to be conducted over a period of years.

### B. Average years

The data used to create the average conditions groundwater model scenario are described in a report provided during March 2008 to the Republican River Compact Administration (RRCA), a copy of which has been reproduced as Appendix E. As reflected in Appendix E, the results of this analysis demonstrate that during a period of time with precipitation close to average, Nebraska depletions to stream flow will be less than Nebraska allocations, given the pumping volume limits incorporated in the IMPs. The estimated annual allocation and computed beneficial consumptive use (CBCU) for each year from 2008 through 2012 are summarized in Table 3C at the end of Appendix E. The allocation exceeds the CBCU less the Imported Water Supply Credit (IWS) by an average of approximately 18,950 acre-feet/year. Nebraska's allocation exceeds her CBCU by in excess of 94,700 acre-feet during this five year period.

### C. The next 5 years as projected by Kansas

Appendix F applies the current Nebraska IMPs through 2012 to the future scenario used by Kansas in proposing its remedy. The tables contained in Appendix F represent accounting results of actual conditions through 2008 (2008 itself represents a Nebraska early estimate of the accounting for that year, developed for the annual forecast discussed above). The years 2009-2012 are represented by the years 1992-1995, as employed by Kansas. The groundwater CBCU and IWS used for these years was generated by running the RRCA Groundwater Model with 1992-1995 climatic conditions, and with 2006 irrigated acres and pumping volumes equal to

80% of the baseline pumping (as called for in the existing IMPs). The surface water CBCU and stream gage data are identical to that which occurred in 1992-1995.

As shown in Table F.1, the analysis for 2008-2012 shows Nebraska will have a positive annual balance for all years except one. Based on the five-year average used for Compact compliance, Nebraska would be in compliance for all years. Simply put, even considering Kansas' assumed future climatic conditions, the current IMPs will keep Nebraska in compliance during the period they are in effect. Of course, in 2012, Nebraska in cooperation with the NRDs will evaluate the success of the IMPs and jointly make any adjustments needed to ensure compliance during the next planning horizon.

### D. Dry scenario

The Department also analyzed the impact of the IMPs under an extraordinarily dry scenario, involving a sequence of consecutive years assuming 35$^{th}$ percentile precipitation. This information was provided to the RRCA during a meeting in April 2008, and is reproduced as Appendix G of this document. As a preliminary matter, it should be noted that this scenario is even drier that that utilized by Kansas in its analyses (40$^{th}$ percentile).

As reflected in Appendix G, the results of this analysis demonstrate that during a period of time with significantly below average precipitation, Nebraska depletions to stream flow could be slightly greater than Nebraska allocations, given the pumping volume limits incorporated in the IMPs. The estimated annual allocation and CBCU for each year from 2008 through 2012 are summarized in Appendix G.

In dry years, Nebraska could experience a negative five-year average (Allocation plus IWS minus CBCU) of approximately 340 acre-feet. Also, under this dry condition it is possible that water-short year administration would be in effect for some or all of this period. In those circumstances, Nebraska could experience a negative two-year average of approximately 8,288 acre-feet (*see* Table 5C at the end of Appendix G). As discussed in the following section, Nebraska has or is developing responses to address these potential shortfalls.

## V. CLOSING THE GAP

This section describes additional compliance measures that are in place or are being developed by Nebraska to deal with the occasional potential shortfalls that may occur under acute and persistent dry conditions. These measures would be over and above the irrigation limits set in the respective IMPs. Closing this gap can be accomplished through any combination of one or more of the mechanisms discussed in this Section. Before considering the propriety of these measures, however, it is important to reflect briefly on the potential impact of any change in the RRCA Accounting Procedures, as pursued by Nebraska in this Arbitration (*see* Section V.a) or by application of a credit for any damages paid (*see* Section V.B).

### A. Effect of proposed accounting changes

Nebraska developed the average and dry scenarios described above by using the current RRCA Accounting Procedures. Compliance with the currently-accepted procedures was a fundamental underpinning of the IMPs that are in place today. However, Nebraska has submitted for arbitration a number of proposed corrections to the current Accounting Procedures. Approval of any one or more of these changes could effectively minimize (or even eliminate) any projected gap between Nebraska's allocation and its use.[3] Table 1 is a summary of the proposed accounting changes, and the effects they would have in comparison with the current accounting procedures, applied to the years 2003 – 2008. Similarly, Table 2 is a summary of the proposed accounting changes and the effects on water-short year administration accounting. In Tables 1 and 2, the results for moving the accounting cells are listed separately and together with the results from the proposed CBCU calculation change, because these two changes are not additive.

[3] Moreover, as detailed in the concurrently filed report of The Flatwater Group, additional corrections should be made to the accounting spreadsheets, which would further reduce the amount of Nebraska's use. Those corrections (e.g., accounting for Harlan County Reservoir evaporation in a manner consistent with the Arbitrator's preliminary decision and corrections to the Input worksheets) are not reflected in this analysis.

**Table 1. Effects of proposed accounting changes, in addition to baseline balances from current accounting procedures [Allocation - (CBCU - IWS Credit)] with 5-year average values.**

| Year | Total Changes Related to Haigler Canal | All Accounting Cells Moved | Proposed CBCU Calculation Method | Proposed CBCU Calculation Method Plus All Accounting Cells Moved |
|---|---|---|---|---|
| 2003 | 1,630 | 1,104 | 10,447 | 10,959 |
| 2004 | 1,354 | 1,476 | 11,242 | 11,342 |
| 2005 | 1,776 | 1,908 | 10,925 | 11,205 |
| 2006 | 1,039 | 2,069 | 10,206 | 10,569 |
| 2007 | 903 | * | 5,938 | 6,191 |
| 2008 | 1,630 | * | 7,439 | 7,839 |
| 2003-2007 Average | 1,340 | 1,639 ** | 9,752 | 10,053 |
| 2003-2007 Sum | 6,702 | 6,557 ** | 48,758 | 50,265 |
| 2004-2008 Average | 1,340 | * | 9,150 | 9,429 |
| 2004-2008 Sum | 6,702 | * | 45,750 | 47,145 |

* Groundwater model runs for the accounting cells issue have not been completed for 2007 and 2008.
** Four year average and sum for 2003 – 2006.

**Table 2. Effects of proposed accounting changes, in addition to baseline balances from current accounting procedures [Allocation - (CBCU - IWS Credit)] with 2-year average values.**

| | Total Changes Related to Haigler Canal | All Accounting Cells Moved | Proposed CBCU Calculation Method | Proposed CBCU Calculation Method Plus All Accounting Cells Moved |
|---|---|---|---|---|
| 2005 | 1,755 | 2,118 | 10,907 | 11,597 |
| 2006 | 1,023 | 2,311 | 10,344 | 11,118 |
| 2007 | 903 | * | 6,108 | 6,737 |
| 2005-2006 Average | 1,389 | 2,214 ** | 10,626 | 11,358 |
| 2005-2006 Sum | 2,777 | 4,429 ** | 21,251 | 22,716 |
| 2006-2007 Average | 963 | * | 8,226 | 8,928 |
| 2006-2007 Sum | 1,926 | * | 16,453 | 17,855 |

* Groundwater model runs for the accounting cells issue have not been completed for 2007.
** Four year average and sum for 2003 – 2006.

Clearly, resolution of these disputed issues as proposed by Nebraska will substantially change the predicted Nebraska compliance under the scenarios discussed above, potentially eliminating any shortfall. However even assuming the Accounting Procedures are not revised, Nebraska has at its disposal multiple additional tools to ensure Compact compliance. A summary of these tools and their demonstrable impacts in 2006 through 2008 appears below.

### B. Application of damages credit

Nebraska also maintains a water credit must be taken into account in regard to the annual accounting for any year in which damages are paid. In other words, if damages in the form of

money is paid from Nebraska to Kansas, it is as if the water had been delivered, and must be taken into account when calculating future compliance. To appreciate the impact of the credit, the following example assumes the values in the far right column of Table F.1 (Allocation – (CBCU –IWS)) for 2005 and 2006 are reduced to zero, from 42,3.25 and 29,175 respectively, to reflect payment of damages to Kansas based on overuse by Nebraska in those two years. (Note that these numbers are presented as an example – Nebraska's shortfall in 2005-2006 is for the basin above Guide Rock, during Water-Short Year Administration.) This is based on the Arbitrator's preliminary decision that Kansas should be compensated for damages experienced in both 2005 and 2006 (as opposed to damages being based on the applicable two-year average).

By providing a credit to Nebraska for damages paid due to overuse in 2005 and 2006, the five-year averages projected in Table F.2 are revised as follows:

| Year | Allocation – (CBCU –IWS) with a credit for damages paid based on violations in 2005/06 |
|---|---|
| 2007 | (6,220) |
| 2008 | 14,399 |
| 2009 | 14,945 |
| 2010 | 38,691 |
| 2011 | 41,585 |
| 2012 | 42,333 |

Thus, when the credit is applied, Nebraska's five-year averages improve by approximately 14,300 acre-feet in 2007 through 2009; and approximately 5,835 acre-feet in 2010. This adjustment is necessary to ensure Compact accounting properly reflects the fact that Kansas has been made whole by any payment in this action (*i.e.*, once payment is made, it is as if Nebraska had not overused in 2005 or 2006).

### C. Dry-year leases of surface water

Nebraska and the NRDs leased the rights to surface water during 2006, 2007, and 2008. The water supplies relinquished by Nebraska were available for diversion by Kansas Bostwick Irrigation District (KBID) at the Guide Rock Diversion Dam. A summary of these actions is reflected in Appendix H.

During 2006, the Department entered into an agreement with the Nebraska Bostwick Irrigation District (NBID) whereby the Superior Canal would not divert surface water during 2006. It was estimated that 5,000 acre-feet of natural flow would be available for diversion into Superior Canal. In addition, NBID agreed to the purchase of storage water available from Harlan County Lake based on the January 2006 estimate of storage from the U.S. Bureau of Reclamation. The January 2006 estimated irrigation storage supply in Harlan County Lake was 15,700 acre-feet; NBID was entitled to approximately 10,000 acre-feet of the total. Nebraska entered into two additional agreements with surface water users in 2006. The first was an agreement with the Riverside Canal Company to forgo diversion from Frenchman Creek during the 2006 irrigation season. The diversion is immediately above the confluence of Frenchman Creek with the Republican River. It is estimated that action maintained approximately 2,000 acre-feet in the river above Harlan County Lake, which would otherwise have been diverted into Riverside Canal. The second agreement above Harlan County Lake was with Frenchman Valley Irrigation District (FVID). FVID's Culbertson Canal diverts from Frenchman Creek above the Riverside Canal headgate. It was estimated that action would maintain 8,000 acre-feet in the river above Harlan County Lake, which would have been diverted into Culbertson Canal.

During 2007 Nebraska entered into an agreement with NBID whereby the State leased the natural flow that was available for diversion at the Superior Courtland Diversion Dam and made the water available to KBID. As in 2006, it was estimated that 5,000 AF of natural flow would be available for diversion into Superior Canal. In addition, the NRDs entered into additional agreements with three irrigation districts. The first was an agreement with the Riverside Canal Company to forgo diversion of 2,000 acre-feet from Frenchman Creek during the 2007 irrigation season. The second agreement above HCL was with FVID. FVID's Culbertson Canal diverts from Frenchman Creek above the Riverside Canal headgate near Palisade Nebraska. Prior to the lease, it was estimated that 8,000 acre-feet would remain in the river above HCL, which would have been diverted into Culbertson Canal. The third agreement above HCL was with Frenchman Cambridge Irrigation District (FCID). The FCID agreed to forego irrigation on the Cambridge Canal on nearly 17,664 acres, and agreed to the release of approximately 26,000 acre-feet from storage in Harry Strunk Lake during irrigation season.

During 2008, the NDNR completed agreements with three irrigation districts. The first was an agreement with the Riverside Canal Company to forgo diversion of 2,000 acre-feet from Frenchman Creek during the 2008 irrigation season. The second agreement was with FVID to forego diversion of 8,000 acre-feet from Frenchman Creek. The third agreement was with FCID. The FCID agreed to not divert water to the Cambridge Canal until June 22, 2008. An estimated 5,000 acre-feet was available for storage in Harlan County Lake that would have otherwise been diverted.

The total benefit of these purchases is estimated to be 25,000 acre-feet in 2006, 53,500 acre-feet in 2007, and 15,000 acre-feet in 2008, totaling nearly 100,000 acre-feet over three years that was reserved for use by Kansas and representing a substantial reduction in Nebraska's consumptive use.

### D. Vegetation management

Nebraska has worked to minimize the amount of water lost within its borders due to non-beneficial consumptive use. Prior to 2007, riparian vegetation management activities were limited to work by the U.S. Army Corps of Engineers near Harlan County Lake and efforts by the Nebraska Game and Parks Commission to control Salt Cedar below Swanson Reservoir. Beginning in 2007, Nebraska initiated more intensive programs. By the end of 2007, over 3,200 acres within 117 river miles along and in the Republican River channel and its tributaries had been cleared of invasive riparian vegetation to help improve conveyance. Additional vegetation management efforts continued into 2008 and more work is planned for the future. Just this fall, an additional 53 mile stretch from Cambridge to Harlan was similarly treated.

Nebraska is studying the effects of vegetation management on the consumptive use of water in the basin. Sites near Bartley and Benkelman, Nebraska, have been identified for study. At these locations, invasive vegetation has been removed from some areas, while it remains in other areas. Numerous trees have been instrumented to determine sap movement within each tree, and monitoring wells have been installed, along with meteorological equipment. The results of this study are expected to help determine the value of managing invasive species of vegetation. The study is expected to be completed within two years.

### E. Incentive programs

The NRDs and the State of Nebraska have been and will continue to participate in programs to retire irrigated acreage in the Republican River Basin. This includes participation in federal programs such as the Environmental Quality Incentives Program (EQIP) and the Conservation Reserve Enhancement Program (CREP). Within the Republican River Basin in Nebraska more than 40,000 acres have been idled for ten years or more as shown in Appendix I.

### F. Augmentation study

Nebraska is currently developing plans for projects that will be used to augment stream flows of the Republican River. A coalition of Nebraska NRDs conducted a preliminary feasibility study for such augmentation. This same coalition has sought and received funding from the Nebraska Interrelated Water Management Plan Program Fund (IWMPPF) to conduct an Augmentation Engineering Study. This study is underway and has the following project objectives:

1) Identify a comprehensive system response to stream flow augmentation

2) Identify specific locations where augmentation well fields could be located

3) Identify existing uses that could be retired to comply with the FSS's terms regarding augmentation

4) Engineer and begin the implementation of augmentation systems

When completed, Nebraska's properly sized and managed augmentation system(s) will assist Nebraska in managing Compact compliance, especially during years of water-short administration. Preliminary feasibility studies for augmenting stream flow from groundwater withdrawals to ensure compliance are being developed. These studies will result in the development of augmentation systems that provide a holistic approach using combinations of groundwater pumping, storage, acreage retirements, or other options which may become available that will supplement streamflow and ensure Nebraska will meet her obligations. As part of the feasibility studies, preliminary modeling has been performed to quantify the depletions caused by additional pumping for augmentation.

### G. Summary

In summary, even under the most difficult circumstances, Nebraska possesses and can implement tools that collectively operate to ensure it remains in Compact compliance. Under average conditions presented in Appendix F, Nebraska will use well under her allocation on both a five-year average and on a two-year water short year basis. Even under severe dry year conditions as presented in Appendix G, Nebraska's overuse would be less than 3.5% without modification of the RRCA Accounting Procedures or credit for damages paid in this proceeding. If such conditions occurred, the shortfall would be eliminated through employment of the mechanisms discussed in this section.

## VI. IMPACTS OF KANSAS PLAN

Nebraska has reviewed the documentation provided by Kansas' experts related to Kansas' proposed remedy for Nebraska compliance. The following discussion briefly presents the Kansas accounting scenario and summarizes a critical flaw in the Kansas approach.

### A. Flaws in the Kansas approach

Climatic conditions directly affect both the amount of water a State has available to use (its allocation) and the impact a State's use of that water has on the total water supply (its depletions). In general, during wetter periods, a State will have a larger allocation due to increased stream flows as compared to drier periods with lower stream flows. On the depletions side, for an equivalent amount of ground water pumping, depletions from that pumping will be higher during a wetter period due to the additional water in streams to deplete as compared to drier periods.

In her compliance analysis, Kansas has used a dry period (the five years of 2002 through 2006, inclusive) to develop a proposed future limit for Nebraska of 175,000 acre-feet of groundwater CBCU. The average precipitation for this period based on the Compact gages is equivalent to approximately the 40$^{th}$ percentile of the long-term 1918 - 2006 precipitation. However, when determining how much reduction in groundwater pumping was needed to meet the allocation target of pumping for a dry period, Kansas modeled the years 1990 - 2006, in which precipitation was above average (60$^{th}$ percentile). By using the ***wet*** period to determine the baseline groundwater CBCU and the ***dry*** period to set the target groundwater CBCU, Kansas

dramatically overestimates the amount of reduction in groundwater pumping that would be required to comply with the Compact.

### B. The practical effect of the Kansas proposal

The accounting scenario developed by Kansas results in Nebraska delivering annually to Kansas significantly more water than is required by the Compact. This represents a fundamental shift in the Compact allocations, effectively depriving Nebraska of her full entitlement under the Compact nearly every year.

A review of Kansas' data indicates that she has incorrectly assumed Nebraska must remain within her allocation each and every year. As noted above, the measure of Compact compliance is average use over a two, three or five year period (depending on whether water short year or normal year accounting is in place). Figure 1 shows a comparison of the five-year running average values for Nebraska's allocation and CBCU minus IWS that would result from the Kansas remedy. The green areas in the figure illustrate the over deliveries that would occur (labeled as "Over-Delivery"), while the red areas show minor shortfalls that would remain.

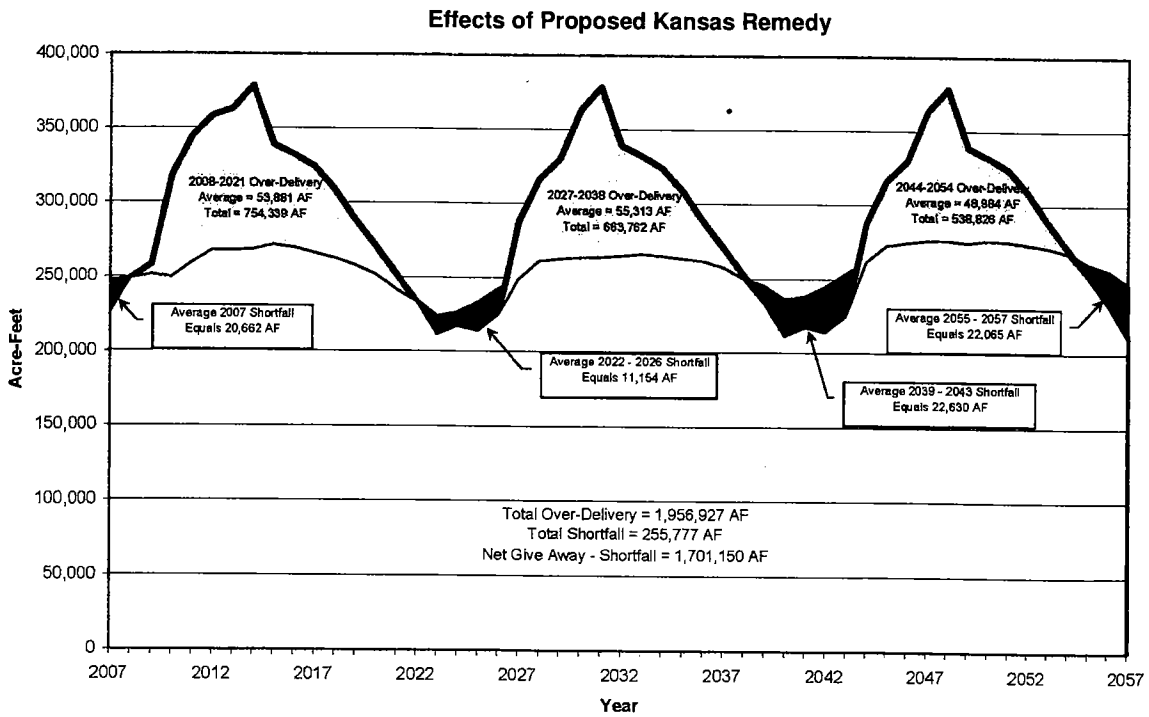



**Figure 1. Over-deliveries of water and projected shortfalls under the proposed Kansas remedy.**

Figure 1 shows that Kansas' proposed remedy would yield to Kansas an additional amount of water equal to the difference between the 1,956,927 acre feet over-delivery and the 255,777 acre feet shortfall. This volume of water (over 1.7 million acre feet) represents water which Kansas is not entitled under the Compact. The Kansas remedy results in a dramatic redistribution of the allocations of the Compact.

## VII. CONCLUSIONS

Following the signing of the FSS, Nebraska has implemented landmark changes to its system of water regulation. The resulting integrated management planning process mandates a cooperative effort between the Department (historically responsible for surface water administration), and the NRDs (historically responsible for groundwater management). Taking into account all proposed future scenarios by Kansas and Nebraska, and assuming there are no changes to the current RRCA Accounting Procedures, Nebraska will, under the worst case, have only a modest shortfall of 8,288 acre feet on average (less than 3.5%). Recently, through dry year leasing of surface water supplies, Nebraska has shown the ability to make up substantially greater than this amount annually. We are confident the IMPs are more than sufficient to maintain compliance with the Compact through 2012, when they will be reevaluated and modified to ensure compliance into the future.

# Appendix A: Lower Republican Natural Resources District

## Integrated Management Plan

# LOWER REPUBLICAN NATURAL RESOURCES DISTRICT GROUND WATER MANAGEMENT RULES AND REGULATIONS AND INTEGRATED MANAGEMENT PLAN

**Effective February 29, 2008**

**AUTHORITY** – The Lower Republican Natural Resources District (LRNRD) adopts these Rules and Regulations pursuant to the authority granted in the Nebraska Ground Water Management and Protection Act, Chapter 46, Article 7.

**PURPOSE** – These Rules and Regulations are adopted for the following purposes: (1) to protect ground water quantity; (2) to prevent or resolve conflicts between ground water users and surface water appropriators in those areas where ground water and surface water are hydrologically connected; and (3) to implement the necessary controls to carry out the goals and objectives identified in the Integrated Management Plan (IMP) jointly adopted by the LRNRD and the Nebraska Department of Natural Resources (DNR).

## CHAPTER 1 – DESIGNATION OF BOUNDARIES AND MANAGEMENT AREA

These Rules and Regulations apply within the geographic boundary of the LRNRD. The stratigraphic boundary is from the land surface to the base of the underlying sand and gravel layers that contain the water bearing material. The base of the sand and gravel layers rest on impervious layers of Niobrara Chalk, Pierre Shale or formations of the White River Group. See Map 1. The area within the foregoing geographic and stratigraphic boundaries shall be referred to as "the Management Area."

## CHAPTER 2 – ENFORCEMENT AND PENALTIES

### RULE 2-1 ENFORCEMENT

Penalties for violating certain provisions of these Rules and Regulations are identified below, which penalties will be enforced without the need for the LRNRD to obtain a cease and desist order. To the extent that specific penalties are not identified below, these Rules and Regulations shall be enforced by the LRNRD through the use of cease and desist orders issued in accordance with the Neb. Rev. Stat. § 46-707(7).

### RULE 2-2 PENALTIES

Any person who violates any cease and desist order issued by the LRNRD pursuant to Neb. Rev. Stat. § 46-707(7), or who violates any controls or Rules or Regulations adopted by the LRNRD relating to the Management Area, shall be subject to penalties imposed through the controls adopted by the LRNRD. Such controls include, but are not limited to, a reduction (in whole or in part) in that person's allocation of

ground water or a reduction in the number of certified irrigated acres. Notice and hearing shall be provided to such person before the LRNRD takes any action. Specific penalties may be identified in rules and regulations for some violations. Any person who violates a cease and desist order issued by the District pursuant to Neb. Rev. Stat. § 46-707(7) shall be subject to a civil penalty assessed pursuant to Neb. Rev. Stat. § 46-745.

## CHAPTER 3 – ACCESS

### RULE 3-1 ENTRY UPON LAND

The LRNRD or authorized designee shall have the power and authority to enter upon the land, after notification to the landowner, for any and all reasons relative to the administration of the provisions of these Rules and Regulations and the Ground Water Management and Protection Act. This entry shall not be considered trespass.

### RULE 3-2 NOTICE

Notification for entry upon land may be accomplished by regular mail, certified mail or by oral communication.

### RULE 3-3 ACCESS RELATED TO MEASURING DEVICES

The LRNRD hereby notifies all operators of its intent to enter onto property to verify the installation of flow meter devices (or other similar devices) used to measure the quantity of ground water pumped for irrigation, municipal, commercial and industrial purposes (referred to below as "measuring devices") and to read, or to verify the readings of, all measuring devices that have been installed. The LRNRD hereby notifies all operators of its intent to enter onto property to install cable seals to prevent the removal of such measuring devices.

## CHAPTER 4 – DEFINITIONS

**4-1.1.** Abandoned Well: Any water well, the use of which has been accomplished or permanently discontinued, (1) which has been decommissioned as described in the rules and regulations of the Department of Health and Human Services Regulation and Licensure, and (2) for which a notice of abandonment has been filed with the Department of Natural Resources.

**4-1.2.** Act: The Nebraska Ground Water Management and Protection Act.

**4-1.3.** Additional Water Administration Year: When water is needed for diversion at Guide Rock and the projected or actual irrigation supply is less than 130,000 acre-feet of storage available for use from Harlan County Lake as determined by the United States Bureau of Reclamation for the Republican River Compact Administration.

**4-1.4.** Allocation: As it relates to water use for irrigation purposes, means the allotment of a specified total number of acre-inches of irrigation water per certified irrigated acre assigned to that regulated well over the allocation period. As it relates to other purposes, the allotment of a determined quantity of ground water.

**4-1.5.** Allocation Period: The number of years over which an allocation can be used.

**4-1.6.** Base Allocation: This amount, in acre-inches, is derived from dividing the allocation by the allocation period.

**4-1.7.** Baseline of Commercial or Industrial Uses: The amount of ground water used by a commercial or industrial user as computed in Rule 7-5.2.2.

**4-1.8.** Baseline of Municipal Uses: The amount of ground water used by a municipality as computed in Rule 7-5.1.2.

**4-1.9.** Board: The elected Board of Directors of the Lower Republican Natural Resources District.

**4-1.10.** Certification: The process whereby the LRNRD verifies and authorizes the use for a regulated ground water well.

**4-1.11.** Certified Use: Any use of ground water in accordance with Rule 6-6.

**4-1.12.** Certified Irrigated Acre: Any acre that is certified as such pursuant to the LRNRD Rules and Regulations, and that is actually capable of being supplied water through irrigation works, mechanisms or facilities existing at the time of allocation.

**4-1.13.** Commercial Livestock Well: A water well used for the watering of livestock and other uses directly related to the operation of a feedlot or other confined livestock operation or dairy.

**4-1.14.** Commercial Water User: A person who uses ground water for commercial purposes, including but not limited to, maintenance of the turf of a golf course.

**4-1.15.** Consumptive Use: That amount of water that is consumed under appropriate and reasonably efficient practices to accomplish without waste the purposes for which the appropriation or other legally permitted use are lawfully made.

**4-1.16.** Decommission: When used in relation to a water well, shall mean the act of filling, sealing, and plugging a water well in accordance with the Department of Health and Human Services Regulation and Licensure Rules and Regulations.

**4-1.17.** Dewatering Well: A water well constructed for the purpose of temporarily lowering the ground water surface elevation.

**4-1.18.** District, NRD, or LRNRD: The Lower Republican Natural Resources District.

**4-1.19.** DNR or Department: The Nebraska Department of Natural Resources.

**4-1.20.** Flow Meter: A device, approved by the LRNRD, to measure the quantity of ground water pumped, withdrawn, or taken from a water well.

**4-1.21.** Good Cause Shown: A reasonable justification for granting a variance to consumptively use water that would otherwise be prohibited by rule or regulation, and which the LRNRD reasonably and in good faith believes will provide an economic, environmental, social or public health and safety benefit that is equal to or greater than the benefit resulting from the prohibition from which a variance is sought.

**4-1.22.** Governmental Uses: Any ground water supplied to a governmental entity, including school districts, counties, and other political subdivisions, state agencies, or federal agencies.

**4-1.23.** Ground Water: That water which occurs in or moves, seeps, filters, or percolates through the ground under the surface of the land.

**4-1.24.** Historic Consumptive Use: That amount of water that has previously been consumed under appropriate and reasonably efficient practices to accomplish

without waste the purposes for which the appropriation or other legally permitted use was lawfully made.

**4-1.25.** History of Use: As used in these Rules and Regulations shall mean the exercise of a certified use in four (4) of the previous six (6) years.

**4-1.26.** Illegal Water Well: (a) any water well operated or constructed without or in violation of a permit required by the Act; (b) any water well not in compliance with Rules and Regulations adopted and promulgated pursuant to the Act; (c) any water well not properly registered in accordance with Neb. Rev. Stat. §§ 46-602 to 46-606; (d) any water well not in compliance with any other applicable laws of the State of Nebraska or with rules and regulations adopted and promulgated pursuant to such laws.

**4-1.27.** Inactive Status Well: A water well that is not currently in use, but is in a good state of repair and for which the owner has provided evidence of intent for future use by maintaining the water well in a manner which meets the following requirements: (1) the water well does not allow impairment of the water quality in the water well or of the ground water encountered by the water well; (2) the top of the water well or water well casing has a water-tight welded or threaded cover or some other water-tight means to prevent its removal without the use of equipment or tools to prevent unauthorized access, to prevent a safety hazard to humans and animals, and to prevent illegal disposal of wastes or contaminants into the water well; (3) the pump and pumping column have been removed; and (4) the water well is marked so as to be easily visible and located and is labeled or otherwise marked as to be easily identified as a water well and the area surrounding the water well is kept clear of brush, debris, and waste material. An inactive status water well shall be registered as such in the well registration records of the Nebraska DNR.

**4-1.28.** Incentive Program: A program that may require agreements or covenants concerning the use of land or water as necessary to produce the benefits for which the program is established.

**4-1.29.** Industrial Water User: A person who uses ground water for industrial purposes, including but not limited to, manufacturing and power generation.

**4-1.30.** Industrial Well: A water well designed and constructed to be used for industrial purposes including manufacturing, commercial and power generation uses of water. Commercial use includes, but is not limited to, maintenance of the turf of a golf course.

**4-1.31.** Integrated Management Area or Management Area: The entirety of the LRNRD as per Chapter 1 of these Rules and Regulations.

**4-1.32.** Late Permit: A permit applied for after construction has commenced on a regulated water well pursuant to Neb. Rev. Stat. § 46-735.

**4-1.33.** Little Blue Basin: The Little Blue Basin is that area, delineated by the DNR, within the geographic confines of the LRNRD and located outside of the Republican River Basin.

**4-1.34.** Offset. Any water that is used to compensate for ground water that has been withdrawn since the effective date of Neb. Rev. Stat. § 46-740 when such withdrawal is considered to be an expanded or new use. "Offset" may also include

any water that the LRNRD requires an applicant to provide to compensate for ground water that will be withdrawn pursuant a variance granted under Rule 5-1.

**4-1.35.** Offset Account: A tracking system for the amount of credits and debits for a municipal or industrial/commercial user pursuant to Rule 7-5.

**4-1.36.** Operator: The person who controls the day-to-day operation of the water well.

**4-1.37.** Overlying Land: The land that has been certified as being irrigated by a regulated well as per Rule 6-6.

**4-1.38.** Permit to Construct a Well: A document that must be obtained from the LRNRD in accordance with Rule 6-2 before construction of a regulated ground water well may be commenced in the Management Area pursuant to Neb. Rev. Stat. § 46-735.

**4-1.39.** Person: A natural person, partnership, limited liability company, association, corporation, municipality, irrigation district, agency or political subdivision of the state, or a department, agency, or bureau of the United States.

**4-1.40.** Public Water Supplier: A city, village, municipal corporation, metropolitan utilities district, rural water district, natural resources district, irrigation district, reclamation district, or sanitary and improvement district which supplies or intends to supply water to inhabitants of cities, villages, or rural areas for domestic or municipal purposes.

**4-1.41.** Public Water System: System for providing the public with water for human consumption, as further defined in 179 N.A.C. 2.

**4-1.42.** Range Livestock Well: A water well that is used for the watering of range livestock and other uses of water directly related to the operation of a pasture or range.

**4-1.43.** Regulated Well: A water well designed and constructed to pump more than fifty (50) gallons per minute. A series of water wells, with a combined discharge of more than fifty (50) gallons per minute, of which the water is commingled, combined, clustered or joined as a single unit for a single purpose, shall be considered as one regulated well.

**4-1.44.** Replacement Well: A water well which is constructed to provide water for the same purpose as the original water well and is operating in accordance with any applicable rules and regulations of the District and with any applicable permit from the Department and, if the purpose is for irrigation, the replacement water well delivers water to the same tract of land served by the original water well and (i) replaces a decommissioned water well within one hundred eighty days after the decommissioning of the original water well, (ii) replaces a water well that has not been decommissioned but will not be used after construction of the new water well and the original water well will be decommissioned within one hundred eighty days after such construction, except that in the case of a municipal water well, the original municipal water well may be used after construction of the new water well but shall be decommissioned within one year after completion of the replacement water well, or (iii) the original water well will continue to be used but will be modified and equipped within one hundred eighty days after such construction of the replacement water well to pump fifty gallons per minute or less and will be used only for range livestock, monitoring, observation, or any other nonconsumptive or de minimis use and approved by the District, and (iv) would

not be used to provide water to a use not certified with the well being replaced and (v) would not be used in such a way as to result in the consumption of more water than was historically consumed by the water well being replaced. A replacement well, as defined in Neb. Rev. Stat. § 46-602 or as further defined in LRNRD Rules and Regulations, is subject to the same provisions as the water well it replaces.

**4-1.45.** Reserve: That part of an allocation that is unused during the base allocation period.

**4-1.46.** Supplemental Well: A water well that provides ground water to acres that have a surface water permit. Annual use is not a requirement to be considered a supplemental well.

**4-1.47.** Test Hole: A hole designed solely for the purpose of obtaining information on hydrologic or geologic conditions.

**4-1.48.** Unregulated Well: A water well designed and constructed to pump fifty (50) gallons per minute or less and is not commingled, combined, clustered or joined with other water wells.

**4-1.49.** Variance: Approval to act in a manner contrary to existing rule or regulation obtained from a governing body whose rule or regulation is otherwise applicable.

**4-1.50.** Water Short Year: A year in which the projected or actual irrigation supply is less than 119,000 acre-feet of storage available for use from Harlan County Lake as determined by the United States Bureau of Reclamation for the Republican River Compact Administration.

**4-1.51.** Water Well: Any excavation that is drilled, cored, bored, washed, driven, dug, jetted, or otherwise constructed for the purpose of exploring for ground water, monitoring ground water, utilizing the geothermal properties of the ground, obtaining hydrogeologic information, or extracting water from or injecting fluid as defined in section 81-1502 into the underground water reservoir. Water well includes any excavation made for any purpose if ground water flows into the excavation under natural pressure and a pump or other device is placed in the excavation for the purpose of withdrawing water from the excavation for irrigation. For such excavations, construction means placing a pump or other device into the excavation for the purpose of withdrawing water for irrigation. Water well does not include (i) any excavation made for obtaining or prospecting for oil or natural gas or for inserting media to repressure oil or natural gas bearing formations regulated by the Nebraska Oil and Gas Conservation Commission or (ii) any structure requiring a permit by the Department used to exercise a surface water appropriation.

## CHAPTER 5 – GENERAL PROVISIONS

### RULE 5-1 VARIANCES

**5-1.1.** The Board may grant variances from the strict application of these Rules and Regulations upon good cause shown.

**5-1.2.** All requests for a variance shall be made on forms provided by the LRNRD and shall be acted upon at a formal adjudicatory hearing before the Board. This hearing shall be advertised in newspaper(s) of general circulation within the LRNRD. All known interested parties will be provided notice of the hearing. The

well owner or his or her representative shall be present at the hearing, except that, with prior notification to the LRNRD, written testimony may be provided if the well owner cannot be present in person.

## RULE 5-2 SEVERABILITY

If any Rule or Regulation or any part of any Rule or Regulation herein shall be declared invalid or unconstitutional, such declaration shall not affect the validity or constitutionality of the remaining portions thereof.

# CHAPTER 6 – GENERAL MANAGEMENT

## RULE 6-1 MORATORIUMS

**6-1.1.** The LRNRD hereby closes the entire Management Area to the issuance of new permits for regulated wells except as provided in Rules 6-1.2, 6-1.3, and 6-1.4.

**6-1.2.** The LRNRD hereby closes the entire Management Area to the initiation or expansion of consumptive uses with the exception of (1) those uses that pertain to human health, safety, and welfare, range livestock, (2) those uses for which an offset has been or will be provided as described in Rule 7-5 below, or (3) those uses for which an offset will be provided to compensate for ground water that will be withdrawn pursuant a variance granted under Rule 5-1.

**6-1.3.** Wells for new or expanded municipal, commercial and industrial uses are governed by Rule 7-5 below.

**6-1.4.** Replacement wells and wells for the expansion of range livestock use are not subject to the moratoriums.

## RULE 6-2 PERMIT TO CONSTRUCT A WATER WELL

**6-2.1.** Except as provided in Rule 6-2.2, any person who intends to construct a regulated water well on land in the Management Area that he or she owns or controls shall, before commencing construction, apply with the LRNRD for a permit on a form provided by the LRNRD. Within thirty (30) days after the application is properly prepared and filed, the LRNRD shall either issue the approved permit (with or without conditions) or deny the permit application. An incomplete or defective application shall be returned for correction. If correction is not made within sixty (60) days, the application shall be canceled.

**6-2.2.** Exceptions. No permit shall be required for:

6-2.2.1. Test holes

6-2.2.2. Dewatering wells with an intended use of ninety (90) days or less.

6-2.2.3. A single water well designed and constructed to pump fifty (50) gallons per minute or less.

**6-2.3.** Applications for a permit to construct a water well that require consideration of a variance request shall not be deemed as properly filed and complete until such time as the Board has acted to approve the variance request.

**6-2.4.** A person shall apply for a permit before he or she modifies a water well, for which a permit was not required when the well was constructed, into one for which a permit would otherwise by required.

**6-2.5.** The permit application shall be accompanied by a $50.00 filing fee payable to the LRNRD and shall contain:

6-2.5.1. The name and post office address of the well owner;
6-2.5.2. The nature of the proposed use;
6-2.5.3. The intended location of the proposed water well or other means of obtaining ground water;
6-2.5.4. The intended size, type and description of the proposed water well and the estimated depth, if known;
6-2.5.5. The estimated capacity in gallons per minute;
6-2.5.6. The acreage and location by legal description of the land involved if the intended use is for irrigation;
6-2.5.7. A description of the proposed use, if other than irrigation;
6-2.5.8. The registration number of the well being replaced, if applicable;
6-2.5.9. The certified use of the well being replaced, if applicable;
6-2.5.10. The historic consumptive use of the well being replaced, if applicable; and
6-2.5.11. Such other information as the District may require.

**6-2.6.** Any person who has failed or in the future fails to obtain a permit before construction is commenced shall make application for a late permit on forms provided by the LRNRD. The application for a late permit shall be accompanied by a $250.00 fee payable to the District and shall contain the same information required in Rule 6-2.5.

**6-2.7.** The application for a permit shall be denied if (a) the location or operation of the proposed water well or other work would conflict with any regulations or controls adopted by the LRNRD; (b) the proposed use would not be a beneficial use; or (c) in the case of a late permit only, that the applicant did not act in good faith in failing to obtain a timely permit.

**6-2.8.** No refund of any application fees shall be made regardless of whether the permit is issued, canceled, or denied.

**6-2.9.** The issuance, by the LRNRD, of a permit or the registration of a water well with the DNR shall not vest in any person the right to violate any LRNRD rule, regulation, or control in effect on the date of issuance of the permit or the registration of the water well, or to violate any rule, regulation, or control properly adopted after such date.

**6-2.10.** The applicant shall commence construction as soon as possible after the date of approval and shall complete construction and equip the water well prior to the date specified in the conditions of approval, which shall not be more than one (1) year from the date of approval, unless it is clearly demonstrated in the application that one (1) year is an insufficient period of time for such construction. Failure to complete the project under the terms of the permit may result in the withdrawal of the permit by the LRNRD.

## RULE 6-3 WELL SPACING

**6-3.1.** No regulated irrigation well shall be constructed upon any land in this District within six hundred (600) feet of any registered regulated irrigation well of different ownership, except, any irrigation water well that replaces an irrigation water well that was drilled prior to September 20th, 1957, and which is less than six hundred (600) feet from a registered irrigation well may be located closer than six hundred (600) feet from another regulated well if it is drilled within fifty (50) feet of the water well being replaced.

**6-3.2.** No regulated irrigation, industrial or public water system well shall be constructed upon any land in this District within one thousand (1000) feet of any registered regulated industrial or public water system well of different ownership.

**6-3.3.** A replacement well must be constructed within one thousand three hundred and twenty (1320) feet from the well that it is replacing.

**6-3.4.** The well spacing required by Rule 6-3.1 shall also apply to the distance between a proposed new regulated well and an unregistered regulated water well but only for a period of sixty (60) days to allow for registration of such unregistered water well.

## Rule 6-4 FLOW METERS

**6-4.1.** Flow meters meeting accuracy specifications established in Rule 6-4.2 shall be installed on all regulated wells by April 1, 2005, except that, before any inactive wells are placed in service, a flow meter shall be installed, the LRNRD shall be notified of the well's status change, and the status of the well in the well registration records of the DNR shall be updated to reflect its active status.

6-4.1.1. No such well shall be operated within the District without a properly installed and operational flow meter.

6-4.1.2. The penalty for operating a well without a properly installed and operational flow meter shall be the loss of the base allocation for the following year and the well will not be allowed to be pumped until the required flow meter is installed and/or made properly operative and free from any tampering.

**6-4.2.** All meters shall be tested for accuracy using recognized industry testing methods and certified by the manufacturer according to those standards. At any rate of flow within the normal flow limits, the meter shall register not less than ninety eight (98) percent nor more than one hundred and two (102) percent of the water actually passing through the meter. All meters shall have a register or totalizer and shall read in U. S. gallons, acre-feet or acre-inches.

**6-4.3.** Installation – The operator shall, on forms provided by the LRNRD, report the location, by legal description, and certify the proper installation of flow meters. The LRNRD may, at a time of its own choosing, verify the location and proper installation of flow meters. The proper installation of a meter is such that it meets the manufacturer's specifications and/or more restrictive specifications developed by the LRNRD as reflected in this Rule.

6-4.3.1. Whenever a manufacturer's or dealer's instructions and/or specifications are more restrictive, they shall govern.

6-4.3.2. In no case may a meter be installed with less than five (5) unobstructed pipe diameters upstream of the meter or less than one (1) unobstructed pipe diameter downstream of the meter.

6-4.3.3. If the meter is installed downstream of a mainline check valve, there must be at least ten (10) pipe diameters upstream of the meter. If there are not at least ten (10) pipe diameters upstream of the meter, straightening vanes must be installed.

6-4.3.4. Meters must be located so as to prevent damage to the meter from excessive vibration.

6-4.3.5. Meters must be installed so that the removal of the meter for service or maintenance can be performed with the use of normal tools and does not require excessive or unusual removal of hardware or other appurtenances.

6-4.3.6. Meters shall not be removed except for service or maintenance.

6-4.3.7. The LRNRD may establish a method by which the installed meter is tagged, sealed, marked or otherwise protected from tampering.

**6-4.4.** Improperly Installed Meters – The installation of meters that do not meet the manufacturers' or LRNRD standards must be corrected. If the LRNRD determines that a meter has been improperly installed, it will send a certified letter to the well owner and operator requesting correction within fourteen (14) days. Failure to provide for proper installation, or to correct a problem identified by the LRNRD in its certified letter, may result in the imposition of the penalties as described in section 6-4.1.2 above.

**6-4.5.** Inoperative Meters – Well owners and/or operators shall notify the LRNRD of an inoperative meter within one (1) working day from the time the defect is noted. The LRNRD shall repair or temporarily replace the inoperative meter and charge the well owner for the service. Failure to report inoperative meters shall result in the imposition of penalties as described in section 6-4.1.2 above.

**6-4.6.** Tampering with an Installed Flow Meter – Following a hearing before the Board, if it is found that tampering so as to affect the accuracy or true use of the meter has occurred, the LRNRD shall impose the penalties described in section 6-4.1.2 above and may prorate the allocation for the current year.

**6-4.7.** Removing a Cable Seal or Removing a Flow Meter – Removing a cable seal and/or removing a flow meter without written approval by the District staff shall result in the loss of fifty percent (50%) of the base allocation for the following year.

**6-4.8.** Service – It is the responsibility of the operator to provide for service and to maintain the flow meter according to either the manufacturer's standards or more restrictive standards developed by the LRNRD. The operator may grant permission for this service to be provided by the LRNRD, at a cost to the operator. A form, provided by the LRNRD, shall authorize this service and the LRNRD may enter onto property to provide this service. This service shall be provided in the off-season and will not interfere with the normal operation of the meter or the well.

**6-4.9.** The LRNRD may establish a program to randomly inspect the serviceability and to verify use of a meter. The LRNRD may correct discrepancies noted at the time of

the inspection. Discrepancies that require the repair of a meter may be performed by the LRNRD, at a cost to the well owner, with the prior permission of the well owner.

**6-4.10.** When an installed non-mechanical flow meter is in need of replacement, it shall be replaced with a mechanical flow meter.

**6-4.11.** Only mechanical flow meters are allowed to be installed after the effective date of these rules.

**RULE 6-5 REPORTS**

**6-5.1.** Owners and operators of regulated irrigation wells shall allow District staff to determine from the flow meters, by January 15 of each year, the total water withdrawn from that well since the last reading.

6-5.1.1. If the owner and/or operator of a regulated irrigation well disputes the amount of total water withdrawn from the well during the year as read by District staff, the owner and/or operator shall have until April 1 of the following year to file an objection with the District.

**6-5.2.** Each operator of a regulated irrigation well shall report by November 15 of each year, on forms provided by the District, the acres irrigated by that well during the preceding irrigation season and the type of crop grown on such acres.

**6-5.3.** Each operator of a regulated well, other than an irrigation well, shall report by January 15 of each year, on forms provided by the LRNRD, the total water withdrawn from that well during the preceding calendar year and the nature of the use of that water.

**6-5.4.** Failure to allow the District staff or authorized designee to read the meter or to provide the reports identified in Rules 6-5.2 and 6-5.3 shall result in the loss of allocation for the next crop year or current year, in the case of a regulated well other than an irrigation well.

**6-5.5.** In order to ensure compliance with the Republican River Compact Accounting procedures, additional reports may be required from operators.

**RULE 6-6 CERTIFICATION OF USES**

**6-6.1.** After December 31, 2004, no regulated well shall be operated until its use is certified and approved by the Board pursuant to these Rules and Regulations.

**6-6.2.** Any operator aggrieved by a determination of the Board regarding approval of certification of irrigated acres or of non-irrigation uses may request a hearing before the Board for the purpose of reconsidering that determination. Such request shall be filed on a form provided by the LRNRD within thirty (30) days of the Board's action on the certification. Such hearing shall be a formal adjudicatory hearing and shall be conducted in accordance with the LRNRD'S Rules and Regulations for the Enforcement of the Ground Water Management and Protection Act. The burden of proof shall be on the person requesting the hearing to establish that the Board's decision should be modified.

**6-6.3.** The Board may review each certification for all uses no less often than every five (5) years. Errors or inconsistencies discovered during that review shall be resolved to the satisfaction of the Board before any new allocation is made to the previously

certified uses. Following notice and a hearing, the Board may rescind any previously approved certification and any previously granted allocation to a well for which false or misleading information was used to obtain the certification required by Rule 6-6.5 or 6-6.12.

**6-6.4.** Any change in farming operation or ownership that would result in a change in the number or location of certified irrigated acres shall be reported to the LRNRD no later than December 31 of the calendar year in which the change occurred. Any change in use of a regulated well used for purposes other than irrigation that would result in a change in that well's certification shall be reported to the LRNRD no later than December 31 of the calendar year in which the change occurred. The Board may reject such changes if it finds that such changes would cause an increase in Nebraska's consumptive use as calculated pursuant to the Republican River Compact or would have detrimental effects on other ground water users or on surface water appropriators.

**6-6.5.** No later than January 1, 2005, each owner or operator of a regulated irrigation well shall certify (a) the well registration number for that well, (b) the number and location of all acres irrigated at least once by that well between January 1, 1999 and December 31, 2004, and (c) the maximum number of acres irrigated by that well in any one (1) year within that time period. Such certification shall be on forms provided by the LRNRD and shall be accompanied by applicable records from the U.S.D.A. Farm Service Agency and/or the County Assessor and such other information as requested by the LRNRD to verify the information certified.

**6-6.6.** The Board may take action to approve, modify and approve, or reject the certifications provided by owners and/or operators pursuant to Rule 6-6.5. The number and location of certified irrigated acres, which shall be approved for each such irrigation well, shall be determined at a public meeting of the Board after consideration of the following:

6-6.6.1. The information provided on and with the certification filed in accordance with Rule 6-6.5;

6-6.6.2. Any water use reports for that well filed in accordance with Rule 6-5;

6-6.6.3. U.S.D.A. Farm Service Agency records or County Assessor records;

6-6.6.4. Aerial photographs; and

6-6.6.5. Other information available to and deemed relevant by the Board.

**6-6.7.** Only those acres that are actually capable of being supplied with ground water through irrigation works, mechanisms or facilities existing at the time of certification may be approved as certified acres by the Board.

**6-6.8.** Any acres that are changed from irrigated to non-irrigated in the County Assessor's office, shall permanently forfeit the certification for those acres and they will not be considered certified acres for purposes of allocating water for irrigation.

**6-6.9.** If certification is not filed pursuant to Rule 6-6.5 to 6-6.7 for an irrigation well constructed prior to July 26, 2004, the well shall be an illegal water well as that term is defined in Rule 4-1.26.

**6-6.10.** The Board shall not certify any irrigated acres for an illegal water well, as that term is defined in Rule 4-1.26, and an illegal water well shall receive no future

allocation of water until such certification has been filed and until the Board has approved or modified and approved that certification. Certification of acres can be approved for any such well if and when the deficiency that caused that well to be an illegal water well is corrected.

**6-6.11.** The Board may approve a change in the location of certified irrigated acres on contiguous property when the owner or operator of a regulated well changes to the use of an alternative delivery system or changes the location of the current delivery system. New acres not previously irrigated or certified may be certified if previously certified acres are removed from certification and the new acres are on the same contiguous property as the previously certified acres. The number of acres to be removed from certification must equal the number of newly certified acres to qualify for approval.

**6-6.12.** No later than June 1, 2005, each owner or operator of a regulated well used for purposes other than irrigation shall certify (1) the well registration number for that well, (2) the nature and location of the use of the water withdrawn from that well, (3) the measured or estimated average annual quantity and the maximum quantity of water withdrawn from that well between January 1, 2004, and December 31, 2004, and a description of the method used to determine that quantity, (4) if the well was constructed before December 9, 2002, but has not yet been used for its intended purpose, the quantity of water proposed to be withdrawn from that well in the future, and (5) if the owner or operator of the well desires that the annual quantity of use to be certified for that well be in excess of the quantity historically withdrawn by that well, the quantity proposed and an explanation why that quantity is necessary to accomplish the purpose for which the well is used. Such certification shall be on forms provided by the LRNRD and shall be accompanied by such information as requested by the LRNRD to verify the information certified.

**6-6.13.** Any new or expanded municipal, commercial or industrial use shall be considered to be a "certified" use so long as it is offset pursuant to the procedures described in Rule 7-5.

**6-6.14.** No later than July 15, 2005, the Board shall take action to approve, modify and approve, or reject the certifications provided by the owners and/or operators of non-irrigation wells pursuant to Rule 6-6.12. Such action shall be taken after reviewing the information provided by the owner or operator of the well and any other information available to and deemed relevant by the Board. The Board's approval of the certification for such a well shall not, by itself, limit the quantity of water that can be withdrawn by that well in 2005 or any subsequent year. Any such limitations on the quantity that can be withdrawn annually from that well will be imposed through the Board's allocation of water to that well pursuant to the LRNRD's Rules and Regulations. The Board may use the information provided through such certification if and when it determines the amount to be allocated to that well.

**6-6.15.** Only those non-irrigation uses that are actually capable of being supplied with ground water through works, mechanisms or facilities existing at the time of certification may be approved as certified uses by the Board.

**6-6.16.** If no certification is filed pursuant to Rule 6-6.12 for a regulated well constructed prior to June 1, 2005, and used for other than irrigation purposes, that well shall not be used until such certification has been filed with the LRNRD and approved by the Board.

**6-6.17.** Certification shall not be approved by the Board for any regulated non-irrigation well, which is an illegal water well as that term is defined by Rule 4-1.26 of the LRNRD's Rules and Regulations. The Board may approve such certification if and when the deficiency that caused the well to be an illegal water well is corrected.

## RULE 6-7 WATER SHORT YEAR ADMINISTRATION

**6-7.1.** No later than October 15, 2005 and October 15 of each following year, the DNR shall notify the LRNRD of the potential for a Water Short Year. Notification of updates to such determinations shall be provided monthly, or more often as requested, through the following June 30th at which time the final determination shall be made.

**6-7.2.** Upon receiving notice of the potential designation of a Water Short Year, the LRNRD shall provide notice to irrigators of this designation by publishing said notice in newspapers of general circulation in the LRNRD and shall place said notice on the LRNRD website.

**6-7.3.** There will be no further reductions to allocations or certified irrigated acres needed to maintain compliance with the Republican River Compact without Board approval following a Public Hearing.

## RULE 6-8 INCENTIVE PROGRAM

Unless permitted by the rules and regulations established by individual incentive programs, no certified acres may be enrolled in incentive programs sponsored by or funded by the District if such certified acres do not have a history of use in four (4) of the previous six (6) years.

These incentive programs may include any Federal, State, or Local programs that have the effect of reducing the LRNRD's overall consumptive use. Subject to State law, the LRNRD may also raise the money necessary to provide cost share for incentive programs it utilizes. If sufficient irrigated acres are retired, through the use of incentive programs, above what is needed to meet the requirements of the Republican River Compact, the LRNRD may re-evaluate and alter the allocation previously set per irrigated acre.

Participation in an incentive program shall not result in the permanent loss of an allocation unless the acres involved are changed from irrigated status to non-irrigated status with the County Assessor. Upon completion of the enrollment period required by the incentive program, the certified irrigated acres will be granted an allocation prorated to the years remaining in the allocation period.

## CHAPTER 7 – MANAGEMENT OF USES

### RULE 7-1 GROUND WATER TRANSFER FOR IRRIGATION, PUBLIC WATER SUPPLIES AND INDUSTRIAL PURPOSES

**7-1.1.** Transfers for Irrigation Purposes: The LRNRD finds that the transfer of ground water off of the overlying land for irrigation purposes may contribute to conflicts between ground water users and surface water appropriators, and to disputes over the Republican River Compact. For those reasons, and except as described below, the LRNRD hereby closes all of the Management Area to the withdrawal and transfer of ground water off the overlying land or otherwise changing the location of use of ground water for irrigation purposes.

**7-1.2.** Allocations of ground water shall not be transferred except as provided pursuant to Rule 6-6.11.

**7-1.3.** Transfers by Public Water Suppliers: Pursuant to Neb. Rev. Stat. §§ 46-739(k) and 46-742, the District is required to allow the withdrawal and transport of ground water when a public water supplier providing water for municipal purposes receives a permit from the Department pursuant to the Municipal and Rural Domestic Ground Water Transfers Permit Act. Except to the extent that a public water supplier has obtained a permit under the Municipal and Rural Domestic Ground Water Transfers Permit Act, the LRNRD hereby closes all of the Management Area to the withdrawal and transfer of ground water off of the overlying land or otherwise changing the location of use of ground water for municipal purposes. A public water supplier shall notify the District at the time that it files an application with the Department for a permit under the Municipal and Rural Domestic Ground Water Transfers Permit Act.

**7-1.4.** Transfers by Commercial and Industrial Water Users: The District will allow industrial ground water users to transfer water pursuant to a permit granted by the Department, or pursuant to written notice filed with the DNR, as provided for in the Industrial Ground Water Regulatory Act. Except to the extent that a commercial or industrial water user has obtained a permit from the Department under the Industrial Ground Water Regulatory Act, the LRNRD hereby closes all of the Management Area to the withdrawal and transfer of ground water off of the overlying land or otherwise changing the location of use of ground water for commercial or industrial uses. A commercial or industrial water user shall notify the District at the time that it files an application with the Department for a permit under the Industrial Ground Water Regulatory Act.

**7-1.5.** Department Review of Permit Applications: Upon receipt of an application by a public water supplier seeking a permit under the Municipal and Rural Domestic Ground Water Transfers Permit Act, an application by a commercial or industrial water user under the Industrial Ground Water Regulatory Act, or a person seeking a permit to transfer ground water to another state, the Department shall consult with the District. As part of that consultation, the District shall provide the

Department with whatever relevant information that it may have in its possession, including but not limited to, the following:

7-1.5.1. The applicant's unmet offset obligations, if any;

7-1.5.2. The amount of water in the applicant's "offset account" as defined in Rule 7-5 below;

7-1.5.3. Whether the applicant will need to provide an offset for the proposed water use in order to maintain compliance with the Republican River Compact; and

7-1.5.4. Whether the applicant will need to mitigate any effects to surrounding ground water users or surface water appropriators;

**RULE 7-2 ALLOCATION**

**7-2.1.** The use of ground water from all regulated water wells shall be allocated by the LRNRD. Allocations will be set after considering: (1) the relationship between wells and surface waters and the impact of well usage on stream flow; (2) whether ground water levels are declining; and (3) such other factors as the Board determines may be relevant to the appropriate amount of water to be withdrawn.

**7-2.2.** GENERAL PROVISIONS:

7-2.2.1. Allocation – 45 acre-inches for the allocation period.

7-2.2.2. Base Allocation – 9 acre-inches per year for all regulated wells for all certified acres.

7-2.2.3. Allocation Period – Five (5) years; January 1, 2008 through December 31, 2012.

7-2.2.4. Base Certification – 325,876 certified irrigated acres

7-2.2.5. Base Allocation Year – January 1st to December 31st

7-2.2.6. The LRNRD's net depletions shall not exceed twenty-six percent (26%) of the State's allowable ground water depletions as determined by the Republican River Compact Administration Ground Water Model. It may be necessary to adjust the base allocation, as defined in Rule 7-2.2.2., within the five-year allocation period in order to meet this requirement.

7-2.2.7. The District's base allocation may be increased or decreased proportionately with any increase or decrease in the water supply conditions. Such increase or decrease will become effective only after the Board holds a public hearing.

7-2.2.8. Pursuant to Neb. Rev. Stat. § 46-739, the LRNRD may establish different provisions for restriction of water wells that were constructed after January 1, 2001.

**7-2.3.** SUPPLEMENTAL WELLS: If land with a surface water appropriation is also served by a regulated well, any surface water used on that land or leased or purchased by the District or the DNR shall be deducted from the allocation of ground water to the regulated well serving that land (not to exceed the base allocation).

**7-2.4.** PENALTY: If at the end of an allocation period an operator has exceeded his or her allocation, the allocation for the next allocation period shall be reduced by the

number of acre-inches by which said allocation was exceeded in the prior allocation period for the first three inches of overuse and by twice the number of inches of overuse for the fourth and subsequent inches of overuse. Nothing in Rule 7-2.4 negates applicability of Rule 7-2.5.

**7-2.5.** An operator must have a positive balance in his or her allocation before using water in any year of an allocation period. The LRNRD shall notify landowners and/or operators anytime the balance of their allocation goes below zero.

**7-2.6.** For irrigation purposes, if at the end of the allocation period, an operator has consumed less than his or her allocation, he or she may carry the reserve or unused portion forward to the subsequent allocation period. Reserve ground water must be used for the same certified acres for which the water was originally allocated. It is expected that certain operators will be carrying forward into the current allocation period the unused portion of their 2005-2007 allocation, not to exceed the base allocation (11 or 12 inches depending upon geographic location within the District) for that period.

**7-2.7.** Certified irrigated acres participating in the Federal Conservation Reserve Program (CRP), EQIP, or similar programs shall not receive an allocation during the term of participation. Certified irrigated acres removed from these programs shall be granted an allocation that is prorated for the remaining years of the allocation period provided that those acres have remained in irrigated status with the County Assessor.

**7-2.8.** The LRNRD may review any allocation or reduction control imposed and shall adjust allocations or reductions to accommodate or otherwise reflect findings of such review consistent with the integrated management objectives. Such review shall consider more accurate data or information that was not available at the time of the allocation or reduction order, designation of a Water Short Year and such other factors as the LRNRD deems appropriate.

**7-2.9.** The LRNRD may institute formal adjudicatory proceedings or take any other legal action authorized or permitted by law to prohibit further withdrawal of ground water from any regulated well whenever an operator has exhausted his or her allocation during or before the end of any allocation period or has in any other way violated the amount, limitations, or conditions of his or her allocation or violated any other rules of the LRNRD. In the event of such action, no ground water may be withdrawn until the operator has adhered to LRNRD Rules and Regulations.

## RULE 7-3 RESERVED

## RULE 7-4 LIMIT OR PREVENT THE EXPANSION OF NEW ACRES

**7-4.1.** Beginning on January 1, 2005, no irrigation well may be used to irrigate any acre that was not irrigated with ground water at some time between January 1, 1999 and December 31, 2004.

## RULE 7-5 MUNICIPAL, COMMERCIAL, AND INDUSTRIAL USES

**7-5.1.** Municipal Use Accounting and Offsets

7-5.1.1. Allocation Amount – The minimum annual allocation for a municipality located within the boundaries of the LRNRD may be the greater of either 1) the amount of ground water authorized by a permit issued pursuant to the Municipal and Rural Domestic Ground Water Transfers Permit Act, or 2) the governmental, commercial, and industrial uses of the municipality plus a per capita allowance of 225 gallons per person per day. Persons served by a municipality outside of its corporate limits shall be considered part of the municipality's population if such service begins prior to January 1, 2026.

7-5.1.2. Establishment of a Baseline – In order to define what are new and expanded consumptive uses within the municipality, the District must establish a baseline of existing municipal uses as of July 14, 2006, which is the date on which Neb. Rev. Stat. § 46-740(3) became effective.

7-5.1.2.1. To define this baseline, the District shall 1) collect monthly data for ground water pumped during each twelve (12) month period beginning August 1 and ending July 31 for the years 2001 to 2006, measured in gallons, and 2) collect monthly discharge data for the same period (if available) measured in gallons. The District will subtract the amount discharged from the amount pumped for each twelve (12) month period to determine the total amount of water consumptively used over each twelve (12) month period during the August 2001 to July 2006 timeframe. The largest amount of water consumptively used over a twelve (12) month period from August 1 to July 31 during these five (5) twelve (12) month periods will be the baseline. If the municipality does not discharge wastewater to a natural watercourse but uses lagoons, then the highest amount of ground water pumped during a twelve (12) month period starting August 1 and ending July 31 between 2001 and 2006 will be considered the baseline use unless through the variance process the municipality can establish that the baseline amount should be reduced.

7-5.1.3. Accounting System – Starting with the period beginning on August 1, 2007, and based upon the calculations made using the foregoing formula, the total amount of ground water used by each municipality within the Management Area will be measured for each year (August 1 through July 31) and be compared to the baseline calculated in Rule 7-5.1.2.

7-5.1.3.1. The total amount of ground water used annually by the municipality shall be determined by, 1) collecting monthly data for the amount of ground water pumped between August 1 and July 31, measured in gallons, and 2) collecting monthly discharge data (if available) between August 1 and July 31, measured in gallons. The annual amount discharged shall be subtracted from the annual amount pumped to determine the total amount of water consumptively used over each twelve (12) month period. If the municipality does not discharge wastewater to a natural watercourse but uses lagoons, then the amount of ground water pumped between August 1 and July 31 will be used to determine the annual amount of ground water used.

7-5.1.3.2. Between August 2007 and January 1, 2026, the District shall, for each municipality, document the difference between each subsequent annual calculation and the baseline. For each five (5) year increment between August 1, 2007 and January 1, 2026, the District shall maintain a cumulative total of the amount of consumptive use that exceeds the baseline and the consumptive use that is less than the baseline.

7-5.1.3.3. If it is determined at the end of any five (5) year increment between August 1, 2007 and January 1, 2026, that the cumulative total exceeds the baseline amount, measures will be taken by the LRNRD within six (6) months thereafter to offset the exceedence, if:

7-5.1.3.3.1. The municipality's water use remains below or equal to the amount of ground water authorized by a permit that was issued pursuant to the Municipal and Rural Domestic Ground Water Transfers Permit Act, if applicable; or

7-5.1.3.3.2. The municipality's water use remains below or equal to the governmental, commercial and industrial uses of the municipality plus a per capita allowance of two hundred and twenty-five (225) gallons per person per day; or

7-5.1.3.3.3. The baseline exceedence is due to any new or expanded single commercial or single industrial development served by any municipality which, after July 14, 2006, commences water use resulting in the consumptive use of water in amounts less

than twenty-five (25) million gallons annually.

7-5.1.3.4. If it is determined at the end of any five (5) year increment between August 1, 2007 and January 1, 2026 , that the cumulative total exceeds the baseline amount, measures will be taken by that municipality within six (6) months thereafter, with prior approval from the Board, to offset the exceedence, if:

7-5.1.3.4.1. The municipality's water use exceeds the amount of ground water authorized by a permit that was issued pursuant to the Municipal and Rural Domestic Ground Water Transfers Permit Act, if applicable; or

7-5.1.3.4.2. The municipality's water use exceeds the governmental, commercial and industrial uses of the municipality plus a per capita allowance of two hundred and twenty-five (225) gallons per person per day; or

7-5.1.3.4.3. The baseline exceedence is due to any new or expanded single commercial or single industrial development served by any municipality which, after July 14, 2006, commences water use resulting in the consumptive use of water in amounts greater than twenty-five (25) million gallons annually.

7-5.1.3.5. The municipality must provide an annual report to the District describing the nature of the offsets being implemented pursuant to Rule 7-5.1.3.4. That report shall describe the nature of the offset, along with the timing, location, and amount of the offset.

7-5.1.3.6. An "offset account" shall be created for each municipality. For each year that the amount of consumptive use is less than the baseline, a credit in that amount shall be made to that municipality's offset account. For each year that the amount of consumptive use is greater than the baseline, a debit in that amount shall be made to that municipality's offset account. If it is determined at the end of any five (5) year increment between August 1, 2007 and January 1, 2026, that the cumulative total of consumptive use is less than the baseline amount, that below-baseline amount shall be carried over into the next five (5) year period in that municipality's offset account.

7-5.1.3.6.1. If, by January 1, 2026, there is a credit in

any municipality's offset account, that credit shall be deposited into the District's water bank.

7-5.1.3.6.2. The District shall be responsible for maintaining and managing the offset accounting system for each municipality within the Management Area.

7-5.1.3.7. The District shall enter into agreements with each municipality within the Management Area regarding the nature of governmental uses. This Agreement shall specify the type of use and the amount of water used.

7-5.1.3.8. Each municipality within the Management Area shall track all new or expanded (i.e., post-July 14, 2006) consumptive water uses by all single commercial and single industrial users served by that municipality, the amount of water used for governmental uses within that municipality, the permanent population of the municipality, and the persons served by the municipal system outside of its corporate limits if such service begins prior to January 1, 2026.

7-5.1.3.8.1. The data collected by the municipality pursuant to Rules 7-5.1.3.1. and 7-5.1.3.8. for the period from August 1st through July 31st of each year shall be submitted to the District no later than October 1st of that year.

7-5.1.3.8.2. The municipality shall also submit to the District by no later than October 1st of each year a report documenting its calculation of the persons served by the municipal system outside of its corporate limits. The District may either accept or reject the municipality's calculations. If the District rejects the municipality's calculations, the District may rely upon whatever information is available to determine the number of persons so served.

7-5.1.3.9. Any permanent reduction in consumptive use of water within the Management Area associated with municipal growth including governmental, industrial, and commercial growth (e.g., by taking irrigated acres out of production), between July 14, 2006 and January 1, 2026, shall accrue to the LRNRD's water bank to be used in whole or in part to offset increased consumptive use elsewhere within the Management Area.

7-5.1.3.9.1. The District shall determine the amount of reduced consumptive use that is due to the growth of a municipality based on the Management Area average net crop irrigation requirement.

7-5.1.3.9.1.1. The average net crop irrigation requirement will be calculated by taking the weighted average net crop irrigation requirement of the five major crops grown in the last five years worth of crop type data from Ag Statistics. The net crop irrigation requirement for each crop will be determined from available data.

7-5.1.3.9.2. If the permanent reduction in consumptive use is associated with the retirement of irrigated acres, and those acres were previously irrigated with a ground water well, the current landowner of such well shall, within 180 days, either decommission the well, or modify and equip the well to pump fifty (50) gallons per minute or less and only use it for range livestock, monitoring, observation, or any other nonconsumptive or de minimis use approved by the District.

7-5.1.3.9.3. The District shall notify in writing the previous landowner and the municipality that the consumptive use calculated in Rule 7-5.1.3.9.1 has been transferred to the District's water bank.

7-5.1.3.9.4. If the permanent reduction in consumptive use results in the retirement of certified irrigated acres, those acres shall be decertified by the District.

7-5.1.4. Water Conservation Plan – Each municipality of the first class and second class that are located within the Management Area shall file a conservation plan with the District within three (3) months following the effective date of this Integrated Management Plan.

7-5.1.4.1. Each municipality shall update and file a new conservation plan with the District no less than every three (3) years

after the initial conservation plan is filed.

7-5.1.4.2. During the three (3)-year period after the plans are initially filed, the District shall determine whether to develop guidelines to describe the information to be contained in future conservation plans.

7-5.1.4.3. Although not required, Villages located within the Management Area may submit a conservation plan to the District. This may be used by the District and the Village as an information and education tool to promote conservation practices and efforts.

7-5.1.5. Post-January 1, 2026 Allocation. – On or after January 1, 2026, the base amount for an annual allocation to a municipality shall be determined as the greater of either (a) the amount of water authorized by a permit issued pursuant to the Municipal and Rural Domestic Ground Water Transfer Permit Act or (b) the greatest annual use prior to January 1, 2026, for uses specified in Neb. Rev. Stat. § 46-740(3)(b) plus the per capita allowance described in Neb. Rev. Stat. § 46-740(3)(b)(ii).

7-5.1.5.1. On and after January 1, 2026, increases in the consumptive use of water by a municipality that result in a decrease in streamflow shall be addressed by the Integrated Management Plan pursuant to controls or incentive programs adopted pursuant to Neb. Rev. Stat. § 46-715. Each municipality may be subject to controls adopted pursuant to such section for amounts in excess of the allocations.

**7-5.2.** Non-Municipal Commercial and Industrial Use Allocation, Accounting and Offsets

7-5.2.1. Allocation – Prior to January 1, 2026, the annual allocation amount for non-municipal commercial or industrial users shall be the greater of either 1) the amount specified in a permit issued pursuant to the Industrial Ground Water Regulatory Act, or 2) the amount necessary to achieve the commercial or industrial use, including all new or expanded uses that consume less than twenty-five (25) million gallons annually.

7-5.2.2. Establishment of Baseline – In order to define what are new or expanded single commercial or industrial developments served by non-municipal wells which, after the operative date of Neb. Rev. Stat. § 46-740(5), commence water use, the District must establish a baseline of existing uses as of July 14, 2006.

7-5.2.2.1. To define this baseline, the District shall 1) collect monthly data for ground water pumped during each twelve (12) month period beginning August 1 and ending July 31 for the years 2001 to 2006, measured in gallons, and 2) collect monthly discharge data for the same period (if

available) measured in gallons. The District will subtract the amount discharged from the amount pumped for each twelve (12) month period to determine the total amount of water consumptively used over each twelve (12) month period during the August 2001 to July 2006 timeframe. The largest amount of water consumptively used over a twelve (12) month period from August 1 to July 31 during these five (5) twelve (12) month periods will be the baseline. If the non-municipal commercial or industrial user does not discharge wastewater to a natural watercourse but uses lagoons, then the highest amount of ground water pumped during a twelve (12) month period starting August 1 and ending July 31 between 2001 and 2006 will be considered the baseline use unless through the variance process the non-municipal commercial or industrial user can establish that the baseline amount should be reduced.

7-5.2.3. Accounting System – Starting with the period beginning on August 1, 2007, and based upon the calculations made using the foregoing formula, the total amount of ground water used by each non-municipal commercial or industrial user within the Management Area will be measured for each year (August 1 through July 31) and be compared to the baseline calculated in Rule 7-5.2.2.

7-5.2.3.1. The total amount of ground water used annually by the non-municipal commercial or industrial users shall be determined by, 1) collecting monthly data for the amount of ground water pumped between August 1 and July 31, measured in gallons, and 2) collecting monthly discharge data (if available) between August 1 and July 31, measured in gallons. The annual amount discharged shall be subtracted from the annual amount pumped to determine the total amount of water consumptively used over each twelve (12) month period. If the non-municipal commercial or industrial user does not discharge wastewater to a natural watercourse but uses lagoons, then the amount of ground water pumped between August 1 and July 31 will be used to determine the annual amount of ground water used.

7-5.2.3.2. Between August 2007 and January 1, 2026, the District shall, for each non-municipal commercial and industrial user, document the difference between each subsequent annual calculation and the baseline. For each five (5) year increment between August 1, 2007 and January 1, 2026, the District shall maintain a cumulative total of the amount of consumptive use that exceeds the baseline and the

consumptive use that is less than the baseline.

7-5.2.3.3. If it is determined at the end of any five (5) year increment between August 1, 2007 and January 1, 2026, that the cumulative total exceeds the baseline amount, measures will be taken by the LRNRD within six (6) months thereafter to offset the exceedence, if:

7-5.2.3.3.1. The non-municipal commercial or industrial user's water use remains below or equal the amount of ground water authorized by a permit that was issued pursuant to the Industrial Ground Water Regulatory Act, if applicable; and

7-5.2.3.3.2. The baseline exceedence is due to any new or expanded single commercial or industrial development served by a non-municipal well which, after July 14, 2006, commences water use resulting in the consumptive use of water in amounts less than twenty-five (25) million gallons annually.

7-5.2.3.4. If it is determined at the end of any five (5) year increment between August 1, 2007 and January 1, 2026, that the cumulative total exceeds the baseline amount, measures will be taken by that non-municipal commercial or industrial user within six (6) months thereafter, with prior approval from the Board, to offset the exceedence, if:

7-5.2.3.4.1. The non-municipal commercial or industrial user's water use exceeds the amount of ground water authorized by a permit that was issued pursuant to the Industrial Ground Water Regulatory Act, if applicable; or

7-5.2.3.4.2. The baseline exceedence is due to any new or expanded single commercial or single industrial development served by any non-municipal well which, after July 14, 2006, commences water use resulting in the consumptive use of water in amounts greater than twenty-five (25) million gallons annually.

7-5.2.3.5. The non-municipal commercial and industrial users must provide an annual report to the District describing the nature of the offsets being implemented pursuant to Rule 7-5.2.3.4. That report shall describe the nature of the offset, along with the timing, location, and amount of the

offset.

7-5.2.3.6. An "offset account" shall be created for each non-municipal commercial and industrial user. For each year that the amount of consumptive use is less than the baseline, a credit in that amount shall be made to that non-municipal commercial or industrial user's offset account. For each year that the amount of consumptive use is greater than the baseline, a debit in that amount shall be made to that non-municipal commercial or industrial user's offset account. If it is determined at the end of any five (5) year increment between August 1, 2007 and January 1, 2026, that the cumulative total of consumptive use is less than the baseline amount, that below-baseline amount shall be carried over into the next five (5) year period in that non-municipal commercial or industrial user's offset account.

7-5.2.3.6.1. If, by January 1, 2026, there is a credit in any non-municipal commercial or industrial user's offset account, that credit shall be deposited into the District's water bank.

7-5.2.3.6.2. The District shall be responsible for maintaining and managing the offset accounting system for each non-municipal commercial and industrial user within the Management Area.

7-5.2.3.7. Each commercial or industrial water user within the Management Area shall track all of its new or expanded (i.e., post-July 14, 2006) consumptive water uses.

7-5.2.3.7.1. The data collected by each commercial or industrial water user pursuant to Rules 7-5.2.3.1. and 7-5.2.3.7. for the period from August 1 through July 31 of each year shall be submitted to the District no later than October 1 of that year.

7-5.2.3.8. Any permanent reduction in consumptive use of water within the Management Area associated with non-municipal commercial or industrial use (e.g., by taking irrigated acres out of production), between July 14, 2006 and January 1, 2026, shall accrue to the LRNRD's water bank to be used in whole or in part to offset increased consumptive use elsewhere within the Management Area.

7-5.2.3.8.1. The District shall determine the amount of reduced consumptive use that is due to the growth of a non-municipal commercial or industrial use based on the Management

Area average net crop irrigation requirement.

7-5.2.3.8.1.1 The average net crop irrigation requirement will be calculated by taking the weighted average net crop irrigation requirement of the five major crops grown in the last five years worth of crop type data from Ag Statistics. The net crop irrigation requirement for each crop will be determined from available data.

7-5.2.3.8.2. If the permanent reduction in consumptive use is associated with the retirement of irrigated acres, and those acres were previously irrigated with a ground water well, the current landowner of such well shall, within 180 days, either decommission the well, or modify and equip the well to pump fifty (50) gallons per minute or less and only use it for range livestock, monitoring, observation, or any other nonconsumptive or de minimis use approved by the District.

7-5.2.3.8.3. The District shall notify in writing the previous landowner and the non-municipal commercial or industrial user that the consumptive use calculated in Rule 7-5.2.3.8.1. has been transferred to the District's water bank.

7-5.2.3.8.4. If the permanent reduction in consumptive use results in the retirement of certified irrigated acres, those acres shall be decertified by the District.

## INTEGRATED MANAGEMENT PLAN

**INTEGRATED MANAGEMENT PLAN**
**Jointly Developed by the**
**DEPARTMENT OF NATURAL RESOURCES**
**And the**
**LOWER REPUBLICAN NATURAL RESOURCES DISTRICT**

### AUTHORITY

This Integrated Management Plan (IMP) was prepared by the Board of Directors of the Lower Republican Natural Resources District (LRNRD) and the Nebraska Department of Natural Resources (DNR) in accordance with the Nebraska Ground Water Management and Protection Act, Chapter 46, Article 7.

### BACKGROUND

In 1943 the States of Colorado, Kansas and Nebraska entered into the Republican River Compact (the "Compact") with the approval of the United States Congress. The Compact provides for the equitable apportionment of the "virgin water supply" of the Republican River Basin. In 1998, following several years of dispute about Nebraska's consumptive use of water within the Basin, Kansas filed an original action in the United States Supreme Court against the States of Nebraska and Colorado, seeking, among other things, to include ground water in the calculation of the virgin water supply and consumptive use. After several rulings by the Court and its Special Master (including a recommendation that the depletions to stream flow from the use of ground water be included in the virgin water supply and be included in the calculations of each State's beneficial consumptive use), and several months of negotiation, the three States entered into a comprehensive Final Settlement Stipulation (FSS). That FSS was approved by the Supreme Court on May 19, 2003 and the Special Master's final report approving the Republican River Compact Administration Ground Water Model developed by the three States for use in computing stream flow depletions resulting from ground water use was submitted to the Court on September 17, 2003.

The State of Nebraska is responsible for compliance with the Compact.

Ground water use within the Republican River Basin is regulated by four Natural Resource Districts: the LRNRD, the Upper Republican Natural Resources District (URNRD), the Middle Republican Natural Resources District (MRNRD), and the Tri-Basin Natural Resources District (Tri-Basin) (collectively referred to below as the "Districts"). Both prior and subsequent to the approval of the FSS, the DNR conducted and participated in several meetings with the LRNRD during which it explained that, in order for the State of Nebraska to achieve and maintain compliance with the terms of the FSS and the Compact, it would be necessary to undertake the following: (1) to continue the moratorium on new surface water appropriations and new ground water wells, (2) to

reduce all ground water pumpage from historic levels across the entire Basin, and (3) to further reduce ground water pumping to comply with the Compact in water short years. The foregoing steps were to be accomplished to the extent possible through the use of incentive programs to reduce consumptive use of water. Similar discussions were held between the DNR and each of the other Basin Natural Resources Districts regarding the need (1) to accurately measure actual ground water pumpage and surface water diversions throughout the Basin and within each District; (2) for the Tri-Basin to maintain, at sufficient levels to offset depletions to the Republican River caused by ground water pumping within the Republican River Compact area within Tri-Basin, the Compact Imported Water Supply that Nebraska receives because of discharges from the "ground water mound"; and, 3) for each of the Districts other than the Tri-Basin to reduce their ground water pumping from their "1998-2002 baseline pumping volumes," which the DNR has defined as follows:

URNRD – 531,763 acre-feet

MRNRD – 309,479 acre-feet

LRNRD – 242,289 acre-feet

The DNR, through the use of the Republican River Compact Administration Ground Water Model, has also determined each Natural Resources District's depletions to streamflow for the 1998-2002 period (referred to below as the "1998-2002 baseline depletion") and the related depletion proportion (referred to below as the "1998-2002 baseline depletion proportion"):

URNRD – 74,161 acre-feet (44% of the depletions)

MRNRD – 52,168 acre-feet (30% of the depletions)

LRNRD – 43,954 acre-feet (26% of the depletions)

The percentage of allowable ground water depletions for each Republican River Natural Resources District was based on the proportion of the average ground water depletions caused by ground water pumping within each District that occurred during the baseline period from 1998-2002 as determined by model runs of the Republican River Compact Administration Ground Water Model, with ground water pumping within each District alternated between being turned off and then being turned on. The pumping volumes used to make these determinations will be evaluated within the next five years to determine their accuracy as compared with metered pumping volumes. If the baseline pumping volumes are found to be in error, the pumping volumes for the 1998-2002 period will be revised and the percentage of depletions for this period will be readjusted based on the new pumping volumes.

On June 24, 2005, the first Integrated Management Plan (2005 IMP) adopted by the LRNRD and the DNR became effective. That 2005 IMP described the ground water rules and regulations for the 2005-2007 period. Among other things, that 2005 IMP

provided for a base ground water allocation of 12 acre-inches per year (36 acre-inches for the allocation period) for all regulated wells located west of U.S. Highway 183, and a base ground water allocation of 11 acre-inches per year (33 acre-inches for the allocation period) for all regulated wells located east of U.S. Highway 183. The 2005 IMP also allowed the landowners to carry forward unused allocations.

Since adoption of the 2005 IMP, efforts have been taken to implement incentive programs, studies, and research to further our understanding and ability to comply with the Republican River Compact and FSS. The LRNRD and the DNR now seek to adopt and implement a revised IMP for the regulation of water resources within the District as required by the laws of the State of Nebraska, specifically the Ground Water Management and Protection Act.

The LRNRD will meet its responsibility under Neb. Rev. Stat. §46-715 of the Ground Water Management and Protection Act, including meeting the obligations under the FSS, by adopting revised Rules and Regulations to implement this 2007 IMP. The LRNRD understands that the URNRD and the MRNRD have also revised their 2005 IMPs, and have chosen to adopt a "compliance standard" whereby they have agreed that their use of ground water shall be within the allocation granted to them as determined by the 1998-2002 baseline pumping volumes, reduced by a certain percentage. They have also agreed that they will be assigned their proportionate share of stream flow depletions as calculated by the 1998-2002 baseline depletion percentages. The failure of any one Natural Resources District to adopt, implement or enforce IMPs adequate to meet their proportionate share of the responsibility to achieve and maintain Nebraska's compliance with the Compact and the FSS shall not itself require any additional action by the other Districts.

## GOALS AND OBJECTIVES

The LRNRD and the DNR have adopted the following Goals and Objectives.

**Goals:**

1. Ensure that ground water and surface water users within the LRNRD assume their share of the responsibility to keep Nebraska in compliance with the Republican River Compact. Neither the LRNRD or DNR will require the Integrated Management Plan to be amended solely for the purpose of changing the responsibility of water users within the LRNRD based on the failure of the other Basin NRDs to implement or enforce an Integrated Management Plan to meet their share of the responsibility to keep Nebraska in compliance with the Republican River Compact.

2. Provide that LRNRD's share of that responsibility be distributed in an equitable manner and, to minimize to the extent possible, adverse economic, social and environmental consequences.

3. To sustain a balance between water uses and water supplies within the District so that the economic viability, social and environmental health, safety, and welfare of the District can be achieved and maintained for both the near and long term.

**Objectives:**

1. With limited exceptions, prevent the initiation of new or expanded uses of water that increase Nebraska's computed beneficial consumptive use of water within the LRNRD.

2. Cause the required reductions in water use to be achieved through a combination of regulatory and incentive programs designed to reduce beneficial consumptive use.

3. The DNR shall ensure that administration of surface water appropriations in the Basin is in accordance with the Compact and in full compliance with Nebraska law.

4. After taking into account any reduction in beneficial consumptive use achieved through basin-wide incentive programs, make such additional reductions in ground water use in Water Short Years as are necessary to achieve a reduction in beneficial consumptive use in the LRNRD in an amount proportionate to the total reduction in consumptive use that is needed in Nebraska above Guide Rock in such years. Basin-wide incentive programs will be used to achieve reductions in beneficial consumptive use. There will be no further reductions without Board approval following a Public Hearing.

5. The LRNRD and the DNR will investigate or explore methods to manage the impact of vegetative growth on stream flow.

6. The LRNRD and the DNR will investigate or explore augmentation projects that would add to or retime the water supply within the Basin. Such augmentation and retiming projects include, but are not necessarily limited to, the following:

    a. Leasing or purchasing surface water and/or ground water;
    b. Augmentation wells, both within and outside of the Republican River Basin;
    c. Exploring trans-basin diversion projects;
    d. Conjunctive management of surface water irrigation projects.

7. The LRNRD and DNR will investigate, explore, and evaluate the effectiveness of vegetation management projects that would add to the water supply within the Basin. The District's ground water allocation may be adjusted upwards if it is found that such projects result in a water savings.

8. The LRNRD's net depletions shall not exceed twenty-six percent (26%) of the State's allowable ground water depletions as determined by the Republican River Compact Administration Ground Water Model. It may be necessary to adjust the base allocation, as defined in Rule 7-2.2.2., within the five-year allocation period in order to meet this requirement. The District's base allocation may be increased or decreased proportionately with any increase or decrease in the water supply conditions.

## MAP

The area subject to this IMP is the geographic area within the boundaries of the Lower Republican Natural Resources District.

## GROUND WATER CONTROLS

The authority for the ground water component of this IMP is the Nebraska Ground Water Management and Protection Act, Chapter 46, Article 7. The ground water controls for this integrated management plan that will be adopted and implemented by the LRNRD are those found in the **LOWER REPUBLICAN NATURAL RESOURCES DISTRICT GROUND WATER MANAGEMENT RULES AND REGULATIONS.**

## SURFACE WATER CONTROLS – DEPARTMENT OF NATURAL RESOURCES

The authority for the surface water component of this IMP is the Nebraska Ground Water Management and Protection Act, Chapter 46, Article 7. The surface water controls that will be continued and/or begun by the DNR are as follows:

1. DNR shall continue to administer surface water under the prior appropriation system.
2. The DNR shall implement the following additional surface water administration as required by the Final Settlement Stipulation:
   A. To provide for regulation of natural flow between Harlan County Lake and Superior-Courtland Diversion Dam, Nebraska will recognize a priority date of February 26, 1948 for Kansas Bostwick Irrigation District, the same priority date as the priority date held by the Nebraska Bostwick Irrigation District's Courtland Canal water right.
   B. When water is needed for diversion at Guide Rock and the projected or actual irrigation supply is less than 130,000 acre-feet of storage available for use from Harlan County Lake as determined by the Bureau of Reclamation using the methodology described in Harlan County Lake Operation Consensus Plan attached as Appendix K to the Final Settlement Stipulation, Nebraska will close junior, and require compliance with senior, natural flow diversions of surface water between Harlan County Lake and Guide Rock.

C. Nebraska will protect storage water released from Harlan County Lake for delivery at Guide Rock from surface water diversions.
D. Nebraska, in concert with Kansas and in collaboration with the United States, and in the manner described in Appendix L to the Final Settlement Stipulation, will take actions to minimize the bypass flows at Superior-Courtland Diversion Dam.

3. Metering of all surface water diversions at the point of diversion from the stream will continue to be required. For surface water canals that are not part of a Bureau of Reclamation project, farm turnouts will be required to install and maintain a DNR approved measuring device by the start of the 2005 irrigation season. All measuring devices shall meet DNR standards for installation, accuracy and maintenance. All appropriators will be monitored to ensure that neither the rate of diversion nor the annual amount diverted exceeds that allowed by the applicable permit or by statute.
4. The DNR's moratorium on the issuance of new surface water permits was made formal by Order of the Director dated July 14, 2004. Exceptions may be granted by the DNR to the extent permitted by statute or to allow issuance of permits for existing reservoirs that currently do not now have such permits. Such reservoirs are limited to those identified through the Final Settlement Stipulation required inventory of reservoirs with over 15 acre-feet capacity.
5. All proposed transfers of surface water rights shall be subject to the criteria for such transfers as found in Neb. Rev. Stat. §§ 46-290 to 46-294.04 and related DNR rules or the criteria found in Neb. Rev. Stat. §§ 46-2,120 to 46-2,130 and related DNR rules.
6. The DNR completed the adjudication process within the LRNRD upstream of Guide Rock for the individual appropriators in the Republican River Basin in 2004. The results of that adjudication provided up-to-date records of the number and location of acres irrigated with surface water by such appropriators. Those records will be used by the DNR to monitor use of surface water and to make sure that unauthorized irrigation is not occurring. The DNR shall also be proactive in initiating subsequent adjudications whenever information available to the DNR indicates the need for adjudication as outlined by state statutes.
7. At this time, due to the already limited availability of surface water supplies, the DNR shall not require that surface water appropriators apply or utilize additional conservation measures or that they be subject to other new restrictions on surface water use, except as may be necessary to meet the goals and objectives of this plan and to maintain compliance with the Compact.
8. The DNR reserves the right to request, in the future, that this IMP be modified to require any such additional measures. In the event such a request is made, the DNR shall "allow the affected surface water appropriators and surface water project sponsors a reasonable amount of time, not to exceed one hundred eighty (180) days, unless extended by the DNR, to identify the

conservation measures to be applied or utilized, to develop a schedule for such application and utilization, and to comment on any other proposed restrictions." Neb. Rev. Stat. § 46-716(2).

9. Where necessary, the Department may further restrict surface water appropriators to comply with the Compact.

## INCENTIVE PROGRAMS

The LRNRD and DNR intend to establish and implement financial or other incentive programs to reduce beneficial consumptive use of water within the LRNRD. As a condition for participation in an incentive program, water users or landowners, and the LRNRD may be required to enter into and perform such agreements or covenants concerning the use of land or water as are necessary to produce the benefits for which the incentive program is established.

Such incentive programs may include any program authorized by state law and/or Federal programs such as, but not limited to, the Conservation Reserve Enhancement Program (CREP) and Environmental Quality Incentives Program (EQIP) operated by the U.S. Department of Agriculture.

## MONITORING PROGRAM

The DNR and the LRNRD shall develop a plan to gather and evaluate data, information, and methodologies that could be used to implement Neb.Rev.Stat. §§ 46-715 to 46-717, increase understanding of the surface water and hydrologically connected ground water system, and test the validity of the conclusions and information upon which the integrated management plan is based.

## MODIFICATIONS TO THE INTEGRATED MANAGEMENT PLAN

Modifications to this Integrated Management Plan including the rules and regulations contained within will require an agreement by both the District and the Department as to the proposed changes. After the proposed changes have been agreed to, a joint hearing on those changes will be required. Following the joint hearing, the District and the Department shall issue an order reflecting the decision made.

## INFORMATION CONSIDERED

Information used in the preparation and to be used in the implementation of this integrated management plan can be found in the simulation runs of the Republican River Compact Administration Ground Water Model, the data tables of the Final Settlement Stipulation for the Republican River Compact, Chapters 3, 6 and 7 of the 1994 Lower Republican NRD Ground Water Management Plan and additional data on file with the LRNRD and the DNR.

# Appendix B: Middle Republican Natural Resources District

## Integrated Management Plan

# RULES and REGULATIONS

## Ground Water Management Area

Established July 1, 1998
Effective February 1, 2008

And the

# INTEGRATED MANAGEMENT PLAN

## For the
## Middle Republican
## Natural Resources District
## And The
## Nebraska Department of
## Natural Resources

Established January 1, 2005
Effective February 8, 2008

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**Map1.** Management Area Boundaries

**Map 2.** Critical Unit

**Table 1.** Municipal Allocation

**Table 2.** Livestock Operation Allocations


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Ground Water Management Area

| | |
|---|---|
| Adopted May 18, 1998 | |
| Established July 1, 1998 | |
| Revised July 1, 1999 | |
| Revised July 1, 2000 | |
| Revised November 17, 2003 | |
| Revised January 1, 2005 | Hearing October 6, 2004 |
| Revised October 3, 2006 | Hearing June, 13, 2006 |
| Revised December 1, 2006 | Hearing September 12, 2006 |
| Revised February 1, 2008 | Hearing August 30, 2007 |

Integrated Management Plan

| | |
|---|---|
| Adopted November 9, 2004 | |
| Established January 1, 2005 | Hearing October 6, 2004 |
| Revised February 8, 2008 | Hearing January 8, 2008 |

PREFACE

**Legislative Intent.**

The Legislature finds that ownership of water is held by the state for the benefit of its citizens, that ground water is one of the most valuable natural resources in the state, and that an adequate supply of ground water is essential to the general welfare of the citizens of this state and to the present and future development of agriculture in the state. The Legislature recognizes its duty to define broad policy goals concerning the utilization and management of ground water and to ensure local implementation of those goals. The Legislature also finds that natural resources districts have the legal authority to regulate certain activities and, except as otherwise specifically provided by statute, as local entities are the preferred regulators of activities which may contribute to ground water depletion.

Every landowner shall be entitled to a reasonable and beneficial use of the ground water underlying his or her land subject to the provisions of Chapter 46, article 6, and the Nebraska Ground Water Management and Protection Act and the correlative rights of other landowners when the ground water supply is insufficient for all users. The Legislature determines that the goal shall be to extend ground water reservoir life to the greatest extent practicable consistent with beneficial use of the ground water and best management practices.

The Legislature further recognizes and declares that the management, protection, and conservation of ground water and the beneficial use thereof are essential to the economic prosperity and future well-being of the state and that the public interest demands procedures for the implementation of management practices to conserve and protect ground water supplies and to prevent the contamination or inefficient or improper use thereof.

The Legislature recognizes the need to provide for orderly management systems in areas where management of ground water is necessary to achieve locally determined ground water management objectives and where available data, evidence, or other information indicates that present or potential ground water conditions, including subirrigation conditions, require the designation of areas with special regulation of development and use.

The Legislature recognizes that ground water use or surface water use in one natural resources district may have adverse effects on water supplies in another district or in an adjoining state. The Legislature intends and expects that each natural resources district within which water use is causing external impacts will accept responsibility for ground water management in accordance with the Nebraska Ground Water Management and Protection Act in the same manner and to the same extent as if the conflicts between ground water use and surface water use were contained within the district.

**Legislative Findings**

The Legislature finds that:

(a)(1) The management, conservation, and beneficial use of hydrologically connected ground water and surface water are essential to the continued economic prosperity and well-being of the state, including the present and future development of agriculture in the state;

(2) Hydrologically connected ground water and surface water may need to be managed differently from unconnected ground water and surface water in order to permit

equity among water users and to optimize the beneficial use of interrelated ground water and surface water supplies;

(3) Natural resources districts already have significant legal authority to regulate activities which contribute to declines in ground water levels and to nonpoint source contamination of ground water and are the preferred entities to regulate, through ground water management areas, ground water related activities which are contributing to or are, in the reasonably foreseeable future, likely to contribute to conflicts between ground water users and surface water appropriators or which may be necessary in order to resolve disputes over interstate compacts or decrees, or to carry out the provisions of other formal state contracts or agreements;

(4) The Department of Natural Resources is responsible for regulation of surface water resources and local surface water project sponsors are responsible for much of the structured irrigation utilizing surface water supplies, and these entities should be responsible for regulation of surface water related activities which contribute to such conflicts or provide opportunities for such dispute resolution;

(5) The department, following review and concurrence of need by the Interrelated Water Review Committee of the Nebraska Natural Resources Commission, should also be given authority to regulate ground water related activities to mitigate or eliminate disputes over interstate compacts or decrees or difficulties in carrying out the provisions of other formal state contracts or agreements if natural resources districts do not utilize their ground water management authority in a reasonable manner to prevent or minimize such disputes or difficulties; and

(6) All involved natural resources districts, the department, and surface water project sponsors should cooperate and collaborate on the identification and implementation of management solutions to such conflicts or provide opportunities for mitigation or elimination of such disputes or difficulties

(b)(1) The levels of nitrate nitrogen and other contaminants in ground water in certain areas of the state are increasing;

(2) Long-term solutions should be implemented and efforts should be made to prevent the levels of ground water contaminants from becoming too high and to reduce high levels sufficiently to eliminate health hazards;

(3) Agriculture has been very productive and should continue to be an important industry to the State of Nebraska;

(4) Natural resources districts have the legal authority to regulate certain activities and, as local entities, are the preferred regulators of activities which may contribute to ground water contamination in both urban and rural areas;

(5) The Department of Environmental Quality should be given authority to regulate sources of contamination when necessary to prevent serious deterioration of ground water quality;

(6) The powers given to districts and the Department of Environmental Quality should be used to stabilize, reduce, and prevent the increase or spread of ground water contamination; and

(7) There is a need to provide for the orderly management of ground water quality in areas where available data, evidence, and other information indicate that present or potential ground water conditions require the designation of such areas as management areas.

Effective January 1, 2005 | Middle Republican NRD | revised November 13, 2007

**AUTHORITY** - These rules and regulations are adopted pursuant to the authority granted in the Nebraska Ground Water Management and Protection Act.

**PURPOSE** - The purposes of the management area are (1) to protect ground water quantity; and (2) the prevention or resolution of conflicts between users of ground water and appropriators of surface water, which ground water and surface water are hydrologically connected through implementation of controls to meet the goals and objectives identified in the Integrated Management Plan for the Middle Republican Natural Resources District and the Nebraska Department of Natural Resources.

## CHAPTER 1 – MANAGEMENT AREA

### RULE 1-1 MANAGEMENT AREA DESIGNATION AND BOUNDARIES

1-1 A sub area of the management area designated on July 1, 1998 is hereby designated for purposes of implementing the Integrated Management Plan. The geographic and stratigraphic boundaries of the sub area coincide with the existing geographic and stratigraphic boundaries of the existing management area designated on July 1, 1998 (such sub area for integrated management will be referred to as a "management area"). The geographic boundary of the management area is the boundary of the Middle Republican Natural Resources District. The stratigraphic boundary of the management area is from the land surface to the base of the underlying sand and gravel layers that contain the water bearing material. The base of the sand and gravel layers rest on impervious layers of Niobrara Chalk, Pierre Shale or formations from the White River Group. (see Map 1)

1-2 A list of legal descriptions identifying the Quick Response and Platte sub areas is on permanent file at the office in Curtis and is available for inspection during normal business hours. (10/03/2006)

## CHAPTER 2 – GENERAL PROVISIONS

### RULE 2-1 VARIANCES

2-1.1 The Board may grant variances from the strict application of these rules and regulations upon good cause shown.

2-1.2 All requests for a variance shall be made on forms provided by the District and will be acted upon at a formal adjudicatory hearing before the Board. This hearing will be advertised in the legal newspaper of the District and all known involved parties will be advised of the hearing. The well owner or his or her representative shall be present at the hearing. With prior notification to the District, written testimony may be provided if the well owner cannot be present.

2-1.3 The Board, at its discretion, may designate conditions under which specific requests for a variance may be approved by methods other than a formal adjudicatory hearing. A variance granted under these conditions shall be referred to as an expedited variance.

## RULE 2-2 EXPEDITED VARIANCE

2-2.1 The Board hereby approves the following expedited variances and allows approval without Board consideration:

1. Alternative methods for metering of wells that pump less than two hundred and fifty (250) gallons per minute.
2. Exempt unused and inactive status wells from the metering requirement until well is placed into active status or is otherwise used.
3. Approval of permits to construct a contamination / remediation well for the purpose of withdrawal or treatment of contaminated water, or for the introduction or removal of air, water or chemicals. The expedited variance request shall include written approval of the state agency with supervisory responsibility for the planned project.
4. Approval of permits to construct a monitoring / observation well for the purpose of withdrawal of water or the observation of water levels during aquifer testing, collection of water quality samples and providing hydrologic information. A monitoring / observation well shall not have a permanent pump installed. The expedited variance request shall include the planned disposition of the well after its intended use is completed.

2-2.2 All requests for an expedited variance shall be made on forms provided by the District.

2-2.3 Approval, approval with conditions or denial of a properly completed request for an expedited variance will be made within thirty (30) days of the receipt of the completed variance.

## RULE 2-3 SEVERABILITY

If any rule or any part of any rule herein shall be declared invalid or unconstitutional, such declaration shall not affect the validity or constitutionality of the remaining portions thereof.

## RULE 2-4 VIOLATIONS AND ENFORCEMENT

These rules and regulations shall be enforced by the District through the use of cease and desist orders issued in accordance with the "Rules and Regulations for the Enforcement of the Nebraska Ground Water Management and Protection Act", adopted on March 27, 2000, and section II, subsection E, Rule 4 of the "General Policy Statement".

## RULE 2-5 PENALTIES

Any person who violates any cease and desist order issued by the District pursuant to section 46-707 or any controls or rules or regulations adopted by the NRD relating to the management area shall be subject to penalties imposed through the controls adopted by the District including, but not limited to, having any allocation of water granted or irrigated acres certified by the District reduced

in whole or in part. Notice and hearing shall be provided to such person before the District takes any action. Specific penalties may be identified in rule and regulation for some violations. Any person who violates a cease and desist order issued by the District pursuant to section 46-707 shall be subject to a civil penalty assessed pursuant to section 46-745, Reissue Revised Statutes of Nebraska.

## RULE 2-6 ACCESS

2-6.1 The District shall have the power and authority to enter upon the land, after notification to the landowner, for any and all reasons relative to the administration of the ground water management area, and provisions of the Ground Water Management and Protection Act. This entry shall not be considered trespass.

2-6.2 Notification may be accomplished by regular mail, certified mail or by oral communication.

2-6.3 The District hereby notifies all operators of its intent to enter onto property, to verify the installation of flow meters or other devices and to read or verify the readings of flow meters or other devices used to measure the quantity of ground water used for irrigation. This process will take place between October 1 and December 31 each year.

## CHAPTER 3 – DEFINITIONS

## RULE 3-1 DEFINITIONS

3-1.1 Abandoned Well: means any water well, the use of which has been accomplished or permanently discontinued, which has been decommissioned as described in the rules and regulations of the Nebraska Department of Health and Human Services Regulation and Licensure, and a notice of abandonment has been filed with the Department of Natural Resources.

3-1.2 Act: The Nebraska Ground Water Management and Protection Act.

3-1.3 Additional Water Administration Year: When water is needed for diversion at Guide Rock and the projected or actual irrigation supply is less than 130,000 acre feet of storage available for use in Harlan County Lake.

3-1.4 Allocation: As it relates to water use for irrigation purposes, means the allotment of a specified total number of acre-inches of irrigation water per certified irrigated acre per year or an average number of acre-inches of irrigation water per certified irrigated acre over any reasonable period of time. As it relates to other purposes, the allotment of a determined quantity of ground water.

3-1.5 Animal Unit: A unit of measurement for any livestock operation. For each type of livestock identified below, the number of animal units shall be the number of livestock in the livestock operation times the multiplier following that livestock type.

| | | | |
|---|---|---|---|
| Slaughter/Feeder Cattle | 1.0 | Cow/calf pair | 1.2 |
| Dairy Cow | 1.4 | Swine >55 lbs | 0.4 |
| Swine <55 lbs | 0.05 | Horse | 2.0 |
| Chickens | 0.01 | Sheep | 0.1 |

3-1.6 Backup Well: Used in conjunction with a livestock operation well or an industrial well. A backup well cannot be used at the same time as the primary well or wells. A backup well is not subject to the increased spacing requirements of the District.

3-1.7 Base Allocation: This amount, in acre-inches, is derived from dividing the allocation by the base allocation period.

3-1.8 Base Allocation Period: This is the number of years that an allocation can be used.

3-1.9 Board: The elected Board of Directors of the Middle Republican Natural Resources District.

3-1.10 Bonus Inches: An additional allocation, granted by the approval of the Board, only after yearly compliance following the 2006 crop year. (11/13/07)

3-1.11 Certification: The process whereby the annual use of ground water for a regulated well is reported to and verified by the District.

3-1.12 Certified Use: any use of ground water in accordance with Rule 4-6.

3-1.13 Certified Irrigated Acre: Any acre that is certified as such pursuant to the rules and regulations of the District and that is actually capable of being supplied water through irrigation works, mechanisms or facilities existing at the time of allocation.

3-1.14 Confined Livestock Operation: shall mean totally roofed buildings, which may be open sided or completely enclosed on the sides, wherein animals or poultry are housed over solid concrete or dirt floors or slatted floors over pits or manure collection areas in pens, stalls or cages, with or without bedding materials and mechanical ventilations.

3-1.15 Consecutive Water Short Years: Shall mean the need for additional action if a water short year has been designated for at least two consecutive years and Nebraska was not within its yearly allocation during those years. (11/13/07)

3-1.16 Consumptive Use: is that amount of water that is consumed under appropriate and reasonably efficient practices to accomplish without waste the purposes for which the appropriation or other legally permitted use are lawfully made.

3-1.17 Critical Unit(s): An area(s) designated by the District where circumstances require additional controls.

3-1.18 Cumulative Allocation : Base allocation times allocation period (11/13/07)

3-1.19 Dewatering Well: shall mean a water well constructed for the purpose of temporarily lowering the ground water surface elevation.

3-1.20 District, NRD, MRNRD: The Middle Republican Natural Resources District.

3-1.21 Flow Meter: a device, approved by the District, to measure the quantity of ground water pumped, withdrawn, or taken from a water well.

3-1.22 Good Cause Shown: shall mean a reasonable justification for granting a variance to consumptively use water that would otherwise be prohibited by rule or regulation and which the District reasonably and in good faith believes will provide an economic, environmental, social or public health and safety benefit that is equal to or greater than the benefit resulting from the prohibition from which a variance is sought.

3-1.23 Ground Water: shall mean that water which occurs in or moves, seeps, filters, or percolates through the ground under the surface of the land.

3-1.24 Historic Consumptive Use: is that amount of water that has previously been consumed under appropriate and reasonably efficient practices to accomplish without waste the purposes for which the appropriation or other legally permitted use was lawfully made.

3-1.25 History of Use: as used in these rules shall mean the exercise of a certified use in four (4) of the previous six (6) years.

3-1.26 Illegal Water Well: (a) any water well operated or constructed without or in violation of a permit required by the Act, (b) any water well not in compliance with rules and regulations adopted and promulgated pursuant to the Act, (c) any water well not properly registered in accordance with sections 46-602 to 46-604, (d) any water well not in compliance with any other applicable laws of the State of Nebraska or with rules and regulations adopted and promulgated pursuant to such laws.

3-1.27 Inactive Status Well: shall mean a water well that is not currently in use, but is in a good state of repair and for which the owner has provided evidence of intent for future use by maintaining the water well in a manner which meets the following requirements: (1) the water well does not allow impairment of the water quality in the water well or of the ground water encountered by the water well; (2) the top of the water well or water well casing has a water-tight welded or threaded cover or some other water-tight means to prevent its removal without the use of equipment or tools to prevent unauthorized access, to prevent a safety hazard to humans and animals, and to prevent illegal disposal of wastes or contaminants into the water well; and (3) the water well is marked so as to be easily visible and located and is labeled or otherwise marked as to be easily identified as a water well and the area surrounding the water well is kept clear of brush, debris, and waste material. An inactive status water well shall be registered as such in the well registration records of the Nebraska Department of Natural Resources.

3-1.28 Incentive Program: shall mean a program that may require agreements or covenants concerning the use of land or water as necessary to produce the benefits for which the program is established.

3-1.29 Industrial Well: shall mean a water well the purpose of which includes but is not limited to; manufacturing, commercial and power generation uses of water. Commercial includes, but is not limited to, maintenance of the turf of a golf course.

3-1.30 Late Permit: shall mean a permit applied for after construction has commenced on a regulated water well pursuant to section 46-735.

3-1.31 Livestock Operation: shall mean the feeding or holding of livestock in buildings, lots or pens which are not used for growing of crops or vegetation, but does not include the holding of cattle in calving operations for less than ninety (90) days per year.

3-1.32 Livestock Operation Well: A regulated well providing for the watering of animals in a "livestock operation" or "confined livestock operation" and for which a livestock waste control facility permitted by the Nebraska Department of Environmental Quality is required.

3-1.33 Livestock Well: A water well not classified as a livestock operation well but which is used for the watering of (1) livestock, poultry, farm and domestic animals used in operating a farm or (2) domestic livestock as related to normal farm and ranch operations or (3) range livestock or stock use on a farm or ranch.

3-1.34 Operator: The person who controls the day-to-day operation of the water well.

3-1.35 Permit to Construct a Well: shall mean a document that must be obtained from the District in accordance with Rule 4-2 before construction of a regulated well water well may be commenced in the management area pursuant to section 46-735.

3-1.36 Person: A natural person, a partnership, a limited liability company, an association, a corporation, a municipality, an irrigation district, an agency or a political subdivision of the state, or a department, an agency, or a bureau of the United States.

3-1.37 Pooling: shall mean the common management of all or part of the certified acres and the associated allocation by two or more persons. (11/13/07)

3-1.38 Platte Sub Area: That portion of the Middle Republican NRD that is located outside the boundaries of the Republican River Basin as delineated for the Republican River Compact.

3-1.39 Primary Well: when used with regard to livestock operation or industrial wells, shall mean the well or wells used for the certified use on a daily or other routine basis.

3-1.40 Public Water System: a system for providing the public with water for human consumption, as further defined in Title 179 Chapter 2.

3-1.41 Quick Response Sub Area: That area included in the area delineated by the Department of Natural Resources and shown on Map 1.

3-1.42 Quick Response Wells: Those wells located in or serving acres in the Quick Response Sub Area.

3-1.43 Reduction of Acres: A uniform percentage reduction of each landowners irrigated acres. Such uniform reduction may be adjusted for each

landowner based upon crops grown on his or her land to reflect the varying consumptive requirements between crops.

3-1.44 Regulated Well: A water well designed and constructed to pump more than fifty (50) gallons per minute. A series of water wells, with a combined discharge of more than fifty (50) gallons per minute, of which the water is commingled, combined, clustered or joined as a single unit for a single purpose shall be considered as one regulated well. (12/01/2006)

3-1.45 Replacement Well: In accordance with Nebraska Statute NRRS 46-602(2)(a) through 46-602(2)(c). (11/13/07)

3-1.46 Reserve: That part of an allocation that is unused during the base allocation period.

3-1.47 Supplemental Well: A regulated well that provides supplemental ground water to acres that are normally irrigated by surface water. Annual use is not a requirement to be considered a supplemental well.

3-1.48 Transfer Permit: shall mean a document that must be obtained from the District in accordance with Rule 5 whereby the point of use, type of use or rules governing the use of ground water is exchanged or moved.

3-1.49 Test Hole: shall mean a hole designed solely for the purpose of obtaining information on hydrologic or geologic conditions.

3-1.50 Unregulated Well: a water well designed and constructed to pump fifty (50) gallons per minute or less and is not commingled, combined, clustered or joined with other water wells.

3-1.51 Unused / Seldom Used Well: a water well that has not been placed in inactive status but is used less than one (1) year in three (3).

3-1.52 Upland Sub Area: That area of the District not delineated as the Quick Response Sub Area or the Platte Sub Area.

3-1.53 Variance: approval to act in a manner contrary to existing rule or regulation from a governing body whose rule or regulation is otherwise applicable.

3-1.54 Water Short Year Administration: will be in effect in those years in which the projected or actual irrigation supply is less than 119,000 acre feet of storage available for use from Harlan County Lake.

3-1.55 Water Well: In accordance with Nebraska Statute 46-601.01. (11/13/07)

3-1.56 Wellhead Protection Area: A delineated area around a public water supply well or wells, used for human needs, representing the thresholds based on time of travel of ground water toward the public water supply well or wells.

## CHAPTER 4 – GENERAL MANAGEMENT

### RULE 4-1 MORATORIUM

4-1.1 The District finds that the use of hydrologically connected ground water and surface water resources is contributing to conflicts between ground water and surface water users and to disputes over the Republican River Compact. The District hereby closes all of the management area, as defined in Rule 1-1, to the issuance of new permits for regulated wells except as provided in 4-1.2.

4-1.2 Replacement wells and backup wells, as defined in 3-1.6, are not subject to the moratorium. (11/17/07)

### RULE 4-2 PERMIT TO CONSTRUCT A WATER WELL

4-2.1 Except as provided in Rule 4-2.3 any person who intends to construct a regulated water well on land in the management area which he or she owns or controls shall, before commencing construction, apply with the District for a permit on a form provided by the District. The District shall review such applications and issue the approved permit, with or without conditions, or deny the permit within thirty (30) days after the application is properly prepared and received. An incomplete or defective application shall be returned for correction. If correction is not made within sixty (60) days the application shall be cancelled.

4-2.2 Applications for a permit to construct a water well that require consideration of a variance request shall not be deemed as properly filed and complete until such time as the Board has acted to approve the variance request.

4-2.3 Exceptions. No permit shall be required for:

- 4-2.3.1 Test holes
- 4-2.3.2 Dewatering wells with an intended use of ninety (90) days or less.
- 4-2.3.3 A single water well designed and constructed to pump fifty (50) gallons per minute or less.

4-2.4 A permit is required for a water well designed and constructed to pump fifty (50) gallons per minute or less if such water is commingled, combined, clustered, or joined with any other water well or wells or other water source, other than a water source used to water range livestock. Such wells shall be considered one (1) well and the combined capacity shall be used as the rated capacity.

4-2.5 A person shall apply for a permit before he or she modifies a water well, for which a permit was not required when the well was constructed, into one for which a permit would otherwise by required.

4-2.6 The application shall be accompanied by a $50.00 filing fee payable to the District and shall contain:

- 4-2.6.1 The name and post office address of the well owner,
- 4-2.6.2 The nature of the proposed use,

4-2.6.3 The intended location of the proposed water well or other means of obtaining ground water,

4-2.6.4 The intended size, type and description of the proposed water well and the estimated depth, if known,

4-2.6.5 The estimated capacity in gallons per minute,

4-2.6.6 The acreage and location by legal description of the land involved if the intended use is for irrigation,

4-2.6.7 A description of the proposed use if other than irrigation,

4-2.6.8 The registration number of the well being replaced, if applicable,

4-2.6.9 The certified use of the well being replaced, if applicable,

4-2.6.10 The historic consumptive use of the well being replaced, if applicable, and

4-2.6.11 Such other information as the District may require.

4-2.7 Any person who has failed or in the future fails to obtain a permit before construction is commenced shall make application for a late permit on forms provided by the District.

4-2.8 The application for a late permit shall be accompanied by a $250.00 fee payable to the District and shall contain the same information required in Rule 4-2.6.

4-2.9 An application for a new regulated well with an intended consumptive use of more than three hundred (300) acre feet over a twelve (12) month period requires, in addition to the information required by 4-2.6, the following information:

4-2.9.1 The availability to the applicant of alternative sources of surface or ground water,

4-2.9.2 Any negative effect of the proposed withdrawal on ground water and surface water supplies needed to meet present or reasonable future demands for water in the intended area of withdrawal within the state, to comply with any interstate compact or decree, or to fulfill the provisions of any other formal state contract or agreement,

4-2.9.3 Any adverse environmental effect of the proposed withdrawal, and

4-2.9.4 The cumulative effect of the proposed withdrawal relative to the matters listed in 4-2.9.1 through 4-2.9.3

4-2.10 The application for a permit shall be denied if (1) the location or operation of the proposed water well or other work would conflict with any regulations or controls adopted by the District, (2) the proposed use would not be a beneficial use, or (3) in the case of a late permit only, that the applicant did not act in good faith in failing to obtain a timely permit.

4-2.11 No refund of any application fees shall be made regardless of whether the permit is issued, canceled, or denied.

4-2.12 The issuance, by the District, of a permit or the registration of a water well with the Nebraska Department of Natural Resources shall not vest in any person the right to violate any District rule, regulation, or control in effect

on the date of issuance of the permit or the registration of the water well or to violate any rule, regulation, or control properly adopted after such date.

4-2.13 The applicant shall commence construction as soon as possible after the date of approval and shall complete construction and equip the water well prior to the date specified in the conditions of approval, which shall not be more than one (1) year from the date of approval, unless it is clearly demonstrated in the application that one (1) year is an insufficient period of time for such construction. Failure to complete the project under the terms of the permit may result in the withdrawal of the permit by the District.

## RULE 4-3 WELL SPACING

4-3.1 No regulated well except a backup well shall be constructed upon any land in this District within one thousand three hundred and twenty (1320) feet of any other registered regulated well, regardless of ownership except;

4-3.1.1 Any irrigation water well that replaces an irrigation water well which was drilled prior to September 20th, 1957, and which is less than six hundred (600) feet from a registered irrigation well may be located closer than one thousand three hundred and twenty (1320) feet from another regulated well if it is drilled within fifty (50) feet of the water well being replaced.

4-3.1.2 A replacement well may be constructed less than one thousand three hundred and twenty (1320) feet from another registered regulated water well, if it is constructed within one hundred (100) feet of the water well it replaces or is relocated no closer than the well it replaces to other wells and if such replaced water well was, when constructed, in compliance with all applicable laws, rules and regulations.

4-3.2 The well spacing required by Rule 4-3.1 shall also apply to the distance between a proposed new regulated well and an unregistered regulated water well but only for a period of sixty (60) days to allow for registration of such unregistered water well.

## Rule 4-4 FLOW METERS

4-4.1 Flow meters meeting accuracy specifications established in Rule 4-4.2 shall be installed on all regulated wells by the end of the year 2004 except,

4-4.1.1 For a well with a pumping capacity of less than two hundred and fifty (250) gallons per minute, an alternative measuring device or method, approved by the District, with an accuracy of plus or minus five (5) percent of the actual water flow, may be used.

4-4.1.2 Before any inactive wells are placed in service, a flow meter shall be installed, the District shall be notified of the well's status change, and the status of the well in the well registration records of the Department of Natural Resources shall be updated to

reflect its active status. No such well shall be operated thereafter without a properly installed and operational flow meter.

4-4.2 All meters shall be tested for accuracy using recognized industry testing methods and certified by the manufacturer according to those standards. At any rate of flow within the normal flow limits, the meter, except as noted in Rule 4-4.1.1, shall register not less than ninety eight (98) percent or more than one hundred and two (102) percent of the water actually passing through the meter. All meters shall have a register or totalizer and shall read in U. S. gallons, acre-feet or acre-inches.

4-4.3 Installation – The operator shall, on forms provided by the District, report the location, by legal description, and certify the proper installation of flow meters. The District may, at a time of its own choosing, verify the location and proper installation of flow meters. The proper installation of a meter is such that it meets the manufacturer's specifications and/or more restrictive specifications developed by the District.

4-4.3.1 In no case may a meter be installed with less than five (5) unobstructed pipe diameters upstream of the meter or less than one (1) unobstructed pipe diameter downstream of the meter.

4-4.3.2 If the meter is installed downstream of a mainline check valve, there must be at least ten (10) pipe diameters upstream of the meter. If there are not at least ten (10) pipe diameters upstream of the meter, straightening vanes must be installed.

4-4.3.3 Meters must be located so as to prevent damage to the meter from excessive vibration.

4-4.3.4 Meters must be installed so that the removal of the meter for service or maintenance can be performed with the use of normal tools and does not require excessive or unusual removal of hardware or other appurtenances.

4-4.3.5 The District may establish a method by which the installed meter is tagged, sealed, marked or otherwise protected from tampering.

4-4.3.6 New installations or changes to the location of currently installed meters shall be permanent and shall be mounted no higher than six feet above ground level. (10/3/2006)

4-4.3.7 Electronic meters or any meter with a digital readout must have an uninterruptible power supply. (10/03/2006)

4-4.4 Improperly Installed Meters – The installation of meters that do not meet manufacturers' or District standards must be corrected. Failure to provide for proper installation will result in the loss of allocation for the next crop year.

4-4.5 Inoperative Meters – Landowners shall notify the District of an inoperative meter within one (1) working day from the time the defect is noted. The District will repair or temporarily replace the inoperative meter and charge the well owner for the service. Failure to report inoperative meters will result in the loss of allocation for the next crop year.

4-4.6 Tampering with an installed flow meter – Following a hearing before the Board, if it is found that tampering so as to affect the accuracy or true use of the meter has occurred, the District shall withhold the allocation for the next crop year and may prorate the allocation for the current year.

4-4.7 Service – It is the responsibility of the operator to provide for service and maintain the flow meter according to either the manufacturer's standards or more restrictive standards developed by the District. The operator may grant permission for this service to be provided by the District, at a cost to the operator. The District may enter onto property to provide this service. This service will be provided in the off-season and will not interfere with the normal operation of the meter or the well.

4-4.8 The District may establish a spot check program to inspect the serviceability and verify use of a meter. The District may correct discrepancies noted at the time of the inspection. Discrepancies that require the repair of a meter may be performed by the District, at a cost to the well owner, with the permission of the well owner.

4-4.9 The district may require that meters that have been repaired two out of the last five years for vibration damage or more frequently to be moved to a location where vibration damage is minimal or modifications are made to the meter register that are more resistant to vibration damage. (10/03/2006)

4-4.10 By the beginning of the 2008 crop year all meters shall be permanently mounted in the irrigation distribution system. (10/03/2006)

4-4.11 Challenges of usage readings require that the landowner provide sufficient evidence to substantiate their claim. For electric wells power records may serve this purpose. (10/03/2006)

## RULE 4-5 REPORTS

4-5.1 Each operator of a regulated well, other than an irrigation well, shall report, on forms provided by the District, by January 15 of each year, the total water withdrawn from that well during the preceding calendar year and the nature of the use of that water.

4-5.2 Failure to provide this report shall result in the loss of allocation for the next crop year or current year, in the case of a regulated well other than an irrigation well.

4-5.3 In order to ensure compliance with the Republican River Compact Accounting procedures, additional information may be required in reports from operators. (11/13/07)

## RULE 4-6 CERTIFICATION

4-6.1 After June 1, 2004 for irrigation wells, and December 1, 2004 for wells used for other than irrigation purposes, no regulated well shall be operated until its use is certified and approved by the Board pursuant to these rules and regulations.

4-6.2 Any operator aggrieved by a determination of the Board regarding approval of certification of irrigated acres or of non-irrigation uses may request a hearing before the Board for the purpose of reconsidering that

determination. Such request shall be filed on a form provided by the District within thirty (30) days of the Board's action on the certification. Such hearing shall be a formal adjudicatory hearing and shall be conducted in accordance with the District's Rules and Regulations for the Enforcement of the Ground Water Management and Protection Act. The burden of proof shall be on the person requesting the hearing to document that the Board's decision should be modified.

4-6.3 The Board shall review each certification for all uses no less often than every five (5) years. Errors or inconsistencies discovered during that review shall be resolved to the satisfaction of the Board before any new allocation is made to the previously certified uses. Following notice and a hearing, the Board may rescind any previously approved certification and any previously granted allocation to a well for which false or misleading information was used to obtain the certification required by Rule 4-6.5 or 4-6.14.

4-6.4 Any change in farming operation or ownership that would result in a change in the number or location of certified irrigated acres shall be reported to the District no later than December 31 of the calendar year in which the change occurred. Any change in use of a regulated well used for purposes other than irrigation that would result in a change in that well's certification shall be reported to the District no later than December 31 of the calendar year in which the change occurred. The Board may reject such changes if it finds that such changes would cause an increase in Nebraska's consumptive use as calculated pursuant to the Republican River Compact or would have detrimental effects on other ground water users or on surface water appropriators.

## IRRIGATION USES

4-6.5 No later than January 1, 2004 each owner or operator of a regulated irrigation well shall certify (1) the well registration number for that well, (2) the number and location of all acres irrigated at least once by that well between January 1, 1993 and December 31, 2002, (3) the maximum number of acres irrigated by that well in any one (1) year within that time period, (4) the number and location of all acres irrigated by that well in 2003. Such certification shall be on forms provided by the District and shall be accompanied by applicable records from the Farm Service Agency and/or the County Assessor and such other information as requested by the District to verify the information certified.

4-6.6 By the beginning of the 2008 crop year all ground water irrigated acres certified with the district must be taxed as irrigated acres by the County Assessor. Acres not assessed as irrigated will not receive an allocation. Certified acres currently enrolled in the Conservation reserve Program may be an exception to this rule. (10/03/2006)

4-6.7 The Board may take action to approve, modify and approve, or reject the certifications provided by owners and/or operators pursuant to Rule 4-6.5.

The number and location of certified irrigated acres, which shall be approved for each such irrigation well, shall be determined at a public meeting of the Board after consideration of the following:

- The information provided on and with the certification filed in accordance with Rule 4-6.5,
- Any water use reports for that well filed in accordance with Rule 4-5,
- U.S.D.A. Farm Service Agency records,
- County Assessor records,
- Aerial photographs, and
- Other information available to and deemed relevant by the Board.

4-6.8 Only those acres that are actually capable of being supplied with ground water through irrigation works, mechanisms or facilities existing at the time of certification may be approved as certified acres by the Board.

4-6.9 An irrigation well constructed before June 12, 2002 but not registered until after December 31, 2003, shall be approved for no more than (1) its proven record of use or (2) one hundred and sixty (160) certified irrigated acres.

4-6.10 Replacement irrigation wells constructed after May 19, 2003 shall be approved for no more certified acres than the certified use for the well being replaced.

4-6.11 After January 1, 2004, with the prior approval of the Board, an irrigation well that was constructed prior to June 12, 2002 but has not yet been used for irrigation, is in inactive status or is unused may be granted certified acres. That approval may be granted only upon the written request of the well owner and when the Board has determined (1) that the well is in compliance with all applicable rules and regulations of the District (2) the location and number of acres proposed to be irrigated by that well in the future will be limited to no more than one hundred and sixty (160) acres, the acres that the well is capable of serving or the certified use being replaced. This certified use includes supplementing existing surface water irrigated acres or replacing the use of active wells on certified irrigated acres.

4-6.12 If certification is not filed pursuant to Rule 4-6.5 to 4-6.10 for an irrigation well constructed prior to January 1, 2004, the well shall be an "illegal water well" as that term is defined in District Rule 3-1.24.

4-6.13 The Board shall not certify any irrigated acres for an illegal water well, as that term is defined in District Rule 3-1.24, and an illegal water well shall receive no future allocation of water until such certification has been filed and until the Board has approved or modified and approved that certification. Certification of acres can be approved for any such well if and when the deficiency that caused that well to be an illegal water well is corrected.

4-6.14 The number of acres that may be certified and approved for a well from which the water is applied to the crop through a sprinkler system may be

up to five (5) percent greater than the actual area planted to crops if there are non-cropped areas under the sprinkler system.

## NON-IRRIGATION USES

4-6.15 No later than September 1, 2004, each owner or operator of a regulated well used for purposes other than irrigation shall certify (1) the well registration number for that well, (2) the nature and location of the use of the water withdrawn from that well, (3) the measured or estimated average annual quantity of water withdrawn from that well between January 1, 1993 and December 31, 2002 and a description of the method used to determine that quantity, (4) the measured or estimated maximum quantity withdrawn from that well in any one (1) year during that time period, (5) the measured or estimated quantity of water withdrawn from that well in 2003, (6) if the well was constructed before June 12, 2002 but has not yet been used for its intended purpose, the quantity of water proposed to be withdrawn from that well in the future, (7) if the well is a replacement well constructed after January 1, 2003, the information required by items (1) through (5) above for the well replaced, (8) if the well was constructed after June 12, 2002, the quantity withdrawn in 2003 and the quantity of water proposed to be withdrawn from that well in the future, and (9) if the owner or operator of the well desires that the annual quantity of use to be certified for that well be in excess of the quantity historically withdrawn by that well, the quantity proposed and an explanation why that quantity is necessary to accomplish the purpose for which the well is used. Such certification shall be on forms provided by the District and shall be accompanied by such information as requested by the District to verify the information certified.

4-6.16 No later than November 1, 2004, the Board shall take action to approve, modify and approve, or reject the certifications provided by the owners and/or operators of non-irrigation wells pursuant to Rule 4-6.14. Such action shall be taken after reviewing the information provided by the owner or operator of the well and any other information available to and deemed relevant by the Board. The Board's approval of the certification for such a well shall not, by itself, limit the quantity of water that can be withdrawn by that well in 2005 or any subsequent year. Any such limitations on the quantity that can be withdrawn annually from that well will be imposed through the Board's allocation of water to that well pursuant to the District's rules and regulations. The Board may use the information provided through such certification if and when it determines the amount to be allocated to that well.

4-6.17 Only those non-irrigation uses that are actually capable of being supplied with ground water through works, mechanisms or facilities existing at the time of certification may be approved as certified uses by the Board.

4-6.18 If no certification is filed pursuant to Rule 4-6.14 for a regulated well constructed prior to September 1, 2004, and used for other than irrigation

purposes, that well shall not be used and shall not receive an allocation from the District until such certification has been filed with the District and approved by the Board.

4-6.19 Certification shall not be approved by the Board for any regulated non-irrigation well, which is an "illegal water well" as that term is defined by Rule 3-1.24 of the District's rules and regulations. The Board can approve such certification if and when the deficiency that caused the well to be an illegal water well is corrected.

4-6.20 Certification of use for an inactive status or unused non-irrigation well will be approved only when that well is returned to active status, has been registered as such with the Department of Natural Resources, and is in compliance with all applicable rules and regulations of the District.

## RULE 4-7 WATER SHORT YEAR ADMINISTRATION

4-7.1 No later than October 1, 2005 and October 1 of each following year the Department of Natural Resources will notify the District of the potential for Water Short Year administration. Notification of updates to such determinations will be provided monthly, or more often as requested, through the following June 30th at which time the final determination will be made.

4-7.2 Upon receiving notice of the potential designation of a Water Short Year, the District shall provide notice to irrigators of this designation by placing said notice on the District website.

4-7.3 Consecutive Water Short Years may require additional reductions in certified acres or reductions in the base allocation.

4-7.4 Beginning with the 2007 crop year, consecutive Water Short year designations may result in the reduction of the cumulative allocation, for irrigation uses, by one (1) inch for each year remaining in the base allocation period. This reduction shall not apply to a Water Short year in which the State of Nebraska is within its yearly allocation. Producers with certified irrigated acres will be notified of this reduction by notices published in newspapers of general circulation in the district. (11/13/07)

4-7.5 Following the designation of a consecutive Water Short Year, the Board may adopt additional measures as needed to maintain compliance with the Republican River Compact. (11/13/07

4-7.6 Additional measures needed in a Water Short Year may be mitigated, at the discretion of the Board, by the active participation in incentive programs, river flow enhancement projects or other projects designed to reduce consumptive use. (11/13/07)

## RULE 4-8 INCENTIVE PROGRAM

4-8.1 Unless permitted by the rules and regulations established by individual incentive programs, no certified acres may be enrolled in incentive programs or special initiatives sponsored by or funded by the District if such certified acres do not have a history of use in four (4) of the previous six (6) years.

4-8.2 These incentive programs may include any Federal, State, or Local programs that have the effect of reducing the MRNRD's overall consumptive use. Subject to State law, the MRNRD may also raise those funds necessary to provide the districts share of payments in incentive programs it utilizes. If sufficient irrigated acres are retired, through the use of incentive programs, above what is needed to meet the requirements of the Republican River Compact, the MRNRD may re-evaluate and alter the allocation previously set per irrigated acre.

4-8.3 The district incentive programs may provide for the temporary or permanent retirement of certified ground water irrigated acres. (10/03/2006)

4-8.4 Guidelines for incentive programs shall be established by the district or in cooperation with other agencies participating in the incentive program. (10/03/2006)

**RULE 4-9 POOLING** (11/13/07)

4-9.1 On forms provided by the district, two or more persons may agree to pool the allocation from their individual wells on their combined certified acres.

4-9.2 Information provided shall identify all persons involved, maps showing all acres pooled and all wells used along with the serial number and location of the flow meters for the wells and the history of use for each well.

4-9.3 The District may limit pooling if the use is between sub areas with different allocations.

4-9.4 The District may deny a request for pooling based on the rate of decline in areas in which the pooling will be used. District statistics and Ground Water Level Change maps from the Conservation and Survey Division of the University of Nebraska may be used for a reference of areas of decline. (11/13/07)

## CHAPTER 5 – MANAGEMENT OF USES

### RULE 5-1 TRANSFERS- GENERAL

5-1.1 Any person who intends to withdraw ground water and (a) transfer that ground water off the overlying land which he or she owns or controls or (b) otherwise change the location of use of ground water shall, before making such transfer, apply for a permit on forms provided by the District or as required by statute. (11/13/07)

5-1.2 Requests for a transfer that require a permit which falls under the authority of the Nebraska Department of Natural Resources, including the Municipal and Rural Domestic Ground Water Transfers Permit Act and the Industrial Ground Water Regulatory Act, will not be considered for action by the district until such time as the permits are approved by NDNR. (11/13/07)

5-1.3 The MRNRD shall approve the withdrawal and transport of ground water when a public water supplier providing water for municipal purposes receives a permit from the Nebraska Department of Natural Resources pursuant to the Municipal and Rural Domestic Ground Water Transfers Permit Act.

5-1.4 Applicants for permits or approval for transfer pursuant to the Industrial Ground Water Regulatory Act are not required to apply for a transfer permit from the District. (11/13/07)

5-1.5 Issuance of the permit shall be conditioned on the applicant's compliance with the rules and regulations of the District from which the water is withdrawn.

5-1.6 The applicant shall be required to provide access to his or her property at reasonable times for purposes of inspection by officials of the District.

5-1.7 All applications for a transfer permit under the authority of the district shall be made on forms provided by the district and shall be approved, denied or conditioned by the Board. (11/13/07)

5-1.8 The application for a transfer permit shall be denied or conditioned to the extent that it is necessary to (1) ensure the consistency of the transfer with the purpose or purposes for which the management area was designated, (2) prevent adverse effects on other ground water users or on surface water appropriators, (3) maintain compliance with the Republican River Compact, and (4) otherwise protect the public interest and prevent detriment to the public welfare.

5-1.9 The application for a transfer permit also shall be denied if (1) the location or operation of the proposed water well or other works would conflict with any regulations or controls adopted by the District or (2) the proposed use would not be a beneficial use.

5-1.10 The District may further limit the allocation upon transfer of use if the use is between sub areas with different allocations.

5-1.11 Transfer of use or permanent transfer may be made within sub areas, from the Quick Response Sub Area to the Upland Sub Area, and out of a critical unit.

5-1.12 The District may deny a request for transfer based on the rate of decline in the area into which the transfer will be used. District statistics and Ground Water Level Change maps from the Conservation and Survey Division of the University of Nebraska may be used for a reference of areas of decline. (10/03/2006)

5-1.13 The District may limit the allocation to the consumptive use associated with the certified use if the transfer is to a different preference use.

5-1.14 All requests for a transfer shall be made in accordance with Rule 5-1.

5-1.15 All requests for a transfer shall show a history of use.

5-1.16 The issuance, by the District, of a transfer permit shall not vest in any person the right to violate any District rule, regulation, or control in effect on the date of issuance of the permit or to violate any rule, regulation, or control properly adopted after such date.

5-1.17 The issuance, by the District, of a transfer permit shall not vest in any person the right to violate any statute, state agency or other jurisdictional agency's rule, regulation, or control in effect on the date of issuance of the permit or to violate any rule, regulation, or control properly adopted after such date. It is the responsibility of the applicant to ensure compliance with other rules and regulations.

5-1.18 The District shall review such applications and issue, with or without conditions, or deny the permit within thirty (30) days after the application is properly filed. An incomplete or defective application shall be returned for correction. If correction is not made within sixty (60) days the application shall be cancelled.

## RULE 5-2 TRANSFERS- TYPES and PERMIT REQUIREMENTS

5-2.1 Transfers out of the District. Any person who desires to withdraw ground water from wells located within the District and transport that ground water out of the District for use elsewhere in the State may do so after obtaining a transfer permit in accordance with Rule 5-3. Use of the withdrawn water must be approved by the District within which the water will be used. Ground water shall not be transferred or transported to lands outside of the boundaries of the Republican River Basin as defined in the Republican River Compact.

5-2.2 Transfers into the District. Ground water withdrawn outside the District shall not be transported for use inside the District unless the District from which the ground water is withdrawn approves the withdrawal and transport in advance. Use of the transported water must be in accordance with these rules.

5-2.3 Transfer out of State. Requests for transfer of ground water out of state pursuant to NRRS Section 46-613.01 shall not be acted upon by the District until such time as the approval or denial, by the Nebraska Department of Natural Resources, of the required transfer permit.

5-2.4 Transfer of Use. A portion or all of the base allocation may be transferred to another user for the same or another use. Only the accumulated unused portion of a base allocation can be transferred. If an allocation

had been completely used, no transfer of use would be available until the next allocation period. Reserve associated with the allocation or portion thereof may also be transferred. Bonus inches may not be transferred. (11/13/07)

5-2.4.1 If the transfer of use is for the entire base allocation, the well from which the use was transferred cannot be used during the period of time covered by the transfer. The well must be configured to prevent the possibility of contamination of the ground water.

5-2.4.2 After January 1, 2008, the transfers of use will not be accepted after October 15th in the final year of an allocation period. (11/13/07)

5-2.5 Permanent Transfer. A permanent transfer may be accomplished by decommissioning a well and discontinuing its certified use and transferring the right to that use to another owner or new location on property owned by the same landowner. The new well shall be limited to the quantity of the allocation associated with the certified use from the well being replaced. (10/03/2006)

5-2.5.1 If the well for which the use is being permanently transferred is part of a series, or a well that is commingled, combined, clustered or joined with other water wells, then only that pro rata portion of the allocation is transferred.

5-2.6 Permanent Transfer of Acres. A landowner may permanently transfer a portion of his certified acres to another party. This transfer shall not result in an increase in total certified acres. The district may limit this transfer according to rules 5-2.7 through 5-2.13 and the capability of the wells involved to pump water to the acres transferred. (10/03/2006)

5-2.7 The allocation for any use is associated with the certification of that use. The right to use the allocation shall be surrendered with a transfer of use or a permanent transfer. The new user would be limited to the quantity of allocation associated with the certified use and would be subject to the same restrictions on volume of use as the original allocation. A portion of the allocation for a municipal use may be transferred to another use. The amount transferred would be deducted from the municipal allocation.

5-2.8 The District may further limit the allocation, upon transfer of use, if the use is between sub areas with different allocations.

5-2.9 Transfer of use or permanent transfer may be made within sub areas, from the Quick Response Sub Area to the Upland Sub Area, and out of a critical unit.

5-2.10 The District may deny a request for transfer based on the rate of decline in the area into which the transfer will be used. District statistics and Ground Water Level Change maps from the Conservation and Survey Division of the University of Nebraska may be used for a reference of areas of decline. (10/03/2006)

5-2.11 If the transfer is to a different preference of use, the District may limit the allocation to the consumptive use associated with the certified use that is being transferred. (11/13/07)

5-2.12 All requests for a transfer shall be made in accordance with Rule 5-1.

5-2.13 All requests for a transfer shall show a history of use.

5-2.14 n application for a permit to transfer shall be made on forms provided by the district and shall contain the following information: (11/13/07)

5-2.14.1 The name and post office address of the well owners for the point of withdrawal and the point of transfer,

5-2.14.2 The point of withdrawal,

5-2.14.3 The point of transfer,

5-2.14.4 The registration number of the water well(s) involved,

5-2.14.5 If for irrigated use, the certified acres of the water well(s) involved,

5-2.14.6 The capacity of the well from which the transfer is made,

5-2.14.7 The nature of the proposed use and whether it is a reasonable and beneficial use of ground water,

5-2.14.8 The availability to the applicant of alternative sources of surface or ground water,

5-2.14.9 Any negative effect of the proposed withdrawal on ground water and surface water supplies needed to meet present or reasonable future demands within the State or to comply with the Republican River Compact,

5-2.14.10 Any adverse environmental effect of the proposed withdrawal or transportation of ground water,

5-2.14.11 The cumulative effect of the proposed withdrawal and transfer relative to the matters listed in 5-2.14.2 through 5-.14.10, and

5-2.14.12 Any other factors consistent with the purposes of this section that the District deems relevant to protect the health, safety, and/or welfare of the District and its citizens.

## RULE 5-3 ALLOCATION

5-3.1 The use of ground water from all regulated water wells shall be allocated by the District. Allocations will be set after considering: (1) the relationship between wells and surface waters and the impact of well usage on stream flow; (2) whether ground water levels are declining; and (3) such other factors as the Board determines may be relevant to the appropriate amount of water to be withdrawn.

5-3.2 INDUSTRIAL USES: Regulated wells for industrial uses, in place prior to January 1, 2004, shall receive an allocation determined on a case-by-case basis, taking into account the history of use of the wells and the needs of the industry for which the well is used. Additional allocations, up to twenty (20) percent above established use, may be granted for expansion. The industry shall provide notice to the District of its need for additional allocation. Additional allocations as needed to comply with state or federal rules shall be added to the certified use without penalty to the industry.

5-3.3 New industrial uses shall be granted a base consumptive use allocation of 80.65 acre feet per year. (12/01/2006)

5-3.3.1 For uses requesting an allocation greater than 80.65 acre feet, the allocation must be approved by the board of directors. The person requesting the allocation shall provide evidence that the allocation requested is no greater than the industry related standard for that type of use.

5-3.3.2 The requested allocation shall only be granted upon proof that another certified use, of an equal or greater amount, is permanently retired or transferred in accordance with 5-2.6 through 5-2.13. (11/13/07)

5-3.3.3 Preapproval, by the board, of an allocation may be requested by an economic development group or similar organization. Allocations approved in this manner are only valid for a period of one year from the date of approval unless the industry begins operation.

5-3.3.4 Allocations for industrial wells the use of which come under the authority of the Industrial Ground Water Regulatory Act shall be determined by the amount permitted by the Act.

5-3.3.5 In all situations an economic development group or an industry may purchase or otherwise retire an existing allocation and apply that use to there planned development.

5-3.4 MUNICIPAL USES – Without further need of application, each municipality shall be granted an annual per capita allocation as shown in Table 1. This allocation for an "average town" is based on the land area of all communities in the District with a public water supply and the base allocation for Upland Sub Area irrigated acres. Municipal uses shall be reviewed at the February Board meeting each year and adjustments for growth shall be computed. The reports as required in Rule 4-5 are necessary to determine overall ground water use in the District. Industrial uses within a municipality that exceed the existing municipal allocation shall be in accordance with 5-3.3, new industrial uses. These industrial uses shall include, but not be limited to, manufacturing, commercial, power generation and maintenance of the turf of a golf course. (11/13/07)

5-3.5 LIVESTOCK OPERATION WELLS - will be allocated an amount equal to the maximum reasonable quantity of water for livestock and poultry as shown in Table 2.

5-3.6 Upon completion by the operator and receipt by the District of the report required by Rule 4-5, allocations for industrial uses, municipal uses and livestock operation uses shall be reviewed annually and adjustments to allocations may be considered at the February Board meeting.

5-3.7 IRRIGATION USES (11/13/07)

5-3.7.1 Base allocation – Twelve (12) inches per year

5-3.7.2 Base allocation period – Five (5) years

5-3.7.3 Cumulative allocation – 60 inches

5-3.7.3.1 Cumulative allocation may be increased by one (1) bonus inch each time the State of Nebraska has stayed within its yearly allocation the previous two years.

5-3.7.4 Base certification – One hundred (100) percent of certified irrigated acres

5-3.7.5 Allocation Year – January 1st to December 31st

## PROVISIONS FOR SUB AREAS

5-3.8 **UPLAND SUB AREA** - For the period commencing January 1, 2008 and ending December 31, 2012,

5-3.8.1 Allocation: Sixty (60) inches for the entire period

5-3.8.2 Maximum Allocation Year use: unrestricted

5-3.8.3 Maximum Allocation Year use in Water Short Year: unrestricted subject to any changes made pursuant to Rule 4-7.

5-3.9 **QUICK RESPONSE SUB AREA** - For the period commencing January 1, 2008 and ending December 31, 2012.

5-3.9.1 Allocation: Sixty (60) inches for the entire period

5-3.9.2 Maximum Allocation Year use: unrestricted

5-3.9.3 Maximum Allocation Year use in Water Short Year: unrestricted subject to any changes made pursuant to Rule 4-7.

5-3.10 **PLATTE SUB AREA** - For the period commencing January 1, 2008 and ending December 31, 2012,

5-3.10.1 Allocation: unrestricted

5-3.10.2 Allocation period: Not applicable

5-3.10.3 Base allocation: Not applicable

5-3.10.4 Base Certification: One hundred (100) percent of certified irrigated acres

5-3.10.5 Maximum yearly use: unrestricted

5-3.11 **SUPPLEMENTAL WELLS** – For the period commencing January 1, 2008 and ending December 31, 2012,

5-3.11.1 Allocation: Sixty (60) inches minus the amount of surface water delivered to, transferred from or otherwise available at the headgate or delivery point at the field to those acres also irrigated with ground water. (10/03/2006) (11/13/07)

5-3.11.2 In a Water Short Year, base certification and maximum allocation shall be in accordance with 5-3.8 and 5-3.9 minus the amount of surface water used on those acres also irrigated with ground water. (10/03/2006)

5-3.12 PENALTY - If at the end of an allocation period an operator has exceeded his or her allocation, the allocation for the next allocation period shall be reduced by the number of acre inches by which said allocation was exceeded in the prior period for the first three inches of overuse and by

twice the number of inches of overuse for the fourth and subsequent inches of overuse.

5-3.13 PENALTY – Overuse of the base allocation during a Water Short Year shall result in the reduction of twice the number of acre-inches overused in the next allocation period.

5-3.14 An operator must have a positive balance in his or her allocation before using water in any year of an allocation period. The District will notify landowners and/or operators anytime the balance of their allocation goes below zero.

5-3.15 For irrigation purposes, if at the end of the allocation period, an operator has consumed less than his or her allocation, he or she may carry the reserve or unused portion forward to the subsequent allocation period. However, the maximum amount of reserve cannot exceed the base allocation of the completed period. Reserve ground water must be used for the same certified acres for which the water was originally allocated, unless approved for transfer pursuant to Rule 5-2.4.

5-3.16 Certified irrigated acres participating in the Federal Conservation Reserve Program (CRP), EQIP, prevented planting or similar programs shall not receive an allocation during the term of participation. Certified irrigated acres removed from these programs shall be granted an allocation that is prorated for the remaining years of the allocation period.

5-3.17 Supplemental wells shall be reported to the District before an allocation is granted.

5-3.18 On or before January 1, 2005, operators of all other regulated water wells for which allocations have not been established by the District shall apply for an allocation and such wells shall not be operated until the District has approved an allocation. The allocation for uses not specifically identified shall be equal to the allocation for irrigated uses as set for the sub area in which the well is located for each one hundred and sixty (160) acres or eighty (80) acre portion thereof under the control of the operator. These acres cannot be certified for other uses or receive another allocation without the consent of the District.

5-3.19 The District may review any allocation, rotation or reduction control imposed in a management area and/or sub area and shall adjust allocations, rotations or reductions to accommodate or otherwise reflect findings of such review consistent with the ground water management objectives. Such review shall consider more accurate data or information that was not available at the time of the allocation, rotation or reduction order, designation of a Water Short Year and such other factors as the District deems appropriate.

5-3.20 The District may institute formal adjudicatory proceedings or take any other legal action authorized or permitted by law to prohibit further withdrawal of ground water from any regulated well whenever an operator has exhausted his or her allocation during or before the end of any allocation period or has in any other way violated the amount, limitations, or conditions of his or her allocation or violated any other rules of the

District. In the event of such action, no ground water may be withdrawn until the operator has adhered to District rules and regulations.

## RULE 5-4 CRITICAL UNITS

5-4.1 SWANSON Critical Unit - That portion of the Quick Response Sub Area west of a north-south line through the centerline of Trenton Dam. (see Map 2)

5-4.1.1 Action will not be allowed that would increase the certified acres in this unit.

## RULE 5-5 REDUCTION OF IRRIGATED ACRES

5-5.1 No later than November 15 after the designation of the potential for a Water Short Year, the District will notify operators, by mail, in the appropriate sub areas of the potential requirement to reduce certified ground water irrigated acres pursuant to Rule 4-7.

5-5.2 Operators in the Quick Response Sub Area will be required to report, on forms provided by the District, their certified uses, the acres that will be reduced and their proposed uses for the upcoming year.

5-5.3 Certified acres with crops requiring ten (10) acre-inches or less of ground water shall not be required to reduce according to Rule 5-5.2.

## RULE 5-6 LIMIT OR PREVENT THE EXPANSION OF NEW ACRES

5-6.1 Beginning on November 17, 2003 and except as provided by Rules 4-6.10 and 5-6.2, no irrigation well may be used to irrigate any acre that was not irrigated with ground water at some time between January 1, 1993 and November 17, 2003.

5-6.2 With the prior approval of the Board and completion of the appropriate transfer permit, acres not irrigated with ground water between January 1, 1993 and November 17, 2003, may be irrigated only if the Board determines that irrigation has been or will be discontinued on an equal or greater number of acres that were irrigated with ground water between January 1, 2000 and November 17, 2003. In deciding whether to approve any such proposed substitution of ground water irrigated acres, the Board shall consider the extent to which, if at all, such substitution of acres would adversely affect other ground water users or surface water appropriators or would cause an increase in Nebraska's consumptive use as calculated pursuant to the Republican River Compact.

Effective
January 1, 2005

Middle Republican NRD

revised
Jan 8, 2008

# INTEGRATED MANAGEMENT PLAN
## Jointly Developed by the
## DEPARTMENT OF NATURAL RESOURCES
## And the
## MIDDLE REPUBLICAN NATURAL RESOURCES DISTRICT

## I. AUTHORITY

This integrated management plan (IMP) was prepared by the Board of Directors of the Middle Republican Natural Resources District (MRNRD) and the Nebraska Department of Natural Resources (NDNR) in accordance with Neb. Rev. Stat. §§ 46-715 through 46-718.

## II. BACKGROUND

In 1943 the States of Colorado, Kansas and Nebraska entered into the Republican River Compact (Compact) with the approval of Congress. The Compact provides for the equitable apportionment of the "virgin water supply" of the Republican River Basin. Following several years of dispute about Nebraska's consumptive use of water within the Basin, Kansas filed an original action in the United States Supreme Court (Court) against the states of Nebraska and Colorado in 1998. After several rulings by the Court and its Special Master and several months of negotiation, all three states entered into a comprehensive agreement known as the Final Settlement Stipulation (FSS). The FSS was approved by the Court on May 19, 2003, and the Special Master's final report approving the Joint Ground Water Model developed by all three states for use in computing streamflow depletions resulting from ground water use and for computing the imported mound credit was submitted to the Court on September 17, 2003.

In July, 1996, the MRNRD and the other three Natural Resources Districts in the Republican River Basin, pursuant to then Section 46-656.28 of the Nebraska statutes, initiated a joint action planning process with the Department of Water Resources (DWR), the predecessor agency to NDNR. In accordance with that process, DWR first made a preliminary determination in 1996 that "there was reason to believe that the use of hydrologically connected ground water and surface water resources is contributing to or is in the reasonably foreseeable future likely to contribute to disputes over the Republican River Compact." When the studies required by Section 46-656.28 had been completed, NDNR issued its conclusions on May 20, 2003, in the form of a report entitled: "Republican River Basin, Report of Preliminary Findings." Those conclusions included the following determination:

> Pursuant to Section 46-656.28 and the preliminary findings in this report, the Department determined that present and future Compact disputes

arising out of the use of hydrologically connected ground water and surface water resources in the Republican River Basin could be eliminated or reduced through the adoption of a joint action plan.

Following four hearings on that report, NDNR made final the preliminary conclusions in the report and the four Basin Natural Resources Districts were so informed. The MRNRD and the other three Districts each then adopted orders to proceed with developing a joint action plan for integrated management of hydrologically connected surface water and ground water resources in the Basin; preparation of a joint action plan for the MRNRD began soon thereafter.

The Nebraska Legislature adopted LB962 in April of 2004 and it was signed by Governor Johanns on April 15, 2004, and became operative on July 16, 2004. That bill repealed Section 46-656.28 and replaced it with legislation providing for a revised process for addressing hydrologically connected surface water and ground water resources. In order to avoid the need to begin anew the integrated management planning processes that had been commenced but not completed under Section 46-656.28, LB962 provided for the transition of those ongoing planning processes into the newly enacted process now codified as Sections 46-713 to 46-719. The MRNRD and NDNR agreed that preparation of a joint action plan had not been completed prior to July 16, 2004; therefore, subsection (3) of what is codified as Section 46-720, governs that transition. Completion of this plan proceeded under the new process and this plan was adopted in accordance with Section 46-718.

The MRNRD and the NDNR adopted an integrated management plan effective January 1, 2005, that contained ground water rules and regulations for the 2005-2007 period. That integrated management plan established an average ground water allocation of thirteen (13) inches per certified acre, certified all uses and included several other controls. A goal of the 2005 integrated management plan was to reduce water use by five percent (5%) from the 1998-2002 baseline. Since that time, efforts have been taken to implement or conduct incentive programs, studies, and research to further our understanding and ability to comply with the Republican River Compact and the FSS.

## III. AGREEMENTS

The MRNRD and the NDNR wish to adopt and implement a revised IMP for the regulation of water resources within the District as required by the laws of the State of Nebraska. The MRNRD and the NDNR agree that the IMP for the District shall keep the District's average net depletions to an amount within thirty percent (30%) of the State's average allowable ground water depletions. Based upon its calculations during periods of average precipitation, the NDNR believes that a twenty percent (20%) reduction from the 98-02 pumping volume would be sufficient, without additional streamflow augmentation, to keep the District's average net depletions within the MRNRD's thirty percent (30%) share of the State's allowable ground water depletions through the year 2020.

The NDNR has determined the following pumping volumes, depletion volumes, and depletion percentages for the period 1998-2002 listed below and defined as "1998-2002 Baselines". The pumping volumes are used throughout this IMP and are referenced as the "98-02 pumping volume". NDNR, through the use of the Republican River Compact Administration Ground Water Model, has also determined each District's impact on streamflow for the baseline period and those impacts are listed below and defined as "98-02 depletion volume". Those depletion volumes have resulted in depletion percentages used throughout this IMP and are listed below and defined as "98-02 depletion percentages."

The pumping volumes used to make these determinations will be evaluated within the next five years to determine their accuracy as compared with metered pumping volumes. If the 98-02 pumping volumes are found to be in error, the pumping volumes for the 1998-2002 period will be revised and the percentage of depletions for this period will be readjusted based on the new pumping volumes.

The failure of any District to adopt, implement, or enforce an IMP adequate to meet their proportionate share of the responsibility to achieve and maintain Nebraska's compliance with the Compact shall not by itself require any additional action by the other Districts. Neither the MRNRD or NDNR will require the integrated management plan to be amended solely for the purpose of changing the responsibility of water users within the MRNRD based on the failure of the other Basin NRDs to implement or enforce an integrated management plan to meet their share of the responsibility to keep Nebraska in compliance with the Republican River Compact.

## IV. DEFINITIONS

A. **1998-2002 Baselines** - The depletions to streamflow, in the Nebraska portion of the Republican River Basin, as a result of surface water and ground water uses in the years 1998-2002 inclusive.

98-02 Pumping Volume:
URNRD-531,763 acre-feet (AF), MRNRD-309,479 AF, LRNRD-242,289 AF
98-02 Depletion Volume:
URNRD-74,161 AF, MRNRD-52,168; LRNRD-43,954 AF
98-02 Depletion Percentage:
URNRD-44%, MRNRD-30%, LRNRD-26%

B. **Allowable Streamflow Depletions** - the maximum amount of streamflow depletion in the Republican River Basin that can occur in a given year without Nebraska exceeding its allocation. Allowable streamflow depletions are the sum of the allowable ground water depletions and the allowable surface water depletions.

C. **Allowable Surface Water Depletions** – the maximum level of depletions to streamflow that may occur as a result of accountable surface water uses, based on annual Republican River Compact Administration (RRCA) calculations, within the Republican River Basin in a given year without Nebraska exceeding its allocation.

D. **Allowable Ground Water Depletions** - the maximum level of depletions to streamflow that may occur as a result of ground water pumping of wells within the Republican River Basin that can occur in a given year without Nebraska exceeding its allocation.

E. **Allowable Ground Water Depletion for the MRNRD** - the depletions to streamflow resulting from the impact of ground water pumping in the MRNRD. These depletions shall average no greater than 30% of the allowable ground water depletion. The average shall be computed using the allowable annual ground water depletion for the same years as are used to determine the averages for Nebraska's compliance with the FSS.

F. **Supplemental Programs** – as used in this plan, refers to, but is not limited to; surface water or ground water augmentation projects, river flow enhancement projects, incentive programs, riparian management projects and other projects that may reduce the District's net depletions to streamflow.

G. **Compliance Standard** - the criteria that will be used to determine whether the controls, adopted as rules and regulations by the MRNRD, and adopted in this plan by the NDNR are sufficient to meet the goals and objectives of this integrated management plan pertaining to pumping volumes and depletions. Compliance will be measured in part using the RRCA Ground Water Model.

H. **Net Depletion** – the actual Ground Water Depletion for the MRNRD less any reduction in streamflow depletions or increase in accretions to the stream resulting from supplemental projects.

## V. GOALS AND OBJECTIVES

Pursuant to Neb. Rev. Stat. § 46-715, the goals and objectives of an integrated management plan must have a purpose of sustaining a balance between water uses and water supplies so that the economic viability, social and environmental health, safety, and welfare of the Republican River Basin can be achieved and maintained for both the near term and the long term. The MRNRD will meet its responsibility under Neb. Rev. Stat. § 46-715, including meeting the obligations under the FSS, by adopting revised rules to implement the integrated management plan with regulations and other supplemental programs.

The following goals and objectives are adopted by the MRNRD and the NDNR to achieve the purpose stated above:

**A. Goals:**

1. In cooperation with the other Basin Natural Resources Districts and the Nebraska Department of Natural Resources, maintain compliance with the Republican River Compact as adopted in 1943 and as implemented in accordance with the FSS approved by the United States Supreme Court on May 19, 2003.

2. Ensure that ground water and surface water users within the MRNRD assume their share of the responsibility to keep Nebraska in compliance with the Republican River Compact.

3. Provide that MRNRD's share of that responsibility be distributed in an equitable manner and by minimizing, to the extent possible, adverse economic, social, and environmental consequences.

4. Reserve any streamflow available from regulation or supplemental programs, enacted or implemented to maintain Compact compliance, from any use that would negate the benefit of such regulation or programs.

5. Protect ground water users whose water wells are dependent on recharge from the river or stream and the surface water appropriators on such river or stream from streamflow depletions caused by surface water uses and ground water uses begun after the date the river basin was designated as fully appropriated.

**B. Objectives:**

1. With limited exceptions, prevent the initiation of new or expanded uses of water that increase Nebraska's computed beneficial consumptive use of water within the MRNRD.

2. Ensure that administration of surface water appropriations in the Basin is in accordance with the Compact and in full compliance with Nebraska law.

3. Achieve, on average, a twenty percent (20%) reduction in 98-02 pumping volume under average precipitation conditions.

4. Maintain the MRNRD net depletions at or within thirty percent (30%) of the allowable ground water depletion.

5. After taking into account any reduction in beneficial consumptive use achieved through District or basin-wide supplemental projects and other projects developed at the Basin or District level with the expressed purpose or result of reducing consumptive use or increasing streamflow, make such additional reductions in ground water use in water short years as are necessary to achieve a reduction in beneficial consumptive use in the MRNRD in an amount proportionate to the total reduction in consumptive use that is needed in Nebraska above Guide Rock in such years.

6. Cause the required reductions in water use to be achieved through a combination of regulatory and supplemental programs designed to reduce beneficial consumptive use, relying to the extent available funds allow, on incentive programs that are made available to as many MRNRD water users as possible.

7. The MRNRD and the NDNR will investigate or explore methods to manage the impact of vegetative growth on streamflow.

8. Develop a procedure to provide offsets for new consumptive uses of water so that economic development in the MRNRD may continue without producing an overall increase in ground water depletions as a result of new uses.

## VI. MAP - see map 1.

The area subject to this integrated management plan is the geographic area within the boundaries of the Middle Republican Natural Resources District.

## VII. FORECAST

Each year, in accordance with Neb. Rev. Stat. § 46-715(5), the NDNR, in consultation with the Republican River NRDs, shall forecast on an annual basis the maximum amount of water that may be available from streamflow for beneficial use in the short term and long term in order to determine if the ground water controls implemented by the MRNRD through rules and regulations and the surface water controls implemented by NDNR through the IMP are sufficient to ensure that the state of Nebraska will remain in compliance with the Republican River Compact.

## VIII. GROUND WATER CONTROLS – Middle Republican NRD

In accordance with Neb. Rev. Stat. § 46-715, one or more of the ground water controls authorized by Neb. Rev. Stat. § 46-739 and Neb. Rev. Stat. § 46-740 shall be adopted for the purpose of implementing this plan. Other authorities, provided for in the Ground Water Management and Protection Act, may be used

to supplement these controls. These controls, along with any applicable supplemental programs, shall be consistent with the goals and objectives of this plan and be sufficient to meet the compliance standards set forth below, ensure that the state will remain in compliance with the Republican River Compact, and protect the ground water users whose water wells are dependent on recharge from the river or stream and the surface water appropriators on such river or stream from streamflow depletion caused by surface and ground water uses begun after on July 16, 2004, the date the river basin was designated as fully appropriated, in accordance with Neb. Rev. Stat. §§ 46-720 and 46-713-46-715, If it is determined by NDNR and the MRNRD, that all of the Districts in the Basin met their proportional share of responsibility, but Nebraska is nonetheless out of compliance with the FSS, any further reductions in net depletions necessary shall be achieved by the Districts, as the District deems appropriate, based on the same proportions as contained in the 1998-2002 baseline depletion percentages.

*The Rules and Regulations – Ground Water Management Area in the Middle Republican Natural Resources District* contains the controls required by the FSS and other controls needed for the effective administration of a ground water management subarea for integrated management. The actions proposed by the FSS were rules and regulations for transfers, meters, and certification of acres. In addition, a well drilling moratorium and a ban on the increase of irrigated acres were also implemented. The compliance standard and management activities listed below will be or have been implemented to achieve and maintain Compact compliance.

Amendments dealing with the requirements of Neb. Rev. Stat. §46-715(3)(b), and §46-715(3)(c) shall have the concurrence of NDNR. The MRNRD may otherwise amend these regulations without the approval of the NDNR so long as the compliance standards listed below are met.

If the compliance standards listed below, including consideration of the averages as described in Section VII.A.3.b, are not met, the MRNRD, with the assistance of NDNR, shall formulate adequate rules and regulations, acceptable to NDNR, to meet the Compliance Standards. The revisions to the rules and regulations shall be such that the compliance standards will be achieved within two years from the determination that the compliance standards were exceeded if the State of Nebraska is within compliance with the FSS, or within one year of the determination that the compliance standards have been exceeded and the State of Nebraska is not within compliance with the FSS.

The Determination of whether the MRNRD is in compliance with the compliance standards shall be made in conjunction with the regular annual meeting of the RRCA and shall be based on each year's annual Compact accounting.

## A. Compliance Standards

1. PURPOSE. These Compliance Standards are established by NDNR and MRNRD to assess whether the course of action taken by the MRNRD, with the intention of providing a proportionate share of assistance to the State, is sufficient for the State to maintain compliance with the FSS and the Compact. The action taken by the MRNRD shall be evaluated in connection with the action taken by the other Districts in the Republican River Basin and any other relevant considerations, including the information and data provided by NDNR and past action by the District.

2. DURATION. These Compliance Standards shall be used by the MRNRD commencing January 1, 2008 through January 1, 2013. During this period, the NDNR and MRNRD shall examine the sufficiency and effectiveness of the Compliance Standards to determine if amendments or revisions are necessary to ensure the State's compliance with the FSS and the Compact. Nothing contained herein shall prohibit or preclude any amendment or revision, at anytime, by the NDNR and MRNRD, when such action is necessary. Further, nothing contained in this subsection shall be construed as eliminating the review of the provisions of this IMP as allowed by Neb. Rev. Stat. §46-715.

3. STANDARDS. The MRNRD shall adopt and implement rules and regulations which shall meet the requirements of both the following compliance standards:

    a. Provide for a twenty percent (20%) reduction in pumping from the 98-02 pumping volume using a combination of regulation and supplemental programs so that the average ground water pumping volume is no greater than 247,580 acre-feet over the long term.
        i. If precipitation is lower than average for any given year, the ground water pumping volume for that year may be above 247,580 acre-feet.
        ii. If incentive or supplemental programs are implemented so that on average stream flow is increased, the ground water pumping volume may be increased above the 247,580 acre feet in proportion to that increased amount of streamflow as determined by the Republican River Compact Administration Ground Water Model (RRCAGWM).

    b. The District's net depletions shall average no greater than thirty percent (30%) of the State of Nebraska's allowable ground water depletions as accounted by the RRCAGWM. The average shall be computed using the annual allowable ~~annual~~ ground

water depletion for the same years as are used to determine the averages for Nebraska's compliance with the FSS.

## B. OTHER CONTROLS AND MANAGEMENT ACTIVITIES

1. Maintain a moratorium on new uses with the exceptions noted in the FSS.

2. Limit or prevent the expansion of irrigation uses.

3. Maintain requirement for metering of all uses according to MRNRD standards.

4. Provide for transfers according to District standards.

5. The MRNRD shall provide NDNR with copies of District actions taken on variances and consult with NDNR to minimize or eliminate any impact, relating to Compact compliance, that may arise as a result of a variance granted by the District.

6. NDNR will consult with the MRNRD when considering applications for permits under the Municipal and Rural Domestic Ground Water Transfers Permit Act, the Industrial Ground Water Regulatory Act or other such permitting actions by the NDNR that will have an impact on water supplies of the Republican River Basin.

7. The MRNRD will work with NDNR to achieve the maximum amount of benefit in the accounting of leased or purchased water under the authority of River Flow Enhancement projects or in similar projects.

8. The MRNRD and the NDNR recognize that the required reductions in water consumption could be accomplished by means other than those adopted in this IMP. The IMP and associated controls may need to be amended in the future to implement any such revisions.

## IX. SURFACE WATER CONTROLS - Department of Natural Resources

The authority for the surface water component of this integrated management plan is Neb. Rev. Stat. §46-715 and §46-716. The surface water controls that will be continued and/or begun by the NDNR are as follows:

A. NDNR will do the following additional surface water administration as required by the FSS:

1. To provide for regulation of natural flow between Harlan County Lake and Superior-Courtland Diversion Dam, Nebraska will recognize a priority date of February 26, 1948, for Kansas Bostwick Irrigation

District, the same priority date as the priority date held by the Nebraska Bostwick Irrigation District's Courtland Canal water right.

2. When water is needed for diversion at Guide Rock and the projected or actual irrigation supply is less than 130,000 acre-feet of storage available for use from Harlan County Lake as determined by the Bureau of Reclamation using the methodology described in Harlan County Lake Operation Consensus Plan attached as Appendix K to the FSS, Nebraska will close junior, and require compliance with senior, natural flow diversions of surface water between Harlan County Lake and Guide Rock.

3. Nebraska will protect storage water released from Harlan County Lake for delivery at Guide Rock from surface water diversions.

4. Nebraska, in concert with Kansas and in collaboration with the United States, and in the manner described in Appendix L to the FSS, will take actions to minimize the bypass flows at Superior-Courtland Diversion Dam.

B. Metering of all surface water diversions at the point of diversion from the stream will continue to be required. For surface water canals that are not part of a Bureau of Reclamation project, farm turnouts also will be required to be metered by the start of the 2005 irrigation season. All meters shall have a totalizer and shall meet NDNR standards for installation, accuracy and maintenance. All appropriators will be monitored closely to ensure that neither the rate of diversion nor the annual amount diverted exceeds that allowed by the applicable permit or by statute.

C. The NDNR's moratorium on the issuance of new surface water permits was made formal by Order of the Director dated July 14, 2004, and will be continued. Exceptions may be granted to the extent permitted by statute or to allow issuance of permits for existing reservoirs that currently do not now have such permits. Such reservoirs are limited to those identified through the FSS required inventory of over fifteen (15) acre-feet capacity reservoirs.

D. All proposed transfers of surface water rights shall be subject to the criteria for such transfers as found in Neb. Rev. Stat. §§46-290 to 46-294.04 and related NDNR rules or the criteria found in Neb. Rev. Stat. §§46-2,120 to 46-2,130 and related NDNR rules.

E. The NDNR completed the adjudication process for individual appropriators in the Republican River Basin upstream of Guide Rock in 2004. The results of that adjudication provided up-to-date records of the number and location of acres irrigated with surface water by such appropriators.

Those records will be used by the NDNR to monitor use of surface water and to make sure that unauthorized irrigation is not occurring. The NDNR also will be proactive in initiating subsequent adjudications whenever information available to the NDNR indicates the need for adjudication as outlined by state statutes..

F. At this time, due to the already limited availability of surface water supplies, the NDNR will not require that surface water appropriators apply or utilize additional conservation measures or that they be subject to other new restrictions on surface water use, except as may be necessary to meet the goals and objectives of this plan and to maintain compliance with the Compact. However, the NDNR reserves the right to request, in the future, that this IMP be modified to require any such additional measures. In the event such a request is made, the NDNR will "allow the affected surface water appropriators and surface water project sponsors a reasonable amount of time, not to exceed one hundred eighty days, unless extended by the NDNR, to identify the conservation measures to be applied or utilized, to develop a schedule for such application and utilization, and to comment on any other proposed restrictions." Neb. Rev. Stat. §46-716(2).

## X. AUGMENTATION AND INCENTIVE PROGRAMS

The MRNRD and NDNR, alone or in cooperation with other parties, intend to establish and implement financial or other incentive programs to reduce beneficial consumptive use of water within the MRNRD. As a condition for participation in an incentive program, water users or landowners may be required to enter into and perform such agreements or covenants concerning the use of land or water as are necessary to produce the benefits for which the incentive program is established.

Such incentive programs may include any program authorized by state law and/or Federal programs such as the Conservation Reserve Enhancement Program (CREP) and Environmental Quality Incentives Program (EQIP) operated by the U.S. Department of Agriculture.

Projects that have a net effect of reducing consumptive use or increasing streamflow can originate from many sources. The MRNRD will initiate these types of projects when possible and participate in projects sponsored by other groups within our capabilities.

The MRNRD, through the Republican River Basin Coalition, intends to establish and implement river flow enhancement projects using the authorities available to the MRNRD by the enactment of LB 701 in 2007.

Any reductions in depletions to streamflow generated through supplemental programs, including acreage retirement or other incentive programs undertaken through programs available throughout the Republican River Basin with the use of funds distributed by the State of Nebraska or the United States Government will be accounted as credits to the entire Republican River Basin and not to any District, regardless of the location or other conditions of the acreage included in the program or of the location of the effect of such water savings on the river system. Any reductions in depletions to streamflow resulting from any such basin-wide programs shall be considered in the calculation of each District's compliance with the 98-02 depletion percentages.

However, should any District establish, fund, and implement its own such conservation program, available only for acreage within such District, the accounting of credit for the resulting water savings shall be given exclusively to that District. Also, with agreement of the Districts involved, the benefits from a supplemental program may be allocated to each District based upon their share of the cost of the program.

## XI. REPORTING REQUIREMENTS

The MRNRD and the NDNR will make all documents, reports, records, computer runs or other calculations or material necessary to determine compliance with the Compact available to each other, regardless of whether such documents are available under the Nebraska Public Records Act or otherwise, unless such materials are identified as confidential under Nebraska statutes or by a ruling of a court of competent jurisdiction. Specifically, and without limitation, the MRNRD agrees to continue to provide GIS coverage maps of all lands irrigated and to meter, record and provide to the NDNR its ground water usage records in a manner consistent with the requirements of the Republican River Compact Accounting Procedures; the NDNR agrees to provide to the MRNRD all reports and records of the other Districts necessary to determine their compliance with reductions, in accordance with procedures described above, as well as all documentation and reports utilized by the NDNR to determine the Basin's virgin water supplies and Nebraska's compliance with the Compact. In the event any materials are withheld by either NDNR or MRNRD under a claim of statutory confidentiality, the party withholding such materials shall describe the contents of the materials and reasons for the denial in accordance with Neb. Rev. Stat. § 84-712.04.

## XII. PLAN TO GATHER AND EVALUATE DATA

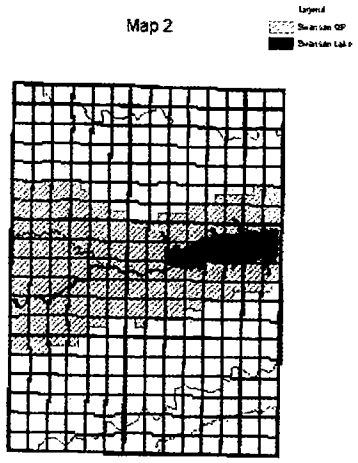
Compact accounting and data exchanges among the states shall be done annually in accordance with the Final Settlement Stipulation, dated December 15, 2002, including the Republican River Compact Administration (RRCA) Accounting Procedures and Reporting Requirements which are contained in Appendix C thereof. An annual report of the RRCA is published each year. Ongoing programs and new studies or other projects may become a source of

information that can be used to evaluate the effectiveness of controls adopted by the by the MRNRD and the NDNR. This accounting and the forecast in accordance with Neb. Rev. Stat. § 46-715(5) will increase understanding and test the validity of the conclusions and information upon which this plan is based.

## XIII. INFORMATION CONSIDERED

Information used in the preparation and to be used in the implementation of this integrated management plan can be found in the simulation runs of the Republican River Compact Administration Ground Water Model, the data tables of the Final Settlement Stipulation for the Republican River Compact, Chapters 2 and 3 of the 1994 Middle Republican NRD Ground Water Management Plan and additional data on file with the District and the NDNR of Natural Resources.

Map 2




Swanson Critical Unit

This map was created for informational purposes only
Created 08/10/04

Maximum Resonable Quantity of Water for Livestock and Poultry
October 2004

| | Drinking water gallon/head/day | Servicing/Flushing gallons/head/day | Quantity/1000 head cbc=1000 | |
|---|---|---|---|---|
| Cattle, beef | 15 | 0 open lot | 17 | ac ft |
| | 15 | 100 cbc | 129 | ac ft |
| Cattle, Dairy | 35 | 100 cbc | 151 | ac ft |
| Swine | | | | |
| Nursery | 1 | 4 cbc | 6 | ac ft |
| Finishing | 5 | 15 cbc | 22 | ac ft |
| Sow&Litter | 8 | 35 cbc | 48 | ac ft |
| Gestating Sov | 6 | 25 cbc | 35 | ac ft |
| Sheep | 2 | 0 open lot | 2.2 | ac ft |
| | 2 | 15 cbc | 19 | ac ft |
| Horses | 12 | 0 open lot | 13 | ac ft |
| | 12 | 100 cbc | 125 | ac ft |
| Poultry/100 | | | | |
| Chickens | 9 | 200 cbc | 2.3 | ac ft |
| Turkeys | 30 | 400 cbc | 4.8 | ac ft |

Table 2.

Middle Republican NRD
October 2004

| Community | 2000 Census | Sq. mi. | Area Factor | Gallons/Person/Day 15" | 14" | 13" | 12" |
|---|---|---|---|---|---|---|---|
| Bartley | 355 | 0.7 | 3 | | | | |
| Culberston | 594 | 0.9 | 4 | | | | |
| Curtis | 832 | 1.3 | 6 | | | | |
| Danbury | 127 | 0.9 | 4 | | | | |
| Hayes Center | 240 | 0.7 | 3 | | | | |
| Indianola | 642 | 1.2 | 5 | | | | |
| Lebanon | 70 | 0.2 | 1 | | | | |
| Maywood | 331 | 0.5 | 2 | | | | |
| McCook | 7994 | 5.3 | 22 | | | | |
| Moorefield | 52 | 0.2 | 1 | | | | |
| Palisade | 386 | 0.4 | 2 | | | | |
| Stockville | 36 | 0.3 | 2 | | | | |
| Stratton | 396 | 0.4 | 2 | | | | |
| Trenton | 507 | 0.6 | 3 | | | | |
| Wallace | 329 | 0.7 | 3 | | | | |
| | | | 4.20 | | | | |
| Average Town | 859 | 0.95 | 4 | 873 | 814 | 756 | 698 |

| mi. sq. | factor |
|---|---|
| 0.1 | 1 |
| 0.26 | 2 |
| 0.51 | 3 |
| 0.76 | 4 |
| 1.01 | 5 |
| 1.26 | 6 |
| 1.51 | 7 |
| 1.76 | 8 |
| 2.01 | 9 |
| 2.26 | 10 |
| 2.51 | 11 |
| 2.76 | 12 |
| 3.01 | 13 |
| 3.26 | 14 |
| 3.51 | 15 |
| 3.76 | 16 |
| 4.01 | 17 |
| 4.26 | 18 |
| 4.51 | 19 |
| 4.76 | 20 |
| 5.01 | 21 |
| 5.26 | 22 |
| 5.51 | 23 |
| 5.76 | 24 |

Table 1.

| Allocation | gal/yr/160 acres | | | | | | |
|---|---|---|---|---|---|---|---|
| 15" | 65170000 | | | 1509 | 1408 | 1308 | 1207 |
| 14" | 60825333 | | | 1202 | 1122 | 1042 | 962 |
| 13" | 56480667 | | | 1288 | 1202 | 1116 | 1030 |
| 12" | 52136000 | | | 5624 | 5249 | 4874 | 4499 |
| | | | | 2232 | 2083 | 1934 | 1785 |
| | | | | 1391 | 1298 | 1205 | 1112 |
| | | | | 2551 | 2381 | 2211 | 2041 |
| | | | | 1079 | 1007 | 935 | 863 |
| | | | | 491 | 459 | 426 | 393 |
| | | | | 3434 | 3205 | 2976 | 2747 |
| | | | | 925 | 863 | 802 | 740 |
| | | | | 9919 | 9258 | 8597 | 7935 |
| Table 1. | | | | 902 | 842 | 782 | 721 |
| | | | | 1056 | 986 | 916 | 845 |
| | | | | 1628 | 1520 | 1411 | 1302 |
| Total Town | 12891 | 14.3 | 58 | 803 | 750 | 696 | 643 |

# Appendix C: Upper Republican Natural Resources District

## Integrated Management Plan

# INTEGRATED MANAGEMENT PLAN
Jointly Developed by the
DEPARTMENT OF NATURAL RESOURCES
and the
UPPER REPUBLICAN NATURAL RESOURCES DISTRICT

## I. AUTHORITY

This Integrated Management Plan (IMP) was prepared by the Board of Directors for the Upper Republican Natural Resources District (URNRD) and the Nebraska Department of Natural Resources (NDNR) in accordance with the Nebraska Ground Water Management and Protection Act, *Neb. Rev. Stat.* §§ 46-701 to 46-753 (Reissue 2004).

## II. BACKGROUND

Commencing in 1978, the URNRD has adopted and enforced rules and regulations for the purpose of managing the ground water resources within the URNRD. On April 11, 2003, effective May 8, 2003, the URNRD, pursuant to applicable statutory rulemaking procedures and *Neb. Rev. Stat.* § 46-656.25 (Reissue 1998), adopted the *State of Nebraska Upper Republican Natural Resources District Amendments to Rules and Regulations for Ground Water Control – Order No. 26* and the *Upper Republican Natural Resources District Technical Manual of Policies and Procedures TM-26* (the "URNRD Rules" or "the Rules"). In the regular meeting, on July 6, 2004, the URNRD voted to extend Order No. 26 until September 1, 2005. Rule 9A of the Rules provides for a basic allocation of ground water to certified irrigated acres within the URNRD of 72.5 acre-inches for the five (5) year period between January 1, 2003 and December 31, 2007, an annualized allocation of 14.5 acre-inches. Since their adoption, the Rules have prohibited additional allocations for ground water use and additional well permits, except under limited circumstances. In addition, among other things, the Rules continued and recodified the URNRD's practice of allowing ground water users to carry forward the unused portion of their allocation, together with any remaining unused portions of allocations from previous years, into succeeding allocation periods and permitted the URNRD to approve pooling contracts, both in accordance with the URNRD Rules.

In 1943 the States of Colorado, Kansas and Nebraska entered into the Republican River Compact (the "Compact") with the approval of the United States Congress. The Compact provides for the allocation of the "virgin water supply" of the Republican River Basin (the "Basin") between the three States. Following several years of dispute about Nebraska's consumptive use of water within the Basin, Kansas filed an original action in the United States Supreme Court against the States of Nebraska and Colorado in 1998, seeking, among other things, to include ground water in the calculation of the virgin water supply and consumptive use. The United States Supreme Court appointed a Special Master who recommended that the depletions to stream flow from the use of ground water must be included in the virgin water supply and be part of the calculation of each State's beneficial consumptive use. The United

States Supreme Court adopted the Special Master's recommendation. Subsequent to this determination, the States entered into a Settlement Agreement resolving the remaining issues in the case. The Settlement Agreement was approved by the United States Supreme Court on May 19, 2003.

Both prior and subsequent to the approval of the Settlement Agreement, the NDNR conducted and participated in several meetings with the URNRD, including several public meetings. During the course of those meetings the NDNR explained, in order for the State of Nebraska to achieve and maintain compliance with the terms of the Settlement Agreement, it would be necessary to (1) continue the moratorium on new surface water appropriations and new ground water wells, (2) reduce all ground water pumpage from historic levels across the entire Basin and (3) further reduce ground water pumping needed to comply with the Compact in water short years, to be accomplished to the extent possible through the use of incentive programs to reduce consumptive use of water. Ground water within the Basin is regulated by four Natural Resource Districts: the URNRD, the Middle Republican Natural Resources District (MRNRD) and the Lower Republican Natural Resources District (LRNRD) and the Tri-Basin Natural Resources District (the "Tri-Basin") (collectively hereinafter the "Districts"). Similar discussions were held between the NDNR and each of the Districts regarding the need (1) to accurately measure actual ground water pumpage and surface water diversions throughout the Basin and within each District, (2) for the Tri-Basin to maintain, at sufficient levels to offset depletions to the Republican River caused by ground water pumping within the Republican River Compact area within the Tri-Basin, the Compact Imported Water Supply that Nebraska receives because of discharges from the "ground water mound"; and, 3) for each of the Districts other than the Tri-Basin to reduce its ground water pumping from their 1998-2002 baseline pumping volumes, as defined below.

Since 1978, with adoption of its Order #1, the URNRD has required the metering, data collection and reporting of ground water use, resulting in actual pumping and use data, and has imposed allocations and regulation on ground water users within the URNRD, while the use of wells in the MRNRD and LRNRD were neither reported nor regulated during the same period. In order to estimate pumping in the MRNRD and LRNRD, other methods based on hours of operation using electrical power information and individual pumping rates were used. The NDNR has determined the following pumping volumes for the period 1998-2002: 531,763 acre-feet for the URNRD, 309,479 acre-feet for the MRNRD and 242,289 acre-feet for the LRNRD. These pumping volumes are used throughout this IMP and are referenced as the "1998-2002 baseline pumping volumes." NDNR, through the use of the Republican River Compact Administration Ground Water Model, has also determined each District's depletions to stream flow for the period 1998-2002 ("1998-2002 baseline depletion"): 74,161 acre-feet for the URNRD, 52,168 acre-feet for the MRNRD and 43,954 acre-feet for the LRNRD. Those depletion numbers have resulted in the following depletion proportions: 44% for the URNRD, 30% for the MRNRD and 26% for the LRNRD. These depletion proportions are used throughout this IMP and are referenced as the "1998-2002 baseline depletion proportions." The percentage of allowable ground water depletions for each Republican River District were based on the proportion of the average ground water depletions caused by ground water pumping within each District that occurred during the base-line period from 1998-2002 as determined by model runs of the Republican River Compact Administration Ground Water Model with ground water pumping in each District alternated turned off and then on. The pumping volumes used to

make these determinations will be evaluated within the next five years to determine their accuracy as compared with metered pumping volumes. If the baseline pumping volumes are found to be in error, the pumping volumes for the 1998-2002 period will be revised and the percentage of depletions for this period will be readjusted based on the new pumping volumes.

The URNRD and the NDNR adopted an integrated management plan on May 3rd, 2005, that contained groundwater rules and regulations for the 2005-2007 period. The integrated management plan provided for a groundwater allocation of 13.5 inches per certified acre, continued the pooling of allocations, and the carry forward of unused allocations, among other things. The goal of the 2005 integrated management plan was to reduce water use by 5% from the 1998-2002 baseline. Since that time, efforts have been taken to implement or conduct incentive programs, studies, and research to further our understanding and ability to comply with the Republican River Compact and Settlement. The URNRD and the NDNR wish to adopt and implement a revised IMP for the regulation of water resources within the District as required by the laws of the State of Nebraska.

The URNRD has agreed to meet its responsibility under *Neb. Rev. Stat.* §46-715, including meeting the obligations under the Settlement Agreement, by adopting revised rules to implement the integrated management plan with regulations and other augmentation programs sufficient to reduce the URNRD's depletions to streamflow to meet the District's proportional share of the requirements of the Republican River Settlement Agreement. To ensure each District within the Republican River Basin will be treated equally, the NDNR has agreed not to approve any plan, unless the plan would restrict the use of water by each District to within the allocation granted to it as determined by the 1998-2002 baseline pumping volumes and that each District shall be assigned its proportionate share of streamflow depletion as calculated by the 1998-2002 baseline depletion percentages. NDNR agrees the failure of any District to adopt, implement or enforce IMPs adequate to meet their proportionate share of the responsibility to achieve and maintain Nebraska's compliance with the Compact shall not in itself require any additional action by the other Districts.

The NRD and the NDNR agree that the IMP for the District shall keep the District's depletions including credits for streamflow augmentation to an amount within 44% of the State's allowable ground water depletions. Based upon its calculations, the NDNR believes that a 20% reduction in pumping from the 98-02 baseline would be sufficient without additional streamflow augmentation to keep the District's net depletions within the URNRD's 44% share of the State's allowable ground water depletions during periods of average precipitation throughout the basin, through the year 2020.

## III. DEFINITIONS

**A. Allowable Ground Water Depletions** - the maximum level of depletions to streamflow from ground water pumping within the Republican River Compact area that can be allowed without exceeding the Compact allocation.

**B. Allowable Ground Water Depletions for the URNRD** - the depletions to stream flow from ground water pumping in the URNRD that are no greater than 44% of the total allowable ground water depletions.

**C. Allowable Streamflow Depletions** - the maximum amount of streamflow depletion in the Republican River Basin that can be allowed without violating the Compact.

**D. Baseline Depletion Percentages** - the annual mean depletions to stream flow in the Republican River Basin caused by surface water and ground water use in the years 1998-2002 inclusive. The baseline depletions are 74,161 acre feet for the URNRD, 52,168 acre feet for the MRNRD, and 43,954 acre feet for the LRNRD. The percentage depletions assigned to the Districts are: URNRD, 44%; MRNRD, 30%; and LRNRD, 26%.

**E. Baseline Pumping Volumes** - the annual mean ground water pumping from the period 1998 to 2002. The baseline pumping volumes are 531,763 acre-feet for the URNRD, 309,479 acre-feet for the MRNRD and 242,289 acre-feet for the LRNRD .

**F. Compliance Standard** - the criteria that will be used to determine whether URNRD's rules, regulations, and other programs are sufficient to meet the goals and objectives of this IMP pertaining to pumping volumes and depletions.

**G. Net Depletions** - a District's ground water depletions less any reduction in streamflow depletions or increase in allocation resulting from streamflow augmentation projects, including surface water leases.

## IV. GOALS AND OBJECTIVES

Pursuant to *Neb. Rev. Stat.* § 46-715 (Reissue 2004), the goals and objectives of this IMP must have as a purpose "sustaining a balance between water uses and water supplies so that the economic viability, social and environmental health, safety, and welfare of the river basin ... can be achieved and maintained for both the near term and the long term." The following goals and objectives are also adopted by the URNRD and the NDNR to meet the additional requirements of *Neb. Rev. Stat.* §46-715.

### A. Goals:

1. In cooperation with the State of Nebraska and the other Districts, maintain compliance with the Compact as adopted in 1943 and as implemented in accordance with the Settlement Agreement approved by the United States Supreme Court on May 19, 2003;

2. Ensure that water users within the URNRD assume their share, but only their share, of the responsibility to maintain compliance with the Compact;

3. Provide the URNRD's share of compliance responsibility and impact be apportioned within the URNRD in an equitable manner and to the extent possible, minimize the adverse economic, social and environmental consequences arising from compliance activities.;

4. Protect ground water users whose water wells are dependent on recharge from the river or stream and the surface water appropriators on such river or stream from streamflow depletions caused by surface water uses and ground water uses begun after the date the river basin was designated as fully appropriated; and

5. Reserve any streamflow available from regulation, incentive programs, and purchased or leased surface water required to maintain compact compliance from any use that would negate the benefit of such regulations or programs.

**B. Objectives**:

1. With limited exceptions, prevent the initiation of new or expanded uses of water that increase Nebraska's computed beneficial consumptive use of water within the URNRD, as required for Compact compliance and by Nebraska law

2. Ensure administration of surface water appropriations in the Basin is in accordance with the Compact and Nebraska law;

3. Reduce existing ground water use within the URNRD by 20% from the 1998-2002 baseline pumping volumes under average precipitation conditions so that, when combined with streamflow augmentation and incentive programs, the URNRD's depletions are maintained within 44% of Nebraska's allowable ground water depletions as computed through use of the Republican River Compact Administration Ground Water Model;

4. After taking into account any reduction in beneficial consumptive use achieved through basin-wide incentive and streamflow augmentation programs, make such additional reductions in ground water use in water short years as are necessary to achieve a reduction in beneficial consumptive use in the URNRD in an amount proportionate to the total reduction in consumptive use required by the Republican River Settlement Agreement in Nebraska above Guide Rock in such years;

5. Cause the reductions in water use required for Compact compliance to be achieved through a combination of regulatory, incentive, and augmentation programs designed to reduce beneficial consumptive use, relying on incentive programs available to as many of the URNRD water users as possible;

6. Cooperate with the NDNR to investigate and explore methods to manage the impact of vegetative growth on stream flow: and

7. Develop a program to provide offsets for new consumptive uses of water so that economic development in the district may continue without producing an overall increase in ground water depletions as a result of new uses.

## V. MAP - see map 1.

The area subject to this IMP is the geographic area within the boundaries of the URNRD.

## VI. FORECAST OF MAXIMUM AMOUNT OF WATER THAT MAY BE AVAILABLE FROM STREAMFLOW DEPLETIONS

Each year in compliance with *Neb. Rev. Stat.* § 46-715(5) the NDNR in consultation with the Republican River NRDs shall forecast the maximum amount of water that may be available from streamflow for beneficial use in the short term and long term to comply with the Compact. This forecast will be used to assist the NDNR and the NRDs in ensuring compliance with the Compact.

## VII. GROUND WATER CONTROLS

The URNRD will utilize the ground water controls as provided by *NEB.REV.STAT.* §§ 46-715, 46-739 and 46-740 to form the Ground Water Controls component of this IMP. The controls that the NDNR and URNRD agree are necessary and shall be continued are: 1) groundwater allocations and 2) a moratorium on new water wells and irrigated acre as are required by the RRSA. In order to provide the URNRD flexibility in addressing compliance, the URNRD may implement a reduction in irrigated acres and incentive programs targeting acres with a higher streamflow depletion factor as alternatives to District-wide reductions in allocation or irrigated acres. The controls shall be set forth in detail and implemented through the URNRD's Rules and Regulations and the provisions of the URNRD's Rules and Regulations shall be sufficient so as to meet the Compliance Standards set forth below. If it is determined by NDNR and the URNRD that all of the Districts in the basin have met their proportional share of responsibility, but Nebraska is nonetheless out of compliance with the RRSA, further reductions in net depletions will be necessary. Any further reduction in net depletions will be based on the same proportions as contained in the 1998-2002 baseline depletion percentages.

In addition to satisfying the compliance standards, the rules and regulations adopted by the URNRD shall contain provisions which adequately assure that no new ground water uses initiated after July 14, 2004, will adversely impact surface water appropriators or ground water users whose water wells are dependent upon recharge from the stream or river. If the Compliance Standards are met, the URNRD may amend or modify its rules and regulations without the approval of NDNR, except for the rules and regulations pertaining to the satisfaction of the requirements of *NEB.REV.STAT.* §46-715(3)(b) and 46-715(3)(c). In the event the Compliance Standards are not met, URNRD, with the assistance of NDNR, shall formulate adequate rules

and regulations, acceptable to NDNR, to meet the Compliance Standards. The necessary revisions to the rules and regulations shall place the District in a position where it meets the Compliance Standards within one (1) year from the date of determination the State is not in compliance with the RRSA, or within two (2) years from the date of determination the District has failed to meet the Compliance Standards, but the State is in compliance with the RRSA.

## VIII. COMPLIANCE STANDARDS

1. PURPOSE. These Compliance Standards are established by NDNR and URNRD to assess whether the course of action taken by the URNRD, with the intention of providing their proportionate share of assistance to the State in order for the State to maintain compliance with the RRSA and Compact, are sufficient. The action taken by the URNRD shall be evaluated in connection with the action taken by the other Districts in the Republican River Basin and any other relevant considerations, including the information and data provided by NDNR and past action by the District.

2. DURATION. These Compliance Standards shall be used to assess the action taken by the URNRD commencing January 1, 2008 through January 1, 2013. Prior to January 1, 2013 the NDNR and URNRD shall reexamine the sufficiency and effectiveness of the Compliance Standards to determine if amendments or revisions are necessary to ensure the State's compliance with the RRSA and Compact. Nothing contained herein shall prohibit or preclude any amendment or revision, at anytime, by the NDNR and URNRD, when such action is necessary under the circumstances. Further, nothing contained in this subsection shall be construed as eliminating the review of the provisions of this IMP as required by *NEB.REV.STAT.* §46-715.

3. STANDARDS. The URNRD shall adopt and implement rules and regulations which shall provide that the following standards are met.

A. Provide for a 20% reduction in pumping from the 1998-2002 baseline ground water pumping volume so that the average ground water pumping volume is no greater than 425,000 acre feet over the long term. It is understood that if precipitation is lower than average for any given year, the ground water pumping volume for that year may be above 425,000 acre feet provided that Standard B is met. If incentive or augmentation programs are implemented so that on average stream flow is increased, the ground water pumping volume may be increased above the 425,000 acre feet by an amount that would cause streamflow depletions equivalent to the increased streamflow resulting from the incentive and augmentation programs as determined by the RRCAGWM.

B. Provide the URNRD's net depletions shall be no greater than 44% of the allowable ground water depletions as determined by the accounting by the RRCAGWM.

The procedures for determining whether the compliance standards are met will be based on the RRSA and the baseline ground water pumping volumes.

## IX. SURFACE WATER CONTROLS – Nebraska Department of Natural Resources (NDNR)

The authority for the surface water component of this IMP is *Neb. Rev. Stat.* §§ 46-715 and 46-716 (Reissue 2004). The surface water controls that will be continued and/or begun by the NDNR are as follows:

1. The NDNR will do the following additional surface water administration as required by the Settlement Agreement:
    - To provide for regulation of natural flow between Harlan County Lake and Superior-Courtland Diversion Dam, Nebraska will recognize a priority date of February 26, 1948 for Kansas Bostwick Irrigation District, the same priority date as the priority date held by the Nebraska Bostwick Irrigation District's Courtland Canal water right.
    - When water is needed for diversion at Guide Rock and the projected or actual irrigation supply is less than 130,000 acre-feet of storage available for use from Harlan County Lake as determined by the Bureau of Reclamation using the methodology described in Harlan County Lake Operation Consensus Plan attached as Appendix K to the Settlement Agreement, Nebraska will close junior, and require compliance with senior, natural flow diversions of surface water between Harlan County Lake and Guide Rock.
    - Nebraska will protect storage water released from Harlan County Lake for delivery at Guide Rock from surface water diversions.
    - Nebraska, in concert with Kansas and in collaboration with the United States, and in the manner described in Appendix L to the Settlement Agreement, will take actions to minimize the bypass flows at Superior-Courtland Diversion Dam.

2. Metering of all surface water diversions at the point of diversion from the stream will continue to be required. For surface water canals that are not part of a Bureau of Reclamation project, farm turnouts will be required to install and maintain a NDNR approved measuring device by the start of the 2005 irrigation season. All measuring devices shall meet the NDNR standards for installation, accuracy and maintenance. All appropriators will be monitored to ensure that neither the rate of diversion nor the annual amount diverted exceeds that allowed by the applicable permit or by statute.

3. The NDNR's moratorium on the issuance of new surface water permits was made formal by Order of the Director dated July 14, 2004. Exceptions may be granted by the NDNR to the extent permitted by *Neb. Rev. Stat.* § 46-714(3) (Reissue 2004) or to allow issuance of permits for existing reservoirs that currently do not now have such

permits. Such reservoirs are limited to those identified through the Settlement Agreement required inventory of reservoirs with over 15 acre-feet capacity.

4. All proposed transfers of surface water rights shall be subject to the criteria for such transfers as found in *Neb. Rev. Stat.* §§ 46-290 to 46-294.04 (Reissue 2004) and related NDNR rules or the criteria found in *Neb. Rev. Stat.* §§ 46-2,120 to 46-2,130 (Reissue 2004) and related NDNR rules.

5. The NDNR completed adjudication of individual appropriators in the Republican River Basin upstream of Guide Rock in 2004. The results of that adjudication provided up-to-date records of the number and location of acres irrigated with surface water by such appropriators. Those records shall be used by the NDNR to monitor use of surface water and to make sure that unauthorized irrigation is not occurring. The NDNR will also be proactive in initiating subsequent adjudications whenever information available to the NDNR indicates the need for adjudication as outlined by state statutes.

6. At this time, due to the already limited availability of surface water supplies, the NDNR will not require that surface water appropriators apply or utilize additional conservation measures or that they be subject to other new restrictions on surface water use, except as may be necessary to meet the goals and objectives of this plan and to maintain compliance with the compact.

7. The Department also reserves the right to request, in the future, that this IMP be modified to require any such additional measures. In the event such a request is made, the NDNR will "allow the affected surface water appropriators and surface water project sponsors a reasonable amount of time, not to exceed one hundred eighty (180) days, unless extended by the NDNR, to identify the conservation measures to be applied or utilized, to develop a schedule for such application and utilization, and to comment on any other proposed restrictions." *Neb. Rev. Stat.* § 46-716(2) (Reissue 2004).

## X. AUGMENTATION AND INCENTIVE PROGRAMS

Subject to the provisions of paragraph 5 under "Ground Water Regulations," above, the URNRD and the NDNR intend to develop augmentation projects and to establish and implement financial or other incentive programs to reduce beneficial consumptive use of water within the URNRD. As a condition for participation in an incentive program, water users, landowners or the URNRD may be required to enter into and perform such agreements or covenants concerning the use of land or water as are necessary to produce the benefits for which the incentive program is established. Such incentive programs may include, but shall not be limited to, any program authorized by state law and/or Federal programs operated by the United States Department of Agriculture.

Any water savings generated through conservation programs, including acreage retirement or other conservation incentive programs undertaken through programs available throughout the Republican River Basin with the use of funds distributed by the State of Nebraska or the United States Government will be accounted as credits to the entire Republican River Basin and not to any District, regardless of the location or other conditions of the acreage included in the program or of the location of the effect of such water savings on the river system. Any water savings resulting from any such basin-wide programs shall be considered in the calculation of each District's depletions allocated to each of the Districts based upon the 1998-2002 baseline depletion proportions. However, should any District establish, fund, and implement its own such conservation program, the accounting of credit for the resulting water savings shall be given exclusively to that District. Also, if multiple Districts cooperate in a stream flow augmentation project, the benefits shall be allocated to each District based upon their share of the cost of the program.

## XI. REPORTING REQUIREMENTS

The URNRD and the NDNR will make all documents, reports, records, computer runs or other calculations or material necessary to determine compliance with the Compact available to each other, regardless of whether such documents are available under the Nebraska Public Records Act or otherwise, unless such materials are identified as confidential under Nebraska statutes or by a ruling of a court of competent jurisdiction. Specifically, and without limitation, the URNRD agrees to continue to provide any existing GIS coverage maps of all lands irrigated and to meter, record and provide to the NDNR its ground water usage records in a manner consistent with the requirements of the Republican River Compact Accounting Procedures; this information will be for each irrigation season and provided to NDNR by March 1 of the following year. The NDNR agrees to provide to the URNRD all reports and records of the other Districts necessary to determine their compliance with reductions in accordance with the formula described above, as well as all documentation and reports utilized by the NDNR to determine the Basin's virgin water supplies and Nebraska's compliance with the Compact. In the event any materials are withheld by either NDNR or URNRD under a claim of statutory confidentiality, the party withholding such materials shall describe the contents of the materials and reasons for the denial in accordance with *Neb. Rev. Stat.* § 84-712.04 (Reissue 1999).

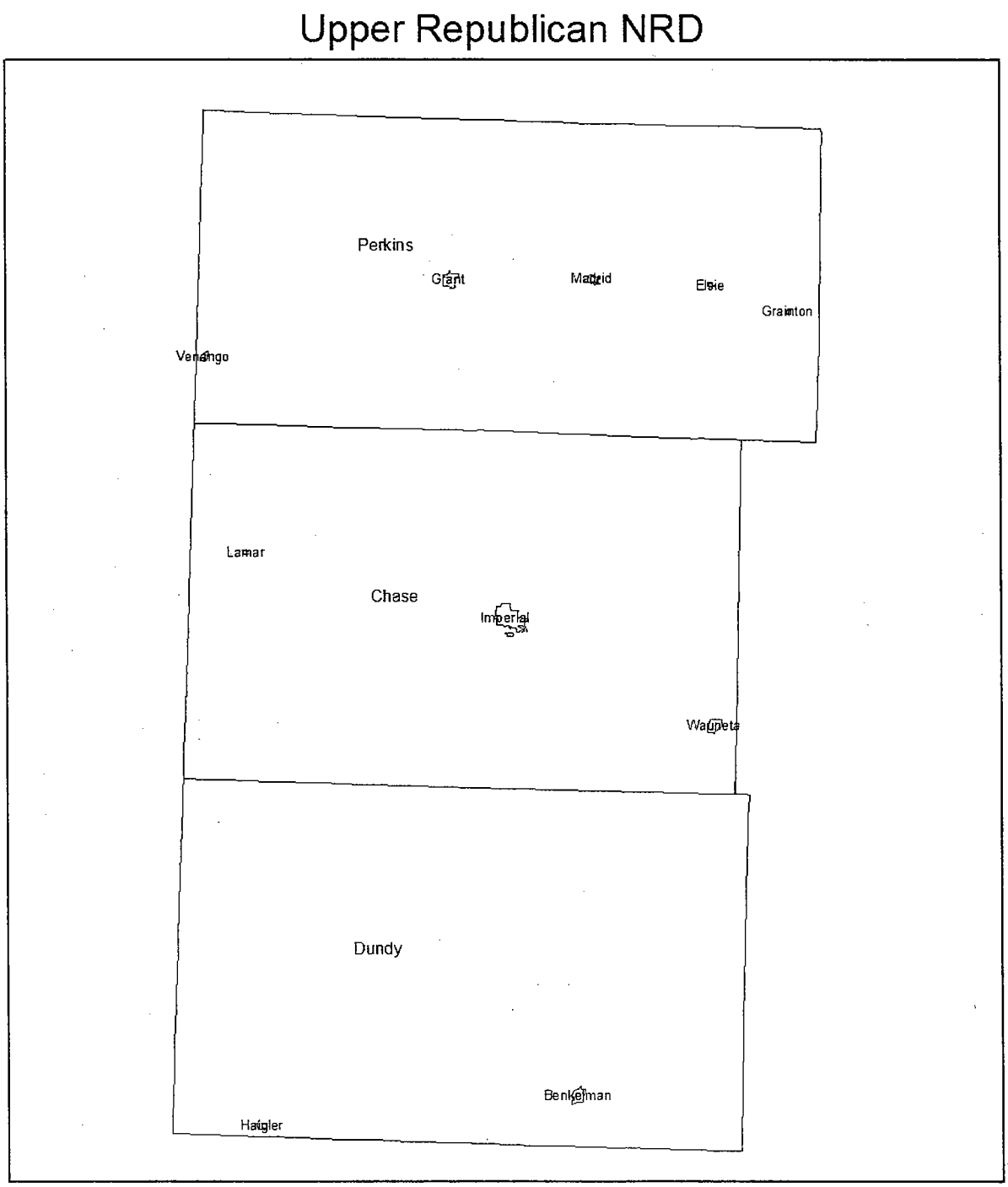
## XII. PLAN TO GATHER AND EVALUATE DATA, INFORMATION AND METHODOLOGIES

The DNR and the URNRD shall develop a plan to gather and evaluate data, information, and methodologies that could be used to implement Neb.Rev.Stat. Sections 46-715 to 46-717, increase understanding of the surface water and hydrologically connected ground water system, and test the validity of the conclusions and information upon which the integrated management plan is based.

## XIII. INFORMATION CONSIDERED

Information used in the preparation and to be used in the implementation of this IMP can be found in the simulation runs of the Republican River Compact Administration Ground Water Model, the formulae and data compliance tables of the Final Settlement Stipulation for the Compact, the URNRD's Rules, the URNRD's Ground Water Management Plan and additional data on file with the URNRD or the NDNR.

Map 1. Upper Republican Natural Resource District



# Appendix D: December 2008 Annual Forecast

STATE OF NEBRASKA

**Dave Heineman**
*Governor*

**DEPARTMENT OF NATURAL RESOURCES**
Brian P. Dunnigan, P.E.
[redacted] *Director*

*December 30, 2008*

IN REPLY TO:

Mike Clements
Lower Republican NRD
P.O. Box 618
Alma, NE 68920-0618

Dan Smith
Middle Republican NRD
P.O. Box 81
Curtis, NE 69025

Jasper Fanning
Upper Republican NRD
P.O. Box 1140
Imperial, NE 69033

John Thorburn
Tri-Basin NRD
1308 Second Street
Holdrege, NE 68949

SUBJECT: Transmittal of Forecast of Allowable Stream Flow Depletions In the Republican Basin

Dear NRD Managers:

The Nebraska Department of Natural Resources (NDNR) is providing the attached short-term and long-term forecast of the available water supply to comply with the requirements of Nebraska Statute 46-715. The forecast methodology was provided to the four primary Natural Resources Districts in the Republican Basin during a meeting in Cambridge, Nebraska on November 19, 2008, and discussed during subsequent meetings, telephone calls, and in email messages.

The short-term forecast is for the year 2009; the long-term forecast is for the year 2019. The estimated forecast is provided assuming dry conditions, which we have defined as precipitation at the 35$^{th}$ percentile:

- The available water supply during 2009 is forecasted to be 261,130 acre-feet;
- The available water supply during 2019 is forecasted to be 203,225 acre-feet.

Harlan County Lake is full and is expected to provide a full supply during 2009. Therefore water short year administration will not be in effect in 2009, and the forecast indicates that Nebraska will be in compliance with the 5-year average in 2009. However, the long-term forecast also suggests that the available water supply is expected to decline.



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I appreciate the efforts of your resource districts in working to keep the state compliant with our interstate agreements and your cooperation as we go forward. If you have questions regarding the technical basis for this forecast please call Jim Schneider in my office at (402) 471-3141.

Sincerely,

Brian P. Dunnigan, P.E.
Director

cc: Justin Lavene, Office of the Attorney General

# Forecast of Short-Term and Long-Term Depletions in the Republican Basin

*Nebraska Department of Natural Resources*
*December 2008*

Pursuant to Nebraska State Statutes 46-715.5 and in consultation with the affected Natural Resources Districts, the Nebraska Department of Natural Resources (NDNR) is required to provide an annual short-term and long-term forecast of "the maximum amount of water that may be available from streamflow for beneficial use" that will ensure compliance with interstate compacts. In the context of the Republican River Compact, the available water supply amounts to Nebraska's allocation plus the Imported Water Supply (IWS) Credit. This document includes the forecast along with a description of the methodology and data the NDNR used to estimate available water supply in 2009 and 2019.

## Methodology for Short-Term Forecast

The NDNR has estimated Nebraska's allocation, computed beneficial consumptive use (CBCU), and IWS Credit using information defined in Table 1. Ground water pumping in 2009 was assumed to be at 80% of 1998 to 2002 pumping, in line with Republican River basin integrated management plans. The resulting depletions from ground water to the stream and the IWS Credit were estimated using the Republican River Compact Administration (RRCA) Ground Water Model and estimated 2008 ending water table elevations. Stream flow and surface water diversions were based on likely volumes in the federal reservoirs and an estimate of gaged stream flow based on recent trends.

This information was input into the RRCA accounting spreadsheet to develop a conservative forecast of Nebraska's expected allocation, CBCU, and IWS Credit for 2009. **The available water supply (the allocation plus the IWS Credit) in 2009 is forecasted to be 261,130 acre-feet.**

Table 2 summarizes the estimated allocations, CBCU, and IWS Credit for the years 2005-2009. Note that based on the projected CBCU of 281,490 acre-feet, there is a forecasted deficit of approximately 20,000 acre-feet for 2009. However, the resulting five-year average compliance test for 2009 is positive by approximately 3,000 acre-feet. Actually, the sum of the annual balances for 2005-2008 is nearly 35,000 acre-feet, meaning that Nebraska's balance in 2009 could be as low as -35,000 acre-feet, while maintaining a five-year average of approximately zero. This does not mean that a negative balance in 2009 will not result in non-compliance in future years, but simply that a balance as low as -35,000 acre-feet will still result in compliance with the five-year average *in 2009*. Because the 2009 annual balance will continue to be used for future compliance period averages, the NDNR recommends that water use in 2009 be limited to the forecasted available water supply of 261,130 acre-feet.

Based on current reservoir contents and projected inflows for 2009, the likelihood of Reclamation projecting a Water-Short Year is remote at best. It is highly unlikely that Water-Short Year Administration (WYSA) will be in effect in 2009.

**Methodology for Long-Term Forecast**

The NDNR has estimated long-term allowable depletions (for the year 2019) by projecting the 35$^{th}$ percentile stream flow at Hardy (and the Courtland Canal diversion). The allocation was estimated by using this stream flow and a developed relationship between stream flows and the computed water supply. The imported water supply credit was assumed to be 10,000 acre-feet per year. **Using this method, the available water supply in the year 2019 was estimated to be 203,225 acre-feet.** However, the allowable CBCU for that year may be less than this value, depending on the balance from preceding years and the type of administration in effect (i.e. WSYA vs. normal year administration).

Table 1. Information Used for 2009 Forecast of Allowable Depletions.

| Year | Item | Information Source |
|---|---|---|
| 2005 | | Draft; Current Accounting Procedures (v. 2005) |
| 2006 | | Draft; Current Accounting Procedures (v. 2005) |
| 2007 | | Draft; Current Accounting Procedures (v. 2005) |
| 2008 Provisional | Pumping | Meters/Power Records Estimate |
| | Surface Water Diversions | Estimated |
| | Stream Flow | Provisional Records through mid-November 2008 end of year estimated |
| 2009 Forecast | Precipitation | 35th percentile of record at each weather station |
| | Pumping | 80% of 1998-2002 baseline pumping |
| | Stream Flow | Estimated based on known reservoir volumes and recent stream flow trends |
| | Surface Water Diversions | Estimated based on known reservoir volumes |

Table 2. Summary of NE allocations, CBCU, and IWS Credit for 2005-2009, with resulting five-year averages (in acre-feet). The 2009 values are estimated as described in Table 1.

| Year | Precipitation Percentile Rank | Allocation | Computed Beneficial Consumptive Use | Imported Water Supply Credit | Allocation - (CBCU - IWS Credit) |
|---|---|---|---|---|---|
| 2005 | 61 | 199,450 | 253,740 | 11,966 | **(42,324)** |
| 2006 | 58 | 189,390 | 233,120 | 12,218 | **(31,512)** |
| 2007 | 89 | 244,390 | 235,640 | 21,933 | 30,683 |
| 2008 Provisional | 94 | 332,400 | 274,310 | 19,969 | 78,059 |
| 2009 Forecast | 35 | 242,070 | 281,490 | 19,060 | **(20,360)** |
| Five-year Rounded Average | Not Applicable | **241,540** | **255,660** | **17,030** | **2,910** |

# Appendix E: Future Impacts under Average Conditions

**Future Compliance for Nebraska under Average Conditions**

Special Meeting of the
Republican River Compact Administration
March 11 and 12, 2008
Kansas City, Missouri

The Nebraska Department of Natural Resources and the Republican River Natural Resources Districts (NRDs) have developed Integrated Management Plans (IMPs) based on average climate conditions. In order to determine the appropriate levels of groundwater use under these conditions, a future scenario was developed which simulates long-term average conditions. Additionally, an average conditions Compact accounting spreadsheet was developed for use in analyzing the results of the groundwater modeling. This document describes the model scenario development, the development of the average accounting spreadsheet, and the results.

## GROUNDWATER MODEL

The data used to create the average conditions groundwater model scenario are described in Table A. The scenario was developed by calculating the long-term average precipitation for each of the Compact gages for the period 1918-2006. The use of 1988-1991 for the phreatophyte evapotranspiration and reservoir levels was arbitrary. The starting heads were based on the final heads from an early update of the groundwater model for 2007. All other inputs, with the exception of groundwater pumping volumes, were based on the input data for 2006.

Table A. Data used for early update of RRCA groundwater model for 2007

| Model Input | Value |
|---|---|
| Phreatophyte ET | 1988-1991 repeating |
| Precipitation | Mean 1918-2006 for each station |
| Reservoir Levels | 1988-1991 repeating |
| Starting Heads | 2007 early run |
| NE Surface Water Deliveries | 2006 repeating |
| NE Canal Seepage | 2006 repeating |
| NE GW Pumping Volume | 80% of 1998-2002 NRD averages, repeating |
| NE GW Irrigated Acres | 2006 repeating |
| NE SW Irrigated Acres | 2006 repeating |
| NE Commingled Irrig. Acres | 2006 repeating |
| CO GW Irrigated Acres | 2006 repeating |
| CO SW Irrigated Acres | 2006 repeating |
| KS GW Irrigated Acres | 2006 repeating |
| KS SW Irrigated Acres | 2006 repeating |

The groundwater pumping depths used to calculate the pumping volumes were calculated for the three Republican River NRDs to be equal to the 80% of the baseline pumping (1998-2002 average), as prescribed in the IMPs. The volumes for each of the Republican River NRDs, as well as a total for Nebraska, that were used in this scenario can be found in Table B. The groundwater model impact spreadsheets for the year 2008-2012 generated from this model scenario can be found in Appendix A.

Table B. Groundwater pumping data for Average Conditions Scenario.

| | 80% 1998-2002 Average | Computed Volumes for Average Conditions Scenario |
|---|---|---|
| LR | 193,831 | 193,820 |
| MR | 247,583 | 247,588 |
| UR | 425,410 | 425,406 |
| Total Nebraska | | 1,649,632 |

## ACCOUNTING

In order to have a basis for comparison for the results of the average conditions groundwater model, an average conditions accounting spreadsheet was developed. It was obviously not possible to generate average input data for the entire period of 1918-2006 used to obtain average precipitation for the groundwater modeling scenario. However, an analysis of recent precipitation revealed that the years 1996-2006 had an average precipitation that was almost identical to the long-term (1918-2006) average. Table C shows a station by station comparison for these time periods. The average precipitation during 1996-2006 was 21.06 inches, and the average long-term precipitation was 20.98 inches.

Therefore the surface water inputs for the years 1996-2006 were averaged to obtain input data for an average conditions accounting spreadsheet. Several minor adjustments were made to this data to better reflect conditions during and average year. For example, flood flows were removed—by definition flood flows are not going to occur during an average year. In addition, it is likely that some canal systems will have little or no operation in the future, and were adjusted accordingly. Accounting details included:

- Surface water pumping data—the 1996 – 2006 average was used
- Non-federal reservoir evaporation data—2004 – 2006 average was used
- Stream gage data—1996 – 2006 average was used, with the exception that a seven-year average (2000 – 2006) was used for the following streams:
  - South Fork Republican River
  - Beaver Creek
  - Sappa Creek, and
  - Prairie Dog Creek
- Flood flows were set to zero
- Canal Data—the 1996 – 2006 average was used, with the following exceptions:
  - Haigler Canal Diversions – Nebraska was set to 4,000 acre-feet
  - Culbertson Canal Extension was set to zero

Table C. Comparison of average precipitation during the periods 1996-2006 and 1918-2006.

| Station number | Station Name | 1996-2006 Average (In.) | 1918-2006 Average (In.) |
|---|---|---|---|
| C050109 | Akron 4 E | 15.40 | 15.28 |
| C051121 | Burlington | 16.68 | 16.23 |
| C051564 | Cheyenne Wells | 16.58 | 15.68 |
| C054082 | Holyoke | 17.61 | 17.28 |
| C054413 | Julesburg | 16.46 | 16.85 |
| C059243 | Wray | 16.09 | 16.92 |
| C141179 | Burr Oak 1 N | 24.67 | 24.39 |
| C141699 | Colby 1SW | 19.31 | 19.32 |
| C143527 | Hays 1 S | 23.86 | 22.51 |
| C143837 | Hoxie | 17.77 | 18.66 |
| C145363 | Minneapolis | 30.64 | 28.18 |
| C145856 | Norton 9 SSE | 21.96 | 21.57 |
| C145906 | Oberlin1 E | 19.57 | 20.58 |
| C146374 | Phillipsburg 1 SSE | 22.76 | 23.22 |
| C147093 | Saint Francis | 16.16 | 18.51 |
| C148495 | Wakeeny | 24.69 | 22.79 |
| C250640 | Beaver City | 23.49 | 22.37 |
| C250810 | Bertrand | 23.87 | 22.03 |
| C252065 | Culbertson | 20.98 | 20.74 |
| C252690 | Elwood 8 S | 21.27 | 21.87 |
| C253365 | Gothenburg | 20.55 | 21.18 |
| C253735 | Hebron | 29.32 | 27.91 |
| C253910 | Holdrege | 25.21 | 23.79 |
| C254110 | Imperial | 17.83 | 19.53 |
| C255090 | Madrid | 20.24 | 19.78 |
| C255310 | McCook | 21.17 | 20.42 |
| C255565 | Minden | 23.16 | 23.6 |
| C256480 | Palisade | 18.18 | 20.03 |
| C256585 | Paxton | 20.78 | 18.68 |
| C257070 | Red Cloud | 24.38 | 24.42 |
| C258255 | Stratton | 18.03 | 19.94 |
| C258320 | Superior | 26.20 | 26.01 |
| C258735 | Upland | 24.38 | 23.86 |
| C259020 | Wauneta 3 NW | 16.82 | 19.07 |
| AVERAGE | | **21.06** | **20.98** |

## RESULTS

The results of this analysis demonstrate that during a period of time with precipitation close to average, Nebraska depletions to stream flow will be less than Nebraska allocations, given the pumping volume limits incorporated in the Natural Resources District Integrated Management Plans. The estimated annual allocation and CBCU for each year from 2008 through 2012 are summarized in Appendix B. The average difference between allocation and the CBCU less the Imported Water Supply Credit is approximately 19,000 acre-feet.

# APPENDIX A

# GROUNDWATER MODEL IMPACT SHEETS

# Impacts 2008 (acre-feet)

| Location | Colorado Pumping | Kansas Pumping | Nebraska Pumping | Nebraska Mound |
|---|---|---|---|---|
| Arikaree | 1308 | 73 | 78 | 0 |
| Beaver | 0 | 4512 | 3584 | 0 |
| Buffalo | 353 | 0 | 3320 | 0 |
| Driftwood | 0 | 0 | 1275 | 0 |
| Frenchman | 298 | 0 | 74698 | 0 |
| North Fork | 15023 | 10 | 1407 | 0 |
| Above Swanson | -3869 | 118 | 7435 | 11 |
| Swanson - Harlan | 0 | -772 | 35080 | 7768 |
| Harlan - Guide Rock | 0 | 0 | 26221 | 272 |
| Guide Rock - Hardy | 0 | 72 | 2023 | 0 |
| Medicine | 0 | 0 | 19504 | 9844 |
| Prairie Dog | 0 | 2773 | 0 | 0 |
| Red Willow | 0 | 0 | 6517 | 41 |
| Rock | 74 | 0 | 4112 | 0 |
| Sappa | 0 | -469 | 1193 | 0 |
| South Fork | 11972 | 5177 | 909 | 0 |
| Hugh Butler | 0 | 0 | 1720 | 0 |
| Bonny | 1284 | 0 | 0 | 0 |
| Keith Sebelius | 0 | 603 | 0 | 0 |
| Enders | 0 | 0 | 4674 | 0 |
| Harlan | 0 | 37 | 803 | 19 |
| Harry Strunk | 0 | 0 | 312 | 0 |
| Swanson | 12 | 0 | 321 | 0 |
| **Mainstem** | **-3868** | **-578** | **70760** | **8043** |
| **Total** | **26458** | **12142** | **195188** | **17954** |

# Impacts 2009 (acre-feet)

| Location | Colorado Pumping | Kansas Pumping | Nebraska Pumping | Nebraska Mound |
|---|---|---|---|---|
| Arikaree | 312 | 84 | 87 | 0 |
| Beaver | 0 | 3632 | 2495 | 0 |
| Buffalo | 367 | 0 | 3298 | 0 |
| Driftwood | 0 | 0 | 1216 | 0 |
| Frenchman | 432 | 0 | 73793 | 0 |
| North Fork | 15172 | 13 | 1428 | 0 |
| Above Swanson | -2780 | 94 | 8565 | 12 |
| Swanson - Harlan | 0 | 94 | 29899 | 3230 |
| Harlan - Guide Rock | 0 | 0 | 26674 | 268 |
| Guide Rock - Hardy | 0 | 80 | 2354 | -16 |
| Medicine | 0 | 0 | 19524 | 9701 |
| Prairie Dog | 0 | 1497 | 0 | 0 |
| Red Willow | 0 | 0 | 5914 | 29 |
| Rock | 78 | 0 | 4183 | 0 |
| Sappa | 0 | -922 | 935 | 0 |
| South Fork | 11746 | 5269 | 842 | 0 |
| Hugh Butler | 0 | 0 | 1764 | 0 |
| Bonny | 1287 | 0 | 0 | 0 |
| Keith Sebelius | 0 | 608 | 0 | 0 |
| Enders | 0 | 0 | 4691 | 0 |
| Harlan | 0 | 34 | 793 | 20 |
| Harry Strunk | 0 | 0 | 308 | 0 |
| Swanson | 17 | 0 | 309 | 0 |
| **Mainstem** | **-2780** | **274** | **67492** | **3494** |
| **Total** | **26647** | **10497** | **189072** | **13251** |

# Impacts 2010 (acre-feet)

| Location | Colorado Pumping | Kansas Pumping | Nebraska Pumping | Nebraska Mound |
|---|---|---|---|---|
| Arikaree | 788 | 94 | 89 | 0 |
| Beaver | 0 | 3523 | 2196 | 0 |
| Buffalo | 384 | 0 | 3316 | 0 |
| Driftwood | 0 | 0 | 1177 | 0 |
| Frenchman | 658 | -13 | 73719 | -14 |
| North Fork | 15537 | 0 | 1458 | 0 |
| Above Swanson | -3144 | 105 | 8049 | 0 |
| Swanson - Harlan | -15 | -46 | 33259 | 5041 |
| Harlan - Guide Rock | 0 | 0 | 27008 | 289 |
| Guide Rock - Hardy | 0 | 75 | 2331 | -15 |
| Medicine | 0 | 0 | 19950 | 9778 |
| Prairie Dog | 0 | 1849 | 0 | 0 |
| Red Willow | 0 | 0 | 6259 | 24 |
| Rock | 84 | 0 | 4281 | 0 |
| Sappa | 0 | -928 | 893 | 0 |
| South Fork | 12073 | 5417 | 804 | 0 |
| Hugh Butler | 0 | 0 | 1810 | 0 |
| Bonny | 1288 | 10 | 0 | 0 |
| Keith Sebelius | 0 | 616 | 0 | 0 |
| Enders | 0 | 0 | 4724 | 0 |
| Harlan | 0 | 33 | 792 | 21 |
| Harry Strunk | 0 | 0 | 303 | 0 |
| Swanson | 15 | 0 | 298 | 0 |
| **Mainstem** | **-3164** | **132** | **70647** | **5311** |
| **Total** | **27665** | **10741** | **192714** | **15119** |

# Impacts 2011 (acre-feet)

| Location | Colorado Pumping | Kansas Pumping | Nebraska Pumping | Nebraska Mound |
|---|---|---|---|---|
| Arikaree | 644 | 94 | 89 | 0 |
| Beaver | 0 | 3476 | 1994 | 0 |
| Buffalo | 400 | 0 | 3334 | 0 |
| Driftwood | 0 | 0 | 1147 | 0 |
| Frenchman | 681 | 0 | 74414 | -32 |
| North Fork | 15777 | 14 | 1484 | 0 |
| Above Swanson | -2501 | 163 | 8737 | -25 |
| Swanson - Harlan | -11 | 38 | 33868 | 3639 |
| Harlan - Guide Rock | 0 | 15 | 26930 | 307 |
| Guide Rock - Hardy | 0 | 91 | 2282 | -25 |
| Medicine | 0 | 0 | 20437 | 10132 |
| Prairie Dog | 0 | 1706 | 0 | 0 |
| Red Willow | 0 | 0 | 6525 | 26 |
| Rock | 89 | 0 | 4372 | 0 |
| Sappa | 0 | -1000 | 834 | 0 |
| South Fork | 12043 | 5614 | 835 | -15 |
| Hugh Butler | 0 | 0 | 1856 | 0 |
| Bonny | 1303 | 11 | 0 | 0 |
| Keith Sebelius | 0 | 626 | 0 | 0 |
| Enders | 0 | 0 | 4756 | 0 |
| Harlan | 0 | 31 | 792 | 25 |
| Harry Strunk | 0 | 0 | 298 | 0 |
| Swanson | 15 | 0 | 288 | 0 |
| **Mainstem** | **-2517** | **308** | **71817** | **3897** |
| **Total** | **28439** | **10877** | **195273** | **14037** |

# Impacts 2012 (acre-feet)

| Location | Colorado Pumping | Kansas Pumping | Nebraska Pumping | Nebraska Mound |
|---|---|---|---|---|
| Arikaree | 1116 | 73 | 71 | 0 |
| Beaver | 0 | 3535 | 1914 | 0 |
| Buffalo | 419 | 0 | 3372 | 0 |
| Driftwood | 0 | 0 | 1126 | 0 |
| Frenchman | 749 | 0 | 73205 | -21 |
| North Fork | 16055 | 11 | 1513 | 0 |
| Above Swanson | -3937 | 134 | 7052 | -22 |
| Swanson - Harlan | -16 | -293 | 31030 | 4130 |
| Harlan - Guide Rock | 0 | 0 | 26943 | 291 |
| Guide Rock - Hardy | 0 | 87 | 2252 | -33 |
| Medicine | 0 | 0 | 20604 | 9830 |
| Prairie Dog | 0 | 1743 | 0 | 0 |
| Red Willow | 0 | 0 | 6305 | 25 |
| Rock | 96 | 0 | 4475 | 0 |
| Sappa | 0 | -892 | 794 | 0 |
| South Fork | 11834 | 4834 | 837 | 0 |
| Hugh Butler | 0 | 0 | 1909 | 0 |
| Bonny | 1315 | 12 | 0 | 0 |
| Keith Sebelius | 0 | 643 | 0 | 0 |
| Enders | 0 | 0 | 4805 | 0 |
| Harlan | 0 | 32 | 783 | 24 |
| Harry Strunk | 0 | 0 | 302 | 0 |
| Swanson | 14 | 0 | 283 | 0 |
| **Mainstem** | **-3940** | **-71** | **67277** | **4366** |
| **Total** | **27664** | **9917** | **189574** | **14216** |

# APPENDIX B

# COMPLIANCE RESULTS

# BASED ON AVERAGE PRECIPITATION SCENARIO

RRCA Compact Accounting (based on Appendix C)
Assumes average precipitation
Assumes 20% pumping decrease from 1998 - 2002 volumes

**Table 3A: Colorado's Five-Year Average Allocation and CBCU**

| Year | Allocation | Computed Beneficial Consumptive Use | Imported Water Supply Credit | Allocation - (CBCU - IWS Credit) |
|---|---|---|---|---|
| 2008 | 26,430 | 35,000 | NA | (8,570) |
| 2009 | 25,210 | 35,190 | NA | (9,980) |
| 2010 | 25,790 | 36,230 | NA | (10,440) |
| 2011 | 25,800 | 36,990 | NA | (11,190) |
| 2012 | 25,770 | 36,210 | NA | (10,440) |
| Average | 25,800 | 35,920 | | (10,120) |

**Table 3B: Kansas's Five-Year Average Allocation and CBCU**

| Year | Allocation | Computed Beneficial Consumptive Use | Imported Water Supply Credit | Allocation - (CBCU - IWS Credit) |
|---|---|---|---|---|
| 2008 | 204,550 | 57,400 | NA | 147,150 |
| 2009 | 203,310 | 55,740 | NA | 147,570 |
| 2010 | 204,580 | 56,000 | NA | 148,580 |
| 2011 | 206,550 | 56,150 | NA | 150,400 |
| 2012 | 202,870 | 55,180 | NA | 147,690 |
| Average | 204,370 | 56,090 | | 148,280 |

**Table 3C: Nebraska's Five-Year Average Allocation and CBCU**

| Year | Allocation | Computed Beneficial Consumptive Use | Imported Water Supply Credit | Allocation - (CBCU - IWS Credit) |
|---|---|---|---|---|
| 2008 | 266,620 | 265,450 | 17,954 | 19,124 |
| 2009 | 265,330 | 259,320 | 13,251 | 19,261 |
| 2010 | 266,660 | 262,950 | 15,119 | 18,829 |
| 2011 | 269,080 | 265,510 | 14,037 | 17,607 |
| 2012 | 265,510 | 259,810 | 14,216 | 19,916 |
| Average | 266,640 | 262,610 | 14,920 | 18,950 |

RRCA Compact Accounting (based on Appendix C)
Assumes average precipitation
Assumes 20% reduction in pumping from 1998 - 2002 volumes

**Table 5C: Nebraska's Compliance During Water-Short Year Administration (Four Consecutive Two-Year Averages)**

| | Allocation | | | Computed Beneficial Consumptive Use | | | Imported Water Supply Credit above Guide Rock | Allocation - (CBCU - IWS above Guide Rock) |
|---|---|---|---|---|---|---|---|---|
| Year | State-Wide Allocation | Allocation Below Guide Rock | Allocation Above Guide Rock | State-Wide CBCU | CBCU Below Guide Rock | CBCU Above Guide Rock | | |
| | | | | | | | | |
| 2008 | 266,620 | 12,074 | 254,546 | 265,450 | 2,751 | 262,699 | 17,955 | 9,802 |
| 2009 | 265,330 | 12,650 | 252,680 | 259,320 | 3,082 | 256,238 | 13,244 | 9,686 |
| **Average** | **265,980** | **12,360** | **253,610** | **262,390** | **2,920** | **259,470** | **15,600** | **9,740** |
| | | | | | | | | |
| 2009 | 265,330 | 12,650 | 252,680 | 259,320 | 3,082 | 256,238 | 13,244 | 9,686 |
| 2010 | 266,660 | 12,572 | 254,088 | 262,950 | 3,059 | 259,891 | 15,124 | 9,320 |
| **Average** | **266,000** | **12,610** | **253,380** | **261,140** | **3,070** | **258,060** | **14,180** | **9,500** |
| | | | | | | | | |
| 2010 | 266,660 | 12,572 | 254,088 | 262,950 | 3,059 | 259,891 | 15,124 | 9,320 |
| 2011 | 269,080 | 12,632 | 256,448 | 265,510 | 3,010 | 262,500 | 14,032 | 7,980 |
| **Average** | **267,870** | **12,600** | **255,270** | **264,230** | **3,030** | **261,200** | **14,580** | **8,650** |

## Appendix F: Estimated compliance through 2012 using 1992 – 1995 climate for the years 2009 – 2012.

**Table F.1. Nebraska's projected annual balance.**

| | Allocation | Computed Beneficial Consumptive Use | Imported Water Supply Credit | Allocation - (CBCU - IWS) |
|---|---|---|---|---|
| 2003 | 227,600 | 262,680 | 9,680 | (25,420) |
| 2004 | 205,870 | 253,340 | 10,447 | (36,640) |
| 2005 | 199,470 | 254,200 | 12,059 | (42,325) |
| 2006 | 187,200 | 228,460 | 12,085 | (29,175) |
| 2007 | 243,400 | 234,200 | 21,760 | 30,960 |
| 2008 | 332,400 | 274,310 | 19,969 | 78,059 |
| 2009 | 268,570 | 322,360 | 19,494 | (34,296) |
| 2010 | 418,200 | 328,250 | 28,783 | 118,733 |
| 2011 | 385,220 | 389,770 | 19,021 | 14,471 |
| 2012 | 336,060 | 323,090 | 21,727 | 34,697 |

**Table F.2. Nebraska's projected five-year average.**

| | Allocation | Computed Beneficial Consumptive Use | Imported Water Supply Credit | Allocation – (CBCU - IWS) |
|---|---|---|---|---|
| 2003 | | | | |
| 2004 | | | | |
| 2005 | | | | |
| 2006 | | | | |
| 2007 | 212,708 | 246,576 | 13,206 | (20,520) |
| 2008 | 233,668 | 248,902 | 15,264 | 176 |
| 2009 | 246,208 | 262,706 | 17,073 | 645 |
| 2010 | 289,954 | 277,516 | 20,418 | 32,856 |
| 2011 | 329,558 | 309,778 | 21,805 | 41,585 |
| 2012 | 348,090 | 327,556 | 21,799 | 42,333 |

# Appendix G: Future Impacts under Dry Conditions

**Future Compliance for Nebraska under Dry Conditions**

Special Meeting of the
Republican River Compact Administration
April 11, 2008
(Revised February 2009)
Kansas City, Missouri

The Nebraska Department of Natural Resources and the Republican River Natural Resources Districts (NRDs) have developed Integrated Management Plans (IMPs) based on average climate conditions. As a part of this process, a dry condition was also analyzed to help understand how dryer than average conditions may affect compliance efforts under these IMPs. Therefore, a future scenario was developed which simulates long-term below average ("dry") climate conditions. Additionally, a dry conditions Compact accounting spreadsheet was developed for use in analyzing the results of the groundwater modeling. This document describes the model scenario development, the development of the dry conditions accounting spreadsheet, and the results.

## GROUNDWATER MODEL

The data used to create the dry conditions groundwater model scenario are described in Table A. The scenario was developed by calculating the 35$^{th}$ percentile precipitation for each of the Compact gages for the period 1918-2005. The use of 1988-1991 for the phreatophyte evapotranspiration and reservoir levels was arbitrary. The starting heads were based on the final heads from an early update of the groundwater model for 2007. All other inputs, with the exception of groundwater pumping volumes, were based on the input data for 2006.

Table A. Data used for dry precipitation conditions 2008-2047 future scenario

| Model Input | Value |
|---|---|
| Phreatophyte ET | 1988-1991 repeating |
| Precipitation | 35$^{th}$ percentile 1918-2005 for each station |
| Reservoir Levels | 1988-1991 repeating |
| Starting Heads | 2007 early run |
| NE Surface Water Deliveries | 2006 repeating |
| NE Canal Seepage | 2006 repeating |
| NE GW Pumping Volume | 80% of 1998-2002 NRD averages, repeating |
| NE GW Irrigated Acres | 2006 repeating |
| NE SW Irrigated Acres | 2006 repeating |
| NE Commingled Irrig. Acres | 2006 repeating |
| CO GW Irrigated Acres | 2006 repeating |
| CO SW Irrigated Acres | 2006 repeating |
| KS GW Irrigated Acres | 2006 repeating |
| KS SW Irrigated Acres | 2006 repeating |

The groundwater pumping depths used to calculate the pumping volumes were calculated for the three Republican River NRDs to be equal to the 80% of the baseline pumping (1998-2002 average), as prescribed in the IMPs. The volumes for each of the Republican River NRDs, as

well as a total for Nebraska, that were used in this scenario can be found in Table B. The groundwater model impact spreadsheets for the year 2008-2012 generated from this model scenario can be found in Appendix A.

Table B. Groundwater pumping data for Average Conditions Scenario.

| | 80% 1998-2002 Average | Computed Volumes for Average Conditions Scenario |
|---|---|---|
| LR | 193,831 | 193,820 |
| MR | 247,583 | 247,588 |
| UR | 425,410 | 425,406 |
| Total Nebraska | | 1,649,632 |

## ACCOUNTING

In order to have a basis for comparison for the results of the dry conditions groundwater model, a dry conditions accounting spreadsheet was developed. It was obviously not possible to utilize input data for the entire period of 1918-2005 used to obtain 35$^{th}$ percentile precipitation for the groundwater modeling scenario. Furthermore, there is no way to know what the patterns of streamflow and surface water use would be in the future under extended below average climatic conditions. An analysis of recent precipitation revealed that the years 2000-2005 had precipitation that was similar to the long-term (1918-2005) 35$^{th}$ percentile precipitation. Table C shows a station by station comparison for these time periods. The median precipitation during 2000-2005 was 19.4 inches, and the median of the long-term 35$^{th}$ percentile precipitation for each station is 18.6 inches.

Therefore the surface water inputs for the years 2000-2005 were averaged to obtain input data for a dry conditions accounting spreadsheet. The resulting input data was analyzed, and for the most part, the data appear reasonable under a future below average condition. Several minor adjustments were made to this data to better reflect potential future conditions. For example, it is likely that some canal systems will have little or no operation in the future, and were adjusted accordingly. Accounting details included:

- Surface water pumping data—the 2000 – 2005 average was used
- Non-federal reservoir evaporation data—2004 – 2006 average was used
- Stream gage data—2000 – 2005 average was used for all gages except:
  - South Fork Republican River near Benkelman set to zero
  - Beaver Creek near Beaver City set to zero
  - Sappa Creek near Stamford set to zero
  - Prairie Dog Creek near Woodruff set to zero
- Canal Data—the 2000 – 2005 average was used, with the following exceptions:
  - Haigler Canal Diversions – Nebraska was set to 4,000 acre-feet
  - Culbertson Canal Extension was set to zero

Table D contains the final stream gage data used along with a comparison to the stream gage data used for the average conditions analysis.

Table C. Comparison of average precipitation during the periods 2000-2005 and 1918-2005.

| Station number | Station Name | 2000-2005 Average (In.) | 1918-2005 35th Percentile (In.) |
|---|---|---|---|
| C050109 | Akron 4 E | 14.94 | 13.51 |
| C051121 | Burlington | 14.37 | 14.21 |
| C051564 | Cheyenne Wells | 15.53 | 14.11 |
| C054082 | Holyoke | 16.04 | 15.04 |
| C054413 | Julesburg | 14.78 | 15.16 |
| C059243 | Wray | 15.45 | 15.06 |
| C141179 | Burr Oak 1 N | 24.57 | 21.04 |
| C141699 | Colby 1SW | 17.21 | 17.25 |
| C143527 | Hays 1 S | 22.91 | 20.4 |
| C143837 | Hoxie | 17.76 | 16.25 |
| C145363 | Minneapolis | 27.15 | 24.7 |
| C145856 | Norton 9 SSE | 19.39 | 18.54 |
| C145906 | Oberlin1 E | 18.16 | 18.65 |
| C146374 | Phillipsburg 1 SSE | 21.02 | 20.41 |
| C147093 | Saint Francis | 15.52 | 16.11 |
| C148495 | Wakeeny | 22.20 | 19.44 |
| C250640 | Beaver City | 21.25 | 20.81 |
| C250810 | Bertrand | 21.05 | 19.8 |
| C252065 | Culbertson | 21.02 | 19.79 |
| C252690 | Elwood 8 S | 20.25 | 19.71 |
| C253365 | Gothenburg | 19.38 | 19.69 |
| C253735 | Hebron | 29.73 | 25.63 |
| C253910 | Holdrege | 22.27 | 21.14 |
| C254110 | Imperial | 16.28 | 17.54 |
| C255090 | Madrid | 18.37 | 17.24 |
| C255310 | McCook | 20.62 | 18.46 |
| C255565 | Minden | 21.11 | 19.97 |
| C256480 | Palisade | 17.11 | 17.46 |
| C256585 | Paxton | 18.93 | 16.39 |
| C257070 | Red Cloud | 23.68 | 22.36 |
| C258255 | Stratton | 16.12 | 17.8 |
| C258320 | Superior | 24.92 | 22.96 |
| C258735 | Upland | 23.57 | 21.21 |
| C259020 | Wauneta 3 NW | 14.13 | 16.93 |
| MEDIAN | | **19.4** | **18.6** |

## RESULTS

The results of this analysis demonstrate that during a period of time with below average precipitation, Nebraska depletions to stream flow will be slightly greater than Nebraska allocations, given the pumping volume limits incorporated in the Natural Resources District Integrated Management Plans. The estimated annual allocation and CBCU for each year from 2008 through 2012 are summarized in Appendix B. The average difference between allocation and the CBCU less the Imported Water Supply Credit is approximately -1,800 acre-feet. Also, under this dry condition it is possible that water-short year administration would be in effect for some or all of this period. The average difference between allocation and the CBCU less the Imported Water Supply Credit under water short year administration is approximately -8,288 acre-feet[1].

Table D. Comparison of dry (2000-2005) and average (1996-2006) conditions streamflow values used in future accounting analysis.

| Station Name | Dry conditions (acre-feet/yr) | Average Conditions (acre-feet/yr) |
|---|---|---|
| North Fork Republican River At Colorado-Nebraska State Line | 18,935 | 20,121 |
| Arikaree River At Haigler | 1,161 | 2,317 |
| Buffalo Creek Near Haigler | 2,316 | 2,388 |
| Rock Creek At Parks | 5,530 | 5,871 |
| South Fork Republican River Near Benkelman | 0 | 1,491 |
| Frenchman Creek At Culbertson | 18,527 | 23,716 |
| Driftwood Creek Near McCook | 1,946 | 3,146 |
| Red Willow Creek Near Red Willow | 6,846 | 7,116 |
| Medicine Creek Below Harry Strunk | 26,214 | 27,851 |
| Beaver Creek Near Beaver City | 0 | 514 |
| Sappa Creek Near Stamford | 0 | 2,833 |
| Prairie Dog Creek Near Woodruff | 0 | 3,566 |
| Republican River At Guide Rock | 41,295 | 91,422 |
| Republican River Near Hardy | 72,476 | 128,884 |

[1] When originally published in April 2008, this document contained an erroneous number. The correct value references the average found on Table 5c at the end of this report.

# APPENDIX A

# GROUNDWATER MODEL IMPACT SHEETS

# Impacts 2008 (acre-feet)

| Location | Colorado Pumping | Kansas Pumping | Nebraska Pumping | Nebraska Mound |
|---|---|---|---|---|
| Arikaree | 1258 | 72 | 77 | 0 |
| Beaver | 0 | 3949 | 3093 | 0 |
| Buffalo | 353 | 0 | 3311 | 0 |
| Driftwood | 0 | 0 | 1276 | 0 |
| Frenchman | 262 | 0 | 73617 | 0 |
| North Fork | 14937 | 10 | 1409 | 0 |
| Above Swanson | -4274 | 183 | 6720 | 0 |
| Swanson - Harlan | 0 | -558 | 33095 | 7507 |
| Harlan - Guide Rock | 0 | 0 | 26158 | 238 |
| Guide Rock - Hardy | 0 | 77 | 1971 | -18 |
| Medicine | 0 | 0 | 19474 | 9762 |
| Prairie Dog | 0 | 2325 | 0 | 0 |
| Red Willow | 0 | 0 | 6412 | 39 |
| Rock | 74 | 0 | 4086 | 0 |
| Sappa | 0 | -638 | 1105 | 0 |
| South Fork | 11154 | 4863 | 888 | 0 |
| Hugh Butler | 0 | 0 | 1719 | 0 |
| Bonny | 1289 | 0 | 0 | 0 |
| Keith Sebelius | 0 | 604 | 0 | 0 |
| Enders | 0 | 0 | 4678 | 0 |
| Harlan | 0 | 37 | 797 | 19 |
| Harry Strunk | 0 | 0 | 314 | 0 |
| Swanson | 12 | 0 | 319 | 0 |
| **Mainstem** | -4286 | -292 | 67945 | 7725 |
| **Total** | 25057 | 10940 | 190517 | 17538 |

# Impacts 2009 (acre-feet)

| Location | Colorado Pumping | Kansas Pumping | Nebraska Pumping | Nebraska Mound |
|---|---|---|---|---|
| Arikaree | 219 | 84 | 87 | 0 |
| Beaver | 0 | 2351 | 1480 | 0 |
| Buffalo | 366 | 0 | 3276 | 0 |
| Driftwood | 0 | 0 | 1217 | 0 |
| Frenchman | 262 | 0 | 72491 | -13 |
| North Fork | 15049 | 14 | 1441 | 0 |
| Above Swanson | -3099 | 55 | 8009 | 26 |
| Swanson - Harlan | -10 | 366 | 26497 | 2373 |
| Harlan - Guide Rock | 0 | 0 | 26625 | 272 |
| Guide Rock - Hardy | 0 | 85 | 2401 | -17 |
| Medicine | 0 | 0 | 19516 | 9556 |
| Prairie Dog | 0 | 423 | 0 | 0 |
| Red Willow | 0 | 0 | 5743 | 21 |
| Rock | 78 | 0 | 4122 | 0 |
| Sappa | 0 | -1178 | 749 | 0 |
| South Fork | 10333 | 4966 | 779 | 0 |
| Hugh Butler | 0 | 0 | 1765 | 0 |
| Bonny | 1292 | 0 | 0 | 0 |
| Keith Sebelius | 0 | 606 | 0 | 0 |
| Enders | 0 | 0 | 4699 | 0 |
| Harlan | 0 | 33 | 792 | 21 |
| Harry Strunk | 0 | 0 | 311 | 0 |
| Swanson | 16 | 0 | 307 | 0 |
| **Mainstem** | -3112 | 516 | 63532 | 2654 |
| **Total** | 24504 | 7832 | 182306 | 12251 |

# Impacts 2010 (acre-feet)

| Location | Colorado Pumping | Kansas Pumping | Nebraska Pumping | Nebraska Mound |
|---|---|---|---|---|
| Arikaree | 402 | 94 | 89 | 0 |
| Beaver | 0 | 1785 | 931 | 0 |
| Buffalo | 382 | 0 | 3284 | 0 |
| Driftwood | 0 | 0 | 1178 | 0 |
| Frenchman | 331 | 0 | 71940 | 0 |
| North Fork | 15382 | 0 | 1461 | 0 |
| Above Swanson | -3307 | 129 | 7481 | 25 |
| Swanson - Harlan | 0 | 224 | 30175 | 3403 |
| Harlan - Guide Rock | 0 | 0 | 26874 | 295 |
| Guide Rock - Hardy | 0 | 82 | 2349 | 0 |
| Medicine | 0 | 0 | 19951 | 9592 |
| Prairie Dog | 0 | 388 | 0 | 0 |
| Red Willow | 0 | 0 | 6047 | 20 |
| Rock | 84 | 0 | 4192 | 0 |
| Sappa | 0 | -1015 | 648 | 0 |
| South Fork | 11272 | 5377 | 824 | 0 |
| Hugh Butler | 0 | 0 | 1812 | 0 |
| Bonny | 1304 | 10 | 0 | 0 |
| Keith Sebelius | 0 | 608 | 0 | 0 |
| Enders | 0 | 0 | 4731 | 0 |
| Harlan | 0 | 31 | 792 | 22 |
| Harry Strunk | 0 | 0 | 303 | 0 |
| Swanson | 15 | 0 | 296 | 0 |
| **Mainstem** | -3312 | 438 | 66879 | 3715 |
| **Total** | 25866 | 7730 | 185358 | 13351 |

# Impacts 2011 (acre-feet)

| Location | Colorado Pumping | Kansas Pumping | Nebraska Pumping | Nebraska Mound |
|---|---|---|---|---|
| Arikaree | 277 | 91 | 87 | 0 |
| Beaver | 0 | 1422 | 518 | 0 |
| Buffalo | 382 | 0 | 3278 | 0 |
| Driftwood | 0 | 0 | 1148 | 0 |
| Frenchman | 269 | -33 | 72571 | 0 |
| North Fork | 15606 | 11 | 1488 | 0 |
| Above Swanson | -2599 | 79 | 8384 | 15 |
| Swanson - Harlan | 0 | 164 | 29088 | 2085 |
| Harlan - Guide Rock | 0 | 0 | 26607 | 312 |
| Guide Rock - Hardy | 0 | 83 | 2264 | -15 |
| Medicine | 0 | 0 | 20446 | 9856 |
| Prairie Dog | 0 | 124 | 0 | 0 |
| Red Willow | 0 | 0 | 6264 | 24 |
| Rock | 89 | 0 | 4258 | 0 |
| Sappa | 0 | -951 | 556 | 0 |
| South Fork | 10603 | 5450 | 795 | 0 |
| Hugh Butler | 0 | 0 | 1860 | 0 |
| Bonny | 1315 | 11 | 0 | 0 |
| Keith Sebelius | 0 | 608 | 0 | 0 |
| Enders | 0 | 0 | 4768 | 0 |
| Harlan | 0 | 30 | 788 | 23 |
| Harry Strunk | 0 | 0 | 300 | 0 |
| Swanson | 14 | 0 | 287 | 0 |
| **Mainstem** | -2602 | 323 | 66344 | 2396 |
| **Total** | 25959 | 7091 | 185754 | 12306 |

# Impacts 2012 (acre-feet)

| Location | Colorado Pumping | Kansas Pumping | Nebraska Pumping | Nebraska Mound |
|---|---|---|---|---|
| Arikaree | 510 | 73 | 71 | 0 |
| Beaver | 0 | 1268 | 377 | 0 |
| Buffalo | 367 | 0 | 3276 | 0 |
| Driftwood | 0 | 0 | 1128 | 0 |
| Frenchman | 259 | -16 | 70506 | 0 |
| North Fork | 15862 | 10 | 1511 | 0 |
| Above Swanson | -4380 | 157 | 6034 | 17 |
| Swanson - Harlan | 0 | 137 | 27093 | 2152 |
| Harlan - Guide Rock | 0 | 0 | 26490 | 290 |
| Guide Rock - Hardy | 0 | 88 | 2197 | -19 |
| Medicine | 0 | 0 | 20610 | 9458 |
| Prairie Dog | 0 | 196 | 0 | 0 |
| Red Willow | 0 | 0 | 6007 | 23 |
| Rock | 95 | 0 | 4340 | 0 |
| Sappa | 0 | -820 | 496 | 0 |
| South Fork | 10734 | 4874 | 794 | 0 |
| Hugh Butler | 0 | 0 | 1912 | 0 |
| Bonny | 1331 | 12 | 0 | 0 |
| Keith Sebelius | 0 | 610 | 0 | 0 |
| Enders | 0 | 0 | 4816 | 0 |
| Harlan | 0 | 31 | 780 | 22 |
| Harry Strunk | 0 | 0 | 298 | 0 |
| Swanson | 14 | 0 | 282 | 0 |
| **Mainstem** | -4381 | 379 | 61815 | 2440 |
| **Total** | 24797 | 6621 | 179017 | 11939 |

# APPENDIX B

# COMPLIANCE RESULTS

# BASED ON DRY PRECIPITATION SCENARIO

**Table 3A: Colorado's Five-Year Average Allocation and CBCU**

| Year | Allocation | Computed Beneficial Consumptive Use | Imported Water Supply Credit | Allocation - (CBCU - IWS Credit) |
|---|---|---|---|---|
| 2008 | 23,580 | 33,430 | NA | (9,850) |
| 2009 | 21,810 | 32,890 | NA | (11,080) |
| 2010 | 22,430 | 34,230 | NA | (11,800) |
| 2011 | 21,960 | 34,330 | NA | (12,370) |
| 2012 | 21,940 | 33,170 | NA | (11,230) |
| Average | 22,340 | 33,610 | | (11,270) |

**Table 3B: Kansas's Five-Year Average Allocation and CBCU**

| Year | Allocation | Computed Beneficial Consumptive Use | Imported Water Supply Credit | Allocation - (CBCU - IWS Credit) |
|---|---|---|---|---|
| 2008 | 172,040 | 54,650 | NA | 117,390 |
| 2009 | 169,120 | 51,530 | NA | 117,590 |
| 2010 | 170,740 | 51,440 | NA | 119,300 |
| 2011 | 171,130 | 50,810 | NA | 120,320 |
| 2012 | 167,440 | 50,350 | NA | 117,090 |
| Average | 170,090 | 51,760 | | 118,340 |

**Table 3C: Nebraska's Five-Year Average Allocation and CBCU**

| Year | Allocation | Computed Beneficial Consumptive Use | Imported Water Supply Credit | Allocation - (CBCU - IWS Credit) |
|---|---|---|---|---|
| 2008 | 233,320 | 252,750 | 17,992 | (1,438) |
| 2009 | 230,630 | 244,530 | 13,389 | (511) |
| 2010 | 231,650 | 247,570 | 15,345 | (575) |
| 2011 | 232,760 | 247,990 | 14,250 | (980) |
| 2012 | 228,420 | 241,240 | 14,617 | 1,797 |
| Average | 231,360 | 246,820 | 15,120 | (340) |

**Table 5C: Nebraska's Compliance During Water-Short Year Administration**

| | Allocation | | | Computed Beneficial Consumptive Use | | | | |
|---|---|---|---|---|---|---|---|---|
| Year | State-Wide Allocation | Allocation Below Guide Rock | Allocation Above Guide Rock | State-Wide CBCU | CBCU Below Guide Rock | CBCU Above Guide Rock | Imported Water Supply Credit above Guide Rock | Allocation - (CBCU - IWS above Guide Rock) |
| 2008 | 233,320 | 9,267 | 224,053 | 252,750 | 3,102 | 249,648 | 17,547 | (8,048) |
| 2009 | 230,630 | 9,869 | 220,761 | 244,530 | 3,532 | 240,998 | 12,239 | (7,998) |
| 2010 | 231,650 | 9,807 | 221,843 | 247,570 | 3,480 | 244,090 | 13,357 | (8,890) |
| 2011 | 232,760 | 9,712 | 223,048 | 247,990 | 3,395 | 244,595 | 12,300 | (9,247) |
| 2012 | 228,420 | 9,707 | 218,713 | 241,240 | 3,328 | 237,912 | 11,943 | (7,256) |
| Average | 231,356 | 9,672 | 221,684 | 246,816 | 3,367 | 243,449 | 13,477 | (8,288) |

## Appendix H: Tables: Summary of Surface Water Leasing Activities

### Table H.1. Summary of surface water leasing during 2006.

| Agency Leasing Surface Water | Surface Water Irrigation District | Total Water Yield Above HCL (Acre Feet) |
|---|---|---|
| Nebraska Department of Natural Resources | Nebraska Bostwick Irrigation District—Natural Flow | 5,000 |
| Nebraska Department of Natural Resources | Nebraska Bostwick Irrigation District—Harlan County Lake | 10,000 |
| Nebraska Department of Natural Resources | Riverside Irrigation District | 2,000 |
| Nebraska Department of Natural Resources | Frenchman Valley Irrigation District | 8,000 |
| Total | | 25,000 |

### Table H.2. Summary of surface water leasing during 2007.

| Agency Leasing Surface Water | Surface Water Irrigation District | Total Water Yield Above HCL (Acre Feet) |
|---|---|---|
| Nebraska Department of Natural Resources | Nebraska Bostwick Irrigation District—Natural Flow | 5,000 |
| Nebraska Department of Natural Resources | Nebraska Bostwick Irrigation District—Harlan County Lake | 12,500 |
| Natural Resources Districts | Riverside Irrigation District | 2,000 |
| Natural Resources Districts | Frenchman Valley Irrigation District | 8,000 |
| Natural Resources Districts | Frenchman Cambridge Irrigation District | 26,000 |
| Total | | 53,500 |

### Table H.3. Summary of surface water leasing during 2008.

| Agency Leasing Surface Water | Surface Water Irrigation District | Total Water Yield Above HCL (Acre Feet) |
|---|---|---|
| Nebraska Department of Natural Resources | Riverside Irrigation District | 2,000 |
| Nebraska Department of Natural Resources | Frenchman Valley Irrigation District | 8,000 |
| Nebraska Department of Natural Resources | Frenchman Cambridge Irrigation District | 5,000 |
| Total | | 15,000 |

# Appendix I: Incentive Programs

**Table I.1. Summary of acreage idled in the Republican River Basin.**

| Program Name | Term of Retirement | No. of Contracts | No. of Acres |
|---|---|---|---|
| CREP | 10-15 Years | 374 | 39,946 |
| EQIP | 2005-2008 | 138 | 9,641 |
| REP EQIP | Permanent | 35 | 2,511 |
| LRNRD EQIP | Permanent | 2 | 196 |
| TB EQIP | 2007-2012 | 9 | 137 |