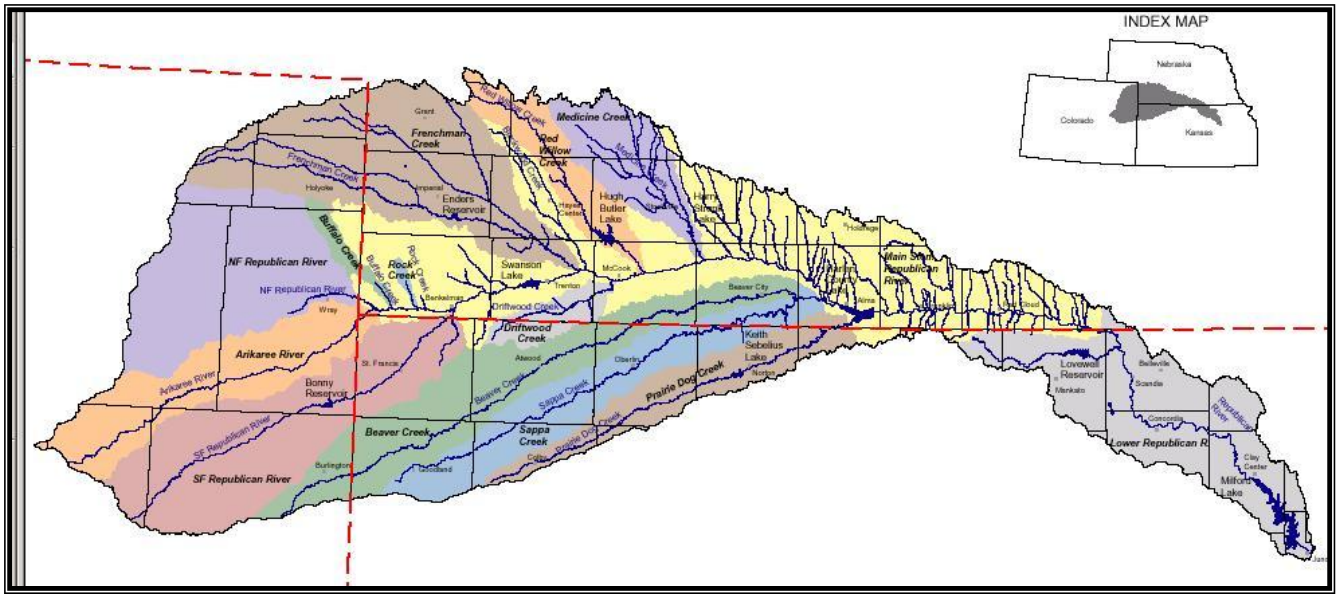
REPUBLICAN RIVER COMPACT ADMINISTRATION

51st ANNUAL REPORT

FOR THE YEAR 2011



JUNCTION CITY, KANSAS

OCTOBER 16, 2012

SUMMARY REPORT OF THE ANNUAL
MEETING OF THE REPUBLICAN RIVER
COMPACT ADMINISTRATION

October 16, 2012

Junction City Kansas

Minutes

A transcript of this meeting was prepared by a court reporter. Upon the approval of the Republican River Compact Administration (RRCA), the transcript will serve as the official minutes of the 52nd Annual Meeting of the RRCA. Copies of the transcript may be obtained from the offices of each of the compact commissioners. The following is a summary of the meeting.

Introductions

The Annual Meeting of the RRCA was called to order by Chairman David Barfield at 7:50 a.m. on October 16, 2012, at the C.L. Hoover Opera House in Junction City, Kansas. Each Commissioner introduced staff in attendance and members of the audience introduced themselves. Attendees included:

David W. Barfield	Kansas Commissioner
Chris Grunewald	Kansas Attorney General's Office
Burke Griggs	Kansas Department of Agriculture
Scott Ross	Kansas Department of Agriculture
Brian P. Dunnigan	Nebraska Commissioner
Justin Lavene	Nebraska Attorney General's Office
Jim Schneider	Nebraska Department of Natural Resources
Tom O'Connor	Nebraska Department of Natural Resources
Dick Wolfe	Colorado Commissioner, Chair
Mike Sullivan	Colorado Division of Water Resources
Scott Steinbrecher	Colorado Attorney General's Office

The list of attendees as recorded on the attendance sheets is attached as Exhibit A.

Modification and Approval of Agenda

Chairman Barfield asked for modifications to the agenda. As a result of suggestions by the commissioners, the following modification were agreed upon: item 9A was amended to "Discussion of Engineering Committee Report and assignments"; item 9B was amended to "Action on Nebraska's proposed Plan for Reduction of Computed Beneficial Consumptive Uses"; and item 9C through 9G were amended to "Status of" each item. Commissioner Wolfe moved to adopt the amended agenda. Commissioner Dunnigan seconded and the motion was approved unanimously.

A copy of the amended agenda as approved is attached as Exhibit B.

Status of Previous Annual and Special Meeting Reports and Transcripts

A draft report and transcript of the 2011 RRCA meeting were provided to each state. A thorough review had not yet been completed by the states. The Commissioners anticipated that this item would be considered at a later date.

It was noted that the RRCA was not ready to take action on reports and transcripts from the 2007, 2008, 2009 and 2010 meetings of the RRCA which have been provided to each state.

Report of the Commissioner from Kansas

Significant heat and dry conditions in the southern half of Kansas in 2011 led to the creation of Drought Emergency Term Permits to allow appropriators to complete the 2011 irrigation season while reducing their 2012 allocation according to what was used beyond their authorized amount in 2011. As a result of persistent drought conditions, the 2012 Legislature enacted Senate Bill 272 to make the Multi-Year Flex Account tool more attractive by providing multiple options for determining the five-year allocation. In 2012 there were 600 Multi-Year Flex Account applications statewide, including nearly 100 in northwest Kansas.

Chairman Barfield noted additional follow-up to the Kansas governor's Ogallala aquifer initiatives. The 2012 Legislature also enabled Senate Bill 310 which amended Kansas' Groundwater Management District Act to provide another method to deal with water level declines and over-appropriation in parts of western Kansas in particular. The law allowed groundwater management districts to initiate a local enhanced management area (LEMA), in which the stakeholders develop a plan to address severe water resource issues in their district. Once a plan is developed, a hearing process before the chief engineer is initiated whereby the plan is assessed and recommendations are made. Northwest Kansas Groundwater Management District No. 4 has developed a LEMA in Sheridan County and submitted it for review. The first of two hearings has been held and the plan was found to meet statutory requirements. The plan sets an allocation of 55 inches for five years for that LEMA area, which is a 20 percent reduction from recent historical use.

The 2012 water supply conditions continue to be dry, which has led to significant water administration state-wide. In the Republican Basin the Kansas administered users junior to the 1984 minimum desirable stream flows in late summer, which continue to this date.

The State of Kansas continues to be in compliance with all the requirements of the final settlement stipulation in the Compact. Northwest Kansas is fully metered and subject to normal compliance enforcement.

The status of ongoing litigation related to Nebraska's compliance with the compact is that trial was held during the month of August in Portland, Maine and a briefing on the matter was completed.

Report of the Commissioner from Colorado

Commissioner Wolfe reported that achieving Compact compliance is of utmost importance to Colorado and thanked Colorado staff, the Republican River Water Conservancy District (RRWCD) and water users in the basin for their efforts toward achieving compliance. The RRWCD has completed the Compact compliance pipeline and is awaiting decision by the Compact Administration to allow the pipeline to be operational and help Colorado achieve Compact compliance. Commissioner Wolfe reported that the RRWCD expended nearly $100 million to date to find a local solution to the local problem.

Another component of Colorado compliance efforts was in regard to Bonny Reservoir on the South Fork. Commissioner Wolfe issued an order in September 2011 to the Bureau of Reclamation to drain Bonny Reservoir and recognized the Bureau's efforts in working with Colorado during that process. The reservoir is drained and Colorado intends to keep Bonny Reservoir in a drained condition until the state is in compliance and can make a decision in the future on whether additional storage can occur in the reservoir.

Report of the Commissioner from Nebraska

Commissioner Dunnigan reported that using current accounting procedures, Nebraska had a positive five-year average for the period ending in 2011. Based on projected accounting Nebraska would likely be in compliance through 2012 as well.

Commissioner Dunnigan reported that even though drought conditions placed stress on the basin water supply, any concerns carried over from the last drought about Nebraska's ability to comply with the Compact should not exist. Nebraska has taken significant steps to bolster its water management including the development of third-generation integrated management plans (IMPs), which contain forecasting provisions and accompanying controls. Those procedures incorporate detailed analysis and triggers to ensure that Nebraska is in compliance. The IMPs contain provisions to help manage long-term groundwater depletions such as continuing to reduce groundwater pumping volumes and annual evaluations to determine if additional controls are needed.

Commissioner Dunnigan announced that the basin Natural Resource Districts (NRDs) continue to demonstrate a commitment to compliance through the adoption of rules to support full implementation of the most recent IMPs. The plans contain controls that would require the shut-down of wells in rapid response areas during Compact Call years as well as provisions to administer stream flows to ensure Nebraska compliance. The Department of Natural Resources and Tri-Basin NRD also finalized their IMP, which became effective July 1, 2012. The plan requires the Tri-Basin NRD to limit groundwater depletions to the same volume as groundwater imports.

Commissioner Dunnigan reported that Nebraska continues to invest in long-term solutions for reducing consumptive use in the basin. State and local NRD financial resources continue to be invested in CREP and AWEP programs to provide permanent and temporary reductions in irrigated lands throughout the basin. DNR has been pursuing efforts in coordination with the Nebraska Republican River Management

Districts Association to develop modeling tools to support the evaluation of potential conjunctive management options throughout the basin. The Department plans to work with the other states though the WaterSMART Basin Studies Program to evaluate system and operational improvements.

Commissioner Dunnigan concluded by reiterating Nebraska's intent to comply with the Republican River Compact. Nebraska will continue to evaluate the needs of the Republican River Basin and make changes as necessary to remain in compliance and continued collaboration with all stakeholders in the basin, including Colorado and Kansas, the NRDs, surface water districts, individual water users, and the U.S. Bureau of Reclamation (USBR).

Commissioner Dunnigan then introduced Tom O' Connor from the Nebraska DNR. Mr. O'Conner proceeded to report on the water administration activities in Nebraska for calendar year 2011. In summary, activities included issuance of closing notices for failure to submit water use reports, regulating notices and closing notices to water users associated with Riverside Canal, Meeker-Driftwood Canal, Cambridge Canal, Frenchman Valley and H&RW Irrigation Districts, as well as opening and closing notices to various storage permit holders. Then in early December 2012 water use reports were mailed to all nonfederal irrigation permit holders in the Republican River Basin.

Report by the U. S. Bureau of Reclamation

Mr. Aaron Thompson, representing the U.S. Bureau of Reclamation (USBR), highlighted the Bureau's operation in 2011 within the Republican River Basin. Bonny Reservoir releases that began in late 2011 were completed in 2012. Repairs to Red Willow Dam began in 2011 and are scheduled for completion in November 2013. Harlan County Reservoir ended 2011 in flood pool and evacuation of the flood pool was accomplished during the first five months in 2012. Based on September 2012 reservoir storage, it is projected that water-short year administration will be in effect in 2013. The Republican River Basin was selected for a WaterSMART basin study in 2012. Mr. Thompson announced that additional funding was available for various irrigation district projects as well as cost-share grants.

The USBR's operations report is attached as Exhibit C.

Report by the U.S. Geological Survey

Mr. Jason Lambrecht, representing the U.S. Geological Survey (USGS), reported on its activities in the Republican River Basin for 2011. Mr. Lambrecht provided the Compact Administration with a printed PowerPoint presentation containing the annual data report published by the USGS and all of the graphs mentioned at the meeting. Mr. Lambrecht stated that 2011 recorded discharge for all long-term gages were among the lowest on record, except Red Willow Creek near Red Willow, Nebraska due to the draining of Hugh Butler Lake for repairs to the dam. Most notably, Rock Creek gage near Parks was the lowest recorded discharge in 71 years of record. Mr. Lambrecht also mentioned a USGS product called WaterWatch as a way to acquire statistics for all of the stream gages across the United States.

The USGS PowerPoint presentation, 2011 gage records, and WaterWatch brochure are attached as Exhibit D.

Engineering Committee Report

Scott Ross of Kansas presented the Engineering Committee Report. Copies of the report were presented to the RRCA.

The Engineering Committee and technical representatives from each of the three states worked on a number of items that were assigned at the August 31, 2011 annual meeting. Mr. Ross provided an update on the status of each assignment as follows:

- Complete the user's manual for accounting procedures and provide a resolution for its adoption. The assignment should be continued.
- Exchange by April 15, 2011 the information listed in Section V of the RRCA Accounting Procedures and Reporting Requirements. Kansas and Nebraska exchanged information on April 15th, 2012 and Colorado in late September. The final data exchanges were completed and model runs were completed on October 4th, 2012. Data sets were collected by the Engineering Committee for stream flow, pump data, diversion records, and reservoir evaporation records for the three states. However, final accounting for 2011 was not completed.
- Continue efforts to resolve concerns related to varying methods of estimating ground and surface water irrigation recharge and return flows within the Republican River Basin and related issues. The assignment was discussed and recommended to be continued as an assignment.
- Retain Principia Mathematica to perform ongoing maintenance of the groundwater model and periodic updates requested by the engineering committee. Each state separately contracted with Principia Mathematica for said service.
- Continue development of a five-year accounting spreadsheet. Some discussions took place but no progress on the assignment.
- Continue review of Colorado's augmentation proposal. This item was not pursued by the engineering committee as it is the subject of separate discussions between the states.
- Continue efforts to finalize accounting data for 2008, 2009, and 2010. This is a primary issue currently before the United States Supreme Court.
- Develop a procedure to account for inflows to the stream segment between Guide Rock diversion dam and the relocated stream flow gage. After some discussion and review of alternatives the committee recommends continuing this assignment.
- Discuss the application of the revised Bonny Reservoir area-capacity tables to current and past accounting data. Kansas proposed adoption of the area-capacity tables for the 2011 data and into the future. Colorado would like the committee to consider applying the tables retroactively from 2007 through 2010. The committee will continue to discuss.
- Discuss accounting changes that may be needed for surface water diversions for the purpose of recharging groundwater. No further data was available from the Frenchman-Cambridge Irrigation District project. The committee recommends continuing this assignment.

- Apply the procedure described in Exhibit A of the 2011 Engineering Committee report to fill in missing precipitation data in the groundwater model. The initial assignment was completed. An additional issue surfaced in the 2011 data set such that a refined proposal is now required. Such a proposal will be made at a future meeting of the RRCA.
- Discuss archiving the data and materials from the Conservation Committee study. Several possible data storage locations have been identified.
- Amend the RRCA Rules and Regulations. A new draft Rules and Regulations document was prepared, but some discrepancies and typographical errors were identified and need to be fixed. Those items will be dealt with and a new draft prepared for approval at the next RRCA meeting.

Mr. Ross concluded the Engineering Committee report by listing the tasks that should be reviewed by the Engineering Committee in the coming year. The committee did not recommend adopting the 2011 report at this time due to the absence of the Colorado committee member. Chairman Barfield asked Nebraska to clarify the surface diversions for recharging groundwater project. James Schneider of Nebraska replied that Nebraska had a month-long project in spring 2012, but that the data was not available.

Conservation Committee Report

Mr. Scott Guenthner, representing the Bureau of Reclamation, provided the Conservation Committee status report on the study of the effect of non-federal reservoirs and terraces. The study plan was approved by the RRCA at their annual meeting in 2004 and essentially utilized a water balance model to estimate impacts of non-federal reservoirs and terraces.

Mr. Guenthner informed the RRCA that the study had been completed and a draft final report developed. At present, the draft report is being edited by the experts. A one-page summary fact sheet has been produced by the Bureau. The final report is expected to be produced in the months following this annual meeting.

The one-page summary of the Conservation Committee's final report is attached as Exhibit F.

Status of 2006, 2007, 2008, 2009, 2010 and 2011 Final Accounting

Chairman Barfield noted that this topic was not up for action at the current meeting. The RRCA recognizes that the States will continue to work through the Engineering Committee on finalization of data and other information required for adoption of final accounting for these years.

Action on Engineering Committee Report and assignments

Chairman Barfield noted that the 2011 Engineering Committee report is not ready for action at this time. Commissioner Wolfe clarified the final assignment to the committee should be to continue discussing retroactive application of the Bonny Reservoir area-capacity tables. A final 2011 Engineering Committee report will be prepared and offered for approval at a future RRCA meeting.

The draft 2011 Engineering Committee Report is attached as Exhibit E.

Nebraska's Proposed Alternative Water-Short Year Plan

Commissioner Dunnigan introduced Nebraska's alternative water-short year plan to the RRCA for consideration and approval. The commissioner noted that Nebraska had received a letter from Kansas on October 4, 2012 with comments on the proposed plan and conclusion that Kansas could not approve this plan. Commissioner Dunnigan noted that there seems to be interpretation differences with the language of Appendix M, specifically item 2. Nebraska feels that all issues were addressed in their plan and offered a resolution to the RRCA, which was read into the record by Mr. Jim Schneider.

Commissioner Dunnigan moved to adopt the State of Nebraska's Plan for Reduction of Computed Beneficial Consumptive Uses under Alternative Water-Short Year Administration. Commissioner Wolfe seconded the motion.

In the discussion that followed, Commissioner Wolfe noted that he appreciated Nebraska's efforts towards compact compliance. He recommended that the RRCA move forward in a cooperative manner to avoid a constant state of litigation. Chairman Barfield offered Kansas' comments on the proposed plan. Kansas does not believe the plan conforms to the requirements set forth in Appendix M. Chairman Barfield stated that he would like to see the states work cooperatively to produce a plan that is agreeable to all parties.

Chairman Barfield noted there was a motion and second to adopt the resolution to approve Nebraska's plan and called for a vote from the commissioners. The RRCA failed to adopt the resolution with Commissioner Dunnigan and Commissioner Wolfe voting "yes" and Chairman Barfield voting "no".

The Nebraska resolution is attached as Exhibit G.

The Nebraska water-short year proposal is attached as Exhibit H.

The Kansas October 4, 2012 letter is attached as Exhibit I.

Status of Colorado Resolutions: Bonny Reservoir Accounting and Compact Compliance Pipeline

Commissioner Wolfe commented on Colorado's desire to have a resolution that deals with its augmentation proposal on the North Fork and its planned operation of Bonny Reservoir on the South Fork. The state will continue to move forward with that goal at a future RRCA meeting. Colorado is committed to continue working with the states and water users in the basin to achieve such a resolution.

Status of Kansas resolutions: Bonny Reservoir, Ground Water Recharge, and Modeling Augmentation Flows

Chairman Barfield stated that Kansas has reserved on the agenda an opportunity to offer its own resolution for revisions to the ground water model for the South Fork sub-basin in light of draining Bonny Reservoir. As Colorado chose to delay its resolution to allow more time to seek agreement, Kansas has no resolution to offer at this time.

Chairman Barfield noted that when the final settlement stipulation was developed in 2002 and 2003 that there was a further commitment to improve their data for estimating recharge in the RRCA groundwater model and further evaluate groundwater irrigation recharge methodologies. The issue has been before RRCA since 2004 and no progress has been made. Kansas was hoping to put forth a proposal at this meeting, but the proposal is not yet ready.

Chairman Barfield discussed efforts to respond to Nebraska's request to develop a framework for application and approval of a process by which future augmentation plans could be approved the RRCA. Kansas offered some discussion points through the engineering committee, which should be discussed in the near future. Chairman Barfield noted that Nebraska's Rock Creek project is complete and the expectation is that augmentation plans will be brought before RRCA and approved prior to implementation.

Remarks from the Public

Chairman Barfield opened the floor for public comments.

Mr. Dennis Coryell, representing the Republican River Water Conservation District in Colorado, wanted to emphasize the importance of the Compact Administration reaching an agreement on the accounting for the South Fork sub-basin in light of the fact that Bonny Reservoir has been drained. Mr. Coryell noted that the Colorado pipeline is complete and undergoing testing at this time. He urged the RRCA to approve the accounting for inflows to the North Fork of the Republican River to assist Colorado with its compliance. Mr. Coryell also mentioned that the District budget committee recommended an allocation of a million dollars in the form of rebates for decreases in historical consumptive use. He urged the Administration to work together to reach agreement on Colorado's issues.

Future Meeting Arrangements

There was a discussion by the commissioners to move the annual meeting date to late August. The Engineering Committee was directed to offer an appropriate date in the forthcoming draft of the Rules and Regulations.

Chairman Barfield noted that the 2013 annual meeting will be held in Colby, Kansas and possible dates will be determined at some point in the future.

Adjournment

Chairman Barfield moved to adjourn the annual meeting. Commissioner Wolfe seconded and the motion passed unanimously. The meeting was adjourned at 10:08 a.m.

The transcript for the 2012 RRCA annual meeting is attached as Exhibit J.

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David W. Barfield, Kansas Commissioner, Chairman

_____

Dick Wolfe, Colorado Commissioner

_____

Brian Dunnigan, Nebraska Commissioner

Exhibits

Exhibit A:	List of meeting attendees
Exhibit B:	Agenda
Exhibit C:	USBR annual report
Exhibit D:	USGS annual report and accompanying handouts
Exhibit E:	Engineering Committee draft report
Exhibit F:	Conservation Committee handout
Exhibit G:	Nebraska Water-Short Year Resolution
Exhibit H:	Nebraska Water-Short Year Proposal dated July 30, 2012
Exhibit I:	Kansas letter dated October 4th, 2012
Exhibit J:	Transcript of the 2012 RRCA annual meeting in Junction City, Kansas

The 51st annual RRCA report is hereby approved on this 12th day of September 2013.

David W. Barfield, Chair, Kansas Commissioner

Dick Wolfe, Colorado Commissioner

Brian Dunnigan, Nebraska Commissioner

Exhibit A

Attendance List

Republican River Compact Commissioners Annual Meeting

Attendance List

Junction City, Kansas October 16, 2012

Name	Representing
David W. Barfield	Kansas Commissioner, Chair
Dick Wolfe	Colorado Commissioner
Brian P. Dunnigan	Nebraska Commissioner
Chris Grunewald	Kansas Attorney General's Office
Burke Griggs	Kansas Division of Water Resources
Scott Ross	Kansas Division of Water Resources
Chris Beightel	Kansas Division of Water Resources
Chelsea Juricek	Kansas Division of Water Resources
Hongsheng Cao	Kansas Division of Water Resources
Sam Perkins	Kansas Division of Water Resources
Mike Sullivan	Colorado Division of Water Resources
Dave Keeler	Colorado Division of Water Resources
Ivan Franco	Colorado Division of Water Resources
Scott Steinbrecher	Colorado Attorney General's Office
Willem Schreüder	Principia Mathematica
David Robbins	Republican River Water Conservation District
Dennis Montgomery	Republican River Water Conservation District
Peter Ampe	Republican River Water Conservation District
Dennis Coryell	Republican River Water Conservation District
Deb Coryell	Republican River Water Conservation District
Jack Dowell	Republican River Water Conservation District
Deb Daniel	Republican River Water Conservation District
Justin Lavene	Nebraska Attorney General's Office
Blake Johnson	Nebraska Attorney General's Office
Jim Schneider	Nebraska Department of Natural Resources
Jesse Bradley	Nebraska Department of Natural Resources
Tom O'Connor	Nebraska Department of Natural Resources
Paul Koester	Nebraska Department of Natural Resources
Tom Wilmoth	Outside Council for Nebraska
Doug White	Outside Council for Nebraska
Tom Riley	Flatwater Group
David Kracman	Flatwater Group
Mark Groff	Flatwater Group
Nate Jenkins	Upper Republican Natural Resource District
Jasper Fanning	Upper Republican Natural Resource District
Dan Smith	Middle Republican Natural Resource District
Mike Clements	Lower Republican Natural Resource District

Attendance List

Junction City, Kansas October 16, 2012

Name	Representing
Mike Delka	Nebraska Bostwick Irrigation District
Brad Edgerton	Frenchman-Cambridge Irrigation District
Aaron Thompson	United States Bureau of Reclamation
R. Scott Guenthner	United States Bureau of Reclamation
Craig Scott	United States Bureau of Reclamation
RJ Harms	Corps of Engineers, Milford Lake
Jason Lambrecht	United States Geological Survey, NEWSC
Jim Koelliker	Kansas State University – Manhattan
Galen Biery	Kansas Rural Water District No. 1
Kent Askren	Kansas Farm Bureau
Steve Adams	Kansas Wildlife, Parks & Tourism
Harlan Herman	Inavale, Nebraska
Debra Herman	Inavale, Nebraska

Exhibit B

Annual Meeting Agenda

PROPOSED AGENDA FOR
52nd ANNUAL MEETING OF THE
REPUBLICAN RIVER COMPACT ADMINISTRATION
October 16, 2012, 9:00 AM

Junction City, Kansas

1. Introductions
2. Adoption of the Agenda
3. Status of Report and Transcript for 2011 Annual Meeting
4. Status of Previous Annual and Special Meetings Reports and Transcripts
5. Report of Chairman and Commissioner's Reports
    a. Kansas
    b. Colorado
    c. Nebraska
6. Federal Reports
    a. Bureau of Reclamation
    b. U.S. Army Corps of Engineers
    c. U.S. Geological Survey
7. Committee Reports
    a. Engineering Committee
        i. Assignments from 2011 Annual Meeting
        ii. Committee Recommendations to RRCA
        iii. Other Matters
        iv. Recommended assignments for Engineering Committee
    b. Conservation Committee
8. Old Business
    a. Status of unapproved previous accounting
9. New Business and Assignments to Compact Committees
    a. Discussion of Engineering Committee Report and assignments
    b. Action on Nebraska's proposed Plan for Reduction of Computed Beneficial Consumptive Uses
    c. Status of Colorado's Resolution Regarding Operation and Accounting for Bonny Reservoir.
    d. Status of Colorado's Resolution Regarding Colorado's Compact Compliance Pipeline.
    e. Status of Kansas' proposal for revisions to the groundwater model for the South Fork sub-basin in light of the draining of Bonny Reservoir.
    f. Status of Kansas' proposal for adoption of a common set of procedures and recharge values by system type for estimating groundwater irrigation recharge in the RRCA groundwater model.
    g. Status of Kansas' proposal for accounting and modeling of augmentation flows.
10. Remarks from the Public
11. Future Meeting Arrangements
12. Adjournment

Exhibit C

USBR Annual Report

RECLAMATION

Managing Water in the West

Nebraska-Kansas Area Office

Report

To The

Republican River

Compact Administration

Junction City, KS

U.S. Department of the Interior
Bureau of Reclamation
Great Plains Region

October 2012

REPUBLICAN RIVER COMPACT MEETING

October 16, 2012
Junction City, Kansas

2011 Operations

As shown on the attached Table 1, precipitation in the Republican River Basin varied from 100 percent of normal at Swanson Lake to 140 percent of normal at Keith Sebelius Lake. Total precipitation at Reclamation project dams ranged from 19.01 inches at Bonny Dam to 34.36 inches at Norton Dam.

Inflows varied from 67 percent of the most probable forecast at Enders Reservoir to 139 percent of the most probable forecast at Keith Sebelius Lake. Inflows into Enders Reservoir totaled 7,516 AF while inflows at Harlan County Lake totaled 174,830 AF.

Average farm delivery values for total irrigable acres were as follows:

District	Farm Delivery
Frenchman Valley	1.4 inches
H&RW	0.0 inches
Frenchman-Cambridge	5.7 inches
Almena	1.5 inches
Bostwick in NE	4.9 inches
Kansas-Bostwick	7.0 inches

2011 Operation Notes

Bonny Reservoir – Started the year at elevation 3652.27 feet, 19.7 feet below the top of conservation. The annual computed inflow totaled 9,008 AF. The reservoir level peaked at elevation 3655.89 feet (10,724 AF) on June 2nd. River releases were made from June 20th through July 9th, and again from September 21st through December 31st as requested by the State of Colorado. A total of 8,840 AF was released to the river. Another 272 AF was released into Hale Ditch from September 23rd through October 9th. The reservoir elevation at the end of the year was 32.3 feet below the top of conservation at 3639.70 feet.

Enders Reservoir – Started the year at elevation 3092.49 feet, 19.8 feet below the top of conservation. The 2011 computed inflow totaled 7,516 AF. The reservoir level increased slightly during the spring to a peak elevation of 3094.83 feet on June 21st. The conservation pool has not filled since 1968. Due to the extremely low available water supply, no water was released from Enders Reservoir. This was the tenth consecutive year that H&RW Irrigation District did not divert water. It was also the eighth consecutive year that storage releases were not made for Frenchman Valley Irrigation District. The end of the year reservoir level was 19.0 feet (3093.26 feet) below the top of conservation.

Swanson Lake – Started the year at elevation 2740.15 feet, 11.8 feet below the top of conservation. The annual computed inflow totaled 33,791 AF. The lake level gradually increased to a peak elevation of 2745.40 feet (6.6 feet below the top of conservation) on June 21st. The reservoir level decreased during the irrigation season reaching elevation 2740.17 feet on September 3rd. The district diverted 21,538 AF into Meeker-Driftwood Canal from June 20th through September 2nd. At the end of the year the reservoir level was 11.8 feet below the top of conservation at 2740.16 feet.

Hugh Butler Lake – Started the year at elevation 2553.52 feet, 28.3 feet below the top of conservation. The 2011 computed inflow was 17,863 AF. Due to dam safety concerns, releases were made throughout the year to maintain the reservoir elevation between 2552.00 and 2554.00 feet. No irrigation releases were made from Hugh Butler Lake in 2011. The end of year storage of 5,993 AF was the lowest end of December storage ever recorded at the site (elevation 2553.45 feet), 28.4 feet below the top of conservation.

Harry Strunk Lake – Started the year at elevation 2365.71 feet, only .4 foot below the top of conservation. The annual computed inflow totaled 44,135 AF. Releases were made during the first three months of the year to maintain the pool level. The reservoir was allowed to fill on April 17th and the reservoir level gradually increased to elevation 2367.00 feet on May 3rd. Runoff from late May storms increased the pool level to a peak elevation of 2368.38 feet on May 30th (2.3 feet into the flood pool). Uncontrolled spills along with irrigation releases dropped the reservoir level to elevation 2359.21 feet by early September. Irrigation releases began in earnest on July 17th and ran through September 9th. The district diverted 28,850 AF into Cambridge Canal. Late fall and early winter inflows increased the level of Harry Strunk Lake to only 0.9 foot below the top of conservation at the end of the year (2365.24 feet).

Keith Sebelius Lake – Started the year at elevation 2296.81 feet, 7.5 feet below the top of conservation. The total 2011 computed inflow was 11,995 AF. The reservoir level slowly increased to elevation 2298.18 feet on May 30th. Irrigation releases were made during July reducing the lake level by about 2 feet. Norton Dam recorded 10.42 inches of precipitation during August, the greatest ever recorded for the month. Runoff from the August storms increased the level of Keith Sebelius Lake to elevation 2297.02 feet. Norton Dam recorded another 7.26 inches of rainfall in October, the second greatest on record for the month. Runoff from the storms increased the lake level again and Keith Sebelius Lake ended the year at elevation 2298.43 feet (5.9 feet below the top of conservation). A total of 2,277 AF was diverted into Almena Canal.

Harlan County Lake – Started the year at elevation 1946.05 feet, .3 foot into the flood pool. The 2011 computed inflow totaled 174,830 AF. River releases varied from 50 to 350 cfs during the first three months of the year and the lake level gradually increased to elevation 1947.40 feet by March 21st. The release was staged up at this time to 1,000 cfs for approximately four days. The elevated release was made to help prevent the Republican River channel from developing areas of vegetation and to re-establish channel capacity. The lake level was maintained near elevation 1946.5 feet through mid May. Runoff from late May storms increased the reservoir level to elevation 1947.30 feet on May 31st. River releases were staged up to 500 cfs during early June to maintain this elevation. Irrigation releases

started June 14th and continued through September 9th. Late summer rainfall significantly reduced irrigation demands and the pool level dropped to elevation 1944.70 feet by October 6th. Bostwick in Nebraska Irrigation District diverted 28,262 AF in 2011. The reservoir elevation was 1946.39 feet (0.7 foot in the flood pool) on December 31, 2011. A ten year summary of Harlan County Lake operations is shown on Table 3.

Lovewell Reservoir – Started the year at elevation 1579.47 feet, 3.1 feet below the top of conservation. The pool level gradually increased to elevation 1582.12 feet on May 18th. Three separate storm systems moved through North Central Kansas from May 18th through June 2nd. Each system resulted in 2 to 4 inches of rainfall with localized heavier amounts. Runoff from these storms increased the reservoir level to a peak elevation of 1590.12 feet on May 27th (7.5 feet into the flood pool with 53 percent of flood storage occupied). Flood releases were staged up to 1,250 cfs and a Response Level 1 was issued due to the amount of flood storage occupied. Flood releases continued at 1,250 cfs through June 6th when the Corps of Engineers ordered the releases staged off to mitigate downstream flooding on the Missouri River. Irrigation releases began on June 7th and continued through September 15th. The reservoir level dropped from the flood pool on August 25th and ended the irrigation season at elevation 1580.86 feet. The Kansas Bostwick Irrigation District diverted a total of 54,072 AF in 2011. A total of 36,183 AF was diverted into Courtland Canal from Lovewell Reservoir. The reservoir level at the end of the year was 1581.31 feet (1.3 feet below top of conservation).

Current Operations (As of 8/31/12)

Bonny Reservoir – The reservoir is currently empty. The State of Colorado requested river releases totaling approximately 2,100 AF during the first five months of the year at which time no storage remained in the reservoir. Bonny Dam has recorded only 7.77 inches of precipitation during the first eight months of the year (56% of average).

Swanson Lake – The lake level is currently 18.7 feet from full and is 7.1 feet below last year at this time. Precipitation for the year is at 72% of normal (11.43 inches). Considerable irrigation releases were made from Swanson Lake this past season due to the hot and dry conditions.

Enders Reservoir - The reservoir level is currently 20.7 feet below full and 2.2 feet below last year at this time. Enders Dam recorded 10.08 inches of precipitation during the first eight months of the year. Normal precipitation during this period is 15.25 inches. Due to the water supply shortage, H&RW Irrigation District is not irrigating for the eleventh year in a row. This is also the ninth consecutive year that Frenchman Valley Irrigation District has not received storage water for irrigation.

Hugh Butler Lake – The lake level is currently 29.9 feet below full. The precipitation total so far this year is 8.65 inches (56% of normal). The lake level is 1.7 feet below last year at this time. Releases are being made from Hugh Butler Lake to maintain the reservoir elevation within the parameters provided by the Interim Operating Plan implemented after cracking was discovered in the embankment.

Harry Strunk Lake – The lake level is currently 16.7 feet below the top of conservation. Releases were made throughout the late winter and spring to maintain the reservoir elevation below the flood pool. The lake filled on April 21st with the reservoir level peaking on May 5th at .5 foot into the flood pool. Precipitation at the dam during the first eight months of the year was 10.73 inches (66% of normal). Irrigation demands were high during 2012 due to the hot and dry conditions. The lake level is currently 10.4 feet below last year at this time.

Keith Sebelius Lake – Currently 9.6 feet below full. Lake level is 2.3 feet below last year at this time. Irrigation releases were limited during 2012. Precipitation at the dam during the first eight months of the year was 12.60 inches (66% of normal).

Harlan County Lake – The current water surface level is approximately 9.3 feet below full. The lake level is 8.7 feet below last year at this time. Harlan County Dam has recorded 15.78 inches of precipitation so far this year (88% of normal). Releases were made during the first five months of the year to maintain the pool level near elevation 1946.0 feet. The available irrigation supply from Harlan County Lake on June 30, 2012 was 132,900 AF, indicating that "Water-Short Year Administration" would not be in effect. Irrigation releases were above normal due to the hot and dry conditions experienced in 2012.

Lovewell Reservoir – The reservoir level is currently 9.7 feet below the top of conservation and approximately 9.1 feet below last year's elevation at this time. Lovewell Dam recorded 20.47 inches of precipitation during the first eight months of the year (90% of average). Similar to other projects, irrigation demands were high in 2012 due to the hot and dry conditions.

A summary of data for the first eight months of 2012 is shown on Table 2.

Other Items

Inspections – Periodic Facility Reviews were conducted at Bonny and Norton dams during 2011. Annual Site Inspections were conducted at Enders, Lovewell, Medicine Creek and Trenton dams in 2011. Ongoing special exams occurred at Red Willow Dam throughout 2011.

Safety of Dams – Red Willow Dam – Construction continues on the Safety of Dams Modification at Red Willow Dam. To date, SEMA Construction has excavated approximately 350,000 cubic yards of the downstream face of Red Willow Dam including exposing a portion of the spillway conduit and the outlet works conduit. Reconstruction has begun; including placement of a geonet/sand and gravel filtration system along the entire length of the dam.

The filtration system involves placing nearly 150,000 square yards of geonet and geotextile materials, 100,000 cubic yards of sand and 50,000 cubic yards of gravel. This system will then be overlain with approximately 470,000 cubic yards of embankment material.

Approximately 75% of the geonet has been placed on the downstream face, and is being systematically covered with layers of the sand and gravel, creating a filter. Intersecting the filter at the downstream toe of the dam, a horizontal drain consisting of a layer of gravel and a layer of sand has been constructed. The original pipe drain at the toe of the dam has also been replaced. This filter and drainage system provides valuable protection against internal erosion of the dam embankment. Although the contract completion date is currently November 27, 2013, SEMA and Reclamation are doing everything possible to complete the contract at an earlier date.

WaterSMART Basin Study Program - The States of Colorado, Nebraska, and Kansas and the U.S. Department of the Interior, Bureau of Reclamation are working together as study partners to conduct the Republican River Basin Study. This study is part of the U.S. Department of the Interior WaterSMART Basin Study Program. The Republican River Basin Study area covers the entire Republican River Basin in eastern Colorado, southern Nebraska, and northern Kansas down to the Clay Center gauging station in Kansas.

This two-year Study will evaluate the viability of water management strategies to optimize surface and groundwater use in consideration of meeting multiple demands and the potential effects of climate change/variability. It will:

- Project future supply and demand in the Republican River Basin.
- Analyze how existing water operations and infrastructure will perform in the face of uncertain or variable water supply and/or demands.
- Identify and evaluate options to improve operations and infrastructure to address future water supply needs.
- Recommend options (operations and infrastructure) to supply adequate water in the future.

TABLE 1
NEBRASKA-KANSAS PROJECTS
Summary of Precipitation, Reservoir Storage and Inflows
CALENDAR YEAR 2011

Reservoir	Total Precip. Inches	Percent Of Average %	Storage 12-31-10 AF	Storage 12-31-11 AF	Gain or Loss AF	Maximum Content AF	Storage Date	Minimum Content AF	Storage Date	Total Inflow AF	Percent Of Most Probable %
Box Butte	20.94	124	14,523	15,464	941	24942	JUL 4	12635	SEP 6	17,737	111
Merritt	27.95	137	60,831	61,370	539	67602	JUN 20	46824	SEP 12	192,404	105
Calamus	24.22	100	108,981	105,099	-3,882	129253	JUN 27	75169	OCT 1	317,697	117
Davis Creek	27.26	110	9,350	9,280	-70	28234	JUL 19	8772	APR 13	44,921	91
Bonny	19.01	111	6,923	135	-6,788	10724	JUN 2	135	DEC 25	9,008	78
Enders	21.46	113	16,743	17,484	741	19075	JUN 21	16761	JAN 1	7,516	67
Swanson	19.99	100	62,085	62,156	71	82354	JUN 21	59393	NOV 12	33,791	99
Hugh Butler	21.58	110	6,034	5,993	-41	8007	MAY 29	5429	APR 14	17,863	122
Harry Strunk	23.06	111	33,936	33,098	-838	39041	MAY 30	24014	SEP 9	44,135	115
Keith Sebelius	34.36	140	20,600	23,218	2,618	23219	DEC 31	19571	AUG 4	11,995	139
Harlan County	30.69	135	318,364	322,964	4,600	339236	JUN 22	300830	OCT 6	174,830	131
Lovewell	27.87	101	27,054	31,938	4,884	62412	MAY 27	27105	JAN 2	83,167	131
Kirwin	27.59	117	98,916	99,989	1,073	106268	JUN 18	93654	OCT 6	49,576	173
Webster	23.04	97	63,328	58,196	-5,132	72886	JUN 5	54173	OCT 7	21,937	93
Waconda	30.80	121	198,060	211,190	13,130	398868	JUN 6	175048	APR 14	427,789	274
Cedar Bluff	14.99	71	91,110	79,365	-11,745	91319	MAR 23	78953	DEC 3	7,116	37

TABLE 2
NEBRASKA-KANSAS AREA OFFICE
Summary of Precipitation, Reservoir Storage and Inflows

JANUARY - AUGUST 2012

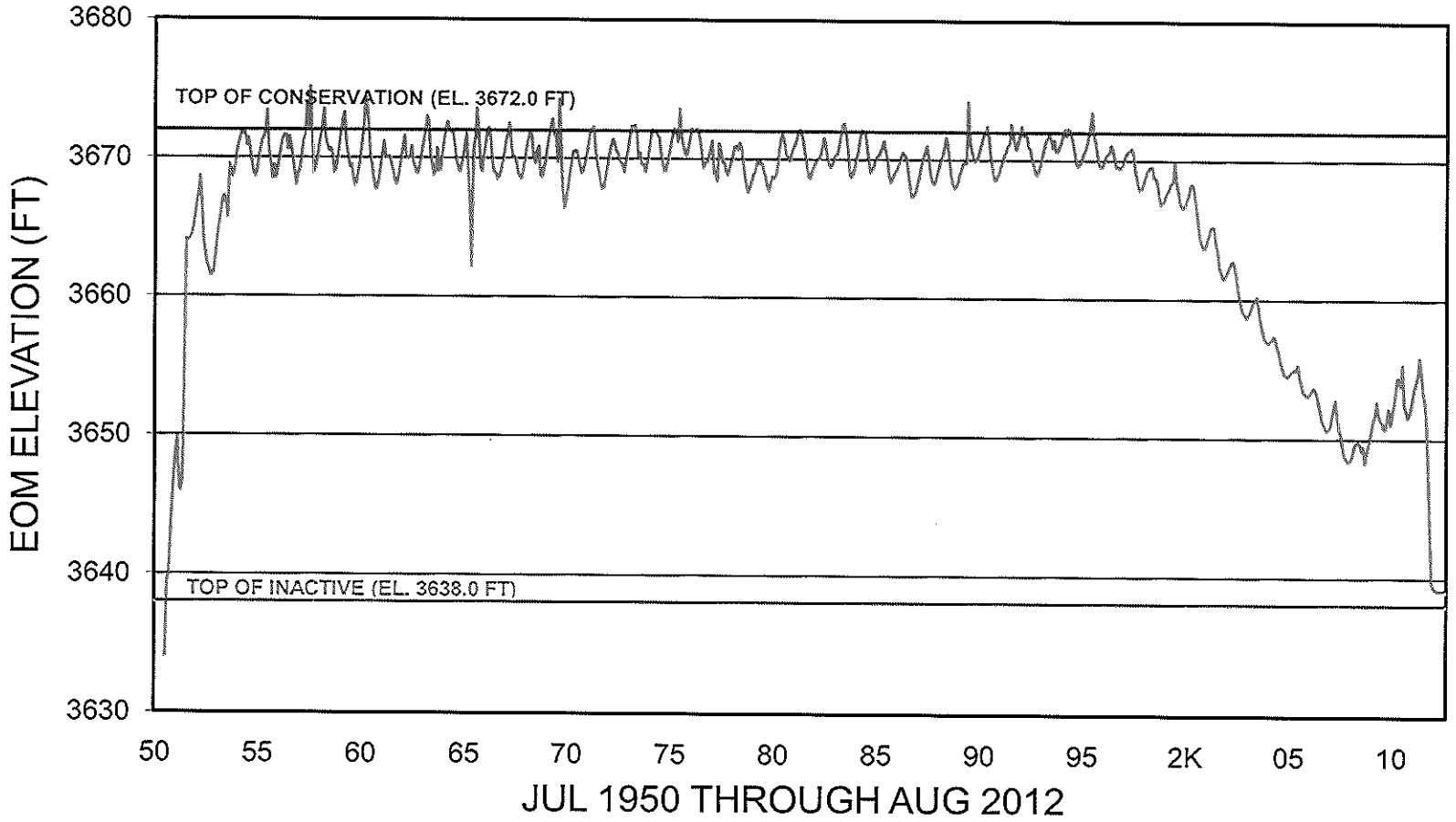
Reservoir	Precip. Inches	Percent Of Average %	Storage 8/31/2011 AF	Storage 8/31/2012 AF	Gain or Loss AF	Inflow AF	Percent Of Most Probable %
Bonny	7.77	56	7,234	0	(7,234)	2,580	30
Enders	10.08	66	17,939	15,889	(2,050)	3,488	48
Swanson	11.43	72	62,866	40,133	(22,733)	22,677	82
Hugh Butler	8.65	56	6,074	5,121	(953)	8,858	81
Harry Strunk	10.73	66	24,885	13,042	(11,843)	22,835	79
Keith Sebelius	12.60	66	20,929	17,442	(3,487)	4,473	58
Harlan County	15.78	88	305,904	202,945	(102,959)	76,793	67
Lovewell	18.42	90	33,959	13,497	(20,462)	39,272	88

TABLE 3
HARLAN COUNTY LAKE

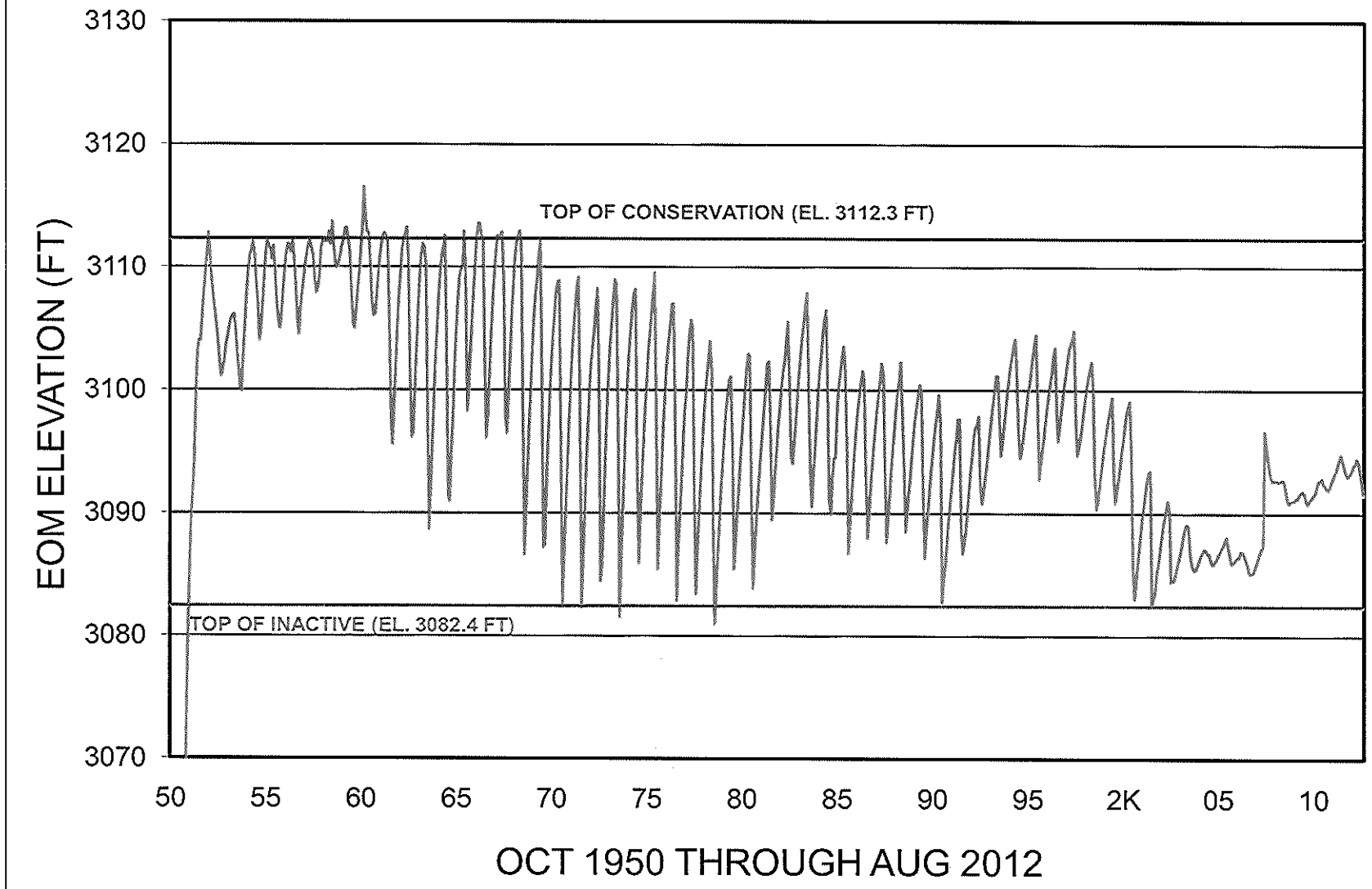
Year	Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip. (Inches)	Precip. (% of Average) (22.76 inches)	Rep. Basin Reclamation Dams (% of Average)	End of Year Content (AF)	**Projected Irrig. Water Supply On June 30th (AF)**
2002	60,094	98,518	43,988	16.86	74%	60%	160,463	**116,100**
2003	48,430	51,237	34,307	16.70	73%	93%	113,346	**62,000**
2004	25,099	0	30,601	22.83	100%	111%	107,050	**0**
2005	53,682	0	32,620	22.51	99%	107%	128,111	**14,100**
2006	30,077	12,280	29,609	20.62	91%	101%	116,299	**14,400**
2007	198,528	21,237	38,197	26.92	118%	114%	255,393	**111,700**
2008	224,841	114,938	45,985	30.31	133%	131%	319,311	**175,900**
2009	136,747	94,079	41,721	24.50	108%	128%	320,258	**155,600**
2010	239,054	194,055	46,893	31.66	139%	119%	318,364	**147,800**
2011	174,830	120,989	49,241	30.69	135%	115%	322,964	**157,700**

*NOTE: On June 30, 2012 Projected Irrig. Water Supply was 132,900 AF.

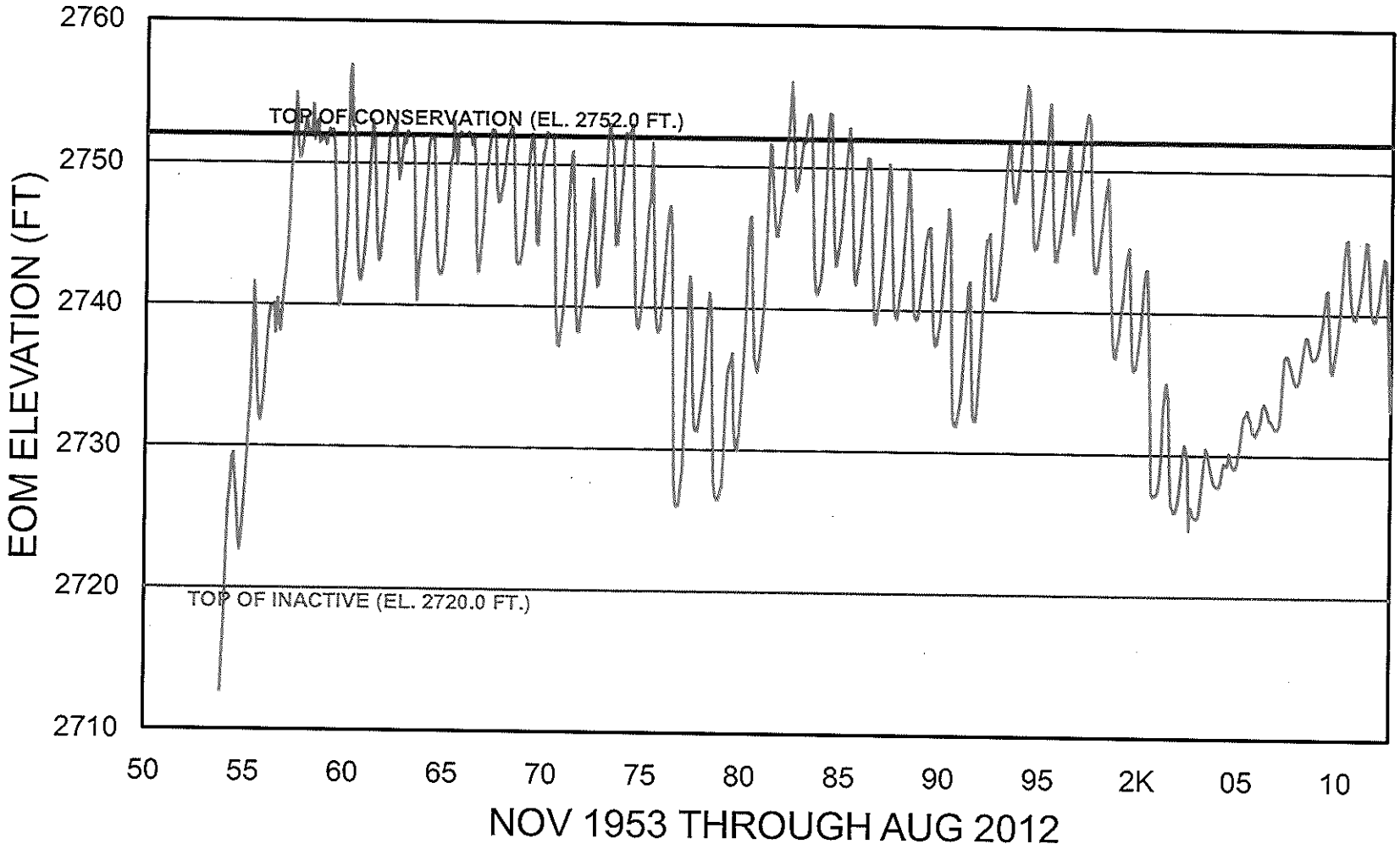
BONNY RESERVOIR
END OF MONTH ELEVATION



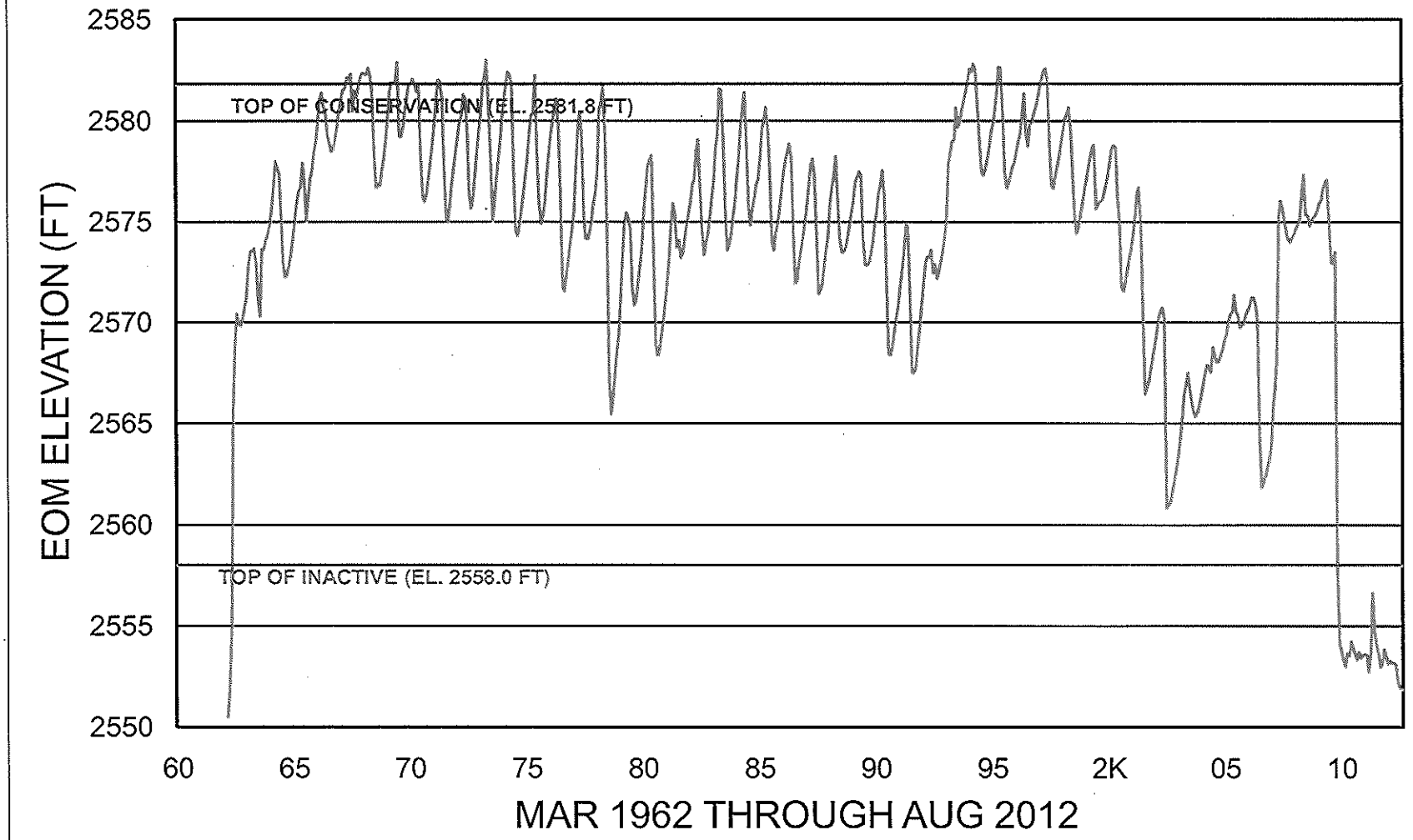
ENDERS RESERVOIR
END OF MONTH ELEVATION



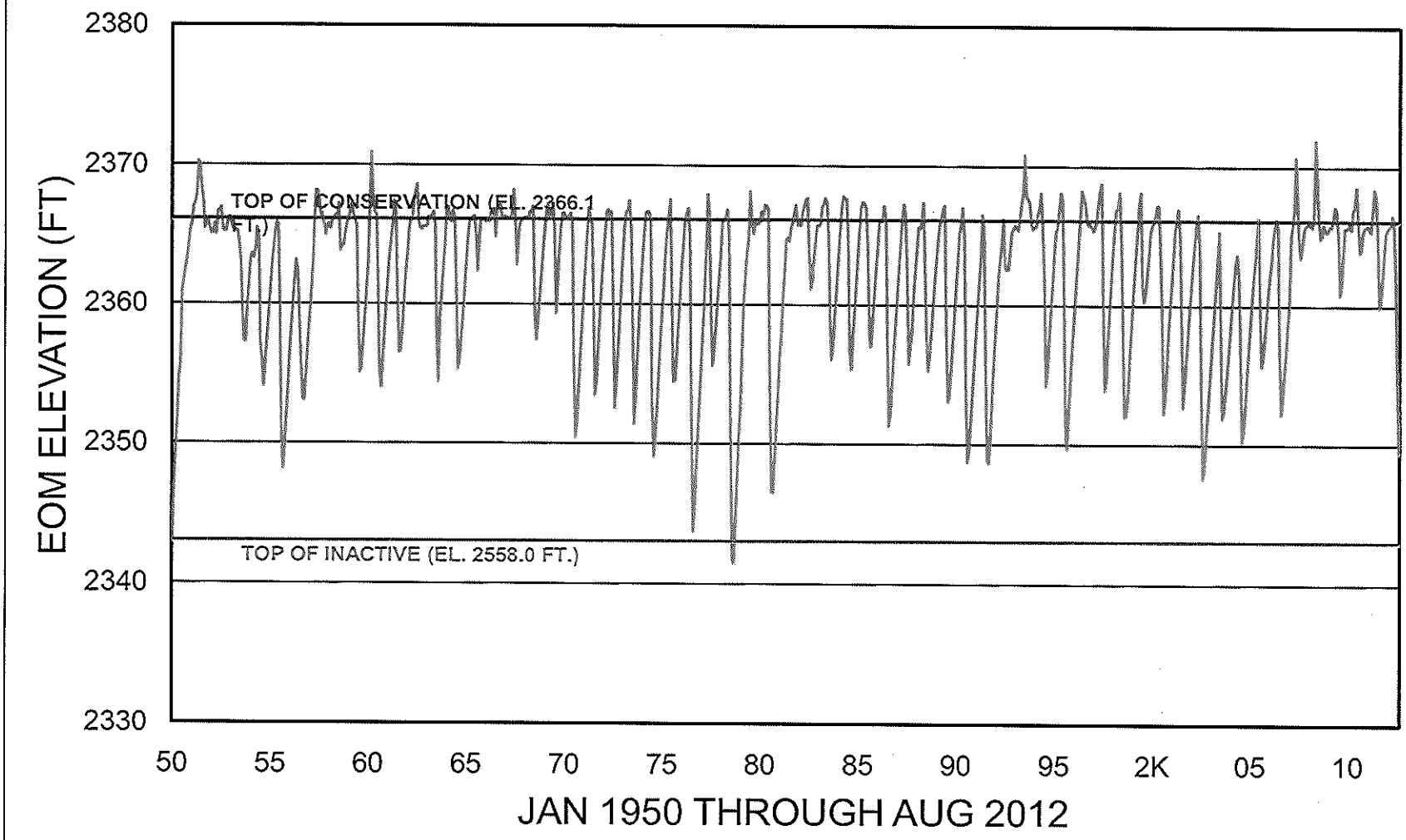
SWANSON LAKE
END OF MONTH ELEVATION



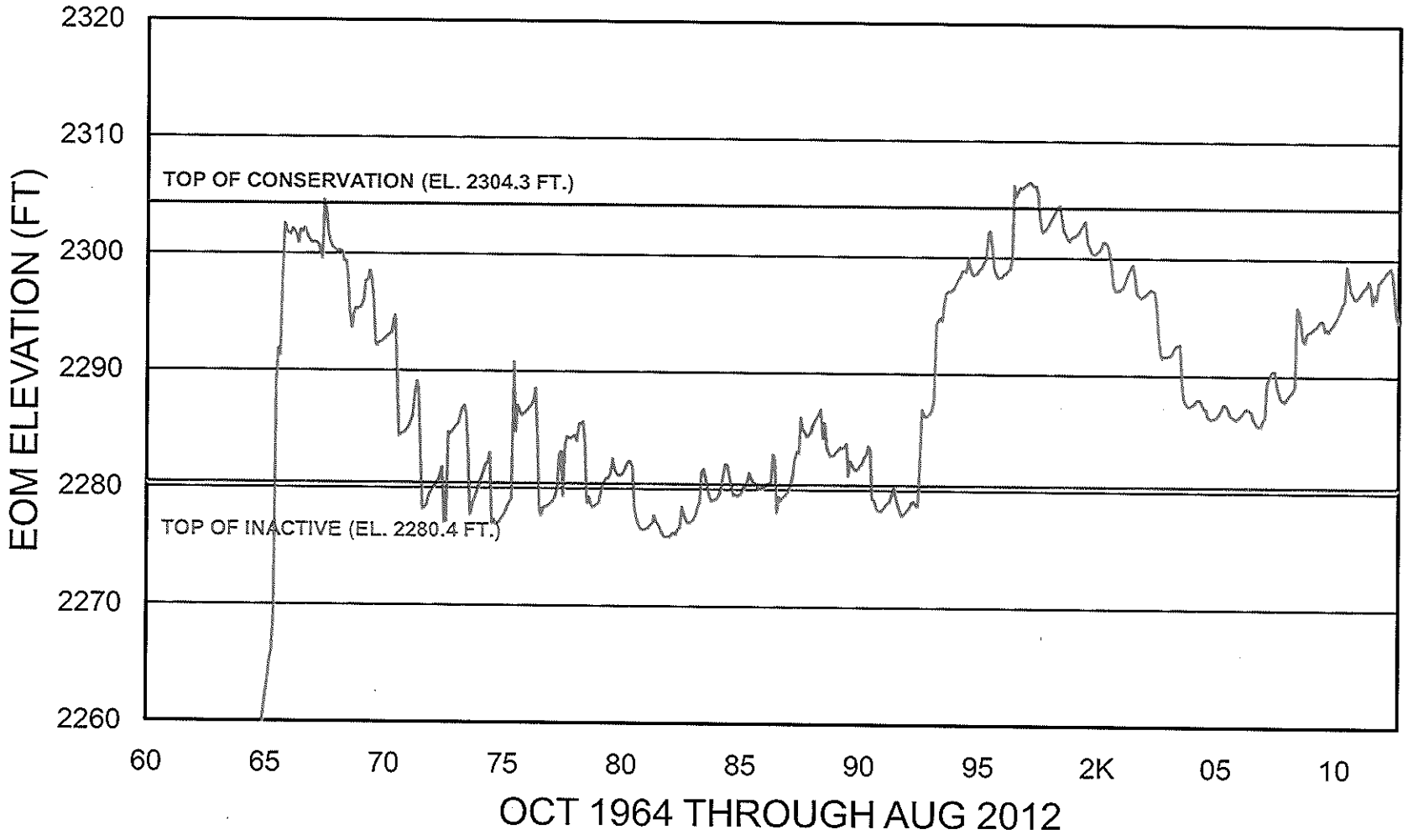
HUGH BUTLER LAKE
END OF MONTH ELEVATION



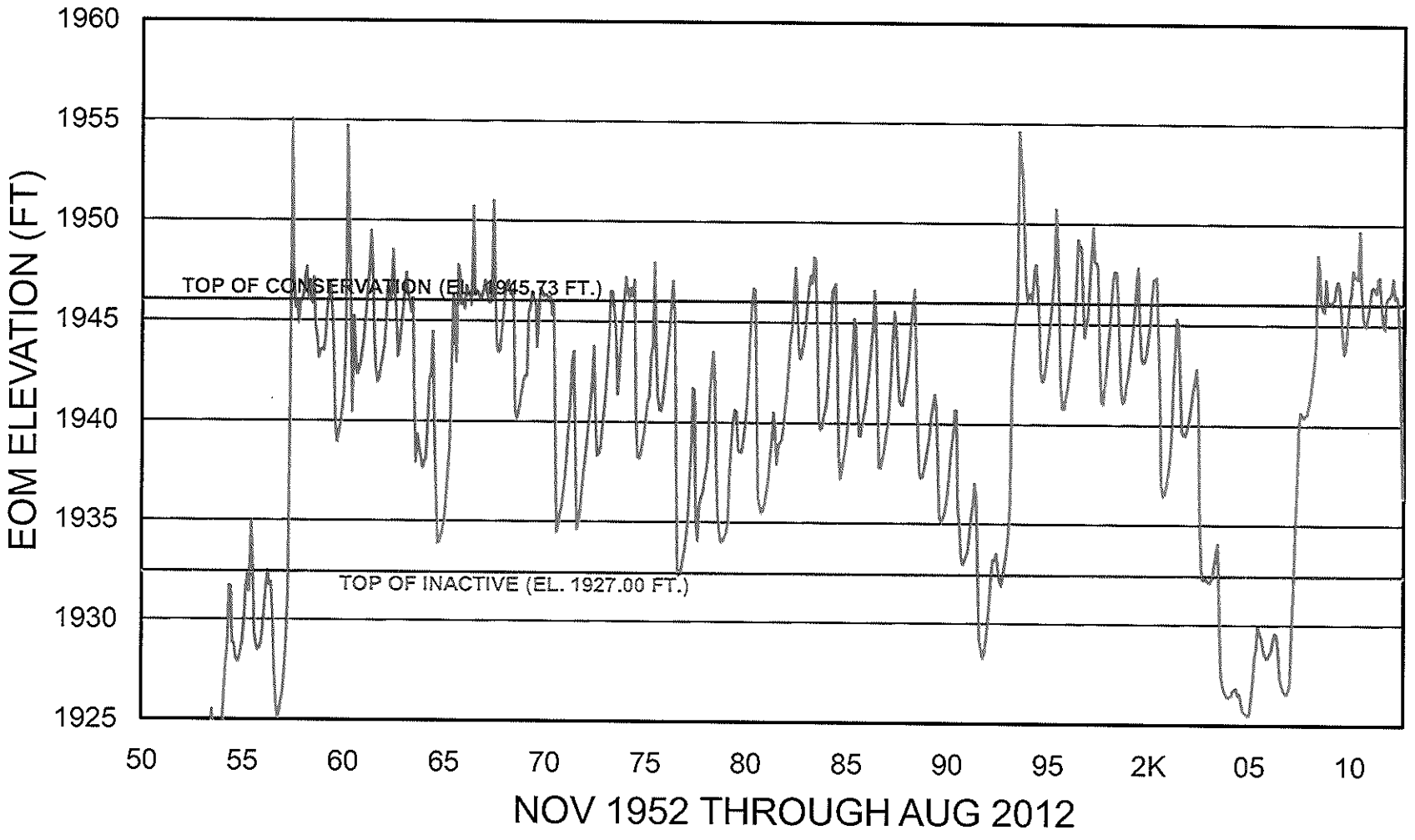
HARRY STRUNK LAKE
END OF MONTH ELEVATION



KEITH SEBELIUS LAKE
END OF MONTH ELEVATION



HARLAN COUNTY LAKE
END OF MONTH ELEVATION



LOVEWELL RESERVOIR
END OF MONTH ELEVATION

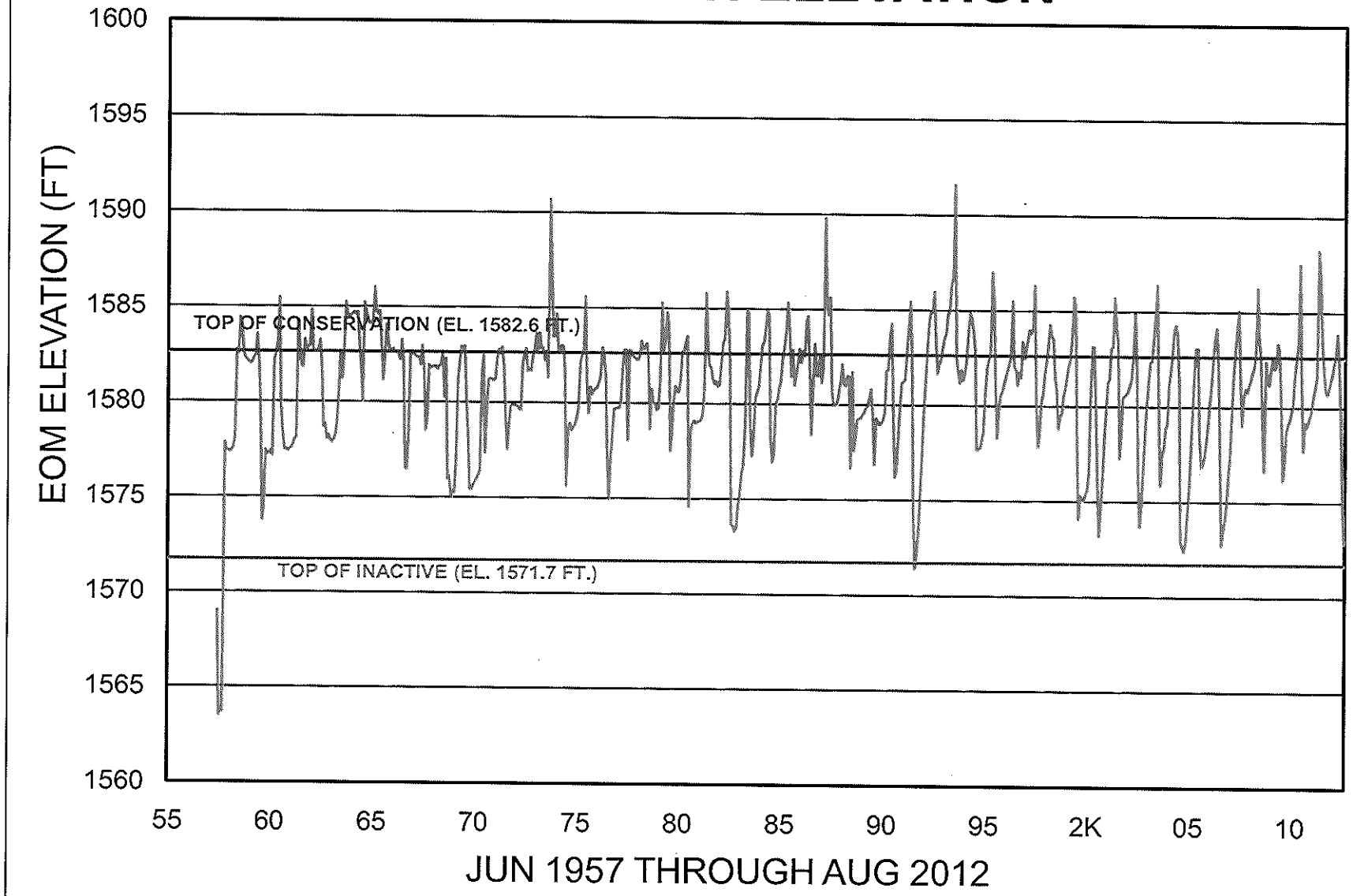


Exhibit D

USGS Report and Handouts

Republican River Compact Nebraska Stream Gaging Data Water Year 2011

Presented to
Republican River Compact Administration

By Jason Lambrecht, Hydrologic Data Section Chief,
Nebraska Water Science Center

October 16, 2012
Junction City, KS

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Summary handout – stations published by U.S. Geological Survey (USGS)

Republican River Basin streamflow-gaging stations with records published by USGS for water year (WY) 2011

[DCP, data-collection platform; NDNR, Nebraska Department of Natural Resources; USACE, U.S. Army Corps of Engineers; USBR, U.S. Bureau of Reclamation; USGS, U.S. Geological Survey]

Station number	Station name	Mean discharge (ft³/s) WY 2011	Mean discharge (ft³/s) Long-term	WY 2011 as percentage of long-term mean	WY 2011 as rank/years (1 highest)	WYs used for long-term mean	Remarks
USGS Compact stations supported by the National Streamflow Information Program (NSIP)							
06821500	Arikaree River at Haigler, Nebr.	1.55	16.9	9.2%	74/79	1933 - 2011	
06823000	North Fork Republican River at Colo-Nebr State Line	28.1	41.9	67.1%	70/76	1936 - 2011	
06823500	Buffalo Creek near Haigler, Nebr.	2.63	6.15	42.8%	65/71	1941 - 2011	
06824000	Rock Creek at Parks, Nebr.	6.13	12	50.6%	71/73	1941 - 2011	
06827500	South Fork Republican River near Benkelman, Nebr.	11.03	35.4	31.1%	55/74	1938 - 2011	
06835500	Frenchman Creek at Culbertson, Nebr.	42.9	67.3	63.7%	48/61	1951 - 2011	Since Enders Reservoir
06836500	Driftwood Creek near McCook, Nebr.	3.3	8.4	39.3%	56/66	1946 - 2011	
06838000	Red Willow Creek near Red Willow, Nebr.	25.6	13.7	186.3%	2/50	1962 - 2011	Since Hugh Butler Lake
06847500	Sappa Creek near Stamford, Nebr. (USACE funds DCP)	17.19	3	43.6%	33/65	1946 - 2011	
06852500	Courtland Canal at Nebr-Kans State Line (USBR DCP)	43.2	75.4	57.3%	49/57	1955 - 2011	
USGS stations supported by USGS and/or other Federal or State agencies							
06828500	Republican River at Stratton, Nebr.	41	95.8	42.8%	52/61	1951 - 2011	Funded by USACE and NSIP
06837000	Republican River at McCook, Nebr.	51.2	121.8	42.0%	50/57	1955 - 2011	Funded by USBR, NDNR, and NSIP
06844500	Republican River near Orleans, Nebr.	142	232	61.2%	47/64	1948 - 2011	Funded by USACE
NDNR stations with USGS/USACE support for DCP, Web display, review, and publishing							
06834000	Frenchman Creek at Palisade, Nebr.	26.6	61.5	43.3%	54/61	1951 - 2011	
06843500	Republican River at Cambridge, Nebr.	135	213.6	63.1%	45/62	1950 - 2011	Since Harry Strunk Lake
06853020	Republican River at Guide Rock, Nebr.					1951 - 2006	DISCONTINUED

Online Annual Water Data Reports available at or through:
http://wdr.water.usgs.gov
http://ne.water.usgs.gov

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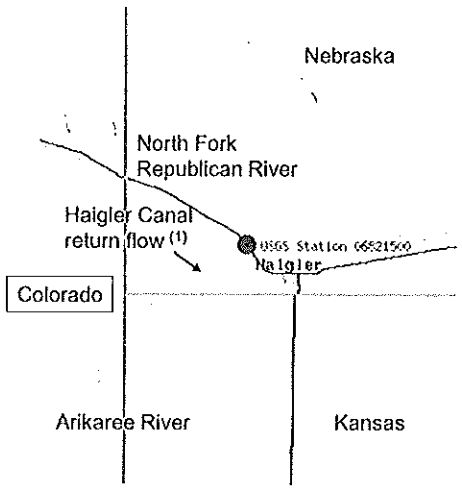
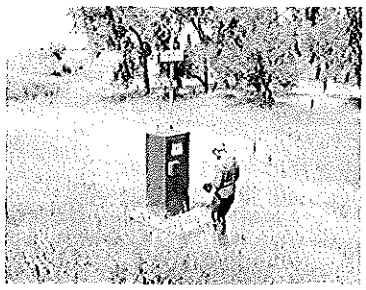
Summary Charts – Compact Stations

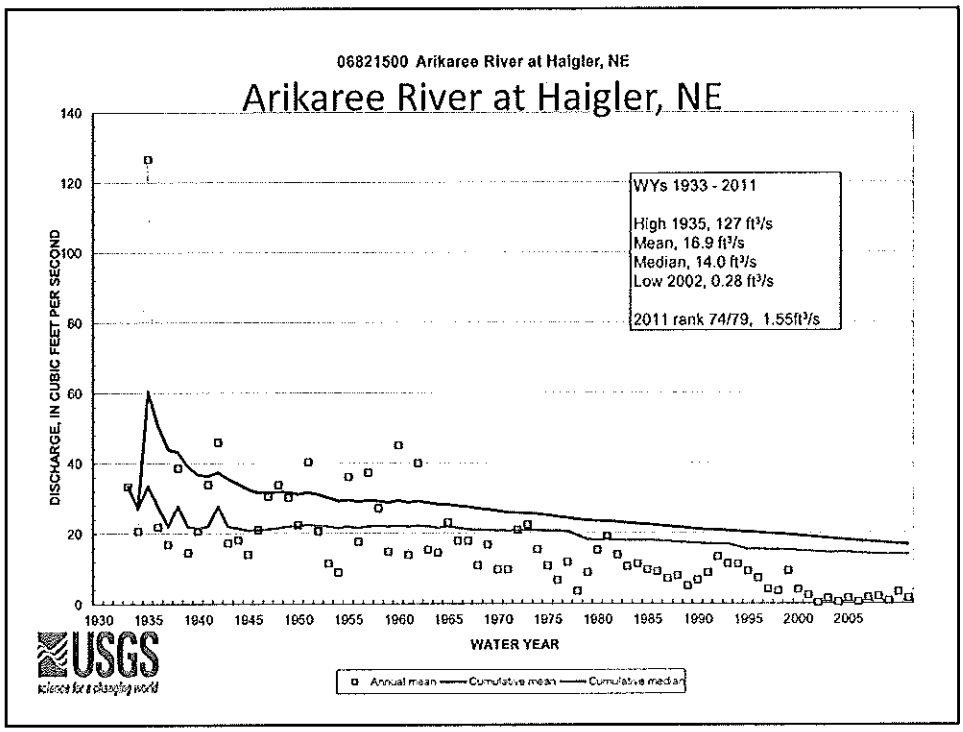
- Published data for Water Year (WY) 2011
- Operated by the USGS Nebraska Water Science Center (NE WSC)
- Stations funded by the USGS National Streamflow Information Program (NSIP)

Arikaree River at Haigler, NE





(1) Haigler Canal diverts from North Fork Republican River above CO-NE Stateline: return flows enter Arikaree River


06821500 Arikaree River at Haigler, NE
Arikaree River at Haigler, NE
DISCHARGE, IN CUBIC FEET PER SECOND
WATER YEAR
WYs 1933 - 2011
High 1935, 127 ft³/s
Mean, 16.9 ft³/s
Median, 14.0 ft³/s
Low 2002, 0.28 ft³/s
2011 rank 74/79, 1.55ft³/s
Annual mean
Cumulative mean
Cumulative median
USGS
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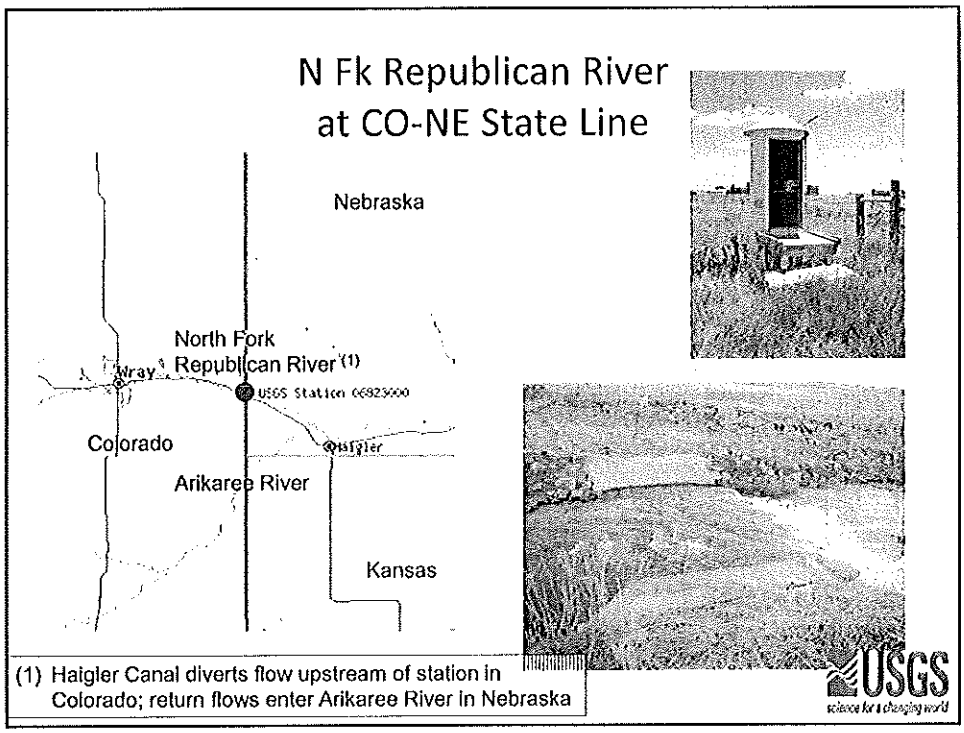
N Fk Republican River
at CO-NE State Line
Nebraska
North Fork
Republican River (1)
Wray
USGS Station 06823000
Haigler
Colorado
Arikaree River
Kansas
(1) Haigler Canal diverts flow upstream of station in Colorado; return flows enter Arikaree River in Nebraska
USGS
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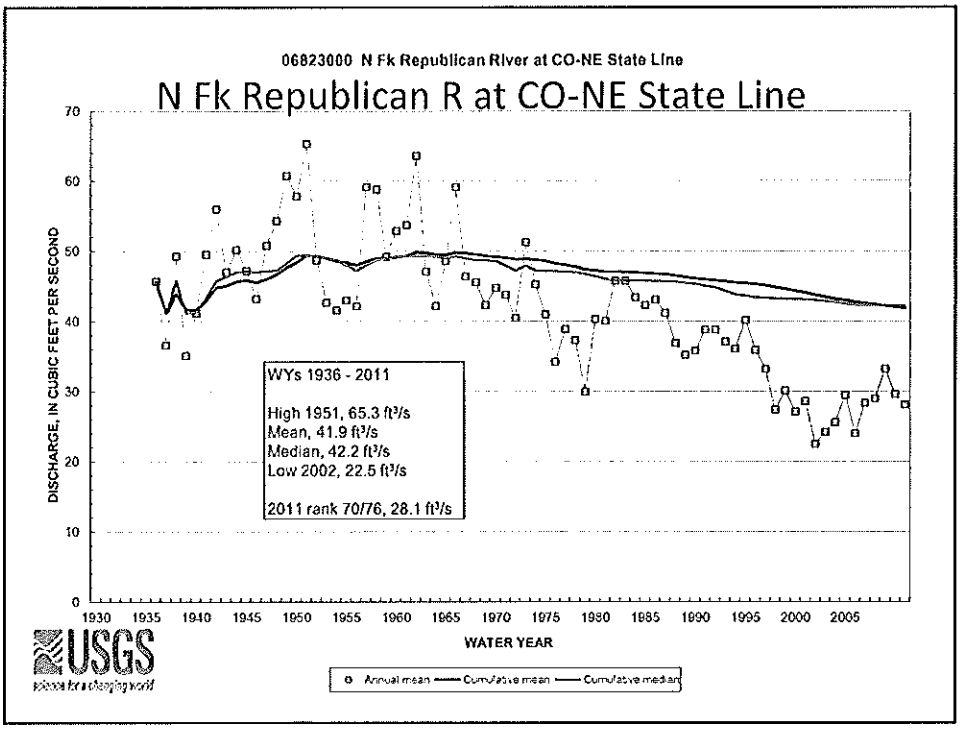
06823000 N Fk Republican River at CO-NE State Line
N Fk Republican R at CO-NE State Line
DISCHARGE, IN CUBIC FEET PER SECOND
WATER YEAR
WYs 1936 - 2011
High 1951, 65.3 ft³/s
Mean, 41.9 ft³/s
Median, 42.2 ft³/s
Low 2002, 22.5 ft³/s
2011 rank 70/76, 28.1 ft³/s
Annual mean
Cumulative mean
Cumulative median
USGS
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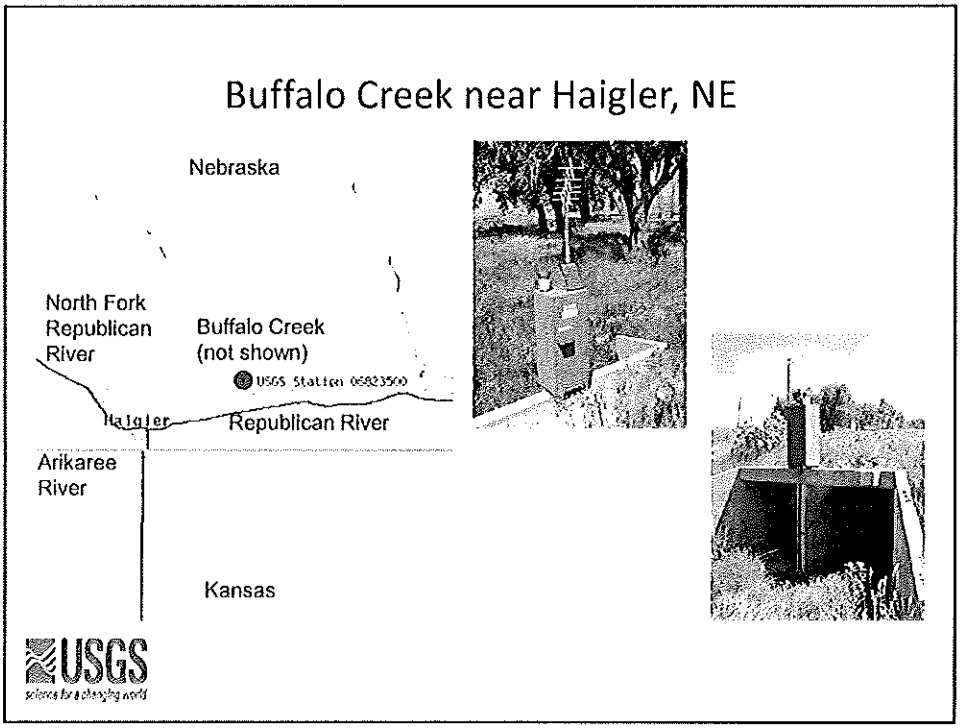
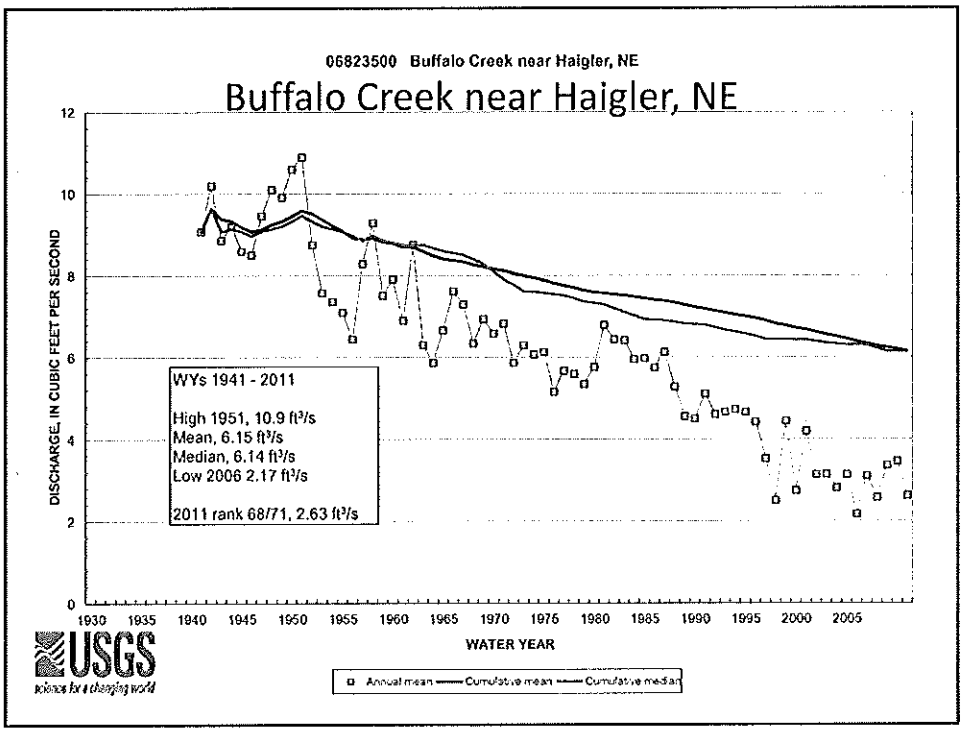

Buffalo Creek near Haigler, NE
Nebraska
North Fork Republican River
Buffalo Creek (not shown)
USGS Station 06823500
Haigler
Republican River
Arikaree River
Kansas
USGS
science for a changing world


06823500 Buffalo Creek near Haigler, NE
Buffalo Creek near Haigler, NE
DISCHARGE, IN CUBIC FEET PER SECOND
WYs 1941 - 2011
High 1951, 10.9 ft³/s
Mean, 6.15 ft³/s
Median, 6.14 ft³/s
Low 2006 2.17 ft³/s
2011 rank 68/71, 2.63 ft³/s
WATER YEAR
Annual mean
Cumulative mean
Cumulative median
USGS
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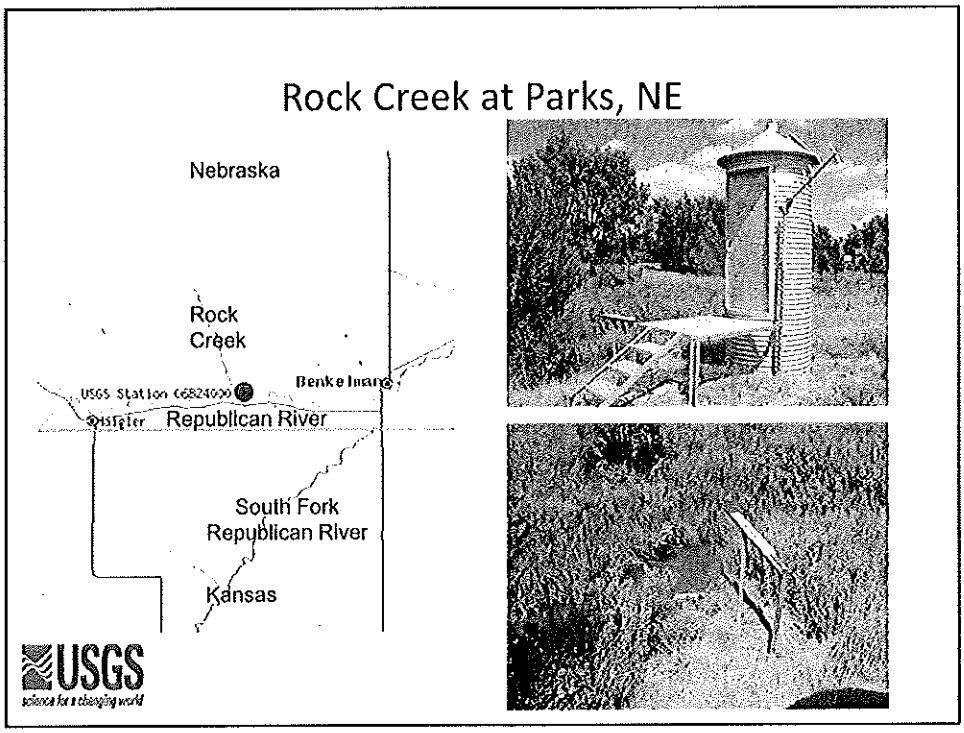
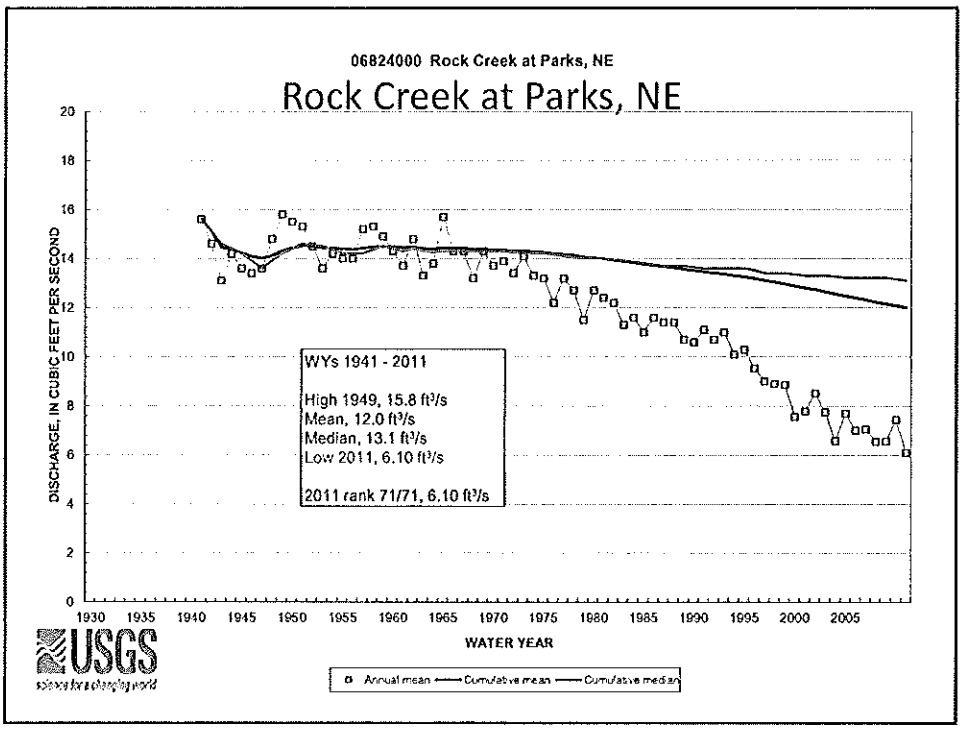
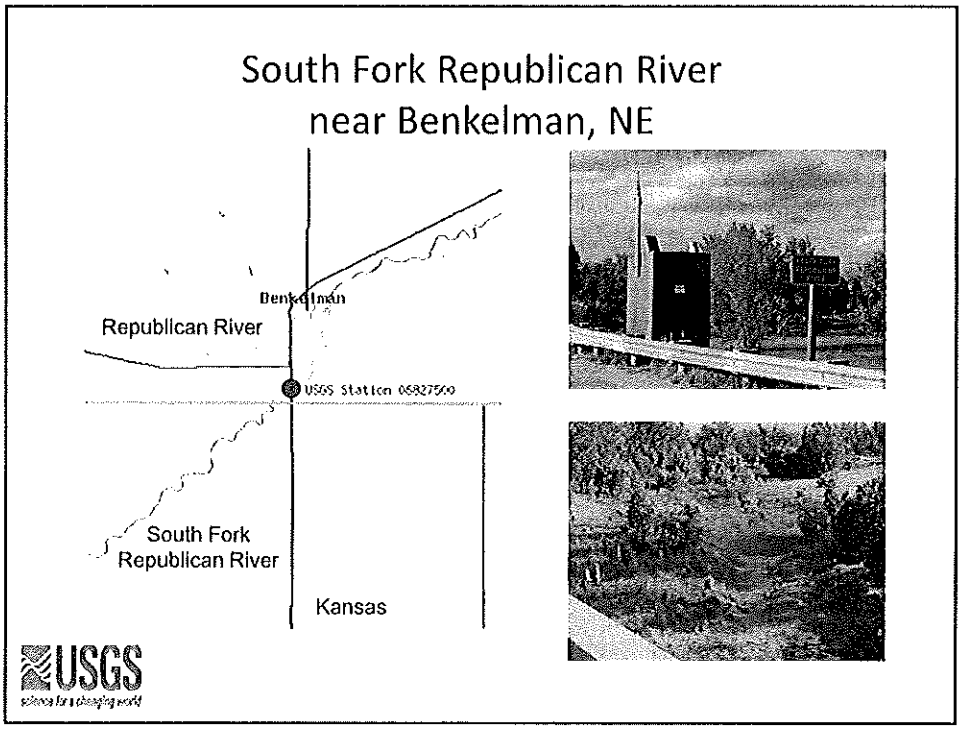
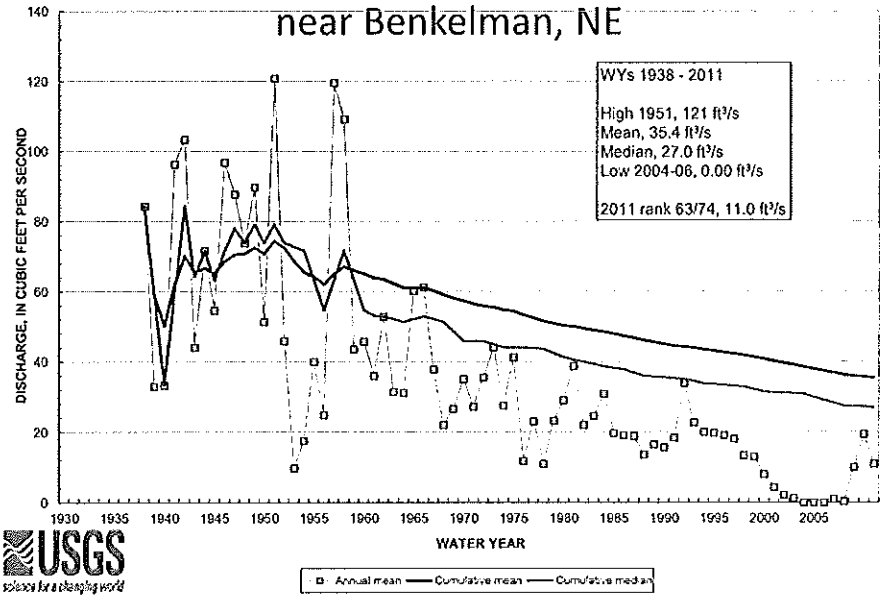

Rock Creek at Parks, NE
Nebraska
Rock Creek
USGS Station 06824000
Republican River
South Fork Republican River
Kansas
USGS
science for a changing world


06824000 Rock Creek at Parks, NE
Rock Creek at Parks, NE
DISCHARGE, IN CUBIC FEET PER SECOND
WATER YEAR
WYs 1941 - 2011
High 1949, 15.8 ft³/s
Mean, 12.0 ft³/s
Median, 13.1 ft³/s
Low 2011, 6.10 ft³/s
2011 rank 71/71, 6.10 ft³/s
Annual mean
Cumulative mean
Cumulative median
USGS
science for a changing world

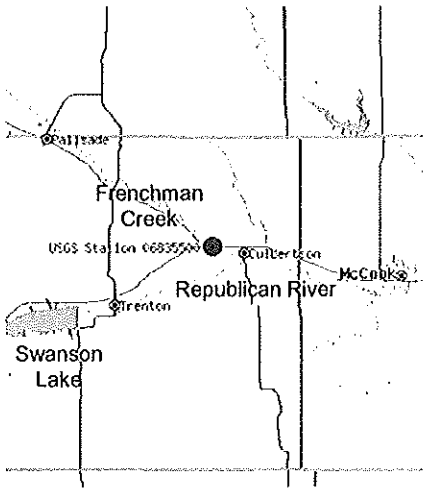

South Fork Republican River
near Benkelman, NE
Benkelman
Republican River
USGS Station 06827500
South Fork
Republican River
Kansas
USGS
science for a changing world

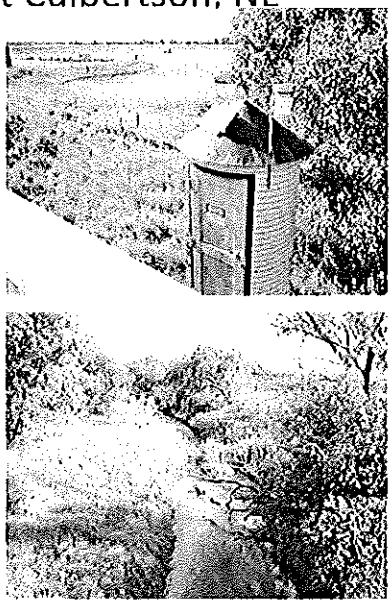
South Fork Republican River near Benkelman, NE



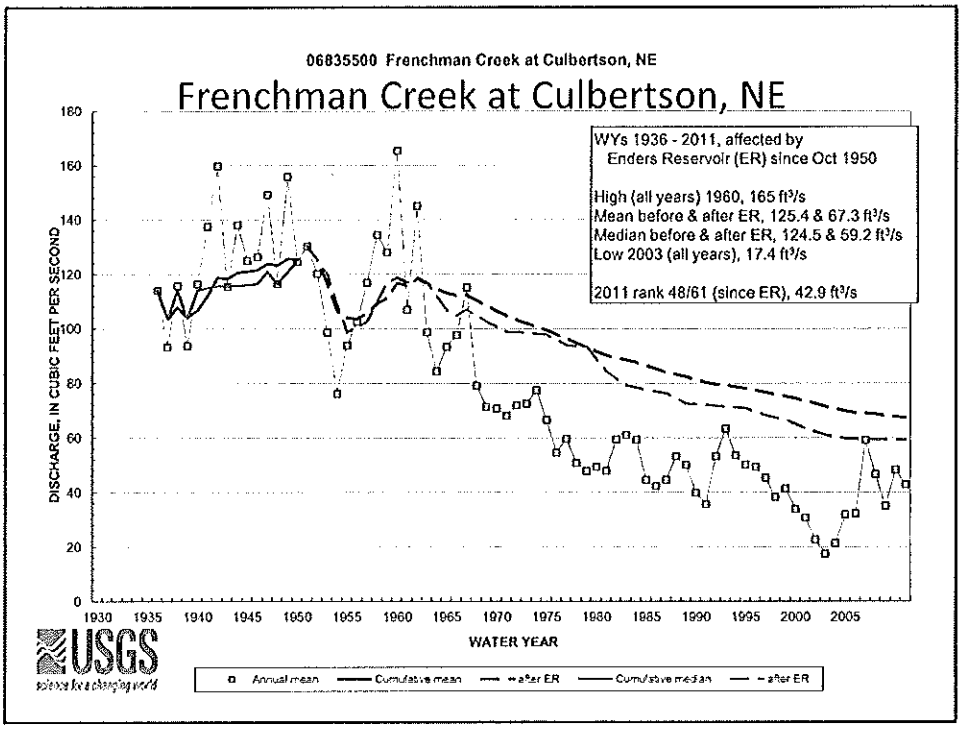
USGS science for a changing world

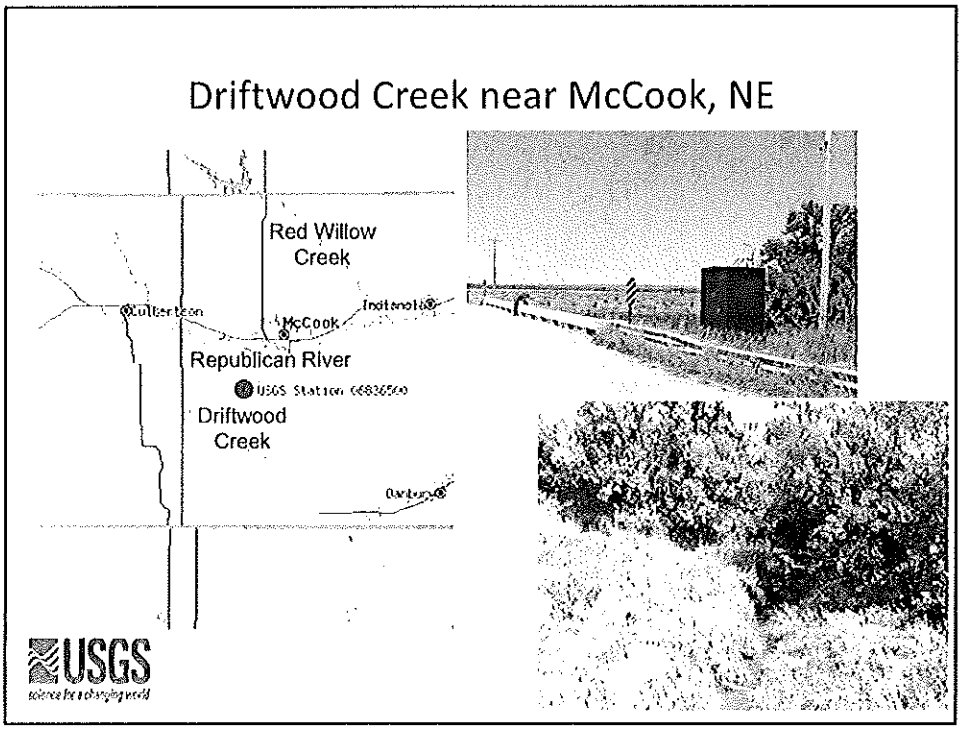
Frenchman Creek at Culbertson, NE





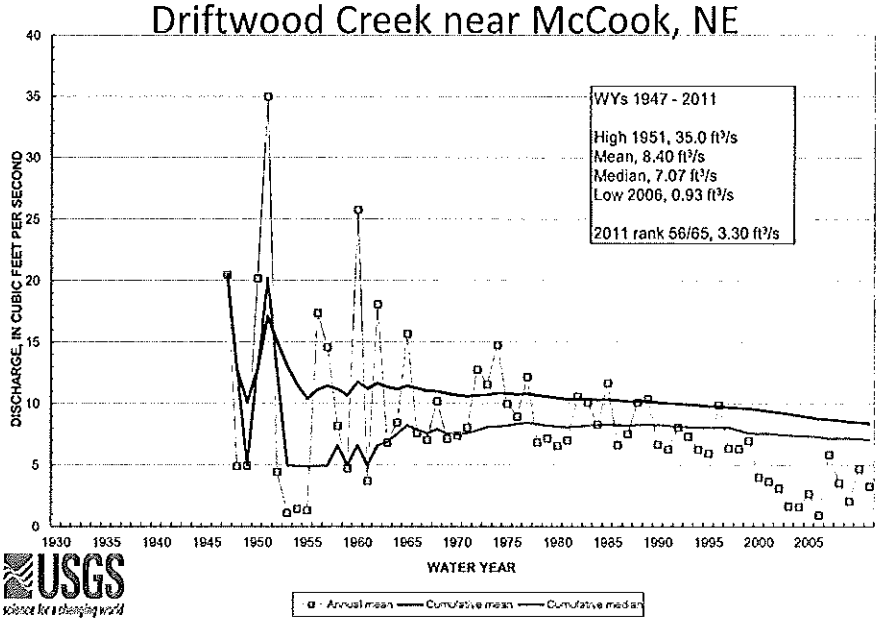
USGS science for a changing world


06835500 Frenchman Creek at Culbertson, NE
Frenchman Creek at Culbertson, NE
WYs 1936 - 2011, affected by Enders Reservoir (ER) since Oct 1950
High (all years) 1960, 165 ft³/s
Mean before & after ER, 125.4 & 67.3 ft³/s
Median before & after ER, 124.5 & 59.2 ft³/s
Low 2003 (all years), 17.4 ft³/s
2011 rank 48/61 (since ER), 42.9 ft³/s
DISCHARGE, IN CUBIC FEET PER SECOND
WATER YEAR
USGS
Annual mean
Cumulative mean
after ER
Cumulative median
after ER


Driftwood Creek near McCook, NE
Red Willow Creek
Culbertson
McCook
Indianola
Republican River
USGS Station 06836500
Driftwood Creek
USGS

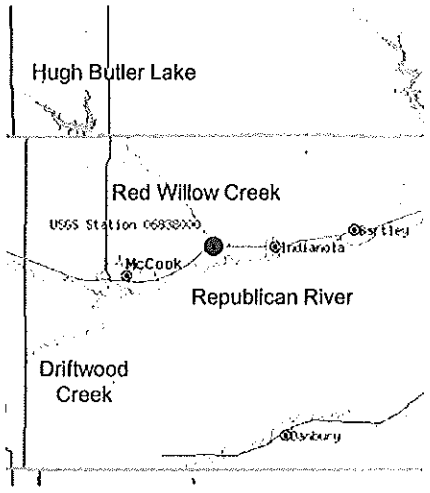
06836500 Driftwood Creek near McCook, NE

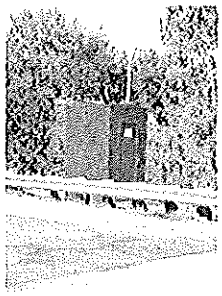
Driftwood Creek near McCook, NE

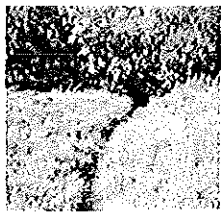


USGS science for a changing world

Red Willow Creek near Red Willow, NE



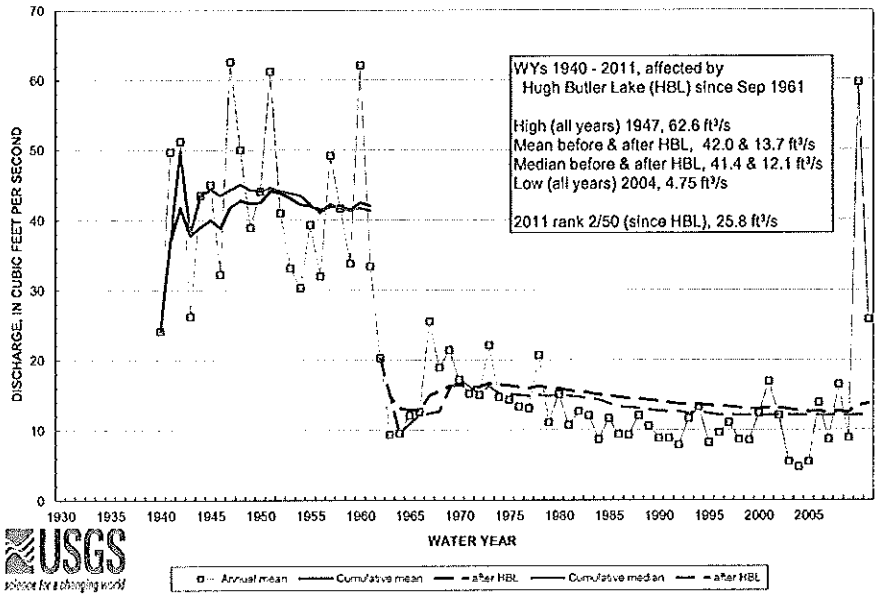




USGS science for a changing world

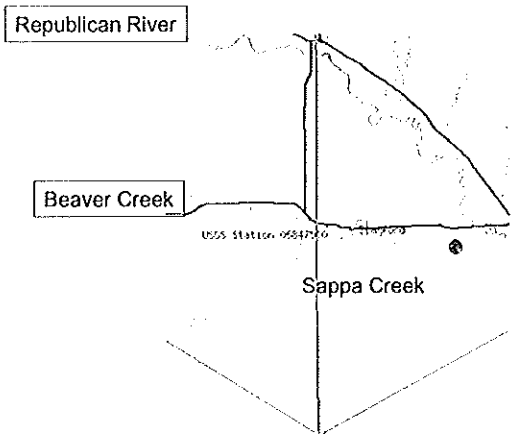
06838000 Red Willow Creek near Red Willow, NE

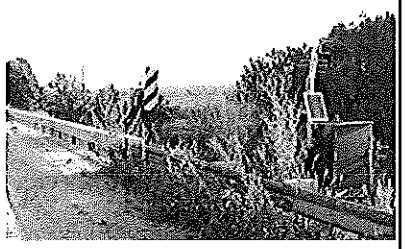
Red Willow Creek near Red Willow, NE



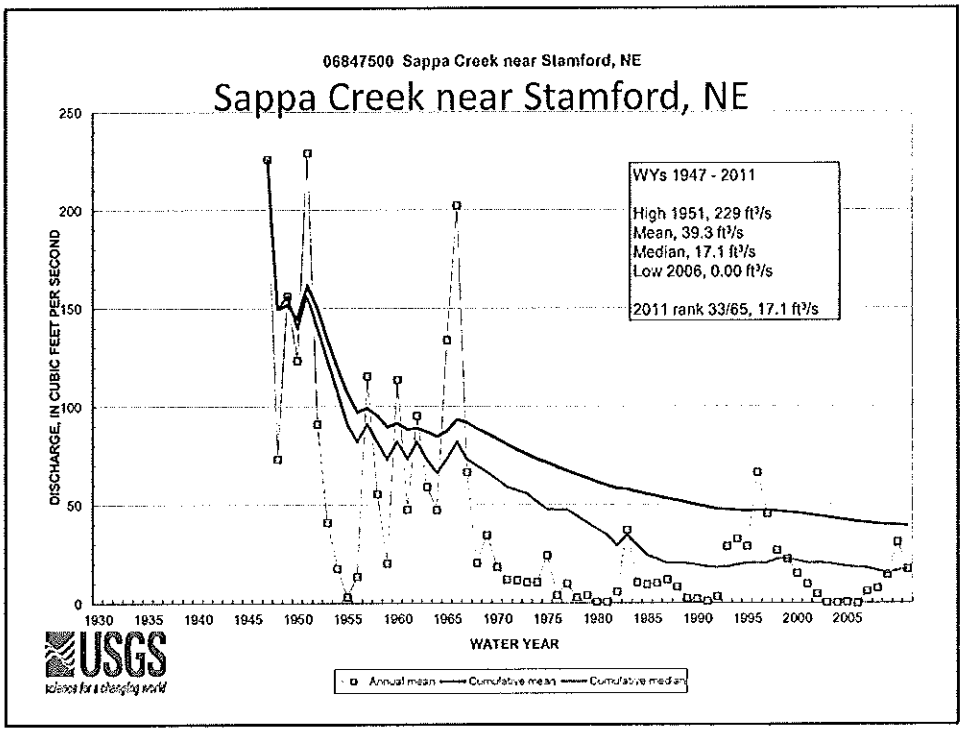
USGS
science for a changing world

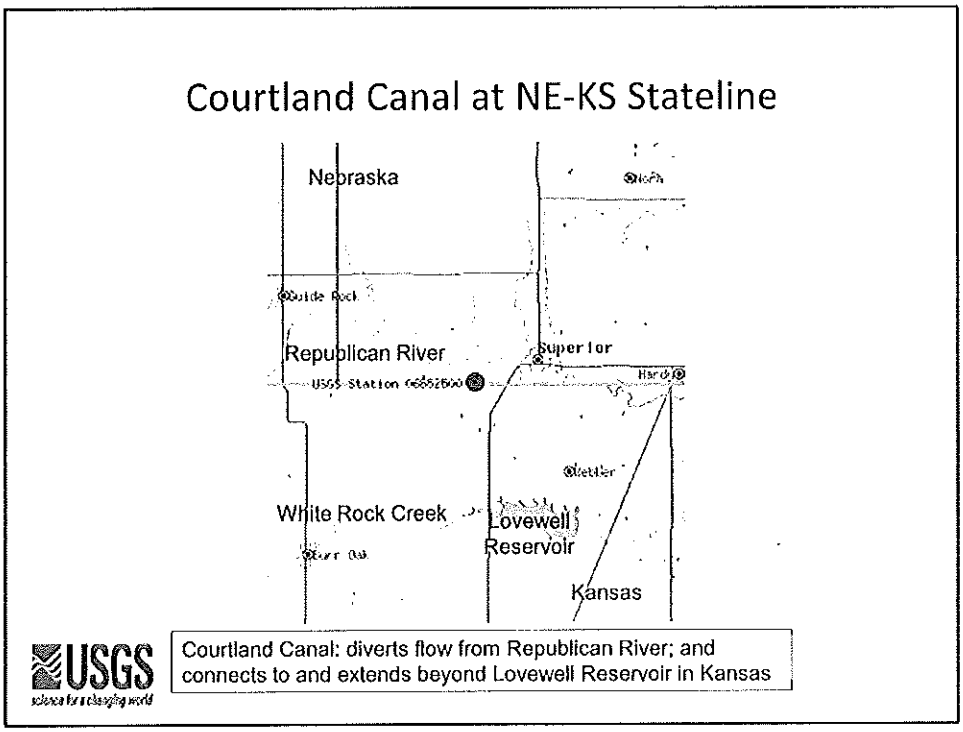
Sappa Creek near Stamford, NE

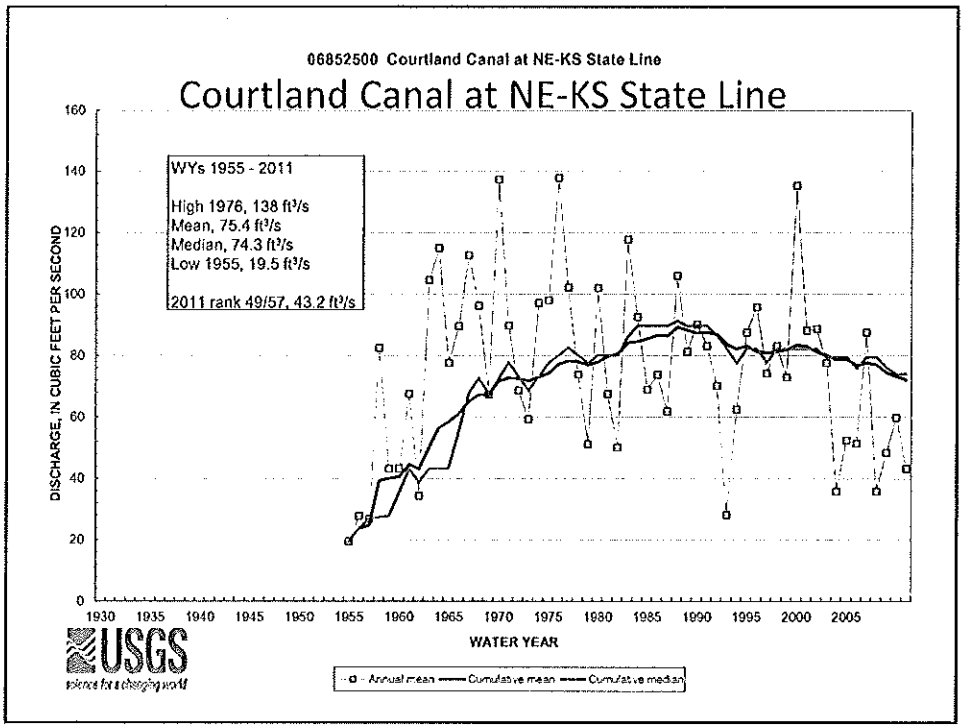




USGS
science for a changing world


06847500 Sappa Creek near Stamford, NE
Sappa Creek near Stamford, NE
WYs 1947 - 2011
High 1951, 229 ft³/s
Mean, 39.3 ft³/s
Median, 17.1 ft³/s
Low 2006, 0.00 ft³/s
2011 rank 33/65, 17.1 ft³/s
DISCHARGE, IN CUBIC FEET PER SECOND
WATER YEAR
USGS
science for a changing world
Annual mean
Cumulative mean
Cumulative median


Courtland Canal at NE-KS Stateline
Nebraska
Republican River
Superior
White Rock Creek
Lovewell Reservoir
Kansas
USGS
science for a changing world
Courtland Canal: diverts flow from Republican River; and connects to and extends beyond Lovewell Reservoir in Kansas



Summary Charts – Other USGS Stations

- Published data for Water Year 2011
- Operated by the USGS Nebraska Water Science Center
- Stations funded by:
  - other Federal agencies
  - State and local agencies with USGS match from the Cooperative Water Program

USGS
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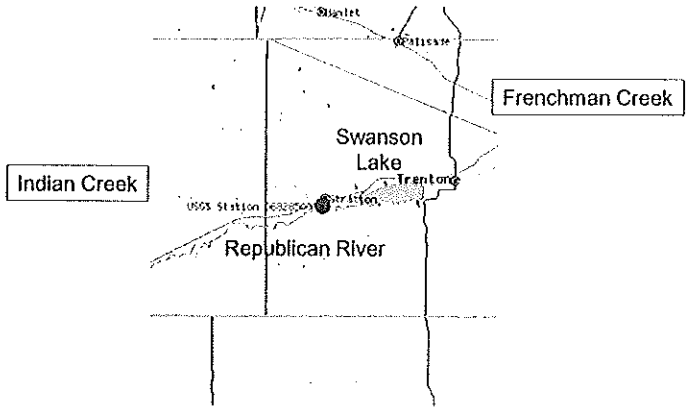
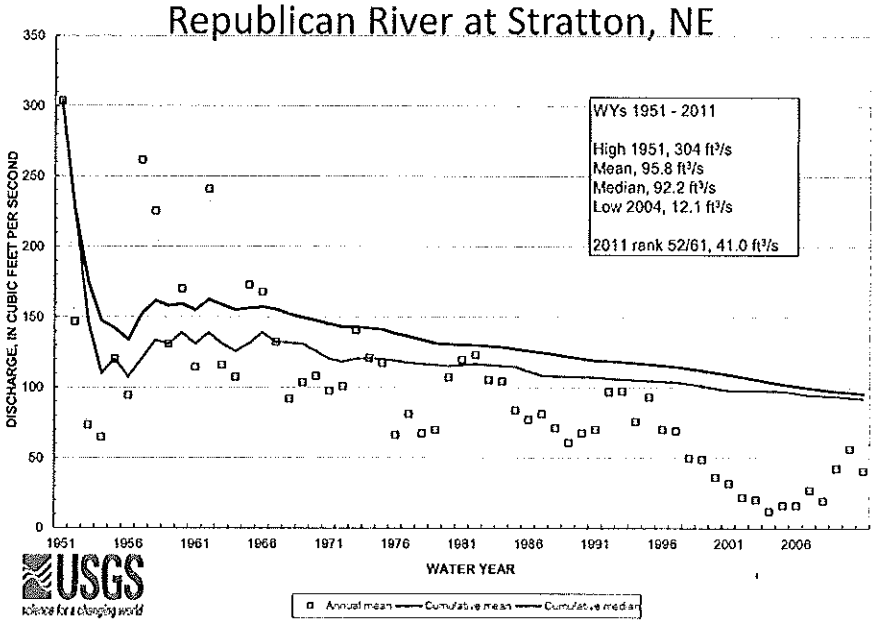
Republican River at Stratton, NE



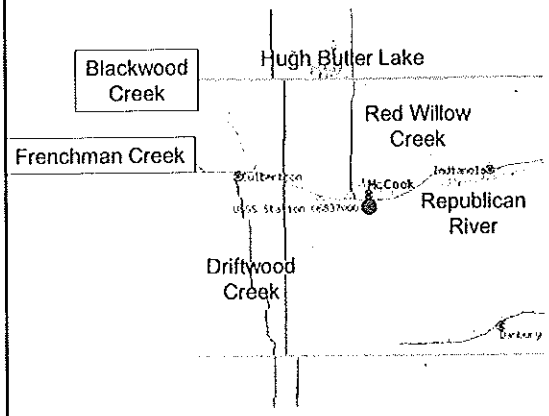
USGS
science for a changing world

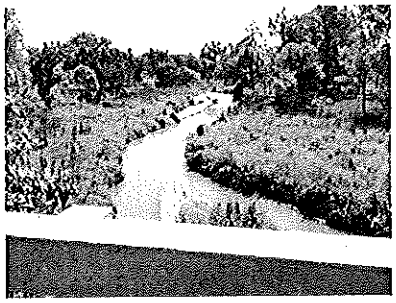
06828500 Republican River at Stratton, NE



USGS
science for a changing world

Republican River at McCook, NE

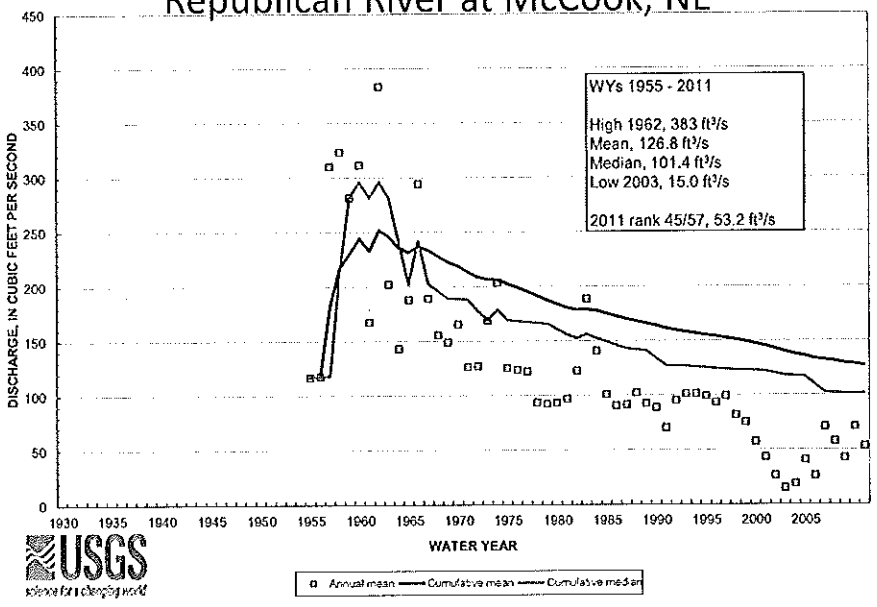




USGS
science for a changing world

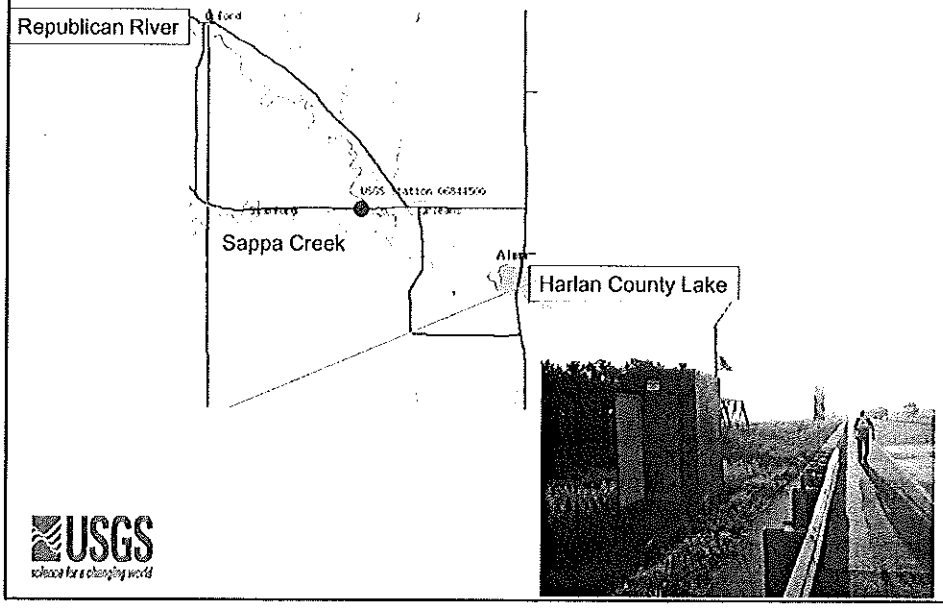
06837000 Republican River at McCook, NE

Republican River at McCook, NE

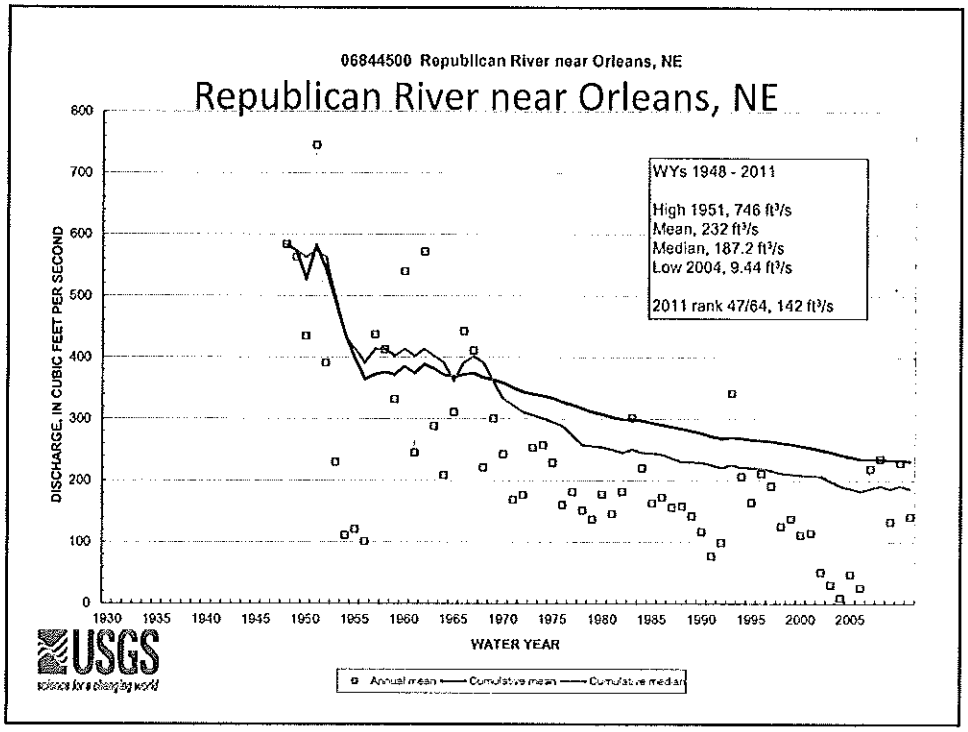


USGS
science for a changing world

Republican River near Orleans, NE



USGS
science for a changing world

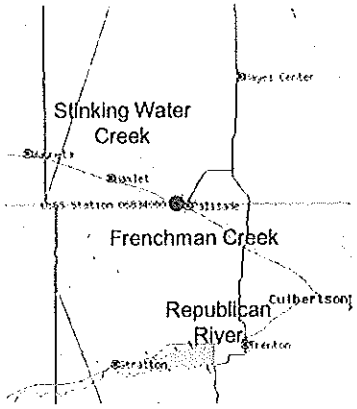


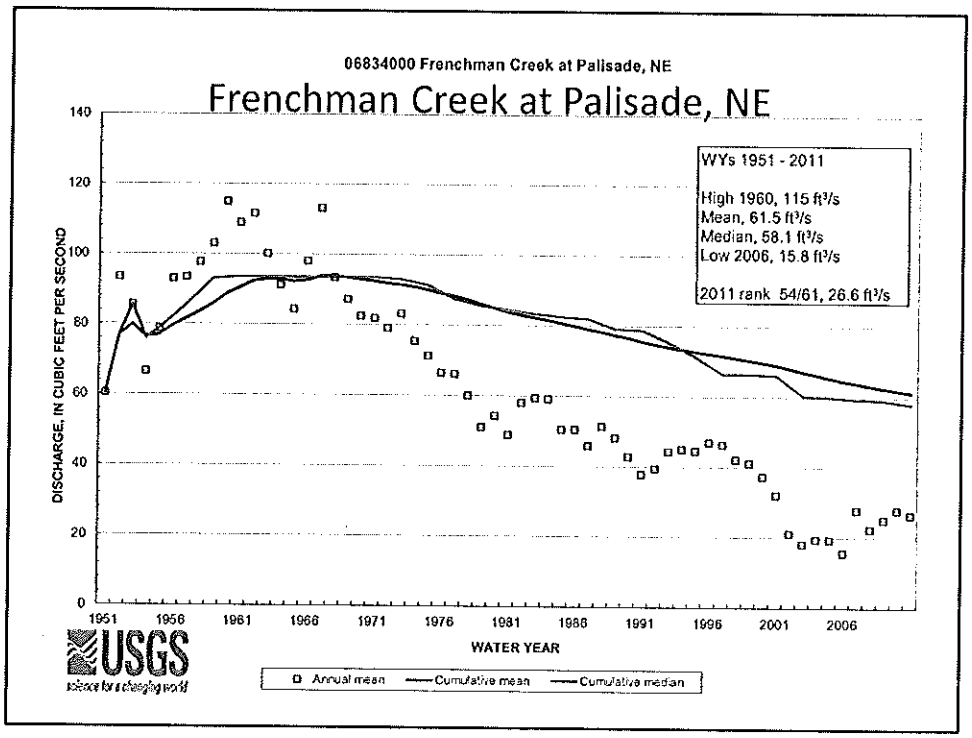
USGS
science for a changing world

Summary Charts – NDNR Stations

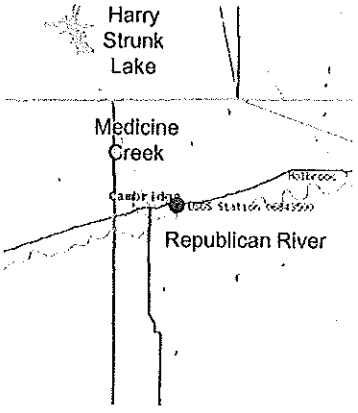
- Published data for Water Year 2011
- Operated by Nebraska Department of Natural Resources (NDNR)
- Stations funded by:
  - NDNR – Field operation
  - USGS and USACE – DCP support, Web display, data review, and publication by USGS

Frenchman Creek at Palisade, NE





Republican River at Cambridge, NE



USGS
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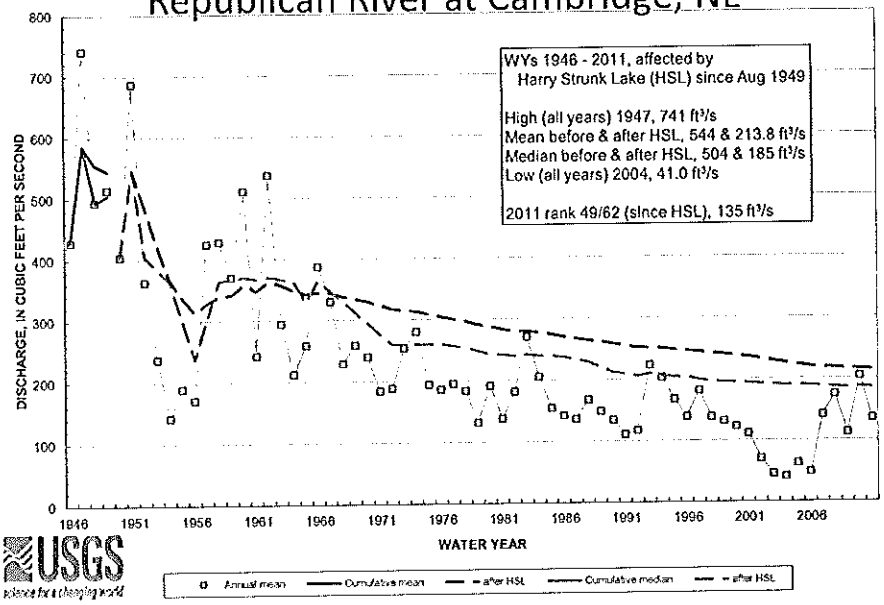
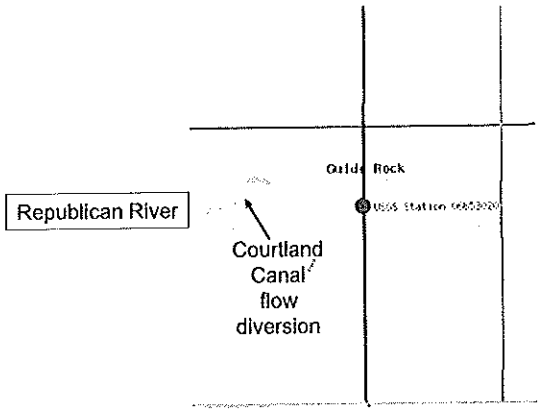
06843500 Republican River at Cambridge, NE

Republican River at Cambridge, NE



Republican River at Guide Rock, NE



Station was recently moved by the NDNR to a former location just downstream of the Courtland Canal diversion

USGS
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CONTACT INFORMATION

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Lincoln, NE 68512-1271

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USGS
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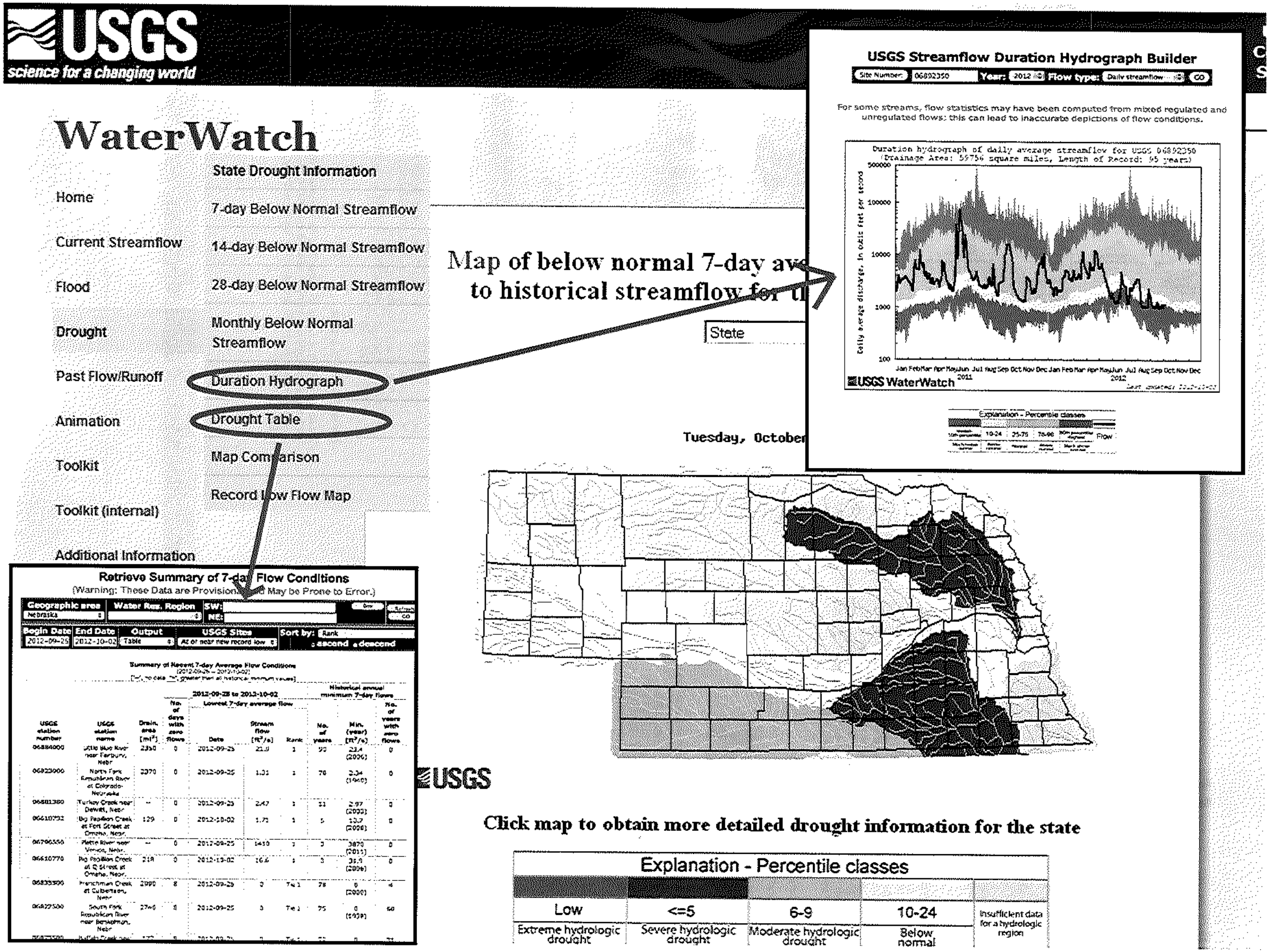

USGS
science for a changing world
WaterWatch
Home
Current Streamflow
Flood
Drought
Past Flow/Runoff
Animation
Toolkit
Toolkit (internal)
Additional Information
State Drought Information
7-day Below Normal Streamflow
14-day Below Normal Streamflow
28-day Below Normal Streamflow
Monthly Below Normal Streamflow
Duration Hydrograph
Drought Table
Map Comparison
Record Low Flow Map
Map of below normal 7-day ave
to historical streamflow for th
State
Tuesday, October
USGS Streamflow Duration Hydrograph Builder
For some streams, flow statistics may have been computed from mixed regulated and unregulated flows; this can lead to inaccurate depictions of flow conditions.
USGS WaterWatch
Retrieve Summary of 7-day Flow Conditions
(Warning: These Data are Provisional and May be Prone to Error.)
USGS
Click map to obtain more detailed drought information for the state
Explanation - Percentile classes
Low
Extreme hydrologic drought
<=5
Severe hydrologic drought
6-9
Moderate hydrologic drought
10-24
Below normal
Insufficient data for a hydrologic region

http://ne.water.usgs.gov/drought/

Nebraska Drought and Low-Flow Stream Watch

This map (from USGS's National Drought Watch Web site) shows the 7-day average streamflow conditions in hydrologic units. Thus, the map shows conditions adjusted for this time of the year. The colors represent 7-day average streamflow percentiles for the day of the year. USGS sites having at least 30 years of record are used. The data used are provisional and subject to change. Nebraska is also providing weekly drought updates with details about measurement and reconnaissance activities.

Nebraska DroughtWatch Maps

Average streamflow maps:

- Area map: Below normal 7-day
- Site map: Below normal 7-day
- Site map: Below normal 14-day
- Site map: Below normal 28-day

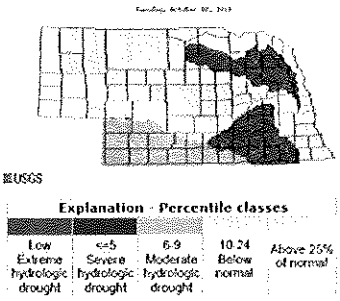
Drought Photo Gallery and Site Streamflow Information

- Arikaree River at Haigler (06821500)
- Big Blue River at Barneston (06882000)
- Big Blue River near Crete (06881000)
- Big Nemaha R. at Falls City (06815000)
- Driftwood Creek near McCook (06836500)
- Elkhorn River at Ewing (06797500)
- Elkhorn River at Norfolk (06799000)
- Elkhorn River at Pilger (06799315)
- Elkhorn River at Waterloo (06800500)
- Elkhorn River at West Point (06799350)
- Frenchman Creek at Culbertson (06835500)
- Frenchman Creek at Palisade (06834000)
- Haines Branch at Lincoln (06803093)
- Little Blue River near Deweese (06883000)
- Little Blue River nr Hollenberg, KS (06884025)
- Missouri River near Maskell (06478526)
- Platte River near Ashland (06801000)
- Platte River near Duncan (06774000)
- Platte River near Grand Island (06770500)
- Platte River at Louisville (06805500)
- Platte River at North Bend (06796000)
- Platte River near Leshara (06795500)
- Ponca Creek at Verdel (06453600)
- Red Willow Creek near Red Willow (06838000)
- Republican River at Cambridge (06843500)
- Republican River near Orleans (06844500)
- Sappa Creek near Stamford (06847500)
- South Omaha Creek at Walthill (06600900)
- West Fork Big Blue River near Dorchester (06880800)

Time-Lapse Photography

- Platte River at South Bend (Lied Bridge NE)
- Platte River at Hwy 64 Bridge
- Platte River State Park Tower Northwest

Map of below normal 7-day average streamflow compared to historical streamflow for the day of year



View a larger map.

Publications

- USGS Fact Sheet OFR93-642: Drought
- USGS Water Supply Paper WSP 2375: National water summary 1988-89: hydrologic events and floods and droughts
  - Nebraska drought chapter (2 Mb PDF)
  - Climate and droughts
  - Evapotranspiration and droughts
  - Paleohydrology and its value in analyzing floods and droughts
  - Management of water resources for drought conditions

Other Links

- USGS Groundwater Watch
- Project Alerts: Drought and Flood
- More USGS News on Drought and Flood Alerts across the Nation
- National Integrated Drought Information System (NIDIS)
- National Drought Mitigation Center
- Natural Resources Conservation Service Drought Information
- UNL Drought Resources

Definitions of Drought

There are different types of droughts, for example meteorological droughts, agricultural droughts, and hydrologic droughts. A discussion of the different types of droughts can be found at the National Drought Mitigation Center Types of Drought page.

Republican River Basin streamflow-gaging stations with records published by USGS for water year (WY) 2011

[DCP, data-collection platform; NDNR, Nebraska Department of Natural Resources; USACE, U.S. Army Corps of Engineers; USBR, U.S. Bureau of Reclamation; USGS, U.S. Geological Survey]

Station number	Station name	Mean discharge (ft³/s) WY 2011	Mean discharge (ft³/s) Long-term	WY 2011 as percentage of long-term mean	WY 2011 as rank/years (1 highest)	WYs used for long-term mean	Remarks
USGS Compact stations supported by the National Streamflow Information Program (NSIP)							
06821500	Arikaree River at Haigler, Nebr	1.55	16.9	9.2%	74/79	1933 - 2011	
06823000	North Fork Republican River at Colo-Nebr State Line	28.1	41.9	67.1%	70/76	1935 - 2011	
06823500	Buffalo Creek near Haigler, Nebr	2.63	6.15	42.8%	68/71	1941 - 2011	
06824000	Rock Creek at Parks, Nebr	6.10	12	50.8%	71/71	1941 - 2011	
06827500	South Fork Republican River near Benkelman, Nebr	11.00	35.4	31.1%	63/74	1938 - 2011	
06835500	Frenchman Creek at Culbertson, Nebr	42.9	67.3	63.7%	48/61	1951 - 2011	Since Enders Reservoir
06836500	Driftwood Creek near McCook, Nebr	3.3	8.4	39.3%	56/65	1946 - 2011	
06838000	Red Willow Creek near Red Willow, Nebr	25.8	13.7	188.3%	2/50	1962 - 2011	Since Hugh Butler Lake
06847500	Sappa Creek near Stamford, Nebr (USACE funds DCP)	17.10	39.3	43.5%	33/65	1946 - 2011	
06852500	Courtland Canal at Nebr-Kans State Line (USBR DCP)	43.2	75.4	57.3%	49/57	1955 - 2011	
USGS stations supported by USGS and/or other Federal or State agencies							
06828500	Republican River at Stratton, Nebr	41	95.8	42.8%	52/61	1951 - 2011	Funded by USACE and NSIP
06837000	Republican River at McCook, Nebr	53.2	126.8	42.0%	50/57	1955 - 2011	Funded by USBR, NDNR, and NSIP
06844500	Republican River near Orleans, Nebr	142	232	61.2%	47/64	1948 - 2011	Funded by USACE
NDNR stations with USGS/USACE support for DCP, Web display, review, and publishing							
06834000	Frenchman Creek at Palisade, Nebr	26.6	61.5	43.3%	54/61	1951 - 2011	
06843500	Republican River at Cambridge, Nebr	135	213.8	63.1%	49/62	1950 - 2011	Since Harry Strunk Lake
06853020	Republican River at Guide Rock, Nebr					1951 - 2008	DISCONTINUED

Online Annual Water Data Reports available at or through
http://wdr.water.usgs.gov
http://ne.water.usgs.gov

USGS
science for a changing world

Links to USGS downloadable data, publications, studies, ...
National http://water.usgs.gov/
Nebraska http://ne.water.usgs.gov/

Jason Lambrecht
402-328-4124
jmlambre@usgs.gov

Exhibit E

Engineering Committee Report

Engineering Committee Report

Republican River Compact Administration

October 16, 2012

COMMITTEE ASSIGNMENTS AND WORK ACTIVITIES RELATED TO THESE ASSIGNMENTS

The Engineering Committee and technical representatives from the States of Colorado, Kansas, and Nebraska participated in several collaborative work activities and phone conferences and the following assignments and work activities were completed:

1. Finalize work on a user's manual for the RRCA Accounting Procedures and provide a recommendation to the Administration for adoption at next year's annual meeting or earlier.
    a. The status of this assignment is that Kansas provided their initial thoughts on the user's manual to Colorado and Nebraska for review. No progress was made on this assignment. The assignment was tabled by the Committee this year, but should be continued for next year.
2. Exchange by April 15, 2012 the information listed in Section V of the RRCA Accounting Procedures and Reporting Requirements, and other data required by that document. By July 15, 2012 the states will exchange any updates to these data.
    a. Kansas and Nebraska posted their model data sets prior to April 15, 2012. Colorado provided preliminary pumping data on April 26 to Willem Schreüder of Principia Mathematica, who ran a preliminary version of the RRCA groundwater model and posted it April 27, 2012 on the RRCA website republicanrivercompact.org.
    b. The States exchanged their available final data by September 20, 2012. Willem Schreüder of Principia Mathematica completed a run based on this data on October 4, 2012.
    c. The committee collected stream flow, climate information, diversion records, and reservoir evaporation records of the three states in cooperation with the U.S. Geological Survey, U.S. Bureau of Reclamation, and U.S. Army Corps of Engineers for 2011.
3. Continue efforts to resolve concerns related to varying methods of estimating ground and surface water irrigation recharge and return flows within the Republican River Basin and related issues.
    a. The status of this assignment is that Kansas provided literature regarding irrigation efficiency to Colorado and Nebraska for their review at the 2011 annual meeting. Aside from that initial review and comments by Colorado and Nebraska, no additional progress has been made on this assignment. Kansas has indicated its intent to propose a study to resolve the problems of differing

groundwater irrigation recharge methods. The assignment should be continued for next year.

4. Retain Principia Mathematica to perform on-going maintenance of the ground water model and periodic updates requested by the Engineering Committee for calendar year 2012. The billable costs shall be limited to actual costs incurred, not to exceed $15,000 in total and will be apportioned in equal 1/3 amounts to the States of Colorado, Kansas, and Nebraska respectively.
    a. Each state separately contracted with Principia Mathematica for calendar year 2012.
5. Continue development of a five-year accounting spreadsheet/database for adoption at the 2012 annual meeting or earlier.
    a. Nebraska offered a spreadsheet for consideration. Kansas reviewed that document and offered suggestions in a new spreadsheet for the states to discuss. No progress was made on this assignment. The assignment was tabled by the Committee this year, but should be continued for next year.
6. Continue to review Colorado's augmentation proposal, as appropriate.
    a. This assignment was not discussed by the Engineering Committee because the topic has been under discussion by a separate negotiating group.
7. Continue efforts to finalize accounting for 2006-2010.
    a. The issues preventing the states from agreeing on the accounting are pending in the current Supreme Court case.
8. Continue discussion of issues preventing agreement on final accounting for 2006-2010.
    a. The issues preventing the states from agreeing on the accounting are pending in the current Supreme Court case.
9. Develop a procedure to account for inflows to the stream segment between Guide Rock diversion dam and the relocated stream flow gage.
    a. Nebraska investigated several methods of measurement and provided the alternatives and approximate cost to the other states. With input from the Commissioners at the work session, a formal proposal can be prepared. The assignment should continue for next year.
10. Discuss the application of the revised Bonny Reservoir area-capacity tables to current and past accounting data.
    a. Kansas agrees to adopt the revised Bonny Reservoir area-capacity tables and apply it to 2011 data and into the future.
    b. Colorado wants the area-capacity tables retroactively applied for 2007 to 2010.
    c. The committee would appreciate direction from the Commissioners.
11. Discuss any accounting changes that may be needed for surface water diversions for the purpose of recharging groundwater.

a. The committee discussed the topic on several occasions, but no formal action was taken on the assignment at this time. The assignment should be continued.

12. Discuss developing a framework for an application and approval process for future augmentation plans.

    a. Kansas provided the committee with its initial thoughts on the type of information that should be provided with a plan and a list of questions for discussion in an email (September 27, 2012). The committee would appreciate discussion by the Commissioners. The assignment should be continued.

13. Apply the procedure described in Exhibit A of the 2011 Engineering Committee report to fill in missing precipitation data in the groundwater model for compact years 2008, 2009 and 2010 and for subsequent years.

    a. This was completed on Sept 7, 2011 by Willem Schreüder of Principia Mathematica.

    b. An additional issue surfaced with the 2011 data set such that a refined proposal is required for approval by the Administration. This task was not completed at the time of this annual meeting and should be included in a future Engineering Committee report.

14. Discuss archiving the data and materials from the Conservation Committee study.

    a. The Committee discussed options for archiving the data and materials from the Conservation Committee study. Several locations (websites) have been identified as possible sites for archiving the data and materials. A final recommendation will be made to the Administration at the annual meeting.

15. Amend the RRCA Rules and Regulations, as discussed on page 76 of the 2010 transcript.

    a. The draft Rules and Regulations were discussed at the annual meeting and a final draft will be prepared for approval at a future RRCA meeting.

RECOMMENDED ASSIGNMENTS FOR THE COMING YEAR

The Engineering Committee recommends the Republican River Compact Administration assign the following tasks:

1. Exchange by April 15, 2013 the information listed in Section V of the RRCA Accounting Procedures and Reporting Requirements, and other data required by that document. By July 15, 2013 the states will exchange any updates to these data.

2. Continue efforts to resolve concerns related to varying methods of estimating ground and surface water irrigation recharge and return flows within the Republican River Basin and related issues.

3. Retain Principia Mathematica to perform on-going maintenance of the ground water model and periodic updates requested by the Engineering Committee for calendar year 2012. The billable costs shall be limited to actual costs incurred, not to exceed $15,000 in total and will be apportioned in equal 1/3 amounts to the States of Colorado, Kansas, and Nebraska respectively.

   a. Kansas Proposal - As the RRCA chair, Kansas will coordinate the work of the committee to collect all needed data (April 15th) and based on this, will develop a preliminary model run and necessary updates based on improved data and post the model input data and output results for review by the other states. The state will also archive the resulting accounting.

4. Continue efforts to finalize accounting for 2006-2011.
5. Continue discussion of issues preventing agreement on final accounting for 2006-2011.
6. Develop a procedure to account for inflows to the stream segment between Guide Rock diversion dam and the relocated stream flow gage.
7. Discuss any accounting changes that may be needed for surface water diversions for the purpose of recharging groundwater.
8. Discuss developing a framework for an application and approval process for future augmentation plans.
9. Finalize the procedure described in Exhibit A of this report to apply to 2011 and subsequent years with missing precipitation data.
10. Finalize work on a user's manual for the RRCA Accounting Procedures and provide a recommendation to the Administration for adoption.
11. Continue development of a five-year accounting spreadsheet/database for adoption.
12. Discuss the application of the revised Bonny Reservoir area-capacity tables to past accounting data.

ATTACHMENTS

Exhibit A - Precipitation procedure

The Engineering Committee Report and the exchanged data will be posted on the web at www.republicanrivercompact.org.

SIGNED BY

_____

Scott E. Ross
Chair, Engineering Committee Member for Kansas

_____

Ivan Franco
Engineering Committee Member for Colorado

_____

James Schneider
Engineering Committee Member for Nebraska

Exhibit F

Conservation Committee Fact Sheet

October 2012

Determining the Effects of Small Reservoirs and Terracing on Water Supplies of the Republican River Basin

New understanding of how these conservation practices impact water supplies

Introduction

The Republican River Compact litigation between Colorado, Kansas and Nebraska began during May 1998 and ended when the parties agreed to a settlement. The United States Supreme Court approved the settlement in May 2003. The settlement is generally knows as the Final Settlement Stipulation (FSS). The FSS required the States to form a Conservation Committee to develop a study plan to determine the quantitative effects of Non-Federal Reservoirs and land terracing practices on the water supplies in the Republican River Basin above Hardy, Nebraska.

Operating Reservoir, August 2005.

Non-Federal Reservoirs for purposes of the FSS and this study are defined as those reservoirs with a storage capacity of 15 acre-feet or more. These small reservoirs or stock ponds catch and store water for use by livestock and wildlife and to prevent erosion. Land terraces control runoff to prevent erosion and allow some additional crop production by making more water available to the crops. These conservation projects directly impact surface water supplies, but they can also affect ground water recharge and have a resulting impact on surface flows. Construction of small reservoirs and land terraces has had a significant but unmeasured impact on river basin water supplies.

The Study Area

The study area consists of the portion of the Republican River Basin above the streamflow measuring gage near Hardy, Nebraska. The area is 22,401 square miles. There are 14,901 square miles of contributing drainage area. The reservoirs and land terraces studied fall within this area and within the three states as listed in Table 1.

Table 1.-Non-Federal Reservoirs and Terraces in the Study Area

	Colorado	Kansas	Nebraska	Total
Reservoirs Number	6	148	562	716
Terraced land Acres	290,000	923,000	919,000	2,130,000

The amount of terraced land is approximately 22 percent of the contributing drainage area of the basin.

Field Investigation

Water levels in 32 reservoirs were monitored for up to five years during the study; one of these reservoirs was studied in detail to understand the water balance and develop methods to model seepage from the reservoir. Two other reservoirs were used to verify what was learned about the water balance and modeling of seepage. Detailed data were collected from five terrace fields for up to five years. The data included precipitation, outflows from terrace channels, temperatures, and soil moisture changes, along with other information. The storage condition and type of terrace was determined through a survey of 167 terraced fields, a representative sample of terraces in the basin. The data was used to understand how these conservation practices changed the water balance.

Databases

Databases were developed for use in simulating the hydrologic impact of small reservoirs and terraces. Data was needed for the location of non-federal reservoirs and terraces, weather, soils, crops, irrigated land amount and location, catchment area of the reservoirs, the delineation of the watershed boundaries, and the location of waterways.

Water Balance Modeling and Simulation of Impacts

Operating Terraces in the Basin, May 2007.

Based on this, a water balance model was developed that could be applied in the basin. The water balance model was operated to simulate the operations of typical non-federal reservoirs and land terraces on a daily basis for 1950-2008, a 59 year period. The water balance model was operated to simulate the water balance for typical reservoirs and five types of typical terraces for each of the three major soil types identified for the basin at each of the 32 independent meteorological stations across the basin.

The data and the basin model suggest that these water conservation practices:

- increase net evapotranspiration by an average of 36,000 acre-feet annually,
- decrease streamflow by an average of 63,000 acre-feet annually,
- increase recharge by an average of 88,000 acre-feet annually, and
- decrease stream transmission loss by an average of 61,000 acre- feet annually.

These are average annual amounts over a 59-year period.

For More Information

The final report, *Study on the Impacts of Non-Federal Reservoirs and Land Terracing on Basin Water Supplies, Final Report from the Republican River Compact Settlement Conservation Committee for the Republican River Compact Administration, October 2012*, can be found at the following web sites:

Colorado - http://water.state.co.us/SurfaceWater/Compacts/RepublicanRiver/
Kansas - http://www.ksda.gov/interstate_water_issues
Nebraska - http://dnr.ne.gov/legal/kansasvs.html
Bureau of Reclamation - http://www.usbr.gov/gp/nkao

Exhibit G

Nebraska Resolution: Alternative WSY Administration

RESOLUTION OF THE REPUBLICAN RIVER COMPACT ADMINISTRATION

NEBRASKA'S ALTERNATIVE WATER-SHORT YEAR ADMINISTRATION PLAN

Whereas, the States of Kansas, Nebraska and Colorado entered into a Final Settlement Stipulation (FSS) as of December 15, 2002, to resolve pending litigation in the United States Supreme Court regarding the Republican River Compact (Compact) in *Kansas v. Nebraska and Colorado*, No 126 Original;

Whereas, the FSS was approved by the United States Supreme Court on May 19, 2003;

Whereas, by letter dated July 30, 2012, the State of Nebraska submitted to the State of Kansas and the State of Colorado a copy of the "State of Nebraska's Plan for Reduction of Computed Beneficial Consumptive Uses under Alternative Water-Short Year Administration" (WSYA Plan);

Whereas, Nebraska has previously provided the State of Kansas and the State of Colorado RRCA Groundwater Modeling results indicating expected CBCU reductions resulting from Nebraska's actions during Compact Call years.

Whereas, Nebraska's WSYA Plan has been properly presented and submitted to the Republican River Compact Administration pursuant to Appendix M of the FSS.

Whereas, on September 14, 2012, the State of Nebraska provided the State of Kansas and the State of Colorado notice that if its WSYA Plan were not approved by the RRCA that Nebraska may pursue "fast track" resolution of the issue;

Whereas, on October 3, 2012, the State of Nebraska was provided notice by the United States Bureau of Reclamation that the potential for Water-Short Year Administration exists in 2013;

Whereas, no methodology exists in the RRCA Accounting Procedures and Reporting Requirements to determine necessary reductions in Computed Beneficial Consumptive Use (CBCU) for the upcoming year (defined as the current year in Table 5D of the RRCA Accounting Procedures and Reporting Requirements) prior to August 1 of the current year (defined as year = -1 in Table 5D of the RRCA Accounting Procedures and Reporting Requirements);

Whereas, Nebraska has developed a methodology to determine the necessary reductions in CBCU by December 31st for the upcoming year (provided with Nebraska's WSYA Plan); following the determination of the necessary reductions Nebraska will then determine the actions from those indicated within the WSYA Plan that it will utilize to produce such reductions; and these actions and their expected reductions in CBCU will be provided to the RRCA prior to April 1 of the year in which the WSYA Plan is implemented;

Whereas, the States agree that the expected reductions in CBCU implemented through Nebraska's WSYA Plan shall be evaluated by the Republican River Compact Administration

(RRCA) using methods consistent with the RRCA Accounting Procedures and the RRCA Groundwater Model;

Whereas, the States agree that Nebraska's proposed WSYA Plan conforms to the requirements set forth in Appendix M of the FSS and that the RRCA should adopt Nebraska's proposed WSYA Plan; and

Now, therefore, it is hereby resolved that the RRCA approves and adopts the "State of Nebraska's Plan for Reduction of Computed Beneficial Consumptive Uses under Alternative Water-Short Year Administration"

Approved by the Republican River Compact Administration this 16th day of October 2012.

David Barfield, P.E. Kansas Member Chairman	Date
Brian Dunnigan, P.E. Nebraska Member	Date
Dick Wolfe, P.E. Colorado Member	Date

Exhibit H

Nebraska Proposal: Alternative WSY Administration

Dave Heineman
Governor

STATE OF NEBRASKA
DEPARTMENT OF NATURAL RESOURCES
Brian P. Dunnigan, P.E.
Director

July 30, 2012

IN REPLY TO:

David Barfield
Kansas Commissioner, RRCA
Kansas State Engineer
Division of Water Resources
109 SW 9th Street, 2nd Floor
Topeka, KS 66612-1283

Dick Wolfe
Colorado Commissioner, RRCA
Colorado State Engineer
Colorado Division of Water Resources
1313 Sherman Street, Room 818
Denver, CO 80203

RE: Submittal of Alternative Water-Short Year Plan for Consideration and Approval by the Republican River Compact Administration (RRCA)

Dear Commissioners Barfield and Wolfe:

Nebraska has completed a third generation of Integrated Management Plans (IMPs) and corresponding controls for the Natural Resources Districts in the Republican River Basin. These IMPs provide for various management actions aimed at reducing long-term consumptive uses and additional actions during periods which are identified as "Compact Call Years." Thus, pursuant to the terms of Appendix M of the Final Settlement Stipulation, Nebraska is respectfully submitting an Alternative Water-Short Year Plan for consideration and approval by the Republican River Compact Administration (RRCA).

Appendix M provides for a review period for both Kansas and Colorado through November 1st of the same year in which Nebraska submits a plan prior to August 1st. Nebraska is seeking approval of this plan and understands that, if approved, this plan would expire on January 1, 2016, thus requiring additional future approvals for the plan to be effective beyond January 1, 2016. Thank you in advance for your consideration of this plan.

Sincerely,

Brian P. Dunnigan

Brian P. Dunnigan, P.E.
Director

Attachment

State of Nebraska's Plan for Reduction of Computed Beneficial Consumptive Uses under Alternative Water-Short Year Administration

Submitted to the Republican River Compact Administration
on July 30, 2012

I. Introduction and Background on Alternative Water-Short Year Administration Planning Provisions

Appendix M of the Final Settlement Stipulation (FSS) allows the State of Nebraska to submit one or more plans under Alternative Water-Short Year Administration to the Republican River Compact Administration (RRCA). Under Paragraph 1 of Appendix M, Nebraska may elect to implement an RRCA-approved "Plan for Reduction of Computed Beneficial Consumptive Uses" (Plan) when the projected water supply within Harlan County Reservoir is less than 130,000 acre-feet. When implemented, the Plan would permit Nebraska to use a three-year running average in lieu of the two-year requirements established in Subsection V.B.2.e.i of the FSS.

Pursuant to the terms of Appendix M of the FSS, Nebraska will provide notice prior to April 1st of each year that it intends to implement a Plan. Nebraska could not implement a Plan in any year if in the previous year, Water-Short Year Administration was in effect pursuant to Subsection V.B.1.b. and Nebraska failed to elect the Alternative Water-Short Year Administration in that year. Additionally, for any year that an approved Plan is implemented, such Plan shall be in effect for the remainder of the year unless the projected supply rises above 130,000 Acre-feet. At such time, Nebraska may revoke the Plan by notifying the RRCA. If Nebraska revokes a Plan, the provisions of Subsection V.B.2.e.i., if applicable, shall be in effect. If Nebraska revokes a Plan during the year, it may not resume the Plan in that year.

The terms of Appendix M of the FSS require that each Plan submitted by Nebraska indicate two items:

1. The actions which Nebraska will undertake to reduce its Computed Beneficial Consumptive Uses (CBCU) from the base condition
2. The amount of expected CBCU reduction to result from those actions

The Plan's designed reductions in CBCU are to be evaluated by the RRCA using methods consistent with the RRCA Accounting Procedures and the RRCA Groundwater Model.

Once Nebraska elects to implement an approved Plan, Nebraska will provide notice to the RRCA by April 1st of its intention to implement a Plan for that year. Following any such notice, a three-year running average of the compact balances above Guide Rock for the current year plus the previous two years will be used to assess Nebraska's compact compliance in Water-Short Year Administration. Notwithstanding compliance under the provisions of a three-year running average, the two year sum of Nebraska's current and previous year's CBCU in excess of its Allocation above Guide Rock, pursuant to Subsection V.B.2. of the Stipulation, shall not exceed the amount of CBCU that the Plan was designed to reduce above Guide Rock.

II. Plan for Reduction of Computed Beneficial Consumptive Uses under Alternative Water-Short Year Administration

As described in Section I of this document, Nebraska must indicate the actions it would take to reduce its CBCU from the base condition (condition at the time of settlement, December 15, 2002) and the amount of expected reduction in CBCU resulting from those actions taken under this Plan. This evaluation is to be conducted in a manner consistent with the RRCA Accounting Procedures and the RRCA Groundwater Model. The following sections will describe Nebraska's intended actions under this Plan and the calculations to determine the expected reductions in Nebraska's CBCU resulting from those actions.

A. Actions undertaken by Nebraska to reduce its Computed Beneficial Consumptive Use from the Base Condition

Since the signing of the FSS, Nebraska has progressively worked to manage its CBCU. Several actions to reduce CBCU have been implemented and/or identified by Nebraska through its Integrated Management Planning (IMP) process. For the purposes of this Plan, Nebraska's actions to reduce CBCU will involve the implementation of Compact Call Year provisions for groundwater curtailments and surface water administration (details explained in attached IMPs). Under the Compact Call Year provisions of the IMPs, alternative management actions may be implemented in lieu of the prescribed groundwater curtailments. These may include:

1. Retirement of irrigated acreage
2. Leasing of surface water CBCU
3. Allocations of groundwater pumping
4. Augmentation of streamflows

In other words, Nebraska will rely on the implementation of the Compact Call Year provisions to serve as the foundation of its actions that it will take to reduce CBCU under this Plan. However, the other management actions (listed above) may be used in lieu of the Compact Call Year provisions if those management actions are determined to be hydrologically equivalent. If Nebraska elects to implement this plan, Nebraska will indicate in its notice to the RRCA (due by April 1) if any alternate management actions will be taken in lieu of the groundwater curtailment.

B. Expected Reduction in Computed Beneficial Consumptive Use Resulting from Nebraska Reductions

Nebraska will seek to maximize the utilization of its Compact allocation while ensuring that the planned reductions in CBCU will be sufficient to ensure compliance with the Compact in each year that this Plan is implemented. The expected reductions in CBCU resulting from Nebraska's actions under this Plan will vary for each time that it is implemented due to previous years Compact accounting balances and fluctuations in

Nebraska's projected allocation, projected CBCU, and projected Imported Water Supply Credit.

For each occasion on which Nebraska informs the RRCA that it intends to utilize this Plan it will be necessary to calculate the expected reduction in CBCU. This calculation of expected CBCU reduction is only necessary to ensure conformance with one of the tests[1] implemented under Alternative Water-Short Year Administration. The expected CBCU reduction is not used to calculate compliance with the three-year average under Alternative Water Short Year Administration.

As explained in Section II.A Nebraska will utilize the Compact Call Year provisions to serve as the foundation for expected CBCU reduction under this Plan. Furthermore, the CBCU reduction resulting from implementation of the Compact Call Year groundwater curtailment has previously been evaluated and provided by Nebraska (Schneider, 2012[2]). The Nebraska analysis indicates that the first year in which a Compact Call Year groundwater curtailment is implemented the expected CBCU reduction would be 15,089 acre-feet with a second consecutive year yielding an expected CBCU reduction of 38,515 acre-feet. Therefore, the CBCU reduction that this Plan will yield is 0 to 15,089 acre-feet in the first year and 0 to 38,515 in a second consecutive year. For any year that Nebraska intends to implement this Plan, Nebraska will indicate in its notice to the RRCA the expected CBCU reduction required for that year (this value will fall within the ranges specified above).

[1] This test requires that the sum of the previous year and current year deficits above Guide Rock are not greater than the expected decrease in Computed Beneficial Consumptive Use under the plan.

[2] Nebraska Responsive Expert Report Concerning Nebraska's Future Compliance, James C. Schneider, Ph.D., March 15, 2012 (see spreadsheet titled Table 5 Figure ES1 and Figure 5.xlsx)

III. Methods to Determine Expected CBCU Reductions and Compact Compliance Under this Plan

The scope of the actions taken by Nebraska will be guided by ensuring compliance with the two tests outlined in Section III.J of the RRCA Accounting Procedures and Reporting Requirements (August 12, 2010). This section of the Accounting Procedures provides the analytical approach to be used to assess Nebraska's compliance with the Compact once a Plan has been implemented. Section III.J states:

> *Nebraska will be within compliance with the Compact as long as the three-year running average difference in Column 8 is positive and the sum of the previous year and current year deficits above Guide Rock are not greater than the expected decrease in Computed Beneficial Consumptive Use under the plan.*

Thus, in plain language, when Nebraska implements a Plan it shall be determined to be in compliance with the Compact if it meets two tests. Test One is that Nebraska's two-year sum (previous year plus current year) cannot be negative by more than the expected reduction in CBCU under the Plan and Test Two is that Nebraska achieves a positive three-year running average.

To evaluate Compact compliance under Test One, the expected CBCU reduction must be calculated. Due to the timeframe by which the expected CBCU reduction will need to be calculated and the fact that Nebraska intends to maximize its utilization of its allocation, it will be necessary to develop estimates of the previous year's Compact balance and a projection of the current year's Compact balance. Nebraska has developed and tested methods to achieve this purpose. These methods are contained in the Monitoring and Studies Section of the IMPs for the Lower Republican Natural Resources District, Middle Republican Natural Resources District, and Upper Republican Natural Resources Districts IMPs (see attached).

The value for the expected reduction in CBCU that is necessary under Test One would be calculated by the following equation.

Equation 1: Calculation of expected CBCU reduction when Nebraska implements this Plan

$$0.5 \times |\text{Year}_{-1\,CB} + \text{Projected Year}_{0\,CB}| = \text{Expected CBCU Reduction}$$

Where:

$\text{Year}_{-1\,CB}$ = Nebraska's Compact balance for the previous year

$\text{Projected Year}_{0\,CB}$ = Nebraska's projected Compact balance for the current year if no additional management actions were taken

An example of the equation used to assess compliance with Test One is illustrated in Equation 2 and Table 1. If the Test One balance calculated in Equation 2 is greater than or equal to zero, then Nebraska will be in compliance with Test One.

Equation 2: Calculation of compliance with Test One

[Year $_{-1\ CB}$ + Year $_{0\ CB}$ + Expected CBCU Reduction (result of Equation 1)] = Test One Balance

Where:

Year $_{0\ CB}$ = Nebraska's Compact balance for the current year

Table 1. Test One Example Data

Test One	
Year	**Compact Balance Above Guide Rock (acre-feet)**
Previous Year (Year $_{-1\ CB}$)	1,000
Expected CBCU Reduction	7,000
Current Year (Year $_{0\ CB}$)	-8,000
Two Year Sum – Expected Decrease in CBCU	0

$$[1{,}000 + (-8{,}000) + 7{,}000] = 0$$

Thus, one can see that for purposes of Test One that the sum of Nebraska's annual Compact balances for the current year and previous year are able to be negative in an amount equal to the expected reduction in CBCU.

In addition to satisfying the requirements of Test One, Nebraska will provide, as necessary, additional reductions in CBCU such that the three-year running average would result in a value greater than or equal to zero (compliance with Test Two). Providing additional reductions of the expected CBCU would only be necessary if the three-year running average were to result in a negative value even after the CBCU reductions used to satisfy the requirements of Test One were implemented. The quantity of additional reductions in the expected CBCU that may be necessary to comply with Test Two would be calculated by the following equation.

Equation 3: Calculation of expected additional CBCU reduction

Year $_{-2\ CB}$ + Year $_{-1\ CB}$ + Projected Year $_{0\ CB}$ + Expected CBCU Reduction = Additional Expected CBCU Reduction

Where:

Year $_{-2\ CB}$ = Nebraska's Compact balance for the year prior to previous year

Year $_{-1\ CB}$ = Nebraska's Compact balance for the previous year

Projected Year $_{0\ CB}$ = Nebraska's projected Compact balance for the current year if no additional management actions were taken

Expected CBCU Reduction = the results from Equation 1, inserted as a positive value

If the additional expected CBCU reduction calculated in Equation 3 is greater than or equal to zero, then no additional CBCU reductions will be necessary. If the value is negative then additional CBCU reductions will be implemented in conjunction with those which may have been identified in Test One.

The expected CBCU reductions and additional expected CBCU reductions are not used in assessing Compliance with Test Two. Compliance with Test Two will be determined by averaging the final Compact balances for the appropriate three years (Year $_{-2\ CB,}$ Year $_{-1\ CB,}$ and Year $_{0\ CB}$).

ATTACHMENTS

INTEGRATED MANAGEMENT PLANS

LOWER REPUBLICAN NATURAL RESOURCES DISTRICT

Integrated Management Plan (IMP)

OCTOBER 1, 2011

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

I. 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, *Neb. Rev. Stat.* § 46-701 et seq., and the Republican River Compact.

II. Background

In 1943 the states of Colorado, Kansas and Nebraska entered into the Republican River Compact (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 (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 streamflow 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 (RRCA) Ground Water Model (GWM) developed by the three states for use in computing streamflow depletions resulting from ground water use was submitted to the Court on September 17, 2003.

Ground water use within the Republican River Basin is regulated by four natural resources districts: the Lower Republican Natural Resources District (LRNRD), the Upper Republican Natural Resources District (URNRD), the Middle Republican Natural Resources District (MRNRD), and the Tri-Basin Natural Resources District (TBNRD) (collectively referred to below as the NRDs). 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 NRDs regarding the need (1) to accurately measure actual ground water pumpage and surface water diversions throughout the basin and within each NRD, (2) for the TBNRD to maintain the

Compact Imported Water Supply that Nebraska receives because of discharges from the “ground water mound” at sufficient levels to offset depletions to the Republican River caused by ground water pumping within the Republican River Compact area within TBNRD, and 3) for each of the NRDs other than the TBNRD 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, determined each NRD'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 NRD was based on the proportion of the average ground water depletions caused by ground water pumping within each NRD 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 NRD alternated between being turned off and then being turned on. The percentage of allowable ground water depletions may be altered in the future if concurrence on a new methodology can be reached amongst all of the basin NRDs.

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 base allocations.

Since adoption of the 2005 IMP, there have been efforts 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 LRNRD as required by the laws of the state of Nebraska, specifically the Ground Water Management and Protection Act. A subsequent IMP was adopted by LRNRD and DNR in 2008, with additional changes during 2009.

During 2008 Colorado, Kansas, and Nebraska entered into dispute resolution regarding a number of issues, including future compliance. In June 2009 the arbitrator, Karl Dreher, issued a finding that the LRNRD IMP may be adequate during years with average and above-average precipitation, but may not be adequate during dry years. Although the LRNRD's allowable depletions to streamflow are limited to 26% of Nebraska's allowable depletions, there were no details in the plan to describe how this would be accomplished. These additional details have been added to this 2011 version of the IMP.

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 the this IMP. The LRNRD understands that the URNRD and the MRNRD have also revised their 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 streamflow depletions as calculated by the 1998-2002 baseline depletion percentages. The failure of any one NRD 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 NRDs.

III. Limitations for Certain Purposes

To the extent provisions of this IMP relate to and accommodate or provide for water short year regulatory action intended to achieve compliance with this Compact, this IMP applies to portions of the Republican River Basin lying in the Nebraska counties of Furnas, Harlan, Franklin, Webster, and Nuckolls, lying upstream of Guide Rock, Nebraska: those areas within the basin lying west of a line proceeding north from the Nebraska-Kansas state line and following the western edge of Webster County, Township 1, Range 9, Sections 34, 27, 22, 15, 10, and 3 through Webster County, Township 2, Range 9, Sections 34, 27 and 22; then proceeding west along the southern edge of Webster County, Township 2, Range 9, Sections 16, 17 and 18; then proceeding north following the western edge of Webster County, Township 2, Range 9, Sections 18, 7 and 6, through Webster County, Township 3, Range 9, Sections 31, 30, 19, 18, 7, and 6 to its intersection with the northern boundary of Webster County.

IV. Goals and Objectives

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

A. 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.

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

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

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 LRNRD, as required for Compact compliance and by Nebraska law.

2. Achieve the required reductions in water use 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 and streamflow augmentation programs, make such additional reductions in ground water use in Compact Call Years as are necessary to achieve a reduction in beneficial consumptive use in the LRNRD to 26% of the allowable ground water depletions in such years. Compact Call Years will be determined through the procedures outlined in Section IX of this IMP.

5. The LRNRD and the DNR will continue to investigate and 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.

6. The LRNRD's net depletions shall not exceed its appropriate allocation (26%) of the state's allowable ground water depletions as determined by the Republican River Compact Administration Ground Water Model

V. Map

Except as noted in Section III above, the area subject to this IMP is the geographic area within the boundaries of the LRNRD (see Map 1). The Rapid Response Region is shown as a sub-area within the boundaries of the LRNRD (see Map 2).

VI. Ground Water Controls

The authority for the ground water component of this IMP is the Nebraska Ground Water Management and Protection Act, *Neb. Rev. Stat.* § 46-701 et seq. The ground water controls in this IMP will be implemented in the LRNRD Ground Water Management Rules and Regulations. The Rules and Regulations may be modified in a manner consistent with this IMP from time to time hereafter by the LRNRD, and shall be sufficient so as to meet the Compliance Standards and controls set forth below.

A. Compliance Standards

1. Purpose

These compliance standards are established by DNR and LRNRD to assess whether the course of action taken by the LRNRD, with the intention of providing their proportionate share of assistance to the state in order for the state to maintain compliance with the FSS and Compact, is sufficient. The action taken by the LRNRD shall be evaluated in connection with the action taken by the other NRDs in the Republican River Basin and any other relevant considerations, including the information and data provided by DNR and past action by the LRNRD.

2. Duration

On an annual basis the DNR and LRNRD shall reexamine the sufficiency and effectiveness of the compliance standards to determine if amendments or revisions to this IMP are necessary to ensure the state's compliance with the FSS and Compact. Nothing contained herein shall prohibit or preclude any amendment or revision at any time by the DNR and LRNRD 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 required by *Neb. Rev. Stat.* § 46-715.

3. Standards

The LRNRD shall adopt and implement rules and regulations which shall ensure that the following standards are met. The standards shall be affected through the procedure described in Section IX - Monitoring and Studies. Section IX specifies a forecast and resulting actions needed at the Guide Rock compliance point (during water short years) and at the Hardy compliance point. The procedures for determining whether the compliance standards are met will be based on the Republican River Compact Administration (RRCA) Accounting Procedures, the baseline depletion percentage, and the annual forecast as outlined in Section IX. The standards are:

a. Provide for a minimum 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 194,000 acre-feet over the

long term. If precipitation is lower than average for any given year, the ground water pumping volume for any single year may be above 194,000 acre-feet.

b. An additional five percent (5%) reduction in 98-02 pumping volumes during the next five-year period shall be accomplished primarily through voluntary incentive programs and other means as determined by the LRNRD. The necessity for continuing this annual reduction shall be reevaluated by DNR and the LRNRD in 2015.

c. The LRNRD's net depletions to streamflow shall average no greater than 26% of the allowable ground water depletions determined in accordance with RRCA Accounting Procedures using the RRCA GWM. The average shall be computed using the annual allowable ground water depletion for the same years as are used to determine the averages for Nebraska's compliance with the FSS.

B. Other Ground Water Controls and Management Activities

The LRNRD and the DNR 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.

1. During Compact Call Years, the LRNRD will seek to implement management actions (such as surface water leasing, ground water leasing, augmentation, etc.) to ensure compliance with this IMP. These management actions will be implemented through the authorities granted by the Nebraska Ground Water Management and Protection Act, *Neb. Rev. Stat.* §§ 46-701 to 46-753. Details of such management actions will be provided to DNR by January 31st of each year for evaluation. If such management actions are insufficient to ensure compliance with this IMP, the LRNRD will in the alternative to management actions, implement additional ground water controls and regulations to make up for its proportionate share of any expected shortfall as identified in the annual forecast and described in Section IX of this IMP. Such additional control will include, but not be limited to, restriction or curtailment of ground water pumping within the Rapid Response Region of the LRNRD and restrictions on ground water pumping in all other sub areas of the district.

2. When necessary to ensure compliance with this IMP during Compact Call Years, the LRNRD may set a one-year pumping allocation within the district. Such allocation will set the maximum pumping level in that year within any region or sub-region.

3. Maintain requirement for metering of all ground water uses according to LRNRD standards.

4. Provide for transfers according to LRNRD standards

VII. 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, *Neb. Rev. Stat.* § 46-701 et seq. The surface water controls that will be continued and/or begun by the DNR are as follows:

A. DNR shall continue to administer surface water under the prior appropriation system.

B. The DNR shall implement the following additional surface water administration as required by the FSS:

1. To provide for regulation of natural flow between Harlan County Lake (HCL) 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 the 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 the Superior- Courtland Diversion Dam.

C. 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 are required to install and maintain a DNR approved measuring device. 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.

D. The DNR’s moratorium on the issuance of new surface water permits was made formal by an 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 have such permits. Such reservoirs are limited to those identified through the FSS required inventory of reservoirs with over 15 acre-feet capacity.

E. 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 in effect as of January 1, 2010.

F. 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.

G. 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).

H. During Compact Call Years, as determined from the procedures and analysis set forth in Section IX below, DNR will regulate and administer surface water in the basin as necessary to ensure Compact compliance. During Compact Call Years, DNR will issue a “Compact Call” on the Republican River at Hardy or Guide Rock to carry out administration for the Compact in a manner consistent with the doctrine of prior appropriation. A “Compact Call” will result in DNR issuing closing notices on all natural flow and storage permits in the basin until such time as DNR, in consultation with the LRNRD and other basin NRDs, determines that yearly administration is no longer needed to ensure Compact compliance, pursuant to Section IX.

VIII. Incentive Programs

The LRNRD and DNR, alone or in cooperation with other parties, intend to establish and implement financial, incentive, and qualified projects as described in *Neb. Rev. Stat.* § 2-3226.04 to reduce beneficial consumptive use of water within the LRNRD. These projects include, but are not limited to, (1) acquisition by purchase or lease of surface water or ground water rights, including storage water rights with respect to a river or any of its tributaries, (2) acquisition by purchase or lease or the administration and management, pursuant to mutual agreement, of canals and other works, including reservoirs, constructed for irrigation from a river or any of its tributaries, (3) vegetation management, including, but not limited to, the removal of invasive species in or near a river or any of its tributaries, and (4) the augmentation of river flows. 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.

Any reductions in depletions to streamflow generated through supplemental programs, funded entirely by the state of Nebraska and/or the United States Government, including acreage retirement or other incentive programs undertaken through programs available throughout the Republican River Basin will not accrue to any specific NRD, 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 NRD's compliance with the 98-02 depletion percentages. This calculation is outlined in Section IX.B.2.c of this IMP.

However, should any NRD establish, fund partially or in total, 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 NRD.

With agreement of the NRDs involved, the benefits from a supplemental program may be allocated to each NRD based upon their share of the cost of the program.

To the extent possible, it is the intent of the LRNRD to provide compensation to water users that are required to forgo water use to allow the LRNRD and the state to comply with the compact. This may be in addition to or as part of any other LRNRD incentive or retirement program developed to facilitate compact compliance.

IX. Monitoring and Studies

The overarching purpose of the Monitoring and Studies Section is to ensure that, in cooperation with the other Republican River Basin NRDs, the DNR and LRNRD 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. The objective of the Monitoring and Studies Section of this IMP is to gather and evaluate data, information, and methodologies that could be used to increase understanding of the surface water and hydrologically connected ground water system, to test the validity of the conclusions and information upon which this IMP is based, and to assist decision makers in properly managing the water resources within the LRNRD and the Republican River Basin as a whole.

On an annual basis the results of monitoring and studies will typically be discussed in a basin-wide meeting which will take place prior to October 31st each year. The purpose of the meeting will be to discuss the preliminary accounting for the current year, the forecast of allowable streamflow depletions for the coming year, and potential management actions as necessary. Table 1 outlines important dates and objectives related to section IX.

Table 1. Important Dates and Objectives.

Date	Objective
Prior to February 1	LRNRD will provide DNR with meter reading database and GIS coverage maps to be used for the RRCA annual model update.
Prior to RRCA Annual Meeting	DNR will provide LRNRD with their determination of whether the LRNRD was in compliance with the compliance standards based on each previous year's annual Compact accounting.
September - October	Obtain power records and other estimates to determine pumping for T = 0 ground water model run.
Prior to October 31	Discuss results of monitoring and studies, preliminary accounting for current year, and early forecast of allowable streamflow depletions.
Prior to November 15	DNR will provide correspondence to LRNRD notifying them of potential Compact call determination for the coming year (T + 1).
November 15 – January 1	LRNRD and DNR will discuss potential management alternatives in the situation that the coming year (T + 1) will be a Compact Call Year.
Prior to December 1	Surface water project sponsors may present a plan to DNR to achieve a consumptive use that is less than forecasted consumptive use.
Prior to January 1	Provide final forecast of allowable streamflow depletions and determination of Compact Call Years.
Prior to January 31	LRNRD will provide DNR with details regarding existing management alternatives in lieu of additional ground water regulations or controls to make up for the expected shortfall.

A. Plan to Gather and Evaluate Data, Information and Methodologies

As outlined in *Neb. Rev. Stat.* § 46-715(2)(e), ongoing programs and new studies or other projects may become a source of information that is used to evaluate the effectiveness of controls adopted by the LRNRD and the DNR. The LRNRD and DNR will jointly pursue and/or evaluate studies, contingent upon budget and staff resources, to evaluate their potential effectiveness in achieving the goals and objectives of this IMP.

The following potential studies have been identified by the DNR and the LRNRD: (1) crop rotation, (2) vegetation management, (3) irrigation scheduling, (4) a survey of the type and location of irrigation systems throughout the LRNRD, (5) tillage practices, and (6) conjunctive management.

B. Monitoring

Part One of this Monitoring Section describes the tracking and reporting of water use activities within fully appropriated areas of the district by the LRNRD and the DNR. Part Two of this Monitoring Section describes the analyses that will be utilized to annually forecast the projected depletions in each subsequent year. This accounting and forecast in accordance with

Neb. Rev. Stat. § 46-715(6) will serve to increase the understanding and test the validity of the conclusions and information upon which this plan is based.

Compact accounting and data exchanges among the states shall be done annually in accordance with the FSS, dated December 15, 2002, including the RRCA Accounting Procedures and Reporting Requirements which are contained in Appendix C thereof. An annual report of the RRCA is published each year. The accounting procedures, reporting requirements, and annual report of the RRCA are independent of this monitoring plan, and therefore are not restated within the Monitoring Section of this plan.

1. Part One: Tracking and Reporting of Water Use Activities

The LRNRD and the DNR 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 LRNRD agrees to annually provide GIS coverage maps of all lands irrigated and to meter, record and provide to the DNR its ground water usage records and irrigation system details. The LRNRD shall make copies of district actions taken on variances, offsets, and similar actions available to DNR.

The DNR agrees to make available to the LRNRD all reports and records of the other NRDs necessary to determine their compliance with reductions, as well as all documentation and reports utilized by the DNR to determine the basin's virgin water supplies and Nebraska's compliance with the Compact.

In the event any materials are withheld by either DNR or LRNRD 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.

2. Part Two: Forecast Procedures

Each year in compliance with *Neb. Rev. Stat.* § 46-715(6) the DNR 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 DNR and the NRDs in ensuring compliance with the Compact. DNR in conjunction with the NRDs will annually evaluate the forecast procedures and make changes as deemed necessary to reflect management actions being taken in the basin.

In order to complete the forecast, the DNR and LRNRD in conjunction with the other NRDs will review available information and determine if additional controls must be implemented within any district for Compact Call Year compliance. The forecast will be completed prior to January 1st of each year, and will detail the expected shortfall within each district in the event that the coming year is a Compact Call Year. By the following January 31st, if

necessary, the LRNRD will provide DNR with details regarding existing management alternatives (such as execution of existing surface water leases) in lieu of additional ground water regulations or controls to make up for the expected shortfall.

The procedures developed to complete the forecast will be reviewed annually by the DNR to determine if modifications are necessary. The forecast will project the next year's balance (projected Nebraska allocation plus projected Imported Water Supply less the projected Computed Beneficial Consumptive Use, or CBCU), and the projected water short year and normal year accounting balances. These balances will be utilized in conjunction with other information to determine if a Compact Call Year exists.

The DNR's calculation of allowable ground water depletions for the LRNRD and determination of the necessity for additional controls will utilize additional ground water model information, estimated end-of-year information for reservoir volumes, and estimated streamflow to determine on an annual basis whether additional NRD-specific controls must be implemented.

a. Determination of Available Streamflow

The forecast will typically determine the forecast values for both Guide Rock (water short year accounting point) and Hardy (normal year accounting point). The DNR's forecast values for Guide Rock will include: 1) the one-year balance (projected allocation less the projected CBCU plus the imported water supply); two-year average, and three-year average. The DNR's forecast values for Hardy will include: 1) the one-year balance (projected allocation less the projected CBCU plus the imported water supply) and 2) the five-year average. These forecasted values will be used in conjunction with sections IX.B.2.b, IX.B.2.c, IX.B.2.d, and IX.B.2.e to determine when management actions or controls must be implemented. The DNR will calculate forecast values for the next year using the variables in table 2.

Table 2. Information Used for Forecast of Allowable Depletions.

Year	Item	Information Source
T – 3		Draft; current Accounting Procedures (v. 2005)
T – 2		Draft; current Accounting Procedures (v. 2005)
T – 1		Draft; current Accounting Procedures (v. 2005)
Provisional Data for T = 0 (Current Year or Immediate Past Irrigation Season)	Pumping	Power records estimate
	Surface Water Use	Estimated from preliminary data and previous years values
	Streamflow	Available provisional records end of year estimated
	Evaporation	T – 1 records
Forecast Year T + 1 (Coming Irrigation Season)	Ground Water Consumptive Use and Imported Water Supply Credit	Average values for T = 0 and T – 1
	Surface Water Consumptive Use	Colorado: Average of T – 1 and T – 2 use Kansas: + (.1858 x HCL content) + 9,575 Nebraska: $-(4x10^{-7}) \times (\text{NE lake volume})^2$ + (0.52) x (NE lake volume) - 42,000
	Streamflow	+ (5-year average of state line flows) x 0.41 + 0.23 x HCL content - 27,450

In accordance with *Neb. Rev. Stat.* § 46-703(6), DNR, the NRDs, and surface water project sponsors shall meet prior to the final forecast of allowable streamflow depletions and determination of Compact Call Years. At this meeting the involved parties will discuss the forecasted streamflow and surface water consumptive use. From these discussions, surface water project sponsors may present a plan to DNR to achieve a consumptive use that is less than forecasted consumptive use. Such a plan could avoid a potential Compact Call Year. This plan must be completed and provided to the DNR no later than December 1st of the current year (T = 0).

The following equations will be utilized to determine the one-year balance for the forecast year.

$$CWS = + SwCBCU_{NE} + SwCBCU_{KS} + SwCBCU_{CO} + GwCBCU_{NE} + GwCBCU_{KS} + GwCBCU_{CO} + \text{State Line Streamflow}$$

Nebraska Allocation = CWS * 0.5

$CBCU_{NE} = SwCBCU_{NE} + GwCBCU_{NE}$

IWS = Imported Water Supply Credit

Hardy One-Year Balance = Nebraska Allocation + IWS – $CBCU_{NE}$

Guide Rock One-Year Balance = Hardy One-Year Balance * 0.89 – 9040

Where:

T – 3 = Three years ago from the current year

T – 2 = Two years ago from the current year

T – 1 = One year ago from the current year

T = 0 = The current year

T + 1 = The upcoming year that is being forecasted

CWS = Computed Water Supply

$GwCBCU_{NE, KS, CO}$ = Ground Water Computed Beneficial Consumptive Use for each respective state

$SwCBCU_{NE, KS, CO}$ = Surface Water Computed Beneficial Consumptive Use for each respective state

Nebraska Allocation = CWS x 0.5: The amount of water the state of Nebraska is allowed to use over one year

Balance = The sum of Nebraska's Allocation, plus the Nebraska Imported Water Supply, less Nebraska's Computed Beneficial Consumptive Use

The one-year balance for normal year accounting (Hardy One-Year Balance) and water short year accounting (Guide Rock One-Year Balance) will be utilized to

project the two-year and three-year average balances above Guide Rock and the five-year average balance above Hardy.

b. Compact Call Year Evaluation

This section of the monitoring plan specifies the process that will be completed by the DNR to determine the Compact Call Years, as detailed in Attachment 1, Republican River Water Supply Evaluation and Required Actions Flowchart. This evaluation takes into account reservoir content and recent balances above Guide Rock and Hardy and the annual forecast as described above in Section IX.B.2.a. This process will be completed and provided to the LRNRD by DNR prior to January 1st of each year.

Checklist A. Water Short Year Test

1) Is the forecast projection for the coming year's irrigation supply less than 119 kAF?
    a. Yes. Proceed to Checklist B.
    b. No. Proceed to Checklist C.

Checklist B. Water Short Year

1) Is the current year's balance (T = 0) above Guide Rock sufficient to offset the dry year forecast for next year's balance above Guide Rock minus 10 kAF[1]?
    a. Yes. Proceed to Checklist D.
    b. No. COMPACT CALL YEAR: The DNR will determine each NRD's share of any potential overuse and propose adjustments in accordance to Section IX.B.2.c. of this IMP.

Note: If it is beneficial to utilize the alternative water short year provisions from the FSS (the previous two years have a greater balance than last year alone), and an alternative water short year plan has been approved by the RRCA, then the two-year balance (for T = 0, the current year, and T – 1, the prior year) will be substituted for the current year's balance in Checklist B.

[1] In the event it is the second consecutive Compact Call Year, this value will be reduced to 5k AF. For any remaining consecutive Compact Call Years, it will be reduced to zero.

Checklist C. Early Warning System for Water Short Year Compliance

1) When Harlan County Lake declines from one year to the next, the December end-of-month (EOM) content is generally about 84% of what it was last year. A December EOM of 246 kAF provides a high level of confidence that the coming year (T + 1) will not be water short. Based on the current year's (T = 0) Harlan County Lake December EOM content, compute a dry-year projection for next year (T + 1) based on this relationship. Is the value greater than 246 kAF?
    a. Yes. Proceed to Checklist D.
    b. No. Advance to question 2.

2) Is the dry year forecast for next year's (T + 1) balance above Guide Rock greater than zero?
    a. Yes. Proceed to Checklist D.
    b. No. Advance to question 3.

3) Is the current year's balance (T = 0) above Guide Rock sufficient to offset the dry year forecast for next year's balance (T + 1) above Guide Rock minus 10 kAF[2]?
    a. Yes. Proceed to Checklist D.
    b. No. COMPACT CALL YEAR: The DNR will determine each NRD's share of any potential overuse and propose adjustments in accordance to Section IX.B.2.c. of this IMP.

Checklist D. Normal Year Administration

1) Will the forecast for next year (T + 1) result in a 5-year average at Hardy that is greater than 10 kAF?
    a. Yes. Analyze long term trends and additional adjustments in accordance to Section IX.B.2.e.
    b. No. Advance to question 2.

2) Will both the forecast for next year result in a 5-year average at Hardy (T – 3, T – 2, T – 1, T = 0, and T + 1) that is greater than zero and the average balance at Hardy of the most recent four years (T – 2, T – 1, T = 0, and T + 1) be greater than zero?
    a. Yes. Analyze long term trends and additional adjustments in accordance to Section IX.B.2.e.
    b. No. COMPACT CALL YEAR: The DNR will determine each NRD's share of any potential overuse and propose adjustments in accordance to Section IX.B.2.c. of this IMP.

[2] In the event it is the second consecutive Compact Call Year, this value will be reduced to 5k AF. For any remaining consecutive Compact Call Years, it will be reduced to zero.

c. Calculation of Allowable Ground Water Depletions for the LRNRD and Determining the Necessity of Additional Controls

This section of the monitoring plan specifies the calculations which will be completed by the DNR to determine the allowable ground water depletions for the LRNRD in any Compact Call Year. These procedures will be utilized to indicate when additional controls must be implemented by the LRNRD and DNR to ensure compliance with this IMP in the event that the DNR's forecast, provided prior to January 1st of each year, indicates a Compact Call Year. These procedures will incorporate information provided by the LRNRD (contracts for water leasing, augmentation, etc.) to the DNR by January 31st of each year following a forecast that indicates a Compact Call Year. The procedures for determining the allowable ground water depletion for the LRNRD are as follows.

The allowable ground water depletion for the LRNRD =

(Nebraska Allocation + IWS – $SwCBCU_{NE}$ – Other NRD CBCU) * 0.26

Where:

Nebraska Allocation = Nebraska available water supply under the Compact

IWS = Imported Water Supply credit

$SwCBCU_{NE}$ = The surface water consumptive use by Nebraska, including net evaporative losses

Other NRD CBCU = The $GwCBCU_{NE}$ calculated for the South Platte NRD, Twin Platte NRD, Tri-Basin NRD, Central Platte NRD, and Little Blue NRD

The DNR will utilize information provided by the LRNRD by January 31st, to evaluate the following.

Step 1.LRNRD Estimated Ground Water Depletions

Ground water depletions for the LRNRD will be based on the previous 2-year average (as described in table 2 above), unless such plan provided by the LRNRD indicates that additional restrictions on ground water pumping will be imposed. If the additional restrictions would cause the pumping to be less than the previous two year average then the lower estimate will be used. In cases where that year's allocation will be less the LRNRD will provide the DNR a map indicating the geographic area subject to the allocation for that year and the maximum allocation available. The DNR will utilize the information provided by the LRNRD and represent such information in the RRCA GWM.

Step 2. Potential yield from LRNRD surface water leases/agreements, augmentation, etc.

The DNR will determine the potential yield from any surface water lease/agreement, augmentation, etc. entered into or provided by the LRNRD. In the event that augmentation is utilized, procedures for determining the project yield must have been approved by the RRCA. This potential yield will be incorporated as NRD management actions in section IX.B.2.d.

If a Compact Call Year is reached as a result of checklist B.1 or C.3 the final step to determine if additional ground water and surface water controls (refer to Section VI.B.1. and VII.H of this IMP) must be implemented is as follows.

Allowable ground water depletions for LRNRD (as determined above) - Forecasted LRNRD's portion of $GwCBCU_{NE}$ (Step 1) + Potential yield from LRNRD surface water leases/agreements, augmentation, etc. (Step 2) + Current Year's Balance (T = 0) – 3333[3].

If the resulting balance is greater than or equal to negative one-hundred (-100) acre-feet, no additional ground water and surface water controls will be implemented.

If the resulting balance is less than negative one-hundred (-100) acre-feet, the additional ground water and surface water controls (refer to Section VI.B.1. and VII.H of this IMP) must be implemented. This potential yield will be incorporated as NRD management actions in section IX.B.2.d.

Note: If it is beneficial to utilize the alternative water short year provisions from the FSS (the previous two years have a greater balance than last year alone), and an alternative water short year plan has been approved by the RRCA, then the two-year balance (for T = 0, the current year, and the prior year, T – 1) will be substituted for the current year's balance in Checklist B.

If a Compact Call Year is reached as a result of checklist D.2 the final step to determine if additional ground water and surface water controls (refer to Section VI.B.1. and VII.H of this IMP) must be implemented is as follows.

Allowable ground water depletions for LRNRD (as determined above) - Forecasted LRNRD's portion of $GwCBCU_{NE}$ (Step 1) + Potential yield from LRNRD surface water leases/agreements, augmentation, etc. (Step 2) + Previous Years Balances (T = -3, T = -2, T = -1, T = 0 or if applicable + T = -2, T = -1, T = 0)

If the resulting balance is greater than or equal to negative one-hundred (-100) acre-feet, no additional ground water and surface water controls will be implemented.

[3] In the event it is the second consecutive Compact Call Year, this value will be reduced to 1667. For any remaining consecutive Compact Call Years, it will be reduced to zero.

If the resulting balance is less than negative one-hundred (-100) acre-feet, the additional ground water and surface water controls (refer to Section VI.B.1. and VII.H of this IMP) must be implemented. This potential yield will be incorporated as NRD management actions in section IX.B.2.d.

d. Calculation of Compact Call Streamflow Volume

This section of the monitoring plan specifies the calculation which will be completed by the DNR to determine the streamflow volume necessary to ensure Compact compliance in any Compact Call Year. If DNR's forecast, provided prior to January 1st of each year, indicates a Compact Call Year, then these calculations will be made incorporating information provided by the LRNRD (contracts for water leasing, augmentation, etc.) to the DNR by January 31st of each year following a forecast that indicates a Compact Call Year. The result of these calculations will be utilized to indicate when additional controls must be implemented by the LRNRD and DNR to ensure compliance with this IMP. When such a Compact Call Year is indicated, the DNR will implement additional surface water controls (refer to Section VII.H of this IMP). Criteria that will be used to determine when administration for the "Compact Call" is no longer necessary will be based on ensuring sufficient streamflow volumes have been achieved at the compliance point. Determination of sufficient streamflow volumes to ensure Compact compliance will be determined through the following procedures.

Compact Call Streamflow Volume = Forecasted Streamflow + NRD Management Actions + Surface Water Curtailment Benefit

Where:

Forecasted Streamflow = Streamflow for T + 1; (5-year average of state line flows) x 0.41 + 0.23 x HCL content – 27,450.

NRD Management Actions = Actions taken by the LRNRD and/or other basin NRDs to enhance streamflow. These actions may include surface water or ground water leases, augmentation, or curtailment.

Surface Water Curtailment Benefit = Actions taken by DNR to ensure Compact compliance in the event that basin NRD Management Actions are not sufficient to overcome the projected negative balance.

e. Additional Adjustments Related to Long-Term Trends

The DNR and LRNRD in conjunction with the other basin NRDs will annually meet to consult to determine if additional reductions from the 98-02 pumping volumes may be warranted. Through this consultation, the DNR and LRNRD will review expected long term (5 to 20 year) increases in depletions to streamflow and discuss potential mitigation measures that may be necessary.

f. Harlan County Lake Operations

In the event that operations of Harlan County Lake are not in accordance with Appendix K of the Final Settlement Stipulation, the DNR will work in consultation with the NRDs to modify Sections VI, VII, and IX of this IMP until normal operations resume.

X. Modifications to the Integrated Management Plan

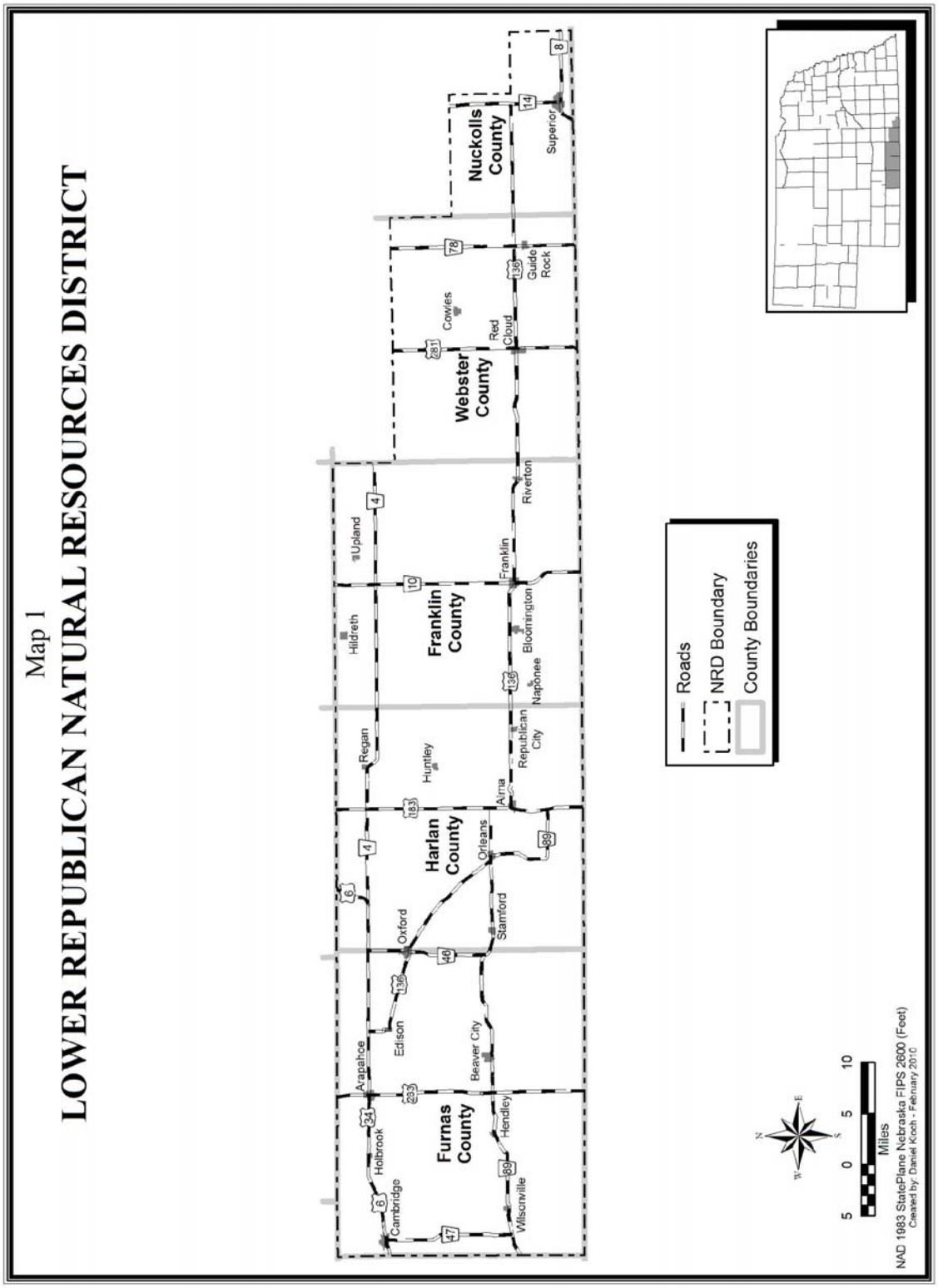
Except as provided herein, modifications to this Integrated Management Plan including the Rules and Regulations contained within this IMP shall require mutual agreement by both the LRNRD and the DNR as to the proposed changes and shall be effective when signed by both LRNRD and DNR after all legally required hearing procedures and publication requirements have been satisfied. After the proposed changes have been agreed to, a joint hearing on those changes will be required. Following the joint hearing, the LRNRD and the DNR shall issue an order reflecting the decision made.

XI. Information Considered

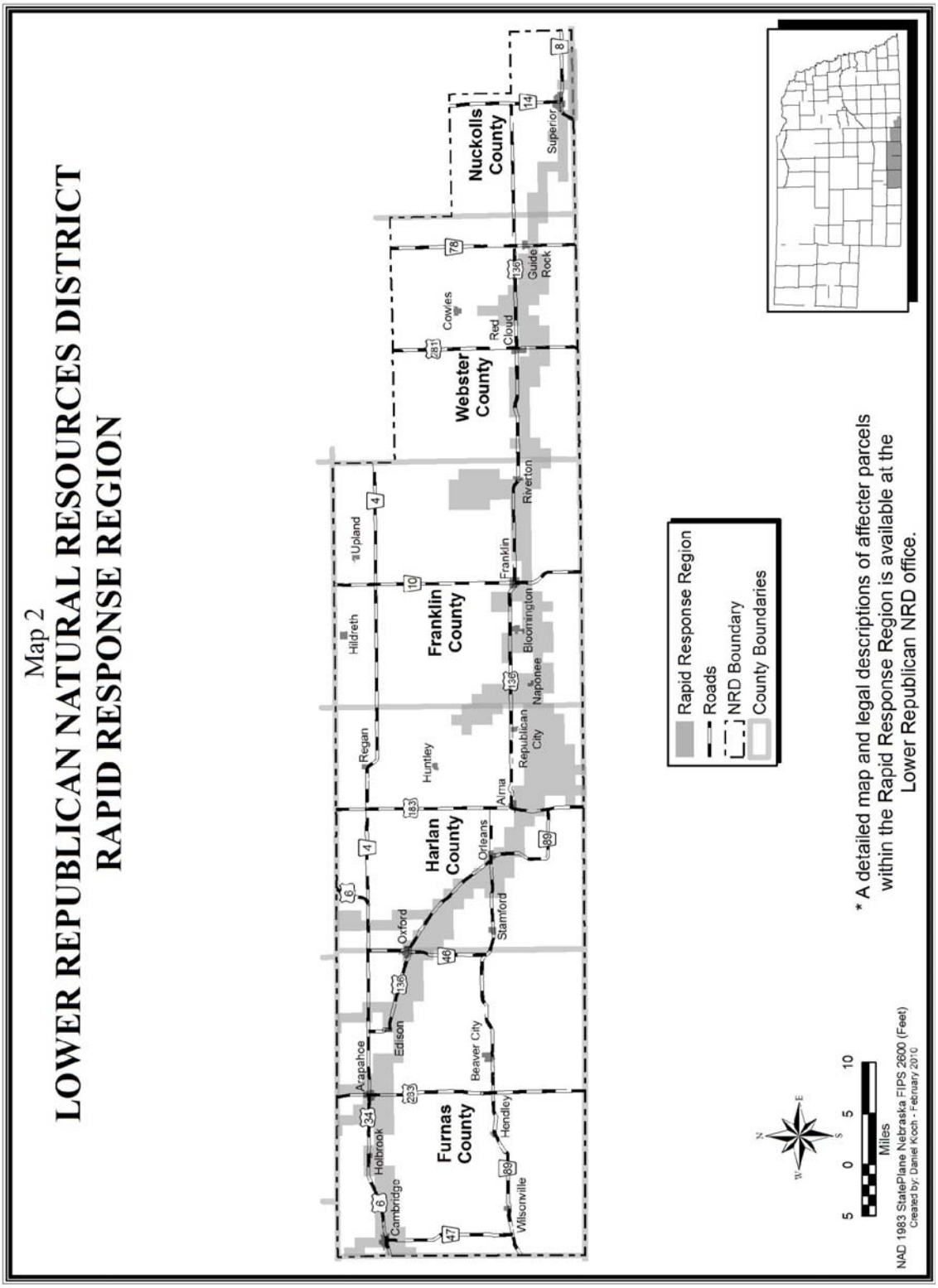
Information used in the preparation and to be used in the implementation of this IMP can be found in:

- The simulation runs of the Republican River Compact Administration Ground Water Model,
- The data tables of the FSS for the Republican River Compact,
- Chapters 3, 6 and 7 of the 1994 Lower Republican NRD Ground Water Management Plan,
- *Arbitrator's Final Decision*, Karl Dreher, June 30, 2009, and
- Additional data on file with the LRNRD and the DNR.

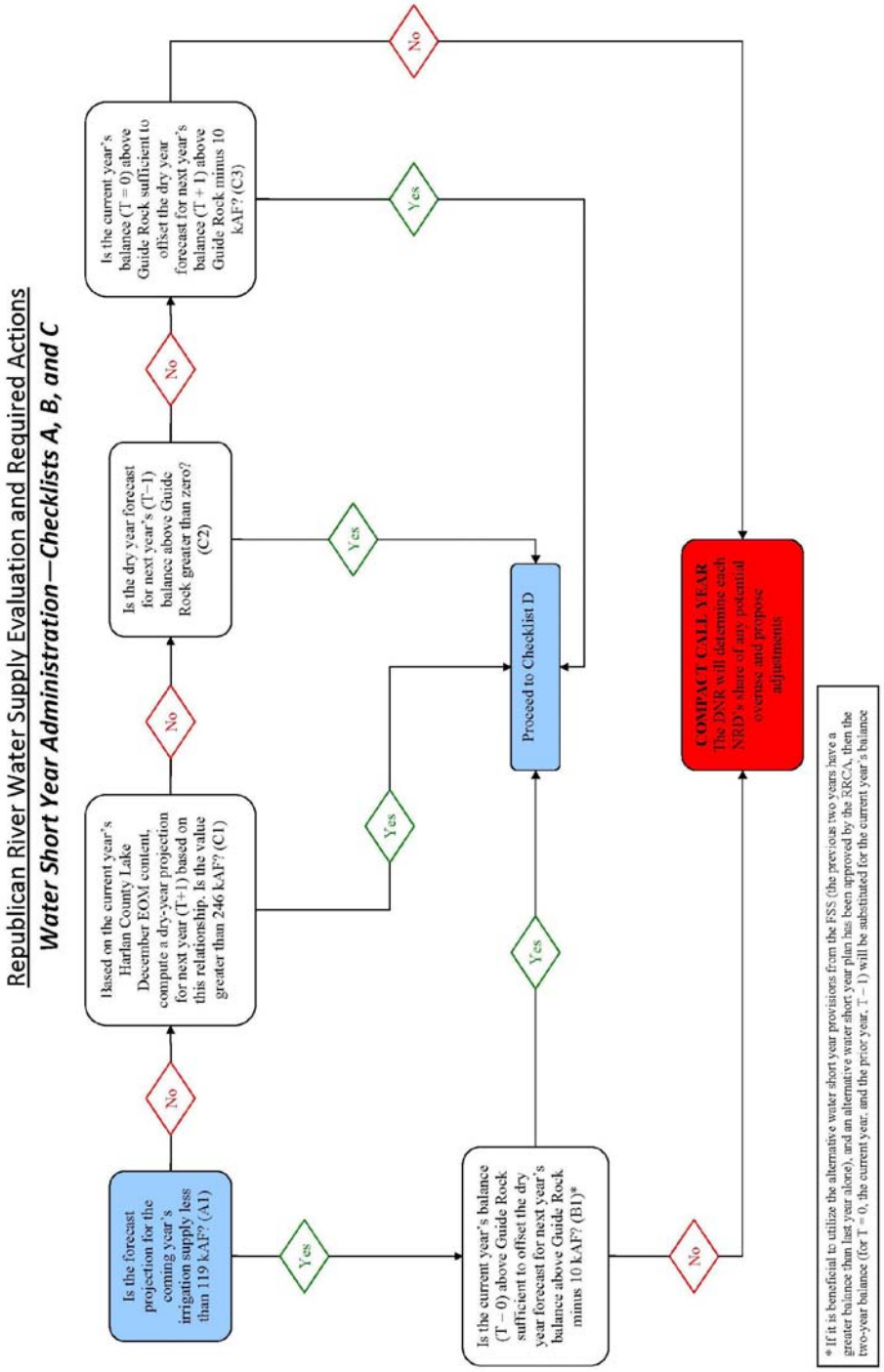
Map 1. Lower Republican Natural Resources District.



Map 2. Lower Republican Natural Resources District Rapid Response Region.

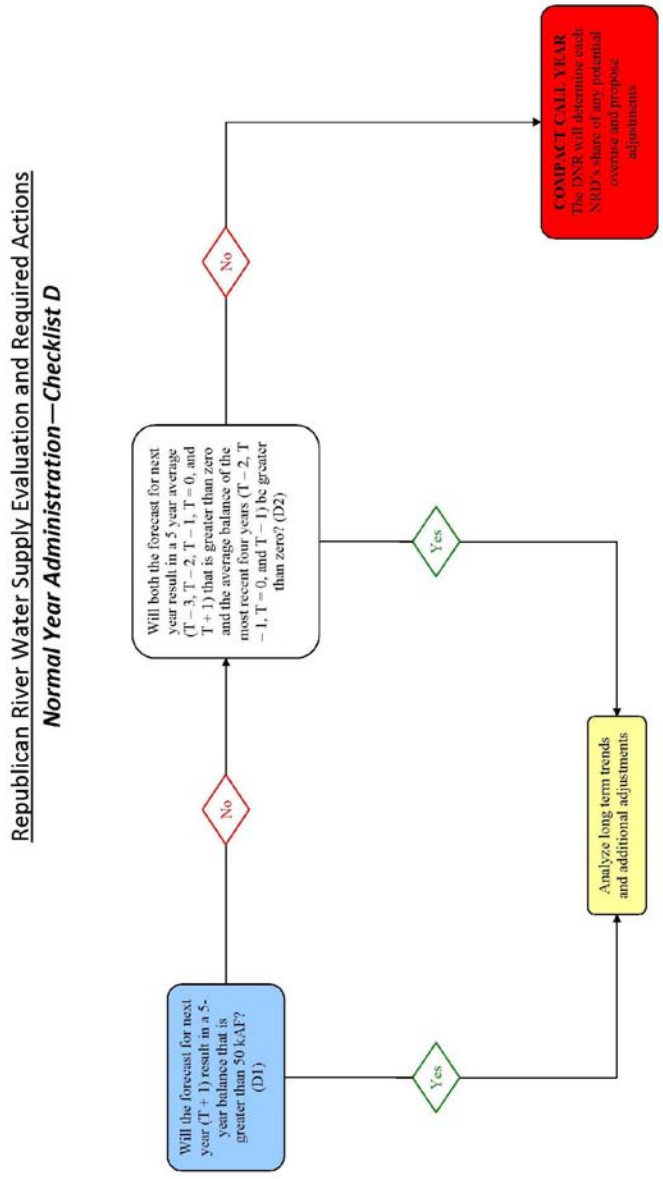


Attachment 1. Republican River Water Supply Evaluation and Required Actions Flowchart.



Republican River Water Supply Evaluation and Required Actions

Normal Year Administration—Checklist D



MIDDLE REPUBLICAN NATURAL RESOURCES DISTRICT

Integrated Management Plan (IMP)

November 1, 2010

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 (DNR) in accordance with the Nebraska Ground Water Management and Protection Act, *Neb. Rev. Stat.* §§ 46-701 to 46-753 (Reissue 2004).

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 stream flow 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 (NRDs) 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 DNR. 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, DNR 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, DNR made final the preliminary conclusions in the report and the four basin NRDs were so informed. The MRNRD and the other three NRDs 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 DNR 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 DNR adopted an IMP effective January 1, 2005, that contained ground water rules and regulations for the 2005-2007 period. That IMP 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 IMP was to reduce water use by five percent (5%) from the 1998-2002 baseline. The IMP was updated and revised for 2008 – 2012, with a goal of reducing water use by twenty percent (20%) from the 1998-2002 baseline.

Although the MRNRD’s allowable depletions to stream flow are limited to 30% of Nebraska’s allowable depletions, there were no details in the plan to describe how this would be accomplished. In 2008 Colorado, Kansas, and Nebraska entered into dispute resolution regarding a number of issues, including future compliance. In June 2009 the arbitrator issued a finding that the MRNRD IMP may be adequate during years with average and above-average precipitation, but since water-short year measures were not specifically identified, the plan may not be adequate during multiple dry years, an issue addressed in this IMP

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 DNR 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 DNR 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 the DNR believes that at the time this IMP became effective, a twenty percent (20%) reduction from the 98-02 pumping volume would be sufficient, without additional stream flow 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. As described in sections below, during periods of low water supply additional reductions from the 98-02 pumping volume may be necessary.

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

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 nor DNR will require the IMP 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 IMP 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 stream flow, in the Nebraska portion of the Republican River Basin, as a result of ground water uses in the years 1998-2002 inclusive.

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

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

C. Allowable Ground Water Depletions - the maximum level of depletions to stream flow 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.

D. Allowable Ground Water Depletion for the MRNRD - the annual mean depletions to stream flow 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.

E. 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 stream flow.

F. Compliance Standard - the criteria that will be used to determine whether the controls of this IMP and the MRNRD'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 Depletion – the actual ground water depletion for the MRNRD less any reduction in stream flow depletions or increase in accretions to the stream resulting from supplemental projects as determined by the RRCA ground water model and in accordance with the RRCA Accounting Procedures.

H. Compact Call Year –A year in which the Department's forecast procedures outlined in Section X.B.2.b of this IMP indicate the potential for non-compliance if sufficient surface water and ground water controls and/or management actions are not taken. Compact Call Year streamflow administration will be conducted by the Department in a manner consistent with Section X.B.2.d of this IMP. Pursuant to Article VI of the Republican River Compact, diversions into the Courtland Canal for beneficial use in the State of Kansas will not be subject to the Compact Call.

V. Goals and Objectives

Pursuant to *Neb. Rev. Stat.* § 46-715 (Reissue 2004), the goals and objectives of this IMP 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 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 IMP with regulations and other supplemental programs.

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

A. Goals:

1. In cooperation with the other basin NRDs and the Nebraska Department of Natural Resources, maintain compliance with the 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, but only their share, of the responsibility to keep Nebraska in compliance with the Compact.

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

4. Reserve and protect any increases to stream flow 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, to the extent allowed by statute and the surface water controls of this IMP.

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 stream flow 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 and the surface water controls of this IMP.

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

4. Maintain, on average, the MRNRD net depletions at or below 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 stream flow, make such additional reductions in ground water use in Compact Call Years as are necessary to achieve a reduction in beneficial consumptive use in the MRNRD to 30% of Nebraska's allowable ground water depletions to stream flow in such years. Compact Call Years will be determined through the procedures outlined in Section X of this IMP.

6. Achieve the required reductions in water use through a combination of regulatory and supplemental programs designed to reduce beneficial consumptive use. To the extent funds are available, incentive programs will be made available to as many MRNRD water users as possible.

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

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

The area subject to this IMP is the geographic area within the boundaries of the MRNRD (see Map 1). The Rapid Response Region is shown as a sub-area within the boundaries of the MRNRD, (see Map 2). The Quick Response region is shown as a sub-area within the boundaries of the MRNRD, (see map 3).

VII. Ground Water Controls

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 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 stream flow depletion caused by surface and ground water uses begun after 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,

The Rules and Regulations – Ground Water Management Area in the Middle Republican Natural Resources District contains the rules for implementation of 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 to the MRNRD rules and regulations dealing with the requirements of *Neb. Rev. Stat.* §46-715(4)(b), and §46-715(4)(c) shall have the concurrence of DNR. The MRNRD may otherwise amend those regulations without the approval of the DNR so long as the compliance standards listed below are met.

The Determination of whether the MRNRD is in compliance with the compliance standards shall be made prior to 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 DNR 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 NRDs in the Republican River Basin and any other relevant considerations, including the information and data provided by DNR and past action by the district.

2. Duration

   On an annual basis the DNR and MRNRD shall examine the sufficiency and effectiveness of the Compliance Standards to determine if amendments or

revisions to this IMP 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 DNR 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 ensure that the following standards are met. The standards shall be affected through the procedure described in Section X - Monitoring and Studies. Section X specifies a forecast and resulting actions needed at the Guide Rock compliance point (during water short years) and at the Hardy compliance point. The procedures for determining whether the compliance standards are met will be based on the RRCA Accounting Procedures, the baseline ground water depletion percentage, and the annual forecast as outlined in Section X. The standards are

a. A minimum of 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. The ground water pumping volume for any single year may be above 247,580 acre-feet.

b. An additional reduction in 98-02 pumping volumes of five percent (5%) during the next five year period shall be accomplished primarily through voluntary incentive programs and other means as determined by the MRNRD. The necessity for continuing this annual reduction shall be reevaluated by DNR and the MRNRD in 2015.

c. The district's net depletions to stream flow shall average no greater than thirty percent (30%) of the State of Nebraska's allowable ground water depletions as computed using the RRCAGWM. The average shall be computed using the annual allowable 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

The MRNRD and the DNR 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.

1. During Compact Call Years, the MRNRD will seek to implement management actions (such as surface water leasing, ground water leasing, augmentation, etc.) to ensure compliance with this IMP. These management actions will be implemented through the authorities granted by the Nebraska Ground Water Management and Protection Act, *Neb. Rev. Stat.* §§ 46-701 to 46-753. Details of such management actions will be provided to DNR by January 31 of each year for evaluation. If such management actions are insufficient to ensure compliance with this IMP, the MRNRD will in the alternative to management actions, implement additional ground water controls and regulations to make up for its proportionate share of any expected shortfall as identified in the annual forecast and described in Section X of this IMP. Such additional control will include but not be limited to, restriction or curtailment of ground water pumping within the Rapid Response Region of the MRNRD and restrictions on ground water pumping in all other sub areas of the district.

2. When necessary to ensure compliance with this IMP during Compact Call Years, the MRNRD may set a one year pumping allocation within the district. Such allocation will set the maximum pumping level in that year within any region or sub-region.

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

4. Limit or prevent the expansion of irrigation uses.

5. Maintain requirement for metering of all ground water uses according to MRNRD standards.

6. Provide for transfers according to NRD standards.

7. The MRNRD shall make available to DNR copies of NRD actions taken on variances and consult with DNR to minimize or eliminate any impact, relating to Compact compliance, that may arise as a result of a variance granted by the district.

8. DNR 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 DNR that will have an impact on water supplies of the Republican River Basin.

9. The MRNRD will work with DNR to achieve the maximum amount of benefit in the accounting of leased or purchased water, augmentation projects or in similar projects.

VIII Surface Water Controls - Department of Natural Resources

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

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

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. All meters shall have a totalizer and shall meet DNR 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 DNR'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 DNR rules or the criteria found in *Neb. Rev. Stat.* §§46-2,120 to 46-2,130 and related DNR rules.

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

F. During Compact Call Years, as determined from the procedures and analysis set forth in Section X below, DNR will regulate and administer surface water in the basin as necessary to ensure Compact compliance. During Compact Call Years, DNR will issue a "Compact Call" on the Republican River at Hardy or Guide Rock to carry out administration for the Compact in a manner consistent with the doctrine of prior appropriation. A "Compact Call" will result in DNR issuing closing notices on all natural flow and storage permits in the basin until such time as DNR in consultation with the MRNRD and other basin NRDs, determines that yearly administration is no longer needed to ensure Compact compliance, pursuant to Section X.

IX. Augmentation and Incentive Programs

The MRNRD and DNR, alone or in cooperation with other parties, intend to establish and implement financial, incentive, and qualified projects as described in *Neb. Rev. Stat.* §§ 2-3226.04 to reduce beneficial consumptive use of water within the MRNRD. These projects include, but are not limited to (1) acquisition by purchase or lease of surface water or ground water rights, including storage water rights with respect to a river or any of its tributaries, (2) acquisition by purchase or lease or the administration and management, pursuant to mutual agreement, of canals and other works, including reservoirs, constructed for irrigation from a river or any of its tributaries, (3) vegetation management, including, but not limited to, the removal of invasive species in or near a river or any of its tributaries, and (4) the augmentation of river flows. 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 stream flow can originate from many sources. The MRNRD will initiate these types of projects when possible and participate in projects sponsored by other groups within their capabilities.

The MRNRD, through the Republican River Basin Coalition, intends to establish and implement river flow enhancement projects.

The MRNRD, alone, and/or through the Republican River Basin Coalition, may use any or all available funding authorities to establish and implement river flow enhancement projects or any other projects that result in an increase to streamflow or a decrease in ground water depletions.

Any reductions in depletions to stream flow generated through supplemental programs, funded entirely by the State of Nebraska and / or the United States Government, including acreage retirement or other incentive programs undertaken through programs available throughout the Republican River Basin will not accrue to any specific NRD, 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 stream flow resulting from any such basin-wide programs shall be considered, in the calculation of each NRD's compliance with the 98-02 depletion percentages. This calculation is outlined in Section X.B.2.c of this IMP.

However, should any NRD establish, fund partially or in total, 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 NRD.

With agreement of the NRDs involved, the benefits from a supplemental program may be allocated to each NRD based upon their share of the cost of the program.

To the extent possible, it is the intent of the MRNRD to provide compensation to water users that are required to forgo water use to allow the MRNRD and the State to comply with the compact. This may be in addition to or as part of any other MRNRD incentive or retirement program developed to facilitate compact compliance.

X. Monitoring and Studies

The overarching purpose of the Monitoring and Studies Section is to ensure that, in cooperation with the other Republican River Basin NRDs, the DNR and MRNRD 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. The objective of the Monitoring and Studies Section of this IMP is to gather and evaluate data, information, and methodologies that could be used to increase understanding of the surface water and hydrologically connected

ground water system; to test the validity of the conclusions and information upon which this IMP is based; and to assist decision makers in properly managing the water resources within the MRNRD and the Republican River Basin as a whole.

On an annual basis the results of monitoring and studies will typically be discussed in a basin-wide meeting which will take place prior to October 31 each year. The purpose of the meeting will be to discuss the preliminary accounting for the current year, the forecast of allowable stream flow depletions for the coming year, and potential management actions as necessary. Table 1 outlines important dates and objectives related to section X.

Table 1. Important Dates and Objectives

Date	Objective
Prior to February 1	MRNRD will provide DNR with meter reading database and GIS coverage maps to be used for the RRCA annual model update.
Prior to RRCA Annual Meeting	DNR will provide MRNRD with their determination of whether the MRNRD was in compliance with the compliance standards based on each previous year's annual Compact accounting.
September - October	Obtain power records and other estimates to determine pumping for T=0 ground water model run
Prior to October 31	Discuss results of monitoring and studies, preliminary accounting for current year, and early forecast of allowable stream flow depletions
Prior to November 15	DNR will provide correspondence to MRNRD notifying them of potential Compact call determination for the coming year (T+1).
November 15 – January 1	MRNRD and DNR will discuss potential management alternatives in the situation that the coming year (T+1) will be a Compact Call Year.
Prior to December 1	Surface water project sponsors may present a plan to DNR to achieve a consumptive use that is less than forecasted consumptive use.
Prior to January 1	Provide final forecast of allowable stream flow depletions and determination of Compact Call Years.
Prior to January 31	MRNRD will provide DNR with details regarding existing management alternatives in lieu of additional ground water regulations or controls to make up for the expected shortfall.

A. Plan to Gather and Evaluate Data, Information and Methodologies

As outlined in *Neb. Rev. Stat.* §§ 46-715(2)(e) ongoing programs and new studies or other projects may become a source of information that is used to evaluate the effectiveness of controls adopted by the by the MRNRD and the DNR. The DNR and the MRNRD will jointly pursue and/or evaluate studies, contingent upon budget and

staff resources, to evaluate their potential effectiveness in achieving the goals and objectives of this IMP.

The following potential studies have been identified by the DNR and the MRNRD: (1) crop rotation; (2) vegetation management; (3) irrigation scheduling; (4) a survey of the type and location of irrigation systems throughout the MRNRD; (5) tillage practices; and (6) conjunctive management.

B. Monitoring

Part One of the Monitoring Section describes the tracking and reporting of water use activities within fully appropriated areas of the district by the MRNRD and the DNR. Part Two of the Monitoring Section describes the analyses that will be utilized to annually forecast the projected depletions in each subsequent year. This accounting and the forecast in accordance with *Neb. Rev. Stat*. § 46-715(6) will serve to increase the understanding and test the validity of the conclusions and information upon which this plan is based.

Compact accounting and data exchanges among the states shall be done annually in accordance with the FSS, 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. The accounting procedures, reporting requirements, and annual report of the RRCA are independent of this monitoring plan, and therefore not restated within the Monitoring Section of this plan.

1. Part One: Tracking and Reporting of Water Use Activities

The MRNRD and the DNR 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 annually provide GIS coverage maps of all lands irrigated and to meter, record and provide to the DNR its ground water usage records and irrigation system details. The MRNRD shall make copies of district actions taken on variances, offsets, and similar actions available to DNR.

The DNR agrees to make available to the MRNRD all reports and records of the other NRDs necessary to determine their compliance with reductions, as well as all documentation and reports utilized by the DNR to determine the basin’s virgin water supplies and Nebraska’s compliance with the Compact.

In the event any materials are withheld by either DNR 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.

2. Part Two: Forecast Procedures

Each year in compliance with *Neb. Rev. Stat.* § 46-715(6) the DNR in consultation with the Republican River NRDs shall forecast the maximum amount of water that may be available from stream flow for beneficial use in the short term and long term to comply with the Compact. This forecast will be used to assist the DNR and the NRDs in ensuring compliance with the Compact. DNR in conjunction with the NRDs will annually evaluate the forecast procedures and make changes as deemed necessary to reflect management actions being taken in the basin.

In order to complete the forecast, the DNR and MRNRD in conjunction with the other NRDs will review available information and determine if additional controls must be implemented within any district for Compact Call Year compliance. The forecast will be completed prior to January 1 of each year, and will detail the expected shortfall within each district in the event that the coming year is a Compact Call Year. By the following January 31, if necessary, the MRNRD will provide DNR with details regarding existing management alternatives (such as execution of existing surface water leases) in lieu of additional ground water regulations or controls to make up for the expected shortfall.

The procedures developed to complete the forecast will be reviewed annually by the DNR to determine if modifications are necessary. The forecast will project the next year's balance (projected Nebraska allocation plus projected Imported Water Supply less the projected Computed Beneficial Consumptive Use, or CBCU), and the projected water short year and normal year accounting balances. These balances will be utilized in conjunction with other information to determine if a Compact Call Year exists.

The DNR's calculation of allowable ground water depletions for the MRNRD and determination of the necessity for additional controls will utilize additional ground water model information, estimated end-of-year information for reservoir volumes, and estimated stream flow to determine on an annual basis whether additional NRD-specific controls must be implemented.

a. Determination of Available Stream flow

The forecast will typically determine the forecast values for both Guide Rock (water short year accounting point) and Hardy (normal year accounting point). The DNR's forecast values for Guide Rock will include: 1) the one-year balance (projected allocation less the projected CBCU plus the imported water supply); two-year average, and three-year average. The DNR's forecast

values for Hardy will include: 1) the one-year balance (projected allocation less the projected CBCU plus the imported water supply); and 2) the five-year average. These forecasted values will be used in conjunction with sections X.B.2.b, X.B.2.c, X.B.2.d and X.B.2.e to determine when management actions or controls must be implemented. The DNR will calculate forecast values for the next year using the variables in table 2:

Table 2. Information Used for 2010 Forecast of Allowable Depletions.

Year	Item	Information Source
T – 3		Draft; current Accounting Procedures (v. 2005)
T – 2		Draft; current Accounting Procedures (v. 2005)
T – 1		Draft; current Accounting Procedures (v. 2005)
Provisional Data for T = 0 (Current Year or Immediate Past Irrigation Season)	Pumping	Power records estimate
	Surface Water Use	Estimated from preliminary data and previous years values
	Stream flow	Available provisional records end of year estimated
	Evaporation	T – 1 records
Forecast Year T + 1 (Coming Irrigation Season)	Ground water Consumptive Use and Imported Water Supply Credit	Average values for T = 0 and T - 1
	Surface Water Consumptive Use	Colorado: Average of T – 1 and T – 2 use Kansas: + (.1858 x HCL content) + 9,575 Nebraska: - $(4x10^{-7})$ x (NE lake volume)^2 + (0.52) x (NE lake volume) - 42,000
	Stream flow	+ (5-year average of state line flows) x 0.41 + 0.23 x HCL content - 27,450

In accordance with *Neb. Rev. Stat.* § 46-703(6), DNR, NRDs, and surface water project sponsors shall meet prior to the final forecast of allowable stream flow depletions and determination of Compact Call Years. At this meeting the involved parties will discuss the forecasted streamflow and surface water consumptive use. From these discussions, surface water project sponsors may present a plan to

DNR to achieve a consumptive use that is less than forecasted consumptive use. Such a plan could avoid a potential Compact Call Year. This plan must be completed and provided to the Department no later than December 1 of the current year (T=0)

The following equations will be utilized to determine the one year balance for the forecast year.

$$\begin{aligned} CWS = {} & + SwCBCU_{NE} + SwCBCU_{KS} + SwCBCU_{CO} \\ & + GwCBCU_{NE} + GwCBCU_{KS} + GwCBCU_{CO} \\ & + \text{Stateline Stream flow} \end{aligned}$$

Nebraska Allocation = CWS * 0.5

$CBCU_{NE} = SwCBCU_{NE} + GwCBCU_{NE}$

IWS = Imported Water Supply Credit

Hardy One Year Balance = Nebraska Allocation + IWS – $CBCU_{NE}$

Guide Rock One Year Balance = Hardy One Year Balance * 0.89 – 9040

Where:

T-3 = Three years ago from the current year

T-2 = Two years ago from the current year

T-1 = One year ago from the current year

T=0 = The current year

T+1 = The upcoming year that is being forecasted

CWS = Computed Water Supply

GW $CBCU_{NE, KS, CO}$ = Ground Water Computed Beneficial Consumptive Use for each respective state

SW $CBCU_{NE, KS, CO}$ = Surface Water Computed Beneficial Consumptive Use for each respective state

Nebraska Allocation = CWS x 0.5: The amount of water the State of Nebraska is allowed to use over one year

Balance = The sum of Nebraska's Allocation, plus the Nebraska Imported Water Supply, less Nebraska's Computed Beneficial Consumptive Use

The one year balance for normal year accounting (Hardy One Year Balance) and water short year accounting (Guide Rock One Year Balance) will be utilized to project the two-year and three-year average balances above Guide Rock and the five-year average balance above Hardy.

b. Compact Call Year Evaluation

This section of the monitoring plan specifies the process that will be completed by the DNR to determine the Compact Call Years, as detailed in Attachment 1, Republican River Water Supply Evaluation and Required Actions Flowchart. This evaluation takes into account reservoir content and recent balances above Guide Rock and Hardy and the annual forecast as described above in Section X.B.2.a. This process will be completed and provided to the MRNRD by DNR prior to January 1 of each year.

Checklist A. Water short year Test

1) Is the forecast projection for the coming year's irrigation supply less than 119 kAF?
    a. Yes. Proceed to Checklist B.
    b. No. Proceed to Checklist C.

Checklist B. Water short year

1) Is the current year's balance (T = 0) above Guide Rock sufficient to offset the dry year forecast for next year's balance above Guide Rock minus 10 kAF[1]?
    a. Yes. Proceed to Checklist D.
    b. No. COMPACT CALL YEAR: The DNR will determine each NRD's share of any potential overuse and propose adjustments in accordance to Section X.B.2.c. of this IMP.

Note: If it is beneficial to utilize the alternative water short year provisions from the FSS (the previous two years have a greater balance than last year alone), and An alternative water short year plan has been approved by the RRCA, then the two-year balance (for T = 0, the current year, and the prior year, T – 1) will be substituted for the current year's balance in Checklist B.

[1] In the event it is the second consecutive Compact Call Year, this value will be reduced to 5kAF. For any remaining consecutive Compact Call Years, it will be reduced to zero.

Checklist C. Early Warning System for Water short year Compliance

1) When Harlan County Lake declines from one year to the next, the December end-of-month (EOM) content is generally about 84% of what it was last year. A December EOM of 246 kAF provides a high level of confidence that the coming year (T+1) will not be water short. Based on the current year's (T=0) Harlan County Lake December EOM content, compute a dry-year projection for next year (T+1) based on this relationship. Is the value greater than 246 kAF?
    a. Yes. Proceed to Checklist D.
    b. No. Advance to question 2.

2) Is the dry year forecast for next year's (T+1) balance above Guide Rock greater than zero?
    a. Yes. Proceed to Checklist D.
    b. No. Advance to question 3.

3) Is the current year's balance (T = 0) above Guide Rock sufficient to offset the dry year forecast for next year's balance (T + 1) above Guide Rock minus 10 kAF[2]?
    a. Yes. Proceed to Checklist D.
    b. No. COMPACT CALL YEAR: The DNR will determine each NRD's share of any potential overuse and propose adjustments in accordance to Section X.B.2.c. of this IMP.

Checklist D. Normal Year Administration

1) Will the forecast for next year (T + 1) result in a 5-year average at Hardy that is greater than 10 kAF?
    a. Yes. Analyze long term trends and additional adjustments in accordance to Section X.B.2.e.
    b. No. Advance to question 2.

2) Will both the forecast for next year result in a 5 year average at Hardy (T – 3, T – 2, T – 1, T = 0, and T + 1) that is greater than zero and the average balance at Hardy of the most recent four years (T – 2, T – 1, T = 0, and T + 1) be greater than zero?
    a. Yes. Analyze long term trends and additional adjustments in accordance to Section X.B.2.e.
    b. No. COMPACT CALL YEAR: The DNR will determine each NRD's share of any potential overuse and propose adjustments in accordance to Section X.B.2.c. of this IMP.

[2] In the event it is the second consecutive Compact Call Year, this value will be reduced to 5kAF. For any remaining consecutive Compact Call Years, it will be reduced to zero.

c. Calculation of Allowable Ground water Depletions for the MRNRD and Determining the necessity of Additional Controls

This section of the monitoring plan specifies the calculations which will be completed by the DNR to determine the allowable ground water depletions for the MRNRD in any Compact Call Year. These procedures will be utilized to indicate when additional controls must be implemented by the MRNRD and DNR to ensure compliance with this IMP in the event that the DNR's forecast, provided prior to January 1 of each year, indicates a Compact Call Year. These procedures will incorporate information provided by the MRNRD (contracts for water leasing, augmentation, etc.) to the DNR by January 31 of each year following a forecast that indicates a Compact Call Year. The procedures for determining the allowable ground water depletion for the MRNRD are as follows.

The Allowable ground water depletion for the MRNRD =
(Nebraska Allocation + IWS – $SWCBCU_{NE}$ – Other NRD CBCU) * 0.30

Where:

Nebraska Allocation = Nebraska available water supply under the Compact

IWS = Imported Water Supply credit

$SWCBCU_{NE}$ = The surface water consumptive use by Nebraska, includes net evaporative losses

Other NRD CBCU = The $GWCBCU_{NE}$ calculated for the South Platte NRD, Twin Platte NRD, Tri-Basin NRD, Central Platte NRD, and Little Blue NRD

The DNR will utilize information provided by the MRNRD by January 31, to evaluate the following.

Step 1.MRNRD Estimated Ground water Depletions

Ground water depletions for the MRNRD will be based on the previous 2-year average (as described in table 2 above), unless such plan provided by the MRNRD indicates that additional restrictions on groundwater pumping will be imposed. If the additional restrictions would cause the pumping to be less than the previous two year average then the lower estimate will be used. In cases where that year's allocation will be less the MRNRD will provide the DNR a map indicating the geographic area subject to the allocation for that year and the maximum allocation available. The DNR will utilize the information provided by the MRNRD and represent such information in the RRCA GWM.

Step 2. Potential yield from MRNRD surface water leases/agreements, augmentation, etc.

The DNR will determine the potential yield from any surface water lease/agreement, augmentation, etc. entered into or provided by the MRNRD. In the event that augmentation is utilized, procedures for determining the project yield must have been approved by the RRCA. This potential yield will be incorporated as NRD management actions in section X.B.2.d.

If a Compact Call Year is reached as a result of checklist B1 or C3 the final step to determine if additional ground water and surface water controls (refer to Section VII.B.1. and VIII.F of this IMP) must be implemented is as follows.

Allowable ground water depletions for MRNRD (as determined above) - Forecasted MRNRD's portion of GWCBCU $_{NE}$ (Step 1) + Potential yield from MRNRD surface water leases/agreements, augmentation, etc. (Step 2) + Current Year's Balance (T = 0) – 3333[3].

If the resulting balance is greater than or equal to negative one hundred (-100) ac-ft, no additional ground water and surface water controls will be implemented.

If the resulting balance is less than negative one hundred (-100) ac-ft, the additional ground water and surface water controls (refer to Section VII.B.1. and VIII.F of this IMP) must be implemented. This potential yield will be incorporated as NRD management actions in section X.B.2.d.

Note: If it is beneficial to utilize the alternative water short year provisions from the FSS (the previous two years have a greater balance than last year alone), and an alternative water short year plan has been approved by the RRCA, then the two-year balance (for T = 0, the current year, and the prior year, T – 1) will be substituted for the current year's balance in Checklist B.

If a Compact Call Year is reached as a result of checklist D2 the final step to determine if additional ground water and surface water controls (refer to Section VII.B.1. and VIII.F of this IMP) must be implemented is as follows.

Allowable ground water depletions for MRNRD (as determined above) - Forecasted MRNRD's portion of GWCBCU $_{NE}$ (Step 1) + Potential yield from MRNRD surface water leases/agreements, augmentation, etc. (Step 2) + Previous Years Balances (T = -3, T = -2, T = -1, T = 0 or if applicable + T = -2, T = -1, T = 0)

[3] In the event it is the second consecutive Compact Call Year, this value will be reduced to 1667. For any remaining consecutive Compact Call Years, it will be reduced to zero.

If the resulting balance is greater than or equal to negative one hundred (-100) ac-ft, no additional ground water and surface water controls will be implemented.

If the resulting balance is negative, the additional ground water and surface water controls (refer to Section VII.B.1. and VIII.F of this IMP) must be implemented. This potential yield will be incorporated as NRD management actions in section X.B.2.d.

d. Calculation of Compact Call Stream flow Volume

This section of the monitoring plan specifies the calculation which will be completed by the DNR to determine the stream flow volume necessary to ensure Compact compliance in any Compact Call Year. If DNR's forecast, provided prior to January 1 of each year, indicates a Compact Call Year, then these calculations will be made incorporating information provided by the MRNRD (contracts for water leasing, augmentation, etc.) to the DNR by January 31 of each year following a forecast that indicates a Compact Call Year. The result of these calculations will be utilized to indicate when additional controls must be implemented by the MRNRD and DNR to ensure compliance with this IMP. When such Compact Call Year is indicated, the DNR will implement additional surface water controls (Section VIII.F of this IMP). Criteria that will be used to determine when administration for the "Compact Call" is no longer necessary will be based on ensuring sufficient stream flow volumes have been achieved at the compliance point. Determination of sufficient stream flow volumes to ensure Compact compliance will be determined through the following procedures.

Compact Call Stream flow Volume = Forecasted Stream flow + NRD Management Actions + Surface Water Curtailment Benefit

Where:

Forecasted Stream flow = Stream flow for T+1; (5-year average of state line flows) x 0.41 + 0.23 x HCL content – 27,450

NRD Management Actions = Actions taken by the MRNRD and/or other basin NRDs to enhance stream flow. These actions may include surface water or ground water leases, augmentation, or curtailment.

Surface Water Curtailment Benefit = Actions taken by DNR to ensure compact compliance in the event that Basin NRD Management Actions are not sufficient to overcome the projected negative balance.

e. Additional adjustments related to long-term trends

The DNR and MRNRD in conjunction with the other basin NRDs will annually meet to consult to determine if additional reductions from the 98-02 pumping volumes may be warranted. Through this consultation, the DNR and MRNRD will review expected long term (5-20 years) increases in depletions to stream flow and discuss potential mitigation measures that may be necessary.

f. Harlan County Lake Operations

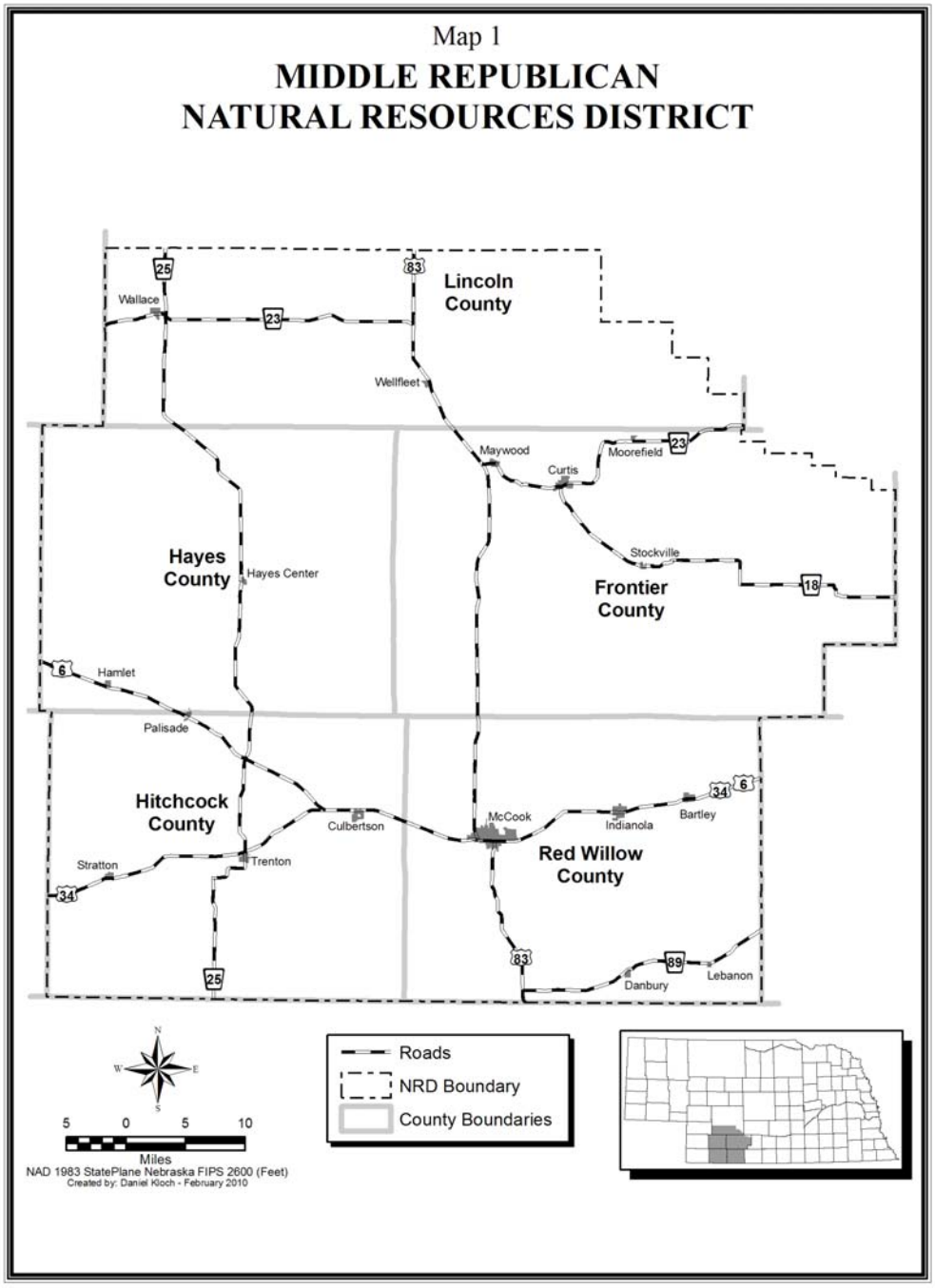
In the event that operations of Harlan County Lake are not in accordance with Appendix K of the Final Settlement Stipulation, the DNR will work in consultation with the NRDs to modify Sections VII, VIII, and X of this IMP until normal operations resume.

XI. Information Considered

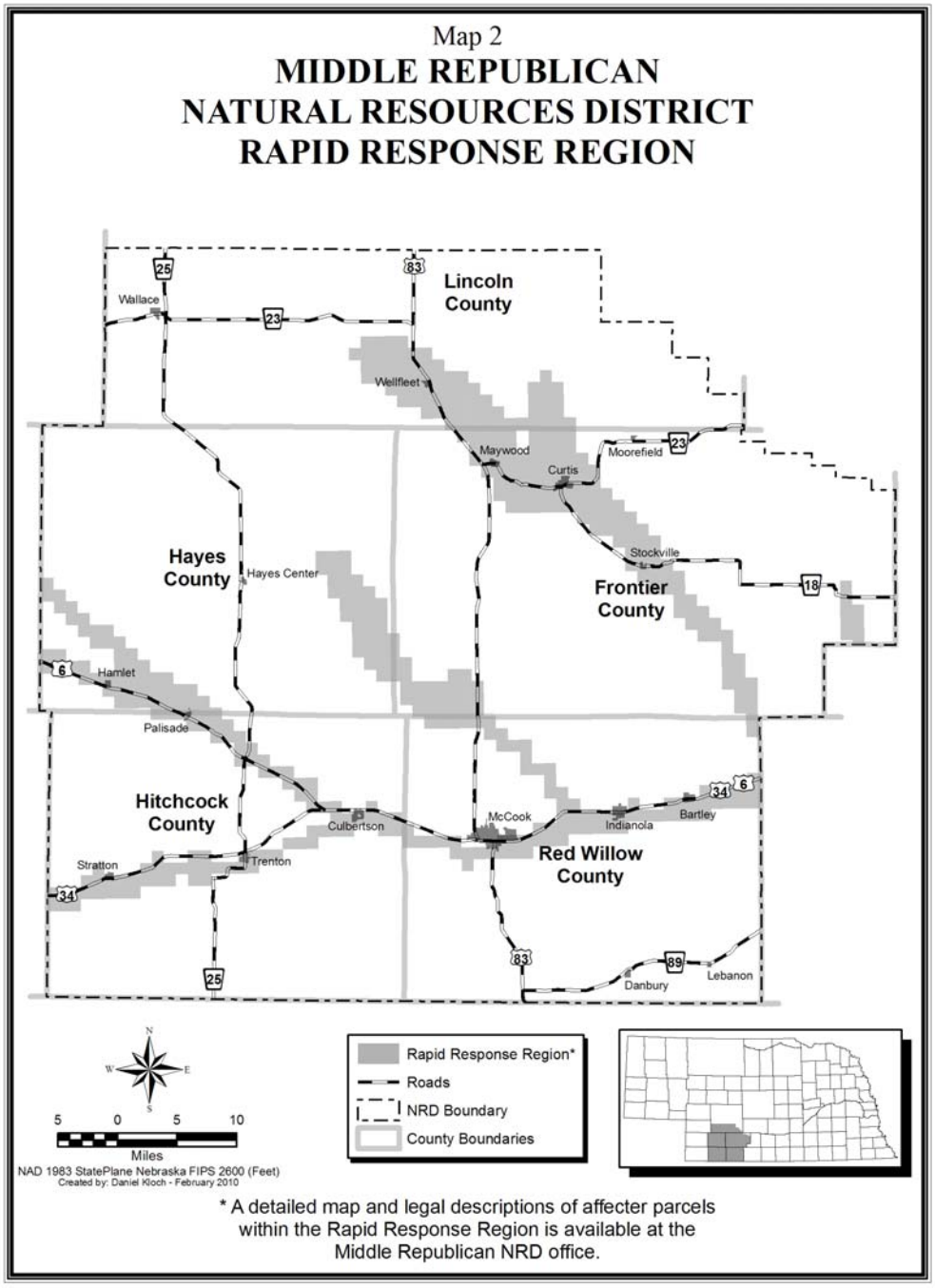
Information used in the preparation and to be used in the implementation of this IMP can be found in:

- Simulation runs of the Republican River Compact Administration Ground Water Model,
- 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,
- Arbitrator's Final Decision, Karl Dreher, June 30, 2009, and
- Additional data on file with the MRNRD and the DNR.

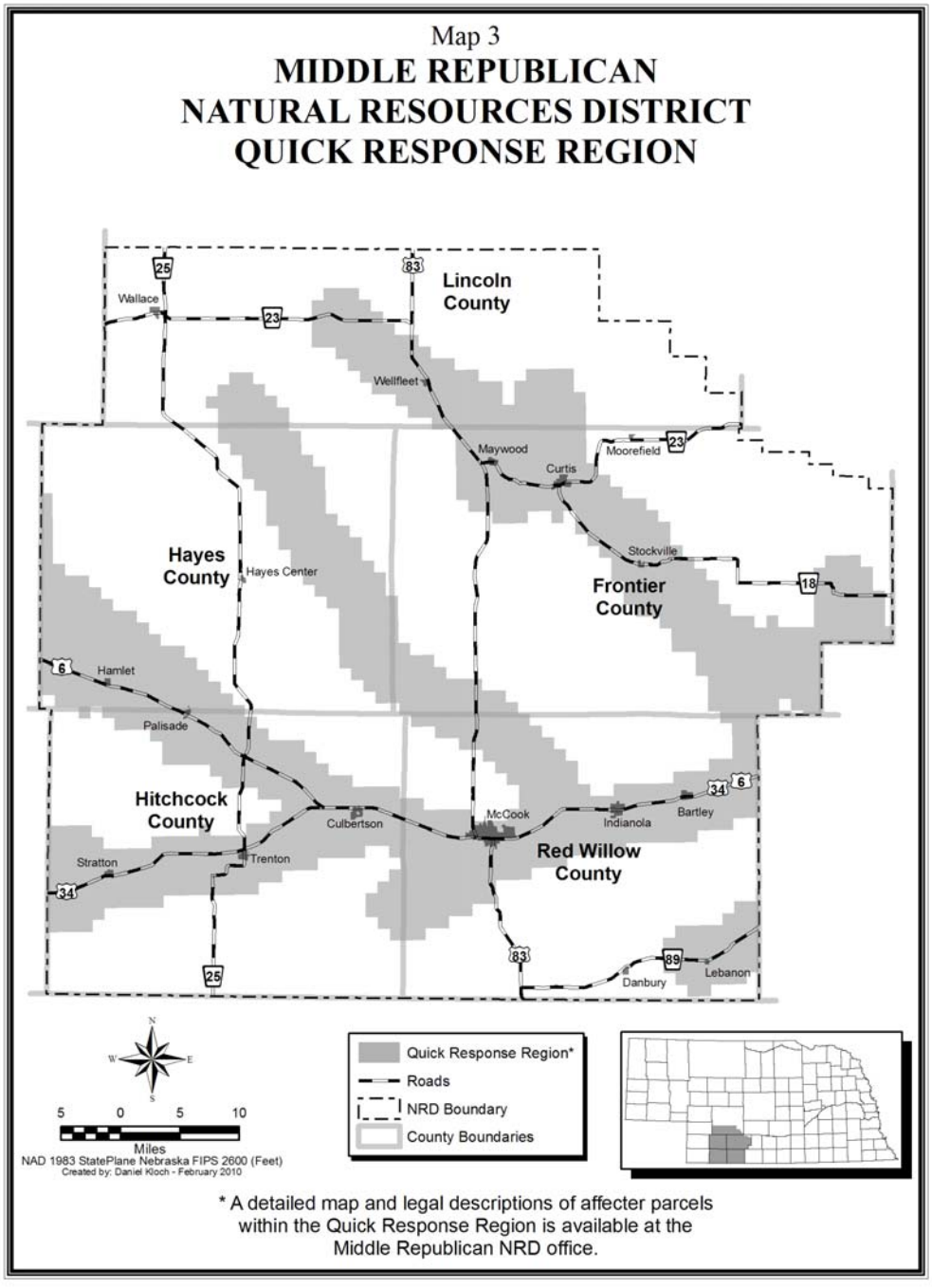
MAP 1. Middle Republican Natural Resource District



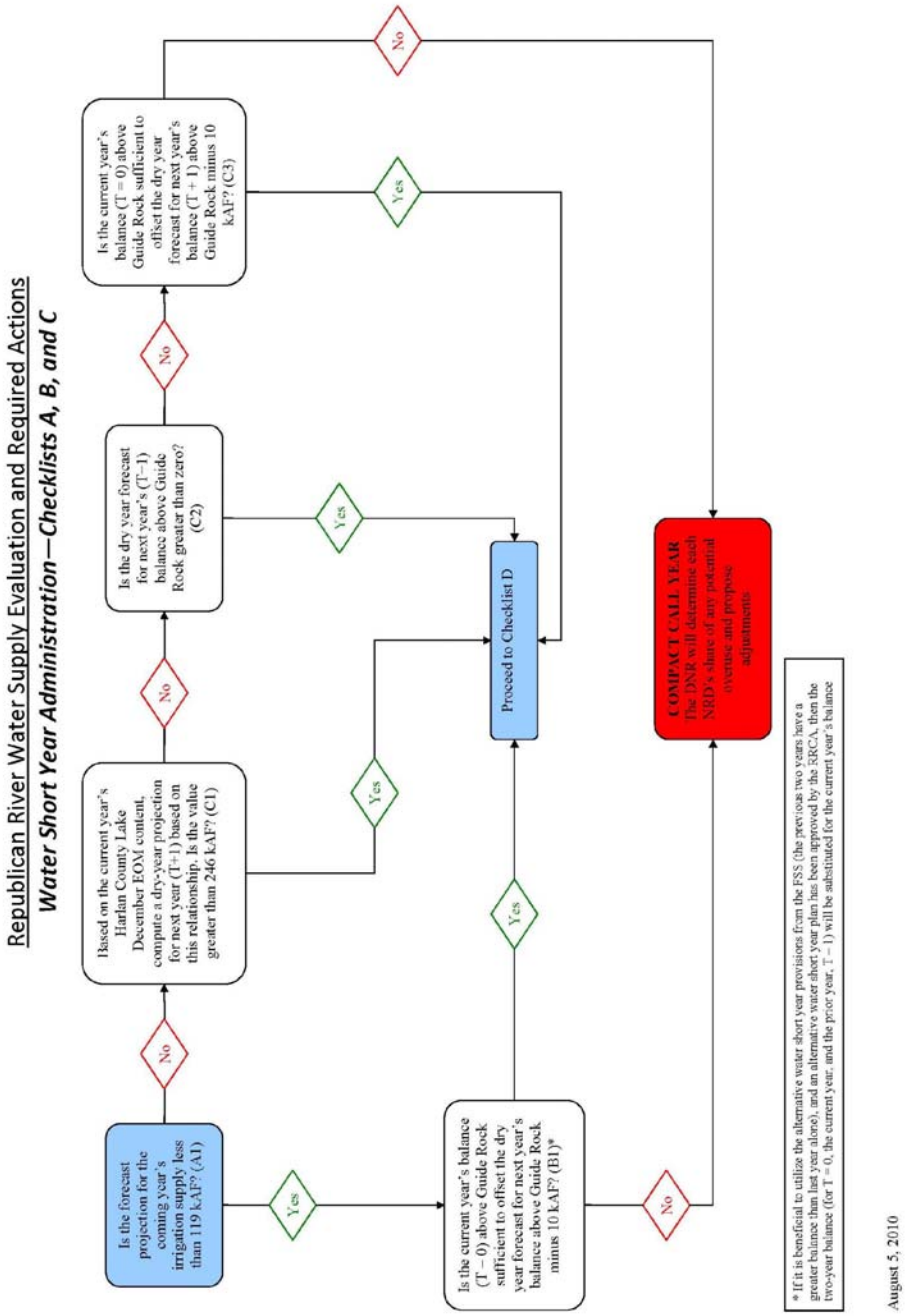
MAP 2. Middle Republican Natural Resource District Rapid Response Region



MAP 3. Middle Republican Natural Resource District Quick Response Region

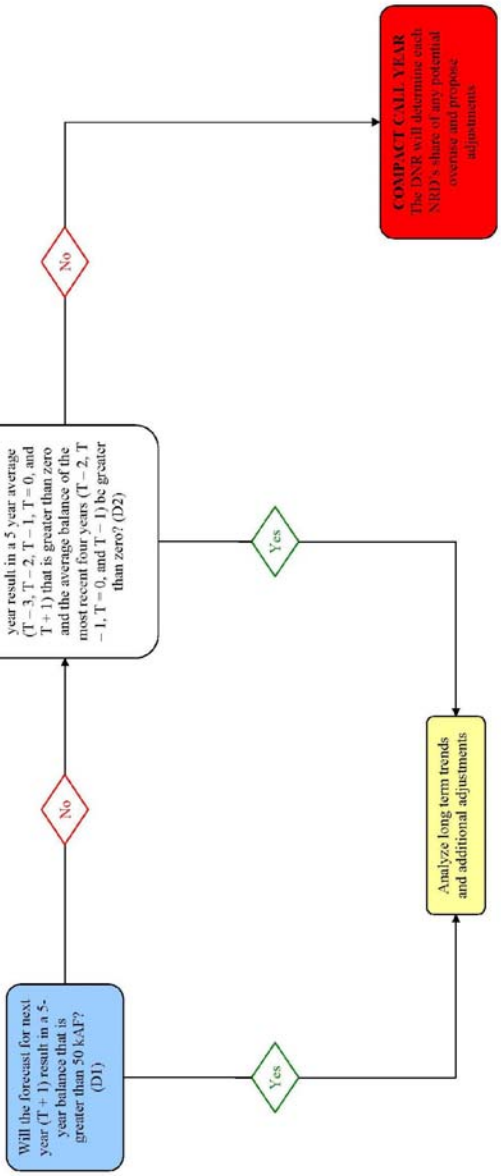


ATTACHMENT 1. Republican River Water Supply Evaluation and Required Actions



Republican River Water Supply Evaluation and Required Actions

Normal Year Administration—Checklist D



August 5, 2010

UPPER REPUBLICAN NATURAL RESOURCES DISTRICT

Integrated Management Plan (IMP)

November 1, 2010

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 (DNR) in accordance with the Nebraska Ground water Management and Protection Act, *Neb. Rev. Stat.* §§ 46-701 to 46-754 (Cum. Supp. 2008).

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.* § 46-739 (Cum. Supp. 2008), 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 carryforward 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 DNR conducted and participated in several meetings with the URNRD, including several public meetings. During the course of those meetings the DNR 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 (TBNRD) (collectively hereinafter the NRDs). Similar discussions were held between the DNR and each of the NRDs regarding the need (1) to accurately measure actual ground water pumpage and surface water diversions throughout the basin and within each NRD, (2) for the TBNRD 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 TBNRD, the Compact Imported Water Supply that Nebraska receives because of discharges from the "ground water mound"; and, 3) for each of the NRDs other than the TBNRD 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 DNR 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." DNR, through the use of the Republican River Compact Administration Ground water Model, has also determined each NRD'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 NRD 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 Groundwater Model with ground water pumping in each district alternated, turned off and then turned on.

The URNRD and the DNR adopted an IMP on May 3rd, 2005, that contained ground water rules and regulations for the 2005-2007 period. The IMP provided for a ground water allocation of 13.5 inches per certified acre, continued the pooling of allocations, and the carryforward of unused allocations, among other things. The goal of the 2005 IMP was to reduce water use by 5% from the 1998-2002 baseline. The IMP was updated and revised for 2007 – 2012, with a goal of reducing water use by twenty percent (20%) 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. Although the URNRD's allowable depletions to stream flow are limited to 44% of Nebraska's allowable depletions, there were no details in the plan to describe how this would be accomplished. In 2008 Colorado, Kansas, and Nebraska entered into dispute resolution regarding a number of issues, including future compliance. In June 2009 the arbitrator issued a finding that the URNRD IMP may be adequate during years with average and above-average precipitation, but since water-short year measures were not specifically identified, the plan may not be adequate during multiple dry years, an issue addressed in this IMP

The URNRD and the DNR 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 IMP with regulations and other augmentation programs sufficient to reduce the URNRD's depletions to stream flow to meet the district's proportional share of the requirements of the Republican River Settlement Agreement. To ensure each NRD within the Republican River Basin will be treated equitably, the DNR has agreed not to approve any plan, unless the plan would restrict the use of water by each NRD to within the allocation granted to it as determined by the 1998-2002 baseline pumping volumes and that each NRD shall be assigned its proportionate share of stream flow depletion as calculated by the 1998-2002 baseline depletion percentages.

The URNRD and the DNR agree that the IMP for the District shall keep the NRD's depletions including credits for stream flow augmentation, as determined by the Republican River Compact Administration (RRCA) ground water model (GWM) and in accordance with the RRCA Accounting Procedures to an amount within 44% of the allowable ground water depletions. Based upon its calculations, the DNR believes that at the time this IMP became effective, a 20% reduction in pumping from the 98-02 baseline would be sufficient without additional stream flow augmentation to keep the District's net depletions within the URNRD's 44% share of the allowable ground water depletions during periods of average precipitation throughout the basin. As described in sections below, during periods of low water supply additional reductions from the 98-02 pumping volume may be necessary.

III. Definitions

A. Allowable Ground water Depletions - the maximum level of depletions to stream flow from ground water pumping within the Nebraska portion of the Republican River Compact area that can be allowed without exceeding the Compact allocation, in any one year.

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 Stream flow Depletions – the maximum amount of stream flow 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 NRDs 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 and controls 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 – an NRD's ground water depletions less any reduction in stream flow depletions or increase in allocation resulting from stream flow augmentation projects, including surface water leases as determined by the RRCA ground water model and in accordance with the RRCA Accounting Procedures.

H. Compact Call Year – A year in which the Department's forecast procedures outlined in Section X.B.2.b of this IMP indicate the potential for non-compliance if sufficient surface water and ground water controls and/or management actions are not taken. Compact Call Year streamflow administration will be conducted by the Department in a manner consistent with Section X.B.2.d of this IMP. Pursuant to Article VI of the Republican River Compact, diversions into the Courtland Canal for beneficial use in the State of Kansas will not be subject to the Compact Call.

IV. Goals and Objectives

Pursuant to *Neb. Rev. Stat.* § 46-715 (Cum. Supp. 2008) 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 DNR to meet the additional requirements of *Neb. Rev. Stat.* §46-715.

A. Goals:

1. In cooperation with the State of Nebraska and the other NRDs, 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 stream flow 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 stream flow available from regulation, incentive programs, and purchased or leased surface water and ground water required to maintain Compact compliance from any use that would negate the benefit of such regulations or programs, to the extent allowed by statute and the surface water controls of this IMP.

B. Objectives:

1. Prevent the initiation of new or expanded uses of water, with limited exceptions, 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 and the surface water controls of this IMP;

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 stream flow augmentation and incentive programs, the URNRD's ground water 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. Make such additional reductions in ground water use in Compact Call Years as are necessary, after taking into account any reduction in beneficial consumptive use achieved through basin-wide incentive and stream flow augmentation programs, to achieve a reduction in beneficial consumptive use in the URNRD to 44% of Nebraska's the allowable ground water depletions to stream flow above Guide Rock . Compact Call Years will be determined through the procedures outlined in Section IX of this IMP;

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 consumptive use. To the extent funds are available, incentive programs will be made available through targeted incentive programs;

6. Cooperate with the DNR 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

The area subject to this IMP is the geographic area within the boundaries of the URNRD, (see Map 1). The Rapid Response Region is shown as a sub-area within the boundaries of the URNRD, (see Map 2).

VI. 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 DNR and URNRD agree are necessary and shall be continued are: 1) ground water allocations and 2) a moratorium on new water wells and irrigated acres as are required by the Final Settlement Stipulation (FSS). 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 stream flow depletion factor as alternatives to URNRD-wide reductions in allocation or irrigated acres. The rules 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 and Controls set forth below.

In addition to satisfying the compliance standards, the rules and regulations adopted by the URNRD shall contain provisions that adequately ensure 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 DNR, except for the rules and regulations

pertaining to the satisfaction of the requirements of *NEB.REV.STAT.* §46-715(4)(b) and 46-715(4)(c).

A. Compliance Standards

1. Purpose.

These Compliance Standards are established by DNR 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 FSS and Compact, are sufficient. The action taken by the URNRD shall be evaluated in connection with the action taken by the other NRDs in the Republican River Basin and any other relevant considerations, including the information and data provided by DNR and past action by the NRD.

2. Duration

These Compliance Standards shall be used to assess the action taken by the URNRD. On an annual basis the DNR and URNRD shall reexamine the sufficiency and effectiveness of the Compliance Standards to determine if amendments or modifications are necessary to ensure the State's compliance with the FSS and Compact. Nothing contained herein shall prohibit or preclude any amendment or revision, at anytime, by the DNR and URNRD, 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 required by *NEB.REV.STAT.* §46-715.

3. Standards

The URNRD shall adopt and implement rules and regulations which shall ensure that the following standards are met. The standards shall be effected through the procedure described in Section IX - Monitoring and Studies. Section IX specifies a forecast and resulting actions needed at the Guide Rock compliance point (during Water short years) and at the Hardy compliance point. The procedures for determining whether the compliance standards are met will be based on the RRCA Accounting Procedures, the baseline ground water pumping volumes, and the annual forecast as outlined in Section IX. The standards are:

a. Provide for a minimum of 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 425,000 acre-feet over the long term. 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.

b. An additional reduction in 98-02 pumping volumes of five percent (5%) during the next five year period shall be accomplished primarily through voluntary incentive programs and other means as determined by the URNRD. The necessity for continuing this annual reduction shall be reevaluated by DNR and the URNRD in 2015.

c. The URNRD's net depletions to stream flow shall be no greater than 44% of the allowable ground water depletions determined in accordance with RRCA Accounting Procedures using the RRCA GWM. The average shall be computed using the annual allowable ground water depletion for the same years as are used to determine the averages for Nebraska's compliance with the FSS.

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B. Other Controls and Management Activities

The URNRD and the DNR 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.

1. During Compact Call Years, the URNRD will seek to implement management actions, including but not limited to, surface water leasing, ground water leasing, augmentation, etc., to ensure compliance with this IMP. These management actions will be implemented through the authorities granted by the Nebraska Ground water Management and Protection Act, *Neb. Rev. Stat.* §§ 46-701 to 46-753. Details of such management actions will be provided to DNR by January 31 of each year for evaluation. If such management actions are insufficient to ensure compliance with this IMP, the URNRD will implement additional ground water controls and regulations to make up for any expected shortfall as identified in the annual forecast and described in Section IX of this IMP. Such additional control will include curtailment of ground water pumping within the Rapid Response Region of the URNRD.

2. When necessary to ensure Compact compliance or during Compact Call Years, the URNRD may set a one year pumping allocation within the District. Such allocation will set the maximum pumping level in that year within any region or sub region.

3. Maintain requirement for metering of all ground water uses according to URNRD standards.

4. Provide for transfers according to URNRD and statutory standards.

VII. Surface Water Controls - Department of Natural Resources

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 DNR are as follows:

A. The DNR will do the following additional surface water administration as required by the Settlement Agreement:

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 Settlement Agreement, 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 Settlement Agreement, 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 are required to install and maintain a DNR approved measuring device by the start of the 2005 irrigation season. All measuring devices shall meet the 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.

C. 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 *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.

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 (Reissue 2004) and related DNR rules or the criteria found in *Neb. Rev. Stat.* §§ 46-2,120 to 46-2,130 (Reissue 2004) and related DNR rules.

E. The DNR 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 DNR to monitor use of surface water and to make sure that unauthorized irrigation is not occurring. The DNR will also be proactive in initiating subsequent

adjudications whenever information available to the DNR indicates the need for adjudication as outlined by state statutes.

F. During Compact Call Years, as determined from the procedures and analysis set forth in Section IX below, DNR will regulate and administer surface water in the basin as necessary to ensure Compact compliance. During Compact Call Years, DNR will issue a "Compact Call" on the Republican River at Hardy or Guide Rock to carry out administration for the Compact in a manner consistent with the doctrine of prior appropriation. A "Compact Call" will result in DNR issuing closing notices on all natural flow and storage permits in the basin until such time as DNR, in consultation with the URNRD and other basin NRDs, determines that yearly administration is no longer needed to ensure Compact compliance, pursuant to Section IX.

VIII. Augmentation and Incentive Programs

The URNRD and the DNR intend to establish and implement financial, incentive, and qualified projects as described in *Neb. Rev. Stat.* §§ 2-3226.04, LB 862 (2010), *Neb. Rev. Stat.* §§ 2-3252 or other incentive programs to reduce beneficial consumptive use of water within the URNRD. These projects include, but are not limited to (1) acquisition by purchase or lease of surface water or ground water rights, including storage water rights with respect to a river or any of its tributaries, (2) acquisition by purchase or lease or the administration and management, pursuant to mutual agreement, of canals and other works, including reservoirs, constructed for irrigation from a river or any of its tributaries, (3) vegetation management, including, but not limited to, the removal of invasive species in or near a river or any of its tributaries, and (4) the augmentation of river flows. 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 not accrue to any specific NRD, 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 NRD's depletions allocated to each of the NRDs based upon the 1998-2002 baseline depletion proportions.

However, should any NRD establish, fund, and implement its own such conservation program within its NRD's boundaries, the accounting of credit for the resulting water savings shall be given exclusively to that NRD. Any credit resulting from an inter-district conservation program shall be credited as agreed to by the NRDs involved. Also, if multiple NRDs cooperate in a stream flow augmentation project, the benefits shall be provided to each NRD based upon their share of the cost of the program.

To the extent possible, it is the intent of the URNRD to provide compensation to water users that are required to forgo water use to allow the URNRD and the State to comply with the compact. This may be in addition to or as part of any other URNRD incentive or retirement program developed to facilitate compact compliance.

IX. Monitoring and Studies

The overarching purpose of the Monitoring and Studies Section is to ensure that, in cooperation with the other Republican River Basin NRDs, the DNR and URNRD 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. The objective of the Monitoring and Studies Section of this IMP is to gather and evaluate data, information, and methodologies that could be used to increase understanding of the surface water and hydrologically connected ground water system; to test the validity of the conclusions and information upon which this IMP is based; and to assist decision makers in properly managing the water resources within the URNRD and the Republican River Basin as a whole.

On an annual basis the results of monitoring and studies will typically be discussed in a basin-wide meeting which will take place prior to October 31 each year. The purpose of the meeting will be to discuss the preliminary accounting for the current year, the forecast of allowable stream flow depletions for the coming year, and potential management actions as necessary. Table 1 outlines important dates and objectives related to section IX.

Table 1. Important Dates and Objectives

Date	Objective
Prior to February 1	URNRD will provide DNR with meter reading database and GIS coverage maps to be used for the RRCA annual model update.
Prior to RRCA Annual Meeting	DNR will provide URNRD with their determination of whether the URNRD was in compliance with the compliance standards based on each previous year's annual Compact accounting.
September - October	Obtain power records and other estimates to determine pumping for T=0 ground water model run.
Prior to October 31	Discuss results of monitoring and studies, preliminary accounting for current year, and early forecast of allowable stream flow depletions.
Prior to November 15	DNR will provide correspondence to URNRD notifying them of potential Compact Call Year determination for the coming year (T+1).
November 15 – January 1	URNRD and DNR will discuss potential management alternatives in the situation that the coming year (T+1) will be a Compact Call Year.
Prior to January 1	Provide final forecast of allowable stream flow depletions and determination of Compact Call Years.
Prior to January 31	URNRD will provide DNR with details regarding existing management alternatives in lieu of additional ground water regulations or controls to make up for the expected shortfall.

A. Plan to Gather and Evaluate Data, Information and Methodologies

As outlined in *Neb. Rev. Stat.* §§ 46-715(2)(e) ongoing programs and new studies or other projects may become a source of information that is used to evaluate the effectiveness of controls

adopted by the by the URNRD and the DNR. The DNR and the URNRD will jointly pursue and/or evaluate studies, contingent upon budget and staff resources, to evaluate their potential effectiveness in achieving the goals and objectives of this IMP.

The following potential studies have been identified by the DNR and the URNRD: (1) crop rotation; (2) vegetation management; (3) irrigation scheduling; (4) a survey of the type and location of irrigation systems throughout the URNRD; (5) tillage practices; and (6) conjunctive management.

B. Monitoring

Part One of the Monitoring Section describes the tracking and reporting of water use activities within fully appropriated areas of the district by the URNRD and the DNR. Part Two of the Monitoring Section describes the analyses that will be utilized to annually forecast the projected depletions in each subsequent year. This accounting and the forecast in accordance with *Neb. Rev. Stat.* § 46-715(6) will serve to increase the understanding and test the validity of the conclusions and information upon which this plan is based.

Compact accounting and data exchanges among the states shall be done annually in accordance with the FSS, 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. The accounting procedures, reporting requirements, and annual report of the RRCA are independent of this monitoring plan, and therefore not restated within the Monitoring Section of this plan.

1. Part One: Tracking and Reporting of Water Use Activities

The URNRD and the DNR 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 annually provide GIS coverage maps of all lands irrigated and to meter, record and provide to the DNR its ground water usage records and irrigation system details. The URNRD shall make copies of district actions taken on variances, offsets, and similar actions available to DNR.

The DNR agrees to make available to the URNRD all reports and records of the other NRDs necessary to determine their compliance with reductions, as well as all documentation and reports utilized by the DNR to determine the basin's virgin water supplies and Nebraska's compliance with the Compact.

In the event any materials are withheld by either DNR 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.

2. Part Two: Forecast Procedures

Each year in compliance with *Neb. Rev. Stat.* § 46-715(6) the DNR in consultation with the Republican River NRDs shall forecast the maximum amount of water that may be available from stream flow for beneficial use in the short term and long term to comply with the Compact. This forecast will be used to assist the DNR and the NRDs in ensuring compliance with the Compact. DNR in conjunction with the NRDs will annually evaluate the forecast procedures and make changes as deemed necessary to reflect management actions being taken in the basin.

In order to complete the forecast, the DNR and URNRD in conjunction with the other NRDs will review available information and determine if additional controls must be implemented within any district for Compact Call Year compliance. The forecast will be completed prior to January 1 of each year, and will detail the expected shortfall within each district in the event that the coming year is a Compact Call Year. By the following January 31, if necessary, the URNRD will provide DNR with details regarding existing management alternatives (such as execution of existing surface water leases) in lieu of additional ground water regulations or controls to make up for the expected shortfall.
The procedures developed to complete the forecast will be reviewed annually by the DNR to determine if modifications are necessary. The forecast will project the next year's balance (projected Nebraska allocation plus projected Imported Water Supply less the projected Computed Beneficial Consumptive Use, or CBCU), and the projected water short year and normal year accounting balances. These balances will be utilized in conjunction with other information to determine if a Compact Call Year exists.

The DNR's calculation of allowable ground water depletions for the URNRD and determination of the necessity for additional controls will utilize additional ground water model information, estimated end-of-year information for reservoir volumes, and estimated stream flow to determine on an annual basis whether additional NRD-specific controls must be implemented.

a. Determination of Available Stream Flow

The forecast will typically determine the forecast values for both Guide Rock (water short year accounting point) and Hardy (normal year accounting point). The DNR's forecast values for Guide Rock will include: 1) the one-year balance (projected allocation less the projected CBCU plus the imported water supply); two-year average, and three-year average. The DNR's forecast values for Hardy will include: 1) the one-year balance (projected allocation less the projected CBCU plus the imported water supply); and 2) the five-year average. These forecasted values will be used in conjunction with sections IX.B.2.b, IX.B.2.c, IX.B.2.d and IX.B.2.e to determine when management actions or controls must be implemented. The DNR will calculate forecast values for the next year using the variables in table 2:

Table 2. Information Used for 2010 Forecast of Allowable Depletions.

Year	Item	Information Source
T – 3		Draft; current Accounting Procedures (v. 2005)
T – 2		Draft; current Accounting Procedures (v. 2005)
T – 1		Draft; current Accounting Procedures (v. 2005)
Provisional Data for T = 0 (Current Year or Immediate Past Irrigation Season)	Pumping	Power records estimate
	Surface Water Use	Estimated from preliminary data and previous years values
	Stream Flow	Available provisional records end of year estimated
	Evaporation	T – 1 records
Forecast Year T + 1 (Coming Irrigation Season)	Ground water Consumptive Use and Imported Water Supply Credit	Average values for T = 0 and T - 1
	Surface Water Consumptive Use	Colorado: Average of T – 1 and T – 2 use Kansas: + (.1858 x HCL content) + 9,575 Nebraska: - $(4x10^{-7})$ x (NE lake volume)^2 + (0.52) x (NE lake volume) - 42,000
	Stream Flow	+ (5-year average of state line flows) x 0.41 + 0.23 x HCL content - 27,450

In accordance with *Neb. Rev. Stat.* § 46-703(6), DNR, NRDs, and surface water project sponsors shall meet prior to the final forecast of allowable stream flow depletions and determination of Compact Call Years. At this meeting the involved parties will discuss the forecasted streamflow and surface water consumptive use. From these discussions, surface water project sponsors may present a plan to DNR to achieve a consumptive use that is less than forecasted consumptive use. Such a plan could allow surface water project sponsors to avoid a potential Compact Call Year. This plan must be completed and provided to the Department no later than December 1 of the current year (T=0).

The following equations will be utilized to determine the one year balance for the forecast year.

$$CWS = + SwCBCU_{NE} + SwCBCU_{KS} + SwCBCU_{CO} + GwCBCU_{NE} + GwCBCU_{KS} + GwCBCU_{CO} + \text{Stateline Stream flow}$$

$$\text{Nebraska Allocation} = CWS * 0.5$$

$$CBCU_{NE} = SwCBCU_{NE} + GwCBCU_{NE}$$

IWS = Imported Water Supply Credit

Hardy One Year Balance = Nebraska Allocation + IWS – $CBCU_{NE}$

Guide Rock One Year Balance = Hardy One Year Balance * 0.89 – 9040

Where:

T-3 = Three years ago from the current year

T-2 = Two years ago from the current year

T-1 = One year ago from the current year

T=0 = The current year

T+1 = The upcoming year that is being forecasted

CWS = Computed Water Supply

GW $CBCU_{NE, KS, CO}$ = Ground water Computed Beneficial Consumptive Use for each respective state

SW $CBCU_{NE, KS, CO}$ = Surface Water Computed Beneficial Consumptive Use for each respective state

Nebraska Allocation = CWS x 0.5: The amount of water the State of Nebraska is allowed to use over one year

Balance = The sum of Nebraska's Allocation, plus the Nebraska Imported Water Supply, less Nebraska's Computed Beneficial Consumptive Use

The one year balance for normal year accounting (Hardy One Year Balance) and water short year accounting (Guide Rock One Year Balance) will be utilized to project the two-year and three-year average balances above Guide Rock and the five-year average balance above Hardy.

b. Compact Call Year Evaluation

This section of the monitoring plan specifies the process that will be completed by the DNR to determine the Compact Call Years, as detailed in Attachment 1, Republican River Water Supply Evaluation and Required Actions Flowchart. This evaluation takes into account reservoir content and recent balances above Guide Rock and Hardy and the annual forecast as described above in Section IX.B.2.a. This process will be completed and provided to the URNRD by DNR prior to January 1 of each year.

Checklist A. Water short year Test

1) Is the forecast projection for the coming year's irrigation supply less than 119 kAF?
    a. Yes. Proceed to Checklist B.
    b. No. Proceed to Checklist C.

Checklist B. Water short year

1) Is the current year's balance (T = 0) above Guide Rock sufficient to offset the dry year forecast for next year's balance above Guide Rock minus 10 kAF[1]?
    a. Yes. Proceed to Checklist D.
    b. No. COMPACT CALL YEAR: The DNR will determine each NRD's share of any potential overuse and propose adjustments in accordance to Section IX.B.2.c. of this IMP.

Note: If it is beneficial to utilize the alternative water short year provisions from the FSS (the previous two years have a greater balance than last year alone), and an alternative water short year plan has been approved by the RRCA, then the two-year balance (for T = 0, the current year, and the prior year, T – 1) will be substituted for the current year's balance in Checklist B.

Checklist C. Early Warning System for Water short year Compliance

1) When Harlan County Lake declines from one year to the next, the December end-of-month (EOM) content is generally about 84% of what it was last year. A December EOM of 246 kAF provides a high level of confidence that the coming year (T+1) will not be water short. Based on the current year's (T=0) Harlan County Lake December EOM content, compute a dry-year projection for next year (T+1) based on this relationship. Is the value greater than 246 kAF?
    a. Yes. Proceed to Checklist D.
    b. No. Advance to question 2.

2) Is the dry year forecast for next year's (T+1) balance above Guide Rock greater than zero?
    a. Yes. Proceed to Checklist D.
    b. No. Advance to question 3.

3) Is the current year's balance (T = 0) above Guide Rock sufficient to offset the dry year forecast for next year's balance (T + 1) above Guide Rock minus 10 kAF[2]?
    a. Yes. Proceed to Checklist D.

[1] In the event it is the second consecutive Compact Call Year, this value will be reduced to 5kAF. For any remaining consecutive Compact Call Years, it will be reduced to zero.
[2] In the event it is the second consecutive Compact Call Year, this value will be reduced to 5kAF. For any remaining consecutive Compact Call Years, it will be reduced to zero.

b. No. COMPACT CALL YEAR: The DNR will determine each NRD's share of any potential overuse and propose adjustments in accordance to Section IX.B.2.c. of this IMP.

Checklist D. Normal Year Administration

1) Will the forecast for next year (T + 1) result in a 5-year balance at Hardy that is greater than 50 kAF?
   a. Yes. Analyze long term trends and additional adjustments in accordance to Section IX.B.2.e
   b. No. Advance to question 2.

2) Will both the forecast for next year result in a 5 year balance at Hardy (T – 3, T – 2, T – 1, T = 0, and T + 1) that is greater than zero and the balance at Hardy of the most recent four years (T – 2, T – 1, T = 0, and T + 1) be greater than zero?

   a. Yes. Analyze long term trends and additional adjustments in accordance to Section IX.B.2.e
   b. No. COMPACT CALL YEAR: The DNR will determine each NRD's share of any potential overuse and propose adjustments in accordance to Section IX.B.2.c. of this IMP.

c. Calculation of Allowable Ground water Depletions for the URNRD and Determining the necessity of Additional Controls

This section of the monitoring plan specifies the calculations which will be completed by the DNR to determine the allowable ground water depletions for the URNRD in any Compact Call Year. These procedures will be utilized to indicate when additional controls must be implemented by the URNRD and DNR to ensure compliance with this IMP in the event that the DNR's forecast, provided prior to January 1 of each year, indicates a Compact Call Year These procedures will incorporate information provided by the URNRD (contracts for water leasing, augmentation, etc.) to the DNR by January 31 of each year following a forecast that indicates a Compact Call Year. When such Compact Call Year is indicated, the DNR will implement additional surface water controls (Section VII.F of this IMP). The procedures for determining the allowable ground water depletion for the URNRD are as follows.

The Allowable ground water depletion for the URNRD =
(Nebraska Allocation + IWS – $SWCBCU_{NE}$ – Other NRD CBCU) * 0.44

Where:

Nebraska Allocation = Nebraska available water supply under the Compact

IWS = Imported Water Supply credit

$SWCBCU_{NE}$ = The surface water consumptive use by Nebraska, includes net evaporative losses

Other NRD CBCU = The $GWCBCU_{NE}$ calculated for the South Platte NRD, Twin Platte NRD, Tri-Basin NRD, Central Platte NRD, and Little Blue NRD

The DNR will utilize information provided by the URNRD by January 31, to evaluate the following.

Step 1. URNRD Estimated Ground water Depletions

Ground water depletions for the URNRD will be based on the previous 2-year average (as described in Table 2 above), unless such plan provided by the URNRD indicates that additional restrictions on groundwater pumping will be imposed. If the additional restrictions would limit the pumping to be less than the previous two year average then the lower estimate will be used. In cases where that year's allocation will be less the URNRD will provide the DNR a map indicating the geographic area subject to the allocation for that year and the maximum allocation available. The DNR will utilize the information provided by the URNRD and represent such information in the RRCA GWM.

Step 2. Potential yield from URNRD surface water leases/agreements, augmentation, etc.

The DNR will determine the potential yield from any surface water lease/agreement, augmentation, etc. entered into or provided by the URNRD. In the event that augmentation is utilized, procedures for determining the project yield must have been approved by the RRCA. This potential yield will be incorporated as NRD management actions in section IX.B.2.d.

If a Compact Call Year is reached as a result of checklist B1 or C3 the final step to determine if additional ground water and surface water controls (refer to Section VI.B.1. and VII.F of this IMP) must be implemented is as follows.

Allowable ground water depletions for URNRD (as determined above) - Forecasted URNRD's portion of $GWCBCU_{NE}$ (Step 1) + Potential yield from URNRD surface water leases/agreements, augmentation, etc. (Step 2) + Current Year's Balance (T = 0) – 3333[3].

If the resulting balance is greater than or equal to negative one hundred (-100) ac-ft, no additional ground water and surface water controls will be implemented.

[3] In the event it is the second consecutive Compact Call Year, this value will be reduced to 1667. For any remaining consecutive Compact Call Years, it will be reduced to zero.

If the resulting balance is less than negative one hundred (-100) ac-ft, the additional ground water and surface water controls (refer to Section VI.B.1. and VII.F of this IMP) must be implemented. This potential yield will be incorporated as NRD management actions in section IX.B.2.d.

Note: If it is beneficial to utilize the alternative water short year provisions from the FSS (the previous two years have a greater balance than last year alone), and an alternative water short year plan has been approved by the RRCA, then the two-year balance (for T = 0, the current year, and the prior year, T – 1) will be substituted for the current year's balance in Checklist B.

If a Compact Call Year is reached as a result of checklist D2 the final step to determine if additional ground water and surface water controls (refer to Section VI.B.1. and VII.F of this IMP) must be implemented is as follows.

Allowable ground water depletions for URNRD (as determined above) - Forecasted URNRD's portion of GWCBCU $_{NE}$ (Step 1) + Potential yield from URNRD surface water leases/agreements, augmentation, etc. (Step 2) + Previous Years Balances (T = -3, T = -2, T = -1, T = 0 or if applicable + T = -2, T = -1, T = 0).

If the resulting balance is greater than or equal to negative one hundred (-100) ac-ft, no additional ground water and surface water controls will be implemented.

If the resulting balance is less than negative one hundred (-100) ac-ft, the additional ground water and surface water controls (refer to Section VI.B.1. and VII.F of this IMP) must be implemented. This potential yield will be incorporated as NRD management actions in section IX.B.2.d.

d. Calculation of Compact Call Stream flow Volume

This section of the monitoring plan specifies the calculation which will be completed by the DNR to determine the stream flow volume necessary to ensure Compact compliance in any Compact Call Year. These procedures will be utilized to indicate when additional controls must be implemented by the URNRD and DNR to ensure compliance with this IMP in the event that the DNR's forecast, provided prior to January 1 of each year, indicates a Compact Call Year. These procedures will incorporate information provided by the URNRD (contracts for water leasing, augmentation, etc.) to the DNR by January 31 of each year following a forecast that indicates a Compact Call Year. When such Compact Call Year is indicated, the DNR will implement additional surface water controls (Section VII.F of this IMP). Criteria that will be used to determine when administration for the "Compact Call" is no longer necessary will be based on ensuring sufficient stream flow volumes have been achieved at the compliance point. Determination of sufficient stream flow volumes to ensure Compact compliance will be determined through the following procedures.

Compact Call Stream flow Volume = Forecasted Stream flow + NRD Management Actions + Surface Water Curtailment Benefit

Where:

Forecasted Stream flow = Stream flow for T+1; (5-year average of state line flows) x 0.41 + 0.23 x HCL content – 27,450.

NRD Management Actions = Actions taken by the URNRD and/or other basin NRDs to enhance stream flow. These actions may include surface water or ground water leases, augmentation, or curtailment.

Surface Water Curtailment Benefit = Actions taken by DNR to ensure compact compliance in the event that Basin NRD Management Actions are not sufficient to overcome the projected negative balance.

e. Additional adjustments related to long-term trends

The DNR and URNRD in conjunction with the other basin NRDs will annually meet to consult to determine if additional reductions from the 98-02 pumping volumes may be warranted. Through this consultation, the DNR and URNRD will review expected long term (5-20 years) increases in depletions to stream flow and discuss potential mitigation measures that may be necessary.

f. Harlan County Lake Operations

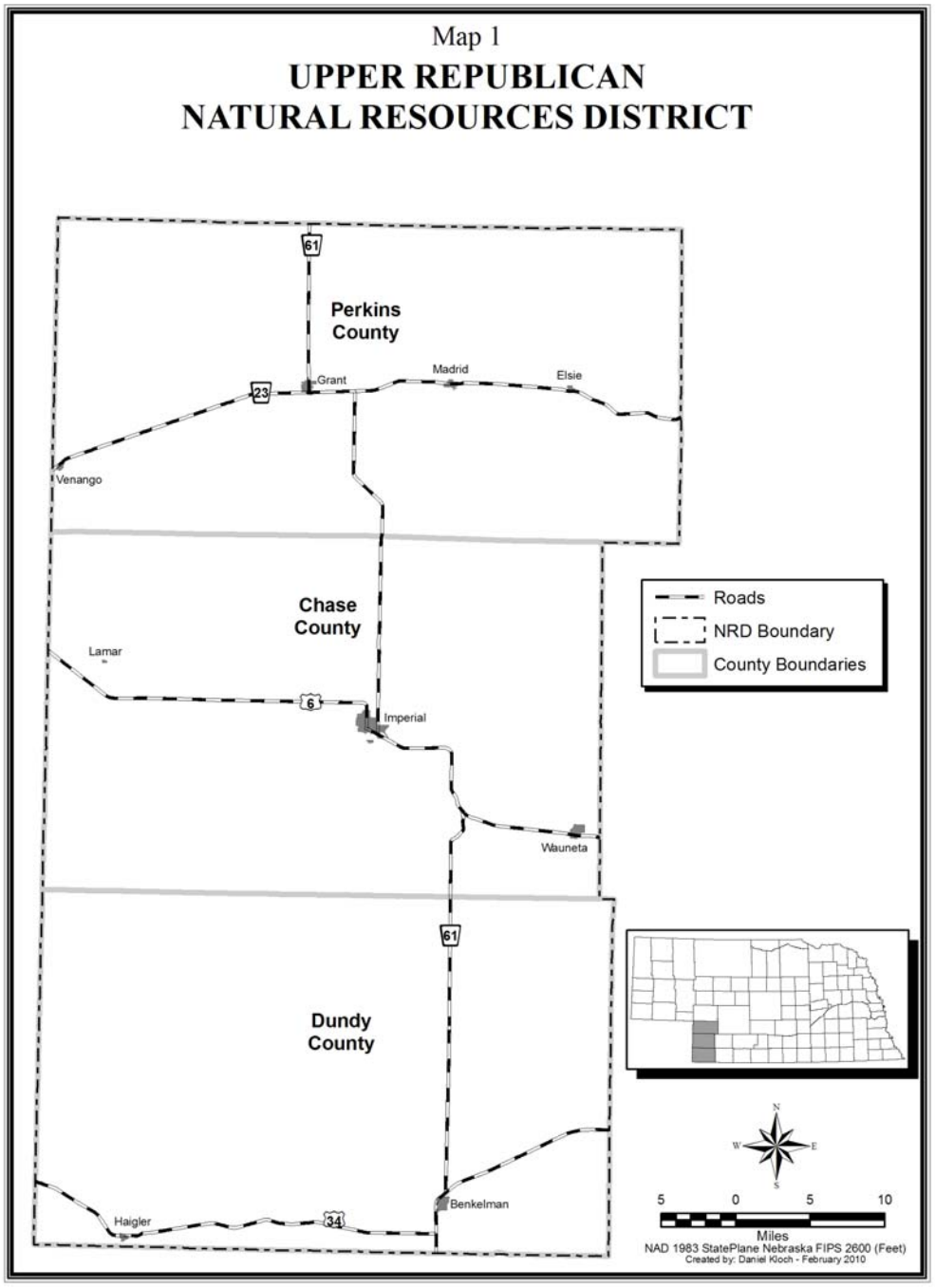
In the event that operations of Harlan County Lake are not in accordance with Appendix K of the Final Settlement Stipulation, the DNR will work in consultation with the NRDs to modify Sections VI, VII, and IX of this IMP until normal operations resume.

X. INFORMATION CONSIDERED

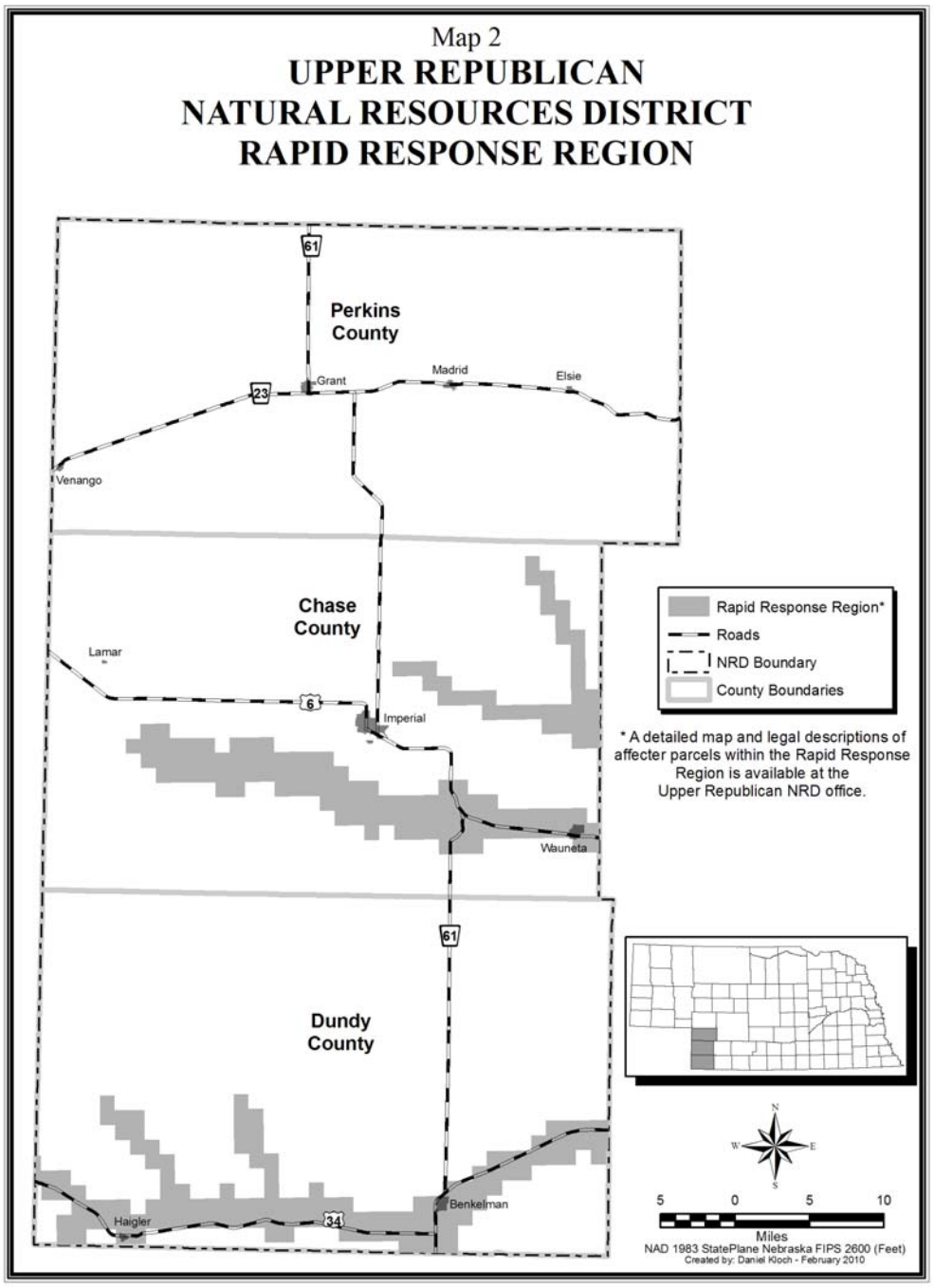
Information used in the preparation and to be used in the implementation of this IMP can be found in:

- 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,
- Arbitrator's Final Decision, Karl Dreher, June 30, 2009, and
- Additional data on file with the URNRD and the DNR.
- Nebraska statutes and case law.

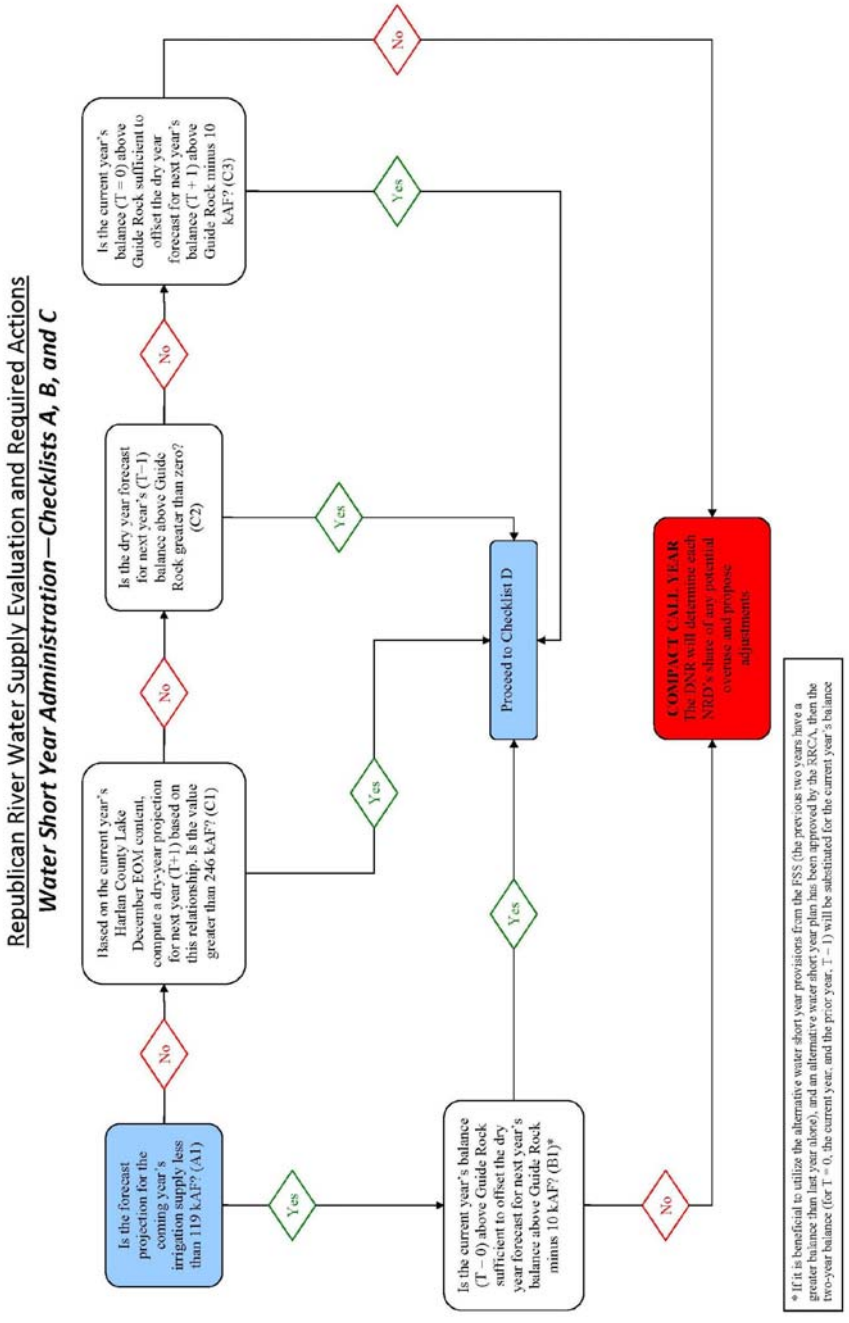
MAP 1. Upper Republican Natural Resource District



MAP 2. Upper Republican Natural Resource District Rapid Response Region



ATTACHMENT 1. Republican River Water Supply Evaluation and Required Actions



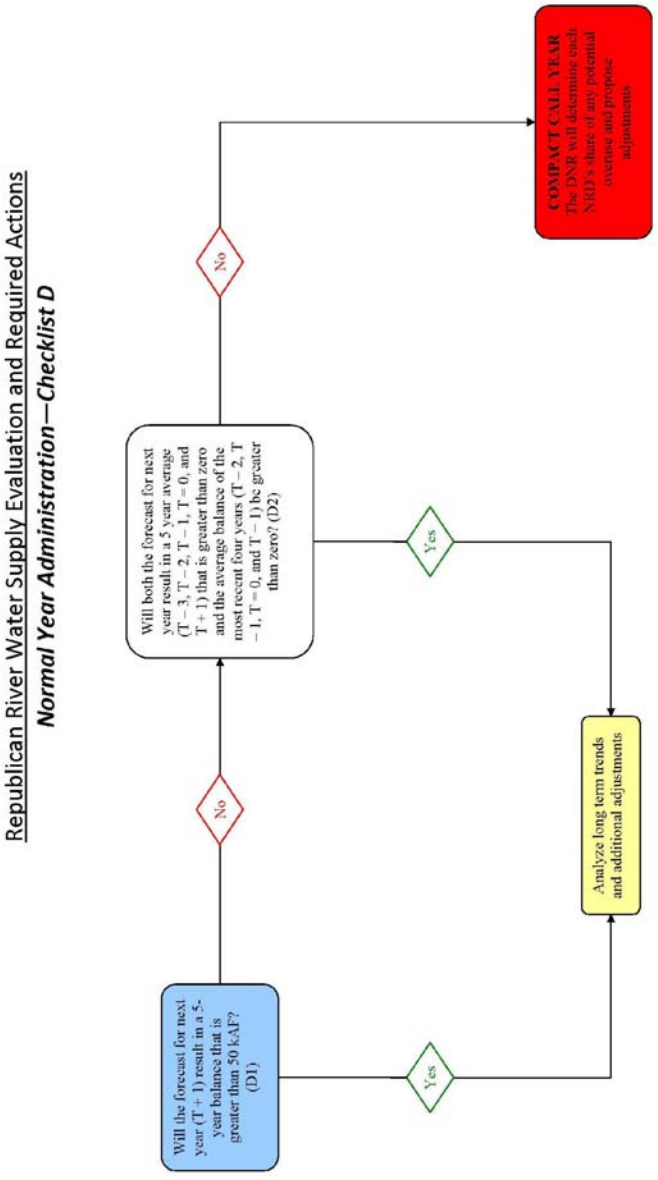

Republican River Water Supply Evaluation and Required Actions
Normal Year Administration—Checklist D
Will the forecast for next year (T + 1) result in a 5-year balance that is greater than 50 kAF? (D1)
No
Yes
Will both the forecast for next year result in a 5 year average (T – 3, T – 2, T – 1, T – 0, and T + 1) that is greater than zero and the average balance of the most recent four years (T – 2, T – 1, T – 0, and T – 1) be greater than zero? (D2)
No
Yes
COMPACT CALL YEAR
The DNR will determine each NRD's share of any potential overuse and propose adjustments
Analyze long term trends and additional adjustments
August 5, 2010

Exhibit I

Kansas Letter

October 4, 2012

Kansas
Department of Agriculture
Division of Water Resources

109 SW 9th Street, 2nd Floor
Topeka, Kansas 66612-1283

phone: (785) 296-3717
fax: (785) 296-1176
www.ksda.gov/dwr

Dale A. Rodman, Secretary
David W. Barfield, Chief Engineer

Sam Brownback, Governor

October 4, 2012

Brian P. Dunnigan, P.E.
Nebraska Commissioner
Republican River Compact Administration
Nebraska Department of Natural Resources
301 Centennial Mall South
PO Box 94676
Lincoln NE 68509-4676

RE: The State of Nebraska's July 30, 2012 Submittal of an Alternative Water-Short Year Administration Plan to the Republican River Compact Administration

Dear Commissioner Dunnigan:

Kansas has received your letter of July 30, 2012 enclosing the State of Nebraska's submission to the Republican River Compact Administration ("RRCA") of Nebraska's Plan for Reduction of Computed Beneficial Consumptive Uses ("CBCU") under Alternative Water-Short Year Administration ("Plan").

The Plan is submitted pursuant to Appendix M of the Final Settlement Stipulation ("FSS") as approved by the U.S. Supreme Court. Appendix M states:

> Each Plan shall indicate the actions which Nebraska would undertake to reduce its Computed Beneficial Consumptive Uses from the base condition and the amount of reduction expected from those actions. A Plan's designed reductions in Computed Beneficial Consumptive Uses shall be evaluated by the RRCA using methods consistent with the RRCA Accounting Procedures and the RRCA Groundwater Model.

FSS, App. M, § 2 (emphasis added).

Section 3 of Appendix M makes clear, and your letter correctly recognizes, that RRCA approval is required of a Plan submitted under Appendix M before Nebraska can elect to implement the Plan.

The actions indicated by Nebraska in its proposed Plan, directly and by reference, may, but do not necessarily, include some or all of the following:

1. Retirement of irrigated acreage
2. Leasing of surface water CBCU
3. Adjustment of allocations for groundwater pumping
4. Augmentation of stream flows
5. Groundwater leasing
6. Curtailment of groundwater pumping within the Rapid Response Regions of the Upper Republican, Middle Republican and Lower Republican NRDs
7. Closure of junior surface water diversions
8. Requirement of compliance with senior surface water diversions
9. Protection of storage water releases from Harlan County Lake for delivery at Guide Rock
10. Efforts to minimize bypass flows at Superior-Courtland Diversion Dam
11. Closure of all natural surface water flow and storage permits in the Basin
12. Other alternative management actions

Plan, ¶ II.A, at 1 (incorporating Nebraska's Integrated Management Planning process).

Nebraska's Plan begins its discussion of the expected reductions by stating, "Nebraska will seek to maximize the utilization of its Compact allocation while ensuring that the planned reductions in CBCU will be sufficient to ensure compliance with the Compact in each year that this Plan is implemented." *Id.*, ¶ II.B at 2. Nebraska also indicates that its actions under the Plan "will vary for each time that it is implemented," and "[f]or each occasion . . . it will be necessary to calculate the expected reduction in CBCU." *Id.*, at 3. Nebraska further states that it will indicate in its April 1 notice to the RRCA "the expected CBCU reduction required for that year (this value will fall within the ranges specified above)." *Ibid.*

Nebraska's Plan is based on its IMPs, and potentially incorporates all of the potential actions under the Compact Call Year provisions of the IMPs. The Plan proposes that the CBCU reduction to be achieved could be as low as zero and as high as 38,515 acre-feet per year. No specific quantifications of CBCU reduction are provided.

The Nebraska Plan diverges widely from the requirements of Appendix M. No commitment to any particular action is made in the Plan. Rather, the Plan refers directly or indirectly to an exceedingly great range of actions suggested by the list set out above. Nebraska merely commits that it "will indicate in its notice to the RRCA (due by April 1) if any alternative management actions will be taken in lieu of groundwater curtailment," *id.*, at 2, and "the expected CBCU reduction required for that year," *id.*, at 3. It is notable that Nebraska does not even commit to provide by August 1, as required by Section 2 of Appendix M, the amount of expected CBCU reduction, but, rather, commits only to provide on April 1 the expected CBCU reduction "required" for that year.

The Nebraska Plan is thus unacceptable at both a substantive and a literal level. If the RRCA does not know the specific actions proposed by Nebraska as of the time of the submittal of its proposal, which must be received no later than August 1, it is impossible for the RRCA to assess the adequacy of the proposed actions or for Nebraska to quantify the CBCU reduction or for the RRCA to check the validity of such quantification.

Although the current proposal cannot be approved, Kansas is willing to work with the State of Nebraska in the future if Nebraska wishes to develop a plan which conforms to the requirements of Appendix M. I look forward to our discussion at the RRCA Work Session. I suggest we plan to take action on the Plan at the Annual Meeting.

Sincerely,

David W. Barfield, P.E.
Kansas Commissioner
Republican River Compact Administration

cc: Colorado Commissioner Dick Wolfe, P.E.

Exhibit J

Junction City Transcript

52ND ANNUAL MEETING OF THE
REPUBLICAN RIVER COMPACT ADMINISTRATION

TUESDAY, OCTOBER 16, 2012
7:50 A.M.

The above-entitled meeting was taken at the C.L. Hoover Opera House, 135 West 7th Street, Junction City, Kansas, before Coleen F. Boxberger, Registered Professional Reporter and Certified Court Reporter for the State of Kansas.

REPUBLICAN RIVER COMPACT ADMINISTRATION:

For Kansas:

David Barfield, P.E., Commissioner

Burke W. Griggs, Esquire

Christopher M. Grunewald, Esquire

Scott Ross, P.E.

For Colorado:

Dick Wolfe, P.E., Commissioner

Scott Steinbrecher, Esquire

Michael Sullivan, P.E., Deputy State Engineer

Peter J. Ampe, Esquire

For Nebraska:

Brian P. Dunnigan, P.E., Commissioner

Justin Lavene, Esquire

Jim Schneider, P.E.

Tom O'Connor, P.E.

PROCEEDINGS

MR. BARFIELD: Very good. Welcome to Junction City and to the annual meeting of the Republican River Compact Administration for 2012. My name is David Barfield. I'm the Kansas commissioner to the Compact Administration. And we rotate the chair of the administration, and this year and next year is Kansas' opportunity to chair the meeting.

A few housekeeping items: Obviously I just asked everybody to turn on their microphones. There will be a microphone up in front here for other reports, and it might need to be turned on at the appropriate time. This meeting of the Administration is a -- we have a court reporter for the meeting today. So as people provide comments, I would ask that you introduce yourself at the beginning of those comments and speak clearly so that it can be recorded properly.

We have an agenda. I trust everyone has a copy of it. There are copies at the entrance there, if you need one. And we'll work through that agenda this morning. The first item is introductions. And so I guess I'll have each of the commissioners

introduce those at the front table here. And then following that we'll just -- we're a small enough group here we'll -- we'll just go around the room and ask you to introduce yourself and sort of your interest in the Republican River Basin, if that's okay.

So with me is -- on my right is Scott Ross. He is our commissioner for northwest Kansas and our representative on the engineering committee. And to my left is Burke Griggs, counsel for myself.

MR. WOLFE: Good morning. There we go. First, I would like to thank Kansas for hosting the meeting this year in Junction City. Appreciate that. I'm Dick Wolfe, Colorado State Engineer and Commissioner for Colorado. To my left is Mike Sullivan, Deputy State Engineer. And to my far left is Scott Steinbrecher, Assist Attorney General with the Colorado Attorney General's Office in our interstate litigation unit.

MR. BARFIELD: Brian?

MR. DUNNIGAN: Thank you, Chairman Barfield. My name is Brian Dunnigan, and I am the Director of the Nebraska Department of Natural Resources. To my immediate left is Justin Lavene from the Attorney General's office. To my right is Jim Schneider,

Deputy Director for the Department of Natural Resources. And to Jim's right is Tom O'Connor, head of the Eastern Field Offices.

MR. BARFIELD: Thank you. Why don't we start -- Brad, why don't we start with you, and we'll move around the room.

MR. EDGERTON: I'm Brad Edgerton. I'm manager of the Frenchman-Cambridge Irrigation District, Cambridge, Nebraska.

MR. THOMPSON: Good morning. I'm Aaron Thompson with the Bureau of Reclamation's Nebraska/Kansas office. We have projects in all three states.

MR. BARFIELD: Just a second. Are you getting this?

COURT REPORTER: It's very hard to hear.

MR. BARFIELD: Can somebody grab the mic and let's just do a roving mic so we can make a record.

MR. SCOTT: Good morning. I'm Craig Scott with the Bureau of Reclamation out of McCook, Nebraska. I'm the operations manager for our office there up in McCook.

MR. BRADLEY: Jesse Bradley with the Nebraska Department of Natural Resources in the Integrated Water Management Division.

MR. KOESTER: Paul Koester, Groundwater Modeler for the Department of Natural Resources of Nebraska.

MR. KEELER: Dave Keeler with the Division of Water Resources, Colorado.

MR. GUENTHNER: Scott Guenthner. I'm with the Bureau of Reclamation. I'm Reclamation's representative on the conservation committee.

MR. KOELLIKER: Jim Koelliker, Kansas State University, retired. I'm with the Conservation Commission.

MR. LAMBRECHT: Jason Lambrecht with the U.S. Geological Survey, the Nebraska Water Science Center.

MR. PERKINS: Sam Perkins, Kansas Division of Water Resources.

MR. SCHREÜDER: Willem Schreüder with Principia Mathematica.

MR. SABLE: Chris Beightel, Kansas Division of Water Resources.

MR. GRUNEWALD: Chris Grunewald, Assistant Attorney General, Kansas Attorney General's office.

MS. JURICEK: Chelsea Juricek. I'm in the Stockton Field Office, Kansas Division of Water.

MR. ASKREN: I'm Kent Askren with Kansas Farm

Bureau.

MR. BIERY: Galen Biery, general manager of the Kansas Rural Water District No. 1. And our concern is with Milford Reservoir.

MR. CLEMENTS: Mike Clements, general manager of Rural Republic NRD in Alma, Nebraska.

MR. SMITH: Dan Smith, manager of Middle Republic NRD in Curtis, Nebraska.

MR. AMPE: Peter Ampe, Hill & Robbins, counsel for Republican River Water Conservation District.

MR. CAO: Hongsheng Cao, Kansas Division of Water Resources.

MS. DANIEL: Deb Daniel. I'm general manager of the Republican River Water Conservation District in Colorado.

MR. CORYELL: Dennis Coryell. I'm President of the Republican River Water Conservation District, Colorado.

MR. DOWELL: Jack Dowell, representative for RRWCD Board, Colorado.

MR. HERMAN: Harlan Herman of Inavale, Nebraska; farmer and rancher.

MR. DELKA: Mike Delka, manager of the Bostwick Irrigation District in Nebraska.

MR. RILEY: Tom Riley with the Flatwater Group.

MR. KRACMAN: David Kracman with the Flatwater Group.

MR. GROFF: Mark Groff, Flatwater Group.

MR. WHITE: Doug White, outside counsel for Nebraska.

MR. WILMOTH: Tom Wilmoth, outside counsel for Nebraska.

MR. JOHNSON: Blake Johnson with the Attorney General's Office in Nebraska.

MR. FANNING: Jasper Fanning, Nebraska.

MR. JENKINS: Nate Jenkins, Upper Republican NRD.

MR. BARFIELD: Okay. Thank you very much. Second order of business on the agenda is the adoption of the agenda. I would entertain any changes to the agenda.

MR. WOLFE: I would just indicate to the chairman that under Agenda Item 9, I think C through F at least, and maybe G, are status updates. Is that correct, based on discussion from yesterday?

MR. BARFIELD: Yes, it is. That's my understanding. Just for those present, yesterday the Compact Administration held a work session where

we had a discussion on a number of items of business for the administration to sort of -- so that helped today's meeting go smoother as well. And we did agree that all of items C through G would be more in the form of status updates on these various matters as opposed to items that were -- that would require action at this particular meeting. So we'll just note that each of those are status items.

MR. WOLFE: Thank you.

MR. BARFIELD: Anything else?

MR. DUNNIGAN: Chairman Barfield, I would like to note that on Agenda Item 9-B -- just for clarification -- had "action" on Nebraska's proposed plan.

MR. BARFIELD: Very good. Okay. All right. So with the insertion of the word "action" on 9-B, and "status of" on 9-C through G, we'll adopt the agenda as --

MR. DUNNIGAN: I have one other note for discussion.

MR. BARFIELD: I'm sorry.

MR. DUNNIGAN: I believe that on Item 9-A we might want to take the word "action" off. I believe that would be discussed and assigned later.

MR. BARFIELD: Okay. Okay. Why don't we say

"discussion of engineering report and assignments." Would that be okay?

MR. DUNNIGAN: That's great.

MR. BARFIELD: So "discussion of engineering committee report and assignments." And then we can figure out what to do with it at that juncture. I guess I should -- so would somebody move adoption of the adjusted agenda?

MR. WOLFE: I move that we approve the amended agenda.

MR. BARFIELD: All right.

MR. DUNNIGAN: Second.

MR. BARFIELD: All right. Any discussion?

(Pause.)

MR. BARFIELD: All in favor of approving the amended agenda say aye.

MR. WOLFE: Aye.

MR. DUNNIGAN: Aye.

MR. BARFIELD: Aye. Any opposed?

(Pause.)

MR. BARFIELD: All right. Agenda Item 3 is a discussion on the status of the report and transcript of the 2011 annual meeting, just to sort of tie up what we did last year. I guess I'll -- just from our discussion yesterday, I would note

that a transcript has been prepared in a draft of the annual meeting. A summary has also been prepared by the State of Colorado, which hosted the meeting yesterday. The states have not completed their review of those documents at this juncture.

And so, as we'll talk about as the meeting progresses, we anticipate having a special meeting of this Administration in the relatively near future. And I think it's our hope to deal with this item and others that we'll get to subsequently. So any additional discussion on that?

(Pause.)

MR. BARFIELD: Okay. Agenda Item 4 is Status of Previous Annual Special Meeting Reports and Transcripts. We actually -- again, as was discussed yesterday in our work session, we've got annual reports, special meeting reports and transcripts going back to 2007 that have not been finalized and approved. Those are in the various states. Some are very close to being ready to move and others need more work.

Again, I think we committed ourselves last time to -- or yesterday afternoon to working with those and seek to have them reviewed and ready to be acted upon in our special meeting. So unless we

need to say more about it at this juncture, I'll leave it at that.

(Pause.)

CHAIRMAN BARFIELD: Okay. Very good. Agenda Item 5 is the opportunity for each of the states to provide a report of -- of significant items of interest to the basin and it's administration, which generally I'll go first and provide a report for Kansas. 2011; I'll speak first about the 2011 conditions and some of the responses to that that we've seen in our state, and then the 2012 water supply conditions and other activities.

2011 was a very dry year, as I reported last year, for the southern half of our state. Very significant heat, very dry conditions. It created some extraordinary demands for water and led to something that I mentioned last year that we called Drought Emergency Term Permits to allow appropriators to essentially complete the irrigation season rather than have a failed crop and reduce their 2012 use according to that which they used beyond their authorized amount in 2011. We had quite a demand for those. There were actually 2350 approximately permits issued before the year was out.

Fall and winter conditions last year did not improve, and producers began to come to us and sort of ask what can we do about next year. And so it began a process of sort of working through that issue of how to provide multi-year flexibility, without allowing increased use of our water rights. Kansas statute has something called a Multi-Year Flex Account Program. It was a program that was not used before this sort of episode came up, because it required a 10 percent conservation factor and was fairly restricted in terms of how the multi-year would -- the five-year amount was computed.

The Division worked with producers and legislators to draft legislation to amend the Multi-Year Flex Account Program to -- to make it more attractive to producers to provide multiple options for determining the five-year allocation, and yet make it very clear in creating up that multi-year flexibility that in the long term use did not decrease.

So that was passed as Senate Bill 272 in this -- just this past legislative session. And we've received over 600 applications for Multi-Year Flex Accounts for 2012 around the state. Scott, you received something under a hundred in northwest

Kansas; is that right?

MR. ROSS: Yes.

MR. BARFIELD: Although not all of those were in the Republican Basin. Last year I also reported on the governor's initiative related to the Ogallala aquifer. He held a summit in Colby last summer. We've, you know, continued to see additional follow-up, I guess, of the governor's initiative. One of the most significant, again, was in a legislative bill.

In this case it was Senate Bill 310 that amended our Groundwater Management District Act in some pretty significant ways to provide another method for us to deal with water well declines and over-appropriation in parts of western Kansas in particular. Essentially the law allowed groundwater management districts to initiate the consideration of something called local enhanced management areas or what we call LEMA's is the acronym. The stakeholders developed a plan to address severe water resource problems in a portion of groundwater management districts and customize what are called in the statute "Corrective Controlled Provisions" to address those water resource concerns.

The bill provides a -- once that plan is

developed, a hearing process by which in two hearings -- so the plan is sort of at its root, does it meet the statutory requirement in such areas? And then should the public -- should the Correct Control Provision be adopted? Is it in the public interest? Does it address the water resource concern?

So this was passed in Senate Bill 310. We are working with Groundwater Management District No. 4 in northwest Kansas, which covers the Republican River Basin and tributaries to the south, on a LEMA in Sheridan County within the Republican River Basin. They developed a plan and submitted it pursuant to statute.

The first of two hearings was held in September and found that the statutory requirements for that first phase's considerations were met. A second hearing will be held on November 28th on whether the plan should be adopted and it's controls enacted through order of the chief engineer. That plan basically would set out an allocation of 55 inches for five years for that LEMA area, which is a 20 percent reduction from recent historic use.

The governor's also continued to engage on this issue. He recently went to western Kansas and

met in the area of Western Kansas Unit No. 1 and Southwest Kansas Unit No. 2 and encouraged them to use this tool. And we're actively sort of following up with interested individuals to help them sort of shape what they believe they can and should do. So those were the most significant legislative bills in this last session.

2012 water supply conditions have continued to be very dry. This time, instead of principally the southern half of our state, it's pretty much been state-wide dry and hot conditions, which has led to some very significant water administration state-wide. I think 2012 might be a record year for water administration when everything is said and done. And that includes a significant amount of administration pursuant to our minimum desirable stream flow provision of the Kansas Water Appropriation Act. In the Republic Basin we began administering minimum desired stream flows in late summer and continue to this date as a result of the very low water supplies that occurred in that time frame.

Just a couple other matters. We continue to be in compliance with all of the requirements of the final settlement stipulation in the Compact.

Northwest Kansas is fully metered, and we continue to complete our normal compliance enforcement activities in the basin.

One last thing, I guess. Just a couple words on the status of the litigation that is ongoing related to compliance, Nebraska's compliance with the Republican River Compact. That -- essentially that litigation is we had a trial in Portland, Maine during the month of August and briefing on the matter was completed. With that, I guess I'll complete my report. I guess I'll turn it over to Colorado for your report.

MR. WOLFE: Thank you, Chairman Barfield. I'll keep my report brief, and certainly want to recognize there's a lot of efforts underway in the basin in all three states for Compact compliance. And certainly of utmost importance for Colorado is our achieving Compact compliance. And I want to thank our staff that's here today and the staff back in Colorado who's worked diligently with the Republican River Water Conservation District and the water users in the basin for over eight years now on efforts to try to achieve Compact compliance, not which the least is the Compact compliance pipeline, which the district has now completed and is

operational and awaiting a decision by the Compact Administration on its approval of the Compact compliance pipeline to allow that pipeline to be operational and complete the last leg of many efforts for Colorado to achieve Compact compliance.

And we certainly couldn't have gotten to this point without all of their efforts and the water users in the basin. They've expended on the order of $100 million to date to achieve Compact compliance. And these are really the last steps in that process to get Colorado into compliance. And so I want to thank everyone for their -- all of their diligent efforts and certainly the water users in the basin to step up and find a local solution to the local problem.

The other component of that that was important to allow Colorado to achieve Compact compliance is in regard to the Bonny Reservoir on the South Fork. I made a decision to issue an order to the Bureau of Reclamation last September to drain Bonny Reservoir. And I want to recognize the Bureau for their efforts in working with Colorado on that. They have been very cooperative in working through those issues that come up in regard to draining Bonny Reservoir for the first time since it's

completion back in the 1950's.

And as of to date -- today it is drained. It has been since the early part of the year. And at this stage Colorado intends to keep Bonny Reservoir in a drained condition until we're at a point that we're in compliance and can make a decision in the future on whether additional storage can occur in Bonny Reservoir. And with that, I think that completes my report.

MR. BARFIELD: Thank you. Brian from Colorado -- or Nebraska. Excuse me.

MR. DUNNIGAN: Thank you, Chairman Barfield. I would also like to extend my thanks to you and your staff for hosting the RRCA meeting and the hospitality you have provided. The State of Nebraska is in compliance with the Republican River Compact. Using current accounting procedures, Nebraska has had positive balances during 2007, 2008, 2009, 2010, and 2011, which has led to compliance with the five-year average. Based on preliminary estimates Nebraska will again be in compliance for the five-year period ending in 2012.

That said, 2012 saw drought conditions once again creep into the basin. Such conditions will obviously place stress on basin water supplies.

However, any concerns that may have carried over from the basin and the last drought about Nebraska's ability to comply with the Compact should not exist.

Nebraska has taken significant steps to bolster its water management, including the development of third-generation integrated management plans which contain forecasting provisions and accompanying controls that ensure Nebraska will be able to take sufficient actions in a timely manner. These forecasting procedures are a significant advancement over what was available to Nebraska during the previous drought.

These procedures incorporate detailed analysis and triggers that rely on conservative dry-year projections to proactively identify the potential for noncompliance, thereby providing the necessary information to proactively reduce consumption to levels necessary to ensure Compact compliance. These triggers go well beyond the requirements imposed by the Compact and Final Settlement Stipulations, because Nebraska knows that future noncompliance is not an option.

Nebraska also understands that it must continue to manage long-term groundwater depletions and has made consistent efforts to achieve this

result. Aside from the forecasting provisions, the most recent integrated management plans also contain provisions to continue to reduce groundwater pumping volumes and conduct evaluations annually to determine if additional long-term pumping adjustments are necessary.

The basin NRD's continue to demonstrate an ongoing commitment to compliance through the adoption of rules to support full implementation of their most recent integrated management plans. All of the integrated management plans adopted by the basin NRD's contain controls that would require, when necessary, shut-down of wells in rapid response areas during Compact Call years as part of compliance efforts, as well as provisions to administer stream flows in a manner that will ensure Nebraska maintains compliance.

The Department and Tri-Basin NRD also finalized their integrated management plan, which became effective on July 1st, 2012. While not the necessary component to ensure Compact compliance, this plan will, among other objectives, require the NRD to limit groundwater depletions to the same volume as groundwater imports. Nebraska continues to invest in long-term solutions for reducing

consumptive use in the basin.

State and local NRD financial resources continue to be invested in CREP and AWEP programs. These programs have worked to provide permanent and temporary reductions in irrigated plans throughout the basin. Nebraska also continues to invest in the science necessary to support future sound management decisions. The Department has been pursuing efforts in coordination with the Nebraska Republican River Management Districts Association to develop modeling tools to support the evaluation of potential conjunctive management options throughout the basin.

The Department looks forward to the opportunity to work with the other states through the WaterSMART Basin Studies Program to utilize these tools and believes that such collaboration to evaluate system improvements and operational improvements are critical as recognized in Section 4-E of the final settlement stipulation.

In closing, I reiterate that Nebraska will continue to comply with the Republican River Compact. The state will continue to proactively evaluate the conditions within the basin and make necessary adjustments to remain in compliance. We'll continue to work with all stakeholders in the

basin, including the other states, the NRD's, the Bureau of Reclamation, and water users as we look to enhance management efforts in the future. I will now have Tom O'Connor give a report on water administration activities in Nebraska for calendar year 2011.

MR. O'CONNOR: Thank you, Brian. This is a report of water administration activities for the Republican River Basin in Nebraska for the calendar year 2011. In January 19th letters were sent to all non-federal irrigators reminding them that the 2010 water use reports must be filed with the Cambridge field office or they would be closed for irrigation in 2011.

February 28th: 17 closing notices were issued to irrigators who failed to submit their required annual water use reports. These water users were not allowed to divert water during the 2011 calendar year. February 28th: Also 38 opening notices were issued to storage permits that had previously been closed. Also on February 28th, 11 opening notices were issued to irrigators that were closed due to failing to return their 2009 water use reports.

May 17th: 937 regulating notices were issued

to irrigators in the Republican River Basin notifying them of the amount of water that they could legally divert. June 1st: One notice of public schedule was sent to an irrigator notifying them of the amount they could legally divert.

June 28th: Three regulating notices were sent to water users above the Meeker-Driftwood Canal notifying them that they were not allowed to divert water in excess of the amount of their appropriation without prior consent. Also on June 28th, 24 closing notices were issued to water users above the Meeker-Driftwood Canal notifying them to not divert water until further notice.

On July 20th nine closing notices were issued to water users above the Meeker-Driftwood Canal notifying them not to divert water until further notice. On August 4th 33 opening notices were issued to water users above Meeker-Driftwood Canal notifying them that they were not allowed to divert water within their permitted amount. Also on August 4th one regulating notice was sent to an irrigator notifying them of the amount they could legally divert.

On September 12th 22 closing notices were sent to storage permit-holders in the Republican

Basin. And on December 1st water use reports were mailed to all nonfederal irrigation permits in the Republican River Basin.

MR. DUNNIGAN: That concludes Nebraska's report.

MR. BARFIELD: Thank you, Mr. Dunnigan. And with that we will move on to the federal reports. Okay. And I see you're heading to the microphone. I would ask you to remind the court reporter of your name when you issue the Bureau's report.

MR. THOMPSON: Good morning. I'm Aaron Thompson, the area manager for the Bureau of Reclamation's Nebraska-Kansas office. I've provided each one of you a copy of the Reclamation's annual report to the Republican River Compact Administration. If you need additional copies, I have some. And if the audience would like any copies that I have left over, please see me after I'm done speaking.

The report includes a summary of 2011 reservoir operations and farm deliveries. It also includes operations up through August of 2012. I'm just going to highlight a few items in the report, and then I'll let you come after the report with any questions you may have or any detail you would like

to see further.

As was highlighted by Commissioner Wolfe's summary, the State of Colorado requested the releases of remaining storage water in Bonny Reservoir. Those releases began in late 2011 and were completed in 2012. Construction at Red Willow Dam is -- did begin in 2011. The schedule for completion is November of 2013. We are working with the contractor. Reclamation is working with SEMA, the contractor, for the construction at Red Willow for an early completion date. As of today we have approximately 80 percent of the geonet has been placed on the back face of the dam.

Harlan County Reservoir ended 2011 in flood pool. Flood releases were made during the first five months in 2012. Water-short year was not in effect in 2012. Based on the end of September 2012 reservoir storage, water-short year administration will be in effect in 2013.

WaterSMART Activities. I'm pleased to announce that the Republican River Basin was selected for basin study in 2012. In addition to that WaterSMART funding we have quite a few other projects in the Republican River Basin. Approximately 2.15 million under the WaterSMART

program. Those include irrigation districts, such as Frenchman-Cambridge, Kansas, Nebraska, Bostwick, and also the Upper Republican NRD.

In addition to those, my area office has funded $300,000 in cost-share grants to the area office funding. And that concludes a summary of my report.

MR. BARFIELD: All right. Are there any questions for Aaron?

(Pause.)

MR. BARFIELD: Thank you, Aaron. Next is -- the next item on the agenda is a report from the U.S. Army Corps of Engineers. I did not hear anybody from the Corps to indicate they were in attendance. So is that the case?

(Pause.)

MR. BARFIELD: Seeing no one step up to the mic, we will assume there's no report from the -- from the Corps of Engineers. So next would be the U.S. Geological survey. Jason, if you would like to get up. Again, we're passing some materials around the front table here.

MR. LAMBRECHT: I'm Jason Lambrecht. I'm with the U.S. Geological Survey of the Nebraska Water Sciences Center. I'm the associate director

of hydrologic data in Nebraska. Normally my report -- I guess this is my first time. It's in the form of PowerPoint, so you're all spared today. This is better anyway.

MR. BARFIELD: Actually there's a way to accommodate that. If you need, they can actually move these screens.

MR. LAMBRECHT: That's just fine. It looks like a lot of the previous year since there are pictures and stuff in it. No cartoons or anything. I'll just highlight some of the activities from the past year. What I will be reporting on is the water 2011 river flows. We haven't analyzed 2012, or completed that analyzation yet. Those numbers should be coming out in -- around Christmas 2012 should be finalized.

Of note we have 16 river sites that we operate or work to record or both in conjunction with the DNR, the Nebraska DNR. These are all Nebraska stream gauges by the way. Ten of those stream gauges are supported by the NSIP Program, which is the National Streamflow Information Program. That's money directly allotted from Congress to operate stream gauges. In those ten there are two sites of note.

First of all, all the sites that I will be talking about have roughly 50 to 79 years of record. And of note, that the first ten that are -- like I said, were funded by the NSIP Program. All of them are within -- they all showed a very dry year in 2011, except for one. All of them were in -- 50 to 80 years of record, they all showed they were in the -- probably the lowest of the 16 years in 2011, except for the -- with the exception of Red Willow Creek near Red Willow, Nebraska, which actually was 188 percent above the annual -- or the average mean flow -- average annual mean flow. I believe this was due to some draining of Hugh Butler Lake -- I don't recall -- during the water year. The lowest site, that was actually the lowest in 71 years of record, was Rock Creek near Park. And I believe in 2012 they will actually be a little bit lower yet.

The next three sites are supported by the USGS and other state agencies, such as -- well, and also by the Army Corps. Again, they're within the top 5 to 15 in the low list of those in water year 2011. That's kind of a highlight overall. And then looking at the final three as well, which are sites that are actually operated by the Nebraska DNR and by the U.S.G.S., is responsible for web display,

review, and publishing of the record. Those sites as well are the top 15 of the lowest lows of average annual low flows.

I don't have a record for the Republican River in Guide Rock, Nebraska. I believe that the site itself, according to spreadsheets, was discontinued in 2008. And the DNR may have moved -- moved to that site in the past year. I'm not aware. So -- and I'll be speaking with the DNR later on.

That concludes my report, except for I just want to bring up that the U.S. Geological Survey has a product called WaterWatch. And this particular product highlights a host of things. Mostly it is a passive way of acquiring statistics for all of the stream gauges across the United States.

Of note for the drought portion of the WaterWatch -- there's flood portions, drought portions. The drought portion, you can come up with drought tables, which will provide rankings, which can be used as to how they rank in comparison to other years. You can compare 7-day or 28-day or annual. It also -- another neat product is the duration under drought, which will -- it's brief pictorial stuff anyway to the presentations and so forth. Any of your U.S. Geological survey offices

in your respective states can answer questions about WaterWatch. And that concludes my report.

MR. BARFIELD: Are there any questions for Jason?

(Pause.)

MR. BARFIELD: Okay. I just note for the record he provided us some handouts of a PowerPoint he might have presented, if we had our technology ready to go. It provides graphs for the various areas that he referenced and long-term annual quantities. It shows the trends in those gauges over time typically down. So -- and I think this will be a part of the record of this year's annual meeting. So appreciate that report, Jason.

That concludes our federal reports. Next we'll go to committee reports. And first, the engineering committee. And I will turn to Scott Ross as the chair of this year's engineering committee. And lead us through your report.

MR. ROSS: Chairman, if you could let me borrow your work copy. I seem to have had my revised copy taken. There we go. Thank you. This year's engineering committee met a number of times this late summer and fall. We were able to go through and work on the assignments that were given

to us at the last Compact meeting.

The information that -- the data exchange was made. Colorado -- excuse me -- Kansas/Nebraska completed their exchange of information on April 15th, 2012. We were able to finalize information from Colorado in late September. And the final data exchanges were completed and the model runs were made October 4th, 2012. These data sets include stream flow, pump data, diversion records, reservoir evaporation records from all three states. Continuing efforts to resolve concerns over varying estimates of groundwater surface recharge. We've discussed those -- that assignment of trying to standardize that. And we have a recommendation if we continue that in the future.

We retained Principia Mathematica to perform 2012 -- maintain the model and run the model. Each state separately contracts with Principia Mathematica for 2012, and we will continue that discussion for next year. Continued development of the five-year Kansas spreadsheet. Nebraska provided the initial spreadsheets. Kansas reviewed that document and offered some discussions. But we have not made any further progress on that matter this year. We will ask that that remain one of our

assignments. Continue to review Colorado's augmentation proposal. This wasn't really an engineering committee assignment. It was a separate negotiation committee. We're working on that. So that wasn't part of the normal EC responsibility. Continue to work to finalize the 2006 and 2010 accounting. Issues preventing the states from agreeing on the accounting have you discussed, and the primary issue is pending before the Supreme Court at present.

Continue the discussion of the procedure to account for the stream flow segment between Guide Rock and the diversion dam at Guide Rock. We've noted that Willow Creek provides some info between the diversion dam and Guide Rock. We've had some discussion, and Nebraska has provided us with some information on the cost of measurement. The committee yesterday recommended that we continue that discussion and provide them with a recommendation at the next meeting.

We discussed the Bonny area -- Bonny Reservoir capacity tables. Kansas proposed to adopt those -- provide capacity tables for the 2011 data onward. Colorado would like us to consider applying those retroactively for 2007 -- or from 2007.

Commissioner directed us to continue that discussion and attempt to provide them with recommendations at the next meeting.

Continued to discuss accounting changes that may be needed for surface water diversions for the purpose of recharging groundwater. That assignment was given to the engineering committee pursuant to thoughts that the Frenchman-Cambridge Irrigation District and perhaps others would use their accounting systems to recharge the project. That hasn't occurred yet. So we will continue working on that -- or recommend that the commission give us that assignment.

Discussed the framework for the application of approval of future augmentation plans. Kansas initiated a list of questions that are under discussion at the moment. We would recommend that assignment be continued. We worked through the -- what's known as the attachment to the Engineering Committee Report as Exhibit A. It's procedures for filling in the missing precipitation data needed for the model. We have a 2011 report that's been signed by our modeling people recommending methodology for adopting that, with some changes in the data set for 2011. We expected to produce an addendum to that

Exhibit A report at the next meeting.

We need to continue to have a discussion on archiving the data materials from the Conservation Committee. The committee finished their work -- or has finished it with some minor cleanup and has asked that we consider opportunities to store and archive the data. We've been instructed to continue that discussion at the next meeting.

We have an amendment to the RRCA rules. There were some discrepancies yesterday that were located, some typographical errors. We need to have those corrected and have those approved for next meeting as an attachment to this report.

So the recommended assignments we have for next year are to exchange data by April 15th as per the FSS; evaluate standardized estimate -- standardized estimates of groundwater and surface water irrigation; continue to review Principia Mathematica's contract and provide a recommendation to the committee -- to the commission; continue our efforts to finalize 2006 to 2010 accounting; continue discussion of the issues preventing agreement on a final accounting; development of recommendation of whether or not to account for inflows from Willow Creek between the Guide Rock

Diversion Dam and the newly relocated gauge; discuss any accounting changes that may be needed for surface water diversions and for the purpose of recharging groundwater; discuss developing an application approval process for future augmentation plans; finalize the procedure for -- as described in Exhibit A of this report and adopt the item that we need; finalize work on users manual for the RRCA accounting principles and provide a recommendation to the administration for adoption; and continue work on a five-year accounting spreadsheet.

And that concludes my report. We will not be asking the -- for the adoption of this report as one of our members is not with us, and like an opportunity to do that.

MR. BARFIELD: Comments or questions by the other states?

(Pause.)

MR. BARFIELD: I've got a couple. Scott, on the items, you mentioned finalizing accounting 2006 to 2010. Should we make that 2011 now?

MR. ROSS: Yes.

MR. BARFIELD: So we should sort of adjust the assignments to reflect another year added to the list. And the second, maybe, question is just to

make sure I heard you right. Or maybe Mr. Dunnigan can answer this. On number -- related to surface diversions for recharging groundwater, I think you mentioned the state's working on that potential proposal of doing that. I wasn't clear from Scott's report if that had not occurred or the assignment to the engineering committee had not occurred. Have you done any recharge of that nature that you discussed a year ago?

MR. SCHNEIDER: We did have a project with the Frenchman Valley Irrigation District in the spring of 2012. It lasted about a month.

MR. BARFIELD: So they did do some recharge? They diverted into the canal, but -- essentially let it recharge through the canal?

MR. SCHNEIDER: Right.

MR. BARFIELD: What kind of quantities were involved in that operation?

MR. SCHNEIDER: I don't have that information available right now.

MR. BARFIELD: So that was an operation that was done, but no particular accounting will be done in terms of the Compact's accounting? Or is that what this assignment is about, to figure out how to do that?

MR. SCHNEIDER: I believe that's what the assignment is about.

MR. BARFIELD: All right. Thank you. So obviously we need some more work on the report. The report is usually the vehicle by which we make our assignments to you all. So I guess we'll discuss that issue when we come to Agenda Item 9-A. Okay. So is that all we have on the engineering committee?

(Pause.)

MR. BARFIELD: Apparently so. So with that we'll move to Agenda Item 7-B, the report of the conservation committee, Scott Guenthner. I presume you will be providing that report?

MR. GUENTHNER: Good morning. I'm Scott Guenthner. I'm with the Bureau of Reclamation. today I'm presenting the report on behalf of the conservation committee. Each of the states have a representative on the conservation committee, so most of this -- or all of this information I will be presenting today had input from your staffs.

As you recall, the conservation study is an element of the final settlement stipulation. And the conservation committee developed a plan of study in 2004, and you approved that study plan. Subsequent to that, each year we provided annual

status reports. We've provided so far five annual status reports. And last year we provided a report of preliminary findings.

We haven't done any additional modeling. Most of the study has to do with water balance modeling for these small non-federal reservoirs and land terraces. We haven't done any modeling in the last year, except to clean up and to verify the stuff we have provided to you last year.

What we've done in this past year, we've provided -- we've developed a final report. Right now we would consider this report still a draft version. The substance of the report will not change, but there's some cleanup, editorial type of work that needs to happen.

We provided you a copy of the -- of the final report yesterday at the work session. The report isn't available to the public yet, pending some of the cleanup stuff I just mentioned. What we have also developed is a fact sheet. It's a one-page sheet that really tells why the study was done, what we looked at. It sort of is the summary of the final report in layman's terms. The final report is pretty detailed. This is pretty generic.

I might just mention a couple things that we

learned. Really what we learned, some of the stuff was suspected. Some of the information is new. When it comes to the nonfederal reservoirs in the eastern part of the basin, they really retain about 70 percent of the runoff that occurs in those watersheds above the reservoir. In the western part of the basin they generally retain all of the runoff into them. About 70 percent of that runoff then goes to seepage, which eventually ends up as a recharge to the aquifer.

For the land terraces, about 80 to 90 percent of the runoff above the drainage area into these terraces is captured by the terrace. About 60 percent goes to recharge. About 40 percent of that retained runoff goes to increase evapotranspiration. So when you look at all of the nonfederal reservoirs and all of the terraces in the basin and roll that up into one number, all of the sub basins that go into the Republican, about -- there's an additional 36,000 acre-foot of evapotranspiration occurs as a result of those conservation measures. About 88,000 acre-foot ends up as a recharge under those facilities. So that recharge occurs higher up in the basin than it would have had those facilities not been in place.

So when you roll that up, this increased evapotranspiration and increased recharge is about 125,000 acre-foot for all of these nonfederal reservoirs and terraces in the basin. That's about equivalent to -- or excuse me -- the same magnitude as the inflow to Harlan County Lake. We have some additional fact sheets available for the audience if they would like some. I have set out back in the entryway. And if you would like a copy, you could pick one up.

One last thing I would mention is that we'll attempt to finalize this report within the next month. And it will be available on some websites. And those are identified on this fact sheet. That concludes my report.

MR. BARFIELD: All right. Any questions for Scott?

(Pause.)

MR. BARFIELD: We appreciate the Bureau and the committee's report. It's been quite a project to do. I think it's -- appreciate your filling that requirement and commitment in the FSS. And your study results are quite interesting. There's a significant recharge occurs from those projects. So thank you very much.

MR. GUENTHNER: Thank you.

MR. BARFIELD: Okay. We're moving along very well then. This is sort of a point where we traditionally take a break, and I'm going to go ahead ask that we do that. We have quite a bit of donuts and cinnamon rolls and such that we need your help with. So I think a 15-minute break now, it that's okay. And then we'll come back and push through the rest of our agenda.

(A recess was taken from 9:04 a.m. until 9:26 a.m., after which the following proceedings were had.)

MR. BARFIELD: Okay. Well, thank you very much. I trust you provided -- that you all did your parts. If not, you can take one on the way out. So we'll go ahead and reconvene the meeting of the Administration and continue with our -- on our agenda. We had completed Agenda Item 7-B.

The next item is Agenda Item 8, which is old business. 8-A is status of unapproved previous accounting. And I think this is just a carry-over for previous agendas. And we've discussed this to a certain extent, I believe, in discussing the engineering committee reports and assignments. And I believe the status is we're still working through

the issues related to those accountings and have it on the engineering committee assignments to continue that work.

Is that a good enough summary of where we're at there? Some of the issues are pending; additional time to review, data exchange. Some of them are pending outcomes of the litigation. That was also an issue that goes back to '06, I believe. So that's -- I think that's all we need to say about that. Is that correct?

MR. DUNNIGAN: Yeah.

MR. BARFIELD: Okay. With that we'll go ahead and go to new business. Agenda Item 9 and assignments. And the first one is discussion of the engineering committee report and assignments. I guess in view of the fact that we're not going to -- we don't have a final engineering committee report today, we do plan to hold a special meeting in the coming relatively short period of time, as soon as we are ready for action on some of these other items. And so hopefully the engineering committee report can be finalized at that time and the assignments cleared. But I think the engineering committee has plenty on its plate and knows what it should be doing. I think you mentioned there may be

something that was...

MR. WOLFE: Yes, if I could, Chairman. Thank you. I apologize for not bringing this up earlier when we were talking about it. Even though it's included in agenda item -- or the committee report, Item 10-C, I think the -- that item should also be reflected in the recommended assignments by the engineering committee. It's -- maybe we can make a list of 12 items instead of 11. If we could just have that reflected in that list as well.

MR. BARFIELD: Okay. So you're saying that the -- dealing with the revised of the Bonny Reservoir area capacity table is not reflected in our list of the recommended assignments?

MR. WOLFE: Correct. I think he notes what's in 10-C. I think he recognize they probably wouldn't accomplish that. I think just for clarity, if it was just an item in the itemized list under recommended assignments, I think just for completeness we would ask that that be also reflected in that itemized list.

MR. BARFIELD: Okay. Is that good with Nebraska?

MR. DUNNIGAN: Yes.

MR. BARFIELD: So the final work order to the

committee will reflect that additional assignment. Hopefully there will be a day when we start checking things off so the list doesn't just continually get larger and larger. Okay. Excuse me. That would bring us into new business, Item 9-B, Nebraska's proposed plan for reduction of computed beneficial consumptive uses. I guess, Mr. Dunnigan, I'll let you lead us through this.

MR. DUNNIGAN: Thank you, Chairman Barfield. On July 30th of this year we submitted an alternative water-short year plan for consideration and approval by the Republican River Compact Administration. We certainly feel that the plan that we submitted conforms with the requirements of Appendix M. We certainly took a bit of time yesterday to discuss those requirements and had some discussion on Appendix M. I would also note for the record that on October 4th we did receive a letter from Commissioner Barfield commenting on our water-short year plan and -- with the conclusion that Kansas could not approve this plan.

In our discussion of Appendix M it seems like there is some confusion or some interpretation differences with the language of Appendix M. And specifically we did talk about Item 2 in Appendix M,

which states that, "Each plan shall indicate the actions which Nebraska would undertake to reduce it's computed beneficial consumptive uses from the base condition and the amount of reduction expected from those actions."

Again, we feel that we have addressed that in our plan and we are going to offer a resolution for consideration of the RRCA. And I will have Jim Schneider read that resolution into the record.

MR. SCHNEIDER: "Resolution of the Republican River Compact Administration. Nebraska's Alternative Water-Short Year Administration Plan. Whereas, the states of Kansas and Nebraska and Colorado entered into a Final Settlement Stipulation or FSS as of December 15, 2002, to resolve pending litigation in the United States Supreme Court regarding the Republican River Compact, or Compact, in Nebraska -- in Kansas v. Nebraska and Colorado, No. 126 Original;

"Whereas the FSS was approved by the United States Supreme Court on May 19th, 2003;

"Whereas, by letter dated July 30, 2012, the State of Nebraska submitted to the State of Kansas and the State of Colorado a copy of the "State of Nebraska's Plan for Reduction of Computed Beneficial

Consumptive Uses under Alternative Water-Short Year Administration Plan," or Water-Short Year Administration Plan;

"Whereas Nebraska has previously provided the State of Kansas and the State of Colorado RRCA Groundwater Modeling results indicating expected CBCU reductions resulting from Nebraska's actions during Compact Call years;

"Whereas, Nebraska's Water-Short Year Administration Plan has been properly presented and submitted to the Republican River Compact Administration pursuant to Appendix M of the FSS;

"Whereas, on September 14th, 2012, the State of Nebraska provided the State of Kansas and the State of Colorado notice that if its Water-Short Year Administration Plan were not approved by the RRCA that Nebraska may --"

(Microphone malfunction.)

MR. SCHNEIDER: I'll start that one over.

"Whereas on September 14, 2012, the State of Nebraska provided the State of Kansas and the State of Colorado notice that if its Water-Short Year Administration Plan were not approved by the RRCA, that Nebraska may pursue fast-track resolution of the issue;

"Whereas, on October 3rd, 2012, the State of Nebraska was provided notice by the United States Bureau of Reclamation that the potential for Water-Short Year Administration exists in 2013;

"Whereas, no methodology exists in the RRCA Accounting Procedures and Reporting Requirements to determine necessary reductions in Computed Beneficial Consumptive Use or CBCU for the upcoming year, and (defined as the current year in Table 5D of the RRCA Accounting Procedures and Reporting Requirements) prior to August 1 of the current year, (defined as year equals -1 in Table 5D of the RRCA Accounting Procedures and Reporting Requirements);

"Whereas, Nebraska has developed a methodology to determine the necessary reductions in CBCU by December 31st for the upcoming year (provided with Nebraska's Water-Short Year Administration Plan), following the determination of the necessary reductions, Nebraska will then determine the actions from those indicated within the Water-Short Year Administration Plan that it will utilize to produce such reductions, and these actions and their respective reductions in CBCU will be provided to the RRCA prior to April 1 of the year in which the Water-Short Year Administration Plan is

implemented;

Whereas, the states agree that the expected reductions in CBCU implemented through Nebraska's Water-Short Year Administration Plan shall be evaluated by the Republican River Compact Administration using methods consistent with the RRCA Accounting Procedures and the RRCA Groundwater Model;

"Whereas, the states agree that Nebraska's proposed Water-Short Year Plan Administration performs the requirements set forth in Appendix M of the FSS and that the RRCA should adopt Nebraska's proposed Water-Short Year Administration Plan;

"Now, therefore, it is hereby resolved that the RRCA approves and adopts the 'State of Nebraska's Plan for Reduction of Computed Beneficial Consumptive Uses under Alternative Water-Short Year Administration.'"

MR. DUNNIGAN: At this time I would make a motion for the RRCA to approve and adopt the State of Nebraska's Plan for the Reduction of Computed Beneficial Consumptive Uses under Alternative Water-Short Year Administration.

MR. WOLFE: Second.

MR. BARFIELD: Okay. Via this resolution,

right? We're approving the plan via this resolution?

MR. DUNNIGAN: Yes.

MR. BARFIELD: All right. So we have a motion and a second. Is there any discussion? Go ahead.

MR. WOLFE: I'd maybe just like to comment on -- just in a broader perspective in regards to the efforts of this commission. And I know we had some discussion about this yesterday. And I appreciate Nebraska's efforts for Compact compliance, because we certainly appreciate the efforts it takes to get into Compact compliance and fully understand and appreciate their desire to get this approved.

And being an administrator and in business for over 20 years I know it's difficult. We have a very active administration in Colorado and recognize that there's no perfect plan. But I don't think perfection should be the enemy of good. I think we need to move from an area of this litigation we've been in to an area of cooperation. And I think this is an effort that Nebraska is trying to push forward. And I encourage this body to really embrace trying to move forward in a cooperative manner and working cooperatively on these type of

issues and not trying to automatically default in a litigation mode or in a dispute-resolution-type mode.

I think Nebraska has earnestly put forward a good faith effort in the spirit of Appendix M to get this approved, and we support them their efforts to do that. And I encourage Kansas and all three states to really put effort forward in the next short period of time here to try to move these type of things forward. I think it's in the best interest of all the states to do that. Thank you.

MR. BARFIELD: Okay. Well, obviously I will have some comments as well; and certainly recognize Nebraska's efforts, as you reported, to reduce it's use and to get itself in a position where it can -- can, you know, be in compliance in all periods. But with respect to this specific action that you've requested we take -- and let me back up.

Certainly Kansas wishes to cooperate and -- with the states in terms of the Administration Compact in these matters. But obviously we have a specific plan that has been put forward pursuant to a specific piece of the Final Settlement Stipulation that has -- that prescribes basically how the process is to work through and describes what the

plan should include and so forth. And so that's -- this was the first time that this Appendix M provision has been brought forward and even discussed by the RRCA.

Nebraska chose to submit this on July 30th, just as the states were going to trial. And the State of Kansas has, you know, taken -- taken significant time from our heavy demands in litigation to look at this appendix and seek out it's meaning and to review Nebraska's plan in terms of how it fits with those requirements. Again, our finding in reviewing this is that is does not conform to the requirements set forth in Appendix M.

And as Commissioner Dunnigan noted, my October 4 letter provided sort of a -- the details in terms of why and how we believe it does not conform to those requirements. So obviously that letter in here -- I would state that the Kansas is certainly interested and willing to continue to work with the State of Nebraska as it desires to have an Alternative Water-Short Year Plan that can be approved pursuant to Appendix M and -- and the -- the proactive action on the part of the State of Nebraska that that would entail and the -- the alternative way of measuring water-short year

compliance that is also part of Appendix M.

So, you know, I believe we can and should work cooperatively. And there's a way that a plan, if it could be put forward, to provide Nebraska and really Kansas with a -- with the benefits that Appendix M provides; again, a proactive plan for reducing its use in exchange for a modified alternative water-short year test. So I received this resolution just this morning before we got on stage. And I'm -- I'm still prepared, despite that I think, to act -- act on it this morning, if the state wishes -- State of Nebraska wishes us to have that vote. So I guess those are my comments. Any additional comments? Commissioner Dunnigan.

MR. DUNNIGAN: Mr. Schneider.

MR. SCHNEIDER: Thank you. Unfortunately we've -- you're pledging your cooperation in working with us, but we've heard that before, Mr. Barfield. And your actions have shown otherwise; just like your action to reject this plan before we even had a chance to discuss it. So pledges of cooperation are -- are fairly hollow in light of those actions.

I would also note that this plan does contain a specific action, the curtailment of groundwater uses as necessary. And that's exactly what the

litigation was about. So we don't see how this all fits together with what you're saying in terms of wanting to work with us, but simply rejecting out of hand; and in particular, when we're dealing with a potential action that you yourself have been advocating.

MR. BARFIELD: All right. Thank you. Again, the letter provided our -- an opportunity for us to sort of explain our view of what -- what's necessary in this. I believe that the State of Nebraska's plan, as we said, does not conform to the requirements of Appendix M. And I believe a plan could be put forward that would.

Again, as we said, we believe that there needs to be a -- you know, that "indicate" means we need to know here are the specific actions that are going to be taken under the plan and this is the specific yield that will come from that plan and, you know, the corresponding documentation, so that the RRCA can do, apparent to the Appendix, it's review and agree with Nebraska's plan in the projected savings. And then -- then in the subsequent year, that Nebraska can implement what we all know it committed to do.

So again, all of that is in the letter. I

believe Appendix M is clear and workable, and we'll -- I guess I would just reiterate we're willing to continue to work with you to figure out how to use this tool.

MR. DUNNIGAN: And I would add just one more comment. I, too, believe that Appendix M is clear. And we would not have put forth a plan that we did not feel conformed with the intent and letter of Appendix M.

MR. BARFIELD: All right. Other discussion?

(Pause.)

MR. BARFIELD: Okay. There's been a motion and a second to adopt the resolution, and in doing so to approve Nebraska's plan. I guess I would ask for a vote. Mr. Wolfe?

MR. WOLFE: Yes.

MR. BARFIELD: Mr. Dunnigan?

MR. DUNNIGAN: Yes.

MR. BARFIELD: Kansas votes no for the reasons that we've discussed this morning that are in my letter of October 4. But again, I hope with continued dialogue we can find a way to move forward.

MR. DUNNIGAN: Chairman Barfield?

MR. BARFIELD: Yes.

MR. DUNNIGAN: I would ask that the resolution be attached to the transcript of the RRCA report, if that's okay.

MR. BARFIELD: Certainly.

MR. DUNNIGAN: Thank you.

MR. BARFIELD: As well as the October 4th letter on this as well.

MR. DUNNIGAN: Thank you.

MR. BARFIELD: Okay. Okay. If there's nothing more there we will move on to Agenda Item 9-C. And if you want to take them individually, you can. Or if you want to combine 9-C and 9-D, it's up -- as you wish.

MR. WOLFE: Thank you, Chairman. And I will be brief on this, and I hope to take those in combination. We did have some discussion yesterday at the workshop in regard to these items. Widely represented, I guess, is two separate items there in terms of resolutions; kind of stems out of the history of this when we first brought forward to the RRCA back in 2009 a proposed resolution for the Compact Compliance Pipeline and was acted upon a couple of times in 2009.

And what was also drafted up and not acted upon at that time was components regarding the South

Fork and the Bonny Reservoir operations, which we talked about in detail yesterday. And since there was no formal action specific to that resolution before, we've been just -- for I guess discussion purposes, just kind of carrying along two types of -- or two separate resolutions just to represent the various components of Colorado's overall augmentation plan proposal.

Our goal is certainly to have a complete basin-wide resolution that deals with our augmentation proposal and planned operations into the future. And we'll continue to move forward with that goal and hope to move towards a special meeting by the RRCA here in the very near future as we complete our discussions with Nebraska and Kansas on these specific resolutions and their -- their components. And we're going to continue working with the water users in the basin in the Republican River Water Conservation District.

As they know, we've been working in earnest in discussions with -- particularly with Kansas on these particular issues. And we have our -- they have our full commitment -- Colorado's commitment to go -- once we feel like we're at a point of a proposed resolution that meets the requirements of

both -- or all three states, we will seek approval by the district or -- and the water users in the basin out there prior to bringing that final approval by the RRCA. And that's all I have to present, unless there's any questions on that.

MR. BARFIELD: Any questions?

(Pause.)

MR. BARFIELD: Okay. Thank you for that report. And as noted, the states will continue to work with the State of Colorado on both their augmentation plan proposal and all the various elements, as well as seeking to determine how to model Bonny and the South Fork appropriately in light of the changed operations there at Bonny. So appreciate that.

MR. WOLFE: Thank you.

MR. BARFIELD: So that was Agenda Items 9-C and 9-D. 9-E was sort of a -- put on the agenda as an opportunity to consider, if necessary, maybe an alternative to Nebraska's -- or I'm sorry -- Colorado's proposal on account of the Bonny. We put this together -- this agenda together at a point in time where we thought certain resolutions might come to fruition at this meeting, which are not the case.

On this particular item, there's nothing that

Kansas wishes to put forward at this time. Our desire is to continue to work with the State of Colorado on this issue and this issue of -- augmentation plan issues hopefully in a complete package. So that is all I have on that item. Agenda Item 9-F, just to provide -- which is the proposal for a common set of procedures and recharge values by system type for estimating groundwater irrigation recharge in the RRCA groundwater model.

The -- when the states developed the settlement in 2002 and 2003, a groundwater model was a piece of that jointly-developed solution. And it included -- the state's did their best to bring the best data and methodologies for purposes of building a groundwater model, and also made commitments to the board to improve their data moving forward; for example, meeting more intensively and the like. There was also a commitment to look at groundwater irrigation recharge methodologies.

The methodologies that were used in developing the model were not the same between states. And there was a commitment to try and seek a -- going forward a common way to determine groundwater irrigation recharge. Kansas has sort of brought this subject up in 2004 and since, and we

have not been able to make much progress. And so I was hoping to have a proposal for consideration here. That has not occurred.

I, yesterday at the work session, notified the other states that we are planning on sort of developing a scope of work to -- to develop hopefully a common set of procedures and recharge values that we can put before the RRCA for it's consideration. And we'll be notifying the other states of that plan and seeking to invite them into that process. So that's, I guess, the status of the matter on 9-F. Anything?

(Pause.)

MR. BARFIELD: Okay. Finally -- well, finally under 9-G -- and it's, again, Kansas' proposal for accounting and modeling of augmentation flows. And again, we actually have no specific proposal at this time. As Scott noted in the engineering committee report at last year's meeting, Nebraska requested that the EC discuss developing a framework for application and approval of processes for future augmentation plans.

Obviously this is timely, as I understand Nebraska is completing or near completion of an augmentation project on the Rock Creek Basin in the

upper part of the basin in Nebraska. I asked about that specifically yesterday and was told that's, in essence, complete. You know, the FSS has an expectation that augmentation plans will be brought before the RRCA and approved prior to implementation. So this is sort of in conjunction with that, what needs to be in that plan and so forth.

So Kansas, in the context of the engineering committee, has offered some starting points, I think, for that discussion and questions on the Rock Creek Project. And we'll look forward to continuing to work with Nebraska on that topic as we move forward. So nothing specific today. It's a work task that I think we are obligated to continue to consider moving forward. Okay. I guess that concludes that item. Is there any other new business to be considered here?

(Pause.)

MR. WOLFE: No.

MR. BARFIELD: Okay. There's an agenda item for remarks from the public. We have a microphone in front. Or if there is anybody here that would like to make a statement for the RRCA's consideration, we have some time here this morning.

All right.

MR. CORYELL: Yes. I'm Dennis Coryell with the Republican River Water Conservation District in Colorado. Several things that I would like to reiterate or emphasize that have been mentioned by Commissioner Wolfe. I would just urge the Compact Administration committee to reach agreement on the accounting for the sub basin of the South Fork in light of the fact that Bonny Reservoir has been drained.

It -- it appears to me that we need to keep moving in a positive direction. That was a very painful thing for folks in not only eastern Colorado, but southwest Nebraska and northwest Kansas. But -- and we don't have many tools to work with in Colorado. And unfortunately that was one of the components that was absolutely necessary to solve that sub basin impairment issue.

Second thing I wanted to mention was our pipeline is complete. We're currently in the process of testing the SCADA system so that we can monitor the operations of the pipeline. We're ready to punch the button and deliver water. So I would likewise urge this Compact Administration to approve the accounting for the inflows to the North Fork of

the Republican River and allow Colorado to get into compliance with that. We're anxiously waiting the time that we can say we are in compliance.

Thirdly, I would like to mention our district budget committee recently in a -- as we prepare for our 2013 budget, has recommended to our board a allocation of a million dollars each year for conservation in the form of rebates of our use fees within our basin. This would be based on actual decrease of historical consumptive use.

We think that that's a -- a very good incentive. We're going to work with NRCS, as well as some of the efforts in the other states to decrease the amount of water that we're using within the basin, whether that's through use of low-water-use crops, several other measures. Anyway, we're committed to also slow the decline of the Ogallala Aquifer. And that's been the next step after we got the pipeline built; and hopefully be able to get into compliance and really work on the conservation of the aquifer.

So my -- my urgency would be this: If -- if several hundred farmers and water users in our basin in a matter of four years can put together a $64 million dollar project, get it completed, then

surely the very competent water leaders of the three states can come to an agreement so that we can actually comply with what the law says. So I urge you, please be committed to very soon reaching an agreement on our issues. Thank you.

MR. BARFIELD: All right. Thank you, Mr. Coryell. Appreciate those comments. I remember well last year in Burlington and the crowd of people that were quite -- quite unhappy about their action. And we do appreciate the actions of the State of Colorado and its efforts to get in compliance.

You know, we invested a lot of time in looking at the -- sort of the suite of issues that is there as we went through a comprehensive package that's not just the North Fork, but also the South Fork issues as well, certainly because this is -- as Mr. Wolfe has indicated, the urgency of that. And we'll give that -- give that some significant attention in the coming weeks. Any other public wish to speak?

(Pause.)

MR. BARFIELD: Okay. The next agenda item is future meeting arrangements. We have not actually -- I don't think we've made any specific arrangements at this juncture. Mr. Dunnigan?

MR. DUNNIGAN: No.

MR. BARFIELD: I'm sorry. I would anticipate that we would go back to our August schedule next year. This year, for the public's benefit, we had to move -- normally we meet in August of each summer to provide us enough opportunity to complete all of the assignments related to the accounting and modeling and so forth. This year we were on trial in August, so the commissioners decided to do this later date. But I presume we'll go back to the August 8th for our annual meeting. And we have not decided on site. Typically Kansas has one meeting and we host in the lower basin. And we'll go to the upper basin for the other meetings. So we'll give that some thought and let you know. Is there a particular time in August you would like us to aim for, or should we just maybe propose some dates in an e-mail?

MR. WOLFE: I would suggest maybe circulating some proposed dates, and we can look at our respective calendars. And I guess on that note -- refresh my memory on this, because every time we move into August we have to circulate letters saying that we can do that.

MR. BARFIELD: Right.

MR. WOLFE: Because there's a requirement that we do that prior to the end of June or -- I think that's -- I can't remember the exact date. But I'm just wondering. It seems like that we're kind of in this mode of always having August -- should we as a commission -- commissioners be taking some action to formalize this and making it permanent somehow so we're not -- not that it's a huge issue to circulate these letters every year to extend that. But I'm just wondering if it's in our best interest maybe to look at trying to change whatever it is or approve whatever it is to make that permanent.

MR. BARFIELD: That's a good comment. And our rules specify -- and I don't have those in front of me. But we should either amend our practice or amend our rules.

MR. DUNNIGAN: I think it would be Rule 13 that we would be acting under.

MR. BARFIELD: And what date does it say? The end of July or June?

MR. DUNNIGAN: I think it's the end of July.

MR. BARFIELD: So which do we want to amend? We can do either. I think -- and maybe it's still the case -- Colorado had a set of data that it was

depending upon to do the accounting that sort of arrived later. Are you still using that data?

(Mr. Wolfe nodded.)

MR. BARFIELD: Okay. Yeah. I certainly wouldn't oppose moving the practice -- again, a reason to get the accounting of the majority is possible to provide, you know, the states an opportunity to sort of know where they're at. But, you know, the April 15th exchange and preliminary runs, we sort of already have that. So I'm not sure that having the -- the meeting in August is a problem. Certainly isn't in Kansas. Why don't we ask the engineering committee -- we actually have the rules that we were talking about anyway. I'm sorry?

MR. DUNNIGAN: I would just want to be clear that the actual rule with the date in it is Rule 9. The procedure that we use would be Rule 13.

MR. BARFIELD: So can we ask the engineering committee, because we're assembling some minor modifications of those rules in any case, maybe pass them to -- is the end of August maybe a better date?

MR. WOLFE: Either into August or provide some flexibility in the language that, you know, allows us to have it once a year and whatever

conditions are necessary. I'm fine with moving it to the end of August, but maybe they need to come back with some proposal of changing the date or some other options that are suitable to the commission. In the event that, like we had this year, and can do it in October; we're going to be back in that same mode again of circulating letters and doing that. and just having that in mind, if there's some way we can draft that language to give us as much flexibility as possible in setting that meeting date.

MR. BARFIELD: Well, we have the flexibility to move it to any time we want it by a letter of consensus. I think the rule is just to provide our default position. I think August worked well. So let's -- again, we'll let the engineering committee provide us some recommendations. But I -- from my standpoint, just moving the default to the end of August, and then we can always adjust it further if we need to for the individual year. So appreciate that. But again, we'll get you some dates and we'll pin down a location. But anticipating the second week in August in Colby or something of that nature. Okay. If there's nothing else to come before the administration, I would move adjournment.

MR. WOLFE: Second.

MR. BARFIELD: All in favor say aye.

MR. WOLFE: Aye.

MR. DUNNIGAN: Aye.

MR. BARFIELD: Aye. Thank you very much.

* * * CONCLUSION OF MEETING AT 10:08 A.M. * * *

CERTIFICATE

I, Coleen F. Boxberger, Registered Professional Reporter, do hereby certify the above and foregoing proceeding was taken at the time and place as specified; that the same was taken before myself in shorthand and later transcribed and extended into typewritten form to the best of my ability, and is a true and correct extension hereof;

That I am not counsel nor relative of any of the parties or otherwise interested in the event or outcome of this matter.

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