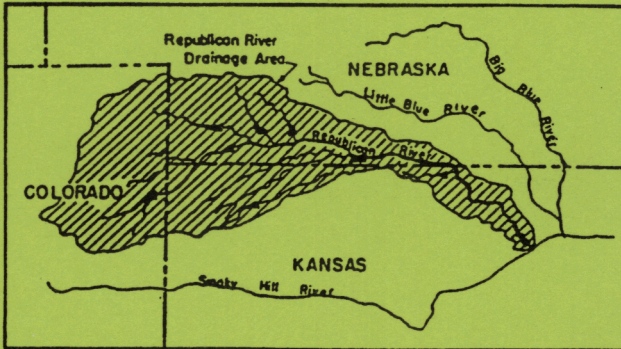


REPUBLICAN RIVER COMPACT ADMINISTRATION

THIRTY-EIGHTH ANNUAL REPORT



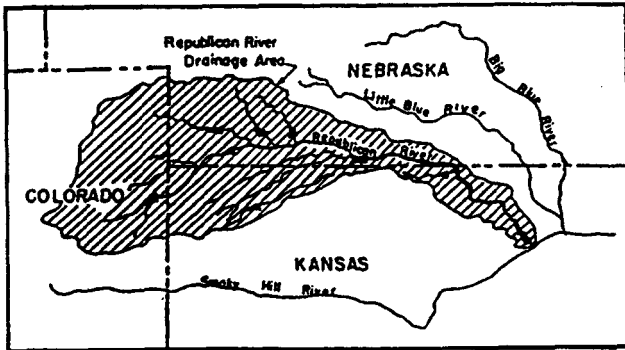
FOR THE YEAR 1997

Burlington, Colorado

June 4, 1998

REPUBLICAN RIVER COMPACT ADMINISTRATION

THIRTY-EIGHTH ANNUAL REPORT



FOR THE YEAR 1997

Burlington, Colorado

June 4, 1998

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THIRTY-EIGHTH ANNUAL REPORT
REPUBLICAN RIVER COMPACT ADMINISTRATION

In conformity with the Rules and Regulations of the Republican River Compact Administration, the Thirty-Eighth Annual Report is submitted as follows:

1. Pursuant to Rule 12, as amended, this report covers the period from June 6, 1997 to June 4, 1998.
2. Members of the Republican River Compact Administration are the officials of each of the states who are charged with the duty of administering the public water supplies and are as follows:
 - Hal D. Simpson, State Engineer, Colorado
 - J. Michael Jess, Director, Department of Water Resources, Nebraska
 - David L. Pope, Chief Engineer-Director, Division of Water Resources,
State Board of Agriculture, Kansas
3. The Thirty-Ninth Annual Meeting of the Administration was held on June 4, 1998, at Burlington, Colorado. The minutes of the meeting are included in this report.
4. During the period covered by this report, one meeting of the Engineering Committee was held. A report from that Committee together with letters and memos which provide a more complete record of the extensive efforts taken by the Engineering Committee over the course of last year are included in this report.
5. Reports were received from the Bureau of Reclamation on operation and administration of their projects in the basin of the Republican River, by the Corps of Engineers on the construction activity, and by the U.S. Geological Survey on their gaging stations in the same basin.
6. By consensus, Hal D. Simpson, Colorado member of the Administration, served as Chairman from June 6, 1997 to June 4, 1998.

MINUTES
39th ANNUAL MEETING
REPUBLICAN RIVER COMPACT ADMINISTRATION

The meeting was called to order by Chairman Simpson at 9:10 a.m., June 4, 1998, at the Burlington Country Club in Burlington, Colorado.

Those in attendance were:

<u>NAME</u>	<u>REPRESENTING</u>
Hal D. Simpson	Colorado Commissioner, Chairman
David L. Pope	Kansas Commissioner
J. Michael Jess	Nebraska Commissioner
Richard Stenzel	Colorado Division of Water Resources / Engineering Committee
Alexandra Davis	Colorado Attorney General's Office
Bill McIntyre	Colorado Division of Water Resources
Marta Ahrens	Colorado Division of Water Resources
Megan Sullivan	Colorado Division of Water Resources
Dwayne Konrad	Colorado Division of Water Resources
David Barfield	Kansas Division of Water Resources / Engineering Committee
Leland E. Rolfs	Kansas Department of Agriculture
Scott Ross	Kansas Division of Water Resources
Earl Lewis, Jr.	Kansas Division of Water Resources
Amy Aufdemberge	Kansas Division of Water Resources
Donald L. Pitts	Kansas Attorney General's Office
Ann Bleed	Nebraska Dept. of Water Resources / Engineering Committee
Don Blankenau	Nebraska Department of Water Resources

Brad Edgerton	Nebraska Department of Water Resources
Michael Thompson	Nebraska Department of Water Resources
Russell Oaklund	Nebraska Department of Water Resources
Marie C. Pawol	Nebraska Attorney General's Office
Tim Flanagan	Nebraska, Attorney, Denver, Colorado
Ralph Best	Frenchman-Cambridge Irrigation District, Nebraska
Roy Patterson	Frenchman-Cambridge Irrigation District, Nebraska
Robert Andrews	Frenchman-Cambridge Irrigation District, Nebraska
Ronald M. Akey	Pioneer Irrigation District, Nebraska
Clayton Lukow	Chairman, Blue River Compact, Nebraska
Gil Gyllenborg	Bureau of Reclamation, Grand Island, Nebraska
Marvin Swanda	Bureau of Reclamation, McCook, Nebraska
Dennis Allacher	Bureau of Reclamation, McCook, Nebraska
Mike Slifer	U. S. Geological Survey, Nebraska
Glenn Engel	U. S. Geological Survey, Nebraska
Michael Bart	Corps of Engineers, Kansas City, Missouri
Dale Book	Spronk Water Engineers, Denver, Colorado
John Gottschamer	Kansas Water Office, Kansas
Steven Cox	Prairie Dog Valley River Basin, Long Island, Kansas
Melia Juenemann	Upper Republican Basin Advisory Committee, Kansas
Norman Nelson	Upper Republican Basin, Kansas
Mary Vanover	Almena Irrigation District, Kansas
Gene Bauerle	Colorado Ground Water Commission, Colorado
Dennis Coryell	Colorado Ground Water Commission, Colorado
Ben Saunders	Ground Water Management Districts, Holyoke, Colorado
Joe Kinnie	Marks Butte Ground Water Management District, Colorado
Stan Murphy	Plains Groundwater Management District, Colorado
John Vasa	Colorado Land Owner, Holyoke, Colorado
Bob Hastings	Colorado Rural Water, Colorado
Bruce Latoski	Pioneer Irrigation Ditch, Colorado
Mike Adamson	Pioneer Irrigation Ditch, Colorado

APPROVAL OF MINUTES

The Minutes of the 38th Annual Meeting of June 5, 1997, as published in the 37th Annual Report, stood as previously approved and signed.

REPORT OF THE CHAIRMAN

Commissioner Simpson

Chairman Hal Simpson reported that Kansas filed a motion for leave to file a complaint with the U.S. Supreme Court against Nebraska and Colorado concerning the Republican River Compact. The allegations pertain to post-compact well development in Nebraska. Colorado is named as a defendant, but no allegations are made or relief sought against Colorado.

Chairman Simpson provided an update of the Kansas versus Colorado litigation on the Arkansas River Compact. He stated that the litigation is into its 13th year. Depletions of usable stateline flow have been quantified for the period 1950 through 1994 and are approximately 420,000 acre-feet. The states could not reach agreement on depletions for 1995 and 1996, so a trial was conducted recently in Pasadena, California. Chairman Simpson stated that the damages phase is beginning and the two states will meet on June 29 to discuss data which could later be used as a basis for economic analysis and additional modeling.

Chairman Simpson reported that this is the final year of the cooperative field study with the U. S. Geological Survey (USGS) of the power conversion coefficient method in the Arkansas River to measure ground water use rather than metering. The USGS is expected to submit a report early in 1999 summarizing the results of the data collection efforts.

With respect to legislation, Chairman Simpson reported on House Bill 1151 which dealt with small capacity commercial wells under the jurisdiction of the Ground Water Commission and the potential for abuse of those wells by confined animal feeding operations. Once the bill becomes effective, legislation will limit those wells to a maximum annual production rate of 5 acre-feet. Another bill, House Bill 1011, was a controversial bill that passed and will require the State Engineer to conduct a study of the San Luis Valley confined aquifer and promulgate rules by July 1, 2001. Chairman Simpson also discussed a Senate Bill that was introduced this year dealing with waste disposal and monitoring of confined hog feeding operations in eastern Colorado. Although this bill failed, it may be implemented through a statewide citizen's initiative.

As requested at last year's Compact meeting, Chairman Simpson said that he spoke to Robert Hurst with the USGS concerning funding of gaging stations. As a result of this conversation, Mr. Hurst assured Mr. Simpson that there would be no reduction in gaging station operations because the USGS budget is in a stronger position this year to fund it.

Finally, Chairman Simpson concluded his report by stating that the 1998 irrigation season was beginning a little dry and snowpack was below average.

REPORT OF THE COMMISSIONER FROM KANSAS

Commissioner David Pope reported that Kansas regulations are still in place for the Upper Republican River Basin and some regulations also exist within the boundaries of Northwest Kansas Ground Water Management District which covers the remaining portion of the basin in the Ogallala aquifer. He explained that the Prairie Dog, Beaver, and Sappa Creek surface and alluvial areas remain closed by Kansas regulation to all new appropriations, except those for domestic purposes. In other areas of the Basin, all new appropriations continue to be limited by safe yield regulations. In the Lower Republican portion of the basin in Kansas, all new appropriations are limited by safe yield regulations. Commissioner Pope stated that the surface water and ground water

users in the area affected by the Compact have been required to install totalizing flow meters and the Kansas Division of Water Resources will be conducting compliance checks and taking appropriate action if the order is violated.

Commissioner Pope stated that hog operations have been a major debate in the legislature this session with regard to the environmental water quality aspects and other social concerns. The legislature considered a moratorium on additional large facilities for hog operations, which did not pass. However, following extensive debate and study, fairly comprehensive amendments to existing laws were passed relating to the permitting and environmental regulation of such facilities.

Commissioner Pope distributed a copy of House Concurrent Resolution 5030, passed by the 1998 Kansas Legislature. The Resolution addresses the dispute between Kansas and Nebraska over the Republican River Compact, and contains a provision that required the Kansas Attorney General to file and prosecute an action against the State of Nebraska to enforce the provisions of the Republican River Compact. Commissioner Pope noted that the key issues are that since at least 1985, Kansas has consistently expressed concern regarding the state of Nebraska's overuse of its allocation on the Republican River Compact and the corresponding shortages of water caused to the state of Kansas and their various attempts to try to deal with the problem.

Commissioner Pope concluded his report by stating that the remaining issues that are yet to be resolved in the Arkansas River litigation relate to whether Colorado will repay Kansas for past damages in water or in money, whether Colorado owes Kansas past or future interest, and whether the regulations adopted by Colorado are sufficient to prevent future Compact violations.

REPORT OF THE COMMISSIONER FROM NEBRASKA

Commissioner Michael Jess reported that Nebraska also has had similar issues and concerns with regard to large animal confinement operations in the Republican River Basin, which have caused a great deal of uncertainty for people that live in the general area.

Commissioner Jess reported on behalf of the natural resources districts that were not present for the meeting. He stated that the well construction moratorium imposed by the Upper Republican Natural Resources District board for new high capacity wells is still ongoing. Also ongoing are water use limits for all wells that pump from the Ogallala aquifer in that District. The Middle Republican Natural Resources District moved into Phase 2 of its ground water management plan, and irrigators there will be directed to install water meters on all the wells in the next several years. Commissioner Jess stated that Mr. Wunibald, the manager of the Lower Republican Natural Resources District, will be leaving his position later this summer, and the Board is seeking a replacement. Installation of water meters also has been a subject of discussion by that Board. The Tri-Basin Natural Resource District occupies a small portion of the watershed that falls under the jurisdiction of this Compact, and it also has considered requiring water meters.

Commissioner Jess stated that Governor Nelson's second term ends this year and a new Governor will be elected this fall. He reported that Nebraska had a statewide initiative intended to limit the growth and spending of government. If successful, there will be an item on the ballot in November that would limit the growth and expenses of government.

Commissioner Jess indicated Nebraska officials had read the complaint Kansas filed against Nebraska. He said responsible persons in Nebraska would make themselves available at any time to discuss with officials from Kansas the possibility of out-of-court resolution.

Finally, Commissioner Jess concluded his report by stating that the moratorium that was imposed several years ago on the issuance of new surface water permits in the Republican River watershed continues. The result of the moratorium has been considerable increase in activity of users wanting to relocate or change the location of existing water rights. He stated that there were quite a number of these transfer applications, particularly from the irrigation districts in the Republican Valley, at Nebraska's Department of Water Resources waiting processing.

Russ Oaklund

Mr. Russ Oaklund, of the Nebraska Department of Water Resources, reported on the water rights regulations, restrictions, runoff, and available water supplies in the Republican Valley during the past year. Precipitation in the Spring of 1997 was in the below normal range. Despite this, four of the five major reservoirs in the Republican River basin in Nebraska, including Harlan County Lake, had water in their flood pool going into the irrigation season.

On June 24, twenty junior permits on Frenchman Creek were closed and the senior Culbertson Canal permit was regulated. Four permits on Frenchman Creek, below the Culbertson Canal diversion, were also regulated. These restrictions remained until late August when the irrigation districts involved completed their irrigation season.

On July 3, 23 junior permits were closed and ten senior permits were regulated on Red Willow Creek.

On July 8, 18 junior permits were closed and three senior permits were regulated on the mainstem of the Republican River, from Trenton Dam to the Bartley Diversion Dam.

On July 15, 42 junior permits were closed and 14 senior permits were regulated on Medicine Creek. Also on July 15, 14 junior permits were closed and one senior permit

(Cambridge Canal) was regulated on the mainstem of the Republican River, from Bartley to the Cambridge Diversion Dam.

These restrictions on Red Willow Creek, Medicine Creek, and the mainstem remained until early September when the irrigation district involved completed its irrigation season.

In 1998, precipitation totals through mid-May were quite a bit more normal. Two of the five major reservoirs in the Republican River basin in Nebraska, including Harlan County Lake, are full going into the 1998 irrigation season.

Don Blankenau

Mr. Don Blankenau reported on legislative activities of the Nebraska Unicameral. He stated that it was a busy legislative year. However, he reported that only one bill passed which has a bearing on this Compact. The bill, LB-1161, will provide 1.5 million dollars in cost-share money from the state to assist NRD's efforts in requiring meters for wells located in the Republican River Basin. It is a three-year program and the NRD's have to place meters on at least 90% of all the alluvial wells in order to get the repayment from the State. Mr. Blankenau believes that all of the NRD's in the basin are going ahead with plans to utilize that metering program for wells just within the alluvial wells.

In response to questioning from Commissioner Pope regarding whether the moratorium on new high-capacity wells in the Upper Republican NRD had been extended to the other NRDs, Commissioner Jess stated that they did not adopt a moratorium in the other NRDs.

REPORT FROM THE BUREAU OF RECLAMATION

Gil Gyllenborg

Mr. Gil Gyllenborg, Area Manager of the Bureau of Reclamation's office in Grand Island, Nebraska, presented the Bureau's report. He stated that the U. S. Department of Justice and representatives from other Federal agencies met with representatives of the states of Nebraska and Kansas to try to encourage mediation of the differences between Nebraska and Kansas. Mr. Gyllenborg stated that based on these discussions and based on the Kansas filing, the Federal agencies would determine the impact of the litigation on federal interests and respond to the filing within the next sixty days.

Mr. Gyllenborg stated that the Bureau intends to provide the State of Colorado with the same information that has been shared with Nebraska and Kansas. Those materials include charts, files, graphs and other data from within the Basin which were developed by the Bureau. The Bureau will continue to provide the states with such information on a regular basis. Any special requests for information from the Bureau will have to be made in writing, which will be responded to accordingly after discussions with the U. S. Department of Justice.

Marvin Swanda

Mr. Marvin Swanda, from the Bureau's McCook office, distributed the operation and maintenance report for 1997. Mr. Swanda reported on the precipitation range, irrigation deliveries, reservoir operations, and dam safety issues. Mr. Swanda reported that the Bureau had been having some discussions with the U.S. Army Corps of Engineers regarding operating levels in Harlan County as they relate to irrigation. He stated that the Bureau has installed warning radios to deal with hydrologic deficiencies to handle the PMF flood at the dam which enables dialog with local officials at all their dams and provides advance warning. A target date for revised emergency action plans for each Bureau dam is September of 1999.

Mr. Swanda reported that the Bureau is continuing to install Hydromet equipment on all canal systems. By the end of the year, the majority of these stations will be on-line and data will be available through the Bureau's Internet site. The Bureau is becoming more active in water conservation efforts and will soon be hiring a full-time employee to deal with those issues and to work with the Districts.

Dennis Allacher

Dennis Allacher, also from the Bureau's McCook office, discussed water service contract renewal issues. The water service contracts in the Republican Basin expired in 1996 and were extended through the year 2000. Negotiations have been initiated with five Districts. A target date of late 1999 was set for execution of contracts. Payment capacity studies for irrigators in each district have also been initiated to determine how much they can afford to pay for irrigation water.

Mr. Allacher reported on the water quality studies being done in the basin. Reclamation will put this data into tabular or graphical form, and a water quality technical team consisting of several Federal and state agencies will meet in mid-June to review and analyze the data.

With respect to the Environmental Impact Study (EIS) and the alternative analysis for the contract renewals, Mr. Allacher reported that staff has reduced the number of alternatives from forty-four "what-if" scenarios to eight alternatives. The eight alternatives and the EIS were forwarded to the cooperating agencies in June. Mr. Allacher said that the results from the model runs are being compared with the various alternatives.

REPORT FROM THE CORPS OF ENGINEERS

Michael Bart

Mr. Michael Bart, with the Corps of Engineers in Kansas City, reported that the Corps of Engineers is working with the U. S. Department of Justice regarding Kansas' motion for leave to file a complaint. Mr. Bart stated that the Corps continues to work with the Bureau of Reclamation on the contract renewal EIS process, and on how various reservoir systems will be operated in the future.

Mr. Bart discussed the Harlan County Reservoir tainter gate design pertaining to safety of dams. He expressed concern that Harlan County's tainter gate is similar to the one on Folsom Dam in California where a failure of a tainter gate during high pool levels produced an uncontrolled release of water. Mr. Gyllenborg, of the Bureau of Reclamation, stated that he would provide each Commissioner with a copy of the Folsom Dam failure report and recommendations.

Mr. Bart reported that the environmental wetlands project in the Milford flood control pool is proceeding. The feasibility investigations for approximately 2,300 acres of wetland complex of the reservoir is scheduled to be completed this year. This project is estimated to cost about five million dollars.

REPORT FROM THE U.S. GEOLOGICAL SURVEY

Glen Engel

Mr. Glen Engel, from the USGS in Lincoln, Nebraska, reported that the USGS receives direct appropriation for operating ten gaging stations in the Basin for managing compacts, and also has co-op funds with Nebraska's Department of Water Resources for operating one other gaging station. In addition, the USGS reviews records of three

other gaging stations operated by Nebraska's Department of Water Resources. Mr. Engel reported that the Corps also provides funding for seven data collection platforms in the Basin and has added eight new data collection platforms in the Basin at federal sites. In summary, he reported that the Corps operates fourteen gaging stations in the Basin and reviews records for three others, and has a total of fifteen data collection platforms which collect real-time data in the Basin. As reported earlier by Mr. Swanda, the Bureau recently installed a data collection platform at Courtland Canal.

With regard to streamflow in 1997, Mr. Engel reported that there were very low flows at the upper end of the basins. Rock Creek at Parks and Buffalo Creek near Haigler had new minimums for the period of record. In addition, Mr. Engel reported that two stateline stations at Arikaree River and North Fork of the Republican had the second lowest mean streamflow for the period of record. Flows were below normal range from Driftwood Creek down to the mouth of Red Willow. Mr. Engel reported that all of the records were computed and given to the Administration's Engineering Committee and they were recently published in the USGS 1997 data report.

Mr. Engel stated that Mike Slifer is the new District Chief in Lincoln. Mr. Slifer replaced Linda Weiss who became the new District Chief in Albuquerque, New Mexico.

ENGINEERING COMMITTEE REPORT

Dick Stenzel

Mr. Dick Stenzel, Colorado's Engineer Adviser, and Chair of the Engineering Committee, remarked that it was a difficult year. Mr. Stenzel reported that the Engineering Committee was given three assignments by the Commissioners. One was to develop mapping that would show the alluvial valley fill boundary, and that was to be completed by August 31st, 1997. The Engineering Committee missed the deadline and met on

May 8 to discuss the maps and how they were developed. Some suggested revisions were made to some of the maps but agreement could not be reached.

Mr. Stenzel stated that the second assignment was to provide a minimum set of guidelines for the administration of meters and a methodology to be used for determining irrigated acreage. With regard to metering criteria, it was agreed that further discussions were needed to consider proposals offered by each state. Therefore, the Engineering Committee had no final recommendations. The Engineering Committee did not discuss irrigated acreage.

Finally, Mr. Stenzel stated that the third assignment was to perform the computations needed to calculate virgin flows and water consumption for 1998. The Engineering Committee did not perform the necessary calculations. Again, it was primarily a difference of opinion as to what the assignment was and what was needed in order to properly perform those calculations.

Mr. Stenzel stated that the Report of the Engineering Committee was signed and is attached (Appendix A). Discussion followed with regard to the areas of disagreement and differences of opinion within the Engineering Committee.

Commissioner Pope suggested that copies of the correspondence between the members of the Committee be attached to the Minutes of this meeting and be made part of the record. He stated that the correspondence describes the requests that were made, the work that has taken place, generally all of the things that occurred. Inclusion would allow the record to be more complete in terms of what transpired during the year on the assignments. Commissioner Jess disagreed because the record was incomplete since several phone calls and e-mails were not recorded.

The Engineering Committee conferred during lunch to discuss if it was possible to compile a complete package. An agreement could not be reached regarding including additional documentation for the record. Therefore, Commissioner Jess moved receipt

of the Report of the Engineering Committee. Commissioner Pope seconded, and the motion was adopted.

UNFINISHED BUSINESS

Commissioner Pope reported that, over the years, Kansas has expressed concerns about the administration and enforcement of the Compact. He stated that Governor Graves of Kansas and Nebraska Governor Nelson exchanged letters in February, and attempts were made to meet to discuss concerns and address substantive issues. For the record, Commissioner Pope wanted to note that attempts were made by the Governors to meet, but that they did not succeed.

LEGAL COMMITTEE REPORT

Don Blankenau, senior member and the Chair of the Legal Committee stated that the Legal Committee had nothing to report. Commissioner Jess moved to receive the report. This report did not receive a second, nor was it passed.

NEW BUSINESS

Proposed Clause to Amend BOR/Irrigation District Water Service Contracts

Commissioner Pope reported on the language proposed by his letter to Commissioners Jess and Simpson of March 3, 1998 (Appendix B) for inclusion in the renewed water service contracts to be entered into between the Bureau of Reclamation and the various irrigation districts in the Republican River Basin. Commissioner Pope stated that the Bureau would be receptive to an action from the Compact Administration that would indicate agreement on the language. He stated that these provisions were of common

interest to the Administration and would provide a mechanism for both the Bureau and the irrigation districts with the express authority to amend the contracts, if necessary, for consistency with any official actions of the Compact Administration or a court of competent jurisdiction.

Mr. Gyllenborg, from the Bureau of Reclamation, stated that although he was not prepared to agree with the exact wording, the Bureau is in support of the concept which would allow them to open those contracts once the pending litigation was settled.

Commissioner Jess stated that he would like an opportunity to study Commissioner Pope's proposal further and share it with the Nebraska irrigation districts. He requested that the proposal be tabled until next year. Mr. Gyllenborg indicated that delay would not pose a problem since the schedule for contracts to be finalized is toward the end of the 1999 calendar year.

Following discussion, it was decided that Commissioner Jess would contact Nebraska's irrigation districts sometime over the next few months, and forward a summary of their position to Kansas before the next meeting. Chairman Simpson added that if there is not sufficient resolution, that this issue would be a topic for next year's meeting under Unfinished Business.

Also under New Business, Commissioner Pope renewed his request that the correspondence and other documentation mentioned during the Engineering Committee Report be made part of the record as an Appendix to the Minutes of this meeting. He stated that this would provide a more complete record of the extensive efforts taken by the Engineering Committee over the course of last year. Following deliberation on this issue, Chairman Simpson stated that the record would reflect Nebraska's opposition to including the documents in the Minutes, and that they are included at the request of Commissioner Pope, but not agreed to by Commissioner Jess (Appendix C).

ASSIGNMENTS TO THE COMPACT'S COMMITTEES

Engineering Committee

Discussion took place regarding assignments that could be accomplished by the Engineering Committee. Some of these assignments included metering criteria, irrigated acres criteria, alluvial valley-fill mapping, generating a virgin water supply and consumptive use estimate, and state depletion evaluations. Commissioner Jess stated, however, that Nebraska could think of no activities that the Committee could realistically achieve in the next year. Commissioner Pope stated that if it was not possible to secure or obtain the information that is needed in order to do the computations on a basin-wide basis, he didn't believe the computations in an individual state would be comparable or perhaps even meaningful. Hearing no objections, Chairman Simpson concluded that there appeared to be no assignments for the Engineering Committee for which an agreement can be reached. Therefore, no assignments were given to the Engineering Committee.

Legal Committee

Don Blankenau suggested that there be no assignments for the Legal Committee and Chairman Simpson agreed without objection.

REMARKS FROM THE PUBLIC

There were no remarks from members of the public attending the meeting.

SETTING OF THE 1999 ANNUAL COMPACT MEETING

Given the fact that there will be no Committee reports next year, Commissioner Jess stated that there would be no reason to meet. Commissioner Pope disagreed and noted that the Administration benefited from Federal agency reports and reports of other activities in the states. He also noted the proposed contract language for the Bureau of Reclamation as a matter which could move forward. He then stated the Compact Administration's rules and regulations provide for an annual meeting. Chairman Simpson agreed with Commissioner Pope that the rule requires an annual meeting, and some possible topics of interest would be the Harlan County Dam tainter gates, the continued operation of gaging stations, and the Bureau's contract renewal progress.

Following discussion, it was agreed that the Compact Administration should meet on June 3, 1999, in Kansas.

REVIEW OF COMMITTEES


Commissioner Pope requested that the list of Committee members be reviewed for accuracy and stated that there will be a change of Chairmanship for next year's meeting. Kansas' members on the Engineering Committee are David Barfield and Scott Ross. There will be no changes to the Nebraska committee with the exception that Ron Wunibald will no longer be a member, and the Nebraska NRD general managers will be included as Committee members. Colorado's Engineering Committee members are Dick Stenzel, Bill McIntyre, and Megan Sullivan.

With regard to the Legal Committee, Kansas' member and Chair would be Amy Aufdemberge; Colorado's member would be Alexandra Davis; and Nebraska's member would be Don Blankenau.

ADJOURNMENT

Chairman Simpson declared the meeting adjourned at 1:50 p.m.


Hal D. Simpson
Colorado Commissioner (Chairman)


David L. Pope
Kansas Commissioner


Roger Patterson
Nebraska Commissioner

APPENDIX A

REPORT OF THE ENGINEERING COMMITTEE

Report of the Engineering Committee for the Republican River Compact Administration For Water Year 1997

1997 Engineering Committee Assignment

At the Annual Compact Meeting on June 5th, 1997, the Engineering Committee was requested by the Republican River Compact Administration to: (1) develop mapping showing the alluvial valley fill boundary by August 31, 1997, including the location of all wells within the alluvial fill boundary, and wells located within one-half mile of the boundary. In addition we were to exchange that information and six months later provide the Administration with an agreed upon final set of maps; (2) with regard to the Engineering Committee recommendations on pages 19 and 20 of the 1997 Engineering Committee Report, the committee was also asked to develop and provide a minimum set of guidelines for the Administration on meters and on how to best ascertain acres irrigated; and (3) perform the computations that generate Tables 1 and 2, and let each State develop their own set of basin-wide tables. The deadline for these calculations was the 1998 Annual Meeting. It was agreed that the Engineering Committee would perform the calculations for 1997 and, if resources were available, they would attempt to do the calculations for 1995 and 1996.

1997 Engineering Committee Activities

Each state prepared draft maps of what they believed was the alluvial valley fill boundary and associated supporting data. All states exchanged their maps by January 1998. The Engineering Committee for the Republican River Compact Administration met on May 8, 1998 in McCook, Nebraska. Attending the meeting were David Barfield, Amy Aufdemberge and Scott Ross from the Kansas Division of Water Resources (DWR); Ann Bleed, Don Blankenau, Brad Edgerton and Michael Thompson from the Nebraska Department of Water Resources; and Dick Stenzel, Leah Lewis, Bill McIntyre and Chuck Roberts from the Colorado DWR. Also in attendance were John Thorburn and Rich Holloway of the Tri Basin Natural Resource District (NRD); Ron Wunibald of the Lower Republican NRD; Virgil Norton of the Upper Republican River NRD, and Wayne Heathers of the Middle Republican NRD. The committee was unable to reach agreement on the maps, how to perform the virgin water supply and consumptive use calculations, and could not complete the meter guidelines and methodology for determining irrigated acreage as assigned by the Republican River Administration.

Richard Stenzel
Richard Stenzel
Colorado

William McIntyre
William McIntyre
Colorado

Ann Salomon Bleed
Ann Salomon Bleed
Nebraska

Michael Thompson
Michael Thompson
Nebraska

David Barfield
David Barfield
Kansas

Scott Ross
Scott Ross
Kansas

APPENDIX B

**COMMISSIONER POPE'S LETTER OF
OF MARCH 3, 1998
TO COMMISSIONERS SIMPSON AND JESS**

STATE OF KANSAS

BILL GRAVES, GOVERNOR
Alice A. Devine, Secretary of Agriculture



DIVISION OF WATER RESOURCES
David L. Pope, Chief Engineer-Director
901 South Kansas Avenue, 2nd Floor
Topeka, Kansas 66612-1283
(785) 296-3717 FAX (785) 296-1176

KANSAS DEPARTMENT OF AGRICULTURE

March 3, 1998

Mr. Hal Simpson, State Engineer
Compact Commissioner for Colorado
Colorado Division of Water Resources
1313 Sherman Street - Room 818
Denver, Colorado 80203

Mr. J. Michael Jess, Director
Compact Commissioner for Nebraska
Nebraska Department of Water Resources
301 Centennial Mall South - 4th Floor
Lincoln, Nebraska 68509-4676

RE: Republican River Compact: Bureau of Reclamation/Irrigation District Water Service Contract Renewals

Dear Hal & Mike:

As reported to us at last year's Annual Meeting of the Compact Administration, the Bureau of Reclamation (BOR) is in the process of water service contract renegotiations with irrigation districts served by BOR projects within the Republican River Basin.

Our review of the contracts currently in effect shows that, while the contracts expressly acknowledge the need to be consistent with the Republican River Compact, neither the BOR nor the irrigation districts have the express authority to amend the contracts should any amendment be necessary for consistency with official actions of the Republican River Compact Administration or with a court of competent jurisdiction. Therefore, I suggest that the Compact Administration recommend the following contract clause to the BOR for inclusion in all water service contracts with Republican River Basin irrigation districts:

Notwithstanding any other language in this contract, the Republican River Compact shall supersede and take precedence over all terms of this contract. The _____ Reservoir and the _____ Irrigation District(s) water supplies shall be subject to the Republican River Compact allocations, and shall be operated in accordance with the terms of the Republican River Compact, as interpreted by official actions of the Republican River Compact Administration or a court of competent jurisdiction. In the event that official actions of the Republican River Compact Administration or a court of competent jurisdiction are inconsistent with any terms of this contract, this contract shall be amended only for the limited purpose of achieving consistency with such actions.

Mr. Hal Simpson &
Mr. J. Michael Jess

Page Two

March 3, 1998

This clause will provide both the BOR and the irrigation districts with the express authority to amend future contracts for consistency with official actions of the Republican River Compact Administration or a court of competent jurisdiction.

I would like this matter placed on the agenda for action at this year's June 4 Annual Meeting of the Compact Administration.

Should you have any questions or comments, please do not hesitate to contact me.

Sincerely,



David L. Pope
Compact Commissioner for Kansas
Republican River Compact Administration

DLP:jpb

cc: Robert Gyllenborg, BOR, Kansas Projects Office
Dennis Allacher, BOR, Nebraska-Kansas Area Office
Keith Hann, BOR, Department of the Interior

APPENDIX C

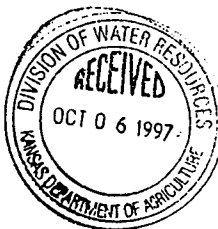
CORRESPONDENCE AND DOCUMENTS REQUESTED TO BE INCLUDED AS ATTACHMENTS TO ENGINEERING COMMITTEE REPORT

*(This material does not reflect the entire record
of the communication of the
Engineering Committee
either written, electronic, or verbal)*

STATE OF COLORADO

WATER DIVISION ONE
OFFICE OF THE STATE ENGINEER
Division of Water Resources
Department of Natural Resources

800 8th Avenue, Room 321
Greeley, CO 80631
Phone (970) 352-8712
FAX (303) 659-0579



September 30, 1997

Roy Romer
Governor
James S. Lochhead
Executive Director, DNR
Hal D. Simpson
State Engineer
Richard L. Stenzel
Division Engineer

David Barfield
Division of Water Resources
Kansas Department of Agriculture
901 South Kansas Avenue
Topeka, Kansas 66612-1283

Ms. Ann Bleed, State Hydrologist
Nebraska Dept. of Water Resources
301 Centennial Mall South -4th Floor
Lincoln, Nebraska 68509-4616

Dear Dave and Ann:

Subject: Republican River Compact Alluvial Mapping

The purpose of this letter to summarize the telephone discussions between the three of us during this day and to respond to some of the topics discussed. It is my understanding that Kansas does not plan to provide the mapping as directed by the Compact Commissioners, until they have a clearer understanding of what is to be provided and until they believe everyone else is providing same information and using the same criteria. Because of Dave's desire to have more direction, or at least more definition as to what criteria is to be used by each state to develop the maps, reports and data bases, I recommended holding a meeting on October 27th to discuss his concerns. Ann felt that in addition to discussing the Kansas concerns that any concerns regarding any maps, reports and data bases provided by Nebraska and Colorado could also be discussed at that time. This will not be the last opportunity for the parties to discuss any concerns that they may have but a first chance to make each states concerns known. We should attempt to address those concerns at that time or take those issues back for further consideration to be discussed at subsequent meetings.

Both Nebraska and Colorado intend to provide the maps, data bases, and reports of what they believe was proposed by the Compact Commissioners and as defined in Attachment "B" prior to this meeting. If the committee agrees that Nebraska or Colorado should have provided additional information, they will provide this information after they become aware of the need. If either state believes that they have met the criteria as required by the Commissioners and another state disagrees, it was my understanding that the states would provide the database information that is available in their files to the state that feels the additional information is needed. The state that believes another state is in error can make their own map of what they believe the alluvial fill should be and determine which wells they believe should be included in another states compact calculations. I believe that we may never obtain the consensus of all committee members in regards the

Mr. Dave Barfield & Ms. Ann Bleed
September 30, 1997
Page Two

alluvial fill boundary for each state. Nor will we get consensus on all wells that should be included in compact calculations. I believe that was envisioned by the Compact Commissioners and was the discussed at length during the last Commissioners meeting. At that time, it was stated that each state would determine what they believe were the compact depletions for their state and any other state if they disagreed with another state's calculations.

Please let me know if October 27th works for each of you and any staff you want to include in that meeting. I would propose that the meeting be held in McCook, Nebraska at the Best Western Motel. The meeting should start at 9:00 am. If this is not agreeable with both of you then I can't meet until the next week. I will be out of town from October 7th until October 19th so if you respond during that period of time I will not be able to get back to you until after I get back from vacation.

Sincerely



Dick Stenzel
Division One Engineer

Cc: Hal Simpson
Chuck Roberts
Leah Lewis



STATE OF NEBRASKA



DEPARTMENT OF WATER RESOURCES
J. Michael Jess
Director

September 30, 1997

IN REPLY REFER TO:

Benjamin Nelson
governor



TO: Ann Bleed
Dick Stenzel
David Barfield ✓
Virgil Norton
Wayne Heathers
John Thorburn
Ron Wunibald

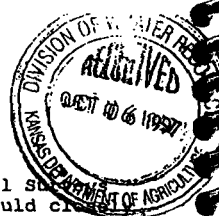
FROM: Mike Thompson *Mike*

SUBJECT: Republican River Compact Alluvial Mapping Project

This memo describes the methodology used to map the boundary of the alluvium for the Republican River Compact. The criteria used to define the alluvium were based on Attachment B to the 1997 Republican River Engineering Committee Report. Attachment B states that only wells that were drilled within the approved mapped boundaries of the alluvial-fill formation and that derived some or all the pumped water from the alluvial -fill formation at the time the well was drilled should be considered as pumping from the alluvium for Compact purposes. The alluvial-fill formation is defined as the area of unconsolidated, detrital material of the Quaternary period that yields sufficient water for a well and that is within the erosional depression bounded by bedrock that does not yield sufficient water for a well, elevated river terraces, escarpments or gentle topographic highs. In accordance with a request from Kansas, I am providing the maps at a scale of 1:100000 scale. Maps at a 1:50000 scale, as originally requested at the Compact meeting, can also be provided upon request. Also at the request of Kansas I have shown county roads and highways on the maps.

Data Used

The principal sources of information used to delineate the alluvial boundary were United States Geological Survey (USGS) 1:24000 and 1:100000 scale topographic maps, Nebraska Department of Water Resources (NDWR) well registration data, county Soil Surveys by the United States Department of Agriculture Natural Resources Conservation Service (NRCS) and the Conservation and Survey Division of the University of Nebraska-Lincoln (CSD), and Water Supply Paper 1 (WSP1) by the CSD.



Methodology

After discussions with the CSD, I determined that the Soil Survey contained alluvial and terrace soil delineations which would closely approximate the alluvium as defined in Attachment B. The process of delineating the bottom land and terrace soils in the Soil Surveys is described in the attached report from Mark Kuzila, a CSD soil scientist.

The bottom land and terrace soils were plotted on the USGS 1:100000 scale topographic maps by Mark Kuzila. These maps were digitized by NDWR. The narrow bottom lands, traced by a single line along minor stream drainage paths on the topographic maps, were digitized and then given aerial extent by applying a 50-meter buffer on either side of the line. The final boundary was mapped as a 100-meter wide alluvial band. Field investigations in Nuckolls, Webster and Franklin Counties verified the use of a 50-meter buffer on these small drainage ways.

In accordance with Attachment B, areas in which the water level at the time of well drilling was below the base of the alluvium were not included in the alluvial boundary. Water levels were estimated from static water levels indicated on well registrations of nearby wells. Alluvial channels are depicted on the maps in some areas where water level information is sparse, but alluvial material was mapped on the Soil Surveys. These regions will be updated when more detailed water level information becomes available.

The mapped well locations were based on registration forms or Global Positioning System (GPS) locations taken by Natural Resource District (NRD) staff. Well registration legal locations, or footage from a section line were converted by Nebraska Natural Resources Commission personnel to Universal Transverse Mercator (UTM) Zone 14 coordinates. Some of these wells were located using GPS equipment and these geographical coordinates were converted to UTM coordinates and replaced the original coordinates based on legal location conversion.

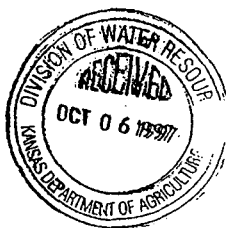
The road maps were obtained from CSD. They originated as USGS Digital Line Graph (DLG) files. CSD staff decoded the DLG's to represent county roads and highways, eliminating trails etc.

Section corners, township lines, cities, streams, reservoirs, and drainage basin boundaries were obtained from the Nebraska Natural Resources Commission Data Bank. Some of these data were digitized from 1:24000 USGS topographic maps by the Natural Resources Commission.

In addition, I relied on the maps of the alluvium along the main stem and mouth of the tributaries of Republican River valley in WSP1. The alluvium as represented in the series of county maps in WSP1 was digitized by CSD staff. There was close agreement between the WSP1 boundaries and those delineated by Kuzila except for a few areas in the lower Republican River valley in Franklin and Webster Counties.

In these areas WSP1 depicts a wider region on the north side of the river than is indicated on the Soil Surveys. Discussions with Kuzila and Vince Dreeszen of CSD revealed that these areas were higher terraces, which were not mapped on the current Soil Surveys. After reviewing the original water levels in wells drilled into these higher terraces, I decided to include them in the final mapped alluvial boundaries. Thus, the final boundaries in the region covered by both the Soil Survey and WSP1 are the result of the union of the two maps. The outermost boundary of each was used to draw the current alluvial maps.

cc: Mike Jess
Don Blankenau
Russ Oaklund



STATE OF COLORADO

OFFICE OF THE STATE ENGINEER

Division of Water Resources
Department of Natural Resources

1313 Sherman Street, Room 818
Denver, Colorado 80203
Phone (303) 866-3581
FAX (303) 866-3589



Roy Romero
Governor
James S. Lochhead
Executive Director
Hal D. Simpson
State Engineer

October 30, 1997

RECEIVED
NOV 03 1997
WATER RESOURCES

MEMORANDUM

TO: Dick Stenzel
David Barfield
Ann Bleed

FROM: Chuck Roberts *Archie*

SUBJECT: Republican River Compact Wells and Alluvium Mapping Project

The intent of this memo is to describe the criteria, information sources, decision-makers, references and sequence of events that resulted in the development of the maps of Colorado's Republican River Compact Wells and Alluvium.

Evolution of the Mapped Data

The preliminary list of compact wells done in late 1986 by Andrew Wacinski of the Colorado Division of Water Resources (CDWR) was reviewed and revised by John Romero and George Van Slyke (both of CDWR) after field mapping to determine the actual extent of the alluvial channels.

The referenced USGS maps and other publications were utilized as base maps. The field mapping done by CDWR was to confirm the existence of the alluvium.

Mapping of the alluvium was limited to aquifer thicknesses greater than 5 feet because of the impracticality of construction of a well in such a thin formational veneer. In most cases outside the alluvium boundary thickness of alluvium was much less than 5 feet.

After the mapping was complete, John Romero reviewed well completion logs of record in CDWR for wells within and near this mapped alluvium. All wells completed in the alluvium within the mapped boundaries were included in the Compact Wells list. If individual wells were identified as completed within the Ogallala formation as well as the alluvium and the water level at the time of construction was determined to be within the alluvial section, the well was included in the Compact Wells list. The resultant list of '133 wells' was utilized in the 1990 mailing by CDWR to determine consumption under the Compact, and was provided to the Engineering Committee of the Republican Compact at the August 6, 1996 meeting.

In September 1996, the wells meeting the criteria of Kansas, often referred to as the Amendment A 'Summary' wells, were identified and included on the map. Subsequently, the maps prepared in October 1997 also included all wells regardless of their source in the alluvial fill area or within an area one-half mile outside the alluvial fill boundary. Additionally, a review of and scrutinization of the '133 well' list reduced it to 131 wells because of duplication of two wells.

Memo to Dick Stenzel, David Barfield, and Ann Bleed
October 30, 1997

Page 2

Data Utilized

The attached "References Utilized in Preparing Colorado Maps of Republican River Compact Wells" identifies references used by Messrs. Van Slyke and Romero.

Additionally, the CDWR Well File was a source of database information. Also, the original well permit documents on file in CDWR were used extensively, as well as the permit maps of the Designated Ground Water Branch.

CGR/jmg

Attachments: (1) References Utilized in Preparing Colorado's Maps of Republican River Compact Wells
(2) Memo from George Van Slyke to Dick Stenzel, September 5, 1996, entitled "Republican River Compact Wells"

cc: Hal Simpson
Jack Byers
George Van Slyke

8822.cgr

**References Utilized in Preparing Colorado's
Maps of Republican River Compact Wells**

United States Geologic Survey (USGS) Maps were utilized as base maps for field mapping of alluvial valley fill deposits and terrace deposits believed to be in hydraulic connection (described in memo of George Van Slyke to Dick Stenzel dated September 5, 1996). Messrs. George Van Slyke and John Romero completed the field mapping of Colorado Alluvium Maps depicting the compact wells in early 1989.

**REPUBLICAN RIVER
ALLUVIAL AQUIFER
SELECTED REFERENCES**

- Boettcher, Arnold J., 1966, Ground-Water Development in the High Plains of Colorado; U.S. Geological Survey, Water Supply Paper 1819-I, 22p. plus maps, scale 1:500,000.
- Chase, George H., 1956, Preliminary Ground Water Maps, Kit Carson County, Colorado; U.S. Geological Survey, Open File Report 56-25, scale 1:125,000.
- Hill, D.R. and Tompkin, J.M., 1953, General and Engineering Geology of the Wray Area, Colorado and Nebraska; U.S. Geological Survey Bull. 1001, 65p plus maps, scale 1:63,360.
- McGovern, H.E. and Coffin, D.L., 1963, Potential Ground-Water Development in the Northern Part of the Colorado High Plains; Colorado Water Conservation Board, Ground Water Circular No. 8, 9p plus map, scale 1:500,000.
- Romero, J.R. and Van Slyke, G.D., 1989, Geologic Maps of the Alluvial Aquifer, Republican and Arikaree Rivers, Colorado; Colorado Division of Water Resources, Unpublished Field Maps, scale 1:24,000.
- Scott, Glenn R., 1978, Geology, Structure and Oil and Gas Fields in the Sterling 1 x 2 degree Quadrangle, Colorado, Nebraska and Kansas; U.S. Geological Survey Map I-1092, Scale 1:250,000.
- Sharps, Joseph A., 1980, Geologic Map of the Limon 1 x 2 degree Quadrangle, Colorado and Kansas; U.S. Geological Survey Map I-1250, scale 1:250,000.
- Van Slyke, George D., 1997, Water Levels in the Northern High Plains Designated Ground Water Basin, Colorado; Colorado Division of Water Resources.
- Van Slyke, George D. and Joliat, S.A., 1990, Depletion to the Ogallala Aquifer, Northern High Plains Designated Ground Water Basin; Colorado Division of Water Resources.
- Weist, William G. Jr., 1964, Geology and Ground-Water Resources of Yuma County, Colorado; U.S. Geological Survey, Water Supply paper 1539-J, 56p plus maps, scale 1:500,000.

STATE OF COLORADO

OFFICE OF THE STATE ENGINEER
Division of Water Resources
Department of Natural Resources

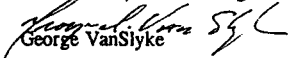
1333 Sherman Street, Room 818
Denver, Colorado 80203
Phone (303) 866-3581
FAX (303) 866-3589



Roy Romer
Governor
James S. Lochhead
Executive Director
Hal D. Simpson
State Engineer

September 5, 1996

MEMORANDUM

TO: Dick Stenzel, Division Engineer
FROM: 
George VanSlyke
SUBJECT: Republican River Compact Wells

In late 1986, Andrew Wacinski of my staff made a preliminary evaluation of the wells which might be considered to be completed within the alluvial materials associated with the Republican River and its various tributaries. Later, in the fall of 1988 John Romero and I again looked at this and at that time conducted a field investigation to accurately determine the extent of the actual alluvial channels of the Republican River and the many tributaries. In doing this we spend several days in the field mapping the width and lateral extent of the "valley fill" type alluvium and any terraces which we believed to be in hydraulic connection with the alluvium.

Later, John Romero reviewed the logs and completion reports for all wells within the alluvial boundaries as determined in the field and of wells near these boundaries. The purpose of this was to determine which wells produced from the alluvial materials. It was noted that many of these wells were multiply completed in the alluvial material and also the Ogallala aquifer. If water levels in the multiply completed wells were within the alluvium, the well was counted towards the compact. If we were uncertain if the well was multiply completed but the water level was within the alluvium, the well was assumed to be multiply completed. No effort was made to determine how much might be produced from the Ogallala as opposed to the alluvium. In all 133 wells were identified as being administrable under the compact.

The extent of the alluvium was plotted on maps of the area and a list of wells was produced. No written report was ever prepared for this study. I was in overall charge of the project, however, John was in charge of the actual well determination. I do remember reviewing his work and that I was in agreement with his determination and methodology.

STATE OF COLORADO

WATER DIVISION ONE OFFICE OF THE STATE ENGINEER

Division of Water Resources
Department of Natural Resources

800 8th Avenue, Room 321
Creedley, CO 80631
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FAX (303) 659-0579



Roy Romer
Governor

James S. Lochhead
Executive Director

Hal D. Simpson
State Engineer

Richard L. Stenzel
Division Engineer

November 5, 1997

David Barfield
Division of Water Resources
Kansas Department of Agriculture
901 South Kansas Avenue
Topeka, Kansas 66612-1283

Subject: Republican River Compact Alluvial Mapping

Dear David:

This letter is to confirm that the meeting scheduled for October 27th was cancelled due to our GIS representative not being able to attend and we felt that it was necessary for her to be present. After discussions I had with Ann, it was agreed by the Colorado and Nebraska representatives that we need to have in writing from Kansas why they have decided that they can not provide the maps as required by the Republican River Compact Commissioners. We see no reason for rescheduling the meeting to review the maps provided by Colorado and Nebraska until we receive your maps.

If the Colorado and Nebraska representatives can be of assistance in answering any questions that you may have in regards to what is needed in order to create the maps by Kansas please let us know in writing what your questions are in this regard and we will attempt to resolve any of your concerns if we can.

I look forward to hearing from you and your providing the requested materials to the Engineering Committee.

Sincerely Yours,

Richard Stenzel, PE

Cc: Ann Bleed
Hal Simpson

STATE OF KANSAS

L. GRAVES, GOVERNOR
A. Devine, Secretary of Agriculture



DIVISION OF WATER RESOURCES
David L. Pope, Chief Engineer-Director
901 South Kansas Avenue, 2nd Floor
Topeka, Kansas 66612-1283
(785) 296-3717 FAX (785) 296-1176

KANSAS DEPARTMENT OF AGRICULTURE

November 21, 1997

Mr. Dick Stenzel
Chair, Engineering Committee
Republican River Compact Administration
Division of Water Resources
800 8th Avenue - Room #321
Greeley, Colorado 80631

RE: Engineering Committee Mapping Assignment

Dear Dick:

We are in receipt of Colorado's draft maps, received on November 3rd, as well as your letter of November 5th.

Having now reviewed Colorado's maps, I believe they provide a good example of the type of maps which would be useful for discussion by the Engineering Committee as related to our assignment. While we would have preferred to have the entire Engineering Committee agree to certain criteria prior to preparing maps, given Colorado's example, we believe we are in a position to develop a similar set of maps. I would suggest that, after you have reviewed the maps, the Engineering Committee meet to discuss the mapping and underlying data. We would hope to reach agreement on another round of mapping under more standardized criteria. Nebraska could facilitate such a meeting by redrafting their maps to the level of information comparable to Colorado.

We look forward to continuing to work together in this process. We will be forwarding to Colorado and Nebraska our draft version of the maps as soon as we can. At that time, I would request that all three States complete the exchange of supporting data for the mapping assignment, as per our previous agreement.

Sincerely,

David Barfield, P.E.
Kansas Engineering Committee Representative
Republican River Compact Administration

cc: David Pope
Ann Bleed

37

STATE OF KANSAS

BILL GRAVES, GOVERNOR
Alice A. Devine, Secretary of Agriculture



DIVISION OF WATER RESOURCES
David L. Pope, Chief Engineer-Director
901 South Kansas Avenue, 2nd Floor
Topeka, Kansas 66612-1663
(785) 296-3717 FAX (785) 296-1111

KANSAS DEPARTMENT OF AGRICULTURE

January 7, 1998

Mr. Dick Stenzel, Chairman
Engineering Committee
Republican River Compact Administration
Colorado Division of Water Resources
800 8th Avenue - Room #321
Greeley, Colorado 80631

Ms. Ann Bleed, Representative
Engineering Committee
Republican River Compact Administration
Nebraska Department of Water Resources
301 Centennial Mall South - 4th Floor
Lincoln, Nebraska 68509-4676

Subject: Draft Maps of the Geologic Alluvium in Kansas

Dear Dick and Ann:

As noted in my letter of November 21st, while we would have preferred to have the Engineering Committee agree to certain criteria prior to each State preparing maps, the receipt of Colorado's good example has convinced us to develop a similar set of maps. Enclosed are draft maps prepared by the Kansas representatives to the Republican River Compact Administration's Engineering Committee, together with a list of references, metadata for the coverage, and a listing of wells depicted on the maps. This letter will provide background information and supporting documentation on how the mapped draft geologic alluvium boundary was determined.

In 1996, the Engineering Committee was directed by the Compact Administration to seek a standard methodology for computing consumptive use under the current adopted formulae. After disagreeing on the definition of wells "pumping from the alluvium" under the formulae, the Engineering Committee submitted a report to the Compact Administration at its 1997 Annual Meeting which included separate proposed methodologies to the Administration, rather than a single Engineering Committee proposal. Kansas' Engineering Committee representatives' proposal was set forth in "Attachment A" to the report, while the Nebraska and Colorado Engineering Committee representatives' proposal was set forth in "Attachment B."

At the 1997 Annual Meeting, the Compact Administration determined that maps drawn by all three States would be useful for each State's representatives to perform consumptive use calculations for all three States according to how they propose to define "pumping from the alluvium" under the current adopted formulae. In order for us to perform consumptive use calculations for Nebraska and Colorado under our proposed Attachment A, we will need further information, especially from Nebraska.

Thus, the purpose of the enclosed maps is to provide a delineation of the boundary of the geologic alluvium, determined by currently available data. The plotted boundary does not represent the boundary for purposes of determining which wells should be included in the Compact calculations. We consider all three States' maps to be preliminary. Further discussion toward finding agreement on mapping criteria must take place.

Boundary Determination

To determine the draft boundary of geologic alluvium, we relied almost exclusively on a series of reports and maps of surface geology prepared in a joint project between the U.S. Geological Survey (USGS) and the Kansas Geologic Survey (KGS), published by the KGS. For small portions of Smith and Phillips Counties, where geologic information was not available, we used county soils data from the Natural Resources Conservation Service. A listing of these reports is attached to this letter.

The attached metadata file provides details on how the draft geologic alluvium boundary was determined and plotted. In short, the maps published by the KGS were traced onto mylar paper and then the traced lines were scanned and vectorized into a GIS format. Kansas Engineering Committee members then determined which geologic formations were to be considered as part of the draft geologic alluvium. Geologic formations selected for inclusion on this map include: a) alluvial valley fill deposits and, b) those terrace deposits believed to be in hydraulic connection to the valley fill deposits which KGS's work indicated may yield water to wells.

Note that we have not truncated the boundary of the geologic alluvium to those areas which have sufficient saturated thickness to supply wells. This results in a broader area being delineated as geologic alluvium on our maps than that shown on the Nebraska and Colorado maps.

Plotting of Wells

We have plotted and labeled all authorized, non-domestic wells within the ½ mile boundary of the draft geologic alluvium, as well as Kansas' criteria wells outside the ½ mile boundary. Wells meeting Kansas' recommended criteria are shown in red. Other wells within the ½ mile boundary are shown in blue. These "other wells" include wells pumping from the Ogallala Formation which are isolated from the surface-alluvial system, wells used for recreation purposes, and wells pumping less than 50 AF per year for municipal, industrial and stockwatering purposes.

There are a number of well batteries which are plotted. These well batteries are administered by DWR as a unit and are generally several low capacity wells in close proximity to one another and tied into a common distribution system. Thus, for well batteries we have plotted the geo-center of the well battery as the point of diversion.

We have labeled wells with their water appropriation file number(s). In cases where multiple file numbers cover a single well, each file number is displayed. Where a water appropriation file covers multiple wells, each well is displayed and labeled.

We have attached a listing of plotted wells, along with readily available data pertinent to the assignment. Well locations, as plotted, are as authorized and field verified by the Kansas Department

of Agriculture, Division of Water Resources staff. Conversion of legal descriptions (most often as measured in feet north and west of the southeast section corner, but in some cases described in 10-acre tracts) to latitude-longitude was accomplished using a database of latitude-longitudes for section corners in Kansas developed by the KGS and its LEO3 program and more recent improvements by the Division.

Kansas is also willing to exchange an ArcInfo coverage of the draft geologic alluvium. We request that you provide us with a copy of your coverage and its metadata documentation.

Concluding Remarks

With this transmittal, I trust that we, as an Engineering Committee, are now in a position to exchange data necessary to allow a full review of the maps and to begin to address questions posed when the Engineering Committee meeting was postponed, as well as other questions which have emerged from a review of the three maps and their differing underlying definitions and methods of development.

The review of Nebraska and Colorado's maps will require a complete, up-to-date listing of wells and pertinent associated data (well depth, water level at time of drilling, etc.). We request that Nebraska provide revised maps including: a) well labels tying them to this supporting data and, b) following Colorado's lead, which we have followed, distinguishing wells meeting Colorado/Nebraska's criteria, Kansas' criteria, and other wells. We have a number of areas of concern with Nebraska's maps, particularly in areas where the 100 meter wide alluvial band was used in Nebraska tributaries. We will need to discuss in some detail the criteria and underlying data used for determining the geologic alluvium boundary, including Colorado's and Nebraska's basis for truncated formations where it was determined that there was not "water sufficient for a well."

We look forward to hearing from you regarding the next step in this process.

Sincerely,



David W. Barfield, P. E.
Kansas Engineering Committee Representative
Republican River Compact Administration

DWB:jpb

Enclosures:

Maps

References

Metadata for the draft geologic alluvium coverage

Listing of wells

cc: David L. Pope, Kansas Commissioner to the Republican River Compact
Kansas' Engineering Committee Representatives:

Scott E. Ross

Earl D. Lewis, Jr

Iona J. Branscum

STATE OF KANSAS



DIVISION OF WATER RESOURCES
David L. Pope, Chief Engineer-Director
901 South Kansas Avenue, 2nd Floor
Topeka, Kansas 66612-1283
(785) 296-3717 FAX (785) 296-1176

3530

RECEIVED

MAR 02 1998

WATER RESOURCES
DIVISION
GREELEY, COLORADO

KANSAS DEPARTMENT OF AGRICULTURE

February 27, 1998

Mr. Dick Stenzel, Chairman
Engineering Committee
Republican River Compact Administration
Division of Water Resources
800 8th Ave. - Room #321
Greeley, Colorado 80631

Ms. Ann Bleed, Representative
Engineering Committee
Republican River Compact Administration
Nebraska Department of Water Resources
301 Centennial Mall South - 4th Floor
Lincoln, Nebraska 68509-4676

RE: Engineering Committee Mapping Assignment

Dear Dick and Ann:

I am in receipt of Dick's e-mail note calling for a meeting of the Engineering Committee to discuss draft mapping and other matters.

In my letter to Dick of November 21, 1997, I noted that a meeting of the Engineering Committee to discuss mapping would be in order and that, "Nebraska could facilitate such a meeting by redrafting their maps to the level of information comparable to Colorado's."

On January 7, 1998, Kansas transmitted to both Colorado and Nebraska our maps with documentation on how the alluvial boundary was determined, references, a detailed metadata file, and a complete well listing with associated information. In addition, the information on Kansas' and Colorado's maps is displayed in a manner to facilitate review by all States. In my transmittal letter I concluded by saying:

The review of Nebraska and Colorado's maps will require a complete, up-to-date listing of wells and pertinent associated data (well depth, water level at time of drilling, etc.). We request that Nebraska provide revised maps including: a) well labels tying them to this supporting data and, b) following Colorado's lead, which we have followed, distinguishing wells meeting Colorado's/Nebraska's criteria, Kansas' criteria, and other wells.

Also in my transmittal letter I noted our willingness to exchange ArcInfo coverages of the draft geologic alluviums and requested that Colorado and Nebraska provide a copy of their coverages and metadata documentation.

February 27, 1998

To date, we have received none of the information requested. As we have indicated before, receipt of such information is a prerequisite to a meaningful Engineering Committee meeting. As soon as we are provided with the requested information and after a reasonable time to review the information, we will be ready to meet with you.

I look forward to receiving the requested information and to meeting with both of you in the near future.

Sincerely,

A handwritten signature in black ink, appearing to read "D. Barfield". The signature is written in a cursive style with a large initial "D" and "B".

David W. Barfield, P.E.
Kansas Engineering Committee Representative
Republican River Compact Administration

DWB:jpb

cc: David Pope, Kansas Commissioner

STATE OF NEBRASKA



DEPARTMENT OF WATER RESOURCES
J. Michael Jess
Director

March 9, 1998

IN REPLY REFER TO:

E. Benjamin Nelson
Governor

David Barfield, P.E.
Special Assistant to the Chief Engineer
Division of Water Resources
901 South Kansas Ave., 2nd Floor
Topeka, KS 66612-1283

Dear David:

I was surprised and disappointed to receive your letter of February 27, 1998 stating that you refused to attend a meeting of the Republican River Compact Commission Engineering Committee meeting unless Nebraska and Colorado provided more information. Both Nebraska and Colorado provided the information requested by the Compact Commissioners. If we had not, perhaps I could understand your refusal to proceed.

As you noted in your January 7, 1998 letter, the Compact Commissioners have not yet agreed on a methodology to define alluvial wells. You added you "consider all three states maps to be preliminary. Further discussion on finding agreement on mapping criteria must take place." Nebraska is willing to provide you with our ArcInfo coverages, which contain much of the data you requested. However, before we go to the extra work of redrawing our maps, I had hoped we could get together for two days to review the alluvial maps and address our differences. I certainly did not interpret that letter as an ultimatum that unless the maps were provided exactly as you requested, you would not meet with the Engineering Committee.

I regret your decision to take this position and would urge you to change your mind. Obviously, if we don't meet, it will be impossible for the Engineering Committee to complete our assignment from the Compact Commissioners.

Sincerely,

Ann Salomon Bleed by sj

Ann Salomon Bleed
State Hydrologist

AB:pjb

cc: Michael Jess
Donald Blankenau
Virgil Norton
Wayne Heathers
Ron Wunibald
John Thorburn
Mike Thompson
Russ Oaklund

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State of Kansas
Office of the Attorney General
301 S.W. 10th Avenue, Topeka 66612-1597

CARLA J. STOVALL
ATTORNEY GENERAL

May 6, 1998

MAIN PHONE: (785) 296-2215
FAX: 296-6296
TTY: 291-3767

The Honorable Don Stenberg
Attorney General, State of Nebraska
2115 State Capitol Building
Lincoln, Nebraska 68509-8920

Re: Republican River Compact

Dear General Stenberg: *Don*

It has come to my attention that David Pope, Compact Commissioner for Kansas, and his staff are in need of information to complete a project assigned to them by the Republican River Compact Administration.

When David Pope's staff attempted to make arrangements to go to Nebraska to obtain the information, which I understand to be public information, they were notified by Don Blankenau, legal counsel to the Nebraska Department of Water Resources, that the information would not be available to them by means of a standard public information request. Rather, according to Mr. Blankenau, any such requests by the State of Kansas must go through your office.

Attached is a list of the specific information required by David Pope's staff to assist in their Republican River Compact Administration project. I hereby request that the attached information be made available by the appropriate Nebraska state agency.

Sincerely,

Carla J. Stovall
Carla J. Stovall
Attorney General

CJS:bs
Attachment

STATE OF KANSAS



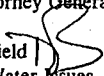
DIVISION OF WATER RESOURCES
David L. Pope, Chief Engineer-Director
901 South Kansas Avenue, 2nd Floor
Topeka, Kansas 66612-1283
(785) 296-3717 FAX (785) 296-1176

KANSAS DEPARTMENT OF AGRICULTURE

MEMORANDUM

TO: Don Pitts
Kansas Attorney General's Office

DATE: May 6, 1998

FROM: David Barfield 
Interstate Water Issues

RE: 1997 Republican River Compact Administration Engineering Committee Assignment

Under the Republican River Compact Administration, it has been customary for each State to calculate and report consumptive use for the portion of the Republican River basin in each State at the Administration's annual meeting. However, the Compact Administration has been in dispute over the individual State's methods used for calculating consumptive use.

Therefore, the Compact Administration's Engineering Committee was assigned to recommend a method agreeable to the States for computing consumptive use. However, the Engineering Committee representatives from each of the States could not agree on a single methodology. At last year's annual meeting of the Compact Administration, the Engineering Committee presented the Compact Administration with two separate recommendations regarding methodologies to compute consumptive use.

Kansas' recommendation is referred to as "Attachment A" to the Engineering Committee's 1997 report, and Colorado's and Nebraska's recommendations are known as "Attachment B" to the same report.

Following receipt of the Engineering Committee's report, and in light of the dual recommendations, the Compact Administration assigned the Engineering Committee to compute consumptive use; but rather than computing consumptive use for only each State's portion of the basin, it was decided that each State would make basin-wide calculations according to the methodology recommended by that State. Attachment A, Kansas' recommendation, requires more data than Attachment B. Therefore, David Pope, Compact Commissioner for Kansas agreed to the assignment only under the condition that Kansas be provided necessary information to perform Attachment A calculations for the other two States. As a representative for Kansas on the Engineering Committee, my assignment is to compute basin-wide calculations under Kansas' recommended method (Attachment A).

When we left the 1997 annual meeting, it was my understanding that both Nebraska and Colorado would provide us the information we would need to complete the assignment. We later learned that Nebraska would only provide us access to the necessary information. We then decided to travel to Nebraska to make the appropriate information requests. However, as indicated by the attached letter dated April 20, 1998, from Don Blankenau to Amy Aufdemberge, we were told that even if we traveled to Nebraska to get the information, we would not be given the information because Nebraska has decided that all information requests must go through your office to Nebraska's Attorney General Don Stenberg.

Accordingly, below is a listing of data we need from Nebraska to complete the assignment. I have provided Colorado with a request, as well. Please forward this list to the Nebraska Attorney General's office, as per Don Blankenau's written request.

To confirm the boundary of the alluvium, Kansas will require:

- 1) Well database - A full and up-to-date listing of their well registration database. We have received a partial listing, but it appears to be complete only through the end of 1996 and it does not include wells outside of one-half mile from their draft boundary of the alluvium. Our methods require the evaluation of wells up to one mile from the boundary of the alluvium.

In addition, the well database Nebraska provided to us in our exchange of GIS coverages does not include acres and pumping rates for some wells. Some means to deal with missing data will be required. Where well depth and water level depth information is not provided, a well log will be necessary, except for wells which Nebraska delineates as being within the alluvium.

- 2) Delineation of wells and request for well logs - Despite two previous requests from Kansas, Nebraska has not delineated wells they consider to be pumping from the alluvium and those they consider to be pumping from an aquifer isolated from the alluvium. Provision of this information would simplify our request for geologic information, as we would not need well logs for wells they consider pumping from the alluvium.

We will need well logs for wells within Nebraska's draft alluvium which they delineate as not pumping from the alluvium, as well as well logs for all wells within one mile of their draft alluvium.

- 3) Truncation of the alluvium - Nebraska has chosen to truncate its draft alluvium where it has determined that there is not now, and never has been, sufficient saturated thickness within the aquifer to support a well. At each location where this has been done, we need sufficient well logs in the vicinity of this location to confirm their determination is consistent with our interpretation.

- 4) Data needed to determine "Kansas criteria wells" - Unlike Kansas and Colorado, Nebraska has not sought to determine which wells are pumping from the alluvium according to Kansas' criteria. We will need data necessary to make these determinations. In addition to the well registration data for wells within one mile of the boundary of the alluvium, we will also need estimates of aquifer parameters, transmissivity and storativity.

To develop estimates of consumptive use in Nebraska using our methods, per the assignment, we will need the following additional data:

- 1) A complete listing of Nebraska's surface water rights within the basin, acres irrigated by these rights, and any records of diversions or estimates of consumptive use and their basis.
- 2) A copy of any surveys to be relied upon by Nebraska to reduce irrigated acres from those authorized by water rights or registered. We will also need to know if and how this information was verified.
- 3) Copies of any well flow meter data available.
- 4) Data necessary to complete the Blaney-Criddle computations, including assumed crops and season lengths. We may also need access to 1997 climatological data for some or all of the stations you used in your analysis.

A meeting of the Republican River Compact Engineering Committee is scheduled for May 8th in McCook, Nebraska, at which time we will be discussing the basis of our determination of the draft alluvium. We may have additional needs based on questions which might arise from that discussion.

DWB:jpb
Attachment

STATE OF NEBRASKA



E. Benjamin Nelson
Governor

DEPARTMENT OF WATER RESOURCES
J. Michael Johnson
Director

April 20, 1998

IN REPLY REFER TO:

Ms. Amy Aufdenberge
Division of Water Resources
Kansas State Board of Agriculture
901 South Kansas Ave., Second Floor
Topeka, KS 66612-1283

Dear Amy,

Over the weekend I reflected upon our conversation of last week. In order to avoid any misconceptions, I thought it might be helpful to restate my position in writing. It is my understanding that members of your office intend to come to the Nebraska Department of Water Resources offices on April 28 to review various well logs. Given the directive of your legislature to your Attorney General to initiate litigation against Nebraska, and the decision by your office to resolve our respective differences through litigation, I have decided to have all requests for information go through our Attorney General, Don Stenberg. As I stated in the phone conversation, Attorney General Stovall should make a request to Attorney General Stenberg for the specific well logs. If Attorney General Stenberg agrees to submit that information, we would make that available to you. Unless such authorization is received from the Attorney General, however, I will be unable to allow you to inspect those records at your convenience.

While I realize this process is cumbersome, I believe it is wholly appropriate given public comments Attorney General Stovall has made indicating she will file suit against Nebraska prior to the next Compact meeting. If we are mistaken, and Attorney General Stovall does not intend to file suit, I urge her to advise Attorney General Stenberg immediately.

I hope the foregoing has been helpful to you. Please call me should you have any questions regarding my position.

Sincerely,

Don Blankenau
Assistant Director/Legal Counsel

DB:sg

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DIVISION OF WATER RESOURCES
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(785) 296-3717 FAX (785) 296-1176

Bill Graves, GOVERNOR
Alice A. Devine, Secretary of Agriculture

KANSAS DEPARTMENT OF AGRICULTURE

VIA FACSIMILE

May 7, 1998

Mr. Richard Stenzel
Division One Engineer
Division of Water Resources
800 8th Avenue - Room #321
Greeley, Colorado 80631

Dear Dick:

Subject: Request for Additional Data to Complete the Engineering Committee Assignment

The purpose of this letter to request additional information needed by Kansas to complete the assignment by the Republican River Compact Administration that each State develop basin-wide estimates of their respective consumptive use and virgin water supply.

We appreciate your office providing ArcView coverages of Colorado's draft alluvium and various well coverages. However, Kansas will need additional data to complete its review of Colorado's draft alluvium and data to develop basin-wide estimates of consumptive use and virgin water supply according to our methods.

As of this writing, we have received the full Colorado DWR's "Wells" GIS coverage for only a portion of the wells required for our work (we received it for "other" wells, but not for the Colorado or Kansas criteria wells). To complete our review of Colorado's draft alluvium, we will need this database for the remaining wells and the following:

- 1) Truncation of the alluvium - Colorado has chosen to truncate its draft alluvium based upon where they determined there is not now, and never has been, sufficient saturated thickness within the aquifer to support a well. At each location where this has been done, we would like to review sufficient well logs in the vicinity to confirm your determination is consistent with our interpretation.

- 2) "Other wells" - Colorado has determined that a number of wells within the boundary of the draft alluvium, as well as within 1/2 mile of that boundary, do not meet either Kansas' or Colorado's criteria. For this set of wells, we request well logs, or other evidence, that there is no connection between the water-bearing formation being pumped and the alluvium.
- 3) "Kansas criteria wells" - Colorado has completed the computations necessary to determine Kansas criteria wells. We need to confirm these determinations. This will require estimates of aquifer parameters, Transmissivity and Storativity, and an understanding of your method of using available data to determining pumping rate and time of pumping for the analysis.

In addition, we request a list of wells within a mile of the edge of your draft geologic alluvium which you determined did not meet Kansas criteria in order to confirm whether our methods come to the same conclusion. We need the same information as requested above for these wells.

To develop estimates of consumptive use in Colorado using our methods, per the assignment, we will need the following data:

- 1) A complete listing of Colorado's surface water rights within the basin, acres irrigated by these rights, and any records of diversions or estimates of consumptive use.
- 2) A copy of any surveys done by Colorado DWR of its users within the Republican River valley. It is my understanding that DWR sends a survey to well owners each year and that the results of these surveys are used to develop a crop distribution for the Blaney-Criddle analysis.
- 3) It is our understanding that Colorado assumes each well included in the computations pumps to the full authorized acres each year. If this assumption is incorrect, please let us know.
- 4) Data necessary to complete the Blaney-Criddle computations, including assumed crops and season lengths. We may also need access to 1997 climatological data for some or all of the stations you used in your analysis.

Thank you for your cooperation and attention to these requests for additional information. This information will allow us to fulfill the assignment of the Compact Administration. If you have any questions about the above requests for information, please call me.

Sincerely,



David Barfield, P.E.
Engineering Committee Member
Republican River Compact Administration

STATE OF NEBRASKA



DEPARTMENT OF WATER RESOURCES
J. Michael Jess
Director

May 11, 1998

IN REPLY REFER TO:

E. Benjamin Nelson
Governor

David Barfield
Republican River Compact Engineering Committee Member
Kansas Division of Water Resources
Kansas Department of Agriculture
901 South Kansas Avenue, 2nd Floor
Topeka, Kansas 66612-1283

Richard Stenzel
Division One Engineer
Colorado Division of Water Resources
800 8th Ave. Room 321
Greeley, CO 80631

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MAY 13 1998

KS DEPT OF AGRICULTURE

Dear David and Dick:

You asked for the full citation for the Water Supply Paper 1. The citation is:

Ground Water in the Republican River Basin in Nebraska Part I
Nuckolls, Webster, Franklin and Harlan Counties
H. A. Waite, E. C. Reek and D. S. Jones, Jr.

Prepared by the Conservation and Survey Division of the University of Nebraska, the United States Geological Survey and the Bureau of Irrigation, Water Power and Drainage of the Nebraska Department of Roads and Irrigation.

Nebraska Water Resources Survey Water Supply Paper 1
The University of Nebraska, Conservation and Survey Division

Ground Water in the Republican River Basin in Nebraska Part II
Furnas County
H. A. Waite, E. C. Reek and D. S. Jones, Jr.

Prepared by the Conservation and Survey Division of the University of Nebraska, the United States Geological Survey and the Bureau of Irrigation, Water Power and Drainage of the Nebraska Department of Roads and Irrigation.

Nebraska Water Resources Survey Water Supply Paper 1
The University of Nebraska, Conservation and Survey Division

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David Barfield
Richard Stenzel
May 11, 1998
Page 2

Ground Water in the Republican River Basin in Nebraska Part III
Red Willow and Frontier Counties

H. A. Waite, E. C. Reek and D. s. Jones, Jr.

Prepared by the Conservation and Survey Division o f the University of Nebraska, the United States Geological Survey and the Bureau of Irrigation, Water Power and Drainage of the Nebraska Department of Roads and Irrigation.

Nebraska Water Resources Survey Water Supply Paper 1
The University of Nebraska, Conservation and Survey Division

Ground Water in the Republican River Basin in Nebraska
Part IV

Hitchcock, Hayes, Dundy and Chase Counties
H. A. Waite, E. C. Reek and D. s. Jones, Jr.

Prepared by the Conservation and Survey Division o f the University of Nebraska, the United States Geological Survey and the Bureau of Irrigation, Water Power and Drainage of the Nebraska Department of Roads and Irrigation.

Nebraska Water Resources Survey Water Supply Paper 1
The University of Nebraska, Conservation and Survey Division

Sincerely



Ann Salomon Bleed
State Hydrologist

AB:pjb