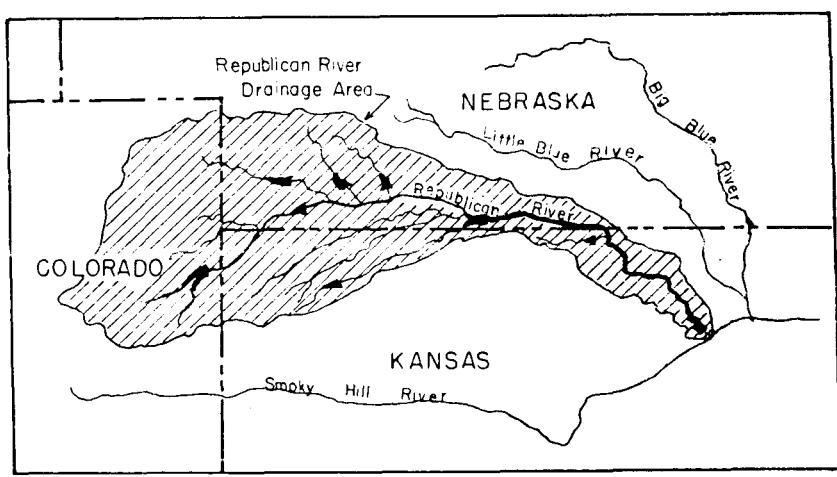


REPUBLICAN RIVER COMPACT ADMINISTRATION

TWENTY-THIRD ANNUAL REPORT

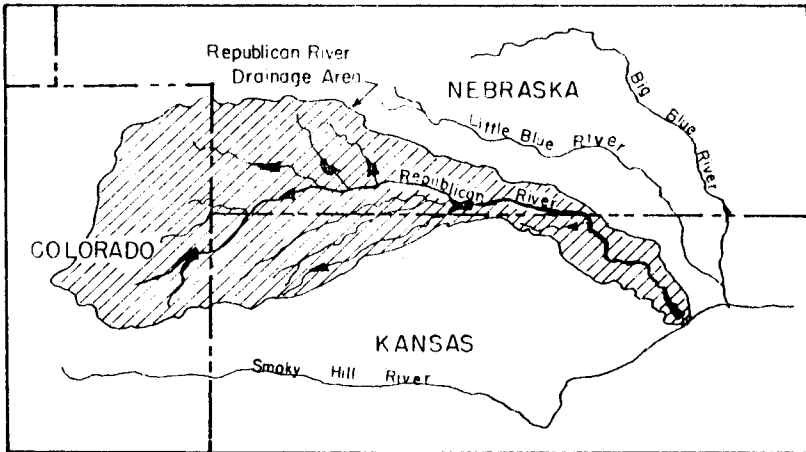


For the Year 1982

McCook, Nebraska
July 7, 1983

REPUBLICAN RIVER COMPACT ADMINISTRATION

TWENTY-THIRD ANNUAL REPORT



For the Year 1982

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TWENTY-THIRD ANNUAL REPORT

REPUBLICAN RIVER COMPACT ADMINISTRATION

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

1. Pursuant to Rule 12, as amended, this report covers the period from August 20, 1982 to July 7, 1983.
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:

Jeris A. Danielson, 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 Twenty-Fourth Annual Meeting of the Administration was held on July 7, 1983 at McCook, Nebraska. 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. The minutes and a report from that committee together with summary tabulations of the computed annual water supply and consumptive use for the 1982 water year in the Republican River Basin were presented and accepted by the Administration and are included in this report.
5. Reports were received from the Bureau of Reclamation on operation and administration of their projects in the basin and on the Republican River Water Management Study.
6. Michael Jess, Nebraska member of the Administration, was previously elected to serve as Chairman until the next annual meeting.

MINUTES

24th Annual Meeting Republican River Compact Administration July 7, 1983

The meeting was called to order by Michael Jess, Chairman at 9:00 a.m., July 7, 1983, in the City Council Chambers, Municipal Auditorium, McCook, Nebraska.

Those in attendance were:

<u>Name</u>	<u>Agency</u>	<u>Location</u>
Michael Jess	Nebraska Commissioner	Lincoln, NE
David L. Pope	Kansas Commissioner	Topeka, KS
Jeris A. Danielson	Colorado Commissioner	Denver, CO
Tom McMahon	Division of Water Resources	Topeka, KS
Brad Edgerton	Department of Water Resources	Cambridge, NE
Dudley Jackson	Department of Water Resources	Cambridge, NE
Daniel Dudden	Upper Republican NRD	Imperial, NE
Don Thompson	Republican Valley Conservation Association	McCook, NE
C. K. Swanson	H&RW Irrigation District	McCook, NE
Bill Lyons	Frenchman-Cambridge Irrigation District	McCook, NE
Willard C. Schlegel	H&RW and Frenchman Valley Irrigation Districts	McCook, NE
Wayne Heathers	Middle Republican NRD	Curtis, NE
Roy Patterson	Frenchman-Cambridge Irrigation District	Cambridge, NE
Lorene Stroud	Frenchman-Cambridge Irrigation District	Cambridge, NE
Barbara Hyslop	KRVN Radio	Lexington, NE
Jim Struck	KRVN Radio	Lexington, NE
John Vasa	Colorado Ground Water Commission	Holyoke, CO
Mark A. Crookston	U. S. Bureau of Reclamation	Denver, CO
Lon Knapp	U. S. Bureau of Reclamation	Denver, CO
Bob Swain	U. S. Bureau of Reclamation	Denver, CO
Fred Zabel	Department of Water Resources	Cambridge, NE
Dennis A. Allacher	U. S. Bureau of Reclamation	McCook, NE
Gerald L. Vap	Middle Republican NRD	McCook, NE
Bob Kutz	U. S. Bureau of Reclamation	Grand Island, NE
Bob Bishop	Department of Water Resources	Lincoln, NE
Hal Simpson	Colorado Engineer Advisor	Denver, CO

Mr. Jess stated that to his knowledge this was the first Republican Compact meeting held within the Republican River Basin.

Approval of Minutes

Motion was made by Danielson and seconded by Pope to adopt the minutes of the 23rd annual meeting. Motion passed.

Report of Chairman

Mr. Jess thanked the Bureau of Reclamation and the Frenchman-Cambridge Irrigation District for hosting a half-day tour on July 6. He also thanked the City of McCook for use of the meeting room.

Chairman Jess briefed those present on the Sporhase and Moss Supreme Court case. The case involved construction of a well near the Nebraska-Colorado state line and transportation of ground water from that well into Colorado. The case was appealed to the U. S. Supreme Court where it was overturned with directions to the Nebraska Supreme Court to rule on the constitutionality of a state statute clause dealing with reciprocity of ground water transportation. The Nebraska Court in turn dismissed the reciprocity clause. Following a hearing on an application, the Department of Water Resources granted the permit to Sporhase and Moss.

Jess reported next on the application by three Republican valley irrigation districts to transport water from the South Platte River into Enders Reservoir. The Department of Water Resources concluded its hearing and is waiting for conclusion of the districts' consultation with the Nebraska Game and Parks Commission concerning adverse affects the project would cause nongame and endangered species.

The Upper Republican Ground Water Control Area was established in 1977. The Natural Resources District's rules now require installation of water meters for allocation of water to each well.

Jess stated that many water-related legislative bills were passed during the 1983 Nebraska Legislative Session. Among those bills were LB 21 and LB 198. Within the same river basin, LB 21 allows for the transfer of water rights from one tract of land to another under the conditions that (1) the requested change of location will not adversely affect any other water appropriator and will not significantly adversely affect any riparian water user who files an objection in writing prior to the hearing, (2) the requested change will use water from the same source of supply as the current use, (3) the quantity of water to be transferred to the new location will not exceed the amount consumptively used under the current use, (4) the water will be applied to a use in the same preference category as the current use, and (5) the requested change is in the public interest.

LB 198 allows for modification of existing water rights to acknowledge that many facilities now in place provide ground water recharge. Under provisions of the act, water rights can be amended to acknowledge and authorize project seepage losses which add to the ground water supply underlying a project area. After obtaining state approval for modification of its water right, an irrigation district is entitled to levy a fee to ground water users affected. The bill also recognizes that future projects could be built exclusively for ground water recharge and clearly allows for water rights to be granted for such projects.

Jess also mentioned the newly organized Nebraska Water Independence Congress. The Congress will make broad recommendations to the Governor for his use in setting future water policies.

Report of Official Members

Jeris Danielson, Colorado Compact Commissioner, reported on the Trans-County project. The project, when accomplished, would import South Platte water into the Colorado high plains to provide recharge and offset depletion of the Ogallala aquifer. Following a hearing in State Water Court, the case was dismissed on lack of diligence. Danielson sees a new opportunity for Nebraska and Colorado to develop a 2-state effort through the Upper Republican Natural Resources District.

Next, Danielson reported on House Bill 1567, which was essentially Colorado's reaction to the Sporhase case. Colorado presently prohibits exportation of ground water and has limited opportunities for exporting surface water. The enactment of H.B. 1567 allows exportation of water from Colorado under certain conditions. Prior to application approval, the state engineer or water judge must find that (1) the proposed use of the water is authorized by interstate compact, and (2) the proposed use is consistent with the reasonable conservation of the state's water resources. If the water to be exported is interstate water or under interstate compact, the applicant must seek approval of all signatory states.

Danielson reported little or no increase in Ogallala ground water declines in Colorado. Some reasons for the leveling off of declines are high power costs and the PIK program.

Danielson introduced John Vasa, Chairman of the Colorado Ground Water Commission. The Commission has control of all designated ground water in Colorado.

Dave Pope, recently appointed Chief Engineer and Director of the Kansas Water Resources Division, reported on the personnel changes within the Kansas water agencies and their new planning activities. He also commented on Senate Bill 62, a water transfer bill. Senate Bill 62 states that any proposal to transfer over 1,000 acre-feet of water a distance of more than 10 miles from the point of diversion would be subject to a new set of criteria. A three member panel consisting of the Chief Engineer-Director of the Division of Water Resources, the Director of the Kansas Water Office and the Secretary of the Kansas Department of Health and Environment would hold a hearing after which the proposal will either be denied or recommended for approval to the Kansas Water Authority. If recommended for approval, the Kansas Water Authority would either approve the proposed transfer or remand it back to the panel for reconsideration. If this process results in approval of the transfer, it must be submitted to the legislature who may revoke the approval or allow it to take place by taking no action. Pope also commented on the Kansas state water plan storage act and the examination of ground and surface water interaction.

Bureau of Reclamation Report

Bob Kutz briefed the group on recent Bureau activities. He stated that the Interior Department has failed to develop a specific cost-sharing policy. Future Interior projects will be examined on a project-by-project basis.

A new reclamation law was recently passed. The law originally allowed individual ownership of 160 acres on federal projects. Now a farm entity can own and irrigate 960 acres. The new law also includes leased lands. The newly developed rules and regulations have been published in the Federal Register. Hearings have been held, but written comments would be received.

Kutz reported that the Frenchman-Cambridge Irrigation District has applied for \$1.5 million to complete its pipe lateral program. He expects the appropriation would be sufficient to complete the project. The Nebraska Bostwick Irrigation District has applied for an "R & B" Study (Rehabilitation and Betterment). If approved, the district would likely install a buried system similar to the Frenchman-Cambridge system. Kutz explained the study procedures.

Kutz mentioned the Ground Water Recharge bill introduced by Congressman Bereuter. He stated that the bill is likely to pass and that any work in Nebraska and Kansas would be funded through the Bureau's Grand Island office. He went on to say that the Upper Republican NRD had submitted a request for a study of recharge potential. This request, which could possibly be done in conjunction with Bereuter's bill, is co-sponsored by the Frenchman Ground Water District, Holyoke, Colorado. A copy of the correspondence was shown to the three State Commissioners.

Kutz also briefed the group on Trenton Dam cable replacement, Medicine Creek measurement weir repair, and Harlan County Dam release options. He reported that because of a past failure to charge Kansas-Nebraska Bostwick Irrigation District irrigators for certain costs in connection with the Corps of Engineers' Harlan County Dam and Reservoir, an additional one-time charge will be made.

He noted that repairs on Lovewell Reservoir had been completed. Also, the Amoco Oil Company contract for water out of Bonny Reservoir was canceled since it is no longer required by law. The city of Norton, Kansas contacted the Bureau of Reclamation with a request to store additional water to improve water quality. City officials were instructed to contact the irrigation district who is also the holder of an existing water right for storage of water in Sebelius Reservoir.

Kutz stated that the Bureau will possibly process deferments for four western Kansas irrigation districts which have been unable to get water. The H&RW District's proposal to amend their contract did not get passed by the U. S. Congress last year. It will be reintroduced. The contract would cancel the District's repayment obligation for the canal system and would modify the district's obligation.

Kutz also mentioned the Republican Valley Conservation Association meeting to be held September 21 in McCook and the University of Nebraska's annual irrigation tour to be held in August.

Kutz noted that the Bureau will be conducting a study on low cost methods of improving earthen canal systems. The tests will be made on the Upper Meeker and Superior canals. The results will be available in late 1984.

Dennis Allacher, Bureau employee from McCook, reported that the Bureau is currently conducting inundation studies in the Republican Basin. These

studies, a result of Presidential directive, outline those areas that would be inundated should a dam fail. Allacher distributed a summary of Republican Basin reservoirs.

Bob Swain reported on the status of the Bureau's Republican Water Management Study. The causes of historic stream flow depletion have been identified as ground water development, soil and water practices, and precipitation changes. The Bureau is trying to identify present and future water uses and determine water availability. A report is scheduled for completion by the end of the next fiscal year.

Report of the Engineering Committee

Copies of the Engineering Committee report were distributed. Bob Bishop, Chairman, reported that the Engineering Committee annual meeting was held May 4, 1983 to compute virgin water supplies and consumptive uses in the Republican River Basin. As suggested at last year's Compact meeting, the computations were made by using Nebraska's Apple Mini Computer, consequently saving much time and effort. Bishop gave a brief summary of past Committee activities and procedures. Motion was made by Danielson and seconded by Pope to accept the Engineering Committee report. Motion passed unanimously.

Report by Wayne Heathers

Wayne Heathers, Manager of the Middle Republican NRD, gave a brief report on the activities within his district. He reported on a ground water monitoring study currently being done and the study of surface water depletions on Medicine and Red Willow creeks. The Middle Republican NRD is also working with the Soil Conservation Service on a Blackwood Creek Watershed study.

Old Business

Last year the Compact asked the Engineering Committee to study inclusion in future reports, quantification of water use and the virgin water supply within the lower Republican River from the Kansas-Nebraska state line to the mouth. Pope questioned whether it would be feasible to proceed, considering the time and effort involved. He stated that the information could be provided in the future if needed.

Jess acknowledged that the Engineering Committee consumptive use and virgin water supply formulas had been published.

New Business

Motion was made by Pope that the Compact Administration pass a resolution in recognition of Guy Gibson's past service. Danielson seconded the motion. Motion carried. Pope will prepare the resolution.

It was agreed to set July 12, 1984 as the next Compact Administration meeting. Jess stated that he would again try to have the meeting in the Republican Basin.

The Engineering Committee was requested to summarize and tabulate the 1983 virgin water supply and consumptive use. Danielson made a motion to also have the Committee review and assess the Bureau of Reclamation's Republican Basin water studies and report to the Compact at the next meeting. Pope seconded the motion. Motion carried.

The meeting was adjourned.

A handwritten signature in cursive script, appearing to read "Michael J. ...", written over a horizontal line.

Nebraska Member (Chairman)

A handwritten signature in cursive script, appearing to read "James A. Danielson", written over a horizontal line.

Colorado Member

A handwritten signature in cursive script, appearing to read "David R. Pope", written over a horizontal line.

Kansas Member

Report of Engineering Committee
Republican River Compact Administration
For the 1982 Water Year

The meeting of the Engineering Committee was held in the office of the Nebraska Department of Water Resources on May 4, 1983.

Committee members present were:

Robert F. Bishop, Nebraska Department of Water Resources
Harold D. Simpson, Colorado State Engineer's Office
Gerald E. Hilmes, Kansas Division of Water Resources
H. Lee Becker, Nebraska Department of Water Resources

Others in attendance were:

Dudley Jackson, Nebraska
Guy E. Ellis, Kansas

Computation of Virgin Water Supplies and Consumptive Uses

The Committee completed its annual assignment of computing the virgin water supply and consumptive uses by states. The procedures utilized were similar to those used in previous years, however, in accordance with revised formulas which now include municipal and industrial uses. The formulas were computed and printed by Lee Becker with Nebraska's Apple Computer using the input data provided by each state. The computer has reduced our annual two-day meeting to a one-day meeting. Total time for data input to printed results is about one hour. Copies of the computer prints are attached to this report including the five- and ten- year running averages and five- and ten-year adjusted allocations. The Apple Computer prints of computations could be included in the annual report if compact officials so desire.

Shown in Table 1 are the 1982 computed virgin water supply by ground water and surface water components shown together with the original computed virgin water supply and the original allocations to each state by sub-basin along with the 1982 adjusted allocations. Adjusted allocations for each state were computed for each sub-basin. A state's allocation is adjusted when the computed annual virgin water supply varies "more than ten per cent from the virgin water supply" as set forth originally in the Compact. The allocations made from such a source are "increased or decreased in the relative proportions that the future computed virgin water supply of such source bears to the computed virgin water supply" as set forth originally in the Compact.

The 1982 consumptive use computations were made for each state and for each sub-basin. Table 2 summarizes those quantities. Annual consumptive use was computed for diversions from surface and ground water sources. Both measured and estimated data were utilized. Allowance was made for reservoir evaporation, return flow, and other losses.

Additional Assignment

At the last annual meeting of the Administration which was held on August 19, 1982, the Engineering Committee was directed to make a study and prepare a report on how to accomplish the inclusion of the lower portion of the basin (the main stem Republican in Kansas below the Hardy gage) into the virgin water supply and consumptive use computation with consideration given to data needed from federal and other agencies.

The Committee studied the matter and found that in order to accomplish the above-noted directive, the following information will be needed:

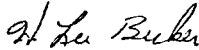
1. The recorded discharge of the Republican River at or near its confluence with the Kansas River.
2. The net evaporation from Milford Reservoir.
3. The change in storage of Milford Reservoir.
4. The net evaporation from Lovewell Reservoir chargeable to White Rock Creek.
5. The change in storage of White Rock Creek water in Lovewell Reservoir.
6. The diversion from White Rock Creek by the Courtland Canal.
7. An inventory of all other surface water diversions (other than Courtland Canal) for irrigation, municipal, and industrial uses in the Republican River Basin below the Hardy gage.
8. An inventory of all ground water diversions from alluvial deposits for irrigation, municipal, and industrial uses in the Republican River Basin below the Hardy gage.
9. Return flows from surface and ground water uses, including Courtland Canal from White Rock Creek water.
10. The recorded discharge of the Republican River at the Hardy gaging station.

The above required information is presently available from state, local or federal agencies except the inventory of ground and surface water usage in the Republican River Basin below the Hardy gage. The inventory of ground and surface water usage will need to be assembled and usage data collected annually by Kansas.

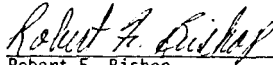
The Engineering Committee agreed that their next annual meeting shall be held on the first Wednesday in May 1984 at Lincoln, Nebraska, in the office of the Nebraska Department of Water Resources.

Respectfully submitted,

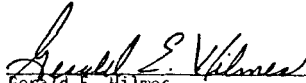
Engineering Committee
Republican River Compact



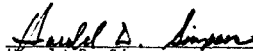
H. Lee Becker



Robert F. Bishop



Gerald E. Hilmes



Harold D. Simpson

Table 1

Computed Annual Virgin Water Supply and
Original and Annual Adjusted Allocations, 1982

Sub-basin and the Original Compact Virgin Water Supply	Computed Annual Virgin Water Supply Republican River Basin 1982 (Acre Feet)			Comparison of Original Compact Allocations and 1982 Adjusted Allocations (Acre Feet)								
	#Ground Water	Surface Water	Total Basin	Colorado		Kansas		Nebraska		Total Basin		
				Compact Alloc.	Adj. Alloc.	Compact Alloc.	Adj. Alloc.	Compact Alloc.	Adj. Alloc.	Compact Alloc.	Adj. Alloc.	
Prairie Dog Cr.	27,600	9,680	2,060	11,740			12,600	5,360	2,100	890	14,700	6,250
Sappa Cr.	21,400	19,620	3,850	23,470			8,800	8,800	8,800	8,800	17,600	17,600
Beaver Cr.	16,500	15,180	680	15,860	3,300	3,300	6,400	6,400	6,700	6,700	16,400	16,400
Medicine Cr.	50,800	9,140	36,740	45,880					4,600	4,600	4,600	4,600
Red Willow Cr.	21,900	4,670	18,610	23,280					4,200	4,200	4,200	4,200
Driftwood Cr.	7,300	1,550	4,720	6,270			500	430	1,200	1,030	1,700	1,460
Frenchman Rv.	98,500	19,810	77,420	97,230					52,800	52,800	52,800	52,800
South Fork of the Republican Rv.	57,200	7,620	30,460	38,080	25,400	16,920	23,000	15,320	800	530	49,200	32,770
Rock Cr.	11,000	40	8,910	8,950					4,400	3,580	4,400	3,580
Buffalo Cr.	7,890	180	5,110	5,290					2,600	1,740	2,600	1,740
Arikaree Rv.	19,610	4,750	10,140	14,890	15,400	11,690	1,000	760	3,300	2,500	19,700	14,950
N.F. Republican Rv. in Colorado	44,700	380	45,990	46,370	10,000	10,000			11,000	11,000	21,000	21,000
*N.F. and Main Stem of Republican Rv. Incl. Blackwood Cr. in Nebraska	94,500	65,450	273,540	338,990			138,000	254,460	132,000	244,490	270,000	498,950
TOTALS	478,900	158,070	518,230	676,300	54,100	41,910	190,300	291,530	234,500	342,860	478,900	676,300

*Main Stem 87,700

Blackwood Creek 6,800

Ground water from alluvial stream deposits within one mile of the stream

Table 2

Computed Consumptive Water Use for 1982 within the
Republican River Basin (Acre Feet)

Sub-basin	Colorado			Kansas			Nebraska			Total Basin		
	# Ground Water	Surface Water	Total	# Ground Water	Surface Water	Total	# Ground Water	Surface Water	Total	# Ground Water	Surface Water	Total
Prairie Dog Creek				9,680	1,160	10,840	920	220	1,140	10,600	1,380	11,980
Sappa Creek				7,110	100	7,210	13,010	230	13,240	20,120	330	20,450
Beaver Creek	0	0	0	6,580	40	6,620	8,600	150	8,750	15,180	190	15,370
Medicine Creek							9,750	3,830	13,580	9,750	3,830	13,580
Red Willow Creek							4,670	6,300	10,970	4,670	6,300	10,970
Driftwood Creek				0	0	0	1,550	80	1,630	1,550	80	1,630
Frenchman River							19,810	19,590	39,400	19,810	19,590	39,400
South Fork of the Republican River	2,150	13,230	15,380	5,470	160	5,630	0	0	0	7,620	13,390	21,010
Rock Creek							40	90	130	40	90	130
Buffalo Creek							180	450	630	180	450	630
Artikaree River	4,060	0	4,060	370	0	370	320	0	320	4,750	0	4,750
N.F. Republican Rv. in Colorado	380	6,860	7,240				0	3,470	3,470	380	10,330	10,710
N.F. & Main Stem of Republican Rv. incl. Blackwood Cr. in Nebraska				150	27,880	28,030	63,270	76,550	139,820	63,420	104,430	167,850
TOTALS	6,590	20,090	26,680	29,360	29,340	58,700	122,120	110,960	233,080	158,070	160,390	318,460

*Evaporation from Harlan County Reservoir apportioned to Kansas (48%) 6,000 and to Nebraska (52%) 6,510 AF.
#Ground water from alluvial stream deposits within one mile of the stream.

RESOLUTION

WHEREAS GUY E. GIBSON, Chief Engineer-Director, Division of Water Resources, Kansas State Board of Agriculture, has been the Official Member for Kansas on the Republican River Compact Administration from May 1, 1972 to March 1, 1983; and

WHEREAS MR. GIBSON retired from his duties as Chief Engineer-Director of the Division of Water Resources and as Official Member of the Republican River Compact Administration on March 1, 1983; and

WHEREAS MR. GIBSON, through the years, has contributed knowledge, professional skill and services to the fulfillment of the purposes of the Republican River Compact and to the performance of the Republican River Compact Administration;

NOW, THEREFORE, BE IT RESOLVED, That the Republican River Compact Administration does hereby acknowledge the outstanding contributions of Guy E. Gibson to the States of Colorado, Kansas and Nebraska and does express on behalf of the people of these States their appreciation for his services and extend to him best wishes for the future.

BE IT FURTHER RESOLVED That this resolution be entered into the records of this Administration and that the Chairman be instructed to send a copy to Mr. Gibson.

Adopted at the Twenty-Fourth Annual Meeting of the Republican River Compact Administration at McCook, Nebraska on the 7th day of July, 1983.

REPUBLICAN RIVER COMPACT ADMINISTRATION



J. Michael Jess, Chairman