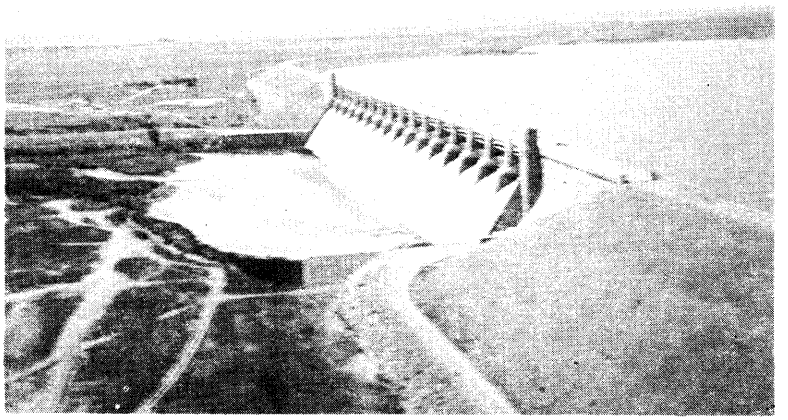
THIRTY-FOURTH ANNUAL

ARKANSAS RIVER COMPACT ADMINISTRATION

(1982)

For The Report-Year

November 1, 1981 to October 31, 1982



LAMAR, COLORADO

January 15, 1984

Thirty-fourth Annual Report

Arkansas River Compact Administration

(1982)

For The Report-Year

November 1, 1981 to October 31, 1982

LAMAR, COLORADO

January 15, 1984

THE ADMINISTRATION

FRANK G. COOLEY
Chairman and Representative of the United States

LEO IDLER, CARL G. GENOVA
and J. WILLIAM McDONALD
for Colorado

CARL E. BENTRUP, GUY E. GIBSON,
and RONALD OLOMON
for Kansas

******

1000 South Main Street
Lamar, Colorado 81052

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Annual Report Of

ARKANSAS RIVER COMPACT ADMINISTRATION

1982

Report-Year November 1, 1981 to October 31, 1982

TO: THE PRESIDENT OF THE UNITED STATES AND THE GOVERNORS OF THE STATES OF COLORADO AND KANSAS

Sirs:

Pursuant to Article VIII of the Arkansas River Compact, the Arkansas River Compact Administration submits its report for the Report-year November 1, 1981 through October 31, 1982, as follows:

1. Members of the Administraton

Representative of the United States:

Frank G. Cooley

Colorado Representatives:

Leo Idler, Lamar
Carl G. Genova, Pueblo
J. William McDonald, Denver

Kansas Representatives:

Carl E. Bentrup, Deerfield
Guy E. Gibson, Topeka
Ronald Olomon, Garden City

2. Officers of the Administration

Chairman:

Frank G. Cooley

Vice Chairman:

Carl E. Bentrup

Recording Secretary:

Leo Idler

Operations Secretary:

Robert Jesse

Treasurer:

Leo Idler

3. Standing Committees:

Administrative and Legal Committee:

J. William McDonald (Chairman)
Carl E. Bentrup

Engineering Committee:

Guy E. Gibson (Chairman)
Carl G. Genova

Operations Committee:

Leo Idler (Chairman)
Ronald Olomon

The Representative of the United States is an ex-officio member of all standing committees.

4. Meetings:

December 8, 1981	Annual Meeting: Cancelled
January 4, 1982	Recessed Annual Meeting, Lamar, Colorado
January 29, 1982	Special Telephonic Meeting

The minutes of these meetings are included in Apppendices "C-1" and "C-2"

5. Fiscal:

TREASURER'S REPORT
July 1, 1981 through June 30, 1982

Cash balance July 1, 1981		$31,554.00
Receipts:		
Revenue from Assessments:		
Colorado—60%	$13,614.00	
Kansas—40%	9,076.00	
Interest	2,273.00	
Miscellaneous	2.00	
TOTAL RECEIPTS		$24,965.00
TOTAL TO ACCOUNT FOR		$56,519.00
DISBURSEMENTS:		
Insurance	100.00	
U.S. Geological Survey	5,700.00	
Equipment	4,600.00	
Professional Fees	1,348.00	
Office Supplies	155.00	
Printing Annual Report	1,146.00	
Secretary's Salary—Net	3,357.00	
Payroll Taxes	480.00	
Telephone	1,570.00	
Typing and Mailing	167.00	
Travel and Meeting	97.00	
TOTAL DISBURSEMENTS		18,720.00
EXCESS OF RECEIPTS OVER DISBURSEMENTS		6,245.00
CASH BALANCE, JUNE 30, 1982		$37,799.00

BALANCE SHEET
July 1, 1982 thru December 10, 1982

CASH BALANCE, JULY 1, 1982		$37,798.62
RECEIPTS:		
Revenue from Assessments:		
Colorado—60%	$11,604.72	
Kansas—40%		
Interest	561.89	
Miscellaneous	3.71	
TOTAL RECEIPTS		12,170.32
TOTAL TO ACCOUNT FOR		49,968.94
DISBURSEMENTS:		
Insurance	100.00	
U.S. Geological Survey	10,845.00	
Equipment		
Professional Fees	250.00	
Office Supplies	82.69	
Printing Annual Report		
Secretary's Salary Net	1,679.40	
Payroll Taxes	241.20	
Telephone	635.73	
Typing & Mailing	138.56	

Travel & Meetings			
Robert Jesse—Secretary—			
Salary & Supplies		2,272.52	
TOTAL DISBURSEMENTS			16,245.10
EXCESS OF RECEIPTS OVER DISBURSEMENTS			33,723.84
Checking Account	$	143.13	
Savings Account		33,580.71	
		$33,723.84	$33,723.84

(a) Pursuant to provisions of the Compact (Article VIII-E(3)) and of the By-Laws of the Administration (Article VII(5)), the receipts and disbursements of the Administration during the compact year have been audited, and the report of the audit is hereto attached as Appendix "A."

BUDGET

Fiscal Year July 1983-June 30, 1984

A. SALARIES			$ 9,941.20
1. Recording Secretary	$	3,600.00	
2. Operations Secretary		6,100.00	
3. Payroll Taxes		241.20	
B. GAUGING STATIONS:			12,500.00
1. Maintenance and Operation			
A. Cooperative Agreement	$12,000.00		
B. Telemark Telephone			
John Martin Dam			
Granada	500.00		
C. OPERATING EXPENSE:			4,650.00
1. Treasurer's Bond		100.00	
2. Annual Report		1,500.00	
3. Office Expense			
A. Telephone	1,500.00		
B. Supplies	500.00		
C. Printing	500.00		
4. Travel and Meetings		250.00	
5. Audit		300.00	
D. CONTINGENCY:			2,000.00
E. TOTAL BUDGET			$29,091.20
Colorado (60%)		$17,454.72	
Kansas (40%)		$11,636.48	

6. Facts about the John Martin Project:

The John Martin Reservoir Project was built by the Corps of Engineers, United States Army. The project was authorized by Congress in the Flood Control Act of June 22, 1936, when the federal responsibility for flood control throughout the country was assigned to the Corps of Engineers. It is located on the Arkansas River, 58 miles upstream from the Colorado-Kansas stateline and 18 miles upstream from the city of Lamar, Colorado. Constructon of the project began in the fall of 1939, but work was suspended by World War II from the spring of 1943 to the spring of 1946. The project was completed in October 1948 at a cost of about $15 million. The War Department Civil Appropriation Act of June 24, 1940, changed the name of the project from Caddoa Reservoir Project to John Martin Reservoir Project, in honor of the late Congressman John A. Martin of Colorado. It is operated by the United States Army Engineer District, Albuquerque, New Mexico. Mr. Russell Smith has been the resident superintendent of the project since October, 1976.

The John Martin Reservoir Project is part of the comprehensive plan for the control of floods and the development of the water resources of the entire Arkansas River basin. The reservoir provides 270,375 acre-feet of storage capacity for flood control. It protects the fertile Arkansas River Valley below the dam. It provides 350,951 acre-feet of storage space for conservation and recreation. John Martin Reservoir supplies water to the irrigated lands below the dam as far as Garden City, Kansas. The top of the conservation pool is 3,851 feet above mean sea level, which provides 350,951 acre-feet of storage for irrigation. The release of stored flood waters in excess of the conservation and recreation pools and above elevation 3,851 feet is planned so that, when combined with flows originating downstream from the dam, the capacity of the channel will not be exceeded. Upon request of the Arkansas River Compact Administration, irrigation water for downstream water users is released through the outlet works in the base of the dam. Downstream flood damages prevented by John Martin dam already exceed the cost of the project. Benefits have already passed the $92 million mark.

Recreation and favorable fish and wildlife habitats are derived from this project. With reservoir lands open to all, there are many attractive public use areas for outdoor recreation, water sports, fishing and boating, or just relaxed living. During construction some embankment material was obtained from a 75-acre tract of land immediately downstream of the dam. This excavated area, averaging 12 feet deep, filled with water and formed Lake Hasty, the center of year-round recreation.

John Martin Dam consists of a concrete gravity structure 1,644 feet long and 120 feet high, and an earthfill structure 2,600 feet long. The concrete gravity structure contains a gated spillway provided with sixteen 30 feet by 64 feet tainter gates with their operating machinery. There are earthen wing dams on either side of the main dam. The north wing dam is 3,880 feet long, connecting to the earthfill structure of the main dam at the north abutment. The south wing dam is 5,807 feet long and connects to the south end of the concrete structure of the

main dam. A bituminous-surfaced roadway, 21 feet wide, extends along the crest of the north wing dam, main dam, and south wing dam. The overall length of the structure is 2.6 miles. Detailed project data are shown below.

DAM

Total length, feet	13,945
Maximum height above streambed, feet	118
Width of roadway on dam, feet	21

SPILLWAY

Total length, including piers, feet	1,174
Crest gates, 30' x 64'	16
Discharge capacity, cubic feet per second	639,200

OUTLET WORKS

Sluicing conduits, 6' x 7½'	4
Regulating conduits, 4' x 4'	2

RESERVOIR

Capacity, acre-feet	621,326
Flood control storage, acre-feet	270,375
Conservation (irrigation) and recreation, storage, acre-feet	350,951
Water surface at spillway crest, acres	8,960
Water surface at top of conservation pool, acres	11,655
Water surface at top of flood control pool, acres	17,630
Drainage area, square miles	18,915

A ½-mile of the historic Santa Fe Trail north of the reservoir has been enclosed by a fence. An appropriate sign perpetuates this bit of Americana for posterity.

7. Cooperative Studies and Activities:

(a) Article VIII G (1) of Arkansas River Compact requires the Administration to cooperate with the Chief Official of each of the states of Colorado and Kansas charged with the administration of water rights in their respective States, and with the Federal agencies in systematically determining and correlating the facts pertaining to the flow and diversion of the water of the Arkansas River and to the operation and siltation of John Martin Reservoir and other related structures. Article VIII G (2) requests the Director of the United States Geological Survey, the Commissioner of the United States Bureau of Reclamation, and the Chief of the Engineers, United States Army, to cooperate and collaborate with the Administration and with appropriate State officials in such determinations and correlations of stream flow and related data. Under the By-Laws of the Administration, these cooperative studies and activities are assigned to the Engineering Committee of the Administration.

(b) During the year covered by this report the Administration has received excellent cooperation from all agencies referred to in

the foregoing provisions of the Compact. The United States Geological Survey has continued the operation of the compact gaging stations and the analysis and compilation of the hydrologic data presented in this report and used in the administration of the Compact.

(c) The Corps of Engineers continued to operate the conservation pool of John Martin Reservoir in accordance with the terms of the Compact and the orders of the Administration. A new area capacity table for John Martin Reservoir was issued by the Army Corps of Engineers and put into effect August 12, 1981.

8. Water Supply, Reservoir Operation, and Hydrologic Data:

The 1982 Arkansas River Compact year and the winter storage season for John Martin Reservoir began at 0001 hours November 1, 1981 with 13,712.89 acre-feet in account storage and an empty conservation pool.

The account storage was distributed as follows:

(a) Agreement Accounts = 8152.25 A.F.

(b) Recreation Pool = 5560.64 A.F.

Winter Storage ended at 1428 hours on April 17, 1982. During this period a total of 44,426.8 A.F. was stored in the following accounts:

Compact Water	26,813.80 A.F.
Amity Winter Water	17,613.00 A.F.

Following the transfer of the stored inflows to John Martin Reservoir into the agreement accounts in accordance with the Operating Plan, adopted April 24, 1980, the allocation of the reservoir contents at 2400 hours April 17, 1982 were as follows:

Agreement Accounts*	44,952.16 A.F.**
Compact Water	0 A.F.
Amity Winter Water	0 A.F.
Permanent Pool	4,924.84 A.F.
	49,877.00 A.F.

Summer storage period began at 1428 hours April 17, 1982. At that time the Conservation Pool was empty. During the summer season inflow to the Conservation Pool totalled 62,250.23 A.F. This total, minus evaporation losses, was all released into accounts in accordance with the Operating Plan, adopted April 24, 1980. The Conservation Pool was empty at 2400 hours, October 31, 1982. The summer operations of the Conservation Pool are tabulated as follows:

*includes:
Kansas Account
Kansas Transit Loss Account
Colorado Ditches

**includes carryover from previous year

	Contents, A.F. Beginning Date Shown	Inflow A.F.	Evaporation A.F.	Release A.F.	Contents, A.F. End of Month
April 17	0	0	0	0	0
May 1	0	0	0	0	0
June 1	0	12,064.32	8.56	12,055.76	0
July 1	0	9,991.11	4.10	4,000.00	5,987.01
Aug. 1	5,987.01	29,781.21	187.61	35,580.61	0
Sept. 1	0	6,944.43	7.77	6,936.66	0
Oct. 1	0	3,469.16	1.01	3,468.15	0
TOTALS		62,250.23	209.05	62,041.18	

The technical data for this section was compiled by the Colorado Water Conservation Board staff using data from the Operations Secretary, Arkansas River Compact Administration, the U.S. Geological Survey, Colorado Division of Water Resources and the minutes and correspondence of the Arkansas River Compact Administration.

9. GAGING STATIONS

In general, streamflow records of satisfactory accuracy were obtained at the Compact stations. Emphasis was again placed on obtaining more field data, particularly in the form of discharge measurements at various stages of flow. Several more measurements were made at each site than are required under agreement with the Compact. Measurements made by personnel of the State Engineer were incorporated into the records.

During part of the 1982 water year, computations of discharge were made at many of the Compact sites using data transmitted by satellite communication and computer software designed by the U.S. Geological Survey and personnel of Environmental Resource and Technology, Inc. The methods of computation proved beneficial in providing real-time data at the sites as well as in identifying problems.

There were no critical problems at the stations during the year, with the exception of the continuing unstable channels and controls.

The administration approved a cooperative agreement with the U.S. Geological Survey for the fiscal year October 1, 1981, to September 30, 1982, in the amount of $21,690 — $10,845 for each party. These funds are for supplemental measurements at the sites; the operation of one station, Arkansas River near Granada, Colorado; maintenance of radio equipment, and the preparation of records for the annual report.

10. Findings of Fact by the Administration

There were no findings of fact made by the Administration during Compact Year 1982.

APPENDICES FOR ANNUAL REPORT OF THE

ARKANSAS RIVER COMPACT ADMINISTRATION

For the Report-Year
November 1, 1981, to October 31, 1982

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APPENDIX "A-1"

Auditor's Report

Crimond, Farmer & Co.

CERTIFIED PUBLIC ACCOUNTANTS
203 East Oak
Lamar, Colorado 81052
Richard P. Crimond, C.P.A.
Ronny R. Farmer, C.P.A.

To the Representatives
Arkansas River Compact Administration
Lamar, Colorado 81052

We have examined the Statement of Assets and Liabilities Arising from Cash Transactions of the Arkansas River Compact Administration as of June 30, 1982, and the Statement of Cash Receipts and Disbursements, Changes in Cash Balance and the Statement of Cash Receipts and Disbursements with Budget Comparison for the year ended June 30, 1982. Our examination was conducted in accordance with generally accepted auditing standards, and accordingly, included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

As described in Note 1 of the Notes to Financial Statements, the accompanying statements are prepared on the cash basis of accounting and accordingly they are not intended to be presented in conformity with generally accepted accounting principles.

In our opinion, Exhibits A, B and C present fairly the Assets and Liabilities Arising from Cash Transactions of the Arkansas River Compact Administration as of June 30, 1982, and the results of Cash Transactions for the year then ended on a basis consistent with the previous year.

Crimond, Farmer & Co.
Certified Public Accountants

July 22, 1982
Lamar, Colorado

EXHIBIT A

ARKANSAS RIVER COMPACT ADMINISTRATION
STATEMENT OF ASSETS AND LIABILITIES
ARISING FROM CASH TRANSACTIONS
JUNE 30, 1982

ASSETS:	
Cash and Savings	$37,799
Equipment	7,101
Concrete Control	8,000
TOTAL ASSETS	$52,900

LIABILITIES:	
CASH BASIS EQUITY:	
Expended:	
Equipment	$ 7,101
Concrete Control	8,000
Unexpended	$37,799
TOTAL CASH BASIS EQUITY — NOTE 1a	$52,900
TOTAL LIABILITIES AND CASH BASIS EQUITY	$52,900

The accompanying notes are an integral part of the financial statements.

EXHIBIT B

ARKANSAS RIVER COMPACT ADMINISTRATION
STATEMENT OF CASH RECEIPTS AND DISBURSEMENTS
AND CHANGES IN CASH BALANCE
FOR YEAR ENDED JUNE 30, 1982

CASH IN BANK, JULY 1, 1981		$31,554
RECEIPTS:		
Revenue from Assessments:		
Colorado	$13,614	
Kansas	9,076	
Interest	2,273	
Miscellaneous	2	
TOTAL RECEIPTS		24,965
DISBURSEMENTS:		
Insurance	100	
Geological Survey	5,700	
Equipment	4,600	
Professional Fees	1,348	
Office Supplies	155	
Printing	1,146	
Secretary's Salary—Net	3,357	
Payroll Taxes	480	
Telephone	1,570	
Typing and Mailing	167	
Travel and Meetings	97	
TOTAL DISBURSEMENTS		$18,720
EXCESS OF RECEIPTS OVER DISBURSEMENTS		6,245
CASH BALANCE, JUNE 30, 1982		$37,799

The accompanying notes are an integral part of the financial statements.

EXHIBIT C

ARKANSAS RIVER COMPACT ADMINISTRATION
STATEMENT OF CASH RECEIPTS AND DISBURSEMENTS
WITH BUDGET COMPARISON FOR THE BUDGET YEAR
JULY 1, 1981 TO JUNE 30, 1982

	BUDGET	ACTUAL	ACTUAL OVER (UNDER)
CASH BALANCE, JULY 1, 1981	$	$31,554	$31,554
RECEIPTS:			
Revenue from Assessments:			
Colorado — 60%	13,614	13,614	
Kansas — 40%	9,076	9,076	
Interest		2,273	2,273
Miscellaneous		2	2
TOTAL RECEIPTS	22,690	24,965	2,275
TOTAL TO ACCOUNT FOR	22,690	56,519	33,829
DISBURSEMENTS:			
U.S. Geological Survey	5,750	5,700	(50)
Secretary's Salary—Net	3,600	3,357	(243)
Bond and Insurance	90	100	10
Telephone	2,000	1,570	(430)
Payroll Taxes	230	480	250
Typing and Mailing		167	167
Travel and Meetings	1,350	97	(1,253)
Professional Fees	920	1,348	428
Office Supplies	500	155	(345)
Printing	1,250	1,146	(104)
Contingency	2,000		(2,000)
Data Acquisition Improvement Plan	5,000	4,600	(400)
TOTAL DISBURSEMENTS	$22,690	$18,720	(3,970)
CASH IN BANK, JUNE 30, 1982	$	$37,799	$37,799

The accompanying notes are an integral part of the financial statements.

ARKANSAS RIVER COMPACT ADMINISTRATION
NOTES TO CASH BASIS STATEMENTS
JUNE 30, 1982

Note 1 — Summary of significant accounting policies:

a. The Administration maintains financial records using the cash basis of accounting. By using the cash basis of accounting certain key accounts needed to present financial position and results of operations are omitted; examples of these accounts are accounts receivable and accounts payable.

APPENDIX "B-1"

ARKANSAS RIVER ABOVE PUEBLO, COLORADO

Report-Year ending October 31, 1982
USGS Records
USGS Gaging Station #07099400

DAY	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.
1	400	83	58	94	164	332	712	1590	2790	913	1180	1010
2	414	80	60	94	162	360	690	1490	2680	919	931	1100
3	436	80	60	96	128	356	678	1590	2550	919	783	1030
4	454	75	94	96	92	238	678	1640	2360	1410	668	943
5	454	72	94	96	90	250	700	1260	1980	1490	620	841
6	436	72	94	96	90	348	805	756	1920	1400	656	835
7	392	61	96	97	92	404	992	1280	1940	1370	722	805
8	372	54	96	97	92	380	925	1380	1940	1400	722	800
9	352	54	96	97	90	348	859	1460	2170	1160	734	794
10	340	60	96	99	90	340	778	1490	2140	1260	744	783
11	332	50	96	97	82	336	778	1590	2020	1830	690	734
12	332	54	96	99	75	320	841	1890	1790	1870	1100	722
13	313	54	97	99	73	299	871	2010	1210	1640	1080	794
14	242	73	97	99	114	328	865	2080	1300	1470	1830	829
15	76	82	96	97	205	356	662	2100	1320	1558	1260	728
16	54	84	97	97	215	344	510	2110	1250	1480	1230	555
17	68	84	97	99	271	360	500	1980	1360	1420	1120	540
18	90	84	96	99	368	380	445	2050	1650	1230	955	486
19	94	86	94	97	380	360	296	2810	1750	1330	985	445
20	84	86	92	97	392	360	271	2510	1600	1920	1290	392
21	75	75	92	97	404	368	282	1520	1310	1180	1480	360
22	75	56	92	97	384	368	316	1830	1340	4580	1480	360
23	75	57	92	97	302	344	364	2570	1420	2030	1400	332
24	76	58	92	99	288	656	476	2420	1330	1640	1180	320
25	78	58	92	99	328	706	706	3080	1220	1840	1170	324
26	78	57	92	132	336	717	783	3260	1390	1780	1150	302
27	81	58	92	162	310	734	847	2660	1780	1590	1100	288
28	84	60	92	164	328	823	901	2540	1580	1320	1040	292
29	86	61	94		352	794	1110	1610	2260	1410	973	292
30	84	58	94		340	750	1410	2730	4690	1520	913	296
31		58	94		340		1580		3500	1410		299
TOTAL												
sec. ft.	6527	2084	2820	2889	6977	13059	22631	59286	59540	48281	31186	18631
ac. ft.	12950	4130	5590	5730	13840	25900	44890	117600	118100	95770	61860	36950

THE YEAR 543,310 acre-ft.

APPENDIX "B-2"

ARKANSAS RIVER AT LAS ANIMAS, COLORADO

Report-Year ending October 31, 1982
USGS Records—Provisional; Subject to Revision
USGS Gaging Station #0712400

DAY	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.
1	23	143	75	142	102	48	17	474	459	1410	581	511
2	21	170	100	135	102	37	17	370	484	389	470	269
3	21	163	115	120	105	44	16	842	492	220	442	186
4	23	127	120	110	120	59	16	646	459	166	459	228
5	22	120	120	110	121	28	18	264	477	151	452	259
6	22	128	120	110	121	21	18	277	475	88	416	244
7	21	134	115	110	120	23	16	312	462	104	337	256
8	21	131	110	115	114	23	16	277	495	144	268	253
9	24	129	110	120	126	24	16	312	512	473	424	253
10	23	125	130	125	153	26	44	291	465	422	444	275
11	22	118	140	130	130	26	37	403	500	797	479	318
12	22	120	150	140	123	24	31	433	511	402	480	367
13	21	120	150	150	122	23	47	454	527	123	496	330
14	21	112	150	160	129	23	60	383	519	423	104	250
15	21	103	147	170	121	21	129	443	571	513	212	268
16	30	97	145	170	88	22	134	499	550	480	291	274
17	239	97	145	165	67	20	140	466	544	496	118	237
18	42	104	145	161	56	19	107	565	504	502	225	267
19	21	113	145	148	53	20	73	504	569	525	357	225
20	19	94	135	152	70	20	142	326	551	562	354	381
21	19	96	120	149	78	19	132	567	529	583	510	492
22	19	107	120	140	48	19	91	384	507	3910	502	450
23	19	119	130	130	23	18	71	403	306	2730	554	436
24	19	72	140	128	21	18	60	755	249	1520	335	445
25	19	55	140	129	20	18	119	510	224	200	232	398
26	19	50	140	133	19	18	88	536	259	83	200	370
27	19	50	140	125	19	16	72	862	201	116	207	360
28	19	50	139	112	21	17	276	467	288	52	220	337
29	19	50	138		38	17	316	565	837	40	357	357
30	19	52	135		86	17	385	566	2160	122	442	291
31		55	137		97		499		1650	531		207
TOTAL												
sec. ft.	869	3204	4046	3789	2613	728	3203	14156	17336	18277	10968	9794
ac. ft.	1720	6360	8030	7520	5180	1440	6350	28080	34390	36250	21760	19430

THE YEAR 176,510 acre-ft.

APPENDIX "B-3"

PURGATOIRE RIVER NEAR LAS ANIMAS, COLORADO

Report-Year ending October 31, 1982
USGS Records
USGS Gaging Station #07128500

DAY	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.
1	34	35	22	33	33	15	5.2	87	43	458	11	131
2	34	32	24	23	32	6.3	5.4	67	28	150	14	190
3	36	34	25	20	30	4.8	5.2	571	18	65	15	262
4	26	35	26	16	30	4.3	4.9	92	10	79	13	204
5	21	36	30	15	30	5.3	4.7	28	6.0	148	14	174
6	25	34	35	15	29	6.2	5.9	20	4.1	50	10	131
7	22	34	40	15	28	7.4	5.0	10	7.0	290	6.8	90
8	31	31	29	15	28	6.1	6.0	7.5	21	198	23	69
9	42	28	32	15	28	5.5	7.0	6.6	5.4	78	53	62
10	27	24	35	16	26	8.5	8.0	6.7	36	155	31	47
11	22	37	33	17	25	7.1	9.8	6.6	60	775	27	46
12	22	39	29	18	23	6.0	6.8	6.2	69	259	85	56
13	23	41	33	20	20	4.8	7.1	6.6	54	99	682	49
14	21	43	36	23	22	5.9	4.1	17	19	43	714	39
15	20	31	39	34	21	5.6	3.5	13	12	62	287	49
16	23	30	38	49	21	4.9	3.3	22	22	450	180	46
17	22	34	36	75	22	7.5	105	100	15	213	150	80
18	22	32	33	59	21	10	47	176	5.5	110	128	80
19	42	31	42	50	19	4.5	16	116	8.8	72	107	64
20	18	40	46	51	20	4.7	11	241	3.8	87	104	74
21	17	41	40	47	18	3.8	8.5	276	4.4	123	130	37
22	19	41	41	43	18	5.0	8.2	145	3.7	332	92	31
23	22	33	37	39	41	4.4	8.4	133	2.8	381	69	30
24	18	21	36	36	32	4.0	13	80	2.3	280	359	29
25	25	20	44	34	40	5.1	11	60	2.0	121	329	28
26	45	20	52	34	32	5.1	9.9	87	1.5	62	168	25
27	38	22	56	34	27	6.4	230	63	1.6	35	140	30
28	24	22	39	33	13	5.1	166	44	2.6	26	139	30
29	33	20	42		23	6.5	115	60	5.6	19	155	26
30	40	21	39		18	5.0	96	60	423	14	147	16
31		22	30		17		97		1520	15		17
TOTAL												
sec. ft.	814	964	1119	879	787	180.8	1033.9	2608.2	2417.1	5249	4382.8	2242
ac. ft.	1610	1910	2220	1740	1560	359	2050	5170	4790	10410	8690	4450

THE YEAR 44,959 acre-ft.

APPENDIX "B-4"

RIVER FLOW INTO JOHN MARTIN RESERVOIR

Report-Year ending October 31, 1982
USGS Records

DAY	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.
1	57	178	97	175	135	63	22	561	502	1868	592	642
2	55	202	124	158	134	43	22	437	512	539	484	459
3	57	197	140	140	135	49	21	1413	510	285	457	448
4	49	162	146	126	150	63	21	738	469	245	472	432
5	43	156	150	125	151	33	23	292	483	299	466	433
6	47	162	155	125	150	27	24	297	479	138	426	375
7	43	168	155	125	148	30	21	322	469	394	344	346
8	52	162	139	130	142	29	22	285	516	342	291	322
9	66	157	142	135	154	30	23	319	517	551	477	315
10	50	149	165	141	179	34	52	298	501	577	475	322
11	44	155	173	147	155	33	47	410	560	1572	506	364
12	44	159	179	158	146	30	38	439	580	661	565	423
13	44	161	183	170	142	28	54	461	581	222	1178	379
14	42	155	186	183	151	29	64	400	538	466	818	289
15	41	134	186	204	142	28	132	456	583	575	499	317
16	53	127	183	219	109	27	137	521	572	930	471	320
17	261	131	181	240	89	28	245	566	559	709	268	317
18	64	136	178	220	77	29	154	741	510	612	353	347
19	63	144	187	198	72	24	89	620	578	597	464	289
20	37	134	181	203	90	25	153	567	555	649	458	455
21	36	137	160	196	96	23	140	843	533	706	640	529
22	38	148	161	183	66	24	99	529	511	4242	594	481
23	41	152	167	169	64	22	79	536	309	3111	623	466
24	37	93	176	164	53	22	73	835	251	1800	694	474
25	44	75	184	163	60	23	130	570	226	321	561	426
26	64	70	192	167	51	23	98	623	260	145	368	395
27	57	72	196	159	46	22	302	925	203	151	347	390
28	43	72	178	145	34	22	442	511	291	78	359	367
29	52	70	180		61	24	431	625	843	59	512	383
30	59	73	174		104	22	481	626	2583	136	589	307
31		77	167		114		596		3170	546		224
TOTAL												
sec. ft.	1683	4168	5165	4669	3400	909	4235	16763	19751	23520	15353	12036
ac. ft.	3330	8270	10250	9260	6740	1799	8400	33250	39180	46660	30450	23880

THE YEAR 221,469 acre-ft.

The Riverflow into JMR is the sum of the daily flows of the Arkansas River near Las Animas (Appendix B-2) and the Purgatoire River near Las Animas (Appendix B-3)

APPENDIX "B-5"

CONTENTS OF JOHN MARTIN RESERVOIR

Report-Year ending October 31, 1982
Corps of Engineers Records—Provisional; Subject to Revision
Midnight contents in acre-feet from capacity table dated November 1, 1972.
New capacity table based on April/June 1980 hydrographic surveys and
November 1980 aerial photography put into use August 12, 1981.

DAY	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.
1	13757	18071	27344	37428	46011	52773	35692	23879	18562	23248	10350	11557
2	13857	18451	27701	37739	46215	52919	34494	23564	17424	23879	10295	12180
3	13997	18808	28086	37895	46350	52956	33477	25616	16290	23537	10202	12764
4	14157	19187	28471	38019	46621	53248	32644	27536	15119	21960	10202	13057
5	14257	19482	28745	38112	46960	52992	31987	28113	14137	20163	10184	13277
6	14357	19865	29020	38298	46960	52883	31787	28058	13937	18004	10110	13337
7	14497	20213	29323	38454	47028	52773	31386	28141	13957	16084	10110	13317
8	14577	20586	29542	38733	47705	52554	30843	28196	13957	14257	9869	13237
9	14717	20934	29845	38986	48078	52335	30186	28058	14117	12531	9814	13137
10	14857	21232	30014	39276	48519	52263	29680	27701	14057	11148	9888	12959
11	14977	21530	30186	39599	49387	52087	29075	27646	14217	10702	9980	12881
12	15119	21855	30386	39888	49772	51842	28636	27536	14217	12375	10221	12842
13	15242	22197	30586	40146	49772	51561	28196	27563	14157	11693	11479	12823
14	15365	22512	30843	40468	49807	51246	27591	27508	13857	10535	12823	12745
15	15468	22775	31157	41049	50719	50860	27097	27563	13657	10554	12278	12589
16	15571	23064	31415	41435	50860	50369	26801	27591	13517	10720	11635	12531
17	15879	23380	31701	42080	51000	49877	26343	27563	13637	10794	10776	12434
18	16208	23616	31987	42611	51281	49316	25804	28058	13757	10554	10720	12375
19	16352	23931	32415	43043	51351	48553	25373	28443	13857	10480	10720	12356
20	16516	24220	32848	43242	51386	47536	24915	28663	13977	10387	10794	12297
21	16660	24538	33177	43541	51526	46689	24431	28992	13997	10461	10924	12473
22	16762	24888	33536	43940	51701	45774	24168	27701	14017	13057	11109	12628
23	16886	25238	33776	44206	51772	44737	24168	26478	13857	17959	11128	12764
24	17009	25373	34106	44538	51807	43674	24194	25157	13557	20860	11128	12823
25	17157	25427	34464	44737	51912	42412	24247	24141	13197	21035	11148	12959
26	17223	25643	34914	45069	52052	41371	24220	23038	13057	19418	10794	13018
27	17424	25938	35363	45335	52123	40307	24010	22538	13077	17803	10369	12998
28	17558	26235	35692	45672	52228	39115	24010	21779	13077	16125	10332	12940
29	17736	26451	36249		52517	38174	23826	20287	13457	14317	10609	12881
30	17848	26693	36621		52590	36870	23879	19517	1513	12336	10924	12784
31		26963	36963		52627		23879		20387	10850		12764

APPENDIX "B-5a"

CONTENTS OF JOHN MARTIN RESERVOIR CONSERVATION POOL

Contents of John Martin Reservoir Conservation Pool (contents at 2400 hours)
Report-Year ending October 31, 1982
Source: Operations Secretary, Arkansas River Compact Administration
(rounded to the nearest acre-foot)

DAY	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	DAY
1	202	4918	9570	14831	18757	23735	0	0	0	8007	0	433	1
2	368	5147	9750	14958	18823	23936	0	0	0	7806	0	0	2
3	516	5255	9942	14981	18924	24005	0	1209	0	6639	0	0	3
4	683	5408	10134	15045	19121	24312	0	1372	0	5021	0	0	4
5	786	5546	10272	15093	19272	22627	0	540	0	3769	0	0	5
6	897	5766	10409	15188	19388	20256	0	0	0	2157	0	0	6
7	1037	5947	10561	15283	19504	18317	0	0	0	717	0	0	7
8	1117	6143	10672	15423	19591	16369	0	0	0	0	0	0	8
9	1288	6321	10823	15569	19751	14382	0	0	0	0	0	0	9
10	1442	6448	10908	15717	19926	12559	0	0	0	0	0	0	10
11	1575	6571	10995	15916	20167	10613	0	0	0	0	0	0	11
12	1731	6734	11096	16087	20420	8686	0	0	0	660	0	0	12
13	1867	6909	11197	16209	20682	6833	0	0	0	0	0	0	13
14	2003	7057	11326	16353	20974	5016	0	0	0	0	2858	0	14
15	2119	7168	11461	16705	21262	3143	0	0	0	0	2100	0	15
16	2235	7317	11565	16869	21428	1176	0	0	0	0	1256	0	16
17	2556	7498	11708	17264	21593	0	0	0	0	0	0	0	17
18	2897	7599	11854	17514	21899	0	0	0	0	0	0	0	18
19	3055	7770	12105	17710	21993	0	0	335	0	0	0	0	19
20	3232	7906	12343	17767	22053	0	0	0	0	0	0	0	20
21	3388	8097	12508	17836	22218	0	0	0	0	0	0	0	21
22	3504	8316	12688	17957	22418	0	0	0	0	2163	0	0	22
23	3640	8517	12807	18025	22513	0	0	0	0	6060	0	0	23
24	3775	8533	12972	18165	22573	0	0	0	0	7902	0	0	24
25	3936	8551	13152	18222	22703	0	0	0	0	7756	0	0	25
26	4015	8652	13416	18324	22867	0	0	0	0	6470	0	0	26
27	4227	8819	13681	18408	22963	0	0	267	0	5095	0	0	27
28	4374	8951	13826	18568	23093	0	0	0	3	3677	0	0	28
29	4565	9019	14193		23406	0	0	0	0	2129	0	0	29
30	4687	9145	14381		23504	0	0	0	1590	410	0	0	30
31		9308	14593		23565		0		5987	0		0	31

APPENDIX "B-6"

OUTFLOW FROM JOHN MARTIN RESERVOIR
ARKANSAS RIVER BELOW
JOHN MARTIN RESERVOIR

Report-Year ending October 31, 1982
USGS Records
USGS Gaging Station #07130500

DAY	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.
1	92	1.5	1.5	2.0	2.0	2.0	577	541	1050	543	831	1050
2	39	1.5	1.5	2.0	2.0	2.0	573	562	1090	538	578	206
3	3.6	1.5	1.5	2.0	2.0	2.0	532	358	1110	542	552	208
4	3.2	1.5	1.5	2.0	1.7	2.0	473	114	1110	927	538	273
5	2.0	1.5	1.5	2.6	1.6	36	366	284	980	1240	536	346
6	2.0	1.5	1.5	2.2	1.8	92	127	285	553	1230	534	374
7	1.9	1.5	1.5	2.2	2.0	98	215	292	534	1240	511	396
8	1.9	1.5	1.5	2.2	2.0	106	281	333	520	1240	497	396
9	1.8	1.5	1.5	2.2	2.0	107	282	394	530	1220	497	392
10	1.8	1.5	1.5	2.2	2.0	105	307	421	533	1160	500	391
11	1.7	1.5	1.5	2.0	2.0	107	328	426	555	882	499	395
12	1.7	1.5	1.5	2.0	1.9	128	330	432	546	424	528	408
13	1.7	1.5	1.5	2.0	2.0	184	328	430	589	695	546	422
14	1.7	1.5	1.5	2.0	2.0	214	337	415	620	900	747	391
15	1.7	1.5	1.5	2.0	2.0	226	345	410	567	486	901	363
16	1.6	1.5	1.5	2.0	2.0	239	371	466	497	583	893	361
17	1.6	1.5	1.5	2.0	1.9	253	411	502	455	719	847	363
18	1.6	1.5	1.5	2.0	2.0	253	430	610	433	713	474	345
19	1.6	1.5	1.5	2.0	1.8	416	387	489	411	621	484	328
20	1.5	1.5	1.5	1.6	2.0	510	337	389	449	534	490	352
21	1.5	1.5	1.5	1.6	2.0	454	370	717	451	616	528	396
22	1.5	1.5	1.5	1.6	2.0	478	263	1140	465	558	546	409
23	1.5	1.5	1.5	2.0	2.0	530	134	1250	463	470	579	410
24	1.5	1.5	1.5	2.0	2.0	561	108	1250	454	447	595	410
25	1.5	1.5	1.5	2.0	2.0	588	124	1180	435	817	593	409
26	1.5	1.5	1.5	2.0	2.0	592	169	1140	327	1160	592	408
27	1.5	1.5	1.5	2.0	2.0	585	270	1040	261	1130	589	411
28	1.5	1.5	1.6	2.0	2.0	601	382	1020	268	1140	586	411
29	1.5	1.5	1.6		2.0	590	452	1060	389	1140	480	412
30	1.5	1.5	2.0		2.0	579	456	1050	512	1140	428	412
31		1.5	2.0		2.0		457		551	1120		317
TOTAL												
sec. ft.	180.6	46.5	47.7	56.4	60.7	8640.0	10522	19000	17738	26175	17504	11421
ac. ft.	358	92	95	112	120	17140	20870	37690	35180	51920	34720	22656

THE YEAR 220,950 acre-ft.

APPENDIX "B-7"

ARKANSAS RIVER AT LAMAR, COLORADO

Report-Year ending October 31, 1982
USGS Records
USGS Gaging Station #07133000

DAY	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.
1	9.7	5.6	19	12	12	8.4	141	20	653	96	579	59
2	67	5.8	19	13	12	7.7	144	34	610	74	175	32
3	60	6.2	17	11	12	8.1	138	192	623	78	122	21
4	17	5.8	27	9.0	12	7.7	108	822	622	149	109	21
5	7.2	6.3	18	9.0	13	6.9	110	116	606	625	114	21
6	6.5	6.1	13	9.0	18	14	162	72	233	641	98	20
7	6.3	6.0	12	9.5	13	13	90	55	122	665	104	22
8	6.8	5.9	13	10	12	1.3	69	43	554	704	77	22
9	6.7	6.0	15	9.5	12	1.1	68	37	163	697	61	24
10	6.7	5.8	12	9.0	12	.90	64	17	108	665	63	25
11	6.6	5.8	11	9.5	11	.90	63	10	107	579	61	27
12	6.6	5.7	13	10	11	.70	77	132	141	215	81	25
13	6.5	5.5	20	12	11	.70	87	90	113	100	510	24
14	6.2	5.5	14	14	13	4.2	86	27	81	496	344	24
15	6.1	5.5	13	18	13	15	55	16	65	203	508	24
16	6.0	14	12	20	11	24	21	9.9	84	77	508	23
17	6.0	18	13	18	10	40	55	13	59	77	514	22
18	5.9	21	17	15	10	56	13	373	33	71	237	21
19	5.6	19	15	15	9.9	72	8.9	165	25	82	107	19
20	6.4	19	14	14	9.5	105	12	49	19	69	90	17
21	6.6	19	12	14	9.3	156	18	58	13	66	88	16
22	6.6	21	11	14	10	38	11	541	12	76	90	16
23	6.5	18	26	13	9.2	24	42	691	20	74	98	16
24	6.2	14	21	13	9.4	38	23	658	17	68	133	15
25	6.3	14	15	13	8.6	74	16	701	9.8	51	147	15
26	6.4	19	14	13	8.7	136	15	686	13	490	145	14
27	6.0	11	13	13	10	97	28	680	24	600	131	14
28	5.5	9.6	13	12	10	150	32	653	19	630	93	13
29	5.5	9.0	13		9.3	143	94	605	19	640	90	14
30	5.5	9.6	12		8.5	138	32	674	10	658	27	14
31		14	12		8.4		27		94	665		14
TOTAL												
sec. ft.	316.9	336.7	469	351.5	338.8	1381.60	1909.9	8239.9	5271.8	10381	5498	654
ac. ft.	629	668	930	697	672	2740	3790	16340	10460	20590	10910	1300

THE YEAR 69,730 acre-ft.

APPENDIX "B-8"

ARKANSAS RIVER NEAR GRANADA, COLORADO

Report-Year ending October 31, 1982
USGS Records
USGS Gaging Station #07134180

DAY	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.
1	4.1	29	53	52	53	22	11	5.0	670	8.1	512	119
2	5.4	33	52	52	53	23	12	3.6	502	8.5	329	120
3	24	29	51	52	51	24	14	5.2	502	6.0	167	71
4	26	28	47	50	50	23	10	704	519	5.9	126	61
5	26	28	50	45	50	24	7.0	386	504	164	97	57
6	12	29	49	40	49	24	26	103	409	425	83	51
7	9.3	30	47	40	48	15	19	62	208	492	65	45
8	7.4	28	42	40	47	7.2	7.2	39	684	546	50	42
9	12	28	46	43	46	5.6	4.4	24	525	372	36	36
10	12	28	41	45	46	5.3	4.0	17	197	560	26	35
11	8.5	28	33	50	48	5.5	3.9	19	167	538	26	36
12	8.5	28	45	53	53	6.1	4.9	20	158	404	43	35
13	8.5	28	34	56	53	6.0	521	101	113	173	120	32
14	8.5	28	55	68	50	6.0	128	34	99	252	400	31
15	8.1	28	57	67	45	5.7	61	14	74	339	342	30
16	7.4	30	53	68	43	5.7	29	10	63	147	432	30
17	7.4	35	54	72	42	5.5	21	7.8	56	89	446	29
18	6.4	36	57	68	41	5.9	16	185	45	67	402	29
19	5.5	37	59	65	38	6.0	8.0	192	37	45	219	28
20	5.0	44	59	64	37	7.6	6.9	92	32	32	167	26
21	5.2	46	58	62	36	6.4	6.3	33	24	23	137	26
22	5.2	46	61	61	36	5.7	6.1	120	17	23	118	25
23	5.2	45	54	60	37	5.0	5.7	418	13	22	112	25
24	5.2	41	54	60	36	5.3	5.6	531	10	11	104	23
25	5.2	36	54	58	19	5.5	3.9	552	8.6	9.1	112	23
26	5.2	49	56	58	6.4	8.6	3.6	551	7.1	154	118	22
27	8.1	48	57	58	6.3	20	3.3	546	6.4	413	118	20
28	10	44	55	57	6.1	15	3.3	520	6.6	466	98	20
29	10	44	57		6.2	11	3.4	486	6.6	598	86	21
30	19	42	56		6.0	10	9.1	470	8.2	516	80	24
31		43	53		17		7.3		8.2	523		32
TOTAL												
sec. ft.	290.3	1096	1599	1564	1155.0	325.6	971.9	6250.6	5679.7	7541.6	5171	1204
ac. ft.	576	2170	3170	3100	2290	646	1930	12400	11270	14960	10260	2390

THE YEAR 65,160 acre-ıt.

APPENDIX "B-9"

ARKANSAS RIVER AT THE COLORADO-KANSAS STATE LINE

Report-Year ending October 31, 1982
USGS Records

DAY	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.
1	23	42	48	58	62	33	43	66	536	75	456	253
2	15	42	54	58	61	32	50	54	615	66	409	267
3	23	42	51	54	60	34	49	53	479	58	252	193
4	32	42	49	48	59	33	42	157	452	52	200	148
5	29	44	51	43	57	36	41	613	473	115	172	127
6	28	41	49	40	57	31	50	224	447	240	165	119
7	20	40	52	37	54	33	62	170	290	333	135	116
8	17	40	43	36	54	47	55	131	297	392	119	118
9	14	39	45	36	53	54	43	105	858	450	110	114
10	16	37	41	37	52	34	41	91	328	481	92	108
11	19	35	40	43	52	27	38	78	297	480	86	109
12	19	33	42	54	55	28	42	71	278	448	90	125
13	27	29	44	78	56	26	138	111	230	279	117	128
14	31	27	46	82	58	23	321	134	210	206	247	115
15	30	30	47	81	58	23	137	102	180	302	269	111
16	32	32	51	80	55	23	101	91	158	231	372	111
17	29	32	54	76	51	23	78	86	158	167	377	99
18	26	33	56	71	50	26	74	78	136	142	409	93
19	20	35	58	65	49	29	63	253	314	123	306	99
20	21	37	57	66	47	34	48	215	170	118	225	113
21	22	37	56	66	44	41	36	185	137	106	187	126
22	24	39	61	64	44	54	42	157	112	99	172	117
23	29	38	62	63	45	33	52	271	91	87	160	112
24	29	31	64	60	44	32	57	435	81	86	159	96
25	38	19	66	60	42	30	51	502	81	73	158	85
26	32	22	69	61	46	29	51	550	76	72	168	82
27	31	46	66	62	51	35	48	527	82	202	179	82
28	32	41	62	63	49	47	45	515	80	313	173	75
29	32	35	61		46	50	42	470	80	362	169	71
30	46	37	61		41	49	42	424	82	405	152	78
31		49	59		39		51		81	428		75
TOTAL												
sec. ft.	786	1123	1665	1642	1591	1029	2033	6919	7889	6991	6285	3517
ac. ft.	1560	2230	3300	3260	3160	2040	4030	13720	15650	13890	12470	6980

THE YEAR 82,290 acre-ft.

The daily discharges are the sum of the flows of the Arkansas River near Coolidge, Kansas, USGS Gaging Station #07137500 and the Frontier Ditch, USGS Gaging Station #0713700.

APPENDIX "B-10"

TRANSFER OF COMPACT WATER FROM THE JOHN MARTIN RESERVOIR CONSERVATION POOL INTO AGREEMENT ACCOUNTS

Transfer of Compact Water from the John Martin Reservoir Conservation Pool
Into Agreement Accounts 1/
Report-Year ending October 31, 1982
Source: Operations Secretary, Arkansas River Compact Administration
(acre-feet)

DAY	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	DAY
1	0	0	0	0	0	0	0	0	0	2000	0	1208	1
2	0	0	0	0	0	0	0	0	0	2000	0	1487	2
3	0	0	0	0	0	0	0	875	0	2000	0	772	3
4	0	0	0	0	0	0	0	2000	0	2000	0	0	4
5	0	0	0	0	0	1563	0	2000	0	2000	0	0	5
6	0	0	0	0	0	2500	0	538	0	2000	0	0	6
7	0	0	0	0	0	2050	0	0	0	2000	0	0	7
8	0	0	0	0	0	2000	0	0	0	824	0	0	8
9	0	0	0	0	0	2000	0	0	0	0	0	0	9
10	0	0	0	0	0	2000	0	0	0	0	0	0	10
11	0	0	0	0	0	2000	0	0	0	0	0	0	11
12	0	0	0	0	0	2000	0	0	0	2000	0	0	12
13	0	0	0	0	0	2000	0	0	0	1040	0	0	13
14	0	0	0	0	0	2000	0	0	0	0	1333	0	14
15	0	0	0	0	0	2000	0	0	0	0	2000	0	15
16	0	0	0	0	0	2000	0	0	0	0	2000	0	16
17	0	0	0	0	0	1205	0	0	0	0	1603	0	17
18	0	0	0	0	0	0	0	0	0	0	0	0	18
19	0	0	0	0	0	0	0	1250	0	0	0	0	19
20	0	0	0	0	0	0	0	1379	0	0	0	0	20
21	0	0	0	0	0	0	0	1829	0	0	0	0	21
22	0	0	0	0	0	0	0	330	0	1250	0	0	22
23	0	0	0	0	0	0	0	0	0	2000	0	0	23
24	0	0	0	0	0	0	0	0	0	2000	0	0	24
25	0	0	0	0	0	0	0	0	0	2000	0	0	25
26	0	0	0	0	0	0	0	0	0	2000	0	0	26
27	0	0	0	0	0	0	0	1167	0	2000	0	0	27
28	0	0	0	0	0	0	0	688	0	2000	0	0	28
29	0	0	0		0	0	0	0	0	2000	0	0	29
30	0	0	0		0	0	0	0	2000	2000	0	0	30
31		0	0		0		0		2000	467		0	31
Totals	0	0	0	0	0	25318	0	12056	4000	35581	6936	3467	

1/ All conservation pool water was apportioned as follows into Colorado and Kansas Accounts:
40% to Kansas and 60% to Colorado, as described in the 1980 Colorado-Kansas Storage Resolution, and 35% of all "other water" water deliveries to John Martin Reservoir to the Kansas transit loss account.

APPENDIX "B-11"

DEMANDS BY COLORADO FOR AGREEMENT ACCOUNT WATER IN JOHN MARTIN RESERVOIR

Demands by Colorado for Agreement Account Water in John Martin Reservoir
Report-Year ending October 31, 1982
Source: Operations Secretary, Arkansas River Compact Administration
(acre-feet)

DAY	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	DAY
1	158	0	0	0	0	0	1038	0	0	1114	85	249	1
2	34	0	0	0	0	0	1038	0	0	1114	59	406	2
3	0	0	0	0	0	0	984	118	0	1124	26	159	3
4	0	0	0	0	0	0	888	246	0	1118	0	0	4
5	0	0	0	0	0	88	660	577	0	1111	0	0	5
6	0	0	0	0	0	201	188	155	0	1111	0	0	6
7	0	0	0	0	0	201	373	0	0	1111	0	0	7
8	0	0	0	0	0	201	486	0	0	672	0	0	8
9	0	0	0	0	0	201	486	0	0	42	0	0	9
10	0	0	0	0	0	201	503	0	0	19	0	0	10
11	0	0	0	0	0	201	525	0	0	18	0	0	11
12	0	0	0	0	0	252	506	0	0	966	0	0	12
13	0	0	0	0	0	370	465	0	0	712	0	0	13
14	0	0	0	0	0	423	450	0	0	128	654	0	14
15	0	0	0	0	0	459	407	0	0	28	982	0	15
16	0	0	0	0	0	480	343	0	0	4	982	0	16
17	0	0	0	0	0	472	304	0	0	4	787	0	17
18	0	0	0	0	0	460	430	0	0	2	0	0	18
19	0	0	0	0	0	828	506	479	18	0	0	0	19
20	0	0	0	0	0	968	506	767	28	0	0	0	20
21	0	0	0	0	0	862	405	729	28	0	0	0	21
22	0	0	0	0	0	882	183	336	31	601	0	0	22
23	0	0	0	0	0	998	0	21	64	961	0	0	23
24	0	0	0	0	0	1067	0	46	83	927	0	0	24
25	0	0	0	0	0	1067	0	18	241	951	0	0	25
26	0	0	0	0	0	1065	0	0	175	1018	0	0	26
27	0	0	0	0	0	1081	0	463	90	1031	0	0	27
28	0	0	0	0	0	1058	0	363	53	1031	0	0	28
29	0	0	0		0	1058	0	0	44	1031	0	0	29
30		0	0		0	1081	0	0	1114	1031	0	0	30
31		0	0		0		0		1114	328		0	31
Totals	192	0	0	0	0	16165	11674	4318	3083	19318	3575	814	

APPENDIX "B-12"

DEMANDS BY KANSAS FOR ACCOUNT WATER IN JOHN MARTIN RESERVOIR

Demands by Kansas for Account Water in John Martin Reservoir
(not including transit loss releases)
Report-Year ending October 31, 1982
Source: Operations Secretary, Arkansas River Compact Administration
(acre-feet)

DAY	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	DAY
1	0	0	0	0	0	0	0	0	1000	0	555	0	1
2	0	0	0	0	0	0	0	0	1000	0	0	0	2
3	0	0	0	0	0	0	0	0	1000	0	0	0	3
4	0	0	0	0	0	0	0	0	1000	583	0	0	4
5	0	0	0	0	0	0	0	0	739	1000	0	0	5
6	0	0	0	0	0	0	0	0	0	1000	0	0	6
7	0	0	0	0	0	0	0	0	0	1000	0	0	7
8	0	0	0	0	0	0	0	0	0	1000	0	0	8
9	0	0	0	0	0	0	0	0	0	1000	0	0	9
10	0	0	0	0	0	0	0	0	0	1000	0	0	10
11	0	0	0	0	0	0	0	0	0	865	0	0	11
12	0	0	0	0	0	0	0	0	0	0	0	0	12
13	0	0	0	0	0	0	0	0	0	370	0	0	13
14	0	0	0	0	0	0	0	0	0	841	467	0	14
15	0	0	0	0	0	0	0	0	0	0	800	0	15
16	0	0	0	0	0	0	0	0	0	0	800	0	16
17	0	0	0	0	0	0	0	0	0	0	708	0	17
18	0	0	0	0	0	0	0	0	0	0	0	0	18
19	0	0	0	0	0	0	0	0	0	0	0	0	19
20	0	0	0	0	0	0	0	0	0	0	0	0	20
21	0	0	0	0	0	0	0	542	0	0	0	0	21
22	0	0	0	0	0	0	0	1000	0	0	0	0	22
23	0	0	0	0	0	0	0	1000	0	0	0	0	23
24	0	0	0	0	0	0	0	1000	0	0	0	0	24
25	0	0	0	0	0	0	0	1000	0	500	0	0	25
26	0	0	0	0	0	0	0	1000	0	1000	0	0	26
27	0	0	0	0	0	0	0	1000	0	1000	0	0	27
28	0	0	0	0	0	0	0	1000	0	1000	0	0	28
29	0	0	0		0	0	0	1000	0	1000	0	0	29
30	0	0	0		0	0	0	1000	0	1000	0	0	30
31		0	0		0				0	1000		0	31
Totals	0	0	0	0	0	0	0	9542	4739	15159	3330	0	

APPENDIX "B-13"

STATELINE FLOWS OF DAYS OF KANSAS DEMANDS

Arkansas River at the State Line
Stateline Flows of Days of Kansas Demands
Report-Year ending October 31, 1982
(cubic feet per second)

DAY	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	DAY
1	—	—	—	—	—	—	—	—	536	—	456	—	1
2	—	—	—	—	—	—	—	—	615	—	409	—	2
3	—	—	—	—	—	—	—	—	479	—	252	—	3
4	—	—	—	—	—	—	—	—	452	—	200	—	4
5	—	—	—	—	—	—	—	—	473	115	172	—	5
6	—	—	—	—	—	—	—	—	447	240	165	—	6
7	—	—	—	—	—	—	—	—	290	333	135	—	7
8	—	—	—	—	—	—	—	—	297	392	119	—	8
9	—	—	—	—	—	—	—	—	858	450	—	—	9
10	—	—	—	—	—	—	—	—	328	481	—	—	10
11	—	—	—	—	—	—	—	—	297	480	—	—	11
12	—	—	—	—	—	—	—	—	278	448	—	—	12
13	—	—	—	—	—	—	—	—	—	279	—	—	13
14	—	—	—	—	—	—	—	—	—	206	—	—	14
15	—	—	—	—	—	—	—	—	—	302	269	—	15
16	—	—	—	—	—	—	—	—	—	231	372	—	16
17	—	—	—	—	—	—	—	—	—	167	377	—	17
18	—	—	—	—	—	—	—	—	—	142	409	—	18
19	—	—	—	—	—	—	—	—	—	123	306	—	19
20	—	—	—	—	—	—	—	—	—	121	225	—	20
21	—	—	—	—	—	—	—	—	—	—	187	—	21
22	—	—	—	—	—	—	—	—	—	—	172	—	22
23	—	—	—	—	—	—	—	271	—	—	160	—	23
24	—	—	—	—	—	—	—	435	—	—	159	—	24
25	—	—	—	—	—	—	—	502	—	—	—	—	25
26	—	—	—	—	—	—	—	550	—	20	—	-	26
27	—	—	—	—	—	—	—	527	—	202	—	—	27
28	—	—	—	—	—	—	—	515	—	313	—	—	28
29	—	—	—		—	—	—	470	—	362	—	—	29
30	—	—	—		—	—	—	424	—	405	—	—	30
31		—	—		—				—	428		—	31
TOTALS													
cfs	—	—	—	—	—	—	—	3694	5350	6240	4544	—	
AF	—	—	—	—	—	—	—	7327	10612	12377	9013	—	

The daily discharges are the sum of the flows of the Arkansas River near Coolidge, Kansas and the Frontier Ditch.

APPENDIX "B-14a"

DIVERSIONS BY DITCHES
IN COLORADO WATER DISTRICT 14

Diversion by Ditches in Colorado
Water District 14
Report-Year ending October 31, 1982
Source: Water Commissioner's Monthly Reports
(acre-feet)

NAME OF CANAL	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	YEAR
Bessemer (Riv.)	0	0	0	0	2370	4029	4295	11748	9673	8885	4173	4448	49621
Res. or Imported	0	0	0	0	0	1668	737	0	3060	302	412	0	6179
Total Bessemer	0	0	0	0	2370	5697	5032	11748	12733	9187	4585	4448	55800
Minnequa-Ft. Union	7213	7397	7227	6742	6304	6542	4402	4109	7261	7362	5176	6604	76339
West Pueblo (Riv.)	0	0	0	0	0	24	196	443	267	196	0	0	1126
Excelsior (Riv.)	0	0	0	0	0	0	0	420	277	327	0	0	1024
Res. or Imported	0	0	0	0	0	0	0	0	0	0	0	0	0
Total: Excelsior	0	0	0	0	0	0	0	420	277	327	0	0	1024
Collier	0	0	0	0	0	0	0	139	232	59	0	0	430
Colorado Canal (Riv.)	0	0	0	0	0	0	0	24677	8924	3871	7805	3890	49167
Res. or Imported	0	0	0	9403	0	4477	8213	0	10490	10998	1091	0	44672
Total: Colo. Canal	0	0	0	9403	0	4477	8213	24677	19414	14869	8896	3890	93839
Highline (Riv.)	2521	0	0	0	1817	4313	5888	14713	12099	14448	12970	11493	80262
Res. or Imported	0	0	0	0	2322	4752	3501	0	2631	2637	174	0	16017
Total: Highline	2521	0	0	0	4139	9065	9389	14713	14730	17085	13144	11493	96279
Oxford Farmers (Riv.)	773	0	0	0	610	833	1227	5401	5591	5341	4311	3684	27771
Res. or Imported	0	0	0	0	0	1441	149	0	356	75	0	0	2021
Total: Oxford Farmers	773	0	0	0	610	2274	1376	5401	5947	5416	4311	3684	29792
Native District #14	10507	7397	7227	6742	11101	15741	16008	61650	44324	40489	34435	30119	285740
Import District #14	0	0	0	9403	2322	12338	12600	0	16537	14012	1677	0	68889
Total: District #14	10507	7397	7227	16145	13423	28079	28608	61650	60861	54501	36112	30119	354629

APPENDIX "B-14b"

DIVERSION BY DITCHES IN COLORADO WATER DISTRICT 17

Diversion by Ditches in Colora.
Water District 17
Report-year Ending October 31, 1982
Source: Water Commissioner's Monthly Reports
(acre-feet)

NAME OF CANAL	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	YEAR
Otero	0	0	0	0	0	0	0	2697	2382	198	792	0	6069
Res. or Imported	0	0	0	0	0	0	0	0	1420	0	0	0	1420
Total: Otero	0	0	0	0	0	0	0	2697	3802	198	792	0	7489
Catlin Canal (Riv.)	5756	0	0	0	4380	1374	7696	10142	16339	13793	10845	9294	79619
Res. or Imported	0	0	0	0	1386	7524	2376	0	0	376	188	0	11850
Total: Catlin	5756	0	0	0	5766	8898	10072	10142	16339	14169	11033	9294	91469
Holbrook (Riv.)	0	5295	4451	1014	0	0	284	21550	7764	15857	5615	3572	65402
Res. or Imported	0	0	0	0	0	0	4376	115	168	568	0	2206	7433
Total: Holbrook	0	5295	4451	1014	0	0	4660	21665	7932	16425	5615	5778	72835
Rocky Ford	3709	2055	151	483	3463	5788	5477	4045	6300	5895	4819	4594	46779
Ft. Lyon (storage)	146	8589	17398	7534	4770	0	0	0	0	0	0	0	38437
Ft. Lyon (Riv.)*	20071	0	0	0	10126	7684	12335	56472	34702	63491	39956	41348	286185*
Res. or Imported	0	0	0	0	0	0	0	0	485	495	0	0	980
Kicking Bird**	0	0	0	0	0	0	0	495	987	4580	2079	0	8141**
Las Animas Consol.	2675	602	0	0	517	962	2685	2980	4130	5380	3144	2097	25172
Native—District #17	32357	16541	22000	9031	23256	15808	28477	97886	71617	104614	65171	60905	547663
Import—District #17	0	0	0	0	1386	7524	6752	115	2073	1439.	188	2206	21683
Total District #17	32357	16541	22000	9031	24642	23332	35229	98001	73690	106053	65359	63111	569346
Native Dist. #14-#17	42864	23938	29227	15773	34357	31549	44485	159536	115941	145103	99606	91024	833403
Import Dist. #14-#17	0	0	0	9403	3708	19862	19352	115	18610	15451	1865	2206	90572
Total Dist. #14-#17	42864	23938	29227	25176	38065	51411	63837	159651	134551	160554	101471	93230	923975

GRAND TOTAL 1,493,321

*Total diverted by Ft. Lyon Canal; includes the amounts diverted to the Kicking Bird Canal
**Data obtained from the Amity Mutual Irrigation Company Annual Report for 1982

APPENDIX "B-15"

DIVERSIONS BY DITCHES IN COLORADO WATER DISTRICT 67

Diversion by Ditches in Colorado Water District 67
Report-Year ending October 31, 1982
Source: Water Commissioner's Monthly Reports
(acre-feet)

NAME OF CANAL	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	YEAR
Fort Bent: R.F.	28	0	0	0	•92	0	910	930	3066	2160	2150	1236	10572
Reservoir	0	0	0	0	0	1682	298	102	314	1746	138	0	4280
Kessee Ditch: R.F.	238	184	174	176	14	356	872	704	824	404	746	846	5538
Reservoir	0	0	0	0	0	234	0	118	94	550	96	46	1138
Amity: River Flow	0	0	0	0	0	132	2684	14692	15258	8914	15368	15434	72482
Reservoir	0	0	0	0	0	8398	9276	2168	484	9586	2208	694	32814
Lamar: River Flow	1882	1052	688	708	708	816	3348	3764	5894	3408	5090	5442	32800
Reservoir	60	0	0	0	0	2282	0	574	328	3172	482	0	6898
Hyde: River Flow	0	0	0	0	0	0	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	14	0	0	0	0	0	0	14
Manvel: River Flow	0	0	0	0	0	0	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	680	400	0	0	0	0	0	1080
X,Y, & Graham: R.F.	140	0	0	0	0	0	246	1206	1228	550	1266	1246	5882
Reservoir	0	0	0	0	0	104	600	146	230	926	158	0	2164
Buffalo: River Flow	2084	270	0	0	374	1024	3112	3558	3480	3300	3768	2724	23694
Reservoir	0	0	0	0	0	1340	1114	232	44	2032	310	0	5072
Total: District 67	4432	1506	862	884	1188	17062	22860	28194	31244	36748	31780	27668	204428
Trans Mtn. Diversions	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total:	4432	1506	862	884	1188	17062	22860	28194	31244	36748	31780	27668	204428

Reservoir: Releases from John Martin Reservoir
R.F.: River Flow

APPENDIX "B-16"

DIVERSIONS BY DITCHES IN KANSAS
STATELINE TO GARDEN CITY

DIVERSIONS BY DITCHES IN KANSAS
Stateline to Garden City
Report-Year ending October 31, 1982
(acre-feet)
Source: Frontier Ditch: U.S.G.S. Records
Other Ditches: Kansas Division of Water Resources Records

	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	THE YEAR
Frontier Ditch	498	3	0	0	0	821	1924	1404	2021	1852	1765	323	*10611
Ft. Aubrey Canal	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Stateline To Syracuse	498	3	0	0	0	821	1924	1404	2021	1852	1765	323	10611
Amazon Canal	0	0	0	0	1798	142	0	106	2945	0	0	4908	9899
Great Eastern Canal	0	0	0	0	0	0	0	5219	2128	5303	498	0	13148
South Side Ditch	0	0	0	0	0	0	0	0	518	2681	0	706	3905
Farmers Ditch	0	0	0	0	0	0	0	0	3899	0	3130	1032	8061
Garden City Canal	0	0	0	0	0	0	0	0	0	0	514	0	514
Total Syracuse To Garden City	0	0	0	0	1798	142	0	5325	9490	7984	4142	6646	35527
Total Stateline To Garden City	498	3	0	0	1798	963	1924	6729	11511	9836	5907	6969	46138

*3037 acre-feet returned directly to the river

APPENDIX "B-17"

TRANSMOUNTAIN DIVERSIONS

Transmountain Diversions
Water-Year 1982
October 1, 1981 to September 30, 1982
Source: Division Engineer
Colorado Water Division #2
(acre-feet)

	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	TOTAL
Columbine Ditch	0	0	0	0	0	0	0	87	1192	576	147	104	2106
Ewing Ditch	34	0	0	0	0	0	0	137	595	285	110	80	1241
Wurtz Ditch	0	0	0	0	0	0	0	307	2126	861	280	98	3672
Larkspur Ditch	0	0	0	0	0	0	0	0	77	26	44	37	184
Homestake Tunnel	0	46	3890	4700	4210	4640	2250	0	0	0	0	0	19736
Twin Lake Tunnel	750	375	186	149	116	159	185	5110	26290	15710	3560	1360	53950
Bousted Tunnel	0	0	0	0	0	0	0	7090	41220	23850	3360	0	75520
Busk-Ivanhoe Tunnel	167	0	0	0	0	0	0	311	3830	1830	415	292	6845
Medano Pass Ditch	0	0	0	0	0	0	0	0	206	178	107	0	491
Blue River Project	0	0	0	0	0	0	0	603	4236	3370	1263	1236	10708
Total	951	421	4076	4849	4326	4799	2435	13645	79772	46686	9286	3207	174453

APPENDIX "B-18"

SUMMARY TABULATION

Summary Tabulation Report-Year 1982
November 1, 1981 to October 31, 1982

	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	YEAR
Arkansas River at Las Animas, Colorado—a.f.	1720	6360	8030	7520	5180	1440	6350	28080	34390	36250	21760	19430	176510
Purgatoire River near Las Animas, Colorado—a.f.	1610	1910	2220	1740	1560	359	2050	5170	4790	10410	8690	4450	44959
River Flow into John Martin Reservoir—a.f.	3330	8270	10250	9260	6740	1799	8400	33250	39180	46660	30450	23880	221469
Contents of John Martin Reservoir At end of Month—a.f.	17848	26963	36963	45672	52627	36870	23879	19517	20387	10850	10924	12764	
Net Change in Reservoir contents—a.f.	+4031	+9115	+10000	+8709	+6955	-15757	-12991	-4362	+870	-9537	+74	+1840	
Outflow from John Martin Reservoir—a.f.	358	92	95	112	120	17140	20870	37690	35180	51920	34720	22650	220950
Diversion in District 67, Colorado—a.f.	4432	1506	862	884	1188	17062	22860	28194	31244	36748	31780	27668	204428
Arkansas River at Colorado-Kansas Stateline—a.f.	1560	2230	3300	3260	3160	2040	4030	13720	15650	13890	12470	6980	82290
Diversion by Ditches in Kansas Stateline to Garden City—a.f.	498	3	0	0	1798	963	1924	6729	11511	9836	5907	6969	46138

APPENDIX "C-1"

MINUTES OF THE ARKANSAS RIVER COMPACT ADMINISTRATION

REGULAR ANNUAL MEETING
January 4, 1982
Cow Palace, Lamar, Colorado

The recessed regular annual meeting of the Arkansas River Compact Administration was held at the Cow Palace in Lamar, Colorado on January 4, 1982. The meeting was called to order at 10:00 a.m. (MST) by Mr. Frank G. Cooley, Chairman and United States Representative. Mr. Cooley stated that the meeting was held pursuant to the Recording Secretary's notice (see Attachment A), which notice had been provided for want of a quorum on the annual meeting date provided for in the by-laws. Compact members in attendance were:

For Kansas:

Carl E. Bentrup — Deerfield, Kansas
Guy E. Gibson — Topeka, Kansas
Ronald Olomon — Garden City, Kansas

For Colorado:

Carl G. Genova — Pueblo, Colorado
Leo Idler — Lamar, Colorado
J. William McDonald — Denver, Colorado

Mr. Cooley introduced Mr. Genova, who had been appointed by the Governor of Colorado to replace Mr. Kent Reyher. Mr. Cooley also announced the reappointment of Mr. Idler by the Governor of Colorado.

Mr. Cooley asked if there were any changes to the agenda (Attachment B). Mr. McDonald asked that the following items be included on the agenda:

1) Approval of minutes of previous meetings,
2) Statement by Wayne Schroeder concerning operation of John Martin Reservoir,
3) Proposed amendments to by-laws concerning Recording Secretary
4) Report of Chairman, and
5) Report of Recording Secretary.

Mr. McDonald moved, seconded by Mr. Genova, that the agenda as amended be accepted. The motion passed on the affirmative vote of both states.

The next order of business was the election of officers. Mr. McDonald nominated Mr. Bentrup for Vice-Chairman. Mr. Olomon moved, seconded by Mr. McDonald, that Mr. Bentrup be elected by acclamation. The motion was adopted on the affirmative vote of both states. Mr. Bob Jesse was nominated for Operations Secretary by Mr.

Bentrup. Mr. McDonald moved, seconded by Mr. Genova, that Mr. Jesse be elected by acclamation. The motion passed on the affirmative vote of both states. Mr. Leo Idler was nominated by Mr. McDonald for Recording Secretary and Treasurer at his present salary. Mr. Genova moved, seconded by Mr. Olomon, that Mr. Idler be elected by acclamation. The motion was passed on the affirmative vote of both states.

The next item was the adoption of the minutes of the June 30, 1980, and December 9, 1980, meetings. Mr. McDonald stated that the minutes were as presented to the Administration at its August 6, 1981, special meeting except that a minor editorial change had been made to the June 30, 1980, minutes. With respect to the December 9, 1980 minutes, Mr. Reyher had made the recommendation at the August 6, 1981, meeting that the actual membership of the standing committees be recorded. This change was made. Mr. McDonald moved, seconded by Mr. Bentrup, that the minutes of both meetings be adopted. The motion was passed on the affirmative vote of both states.

Mr. McDonald recommended that starting with the minutes of the December 9, 1980, meeting, minutes should bear a certification of their approval so that it was clear when minutes had been acted upon. He also suggested that minutes should in the future appear in the annual report of the Administration. Both suggestions were agreed to.

The next item on the agenda was the appointment of committee members for the year. The following suggestions were made:

Administrative and Legal Committee — Mr. McDonald, chairman, and Mr. Bentrup to be the other member.

Engineering Committee — Mr. McDonald requested that Mr. Genova represent Colorado. Kansas requested that Mr. Gibson be the Chairman.

Operations Committee — Mr. Idler, Chairman, and Mr. Olomon to be the other member.

It was moved by Mr. Gibson, seconded by Mr. Olomon, that these nominatons be accepted. The motion was passed on the affirmative vote of both states.

The next item on the agenda was committee reports. Mr. McDonald stated that the Administrative and Legal Committee had not met since the August 6, 1981, special meeting and therefore had no report.

Mr. Gibson called on Mr. Reyher, Chairman of the Engineering Committee prior to the expiration of his appointment, to present the committee's report. Mr. Reyher stated that since August 6, 1981, there had been telephonic meetings of the committee on August 24, August 25, and December 28, and that the meetings concerned the storage of winter water in Pueblo Reservoir. Mr. Reyher's written report is included as Attachment C.

Mr. Cooley called on Mr. Jesse to present his report, as Operations Secretary, on the operation of John Martin Reservoir during compact year 1981. Mr. Jesse stated that his written report had been sent to the Operations Committee in the form of a memorandum dated November 12, 1981, and had been presented by him at the Garden City meeting of the Operations Committee on December 17, 1981. He briefly described what is in that report. He also described the draft proposed report of the ad hoc committee on gaging stations, which committee he had

chaired (this report is appended to the report of the Operations Committee, see Attachment D). Mr. McDonald moved, seconded by Mr. Olomon, that Mr. Jesse's November 12, 1981, report on the operations of John Martin Reservoir during compact year 1981 be accepted. The motion passed upon the affirmative vote of both states.

Mr. Cooley then called upon Mr. Idler for the report of the Operations Committee. Mr. Idler read his report (see Attachment D) and reviewed at some length the draft proposed report of the ad hoc committee on gaging stations. Mr. Cooley also called upon Mr. Jesse to further explain his draft proposed report on gaging stations.

Considerable discussion ensued concerning the gaging station network and the costs thereof. Cost savings of some $4,200 which could be realized by reducing the readings at gages were identified by Mr. Jerry Hughes, U.S. Geological Survey, during the course of the discussion. The possibility of two new telemarks was also discussed. Mr. Howard Corrigan, Water Commissioner, Kansas State Board of Agriculture, registered his opposition to dropping monthly record computations at the Coolidge and Frontier Ditch gages.

After further discussion, Mr. Olomon moved, seconded by Mr. Idler, that the Chairman and Mr. Idler be authorized to execute a cooperative agreement with the U.S. Geological Survey for $21,690, said agreement to provide for the Administration's share of costs in federal FY 82 as itemized in Exhibit A of the ad hoc committee's draft proposed report to the Operations Committee (see Attachment D), except that record computations at an annual cost of $4,200 would be reduced as specified in the draft proposed report for all but the Coolidge and Frontier Ditch gage stations. There being no further discussion, the motion was passed on the affirmative votes of both states. It was further agreed that the Operations Committee should, with the assistance of Mr. Jesse, determine and subsequently report to the Administration the costs of any new telemarks which it might deem appropriate.

At this time the meeting was recessed for approximately five minutes. Upon reconvening, Mr. Bentrup read a proposed resolution (Attachment E) regarding Trinidad Reservoir. He moved, seconded by Mr. Olomon, that the Administration adopt the resolution. Mr. McDonald noted that he respectfully disagreed with the resolution, that the Colorado State Engineer has and would continue to administer Trinidad Reservoir in conformance with the compact, and that Colorado had to reject the motion. The motion failed with Kansas voting yes and Colorado voting no.

Mr. Bentrup stated that Mr. Ed DeKeyser, representing Kansas ditches, wished to read a resolution into the record, which he then did (see Attachment F). Mr. McDonald noted that the resolution was apparently intended to set forth the views of the Kansas Associated Ditch System. Thus, it should not purport to represent findings of the Arkansas River Compact Administration. Mr. McDonald requested that the record reflect that the Administration had not made the findings asserted in the resolution read by Mr. DeKeyser.

A recess was requested at this time by Kansas to correct the resolution. Upon reconvening, Mr. Bentrup stated that Mr. DeKeyser would retract the original resolution and subsequently submit a

corrected version. Mr. Cooley stated that the chair would accept a corrected resolution. Mr. McDonald requested that the resolution from Mr. DeKeyser be retyped for the record and submitted after the meeting. The corrected resolution of the Kansas Associated Ditch System is included herein as Attachment G.

The next item on the agenda was the John Martin Reservoir Operating Plan. Mr. McDonald stated that concerns had been raised by Colorado ditches both upstream and downstream of John Martin Reservoir regarding the transfer of water from the conservation pool into accounts. He noted that this matter was under discussion in Colorado and did not require action by the Administration.

With respect to the Kansas transit loss account, Mr. Bentrup stated that there were discrepancies between Mr. Corrigan's and Mr. Jesse's transit loss calculations. Mr. Jesse stated that if there were differences in the methodologies employed by Mr. Corrigan and he, this could account for the different results. Mr. Jesse noted that he had not previously seen Mr. Corrigan's data. Mr. Corrigan explained how he computed the transit loss. Mr. Jesse stated that they would need to discuss and agree on a methodology. It was agreed that Mr. Jesse and Mr. Corrigan would meet in an effort to resolve this problem.

At 12:10 p.m. the meeting was recessed for lunch. Mr. Cooley reconvened the meeting at 2:05 p.m.

At this time, Mr. Cooley called on Mr. Wayne Schroeder. Mr. Schroeder stated that he represented the Fort Lyon Canal Company, which company was of the opinion that it was being injured by the operation of John Martin Reservoir. Mr. Schroeder stated that the company had two main concerns: (1) the release rates into accounts, and (2) the date at which the releases start into the accounts. Mr. McDonald stated that Mr. Schroeder's comments would be duly noted and that every effort would be made to achieve a resolution of this matter.

The next item on the agenda was Pueblo Reservoir. Mr. Cooley called on Mr. McDonald, who explained that Kansas had provided a proposed resolution concerning Pueblo Reservoir to the Colorado delegation earlier in the day. This proposed resolution had been discussed by the states and modified during the lunch recess. With the leave of Mr. Bentrup, Mr. McDonald read the modified resolution for the audience's benefit, noting that Colorado and Kansas were not yet ready to discuss the resolution. Thereupon, Mr. McDonald requested that the Chairman recess the meeting, which Mr. Cooley did at 2:25 p.m.

The meeting was called back to order at 2:55 p.m. by Mr. Cooley. Mr. McDonald then recited and moved the adoption of a resolution concerning Pueblo Dam and Reservoir (the resolution, as orally presented, was typed after the meeting and appears as Attachment H). Mr. Gibson seconded the motion. There being no discussion, the motion was passed on the affirmative vote of both states.

(Note: The resolution, when reduced to typewritten form after the meeting, was sent to Mr. Cooley for execution (see Attachment I). Kansas subsequently objected to the resolution (see Attachment J). Colorado responded that it regarded the resolution as being in full force and effect (see Attachment K). The Chairman and Recording

Secretary have not affixed their signatures to the resolution.)

The next item on the agenda was proposed amendments to the by-laws. Mr. McDonald stated that as a matter of housekeeping, references in the by-laws to the "Secretary" all needed to be changed to "Recording Secretary" to be consistent with the amendment adopted at the August 6, 1981, special meeting. Mr. McDonald's memo to the Administration regarding this matter, which memo served as the notice required by Article XI of the by-laws, is Attachment L. Mr. McDonald moved, seconded by Mr. Gibson, that the by-laws be amended accordingly. The motion passed on the affirmative vote of both states.

A proposed amendment to Article V of the by-laws with respect to committee meetings was distributed by Mr. McDonald (Attachment M). Mr. McDonald moved, seconded by Mr. Olomon, the adoption of the proposed amendment as written except that the word "ten" was substituted for the word "five"' in the third line of the text. The motion was adopted by the affirmative vote of both states.

The next items on the agenda were the Chairman's, Recording Secretary's, and Treasurer's reports. Mr. Cooley, as Chairman, stated that he had nothing to report. Mr. Idler distributed copies of his Recording Secretary's and Treasurer's reports (see Attachments N and O, respectively). Mr. McDonald moved that the Recording Secretary's and Treasurer's reports be accepted. Mr. Genova seconded the motion. Kansas and Colorado both voted yes. Mr. McDonald moved, seconded by Mr. Gibson, that the Administration accept and place the auditor's report for FY 80-81 (July 1, 1980, through June 30, 1981) in the record (Attachment P). Kansas and Colorado both voted yes.

Mr. Cooley stated that a proposed budget for FY 83-84 had been submitted. Discussion ensued regarding a data acquisition (stream gaging station) plan. It was agreed to provide no money for this item in the budget. Mr. McDonald requested that consideration be given to increasing the payment for Mr. Jesse's staff work with respect to record keeping on John Martin Reservoir. He said that this cost was originally estimated at $5,000 per year, but it should be increased to $6,100. After some discussion, it was decided to leave this item at $5,000 for an initial trial period. There was discussion regarding the cooperative agreement line item of $15,000 for gaging stations. The consensus was to leave the amount at $15,000. Office supplies and printing were set at $500 each.

Mr. McDonald moved adoption of the budget for FY 83-84 (see Attachment Q), seconded by Mr. Olomon. The budget for July 1, 1983 through June 30, 1984, was adopted on the affirmative vote of both states.

Mr. McDonald asked the Kanas delegation to consider $2,500 for FY 81-82 and $5,000 for FY 82-83, to be taken out of the current surplus, for services to be rendered by the Operations Secretary's staff on record keeping for John Martin Reservoir. After some discussion, Mr. McDonald moved that the Administration contract with Mr. Jesse's office in the amounts requested by him for the two specified fiscal years, said amounts to be paid from the Administration's unbudgeted

surplus. The motion was seconded by Mr. Bentrup and was adopted upon the affirmative vote of both states.

Mr. Cooley then called upon representatives of the federal agencies to provide their reports. The U.S. Geological Survey (USGS) report was given by Mr. Jerry Hughes. He stated that a hydrologic model of the Arkansas River was being developed and might be operational by 1983. He also discussed the satellite communication system in the Arkansas River Basin being developed by the Comsat Corp. after being discontinued by the USGS.

Mr. Tom Gibbens stated that the Bureau of Reclamation had no report. No questions were asked.

Mr. Michael J. Mocek, Albuquerque District, Corps of Engineers, briefly reported on the following items:

a) Sedimentation rate for John Martin Reservoir was re-surveyed and new rating tables were published. Mr. Cooley suggested that the report that was part of the new tables should receive wider distribution.

b) The District's boundaries had been changed to conform to state boundaries.

c) The matter of sedimentation and growth in the channel between John Martin Reservoir and the state line was discussed. Mr. Mocek stated that channel clearing below John Martin Reservoir was not a high priority for the Corps Mr. Cooley stated that he would write to appropriate authorities regarding channel clearing.

Mr. Bentrup stated that previous studies on the effect of winter storage in Pueblo Reservoir on John Martin Reservoir had not considered the unmeasured water that entered John Martin. He said there is some indication, based on studies done by Mr. Gerry Hilmes, that winter storage deprives Kansas of this unmeasured water. Mr. Bentrup said this should be taken into consideration in future studies.

There being no further business to come before the Administration, the meeting was adjourned at 4:15 p.m. (MST).

The foregoing minutes were adopted on December 14, 1982, at the annual meeting of the Administration held in Lamar, Colorado.

/s/ Frank G. Cooley
Chairman

/s/ Leo Idler
Recording Secretary

ATTACHMENT A

NOTICE

Pursuant to the by-laws of the Arkansas River Compact Administration, the 1981 annual meeting was called for Tuesday, December 8, 1981, at the Cow Palace Inn in Lamar, Colorado. Having arrived at the appointed hour and observing that a quorum was not present for the conduct of business, the meeting was recessed until 9:30 a.m. (MST), January 4, 1982.

/s/ Leo Idler
Recording Secretary

December 8, 1981

ATTACHMENT B

Recessed Annual Meeting
Arkansas River Compact Administration
9:30 a.m. (MST), January 4, 1981
Cow Palace Inn
Lamar, Colorado

1. Call to order
2. Filing of certificate of recessed annual meeting
3. Election of officers
   A. Vice-President
   B. Operations Secretary
   C. Recording Secretary
   D. Treasurer
4. Appointment of Committee members and chairmen
   A. Administrative and Legal Committee
   B. Engineering Committee
   C. Operations Committee
5. Committee reports
   A. Administrative and Legal Committee
   B. Engineering Committee
   C. Operations Committee
      (1) Report on Operations Secretary
      (2) Report on gaging station network
6. Trinidad Reservoir
7. John Martin Reservoir Operating Plan
8. Pueblo Reservoir
9. Proposed amendment to Article V of the By-Laws concerning notice for committee meetings
10. Treasurer's report
11. Budget matters, including FY 83-84 budget
12. Reports from federal agencies
    A. U.S. Geological Survey
    B. Bureau of Reclamation
    C. Corps of Engineers
13. Adjournment

ATTACHMENT C

Arkansas River Compact Administration
Engineering Committee Report
January 4, 1982

Re: Pueblo Winter Storage—Effect on John Martin

Telephonic Meetings and Communications

August 24, 1981	Kent Reyher and Guy Gibson
Aug. 25, 1981	Kent Reyher and Jerry Hilmes
December 28, 1981	Kent Reyher and Jerry Hilmes

The 8-24-81 conversation covered ways of collecting data to determine if there has been an effect on the waters to John Martin Reservoir by the operation of a Pueblo Winter Water Storage Program.

The 8-25-81 conversation covered the correspondence (attached) that had been made by concerned entities.

a. Study by the U.S.G.S. Requested by Southeastern Colorado Water Conservancy District
b. Figures compiled by Jerry Hilmes
c. Letter to Guy Gibson from Howard Corrigan formulating criteria needed for the study

The 12-28-81 conversation was for the purpose of confirming Kansas' concern on the subject and compiling the information for an engineering committee report for the annual meeting scheduled for January 4, 1982.

/s/ Kent Reyher

ATTACHMENT C

KANSAS STATE BOARD OF AGRICULTURE

January 5, 1981

Mr. Guy E. Gibson, Chief Engineer-Director
Kansas State Board of Agriculture
State Division of Water Resources
901 Kansas Avenue
Topeka, Kansas 66612

Dear Mr. Gibson:

In response to your verbal request on December 9, 1980 concerning criteria in reference to a proposed study to be made of river discharges, water releases and canal usage on the upper Arkansas River just upstream from the Pueblo Reservoir to the John Martin Reservoir. This being discussed at the annual meeting of the Arkansas River Compact Administration held at Lamar, Colorado on December 9, 1980.

On December 16, 1980 Mr. Carl Bentrup, Mr. Ed DeKeyser and

myself met to formulate the criteria needed for the study. We have listed below as follows:

1. Compile the daily discharge readings of the Portland Gaging Station during the period of November 1 to March 31 for the 10 years prior to operation of Pueblo Dam and during the time of operation.
2. Compile daily records of diversions of all canals and ditches during the period from November 1 to March 31 for the last 10 years prior to and during the time of operation of the Pueblo Reservoir including sluicing quantities of the canals, if available. Also amounts stored in the Pueblo Reservoir.
3. Compile daily discharge records at Las Animas during the period from November 1 to March 31 for the last 10 years prior to the operation of Pueblo Dam and during the time of operation.
4. Compile daily climatological records between Pueblo and Las Animas for the last 10 years prior to operation of Pueblo Dam and during operation. Determine what effect temperatures, winds, snow and rainfall have on canal diversions.

Yours truly,
/s/ Howard C. Corrigan
Water Commissioner

HCC:ss
cc: Mr. Carl Bentrup
cc: Mr. Ed DeKeyser

ATTACHMENT C

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
Water Resources Division
P.O. Box 1524
Pueblo, Colorado 81002

February 16, 1981

Mr. Charles L. Thomson
General Manager
Southeastern Colorado Water
Conservancy District
905 Hwy. 50 West
Pueblo, Colorado 81008

Dear Tommy,

At the annual meeting of the Arkansas River Compact in Lamar, Colorado on December 9, 1980, the Kansas delegation proposed that a study be initiated to evaluate any potential reduction of inflow to John Martin Reservoir resulting from winter storage of water in Pueblo Reservoir. Several members of the winter-water storage committee were present at the meeting and requested that I review available data and determine if a change in the volume of inflow to John Martin Reservoir from the Arkansas River has occurred and if so, the

magnitude of the change. The review was performed under the technical assistance element of the cooperative program between the U.S. Geological Survey and the Southeastern Colorado Water Conservancy District and the results of the data evaluation follows.

In 1975, prior to initiating a program of winter storage in Pueblo Reservoir, the U.S. Geological Survey was asked to interrogate a previously developed mathematical model of the Arkansas River for possible impacts using a calibration period of 1972 through 1974. The model required some modifications before use including simulation of off-channel reservoir storage practices. Details of the modifications and results of the model interrogations are described in the enclosed letter to you from the U.S. Geological Survey dated March 7, 1975. Briefly, the model analysis indicated the water-management practices associated with winter-water storage program would increase flow of the Arkansas River to Kansas, increase available storage in surface reservoirs, and slightly decrease ground-water storage.

Although an excellent tool for extrapolation, models cannot replace the actual data obtained from the implementation of a change in water use. When the actual data matches the predicted effects of a model, the model is considered verified. In contrast, a model is calibrated when it can reproduce historic data. Either model can be used to predict hydrologic conditions, but a verified model is preferred and logically, very difficult to attain.

A brief review and evaluaton of actual data collected since the winter-water storage program began tends to verify the earlier model predictions. The technique used to evaluate any potential impacts on inflow to John Martin Reservoir from the winter storage program was the Double-mass Curve (Searcy, J.K., and Hardman, C.H., 1960, Double-mass curves; Manual of Hydrology, Part 1 General Surface-water Techniques, U.S. Geol. Survey Water-Supply Paper 1541-B, 65 p.)

According to Searcy and Hardman (1960, pg. 32-33) "A double-mass curve is a plot on arithmetic cross-section paper of the cumulative figures of one variable against the cumulative figures of another variable, or against the cumulative computed values of the same variable for a concurrent period of time." "The theory of the double-mass curve is based on the fact that a graph of the cumulation of one quantity against the cumulation of another quantity during the same period will plot as a straight line so long as the data are proportional; the slope of the line will represent the constant of proportionality between the quantities. A break in the slope of the double-mass curve, means that a change in the constant of proportionality between the two variables has occurred..." The double-mass curve is very sensitive to changes and would readily indicate any loss or gain of water between two points. The variables used in the analysis were the streamflow monitoring stations on the Arkansas River at Portland and Las Animas. The station at Portland represents the available flow into the system subject to storage by the winter program; the station at Las Animas represents the credited inflow to John Martin Reservoir from the Arkansas River.

The results of the double-mass curve anlayses are shown in figures 1 and 2. Both figures exhibit essentially straight lines which represent no long-term change in the accumulative rates of flow past the two

gaging stations. Please note that the lines are referred to as "essentially straight" and slight bends can be defined if closely scrutinized. For example, line 1 on figure 1 represents the best fit straight line for all values and intersecting the zero intercept. Line 2 suggests a break from line 1 about 1969; line 3 parallels line 1 from 1969 to about 1975; line 4 shows a different slow beginning about 1974-1975. The slope of line 2 may represent the true base or long-term balance between the two stations with a skew of line 3 and 4 sequentially towards an increased flow at Las Animas related to 1) greater inflow from Fountain Creek (adding to the system below Portland gage associated with the Homestake diversion to Colorado Springs, and 2) storage of winter water in Pueblo Reservoir. The latter is consistant with the model predictions.

The sensitivity of the double-mass curve to changes in streamflow is shown in the figure taken from a report of investigation I completed in 1976 entitled "Evaluation of Ground-water quality in the Santa Maria Valley, California (U.S. Geolo. Survey Water-Resources Investigation 76-128, 72 p.). The figure compares accumulative discharge at streamflow monitoring stations on the Santa Maria River drainage above and below Twitchell Dam. The dam was installed to increase percolation to the downstream river alluvium by reducing loss of water to the ocean during flood events. As you will note, the double-mass curve breaks significantly away from the downstream gage at Guadalupe indicating a reduced flow at that gage by the flood-control practice.

In conclusion, evaluation of the comparative flow at Portland and Las Animas by the double-mass curve method does not indicate a reduced inflow to John Martin from the Arkansas River resulting from storage of winter water in Pueblo Reservoir. In contrast, the evaluation suggests a possible increase which tends to verify the earlier prediction of the digital model.

If you have questions reading this evaluation or require additional assistance, please call.

Sincerely,
/s/ Jerry L. Hughes
Pueblo Subdistrict Chief

Enclosure
cc: Frank Cooley, Arkansas River Compact Administration

GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

File .....

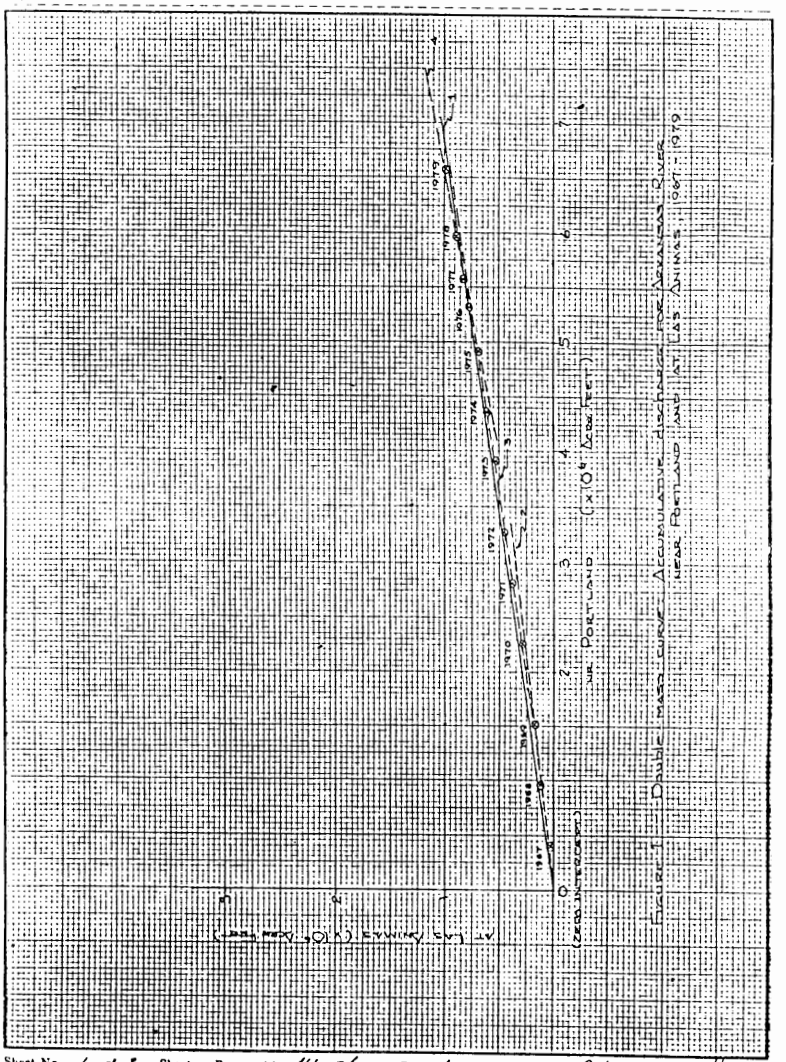
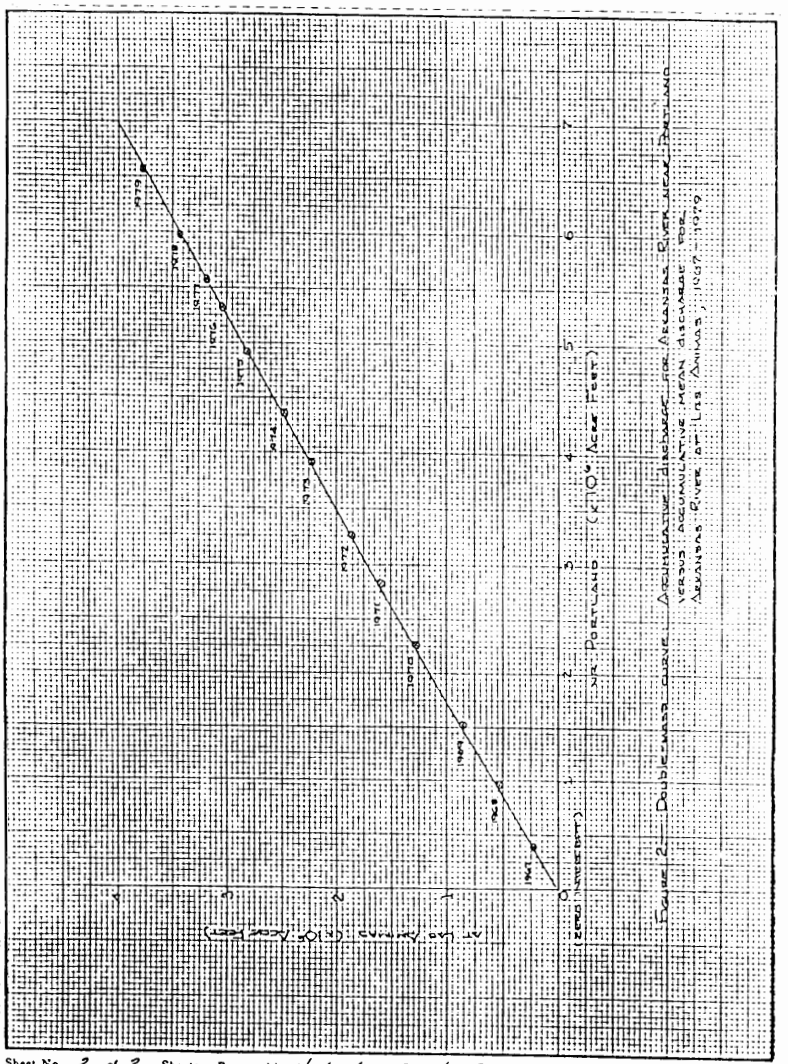


FIGURE 1.—Double mass curve of accumulated discharge for Arkansas River near Portland and at Las Animas, 1967-1979.

Sheet No. ...1.... of ..2..... Sheets. Prepared by Abbott Date Jan. 1981 Checked by ... Date Jan 1981

GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

File



Sheet No. 2 of 2 Sheets. Prepared by Hughes / Abbott Date Jan 1981 Checked by ..... Date .....

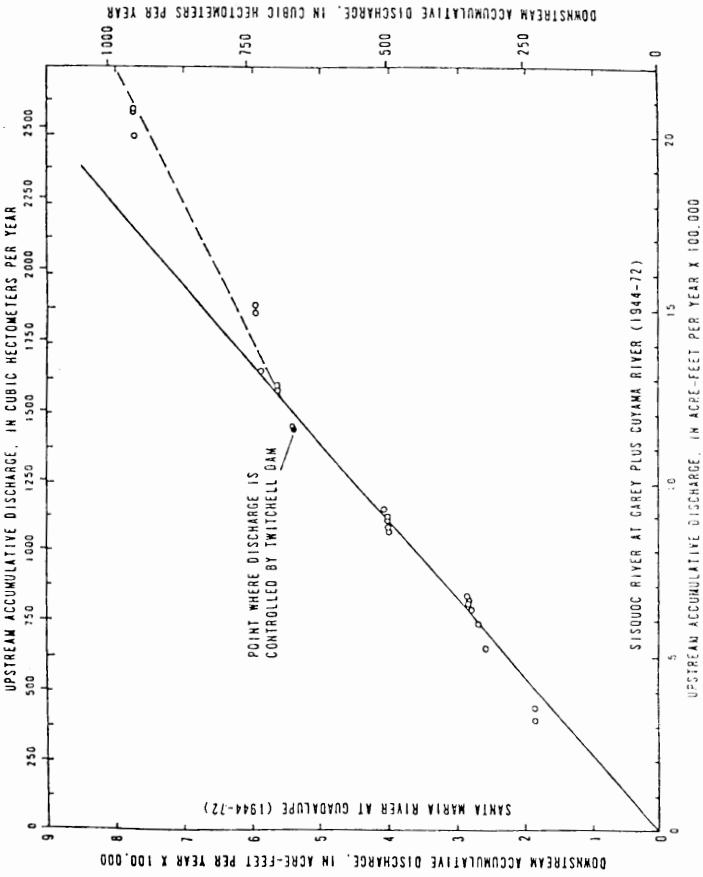


FIGURE 6.--Double-mass curve showing effect of Twitchell Dam on accumulative discharge in Santa Maria River system.

ATTACHMENT C

KANSAS STATE BOARD OF AGRICULTURE

July 10, 1981

Mr. Carl Bentrup, Member
Arkansas River Compact Adm.
Rural Route
Deerfield, Kansas 67838

Dear Carl:

I have compiled flow records (see attached tabulation) from the gaging stations at Portland, Pueblo and Las Animas for an evaluation of the effects Pueblo Reservoir may have on inflow to John Martin.

Annual gaged flow (compact report years, Nov.-Oct.) was compiled to compute the percentage of flow at Las Animas with respect to flow at Portland and Pueblo. The annual percentages were then averaged to show a comparison (see conclusions) of flow prior to and after operation of Pueblo Reservoir. According to U.S.G.S. data, Pueblo Reservoir was placed into operation on January 9, 1974.

The flow data were obtained from Compact Reports and U.S. Geological Survey Reports and include total flows gaged at each of the three stations. No reductions were made for transmountain diversions, upstream storage releases, diversions above stations for irrigation, etc.

Please note that comparative flow on a percentage basis indicates there has not been a reduced flow at the Las Animas gage with respect to Portland gage since operation of Pueblo Reservoir began.

If you should have any questions, please feel free to contact me.

Sincerely,
/s/ Gerald E. Hilmes
Hydrologist

GEH:cb
Enclosures
cc: Howard Corrigan

Ark. River Flow Data

Report Year	Discharge in Acre-feet At Portland	Near Pueblo	At Las Animas	% Portland flows at Las Animas	% Pueblo flows at Las Animas
1950	401,600	328,000	61,390	15	19
1951	428,900	348,790	68,710	16	20
1952	612,300	561,460	103,710	17	18
1953		382,750	84,290		22
1954	N	225,830	38,790		17
1955	0	260,650	136,730		52
1956		339,610	47,680		14
1957	R	1,001,000	396,900		40
1958	E	478,400	131,900		28
1959	C	364,500	22,840		6
1960	O	444,000	62,410		14
1961	R	449,100	105,800		24
1962	D	607,600	92,500		15
1963		276,000	41,320		15
1964		320,800	28,440		9
1965	779,040	771,000	330,300	42	43
1966	525,940	413,800	101,700	19	25
1967	410,330	340,900	31,510	8	9
1968	543,310	489,900	77,150	14	16
1969	582,930	480,900	72,630	12	15
1970	766,610	689,000	123,800	16	18
1971	540,350	480,400	80,600	15	17
1972	451,040	402,900	69,720	15	17
1973	625,970	569,900	87,080	14	15
1974	433,950	359,200	61,890	14	17
1975	564,980	479,600	90,100	16	19
1976	440,970	372,000	73,010	17	20
1977	195,890	175,900	3/ 39,850	20	23
1978	407,740	348,640	68,020	17	20
1979	575,920	517,300	3/ 92,560	16	19
1980	750,000	718,800	3/264,610	35	37

1/ Pueblo Reservoir storage and operation began January 9.
2/ Portland gage moved upstream approximaely 5 miles.
3/ Amity winter water passing Las Animas gaging station reduced from total flow.

SUMMARY

The Above Compilation Shows That:

1. Prior to 1974, the average annual gaged flow passing the Las Animas, Colorado, gage was 17% of the water gaged at Portland, Colorado.
2. After 1973 the average annual gaged flow passing the Las Animas, Colorado, gage was 19% of the water gaged at Portland, Colorado, an increase of 2 percent.
3. Prior to 1974, the average annual gaged flow passing the Las Animas, Colorado, gage was 20% of the water gaged at Pueblo, Colorado.
4. After 1973, the average annual gaged flow passing the Las Animas, Colorado, gage was 22% of the water gaged at Pueblo, Colorado, an increase of 2 percent.
5. Evaluation of the comparative flow at Portland, Pueblo, and Las Animas does not indicate a reduced flow into John Martin via the Arkansas River resulting from storage in Pueblo Reservoir.

ATTACHMENT D

OPERATIONS COMMITTEE REPORT

Mr. Robert Jesse met with the Operations Committee at Garden City, Kansas, December 17, 1981. He explained what his report contained, an actual day by day record of the various irrigation entities storing in John Martin Reservoir during the irrigation season. The amount of evaporation charged to each of these entities according to their proportionate share was included in the figures.

There were 46,760.49 acre feet of water stored in John Martin Reservoir during the winter storage season. Included in this amount were 27,106.34 acre feet that were stored in the accounts October 31, 1980. The permanent pool at John Martin Reservoir contained 8,234.66 acre feet October 31, 1980. During the irrigation season 80,475.94 acre feet were released to the state of Coloado ditches, 38,582.30 acre feet were released to Kansas ditches which included their agreement water and transit loss water. There were 13,712.89 acre feet stored in the reservoir when the winter storage season began November 1, 1981.

A new area capacity table was received and its use implemented August 12, 1981.

The Compact Chairman directed Mr. Jesse to call an ad hoc meeting in Lamar, Colorado, August 27, 1981, to discuss gauging stations on the Arkansas River operated by the Compact and the U.S.G.S.

Various representatives from United Geological Survey, Army Corps of Engineers, Colorado Attorney General's Office, Colorado Water Conservation Board, Water Commissioners for Kansas, both Colorado Compact Commissioners and the Division Engineer from Colorado were present.

Various changes were proposed and were included in the resume

Mr. Jesse sent to all who attended. There were two replies to the resume Mr. Jesse sent. Mr. Howard Corrigan, Kansas Water Commissioner from Kansas, noted he would like to go on record against dropping the monthly record computations on the Arkansas River near Coolidge, Kansas, and the Frontier Ditch at the State line. Mr. Perry of the Colorado Water Conservation Board replied that he approved the changes.

The proposed changes are appended here to.

Respectfully submitted,
/s/ Leo Idler
/s/ Ronald Olomon
Operations Commitee Members

DIVISION OF WATER RESOURCES
DEPARTMENT OF NATURAL RESOURCES
Robert W. Jesse
Irrigation Division Engineer
1906 W. Northern Avenue
Pueblo, Colorado 81004
Office 542-3368 Home: 545-2873
September 23, 1981

MEMORANDUM
TO: Jeris Danielson, State Engineer
Howard Corrigan
Leo Idler
Kent Reyher
Jerry Hughes
Bill McDonald
Mike Mocek
Bill Howland
Dave Aschkinasi
Frank Cooley

SUBJECT: August 22, 1981 Meeting

As directed by Mr. Cooley at the August Compact meeting, attached are my recommendations and perceptions of the August 27 meetings.

It looks like an increase in Compact cost to U.S.G.S.

If you have any further ideas, comments or want to add or delete anything, please get back to me as soon as possible so I can have a report ready for the Operations Committee.

/s/ Robert W. Jesse

RWJ/eg

(DRAFT)

PROPOSED REPORT TO A.R.C.A. OPERATIONS COMMITTEE

At the August meeting, the Compact asked the Division Engineer for Division 2 to act as Chairman of an ad hoc committee to report on the gauge stations operated by the Compact. A meeting was held at 2:00 p.m. on August 27, 1981 in Lamar (notice attached).

Present were representatives from the U.S.G.S., Army Corps of Engineers, Attorney General's Office, C.W.C.B., Water Commissioner for Kansas, both Colorado Compact Commissioners and the Division Engineer from Colorado.

Recommendations to Operations Committee:

0712400 **Arkansas River at Las Animas**

Should drop requirement of monthly computation of records (see Note C, Exhibit "A"), and request 4 instead of 8 extra measurements, and retain the 3 flood measurements. Should have telephone accessible telemark installed.

08130500 **Arkansas below John Martin**

Should drop monthly computation of records (see Note C, Exhibit "A"), and request 4 instead of 8 extra measurements, and retain the 3 flood measurements. Should have telephone telemark installed.

Arkansas at Granada

Should have 4 extra measurements and 3 flood measurements. No monthly computations.

07128500 **Purgatoire R. near Las Animas**

Should drop requirement of monthly computation of records (see Note C, Exhibit "A"), and request 4 instead of 8 extra measurements, and retain the 3 flood measurements. Should have telephone accessible telemark installed.

John Martin Reservoir

No change.

Radio Relay Stations [3 **in Colorado**]

Telemarks should be operated for Water Year 1982 with these radios. And, if Telemeters are superior, evaluate radio network in Colorado in December 1982.

KANSAS DISTRICT

07137500 **Arkansas near Coolidge**

Drop monthly record computations.

07137000 **Frontier Ditch**

Drop monthly record computations.

Radio Relay Stations [5 **in Kansas**]

Telemarks should be operated in Water Year 1982 with these radios. And, if telemeters are superior, evaluate radio network in Kansas in December 1982.

It is further felt that telephone telemarks should be installed in the State of Colorado operated gages at Nine Mile on the Purgatoire and the La Junta gage on the Arkansas.

It is further felt that a report and inquiry such as this be submitted each year to the Operations Committee.

Comsat Program as demonstrated should be watched closely, as it

seems to be the ultimate answer to all data collection and, if implemented and within Compact budget capabilities, would replace all radio, telephone and data computation systems.

EXHIBIT "A"

FY 1982 (October 1981-September 1982)
SUMMARY OF PROGRAM
USGS/Arkansas River Compact Administration

Station number	Station Name	Coop. or Support	Notes		Funds
	Colorado District				
07124000	Arkansas R. at Las Animas	Federal	A	$ 4,050	
		Compact	B, C	2,440	
07130500	Arkansas R. below John Martin Reservoir	Federal	A	4,050	
		Compact	B, C, D	3,240	
07133000	Arkansas River at Lamar	Federal	A	4,050	
		Compact	B, C	2,440	
	Arkansas R. at Granada	Compact	A, B, C, D	6,440	
07128500	Purgatoire R. near Las Animas	Federal	A	4,050	
		Compact	B, C	2,440	
	John Martin Reservoir	Compact	D	800	
	Radio relay stations (3 in CO)	Compact	E	1,600	
	Compact Net Total, Colorado District				$19,400
	Kansas District				
07137500	Arkansas R. near Coolidge	Federal	A	4,800	
		Compact	B, C	3,260	
07137000	Frontier Ditch	Federal	F	2,600	
		Compact	C	700	
	Radio relay stations (5 in KS)	Compact	E	2,530	
	Compact Net Total, Kansas District				$ 6,490
	COMPACT GRAND TOTAL				$25,890

Note A. Funding includes basic station O&M with about 12 discharge measurements per year.

Note B. Funding includes about 8 additional routine discharge measurements per year (March-November) and about 3 flood measurements per year.

Note C. Funding includes monthly (current) record processing.

Note D. Funding includes $800 for maintenance of telemark.

Note E. Funding includes maintenance, repair or replacement of radio antennas, Texas Instruments Silent 700, and DARDC's.

Note F. Funding includes only check discharge measurements (no routine measurements are made).

KANSAS STATE BOARD OF AGRICULTURE

September 28, 1981

Mr. Robert W. Jesse
Irrigation Division Engineer
Division of Water Resources
1906 W. Northern Avenue
Pueblo, Colorado 81004

Dear Mr. Jesse

I am in receipt of your letter dated September 23, 1981 concerning your recommendations and perceptions of the August 27 meeting held as directed by Mr. Cooley at the August Compact meeting in reference of investigation of the gauge stations operated by the Compact.

I would like to go on record as opposing any drop in monthly record computations on either the Arkansas River near Coolidge or the Frontier Ditch at the Stateline. These records are used constantly by this office. Also I find nowhere in your letter the concern in the operating cost differences by the U.S.G.S. in operating the Kansas gauge stations as to the Colorado gauge stations.

It should be noted that I have no Exhibit "A" attached to my letter.

Yours truly,
/s/ Howard C. Corrigan
Water Commissioner

HCC: ss
cc: Jeris Danielson, State Engineer
cc: Leo Idler
cc: Kent Reyher
cc: Jerry Hughes
cc: Bill McDonald
cc: Bill Howland
cc: Frank Cooley
cc: Carl Bentrup
cc: Ronald Olomon
cc: Guy E. Gibson

ATTACHMENT E

RESOLUTION CONCERNING TRINIDAD RESERVOIR

WHEREAS, the Arkansas River Compact Administration has reviewed reports and the Findings of Fact Relative to Trinidad Reservoir adopted by the Administration on September 25, 1980;

NOW THEREFORE, BE IT RESOLVED that the Administration finds that Article IV D of the Compact and Condition #3 of the Kansas Amendments to the Operating Principles Trinidad Dam and Reservoir Project were violated when the State Engineer allowed the District (Trinidad) to store 18,290 acre-feet of water in Trinidad Reservoir during water year 1979 under authority of the Model Storage Right and to store 20,000 acre-feet during water year 1980 under the Model Storage Right behind Trinidad Dam without physically moving 18,290 acre-feet stored in 1979 under the Model Right from behind Trinidad Dam;

BE IT FURTHER RESOLVED that the Administration requests that the State Engineer of Colorado immediately order the release of all waters in excess of the 6200 acre-feet which is stored under the Model account and prohibit the District from emptying the account by any method other than physically moving the water from behind Trinidad Dam and further that the State Engineer protect such releases from diversion until the water is impounded in John Martin Reservoir.

Entered this 4th day of January, 1982, at the annual meeting of the Administration held in Lamar, Colorado.

Frank Cooley, Chairman
Arkansas River Compact
Administration

Leo Idler, Secretary
Arkansas River Compact
Administration

ATTACHMENT F

RESOLUTION CONCERNING TRINIDAD RESERVOIR

WHEREAS, the Arkansas River Compact Administration has reviewed reports and the Findings of Fact Relative to Trinidad Reservoir adopted by the Administration on September 25, 1980;

NOW THEREFORE, BE IT RESOLVED that the Administration finds that Article IV D of the Compact and Condition #3 of the Kansas Amendments to the Operating Principles Trinidad Dam and Reservoir Project were violated when the State Engineer allowed the Purgatoire River Water Conservancy District to store 18,290 acre-feet of water in Trinidad Reservoir during water year 1979 under authority of the Model Storage Right and to store 20,000 acre-feet during water year 1980 under the Model Storage Right behind Trinidad Dam without

physically moving 18,290 acre-feet stored in 1979 under the Model Right from behind Trinidad Dam;

BE IT FURTHER RESOLVED that the Kansas Ditches that divert water from the Arkansas River in Hamilton, Kearny and Finney Counties requests that the State Engineer of Colorado immediately order the release of 40% of the water in excess of the 6200 acre-feet which is stored under the Model account and prohibit the District from emptying the account by any method other than physically moving the water from behind Trinidad Dam and further that the State Engineer protect such releases from diversion until the water is impounded in the Kansas storage account located in the John Martin Reservoir.

Entered this ___ day of _____, at the annual meeting of the Administration held in Lamar, Colorado.

Henry Gillan, Jr., President
Kansas Associated Ditch System

ATTACHMENT G

January 15, 1982

Mr. Bill McDonald
Colorado Water Conservation Board
823 State Centennial Building
1313 Sherman Street
Denver, Colorado 80203

Dear Mr. McDonald:

On behalf of Mr. Ed Dekeyser, spokesman for the Kansas Associated Ditch System, I am sending a revised Resolution, pertaining to the Trinidad Reservoir.

The Resolution as submitted to the Arkansas River Compact Commission held at Lamar, Colorado on January 4, 1982, should be withdrawn and replaced with this revised Resolution.

Yours truly,
Howard Corrigan,
Water Commissioner

cc: Carl Bentrup
cc: Ed Dekeyser

RESOLUTION CONCERNING TRINIDAD RESERVOIR

WHEREAS, the Arkansas River Compact Administration has reviewed reports and the Findings of Fact Relative to Trinidad Reservoir adopted by the Administration on September 25, 1980;

BE IT RESOLVED that the Kansas Ditches that divert water from the Arkansas River in Hamilton, Kearny, and Finney Counties request

that the State Engineer of Colorado immediately order the release of 40% of the water in excess of the 6,200 acre-feet which is stored under the Model account and prohibit the District from emptying the account by any method other than physically moving the water from behind Trinidad Dam and further that the State Engineer protect such releases from diversion until the water is impounded in the Kansas storage account located in the John Martin Reservoir.

Entered this 4th day of January 1982, at the annual meeting of the Administration held in Lamar, Colorado.

/s/ Henry Gillan, Jr., President
Kansas Associated Ditch System

ATTACHMENT H

RESOLUTION CONCERNING PUEBLO DAM AND RESERVOIR

WHEREAS, the regulation of "waters of the Arkansas River" (as that term is defined in Article III of the Arkansas River Compact) is of major concern to the Arkansas River Compact Administration; and

WHEREAS, Pueblo Dam and Reservoir in Colorado, a feature of the Fryingpan-Arkansas Project, has been constructed with a capacity sufficient to permit regulation of waters of the Arkansas River; and

WHEREAS, the resolution approved by this Administration at Lamar, Colorado, on July 24, 1951, provides that:

3. The re-regulation of native waters of the Arkansas River (native waters being as above mentioned) concerns the Arkansas River Compact Administration and both Colorado and Kansas in complying with the provisions of the Arkansas River Compact and maintaining the benefits and obligations of the two states under that compact. To that end, it is recommended to the governors of Colorado and Kansas, and expressed as policy of the Arkansas River Compact Administration, that the Initial Development, Gunnison-Arkansas Project, Roaring Fork Diversion, Colorado, as set forth in Project Planning Report No. 7-8a.49-1 of the Bureau of Reclamation, be approved; provided, however, that there shall be no re-regulation of native waters of the Arkansas River as proposed in such report until a plan of operation, rules, regulations, procedures and agreements in the furtherance thereof, including any pertinent agreements between the Corps of Engineers and the Bureau of Reclamation, shall have been submitted to, and approved by, the Arkansas River Compact Administration and the affected water users.

; and

WHEREAS, the State of Colorado in a document entitled "Official Comments and Recommendations of the State of Colorado on the Initial Development, Gunnison-Arkansas Project, Roaring Fork Division, Colorado," dated August 7, 1951, which was signed by the Governor of the State of Colorado and the Director of the Colorado Water Conservation Board, acknowledged in comment.

ATTACHMENT I

MEMORANDUM

TO: Members, Arkansas River Compact Administration
FROM: Bill McDonald
DATE: January 11, 1982
SUBJECT: Resolution Concerning Pueblo Dam and Reservoir

1. Please find attached the final copy of the resoluton which was read into the record and passed at the annual meeting on January 4.
2. I am providing this to you in order that you might review it for its accuracy.
3. Concurrently herewith, I have transmitted the originally typed copy of the resolution to Frank Cooley for his signature. May I suggest that if Frank receives no comment to the contrary from any member of the Administration **on or before Friday, January 29**, then he should execute the original and forward it to Leo Idler.
4. Upon receipt of the originally executed resolution from Frank, I would request Leo to also execute the resolution and proceed to distribute it as follows:
   a. Make xerox copies of the executed resolution to send to all members of the Administration and to Bob Jesse.
   b. Make xerox coies of the resolution to transmit to the U.S. Bureau of Reclamation (Mr. B. E. Martin, Regional Director, Lower Missouri Region, U.S. Bureau of Reclamation, Denver Federal Center, Denver, Colorado 80225) and to the Southeastern Colorado Water Conservancy District as provided for by the resolution.
   c. Finally, return the originally executed copy of the resolution to me so that I can attach it to the minutes, which, when they are approved by the Administration, will be returned to Leo for disposition in the official files in Lamar.
5. Unless I hear to the contrary, I will assume that this procedure is satisfactory. Thank you for taking the time to review this for its accuracy.

JWM/gl

Encl: as stated
cc: Bob Jesse, Operations Secretary
bcc: Tommy Thomson, Southeastern Colo. WCD (Resolution only)

ATTACHMENT J

KANSAS STATE BOARD OF AGRICULTURE

January 20, 1982

Mr. Frank Cooley
Arkansas River Compact Administration
Box 98
Meeker, Colorado 81641

Dear Mr. Cooley:

On January 4, 1982 Kansas submitted a written Resolution to the Arkansas River Compact Administration concerning operation of the Pueblo Dam and Reservoir. This Resolution was then re-written and given approval by both States based on a verbal reading of this change. After reviewing the written Resolution of January 11, 1982, we find that the third paragraph from the bottom does not comply with the Resolution passed by the Administration on July 24, 1951 and approved by both States. The Resolution states that the operating plan should be approved by the Arkansas River Compact Administration. We propose to substitute the following Resolution:

> "Now therefore be it resolved, that there shall be no re-regulation of native waters of the Arkansas River as proposed in planning report No. 7-8a. 49-1 after November 1, 1982, unless an operating plan, rules, regulations, procedures and agreements in the furtherance thereof, including any pertinent agreements between the Corps of Engineers and Bureau of Reclamation, shall have been submitted **to and approved** by the Arkansas River Compact Administration and the affected water users."

Yours truly,
/s/ Carl E. Bentrup
Compact Member
/s/ Ronald Olomon
Compact Member

ce: Bill McDonald

ATTACHMENT K

March 24, 1982

Mr. Carl Bentrup
Deerfield, KS 67838

Dear Carl:

Please excuse this delayed response to the January 20, 1982, letter which you and Ron Olomon sent to Frank Cooley with regard to the resolution concerning Pueblo Reservoir which was considered by the Compact Administration at its January 4, 1982, annual meeting. I did not respond during February since you were on vacation. Then time simply slipped by me this month before I got back to it.

I have listened to the tapes for the January 4 meeting and find that

the resolution which I forwarded to the members of the Compact Administration under cover of a memo dated January 11 is exactly what was read into the record and approved by both states. If you would like me to send you the tapes, I would be glad to do so.

Under the circumstances, I regard the resolution which I transmitted on January 11, as being in full force and effect. Please let me know how you would like to proceed to dispose of this matter.

Sincerely,
/s/ J. William McDonald
Director

cc: Frank Cooley
Guy Gibson
Ron Olomon
Leo Idler
Carl Genova
Bob Jesse

bcc: Dennis Montgomery
Tommy Thomson

ATTACHMENT L

MEMORANDUM

TO: Members, Arkansas River Compact Administration
FROM: Bill McDonald
SUBJECT: Notice of Addition of an Item to the Agenda for the Recessed Annual Meeting
DATE: December 30, 1981

1. At the August 6, 1981, special meeting, the by-laws were amended to create the office of Recording Secretary (Article II).
2. We forgot, however, to amend other articles in the by-laws to change all references to the "Secretary" to the new "Recording Secretary."
3. Article XI of the by-laws requires that proposed amendments "shall have been given in the notice of the meeting". Since the agenda initially sent out did not provide such notice, I am sending out this supplementary notice to the agenda. I will have the necessary changes identified for your consideration at the January 4th meeting.

BM/eg

ATTACHMENT M

MEMORANDUM

TO: Members, Arkansas River Compact Administration
FROM: Bill McDonald
SUBJECT: Proposed Amendment to Article V of the By-Laws
DATE: December 30, 1981

1. The subject amendment has been duly noticed in the agenda for the January 4th recessed Annual Meeting.
2. I propose adding a new paragraph to Article V to read as follow:
   "7. Written notice of meetings of standing committees and of special committees shall be given to all officers and members of the Administration at least five days prior to the date for any such committee meetings, said written notice to specify the time, date, location, and agenda for such meetings. A standing committee or special committee may waive such notice requirement if all members of a committee agree that circumstances so warrant. In the event of such a waiver, the chairman of a committee shall make every reasonable effort to inform all officers and members of the Administration of the time, date, location and agenda for a committee meeting."

BM/eg

ATTACHMENT N

SECRETARY'S REPORT

The irrigation season for 1981 was opposite to that of 1980. The 1980 season began with a rainy period in April and May, then tapered off to a dry fall. The 1981 season started out with very little snow in the mountains, then a dry spring and early summer. There was a rainy period on the Purgatoire River in the late summer which turned a bleak year into a fairly good one, irrigation wise.

The account system we have been using the last two years has proved successful under these completely different conditions. It has been the irrigators prerogative of using their proportional share of water when they needed it.

The Compact Administration continues to update the gauging of water flowing into and out of John Martin Reservoir. My experience as a Compact member is that it is not easy to keep a close account of water flowing in a stream or river for long periods of time. No matter what you design, nature redesigns, so constant supervision is needed to keep an accurate account of flowing water wherever it is.

I hope the new Comsat Program stands the test of time as we continue to try new methods of meauring water.

Respectfully submitted,
/s/ Leo Idler
Recording Secretary

ATTACHMENT O

TREASURER'S REPORT
July 1, 1980 thru June 30, 1981

Cash on hand July 1, 1980		$22,760.00
RECEIPTS:		
Revenue from Assessments:		
Colorado	$12,237.00	
Kansas	8,158.00	
Interest	1,312.00	
TOTAL RECEIPTS		21,707.00
DISBURSEMENTS:		
Insurance	100.00	
Geological Survey	5,714.00	
Equipment	94.00	
Professional Fees	200.00	
Office Supplies	235.00	
Printing Annual Report	680.00	
Secretary's Salary—Net	3,371.00	
Payroll Taxes	530.00	
Telephone	1,540.00	
Typing and Mailing	235.00	
Travel and Meetings	226.00	
TOTAL DISBURSEMENTS		12,913.00
EXCESS OF RECEIPTS OVER DISBURSEMENTS		8,794.00
CASH BALANCE, JUNE 30, 1981		31,554.00

BALANCE SHEET
July 1, 1981 thru December 30, 1981

Cash on hand July 1, 1981		31,554.21
RECEIPTS:		
Revenue from Assessments:		
Colorado	13,614.00	
Kansas	9,076.00	
Miscellaneous	2.00	
Interest	1,063.00	
TOTAL RECEIPTS		23,755.00
TOTAL FUNDS AVAILABLE		55,309.21
DISBURSEMENTS:		
Insurance	100.00	
Geological Survey	10,300.00	
Equipment		
Professional Fees	250.00	
Office Supplies	17.10	
Printing Annual Report	1,146.04	
Secretary's Salary—Net	1,680.30	
Payroll Taxes	239.40	

Telephone	589.88	
Typing and Mailing	112.41	
Travel and Meetings	96.82	
TOTAL DISBURSEMENTS		14,532.45
EXCESS OF RECEIPTS OVER DISBURSEMENTS		40,776.76
Checking Account	$ 309.76	
Savings Account	40,467.00	
CASH BALANCE, DECEMBER 30, 1981	$40,776.76	$40,776.76

CHECKS WRITTEN SINCE JULY 1, 1981

Date	Check Number	To — For	Amount
July 6	477	Federal Reserve — Social Security	$ 39.90
July 6	478	Leo Idler — Salary-Postage-Supplies	299.55
July 6	479	Mountain Bell — Telephone	90.88
Aug. 5	480	Mountain Bell — Telephone	87.45
Aug. 5	481	Federal Reserve — Social Security	39.90
Aug. 5	482	Leo Idler — Salary-Postage	287.82
Aug. 6	483	Void — Typing Mistake	
Aug. 6	484	Wheatland Convention Center — Meeting Room	96. 82
Sept. 4	485	Mountain Bell — Telephone	143.39
Sept. 4	486	Federal Reserve — Social Security	39.90
Sept. 4	487	Leo Idler — Salary	280.05
Sept. 10	488	Crimond, Farmer & Co. — Audit & Copies	291.37
Sept. 10	489	U.S.G.S. — Cooperative Agreement	5,700.00
Sept. 10	490	Void — Typing Mistake	
Sept. 10	491	Guaranty Abstract Co. — Treasurer's Bond	100.00
Sept. 10	492	U.S.G.S. — Install Granada Station	4,600.00
Oct. 5	493	Mountain Bell — Telephone	112.04
Oct. 5	494	Federal Reserve — Social Security	39.90
Oct. 5	495	Leo Idler — Salary-Postage-Supplies	299.26
Nov. 5	496	Mountain Bell — Telephone	74.64
Nov. 5	497	Federal Reserve — Social Security	39.90
Nov. 5	498	Leo Idler — Postage-Salary	300.24
Nov. 5	499	Mountain Bell — Telephone	81.48
Dec. 5	500	Betz Publishing Co. — Print 32nd Annual Report	$ 1,146.04
Dec. 5	501	Federal Reserve — Social Security	39.90
Dec. 5	502	Leo Idler — Postage-Salary	302.02
			$14,532.45

ATTACHMENT P

ARKANSAS RIVER COMPACT ADMINISTRATION
CASH BASIS FINANCIAL STATEMENTS
JUNE 30, 1981
with
REPORT OF INDEPENDENT
CERTIFIED PUBLIC ACCOUNTANTS

CRIMOND, FARMER & COMPANY
Certified Public Accountants
203 East Oak, P.O. Box 1173, Lamar, CO 81052

ARKANSAS RIVER COMPACT ADMINISTRATION
INDEX TO CASH BASIS FINANCIAL STATEMENTS
JUNE 30, 1981

	Exhibits	Page
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ACCOUNTANTS LETTER		1
STATEMENT OF ASSETS & LIABILITIES ARISING FROM CASH TRANSACTIONS	A	2
STATEMENT OF CASH RECEIPTS & DISBURSEMENTS AND CHANGES IN CASH BALANCE	B	3
STATEMENT OF CASH RECEIPTS & DISBURSEMENTS WITH BUDGET	C	4
NOTES TO CASH BASIS STATEMENTS		5

CRIMOND, FARMER & COMPANY
Certified Public Accountants
203 East Oak
Lamar, CO 81052

To the Representatives
Arkansas River Compact Administration
Lamar, Colorado 81052

We have examined the Statement of Assets & Liabilities Arising from Cash Transactions of the Arkansas River Compact Administration as of June 30, 1981, and the Statement of Cash Receipts and Disbursements, changes in Cash Balance and the Statement of Cash Receipts and Disbursements with Budget Comparison for the year ended June 30, 1981. Our examination was conducted in accordance with generally accepted auditing standards, and accordingly, included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

As described in Note 1 of the Notes to Financial Statements, the accompanying statements are prepared on the cash basis of accounting and accordingly they are not intended to be presented in conformity with generally accepted accounting principles.

In our opinion, Exhibits A, B & C present fairly the Assets and Liabilities Arising from Cash Transactions of the Arkansas River Compact Administration as of June 30, 1981, and the results of Cash Transactions for the year then ended on a basis consistent with the previous year.

/s/ Crimond, Farmer & Co.
Certified Public Accountants

August 11, 1981
Lamar, Colorado

EXHIBIT A

ARKANSAS RIVER COMPACT ADMINISTRATION
STATEMENT OF ASSETS & LIABILITIES
ARISING FROM CASH TRANSACTIONS
JUNE 30, 1981

ASSETS:	
Cash & Savings	$31,554
Equipment	2,501
Concrete Control	8,000
TOTAL ASSETS	42,055
LIABILITIES:	
CASH BASIS EQUITY:	
Expended:	
Equipment	2,501
Concrete Control	8,000
Unexpended:	31,554
TOTAL CASH BASIS EQUITY — NOTE 1a	42,055
TOTAL LIABILITIES & CASH BASIS EQUITY	$42,055

The accompanying notes are an integral
part of the financial statements.

EXHIBIT B

ARKANSAS RIVER COMPACT ADMINISTRATION
STATEMENT OF CASH RECEIPTS & DISBURSEMENTS
& CHANGES IN CASH BALANCE
FOR YEAR ENDED JUNE 30, 1981

CASH BALANCE, JULY 1, 1980		$22,760
RECEIPTS:		
Revenue from Assessments:		
Colorado	12,237	
Kansas	8,158	
Interest	1,312	
TOTAL RECEIPTS		21,707
DISBURSEMENTS:		
Insurance	100	
Geological Survey	5,714	
Equipment	94	
Professional Fees	200	
Office Supplies	223	
Printing	680	
Secretary's Salary—Net	3,371	
Payroll Taxes	530	
Telephone	1,540	
Typing & Mailing	235	
Travel & Meetings	226	
TOTAL DISBURSEMENTS		12,913
EXCESS OF RECEIPTS OVER DISBURSEMENTS		8,794
CASH BALANCE, JUNE 30, 1981		$31,554

The accompanying notes are an integral
part of the financial statements.

EXHIBIT C

ARKANSAS RIVER COMPACT ADMINISTRATION
STATEMENT OF CASH RECEIPTS & DISBURSEMENTS
WITH BUDGET COMPARISON
FOR THE BUDGET YEAR
JULY 1, 1980 TO JUNE 30, 1981

	Budget	Actual	Actual Over/Under
CASH BALANCE, JULY 1, 1980	$	$22,760	$22,760
RECEIPTS:			
Revenue from Assessments:			
Colorado—60%	12,237	12,237	
Kansas—40%	8,158	8,158	
Interest		1,312	1,312
TOTAL RECEIPTS	20,395	21,707	1,312
TOTAL TO ACCOUNT FOR	20,395	44,467	24,072
DISBURSEMENTS:			
U.S. Geological Survey	4,900	5,714	814
Secretary's Salary—Net	3,600	3,371	(229)
Bond & Insurance	75	100	25
Telephone	1,000	1,540	540
Payroll Taxes	220	530	310
Typing & Mailing		235	235
Travel & Meetings	1,350	226	(1,124)
Professional Fees	750	200	(550)
Office Supplies	500	223	(277)
Printing	1,000	680	(320)
Contingency	2,000		(2,000)
Office Equipment		94	94
Data Acquisition Improvement Plan	5,000		(5,000)
TOTAL DISBURSEMENTS	20,395	12,913	(7,482)
CASH BALANCE, JUNE 30, 1981	$	$31,554	$31,554

The accompanying notes are an integral part of the financial statements.

ARKANSAS RIVER COMPACT ADMINISTRATION
NOTES TO CASH BASIS STATEMENTS
JUNE 30, 1981

Note 1 — Summary of significant accounting policies:

a. The Administration maintains financial records using the cash basis of accounting. By using the cash basis of accounting certain key accounts needed to present financial position and results of operations are omitted; examples of these accounts are accounts receivable and accounts payable.

ATTACHMENT Q

BUDGET
Fiscal Year July 1, 1983-June 30, 1984

A. SALARIES:			$ 8,841.20
1. Recording Secretary		3,600.00	
2. Operation Secretary		5,000.00	
3. Social Security		241.20	
B. GAUGING STATIONS:			15,500.00
1. Maintenance and Operation			
A. Cooperative Agreement	15,000.00		
B. Telemark Telephone John Martin Dam Granada Gauge	500.00		
C. OPERATING EXPENSES:			4,650.00
1. Treasurer's Bond		100.00	
2. Annual Report		1,500.00	
3. Office Expense			
A. Telephone	1,500.00		
B. Supplies	500.00		
C. Printing	500.00		
4. Travel and Meetings		250.00	
5. Audit		300.00	
D. CONTINGENCY:			2,000.00
E. TOTAL BUDGET:			$30,991.20
COLORADO (60%)		$18,594.72	
KANSAS (40%)		$12,396.48	

APPENDIX "C-2"

MINUTES OF THE

ARKANSAS RIVER COMPACT

ADMINISTRATION

SPECIAL TELEPHONIC MEETING
January 29, 1982

A special meeting of the Arkansas River Compact Administration was held on January 29, 1982, at the request of Mr. J. William McDonald (see Attachment A). The special meeting, held by conference telephone call, was called to order at 12:05 p.m. (MST) by Mr. Frank G. Cooley, Chairman and United States representative. Other members participating in the conference call were:

For Kansas:

Carl E. Bentrup — Deerfield, Kansas
Ronald Olomon — Garden City, Kansas

For Colorado:

Carl G. Genova — Pueblo, Colorado
Leo Idler — Lamar, Colorado
J. William McDonald — Denver, Colorado

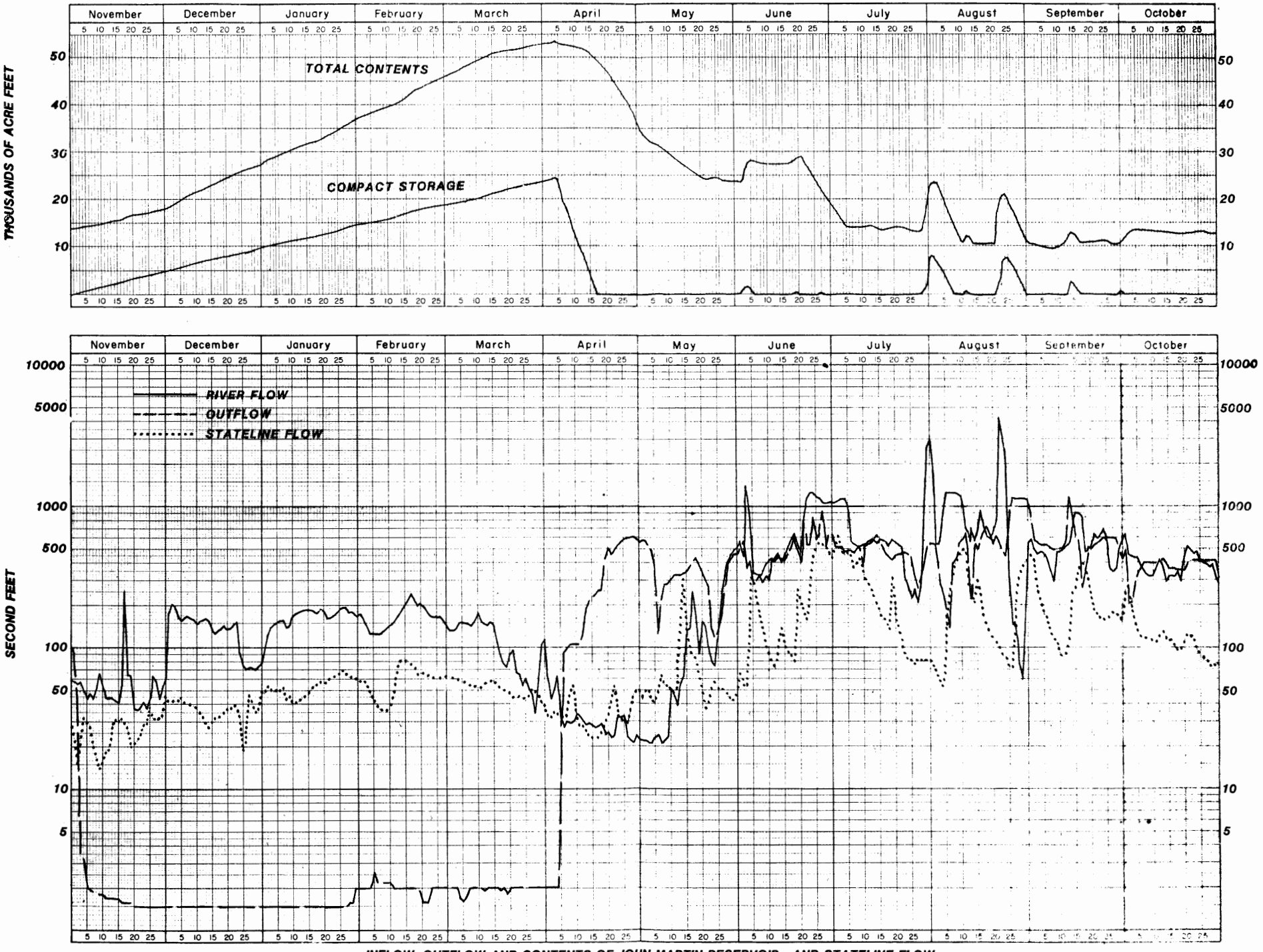
Mr. Bentrup moved, seconded by Mr. McDonald, the adoption of a resoluton concerning the John Martin Reservoir operating plan (see Attachment B). There being no discussion, Mr. Cooley called for a vote. The resolution was passed upon the affirmative vote of both states.

There being no further business to come before the Administration, Mr. Cooley adjourned the meeting at 12:10 p.m. (MST).

The foregoing minutes were approved on December 14, 1982, at the annual meeting of the Administration held in Lamar, Colorado.

/s/ Frank G. Cooley
Chairman

/s/ Leo Idler
Recording Secretary



INFLOW, OUTFLOW AND CONTENTS OF JOHN MARTIN RESERVOIR, AND STATELINE FLOW

COMPACT YEAR 1982

NOVEMBER 1, 1981 TO OCTOBER 31, 1982