

**THIRTIETH
ANNUAL REPORT
ARKANSAS RIVER
COMPACT
ADMINISTRATION
(1978)**

**For the Report-Year
November 1, 1977 to October 31, 1978**



**LAMAR, COLORADO
December 12, 1978**

Thirtieth Annual Report

Arkansas River

Compact

Administration

(1978)

For the Report-Year
November 1, 1977 to October 31, 1978

LAMAR, COLORADO
December 12, 1978

THE ADMINISTRATION

FRANK G. COOLEY
Chairman and Representative of the United States

LEO IDLER, KENT REYHER, and FELIX L. SPARKS
for Colorado

CARL E. BENTRUP, GUY E. GIBSON, and W. F. STOECKLY
for Kansas

1000 South Main Street
Lamar, Colorado 81052

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**Annual Report Of
ARKANSAS RIVER COMPACT
ADMINISTRATION
1978**

Report-Year November 1, 1977 to October 31, 1978

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

Sirs:

Pursuant to Article VII of the Arkansas River Compact, the Arkansas River Compact Administration submits its report for the Report-year November 1, 1977 through October 31, 1978, as follows:

1. Members of the Administration

Representatives of the United States:

Frank G. Cooley

Colorado Representatives:

Leo Idler, Lamar, Colorado
Kent Reyher, Las Animas, Colorado
Felix Sparks, Denver, Colorado

Kansas Representatives:

Carl E. Bentrup, Deerfield, Kansas
Guy E. Gibson, Topeka, Kansas
W. F. Stoeckly, Garden City, Kansas

2. Officers of the Administration

Chairman:

Frank G. Cooley

Vice Chairman:

Carl E. Bentrup

Secretary:

Lane L. Hackett

Treasurer:

Leo Idler

3. Standing Committees:

Administrative and Legal Committee:

Felix L. Sparks (Chairman)

Carl E. Bentrup

Engineering Committee:

Guy E. Gibson (Chairman)

Kent Reyher

Operations Committee:

Leo Idler

W. F. Stoeckly

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

4. Meetings:

December 13, 1977	Annual Meeting
February 16, 1978	Special Meeting in Lamar, Colorado
April 11, 1978	Special Telephonic Meeting
May 11 and 12, 1978	Special Meeting in Pueblo, Colorado
June 19, 1978	Special Telephonic Meeting
June 30, 1978	Special Telephonic Meeting
July 14, 1978	Special Telephonic Meeting

5. Fiscal:

TREASURER'S REPORT

July 1, 1977 through June 30, 1978

(a) Balance on hand July 1, 1977	\$ 5,392.00
(b) Receipts: State of Colorado	9,217.00
State of Kansas	12,889.00
Interest (Passbook savings account)	622.00
(c) Total funds available	\$28,120.00
(d) Disbursements by the Administration:	

Voucher

Date	No.	Payee—Purpose	
7/ 7/77	315	Ramada Inn—Meeting expense	\$ 8.00
7/ 7/77	316	Crimond, Schemahorn & Co.—Copies	88.60
7/ 7/77	317	Mountain Bell—Telephone	87.86
7/ 7/77	318	Federal Reserve Bank—F.I.C.A.	52.65
7/18/77	319	Postmaster—Postage	71.45
7/22/77	320	Sears & Roebuck—Office Supplies	9.11
8/17/77	321	Mountain Bell—Telephone	40.37
8/24/77	322	First National Bank—Savings account	(3,500.00)

9/ 2/77	323	First National Bank—Savings account	(8,300.00)
9/ 2/77	324	U.S. Geological Survey—Coop. Agreement	4,400.00
9/ 2/77	325	Lane Hackett—Postage	\$ 26.00
		Office Supplies	10.94
		Salary	423.68
		Travel	197.68
9/ 2/77	329	Mountain Bell—Telephone	104.44
10/ 5/77	326	Mountain Bell—Telephone	51.38
10/ 5/77	327	Federal Reserve Bank—F.I.C.A.	52.65
11/ 4/77	328	Mountain Bell—Telephone	34.34
12/ 9/77	330	Lane Hackett—Postage	\$ 13.00
		Office Supplies	12.59
		Salary	423.68
		Travel	178.64
12/ 9/77	331	Mountain Bell—Telephone	32.94
12/31/77	332	Mountain Bell—Telephone	130.16
12/31/77	333	Gobins—Office supplies	29.38
12/31/77	334	Eastern Colo. Ins. Agency—Treasurer's Bond ...	50.00
12/31/77	335	Federal Reserve Bank—F.I.C.A.	52.65
2/ 3/78	336	Crimond, Schemahorn & Co.—Audit & Copies ...	199.00
2/ 3/78	337	Mountain Bell—Telephone	49.88
3/ 7/78	338	Mountain Bell—Telephone	37.26
3/ 7/78	339	Lane Hackett—Postage	\$ 26.00
		Salary	423.68
		Travel	164.22
4/ 1/78	340	Lamar Daily News—Printing	678.56
4/ 1/78	341	Mountain Bell—Telephone	41.31
4/24/78	342	Federal Reserve Bank—F.I.C.A.	54.05
5/ 6/78	343	Mountain Bell—Telephone	111.96
4/29/78	344	Sears & Roebuck—Office Supplies	8.68
5/12/78	345	Pueblo West Inn—Meeting expense	58.30
6/ 6/78	346	Mountain Bell—Telephone	125.88
6/ 6/78	347	Lane Hackett—Postage	\$ 28.00
		Salary	423.68
		Travel	187.60
6/ 6/78	348	First National Bank—Savings account	(3,000.00)
6/30/78	349	Kirkpatrick & Meek—Court reporter	615.00
6/30/78	350	Eastern Colo. Ins.—Treasurer's Bond	75.00
6/30/78	351	Federal Reserve Bank—F.I.C.A.	54.83
6/30/78	352	Mountain Bell—Telephone	119.13
TOTAL DISBURSEMENTS			\$10,045.00
(e) Balance on hand June 30, 1978			\$18,075.00

PROPOSED BUDGET
Fiscal year July 1, 1979-June 30, 1980

Personal Services	\$ 4,820.00
Secretary's Salary	\$ 3,600.00
Social Security	220.00
Professional Services	1,000.00
U.S. Geological Survey	4,800.00
Cooperative Agreement	\$ 4,800.00
Capital Outlay	\$ 100.00
Office Equipment	\$ 100.00
Maintenance and Operation	8,925.00
Bond (Treasurer)	\$ 75.00
Printing	1,000.00
Travel & Meeting	1,350.00
Telephone & Telegraph	1,000.00
Office Expense	500.00
Data Acquisition Improvement Plan	5,000.00
Contingency	1,500.00
TOTAL BUDGET	\$20,145.00
To Be Appropriated	\$20,145.00
*Colorado—60%	\$12,087.00
Kansas—40%	8,058.00
*Colorado—1979-80 Budget	\$12,087.00
Colorado 60%—1978-New Radio Equipment	2,116.50
	<hr/>
	\$14,203.50

(g) 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."

6. Facts about 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. Construction 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 from floods originating in the 18,915 square miles of the Arkansas River basin above 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 structure. 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. 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.

8. Water Supply, Reservoir Operation, and Hydrologic Data

The winter storage season for John Martin Reservoir began at 12:00 p.m. October 31, 1977, with the reservoir empty since August 26, 1977.

The first call for river flow by Colorado was made at 12:01 a.m. November 1, and maintained until 8:30 a.m. December 9, 1977. The gates were closed until March 20, 1978 when they were opened to satisfy a Colorado river flow demand. This held through to April 13, 1978.

Initial release of conservation water was made with 6,970 acre-feet

in storage at 8:00 a.m. April 10, 1978, to honor both states call, Kansas 400 cfs and Colorado 600 cfs plus 10 cfs river flow. Both states sustained their demand until the reservoir emptied at 6:30 p.m. April 13, 1978.

Storm activity in late April through June 4, 1978, created minor tributary freshets above and below John Martin Reservoir. Flows were not sufficient to justify storage until 8:30 A.M. June 5, 1978, when the gates were regulated for storage. Colorado called for 360 cfs and Kansas 240 cfs to supplement some tributary flows below John Martin. Both states cancelled their calls June 6, as rain activity continued and tributary flows were exceeding demands. Storage accumulated to 11,052 acre-feet by June 13 at 8:00 a.m., at which time a release of 1000 cfs was made to fill a Colorado demand of 600 cfs and Kansas 400 cfs. On June 18, Colorado placed a call for 300 cfs river flow to make a combined release of 1300 cfs until the reservoir emptied at 5:00 p.m. June 19.

Combined flows of the Arkansas and Purgatoire Rivers were sufficient to begin storage June 28, 1978, at 7:00 a.m., when Colorado demanded 600 cfs plus 250 cfs river flow, and Kansas 400 cfs. These demands were maintained until the reservoir emptied at 9:30 p.m. July 2, 1978.

High tributary flows below Pueblo into the Arkansas River justified storage, beginning at 3:00 a.m. July 11, 1978. A release was made for 1250 cfs to satisfy a Kansas demand of 400 cfs and Colorado 600 cfs plus 250 cfs river flow. The reservoir became empty at 8:30 p.m. July 15.

Three summer storage periods occurred and 19 days of storage water were run this year.

With the exception of June and July, river flows were at critically low stages throughout the year. Tributary flows below John Martin were similarly low. Little benefit was received in the administration of storage water in the 1977-78 season.

The gates were closed October 31, 1978 for winter storage. There are 1061 acre-feet in storage to date.

9. GAGING STATIONS

In general, streamflow records of satisfactory accuracy were obtained at the compact stations. Emphasis was continued on performing additional field work to increase the accuracy of the records and on providing current streamflow data to the Administration and State officials, as required. The Compact Administration has commended a program to modernize and improve water gaging on the Arkansas River and to identify the needs and opportunities for improved water measurements. An effort has been made to enlist a variety of state and federal agencies in cooperation.

The control for the Purgatoire River near Las Animas continues to be a problem. The changing of the stage-discharge relationship by beavers building brush dams just downstream from several of the gages continues to be a problem.

Installation of the new station radio transmitters and printout receivers began in late March by the U.S. Geological Survey. The new stations were in satisfactory operation in early May, 1978. Minor repairs and adjustments kept the system operational, except for lightning burning out the relay unit at John Martin and a malfunction of the Lamar printout receiver. This new equipment is an asset to the administration and operation of John Martin Reservoir. The telemark

and gaging station below John Martin have required constant attention throughout the year for desirable gage height information and stage-discharge relationship.

The transfer of the Frontier ditch and the Arkansas River gaging stations to the Kansas District, U.S. Geological Survey in October, 1977, worked smoothly and no problems have been encountered.

The Administration approved a cooperative agreement with the U.S. Geological Survey for the fiscal year October 1, 1978, to September 30, 1979, in the amount of \$9,800 — \$4,900 for each party. These funds are for the operation of the compact stations, the providing of current streamflow data, maintenance of radio equipment, and the preparation of records for the Annual Report.

10. Findings of fact by the Administration:

SPECIAL TELEPHONIC MEETINGS

April 11, 1978

A special telephonic meeting was held April 11, 1978 in accordance with Article V-f of the Compact for the purpose of declaring that the reservoir would become empty April 13, 1978. Mr. C. J. Kuiper, Colorado State Engineer, and Mr. Robert Jesse, Division Engineer, were notified of this action and that the Administration of decreed water rights for Colorado would begin April 13, 1978, unless a change of conditions justified cancellation or modification of this notice. The reservoir became empty 6:30 a.m., April 13, 1978.

Participating members:

For Colorado — Mr. Idler and Mr. Reyher

For Kansas — Mr. Stoeckly and Mr. Bentrup

June 16, 1978

A special telephonic meeting was held June 16, 1978 in accordance with Article V-f of the Compact for the purpose of declaring that the reservoir would become empty June 18, 1978. Mr. C. J. Kuiper, Colorado State Engineer, and Mr. Robert Jesse, Division Engineer, were notified of this action and that the Administration of decreed water rights for Colorado would begin June 18, 1978, unless a change in conditions justified a cancellation or modification of this notice. The reservoir became empty at 7:00 p.m. June 19, 1978.

Participating members:

For Colorado — Mr. Idler and Mr. Reyher

For Kansas — Mr. Stoeckly and Mr. Bentrup

June 30, 1978

A special telephonic meeting was held June 30, 1978 in accordance with Article V-f of the Compact for the purpose of declaring that the reservoir would become empty July 1, 1978. Mr. C. J. Kuiper, Colorado State Engineer, and Mr. Robert Jesse, Division Engineer, were notified of this action and that the administration of decreed water rights for Colorado would commence on July 1, 1978. The reservoir became empty at 7:30 p.m. July 2, 1978.

Participating members:

For Colorado — Mr. Idler and Mr. Reyher

For Kansas — Mr. Stoeckly and Mr. Bentrup

July 14, 1978

A special telephonic meeting was held July 14, 1978 in accordance with Article V-f of the Compact for the purpose of declaring that the reservoir would become empty July 15, 1978. Mr. C. J. Kuiper, Colorado State Engineer, and Mr. Robert Jesse, Division Engineer, were notified of this action and that the administration of decreed water rights for Colorado would commence on July 15, 1978. The reservoir became empty at 8:30 p.m. July 15, 1978.

Participating members:

For Colorado — Mr. Idler and Mr. Reyher

For Kansas — Mr. Stoeckly and Mr. Bentrup.

APPENDICES FOR ANNUAL REPORT OF THE ARKANSAS RIVER COMPACT ADMINISTRATION

For the Report-Year
November 1, 1977, to October 31, 1978

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APPENDIX "A"

AUDITOR'S REPORT

Crimond, Schemahorn & Co.

CERTIFIED PUBLIC ACCOUNTANTS

203 East Oak
Lamar, Colorado 81052

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, 1978, 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, 1978. 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.

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, 1978, and the results of Cash Transactions for the year then ended on a basis consistent with the previous year.

Crimond, Schemahorn & Co.
Certified Public Accountants

August 10, 1978
Lamar, Colorado 81052

EXHIBIT A

ARKANSAS RIVER COMPACT ADMINISTRATION STATEMENT OF ASSETS AND LIABILITIES ARISING FROM CASH TRANSACTIONS JUNE 30, 1978

ASSETS:

Cash and Savings	\$18,075
Equipment	1,715
Concrete Control	8,000
TOTAL ASSETS	\$27,790

LIABILITIES:**CASH BASIS EQUITY:****Expended:**

Equipment.....	\$ 1,715
Concrete Control	8,000
Unexpended.....	18,075

TOTAL CASH BASIS EQUITY—NOTE 1a\$27,790

TOTAL LIABILITIES AND CASH BASIS EQUITY\$27,790

EXHIBIT B

**ARKANSAS RIVER COMPACT ADMINISTRATION
STATEMENT OF CASH RECEIPTS AND DISBURSEMENTS
AND CHANGES IN CASH BALANCE
FOR YEAR ENDED JUNE 30, 1978**

CASH IN BANK, JULY 1, 1977\$ 5,392

RECEIPTS:**Revenue from Assessments:**

Colorado.....	\$ 9,217
Kansas.....	12,889
Interest.....	622
TOTAL RECEIPTS	22,728

DISBURSEMENTS:

Geological Survey.....	\$ 4,400
Insurance.....	125
Professional Fees.....	765
Office Supplies.....	71
Printing	679
Secretary's Salary—Net.....	1,695
Payroll Taxes	267
Telephone	967
Typing and Mailing	282
Travel and Meetings.....	794
TOTAL DISBURSEMENTS	\$10,045

EXCESS OF RECEIPTS OVER DISBURSEMENTS 12,683

CASH BALANCE, JUNE 30, 1978\$18,075

EXHIBIT C

ARKANSAS RIVER COMPACT ADMINISTRATION STATEMENT OF CASH RECEIPTS AND DISBURSEMENTS WITH BUDGET COMPARISON FOR THE BUDGET YEAR JULY 1, 1977 TO JUNE 30, 1978

		ACTUAL OVER BUDGET	ACTUAL(UNDER)
CASH IN BANK, JULY 1, 1977	\$ 100	\$ 5,392	\$ 5,292
RECEIPTS:			
Revenue from Assessments:			
Colorado — 60%	9,217	9,217	---
Kansas — 40%	11,478	12,889	1,411
Interest	---	622	622
TOTAL RECEIPTS	\$20,695	\$22,728	\$ 2,033
TOTAL TO ACCOUNT FOR	\$20,795	\$28,120	\$ 7,325
DISBURSEMENTS:			
U.S. Geological Survey—Gauging	4,400	4,400	---
Equipment	10,000	---	(10,000)
Secretary's Salary—Net	1,800	1,695	(105)
Bond and Insurance	25	125	100
Telephone	375	967	592
Payroll Taxes	105	267	162
Typing and Mailing	150	282	132
Travel and Meetings	700	794	94
Professional Fees	240	765	525
Office Supplies	100	71	(29)
Printing	600	679	79
Contingency	2,000	---	(2,000)
Office Equipment	100	---	(100)
Official Publications	100	---	(100)
Investigation and Inspection	100	---	(100)
TOTAL DISBURSEMENTS	\$20,795	\$10,045	(\$10,750)
CASH IN BANK, JUNE 30, 1978	\$ ---	\$18,075	\$18,075

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

ARKANSAS RIVER ABOVE PUEBLO, COLORADO

Report-Year ending October 31, 1978

USGS Records--Provisional; Subject to Revision

DAY	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.
1	106	148	134	271	126	108	400	949	2100	847	142	81
2	105	130	134	216	96	112	515	1080	1890	800	136	75
3	105	124	140	178	90	112	486	1150	1800	761	130	70
4	114	124	148	178	90	118	384	1160	1750	761	148	76
5	124	148	160	178	90	134	344	1970	1750	739	160	89
6	124	192	182	178	90	138	409	1580	1620	690	150	118
7	154	218	192	170	116	120	432	1480	1470	530	160	138
8	205	195	192	168	128	87	396	1330	1330	476	175	142
9	223	170	180	175	106	75	140	1210	1210	454	192	142
10	241	170	152	175	78	82	97	1150	2090	472	200	142
11	238	168	140	175	75	86	70	1600	620	560	208	136
12	200	170	150	175	75	86	72	2940	550	794	188	132
13	190	217	162	175	96	106	99	2790	717	901	175	124
14	202	388	166	175	112	116	120	2950	841	865	158	124
15	229	372	166	175	86	124	112	3150	841	841	146	124
16	244	205	178	164	66	114	103	3560	811	835	146	128
17	218	135	185	156	62	114	177	3750	841	847	156	138
18	195	138	162	156	62	122	458	3540	889	871	156	140
19	188	138	126	156	62	124	458	3220	1000	871	136	140
20	188	148	172	156	58	118	355	2950	1140	841	124	134
21	162	132	205	132	51	118	257	2900	1170	610	146	105
22	146	105	205	90	54	118	302	2780	1170	620	180	106
23	154	133	220	97	68	126	324	2650	1370	605	212	132
24	170	178	238	116	57	120	316	2660	1300	640	220	190
25	188	180	215	134	54	106	384	2550	957	656	200	168
26	200	280	182	134	62	99	535	2570	925	630	158	150
27	200	147	172	144	66	108	750	2590	979	404	134	152
28	190	130	172	148	79	114	835	2340	1050	344	120	148
29	175	130	172		84	298	823	2070	1370	1030	105	122
30	162	132	202		82	360	712	2340	2490	248	87	94
31		134	250		92		734		961	190		82
TOTAL												
sec.ft.	5340	5282	5454	4545	2513	3763	11599	68959	38982	20733	4748	3842
ac.ft.	10590	10480	10820	9020	4980	7460	23010	136800	77320	41120	9420	7620
THE YEAR 301,000 acre-ft.												

348,640

APPENDIX 'B-2'

Arkansas River At Las Animas, Colorado

ARKANSAS RIVER AT LAS ANIMAS COLORADO
Report-Year ending October 31, 1978
USGS Records—Provisional; Subject to Revision

DAY	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.
1	5.8	7.4	7.0	10	19	13	15	198	73	534	206	27
2	5.4	7.4	7.0	12	18	11	16	94	182	237	107	24
3	5.4	7.4	8.0	20	16	12	14	167	496	166	45	20
4	5.4	7.8	9.0	30	16	11	14	863	617	147	24	20
5	5.4	7.5	9.0	35	20	12	17	1200	647	105	19	19
6	5.1	7.5	9.0	30	51	11	21	492	560	99	14	18
7	5.1	7.5	9.0	30	44	11	16	166	603	101	11	18
8	5.1	7.0	8.0	30	21	11	15	82	536	61	11	18
9	4.5	7.0	7.0	25	15	11	12	49	467	43	10	16
10	5.1	7.0	7.0	20	15	11	11	45	1660	35	9.2	16
11	6.2	8.0	7.0	15	15	11	10	40	3300	34	8.9	15
12	8.2	9.0	8.0	12	14	11	8.6	31	564	34	8.2	16
13	6.6	15	6.0	10	15	9.3	8.7	36	256	32	7.7	14
14	5.4	11	10	10	16	9.3	8.0	34	152	23	7.9	13
15	5.4	9.2	9.5	10	15	9.3	7.8	29	87	20	7.9	13
16	5.8	8.2	8.0	10	15	9.1	8.0	25	137	18	7.7	14
17	5.4	8.7	6.0	10	14	9.3	8.1	100	262	17	7.6	15
18	5.4	9.2	6.0	10	13	9.0	6.9	686	240	17	6.9	12
19	5.8	9.0	6.0	11	13	8.5	6.8	509	199	16	6.8	9.5
20	5.8	8.0	7.5	13	12	10	12	484	180	15	6.9	9.1
21	7.5	7.0	12	15	11	9.4	109	668	181	15	6.9	9.4
22	10	7.0	13	20	11	8.8	19	641	592	14	10	11
23	12	9.0	9.0	22	10	9.2	11	665	386	14	24	11
24	9.2	9.5	9.0	24	9.4	11	8.6	668	356	13	30	11
25	8.7	9.0	15	23	9.0	10	7.4	738	313	13	44	11
26	8.2	8.0	10	20	8.4	10	7.2	867	316	13	56	11
27	8.2	8.0	6.0	20	8.6	13	7.4	803	203	12	36	11
28	7.8	8.0	6.0	20	8.9	14	7.4	837	109	12	35	11
29	7.8	9.0	8.0		9.1	13	8.1	295	76	301	33	9.5
30	7.8	9.0	8.0		9.4	15	170	160	229	721	30	9.3
31		8.0	12		12		245		1220	378		8.2
TOTAL												
sec.ft.	199.5	260.3	262.0	517	483.8	323.2	836.0	11672	15199	3260	837.6	440.0
ac.ft.	396	516	520	1030	960	641	1660	23150	30150	6470	1660	873
THE YEAR 68,020 acre-ft.												

No Anity Storage this period

APPENDIX 'B-3'

Purgatoire River Near Las Animas, Colorado

PURGATOIRE RIVER NEAR LAS ANIMAS, COLORADO
Report-Year ending October 31, 1978
USGS Records—Provisional; Subject to Revision

DAY	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.
1	1.6	5.5	4.6	12	14	3.4	4.4	3.0	108	62	16	1.6
2	1.6	4.6	4.6	12	8.8	4.0	4.3	4.0	79	14	8.0	1.6
3	1.7	5.5	4.3	12	5.5	3.9	4.6	12	46	562	5.5	1.5
4	1.7	6.5	12	12	4.8	4.0	6.3	4.6	31	268	4.3	1.5
5	1.7	8.0	20	12	21	3.4	7.0	227	29	898	4.1	1.5
6	2.0	7.5	19	11	13	3.9	10	1920	19	160	4.1	1.5
7	2.1	6.5	17	8.5	14	3.8	12	1080	77	60	4.2	1.6
8	2.3	8.0	12	7.5	9.9	3.8	7.7	313	68	48	3.9	1.5
9	2.5	9.0	12	11	3.7	3.5	8.7	419	24	36	2.9	1.5
10	2.5	14	11	13	3.5	2.8	3.9	148	51	23	2.6	1.6
11	2.5	12	12	14	3.1	3.1	2.8	75	213	14	2.4	1.6
12	2.5	20	11	14	3.1	3.4	2.8	38	60	9.1	2.2	1.7
13	2.5	27	16	10	3.3	3.2	2.8	19	27	6.4	2.2	1.6
14	2.8	22	20	9.5	3.3	3.2	3.1	12	73	5.7	2.2	1.6
15	3.0	20	21	9.5	3.1	3.3	3.6	7.6	27	5.5	2.2	1.7
16	3.0	22	16	9.0	3.1	3.4	3.7	5.2	11	5.2	2.1	1.8
17	3.0	28	12	9.0	3.1	3.6	3.6	8.7	7.7	3.8	1.9	1.7
18	3.0	32	12	9.0	3.1	3.7	3.5	16	6.1	3.5	1.8	1.7
19	3.5	37	12	9.0	3.1	3.3	3.6	17	4.7	3.3	1.7	1.7
20	4.0	25	11	9.5	3.0	3.4	4.8	15	4.5	3.3	1.7	1.7
21	4.0	20	8.5	9.5	3.0	3.3	304	10	4.5	3.3	1.8	1.7
22	4.0	12	13	17	3.0	3.3	119	13	4.6	3.1	1.9	1.8
23	4.0	19	16	20	3.1	3.3	38	9.3	4.3	3.1	1.8	2.0
24	4.5	23	16	20	3.1	3.4	30	5.7	3.9	3.3	1.8	1.9
25	4.5	19	16	19	3.0	3.2	23	4.2	4.2	3.1	1.8	2.0
26	5.0	9.5	14	15	3.0	3.2	8.5	4.3	3.7	3.0	1.9	2.0
27	8.0	12	16	15	3.0	3.2	3.1	457	3.4	2.8	2.0	2.0
28	12	8.5	16	15	3.0	4.2	3.1	2580	3.0	2.8	1.8	2.0
29	15	12	16		3.1	4.4	3.0	935	2.8	255	1.7	2.0
30	7.0	12	16		3.0	4.3	3.0	188	461	37	1.7	2.1
31		6.5	13		3.2		3.0		422	94		2.1
TOTAL												
sec.ft.	117.5	473.6	420.0	344.0	163.0	105.9	640.9	8550.6	1883.4	2601.3	94.2	53.8
ac.ft.	233	939	833	682	323	210	1270	16960	3740	5160	187	107
THE YEAR 30,640 acre-ft.												

APPENDIX 'B-4'

River Flow Into

John Martin Reservoir

RIVER FLOW INTO JOHN MARTIN RESERVOIR
Report-Year ending October 31, 1978
USGS Records—Provisional; Subject to Revision

DAY	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.
1	7.4	13	12	22	33	16	19	201	181	596	222	29
2	7.0	12	12	24	27	15	20	98	261	251	115	26
3	7.1	13	12	32	22	16	19	179	542	728	50	22
4	7.1	14	21	42	21	15	20	868	648	415	28	22
5	7.1	16	29	47	41	15	24	1430	676	1000	23	20
6	7.1	15	28	41	64	15	31	2410	579	259	18	20
7	7.2	14	26	38	58	15	28	1250	680	161	15	20
8	7.4	15	20	38	31	15	23	395	604	109	15	20
9	7.0	16	19	36	19	14	21	468	491	79	13	18
10	7.6	21	18	33	19	14	15	193	1710	58	12	18
11	8.7	20	19	29	18	14	13	115	3510	48	11	17
12	11	29	19	26	17	14	11	69	624	43	10	18
13	9.1	42	22	20	18	12	12	55	283	38	9.9	16
14	8.2	33	30	20	19	12	11	46	225	29	10	15
15	8.4	29	30	20	18	13	11	37	114	26	10	15
16	8.8	30	24	19	18	12	12	30	148	23	9.8	16
17	8.4	37	18	19	17	13	12	109	270	21	9.5	17
18	8.4	41	18	19	16	13	10	702	246	20	8.7	14
19	9.3	46	18	20	16	12	10	526	204	19	8.5	11
20	9.8	33	18	22	15	13	17	499	184	18	8.6	11
21	12	27	20	24	14	13	413	678	186	18	8.7	11
22	14	19	26	37	14	12	138	654	597	17	12	13
23	16	28	25	42	13	12	49	674	390	17	26	13
24	14	32	25	44	12	14	39	674	360	16	32	13
25	13	28	31	42	12	13	30	742	317	16	46	13
26	13	18	24	35	11	13	16	871	320	16	58	13
27	16	20	22	35	12	16	10	1260	206	15	38	13
28	20	16	22	35	12	18	10	3420	112	15	37	12
29	23	21	24		12	17	11	1230	79	556	35	11
30	15	21	24		12	19	173	348	690	758	32	10
31		14	25		15		248		1640	472		
TOTAL												
sec.ft.	318.1	732	681	861	646	1071	1476	20231	17077	5857	931.7	500
ac.ft.	631	1450	1350	1710	1280	2120	2930	40130	33870	11617	1850	992
THE YEAR 99,930 acre-ft.												

APPENDIX 'B-5'

Contents Of

John Martin Reservoir

CONTENTS OF JOHN MARTIN RESERVOIR
Report-Year ending October 31, 1978
Corps of Engineers Records—Provisional; Subject to Revision
Midnight contents in acre-feet from capacity table dated Nov. 1, 1972

DAY	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.
1	0	0	1560	3160	5680	6900	0	0	1990	0	0	0
2	0	0	1580	3240	5750	6910	0	0	0	0	0	0
3	0	0	1610	3320	5790	6910	0	0	0	0	0	0
4	0	0	1640	3440	5820	6900	0	0	0	0	0	0
5	0	0	1690	3560	5900	6970	0	1590	0	0	0	0
6	0	0	1750	3650	6010	6960	0	4800	0	0	0	0
7	0	0	1820	3720	6120	6940	0	8400	0	0	0	0
8	0	8	1880	3800	6230	6960	0	8800	0	0	0	0
9	0	18	1900	3840	6300	6970	0	9910	0	0	0	0
10	0	36	1930	3920	6350	5670	0	10430	0	0	0	0
11	0	50	1970	4010	6390	3690	0	10720	5280	0	0	0
12	0	62	1990	4110	6430	1780	0	10900	5410	0	0	0
13	0	79	2040	4180	6470	0	0	9810	3810	0	0	0
14	0	101	2090	4250	6530	0	0	8130	2000	0	0	0
15	0	176	2170	4350	6570	0	0	6420	0	0	0	0
16	0	809	2220	4490	6580	0	0	4400	0	0	0	0
17	0	857	2260	4570	6610	0	0	2730	0	0	0	0
18	0	939	2310	4650	6660	0	0	1430	0	0	0	0
19	0	1010	2350	4740	6680	0	0	0	0	0	0	0
20	0	1060	2380	4840	6720	0	0	0	0	0	0	0
21	0	1120	2440	4920	6760	0	0	0	0	0	0	0
22	0	1170	2470	5040	6730	0	0	0	0	0	0	0
23	0	1200	2520	5150	6780	0	0	0	0	0	0	0
24	0	1250	2590	5250	6790	0	0	0	0	0	0	0
25	0	1290	2650	5360	6790	0	0	0	0	0	0	0
26	0	1330	2690	5440	6820	0	0	0	0	0	0	0
27	0	1350	2750	5520	6820	0	0	0	0	0	0	0
28	0	1380	2800	5600	6840	0	0	4200	0	0	0	0
29	0	1430	2890	5630	6830	0	0	4720	0	0	0	0
30	0	1470	2960	5660	6860	0	0	3580	0	0	0	0
31		1530	3060		6900		0		0	0		0

APPENDIX 'B-6'

Outflow From

John Martin Reservoir

OUTFLOW FROM JOHN MARTIN RESERVOIR
Report-Year ending October 31, 1978
USGS Records—Provisional; Subject to Revision

DAY	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.
1	16	24	3.8	3.2	4.1	9.8	40	135	1100	777	388	30
2	16	23	3.8	3.4	4.1	9.8	39	122	1090	402	213	26
3	17	23	3.4	3.8	4.1	9.8	37	127	458	692	111	25
4	17	22	3.4	3.8	3.8	9.8	34	276	476	319	77	22
5	17	23	3.2	4.1	3.8	9.8	40	1240	596	725	53	20
6	17	23	3.2	4.1	3.8	7.0	88	380	538	733	44	19
7	17	21	3.4	4.1	4.1	7.0	71	.73	459	263	34	18
8	18	22	3.4	4.1	4.1	7.0	57	.73	606	185	31	18
9	15	8.0	3.4	4.1	4.1	7.0	49	.73	423	135	27	18
10	16	4.1	3.4	4.1	4.1	632	49	.73	437	109	25	17
11	18	4.1	3.4	4.8	4.1	959	38	.73	1140	90	21	16
12	20	3.8	3.4	4.8	4.1	956	33	.73	1140	75	20	16
13	22	3.8	3.4	4.1	4.1	860	32	623	1220	65	20	15
14	21	3.8	3.2	3.8	4.1	33	31	980	1190	58	19	15
15	20	3.8	2.8	3.8	4.1	29	31	965	1060	49	18	15
16	20	3.8	2.8	3.8	4.1	28	29	960	160	44	17	15
17	20	3.8	2.8	3.8	4.1	30	30	965	262	43	15	15
18	16	3.8	2.8	3.8	4.1	30	29	1120	295	38	15	15
19	18	3.8	2.8	3.8	4.1	26	29	1050	267	33	14	15
20	18	3.8	2.8	3.8	8.8	26	31	415	231	32	14	15
21	16	3.8	2.8	3.8	13	26	308	477	224	30	14	15
22	31	3.8	2.8	3.8	13	26	666	594	276	28	14	14
23	29	3.8	2.6	3.8	13	25	134	606	605	27	15	14
24	29	3.8	2.6	4.1	13	25	88	610	379	26	21	15
25	23	3.8	2.8	4.1	13	25	79	614	295	24	26	17
26	18	3.8	2.8	4.1	13	26	57	673	315	23	35	16
27	25	3.8	3.2	4.1	13	26	42	780	287	21	43	17
28	20	3.8	3.2	4.1	13	26	35	1210	174	20	37	18
29	22	3.8	3.2		13	26	31	1090	114	292	34	18
30	28	3.8	3.2		13	39	36	1100	88	244	32	17
31		3.8	3.2		13		94		1560	880		16
TOTAL												
sec.ft.	600	273.2	97.0	111.0	228.8	3956.0	2381	17096.38	17465	6482	1447	543
ac.ft.	1190	542	192	220	454	7850	4720	33910	34640	12860	2870	1080
THE YEAR 100,500 acre-ft.												

APPENDIX 'B-7'

Arkansas River At Lamar, Colorado

ARKANSAS RIVER AT LAMAR, COLORADO
Report-Year ending October 31, 1978
USGS Records—Provisional; Subject to Revision

DAY	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.
1	1.6	1.1	0.50	1.0	7.8	0.70	27	8.0	574	286	22	2.2
2	1.6	1.3	.50	1.0	9.4	.70	11	8.2	553	83	13	2.2
3	1.6	1.3	.70	3.0	2.2	.70	8.2	110	249	264	20	2.2
4	1.3	1.3	.70	5.0	1.3	.70	11	143	83	183	24	2.2
5	1.3	1.3	.70	8.0	7.8	.70	22	488	177	165	13	2.2
6	1.3	1.3	.70	6.0	7.0	.50	119	215	100	179	14	2.5
7	1.3	1.3	.50	4.0	6.1	.30	68	32	49	53	18	2.8
8	1.6	.90	.20	4.0	5.8	.30	55	7.8	78	40	13	2.5
9	1.6	.50	.20	3.0	5.8	.20	27	5.5	50	27	12	2.5
10	1.9	.50	.30	3.0	5.5	.92	18	5.2	40	27	9.0	2.5
11	1.9	.50	.30	3.0	5.8	.422	13	4.9	417	27	7.4	2.2
12	1.9	.30	.50	3.0	5.8	.340	7.4	4.9	577	36	7.4	2.2
13	1.6	.30	.50	3.0	6.1	.405	6.4	85	668	40	7.4	2.2
14	1.9	.30	.50	3.0	6.1	.113	6.4	360	654	48	5.8	2.2
15	2.2	.30	.40	3.0	4.6	.21	10	360	644	32	4.6	2.5
16	2.2	.30	.40	3.0	4.0	.13	7.8	352	212	23	4.6	2.2
17	2.2	.30	.30	5.0	2.8	.94	6.7	388	88	16	4.3	1.6
18	2.2	.30	.20	8.0	2.5	.74	4.0	463	114	12	4.3	1.6
19	2.2	.30	.20	10	2.2	.64	3.4	592	75	9.8	4.3	1.6
20	1.9	.30	.20	15	2.2	.58	3.7	234	47	9.4	4.0	1.9
21	1.6	.50	.20	20	1.9	.52	4.3	129	42	8.6	4.0	1.9
22	1.9	.50	.30	27	1.1	.49	130	137	38	1.7	3.7	2.8
23	2.2	.50	.50	25	1.3	.46	47	133	142	6.4	3.4	2.8
24	2.2	.20	.50	15	1.3	.34	15	109	31	5.2	3.1	2.8
25	2.2	.20	.60	12	1.1	.13	23	53	48	5.8	3.1	2.8
26	2.2	.20	.60	8.2	.90	.19	26	99	43	4.9	2.8	3.4
27	2.2	.20	.60	9.0	.90	.13	11	253	45	4.3	2.5	4.0
28	1.9	.30	.60	7.8	.90	.13	8.2	532	24	4.3	2.2	4.0
29	1.3	.30	.60		.70	.19	5.5	595	26	8.1	2.5	3.4
30	1.3	.30	.80		.70	.27	4.0	598	26	116	2.5	4.0
31		.30	.80		.70		2.8		507	148		4.0
TOTAL												
sec.ft.	54.3	17.50	14.60	218.0	112.30	1492.60	711.8	6504.5	6421	1878.5	241.9	79.9
ac.ft.	108	35	29	432	223	2960	1410	12900	12740	3730	480	158
THE YEAR 35,200 acre-ft.												

APPENDIX 'B-8'

Arkansas River At The Colorado-Kansas State Line

ARKANSAS RIVER AT THE COLORADO-KANSAS STATE LINE

Report-Year ending October 31, 1978

USGS Records—Provisional; Subject to Revision

DAY	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.
1	2.8	4.0	3.5	5.0	6.0	5.7	32	32	383	172	61	3.7
2	2.5	3.8	4.0	5.2	5.0	5.7	22	30	364	142	33	3.5
3	2.2	3.8	5.0	5.3	5.0	5.7	23	158	380	293	33	3.6
4	2.2	3.7	4.5	5.4	6.0	5.7	24	2510	227	370	22	3.4
5	2.2	3.8	4.5	5.4	6.0	5.7	64	1360	134	189	18	3.3
6	2.3	4.3	4.5	5.0	6.0	5.7	497	820	122	144	13	3.6
7	2.4	5.3	5.1	4.5	6.0	6.0	186	434	104	143	11	3.3
8	3.5	4.1	4.5	4.5	3.3	5.7	122	277	90	111	13	3.1
9	3.8	3.8	4.0	4.5	3.3	6.4	88	162	84	76	13	2.6
10	3.6	4.2	4.5	4.7	3.9	5.7	57	117	86	56	14	3.4
11	3.4	4.1	6.0	5.2	3.3	9.4	38	86	406	48	11	3.1
12	3.2	4.5	8.0	5.5	3.6	154	44	68	274	55	12	2.8
13	3.1	4.5	6.5	4.5	4.2	152	39	51	353	45	11	2.9
14	3.0	4.5	5.5	4.8	4.5	174	32	51	424	33	11	2.5
15	2.9	4.5	5.5	4.8	8.0	86	27	179	440	42	10	2.4
16	2.9	4.5	7.0	5.0	6.8	43	25	252	445	33	11	2.5
17	2.9	4.4	7.0	5.2	6.4	35	30	240	228	29	8.5	4.4
18	2.9	4.3	7.0	5.6	6.0	28	41	259	135	27	7.5	3.6
19	2.9	4.2	7.0	6.0	5.7	26	29	302	126	34	7.0	2.7
20	2.9	8.4	7.0	6.0	5.7	24	26	416	97	30	7.6	2.3
21	6.8	9.0	7.5	6.0	5.7	24	25	238	79	27	8.4	2.8
22	7.3	9.0	7.5	6.0	6.0	28	27	168	71	23	8.2	4.2
23	4.0	9.0	8.0	6.0	6.0	22	34	128	63	19	6.9	3.5
24	4.0	6.0	7.5	6.5	6.4	21	46	112	75	18	5.1	3.0
25	3.9	4.5	7.0	7.0	6.4	19	32	105	65	17	4.9	5.2
26	3.6	4.0	7.0	7.0	7.2	21	26	82	61	24	5.9	4.7
27	3.4	4.0	7.0	7.0	7.2	18	64	81	53	21	6.3	3.9
28	3.5	4.0	7.0	7.0	6.8	19	100	125	52	17	5.6	3.6
29	3.8	4.5	6.0		6.0	19	41	260	49	21	4.5	3.3
30	3.8	4.5	5.5		6.0	38	34	366	44	23	3.8	4.2
31		4.8	5.0		6.0		33		41	40		3.1
TOTAL												
sec.ft.	101.7	151.9	185.6	154.6	174.4	1018.4	1908	9469	5555	2322	387.2	103.2
ac.ft.	202	301	368	307	346	2020	3780	18780	11020	4608	768	205
THE YEAR 42,708 acre-ft.												

note: Includes flows of the Frontier Ditch

APPENDIX 'B-9'

Demands By Colorado For Reservoir Water (CFS)

DEMANDS BY COLORADO RESERVOIR WATER (CFS)
Report-Year ending October 31, 1978
Data Source: U.S. Corps of Engineers and Orders by the Secretary
of the Arkansas River Compact Administration (Provisional, Subject to Revision)

DAY	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.
1									600			
2								2130: Empty 538				
3												
4												
5							0830: Open 233					
6							0900: Empty 135					
7												
8												
9												
10					0800: Open 400							
11					600				525 0300: Open			
12					600				600			
13					1830: Empty 463		0800: Open 400		600			
14							600		600			
15							600		600			
16							600		513 2030: Empty			
17							600					
18							600					
19							1700: Empty 425					
20												
21												
22												
23												
24												
25												
26												
27												
28							0700: Open 425					
29							600					
30							600					
31												
TOTAL												
CFS						2063		4193	4576			
AF						4091		8302	9060			

The Year: 21,453 ac.-ft.

APPENDIX 'B-10'

Demands By Colorado For River Flow Under Article V-A And V-B (CFS)

DEMANDS BY COLORADO FOR RIVER FLOW UNDER ARTICLE V-A AND V-B (CFS)

Report-Year ending October 31, 1978

Data Source: Colorado State Engineer's Office and Orders of
the Secretary of the Arkansas River Compact Administration

DAY	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.
1	16	24				10			250			
2	16	23				10			224			
3	17	23				10						
4	17	22				10						
5	17	23				10						
6	17	23				10						
7	17	21				10						
8	18	22				10						
9	15	2.8				10						
10	16					10						
11	18					10			219			
12	20					10			250			
13	22					7.5			250			
14	21								250			
15	20								214			
16	20											
17	20											
18	16							200				
19	18							212				
20	18				6							
21	16				10							
22	31				10							
23	29				10							
24	29				10							
25	23				10							
26	18				10							
27	25				10							
28	20				10			212				
29	22				10			250				
30	28				10			250				
31					10							
TOTAL												
CFS	600	184			116	128		1124	1657			
AF	1188	364			230	253		2226	3281			

APPENDIX 'B-11'

Demands By Kansas For Reservoir Water (CFS)

DEMANDS BY KANSAS FOR RESERVOIR WATER (CFS)
Report Ending October 31, 1978
Data Source: Kansas State Board of Agriculture and Orders by the
Secretary of the Arkansas River Compact Administration (Provisional; Subject to Revision)

DAY	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.
1									400			
2								2130: Empty	358			
3												
4												
5							0830: Open	155				
6							0900: Empty	90				
7												
8												
9												
10					0800: Open	267						
11					400				350	0300: Open		
12					400				400			
13					1830: Empty	308	0800: Open	267	400			
14								400	400			
15								400	400			
16								400	342	2030 Empty		
17								400				
18								400				
19							1700: Empty	283				
20												
21												
22												
23												
24												
25												
26												
27												
28							0700: Open	283				
29								400				
30								400				
31												
TOTAL												
CFS						1375		3878	3050			
AF						2722		7678	6039			

APPENDIX 'B-12'

Stateline Flow On Days Of Kansas Demand (CFS)

STATELINE FLOW ON DAYS OF KANSAS DEMAND (CFS)												
Report-Year ending October 31, 1978												
USGS Records—Provisional; Subject to Revision												
DAY	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.
1									383			
2									364			
3									380			
4									227			
5									134			
6												
7												
8								227				
9								162				
10												
11												
12												
13						152						
14						174			424			
15						86		179	440			
16						43		252	445			
17								240	228			
18								259	135			
19								302	126			
20								416				
21								238				
22								168				
23												
24												
25												
26												
27												
28												
29												
30												
31												
TOTALS												
CFS						455		2314	3286			
AC.FT.						901		4582	6506			

APPENDIX 'B-13'

Diversion In Ditches

By Colorado (Acre Feet)

DIVERSIONS IN DITCHES BY COLORADO (ACRE-FEET)
DISTRICT NO. 14 and NO. 17 -- DIVISION NO. 2
Source: Water Commissioner's Monthly Reports
Report-year ending October 31, 1978

NAME OF CANAL	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	YEAR
Bessemer (Riv.)	928	4322	2592	564	7667	2583	4332	12723	6647	4407	3186	3380	53331
Res. or Imported	0	0	0	0	0	366	139	0	285	2197	1077	0	4064
Total: Bessemer	928	4322	2592	564	7667	2949	4471	12723	6932	6604	4263	3380	57395
Minnequa-Ft. Union	0	0	53.4	74.2	53.2	83.4	146	399	213	179	133	64.0	1397
West Pueblo (Riv.)	0	0	0	0	0	0	0	1630	305	17	0	0	1952
Excelsior (Riv.)	0	0	0	0	0	0	0	0	146	0	0	0	146
Res. or Imported	0	0	0	0	0	0	0	1630	451	17	0	0	2098
Total: Excelsior	0	0	0	0	0	0	0	384	89.4	0	0	0	473
Collier	0	0	0	0	0	0	0	10931	1182	123	0	0	12236
Colorado Canal (Riv.)	0	1045	0	3775	0	532	4701	3005	12102	9141	0	0	34301
Res. or Imported	0	1045	0	3775	0	532	4701	13936	13284	9265	0	0	46537
Total: Colo. Canal	3407	3458	4465	3199	4068	3515	4754	16434	7971	5634	3966	3965	64834
Highline (Riv.)	0	0	0	0	0	1825	950	0	1396	3323	0	0	7494
Res. or Imported	0	0	0	0	0	0	0	0	0	0	0	0	0
Total: Highline	3407	3458	4465	3199	4068	5340	5704	16434	9367	8957	3966	3965	72328
Oxford Farmers (Riv.)	944	1037	124	305	1019	851	882	4437	3638	842	815	834	15728
Res. or Imported	0	0	0	0	0	0	0	0	0	452	0	0	452
Total: Oxford Farmers	944	1037	124	305	1019	851	882	4437	3638	1294	815	834	16180
Total: District #14	5279	8815	7234	4142	12807	7032	10114	46938	20045	11202	8100	8243	149951
Import District #14	0	1045	0	3775	0	2723	5790	3005	13929	15113	1077	0	46457
Otero	0	0	0	900	0	0	0	2360	684	144	0	0	4088
Res. or Imported	0	0	0	0	0	0	0	0	0	120	0	0	120
Total: Otero	0	0	0	900	0	0	0	2360	684	264	0	0	4208
Catlin Canal (Riv.)	2696	7700	2322	1340	1598	0	3982	16924	16022	4418	876	0	57878
Res. or Imported	0	0	0	0	0	0	0	0	0	2162	0	0	2162
Total: Catlin	2696	7700	2322	1340	1598	0	3982	16924	16022	6580	876	0	60040
Holbrook (Riv.)	0	0	0	4358	0	0	0	14474	1160	80	0	0	20072
Res. or Imported	0	0	0	0	0	0	0	0	276	2360	0	0	2636
Total: Holbrook	0	0	0	4358	0	0	0	14474	1436	2440	0	0	22708
Rocky Ford	2820	2632	0	120	4106	4526	5420	7078	5952	6102	4546	3928	47230
Ft. Lyon Storage	0	0	0	0	0	0	0	0	0	0	0	0	0
Ft. Lyon (Riv.)	9410	12624	16312	9844	8418	3388	8812	40756	27398	12459	4292	4206	157919
Res. or Imported	0	0	0	0	0	0	0	0	0	2931	0	0	2931
Kicking Bird	0	0	0	650	0	0	0	2240	550	0	0	0	3440
Total: Ft. Lyon-K.B.	9410	12624	16312	10494	8418	3388	8812	42996	27948	15390	4292	4206	164290
Las Animas Consol.	2004	1986	1536	1122	1284	420	1524	3926	2586	1079	341	0	22988
Total: Dist. #17	16930	24942	20170	18334	15406	8334	19738	89012	55692	25789	10793	8475	313615
Total: Dist. #14-#17	22209	33757	27404	22476	28213	15366	29852	135950	75737	36991	18893	16718	463566
Res. or Imp. #14-#17	0	1045	0	3775	0	2723	5790	3005	14205	22686	1077	0	54306
Grand Total	22209	34802	27404	26251	28213	18089	35642	138955	89942	59677	19970	16718	517872

APPENDIX 'B-14' **Diversions By Ditches In** **Colorado Water District** **No. 67—Division 2**

DIVERSIONS BY DITCHES IN COLORADO WATER DISTRICT NO. 67—DIVISION NO. 2
 Report-Year ending October 31, 1978
 Source: Water Commissioners Monthly Report
 (Units in Acre-Feet)

NAME OF DITCH	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	YEAR
Fort Bent Canal	840	330	0	0	0	734	1212	2342	2728	2252	780	256	11474
Keesee Ditch	150	0	0	0	190	612	524	590	858	722	760	776	5182
Amity Canal	0	0	0	0	0	1856	778	11224	12436	4546	648	0	31488
Lamar Canal	780	720	720	772	784	1412	1616	5344	5838	3336	1632	1078	24032
Hyde Ditch	0	0	0	0	0	40	32	158	256	142	0	0	628
Manvel Canal	0	0	0	0	0	72	40	528	178	46	0	0	864
X, Y & Graham Canal	0	0	0	0	0	112	76	1002	1184	568	0	0	2942
Buffalo Canal	0	0	0	0	448	2658	1938	2652	4128	4038	1994	738	18594
Total: District	1770	1050	720	772	1422	7496	6216	23840	27606	15650	5814	2848	95204
Trans.-Mtn. Diversions	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total:	1770	1050	720	772	1422	7496	6216	23840	27606	15650	5814	2848	95204

APPENDIX 'B-15'

Diversions By Ditches In Kansas

DIVERSIONS BY DITCHES IN KANSAS Report-Year ending October 31, 1978 (Acre Feet) Frontier Ditch, USGS Records Other Ditches, Kansas Division of Water Resources Records

	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	YEAR
Frontier Ditch	57	17	0	0	0	733	909	678	1893	1095	430	93	*5905
Ft. Aubrey Canal	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Stateline													
to Syracuse	57	17	0	0	0	733	909	678	1893	1095	430	93	5905
Amazon Canal	0	0	0	0	0	0	0	3507	1571	0	0	0	5078
Great Eastern Canal	0	0	0	0	0	0	1103	3525	2436	1394	0	0	8458
South Side Ditch	0	0	0	0	0	0	0	746	2698	0	0	0	3444
Farmers Ditch	0	0	0	0	0	0	0	2370	0	0	0	0	2370
Garden City Canal	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Syracuse													0
To Garden City	0	0	0	0	0	0	1103	10148	6705	1394	0	0	19350
Total Stateline													
To Garden City	57	17	0	0	0	733	2012	10826	8598	2489	430	93	25255

*1,468 Ac. Ft. returned directly to river.

APPENDIX 'B-16'

Summary Tabulation

	SUMMARY TABULATION (ACRE-FEET)												
	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	YEAR
Arkansas River at Las Animas, Colo.	396	516	520	1030	960	641	1660	23150	30150	6470	1660	873	68020
Purgatoire Riv. Near Las Animas, Colo.	233	939	833	682	323	210	1270	16960	3740	5160	187	107	30640
Inflow to John Martin Reservoir*	631	1450	1350	1710	1280	2120	2930	40130	33870	11617	1850	992	99930
Reservoir Contents at end of month	0	1530	3060	5600	6900	0	0	3580	0	0	0	0	
Net change in Reservoir Contents	0	+ 1530	+ 1530	+ 2540	+ 1300	- 6900	0	3580	- 3580	0	0	0	
Outflow from John Martin Reservoir	1190	542	192	220	454	7850	4720	33910	34640	12860	2870	1080	100500
Diversions in District 67, Colorado	1770	1050	720	772	1422	7496	6216	23840	27606	15650	5814	2848	95204
Flow at Colorado- Kansas Stateline	202	301	368	307	346	2020	3780	18780	11020	4500	768	205	42600
Diversions in Kansas	57	17	0	0	0	733	2012	10826	8598	2489	430	93	25255

*Because of computation rules, figures are not necessarily the exact sum of Appendix B-2 and B-3 totals.