

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	658.30
10/ 5/77	326	Mountain Bell—Telephone	104.44
10/ 5/77	327	Federal Reserve Bank—F.I.C.A.	51.38
11/ 4/77	328	Mountain Bell—Telephone	52.65
12/ 9/77	330	Lane Hackett—Postage	34.34
		Office Supplies	\$ 13.00
		Salary	12.59
		Travel	423.68
12/ 9/77	331	Mountain Bell—Telephone	178.64
12/31/77	332	Mountain Bell—Telephone	627.91
12/31/77	333	Gobins—Office supplies	32.94
12/31/77	334	Eastern Colo. Ins. Agency—Treasurer's Bond	130.16
12/31/77	335	Federal Reserve Bank—F.I.C.A.	29.38
2/ 3/78	336	Crimond, Schemahorn & Co.—Audit & Copies	50.00
2/ 3/78	337	Mountain Bell—Telephone	52.65
3/ 7/78	338	Mountain Bell—Telephone	199.00
3/ 7/78	339	Lane Hackett—Postage	49.88
		Salary	37.26
		Travel	\$ 26.00
4/ 1/78	340	Lamar Daily News—Printing	423.68
4/ 1/78	341	Mountain Bell—Telephone	164.22
4/24/78	342	Federal Reserve Bank—F.I.C.A.	613.90
5/ 6/78	343	Mountain Bell—Telephone	678.56
4/29/78	344	Sears & Roebuck—Office Supplies	41.31
5/12/78	345	Pueblo West Inn—Meeting expense	54.05
6/ 6/78	346	Mountain Bell—Telephone	111.96
6/ 6/78	347	Lane Hackett—Postage	8.68
		Salary	58.30
		Travel	125.88
6/ 6/78	348	First National Bank—Savings account	\$ 28.00
6/30/78	349	Kirkpatrick & Meek—Court reporter	423.68
6/30/78	350	Eastern Colo. Ins.—Treasurer's Bond	187.60
6/30/78	351	Federal Reserve Bank—F.I.C.A.	639.28
6/30/78	352	Mountain Bell—Telephone	(3,000.00)
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	<u>\$27,790</u>
TOTAL LIABILITIES AND CASH BASIS EQUITY	<u>\$27,790</u>

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	<u>\$10,045</u>
EXCESS OF RECEIPTS OVER DISBURSEMENTS	<u>12,683</u>
CASH BALANCE, JUNE 30, 1978	<u>\$18,075</u>

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:

- 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	1630	680	150	118
7	154	218	192	170	116	120	432	1480	1470	530	160	138
8	205	195	182	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	2080	472	200	142
11	238	168	140	175	75	86	70	1000	630	540	208	138
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	2850	841	865	158	124
15	229	372	166	175	86	124	112	3150	841	841	146	124
16	344	265	178	164	86	114	103	3550	811	835	148	128
17	218	135	185	156	62	114	177	3750	841	847	156	136
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	2860	1140	841	124	134
21	162	132	205	132	51	118	257	2900	1170	610	148	105
22	146	105	205	90	54	118	302	2780	1170	620	180	106
23	154	133	220	97	68	126	324	2850	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	967	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	1060	344	120	148
29	175	130	172		84	288	823	2070	1370	1030	105	122
30	162	132	202		82	380	712	2340	2480	248	87	84
31		134	250		92		734		961	180		82
TOTAL												
sec.ft.	5340	5282	5454	4545	2513	3763	11599	68659	39882	20733	4748	3842
ac.ft.	10590	10490	10820	9020	4960	7460	23010	138800	77320	41120	9420	7620
THE YEAR	384,600	acre-ft.										

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	883	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	482	500	98	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	8.6	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	696	240	17	6.9	12
19	5.8	9.0	6.0	11	13	8.5	6.8	509	190	16	6.8	9.5
20	5.8	8.0	7.5	13	12	10	12	464	160	15	6.8	9.1
21	7.5	7.0	13	15	11	9.4	10.6	668	181	15	6.9	9.4
22	10	7.0	13	20	11	8.8	19	641	592	14	10	11
23	13	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			1230	376			8.2
TOTAL	199.5	260.3	262.0	517	483.8	323.2	836.0	11672	15199	3260	837.6	440.0
sec. ft.	396	516	520	1030	960	641	1660	23150	30150	6470	1690	873
ac. ft.												
THE YEAR 66,020 acre-ft.												

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	14	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	1200	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	78	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	5.3	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	30.4	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	3.1	3.2	28	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	13	16		3.1	4.4	3.0	935	2.8	255	1.7	2.0
30	7.0	13	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	586	222	29
2	7.0	12	12	24	27	15	20	96	261	251	115	26
3	7.1	13	12	32	22	16	19	179	542	728	150	22
4	7.1	14	21	42	21	15	20	868	648	415	28	22
5	7.1	16	29	47	41	15	24	1450	676	1000	23	20
6	7.1	15	26	41	64	15	31	2410	579	259	18	20
7	7.2	14	26	38	56	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	183	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	108	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	8.4	11
21	12	27	20	24	14	13	413	678	186	18	8.7	13
22	14	19	26	37	14	12	138	664	597	17	12	13
23	16	28	25	42	13	12	49	674	380	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	26	13
26	13	18	24	35	11	13	16	871	320	16	56	13
27	16	20	22	35	12	16	10	1260	206	15	38	13
28	20	16	22	35	12	18	10	3430	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	318.1	732	681		646	1071	1476	20231	17077	5857	931.7	500
ac.ft.	631	1450	1350		1280	2120	2930	40130	33870	11617	1850	992
THE YEAR 99,330 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	3180	5880	6900	0	0	1990	0	0	0
2	0	0	1590	3240	5790	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	3580	5900	6970	0	1590	0	0	0	0
6	0	0	1750	3650	6010	6960	0	4000	0	0	0	0
7	0	0	1820	3720	6120	6940	0	8400	0	0	0	0
8	0	0	1890	3800	6230	6940	0	8800	0	0	0	0
9	0	18	1900	3840	6300	6970	0	9010	0	0	0	0
10	0	36	1930	3920	6350	6970	0	10430	0	0	0	0
11	0	50	1970	4010	6390	6990	0	10720	5280	0	0	0
12	0	62	1990	4110	6430	1790	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	174	2170	4350	6570	0	0	6450	0	0	0	0
16	0	809	2220	4490	6630	0	0	4400	0	0	0	0
17	0	857	2280	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	2390	4840	6720	0	0	0	0	0	0	0
21	0	1120	2440	4920	6780	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	1350	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		6850	0	0	4720	0	0	0	0
30	0	1470	2940		6860	0	0	3580	0	0	0	0
31		1530	3090		6900		0		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	1080	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	598	725	53	20
6	17	23	3.2	4.1	3.8	7.0	88	380	638	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	633	49	.73	437	108	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	880	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	985	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	285	38	15	15
19	18	3.8	2.8	3.8	4.1	28	29	1050	267	33	14	15
20	18	3.8	2.8	3.8	8.8	28	31	415	231	32	14	15
21	16	3.8	2.8	3.8	13	28	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	86	610	379	26	21	15
25	23	3.8	2.8	4.1	13	25	78	614	285	24	24	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	760	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	13	26	31	1080	114	252	34	18
30	28	3.8	3.2	13	13	26	30	1100	88	244	32	17
31		3.8	3.2	13	13	26	94		1580	880		16
TOTAL	600	273.2	97.0	111.0	228.8	3956.0	2381	17098.38	17465	6482	1447	543
sec.ft.	1190	542	192	220	454	7850	4720	33910	34640	12860	2870	1080
ac.ft.												
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	244	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	.423	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	.50	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	382	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	.30	8.0	2.5	7.4	4.0	463	114	12	4.3	1.6
19	2.2	.30	.20	10	2.2	6.4	3.4	592	75	9.8	4.3	1.6
20	1.9	.30	.20	15	2.2	5.8	3.7	224	47	9.4	4.0	1.9
21	1.6	.50	.20	20	1.9	5.2	4.3	129	42	8.6	4.0	1.9
22	1.9	.50	.30	27	1.1	4.8	130	137	38	17	3.7	2.8
23	2.2	.50	.50	25	1.3	4.6	47	133	142	6.4	3.4	2.8
24	2.2	.20	.50	15	1.3	3.4	15	109	31	5.2	3.1	2.8
25	2.2	.20	.60	12	1.1	1.3	23	53	48	5.8	3.1	2.8
26	2.2	.20	.60	8.2	.90	1.9	26	99	43	4.9	2.8	3.4
27	2.2	.20	.60	9.0	.90	1.3	11	253	45	4.3	2.5	4.0
28	1.9	.30	.60	7.8	.90	1.3	8.2	532	24	4.3	2.2	4.0
29	1.3	.30	.60		.70	1.9	5.5	595	26	8.1	2.5	3.4
30	1.3	.30	.60		.70	.27	4.0	598	28	118	2.5	4.0
31		.30	.60		.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.	106	35	29	432	223	2960	1410	12900	12740	3730	480	156
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	283	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	1825	122	144	13	3.8
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	186	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	262	445	33	11	2.5
17	2.9	4.4	7.0	5.2	6.4	35	30	240	228	28	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	7.0	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	6.3	3.6
29	3.8	4.5	6.0	6.0	6.0	19	41	260	49	21	5.6	3.3
30	3.8	4.5	5.5	6.0	6.0	38	34	366	44	23	4.5	4.2
31	4.8	4.8	5.0	6.0	6.0	38	33	41	41	40	3.8	3.1
TOTAL												
sec.ft.	101.7	151.9	185.6	154.8	174.4	1018.4	1908	9466	5555	2322	387.2	103.2
ac.ft.	202	301	368	307	346	2020	3780	18760	11020	4608	768	205
THE YEAR 42,708 acre-ft.												

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												
6							0630: Open 233					
7							0900: Empty 135					
8												
9												
10						0600: Open 400						
11						600			125	0300: Open		
12						600			600			
13						1830: Empty 463	0800: Open 400		600			
14							600		600			
15							600		600			
16									513	2030: Empty		
17								600				
18								600				
19							1700: Empty 425					
20												
21												
22												
23												
24												
25												
26												
27							0700: Open 425					
28							600					
29							600					
30												
31												
TOTAL												
CFS						2063		4193	4576			
AF						4081		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							200				
18	16							212				
19	18											
20	18				6							
21	16				10							
22	31				10							
23	29				10							
24	29				10							
25	23				10							
26	18				10							
27	25				10			212				
28	20				10			250				
29	22				10			250				
30	28				10			250				
31					10							
TOTAL					116	128		1124	1657			
CFS	600	184			230	253		2226	3281			
AF	1188	364										

APPENDIX 'B-11'

Demands By Kansas For Reservoir Water (CFS)

DAY	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.
1									400			
2								2130: Empty	358			
3												
4												
5								0630: Open 155				
6								0600: Empty 90				
7												
8												
9												
10						0600: Open 267						
11						400			350 0600: Open			
12						400			400			
13						1630: Empty 308	0600: 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			3060
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			424			
14						174			440			
15						86		179	252			
16						43		240	228			
17								259	135			
18								302	128			
19								416				
20								238				
21								168				
22												
23												
24												
25												
26												
27												
28												
29												
30												
31												
TOTALS						455		2314	3286			
CFS						901		4592	6506			
AC.FT.												

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.)	988	4332	2592	564	7667	2583	4332	12723	6647	4407	3186	3390	53331
Res. or Imported	0	0	0	0	0	0	0	0	285	2197	1077	0	4094
Total: Bessemer	988	4332	2592	564	7667	2583	4332	12723	6932	6604	4263	3390	57395
Minneapolis-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	0	0	0	0	0	0
Excelsior (Riv.)	0	0	0	0	0	0	0	0	0	0	0	0	0
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	0	0	0	0	0	0
Collier	0	0	0	0	0	0	0	0	0	0	0	0	0
Colorado Canal (Riv.)	0	0	0	0	0	0	0	0	0	0	0	0	0
Res. or Imported	0	1045	0	3775	0	532	4701	3005	12102	9141	0	0	12236
Total: Colo. Canal	0	1045	0	3775	0	532	4701	3005	12102	9141	0	0	34301
Hightline (Riv.)	3497	3456	4465	3199	4086	3515	4754	16434	7971	5634	3966	3965	64634
Res. or Imported	0	0	0	0	0	0	0	0	0	0	0	0	0
Total: Hightline	3497	3456	4465	3199	4086	3515	4754	16434	7971	5634	3966	3965	72328
Oxford Farmers (Riv.)	944	1057	124	305	1019	861	882	4437	3638	942	815	834	15725
Res. or Imported	0	0	0	0	0	0	0	0	0	0	0	0	0
Total: Oxford Farmers	944	1057	124	305	1019	861	882	4437	3638	942	815	834	15725
Total: District #14	3379	8815	7234	4143	12807	7032	10114	46938	20045	1294	815	834	16190
Import District #14	0	1045	0	3775	0	2723	5790	3005	13929	15113	1077	0	14961
Osaro	0	0	0	900	0	0	0	2360	884	144	0	0	4068
Res. or Imported	0	0	0	0	0	0	0	0	0	0	0	0	0
Total: Osaro	0	0	0	900	0	0	0	2360	884	144	0	0	4068
Cattlin Canal (Riv.)	2896	7709	2322	1340	1596	0	3982	16924	16022	4418	876	0	57278
Res. or Imported	0	0	0	0	0	0	0	0	0	0	0	0	0
Total: Cattlin	2896	7709	2322	1340	1596	0	3982	16924	16022	4418	876	0	57278
Holbrook (Riv.)	0	0	0	4358	0	0	0	1474	1160	80	0	0	20072
Res. or Imported	0	0	0	0	0	0	0	0	0	0	0	0	0
Total: Holbrook	0	0	0	4358	0	0	0	1474	1160	80	0	0	20072
Rocky Ford	2820	2632	0	120	4106	4326	5430	7078	5952	6102	4546	0	22708
Ft. Lyon Storage	0	0	0	0	0	0	0	0	0	0	0	0	0
Ft. Lyon (Riv.)	9410	12834	16312	9644	9418	3388	8812	40756	27398	12459	4292	4206	157919
Res. or Imported	0	0	0	0	0	0	0	0	0	0	0	0	0
Kicking Bird	0	0	0	650	0	0	0	0	0	0	0	0	2831
Total: Ft. Lyon-K.B.	9410	12834	16312	10494	9418	3388	8812	40756	27398	12459	4292	4206	157919
Las Animas Canal	2004	1986	1536	1122	1294	430	1524	5180	3266	2586	1079	341	22968
Total: Dist. #17	18030	24942	20170	18334	15406	8334	19738	89012	55692	25789	10793	8475	313615
Total: Dist. #14-#17	22209	33707	27404	22476	28213	15366	29632	136960	79377	30991	18693	16718	463566
Res. or Imp. #14-#17	0	1045	0	3775	0	2723	5790	3005	14305	22686	1077	0	54306
Grand Total	22209	34802	27404	28251	28213	18089	35642	138953	89942	59677	19670	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	780	778	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
Manuel Canal	0	0	0	0	0	72	40	528	178	46	0	0	864
X. Y. & Graham Canal	0	0	0	0	0	112	78	1002	1184	568	0	0	2942
Buffalo Canal	0	0	0	0	448	2658	1838	2852	4128	4088	1994	738	18594
Total: District	1770	1050	720	772	1422	7496	6216	23840	27606	15650	5814	2848	95204
Trans.-Min. 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 State-line	57	17	0	0	0	733	909	678	1893	1095	430	93	5905
to Syracuse	0	0	0	0	0	0	0	3507	1571	0	0	0	5078
Amazon Canal	0	0	0	0	0	0	1103	3525	2436	1394	0	0	8458
Great Eastern Canal	0	0	0	0	0	0	0	746	2898	0	0	0	3444
South Side Ditch	0	0	0	0	0	0	0	2370	0	0	0	0	2370
Farmers Ditch	0	0	0	0	0	0	0	0	0	0	0	0	0
Garden City Canal	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Syracuse	0	0	0	0	0	0	1103	10148	6705	1394	0	0	19350
To Garden City	0	0	0	0	0	0	0	0	0	0	0	0	0
Total State-line	57	17	0	0	0	733	2012	10926	8598	2489	430	93	25255
To Garden City													

*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.	386	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	2630	40130	33870	11617	1850	962	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	23940	27606	15650	5814	2848	95204
Flow at Colorado- Kansas Stateline	202	301	368	307	346	2020	3780	18780	11020	4590	768	205	42600
Diversions in Kansas	57	17	0	0	0	733	2012	10626	8598	2469	430	93	25255

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