

SIXTEENTH ANNUAL REPORT

**ARKANSAS RIVER
COMPACT**

ADMINISTRATION

(1964)

For the Report-Year November 1, 1963
to October 31, 1964

LAMAR, COLORADO

December 8, 1964

Sixteenth
Annual Report

ARKANSAS RIVER COMPACT
ADMINISTRATION

(1964)

For the Report Year November 1, 1963, to October 31, 1964

LAMAR, COLORADO

December 8, 1964

THE ADMINISTRATION

FRANCIS M. BELL, *Chairman and Representative of the United States*
HACKET SMARTT, *Secretary and Treasurer*

FELIX L. SPARKS, GEORGE F. REYHER and HACKET SMARTT
for Colorado

ROBERT V. SMRHA, LOGAN N. GREEN and CARL E. BENTRUP
for Kansas

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Annual Report of
ARKANSAS RIVER COMPACT ADMINISTRATION
(1964)

Report-Year November 1, 1963 to October 31, 1964

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

Sirs:

Pursuant to Article VIII of the Arkansas River Compact, the Arkansas River Compact Administration submits its report for the Report-year November 1, 1963 through October 31, 1964 as follows:

1. *Members of the Administration*

Representative of the United States:

Francis M. Bell

Colorado Representatives:

Felix L. Sparks, Denver, Colorado

Hacket Smartt, Lamar, Colorado

George F. Reyher, McClave, Colorado

Kansas Representatives:

Carl E. Bentrup, Deerfield, Kansas

Logan N. Green, Garden City, Kansas

Robert V. Smrha, Topeka, Kansas

2. *Officers of the Administration*

Chairman:

Francis M. Bell

Vice-Chairman:

Logan N. Green of Garden City, Kansas

Secretary:
Hacket Smartt of Lamar, Colorado

Treasurer:
Hacket Smartt of Lamar, Colorado

3. Standing Committees

Administrative and Legal Committees:
Logan N. Green of Kansas (Chairman)
George F. Reyher of Colorado

Engineering Committee:
Robert V. Smrha of Kansas (Chairman)
Felix L. Sparks of Colorado

Operations Committee:
Carl E. Bentrup of Kansas (Chairman)
Hacket Smartt of Colorado

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

4. Meetings

December 13, 1963	Lamar, Colorado	Annual Meeting
April 7, 1964		Telephonic Meeting
June 22, 1964		Telephonic Meeting
October 7, 1964	Lamar, Colorado	Special Meeting

5. Fiscal

(a) Balance on Hand October 31, 1963.....	\$ 7,977.01
(b) Receipts	
State of Colorado, September 11, 1964..	\$4,332.00
State of Kansas, September 25, 1964.....	2,888.00
	<hr/>
	7,220.00
(c) Total funds available.....	\$15,197.01

(d) Disbursements by the Administration—November 1, 1963 to October 31, 1964:

Date	Voucher No.	Payee and Purpose	Amount
11-12-63	384	Telephone Co.—November Service.....	\$ 14.00
11-12-63	385	U.S.G.S. 1st Qtr., Cooperative Agreement.....	450.00
	386	386, 387, 388, and 389 were lost in	
	387	mailing. Checks were voided, and the	
	388	bank was notified to stop payment.	
	389	Charge at Bank to stop payment.....	2.00
1-21-64	390	Telephone Co.—December Service.....	11.25
1-21-64	391	Treasurer of U.S.A. O.A.S.I. Fund.....	21.75
1-21-64	392	Hacket Smartt Nov., Dec. Salary.....	192.74
1-21-64	393	Marvin Strait Auditing for 1963.....	65.00
2- 3-64	394	U.S.G.S., 2nd Qtr., Cooperative Agreement.....	450.00
2- 3-64	395	Telephone Co.—January Service.....	16.80
4- 2-64	396	Peerless Printing Co.—15th Annual Report.....	635.00
4- 2-64	397	Telephone Co.—Feb. and March Service.....	22.60
4- 2-64	398	Treasurer of U.S.A. O.A.S.I. Fund.....	21.75
4- 2-64	399	Hacket Smartt, Jan., Feb., and March Salary.....	289.12
5- 3-64	400	Telephone Co.—April Service	23.15
5- 3-64	401	U.S.G.S. 3rd Qtr., Cooperative Agreement.....	450.00
6-30-64	402	Treasurer of U.S.A. O.A.S.I.....	21.75
6-30-64	403	Hacket Smartt, April, May and June Salary.....	289.13
6-30-64	404	Telephone Co.—May and June Service.....	33.75
8- 1-64	405	U.S.G.S. 4th Qtr., Cooperative Agreement.....	2,450.00
8- 1-64	406	Telephone Co.—July Service	21.45
10- 3-64	407	Telephone Co.—August and September Service.....	25.80
10- 3-64	408	Milne-Hill Agency—Surety Bond.....	15.00
10- 3-64	409	Treasurer of U.S.A. O.A.S.I. Fund.....	21.75
10- 3-64	410	Hackett Smartt, July, August and September Salary, Less \$10.88	289.12
	411	Void—Lost in Mailing	
	412	Void—Lost in Mailing	
10-22-64	413	Telephone Co.—October Service.....	11.80
10-22-64	414	U.S.G.S. 1st Qtr. 1965 Agreement.....	450.00
10-31-64	415	Hacket Smartt—Typing and Mailing.....	17.00
Total Disbursements			\$6,311.71

(e) Balance on hand October 31, 1964.....\$8,885.30

(f) At the special meeting held October 7, 1964 the Compact Administration adopted the following budget for the fiscal year July 1, 1965 through June 30, 1966 and copies of this budget were duly transmitted to the States of Colorado and Kansas:

Personal Services		\$7,325.00
Secretary Salary	\$1,200.00	
Social Security	50.00	
Gage Reports	2,000.00	
Professional Services (Audit of Accounts)	75.00	
Cooperative gage replacement and rehabilitation	4,000.00	
Capital Outlay		300.00
Maintenance and Operation.....		1,475.00
Bond, Treasurer	15.00	
Printing	650.00	
Official Publications	50.00	
Travel Expense—Secretary and Employees	150.00	
Typing and Mailing.....	100.00	
Investigation and Inspection.....	60.00	
Telephone and Telegraph.....	300.00	
Office Supplies	150.00	
Total Proposed Budget, 1965-1966.....		\$9,100.00
Estimated Carry-over as of June 30, 1965.....		1,880.00
Total to be appropriated by Colorado and Kansas.....		\$7,220.00

In accordance with Article VIII E (I), the amount of such budget payable by the State of Colorado is sixty percent thereof, or \$4,332.00, and the amount payable by the State of Kansas is forty percent thereof, or \$2,888.00.

- (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 have been audited for the period commencing November 1, 1963 through October 31, 1964, the end of the Report-year. The report of such audit is hereto attached as Appendix "A".

6. Cooperative Studies and Activities

- (a) Article VIII G (1) of the 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 waters of the Arkansas River and to the operation and siltation of John Martin Reservoir and other related structures. Article VIII G (2) requests the Director of the United States Geological Survey, the Commissioner of the United States Bureau of Reclamation, and the Chief of Engineers, United States Army, to cooperate and collaborate with the Administration and with appropriate State officials in such determinations and

correlations of streamflow 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 Corps of Engineers continued to operate John Martin Reservoir in accordance with the terms of the Compact and the orders of the Administration. The United States Geological Survey has continued the operation of the Compact gaging stations and the analyses and compilation of hydrologic data presented in this report and used in the administration of the Compact.

7. Water Supply, Reservoir Operation and Hydrologic Data

At the beginning of the Compact Year, John Martin Reservoir was empty. Winter storage began with the closing of the gates at 1:00 p.m. on December 7, 1963. By the end of the winter storage period on March 31, 1964, water in the reservoir had accumulated to 9,107 acre-feet. This was the fourth smallest winter gain in 21 years. The gates remained closed through April 6, 1964, at which time there were 9,665 acre-feet in storage.

Release of stored water was begun at 8:30 a.m. on April 7, 1964, to meet the demands of both Colorado and Kansas. Releases continued until the reservoir was declared empty at 11:30 p.m. on April 11, 1964.

River flow was passed through the reservoir until 4:30 p.m. on May 29, 1964, when the gates were closed to store runoff from heavy rains. The water accumulated in storage reached a maximum of 13,014 acre-feet at midnight on June 17, 1964. Releases were begun at 8:00 a.m. on June 18, 1964, to meet demands of both states and continued until the reservoir was declared empty at 7:00 p.m. on June 24, 1964. The reservoir remained empty the remainder of the year.

During the two brief periods when storage releases were made from John Martin Reservoir, daily stateline flows were insufficient to meet Kansas requests for water. Accumulated deliveries at the stateline amounted to 80 per cent and 76 per cent respectively of corresponding Kansas demands.

Inflow into John Martin Reservoir during the irrigation season totalled 33,760 acre-feet which was the second lowest summer inflow since 1949-50 and only 24 per cent of the fifteen-year average.

Total diversions downstream from John Martin Reservoir April 1 through October 31, 1964, by the ditches in Colorado Water District No. 67 were 52,114 acre-feet. Ditch diversions in Kansas for the same period amounted to 35,063 acre-feet.

Reservoir releases April 1 to October 31 were 56,080 acre-feet which was 31,100 acre-feet less than total diversions. Runoff from areas below the reservoir and return flows provided 36 per cent of the water diverted during the irrigation season.

River flow was passed through the reservoir averaging:

38 c.f.s. from November 1, 1963, to December 7, 1963

2.8 c.f.s. from December 8, 1963, to April 6, 1964

103 c.f.s. from April 12, 1964, to May 29, 1964

96 c.f.s. from June 25, 1964, to October 31, 1964.

Stateline flow for corresponding periods averaged 38 c.f.s., 48 c.f.s., 42 c.f.s., and 29 c.f.s., respectively.

The total discharge for the year at Garden City was 28,240 acre-feet of which 4,910 acre-feet occurred as winter flows. Runoff from rains in late May and early June accounted for an additional 21,430 acre-feet or about 76% of the total discharge. The remaining discharge at Garden City was 1,900 acre-feet or an average of 4.8 c.f.s.

8. Gaging Stations

Stream-flow records of satisfactory accuracy were obtained at the Compact stations. Emphasis was continued on performing additional field work to obtain the required accuracy and on furnishing the stream-flow data to the Administration and the State officials on a current basis.

Conditions at the station on the Arkansas River at Las Animas remained unfavorable because of the varying percentages of the flow in the channel by-passing the gage. The station will probably have to be relocated within the next two years because the Colorado State Highway Department expects to let the contract for the new bridge early in 1966. Investigations are being made on the possibility of constructing a stabilizing section in the channel between the piers of the new bridge and of relocating the station upstream from the bridge.

The FM radio stage-reporting equipment for the two inflow stations at Las Animas and the relay stations at John Martin Dam was ordered during the year. It is to be delivered in December and will be installed as soon as possible. The obsolete AM radio equipment at the two State line stations operated satisfactorily most of the year but is not dependable. Recommendations were made to the Administration that funds be provided in fiscal year 1966 to replace this equipment with the same type that is being installed at the Las Animas stations.

The Administration approved a cooperative agreement with the U. S. Geological Survey for fiscal year July 1, 1964, to June 30, 1965, for \$11,600, \$5,800 from each party. Twelve hundred dollars is for the full operation of the Compact gaging station at Lamar, \$2,400 for partial support of the other five Compact gaging stations, and \$8,000 for the procurement of the remainder of the radio equipment for the two inflow stations at Las Animas.

9. Findings of Fact by the Administration

(a) A special Telephonic Meeting of the Administration was held April 7, 1964 in accordance with Article IV, 3B, of the By-Laws for the purpose of declaring the reservoir empty. As a result of this meeting it was decided that the reservoir would become empty on April 11, 1964. Notice was given to the State Engineer of Colorado that unless a change of conditions justify cancellation or modification of this notice, he is required under terms of the Compact, to administer the rights of water users in Colorado in the manner and for a period of time as set forth in Article VI of the Compact. The reservoir was officially declared empty at 11:30 P.M. on April 11, 1964 and the Colorado State Engineer and Division Engineer were duly notified.

(b) On May 29, 1964 heavy rains occurred in the Arkansas Valley causing extensive damage to irrigation canals, also furnishing ample moisture for crops. The gates at John Martin Reservoir were ordered closed at 4:20 P.M. on this date and the State Engineer, Mr. J. E. Whitten was notified that water was available for storage in the John Martin Reservoir. At this time Mr. John W. Patterson, Division Engineer of Pueblo was also notified. The gates at the reservoir remained closed until 8:00 A.M. June 18, 1964 when they were ordered opened to discharge 1000 c.f.s. which was demanded by Colorado and Kansas.

(c) A special Telephonic Meeting was held by the Administration on June 22, 1964 in accordance with Article IV, 3B of the By-Laws for the purpose of finding the reservoir empty. The reservoir was found to become empty on June 22, 1964. Notice was given to the State Engineer of Colorado that priority administration would commence on that date, unless a change of conditions justified cancellation or modification of this notice. Priority Administration should commence and decreed rights of water users in Colorado would be administered by the State Engineer. The reservoir was officially declared empty at 7:00 P.M. on July 24, 1964.

Respectfully submitted,

ARKANSAS RIVER COMPACT ADMINISTRATION

BY:

FRANCIS M. BELL

Representative of the United States and
Chairman of the Administration

FELIX L. SPARKS

GEORGE F. REYHER

HACKET SMARTT

Colorado Members of the Administration

ROBERT V. SMRHA

LOGAN N. GREEN

CARL E. BENTRUP

Kansas Members of the Administration

Lamar, Colorado
December 8, 1964

APPENDICES

for

Annual Report of the Arkansas River Compact Administration

For the Report-Year November 1, 1963 to October 31, 1964

- APPENDIX "A" —Auditor's Report.
- APPENDIX "B-1" —Daily Discharges, Arkansas River near Pueblo, Colorado.
- APPENDIX "B-2" —Daily Discharges, Arkansas River at Las Animas, Colorado.
- APPENDIX "B-3" —Daily Discharges, Purgatoire River near Las Animas, Colorado.
- APPENDIX "B-4" —Inflow into John Martin Reservoir.
- APPENDIX "B-5" —Daily Contents, John Martin Reservoir.
- APPENDIX "B-6" —Outflow from John Martin Reservoir.
- APPENDIX "B-7" —Daily Discharges; Arkansas River at Lamar, Colorado.
- APPENDIX "B-8" —Daily Discharges, Arkansas River at Colorado-Kansas Stateline.
- APPENDIX "B-9" —Daily Discharges, Arkansas River at Garden City, Kansas.
- APPENDIX "B-10"—Demands by Colorado for Water.
- APPENDIX "B-11"—Demands by Kansas for Water.
- APPENDIX "B-12"—Stateline Flow on Days of Kansas Demand.
- APPENDIX "B-13"—Divisions by Ditches in Colorado Water Districts 14 and 17.
- APPENDIX "B-14"—Divisions by Ditches in Colorado Water District 67.
- APPENDIX "B-15"—Divisions by Ditches in Kansas, Stateline to Garden City.
- APPENDIX "B-16"—Summary Tabulation.
- APPENDIX "C" —Resolution concerning Roland H. Tate.
- PLATE I—Graphs showing inflow, outflow and contents of John Martin Reservoir and Stateline Flow for Report-Year.

APPENDIX "A"

* * * *

AUDITOR'S REPORT

A. MARVIN STRAIT

* * * *

Certified Public Accountant
Johnson-Strait Building
Lamar, Colorado 81052

December 2, 1964

To the Representatives
Arkansas River Compact Administration
Lamar, Colorado

Gentlemen:

We have examined the receipts and disbursements of the Arkansas River Compact Administration for the fiscal year ended October 31, 1964. Our examination was made 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.

We submit herewith the following financial statements:

EXHIBIT A—Statement of Receipts and Disbursements and Changes in Fund Balances for the Fiscal Year ended October 31, 1964.

SCHEDULE 1—Statement of Receipts and Disbursements compared with Budget for the Budget Year July 1, 1963 to June 30, 1964.

COMMENTS

EXHIBIT A

The receipts and disbursements, on a cash basis, are shown in Exhibit A. The receipts shown in Exhibit A represent two years allocations from Colorado and Kansas. The assessments for the current year were received in September of 1964.

The disbursements were all supported by vouchers, cancelled checks, and authorization for payment in the minutes of the Compact's meetings.

Schedule 1

The receipts and disbursements for the budget year of July 1, 1963 to June 30, 1964 as compared with budgeted items for that year are shown in Schedule 1. This differs from the report year of November 1, 1963 to October 31, 1964, and is the result of combining the receipts and disbursements for the appropriate months of the current and previous report years. The capital outlay of \$300.00 and gage replacement and rehabilitation of \$1,700.00, authorized in the budget for the budget year ended June 30, 1964, were not paid until August 1, 1964, and, therefore, the actual disbursements will appear in the budget year ended June 30, 1965.

Financial position of the Administration as compared with last year is shown below:

COMPARATIVE BALANCE SHEET

ASSETS	October 31, 1963	October 31, 1964
Cash in Bank.....	\$7,977.01	\$8,885.30
Equipment	92.50	392.50
Total Assets	<u>\$8,069.51</u>	<u>\$9,277.80</u>
LIABILITIES AND FUND BALANCES		
Social Security Withheld	\$ 3.63	
Expended Fund Balance Equipment.....	92.50	392.50
Unexpended Fund Balance.....	7,973.38	8,885.30
Total Liabilities and Fund Balances.....	<u>\$8,069.51</u>	<u>\$9,277.80</u>

OPINION :

In our opinion the Statement of Receipts and Disbursements and Changes in Fund Balances presents fairly the cash balance of the Arkansas River Compact Administration at October 31, 1964, and the cash transactions for the fiscal year then ended on a basis consistent with that of the previous year.

Respectfully submitted,

A. MARVIN STRAIT

EXHIBIT A

ARKANSAS RIVER COMPACT ADMINISTRATION Lamar, Colorado

STATEMENT OF RECEIPTS AND DISBURSEMENTS AND CHANGES IN FUND BALANCES FOR THE FISCAL YEAR ENDED OCTOBER 31, 1964

CASH IN BANK NOVEMBER 1, 1963.....	\$ 7,977.01
LESS: Unremitted Social Security Deduction on Secretary's Salary	3.63
FUND BALANCE—NOVEMBER 1, 1963.....	\$ 7,973.38
RECEIPTS:	
Revenue from Assessments:	
Colorado	\$ 4,332.00
Kansas	2,888.00
TOTAL RECEIPTS	7,220.00
TOTAL AVAILABLE	\$15,193.38
DISBURSEMENTS:	
Surface Water Investigations:	
U. S. Geological Survey.....	\$ 2,250.00
Cooperative Gage Replacement and Rehabilitation	1,700.00
Secretary Salary	1,100.00
Printing of Annual Report.....	635.00
Capital Outlay	300.00
Telephone and Telegraph	180.60
Auditing	65.00
Payroll Tax—Employer's Share.....	43.48
Typing and Mailing.....	17.00
Treasurer's Bond	15.00
Bank Charges	2.00
TOTAL DISBURSEMENTS	6,308.08
FUND BALANCE OCTOBER 31, 1964.....	\$ 8,885.30
REPRESENTED BY:	
Cash on Deposit—First National Bank in Lamar.....	\$ 9,364.10
LESS: Outstanding Checks	
No. 413—Mountain States Tel. & Tel...\$	11.80
No. 414—U. S. Geological Survey.....	450.00
No. 415—Hackett Smartt	17.00
	478.80
	<u>\$ 8,885.30</u>

SCHEDULE 1

ARKANSAS RIVER COMPACT ADMINISTRATION Lamar, Colorado

STATEMENT OF RECEIPTS AND DISBURSEMENTS COMPARED WITH BUDGET FOR BUDGET YEAR JULY 1, 1963 TO JUNE 30, 1964

	Actual	Budgeted
CASH IN BANK—JULY 1, 1963.....	\$4,037.92	\$1,850.00
RECEIPTS:		
Revenue from Assessments:		
Colorado Portion—60%	\$2,970.00	2,970.00
Kansas Portion—40%	1,980.00	1,980.00
TOTAL RECEIPTS	4,950.00	\$4,950.00
TOTAL TO ACCOUNT FOR	\$8,987.92	\$6,800.00
DISBURSEMENTS:		
Surface Water Investigations:		
U. S. Geological Survey.....	\$1,800.00	\$1,800.00
Secretary Salary	1,200.00	1,200.00
Printing of Annual Report.....	644.20	600.00
Telephone and Telegraph.....	195.10	300.00
Auditing	65.00	75.00
Payroll Tax—Employer's Share....	43.36	50.00
Travel—Secretary & Employees..	29.04	150.00
Typing and Mailing.....	27.00	200.00
Treasurer's Bond	15.00	25.00
Bank Charges	2.00	
Cooperative Gage Replacement and Rehabilitation		1,700.00
Capital Outlay		300.00
Official Publications		100.00
Investigations and Inspection.....		150.00
Office Supplies		150.00
TOTAL DISBURSEMENTS..	4,020.70	\$6,800.00
CASH IN BANK—JUNE 30, 1964.....	\$4,967.22	\$ —0—

ARKANSAS RIVER NEAR PUEBLO, COLORADO

Report Year ending October 31, 1964
 U S G S Records—Provisional, subject to revision
 (Colorado State Engineer)

DAY	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.
1	142	184	212	237	164	161	93	1110	1600	948	277	95
2	112	183	230	182	180	218	159	1210	1470	867	198	81
3	144	166	223	182	159	218	170	1220	1430	823	175	74
4	153	202	236	166	149	200	154	1220	1350	1120	162	56
5	143	208	193	152	124	182	101	1180	1150	1300	174	81
6	123	213	225	194	164	121	91	1230	1150	812	199	105
7	115	196	204	208	198	206	82	1180	1180	1140	156	111
8	102	201	189	127	228	182	82	1470	1130	1070	174	138
9	110	240	188	151	189	125	64	1790	1170	984	180	122
10	113	180	167	161	154	129	77	1480	1070	757	186	105
11	141	160	165	200	121	257	91	1280	788	680	198	116
12	148	140	157	219	139	363	46	1340	633	691	229	139
13	132	140	140	201	140	182	101	1400	568	702	217	174
14	121	140	127	161	122	125	84	1540	468	813	217	140
15	113	140	150	203	130	93	50	1360	405	810	247	100
16	117	150	165	142	135	96	104	1370	480	898	286	99
17	141	160	190	150	171	155	140	1660	614	985	235	96
18	170	170	195	136	135	226	201	1590	769	925	198	110
19	171	185	200	122	155	244	380	1440	835	813	292	116
20	183	200	238	150	193	219	507	1270	625	768	307	127
21	207	185	236	157	154	157	921	1320	812	867	235	121
22	195	170	279	131	120	129	1590	1140	823	868	229	127
23	226	160	293	119	112	77	2220	1400	801	834	211	131
24	207	185	238	152	116	163	2160	1330	823	757	186	143
25	188	215	213	151	126	152	2350	1150	1190	658	156	149
26	183	200	223	172	116	132	2460	1230	1240	669	144	142
27	197	210	323	152	115	122	2640	1320	1100	592	138	137
28	178	226	300	166	129	125	2350	1510	948	636	144	131
29	201	216	236	140	116	91	2100	1610	890	702	138	135
30	202	223	224		120	51	1740	1710	1230	636	116	138
31		187	212		177		1180		900	570		110
TOTAL												
sec. ft.	4678	5735	6571	4784	4551	4901	24488	41060	29642	25695	6004	3649
ac. ft.	9280	11380	13030	9490	9030	9720	48570	81440	58790	50970	11910	7240
(a) ac. ft.	0	0	0	0	0	0	5210	9340	14830	15720	823	0
(b) ac. ft.	9280	11380	13030	9490	9030	9720	43360	72100	43960	35250	11090	7240

(a) Less upstream reservoir and transmountain water
 (b) Corrected total Ac. Ft.

THE YEAR 320,800 Acre Feet
 CORRECTED 274,900 Acre Feet

ARKANSAS RIVER NEAR PUEBLO, COLORADO

* * * *

APPENDIX "B-1"

ARKANSAS RIVER AT LAS ANIMAS, COLORADO

Report Year ending October 31, 1964
 U S G S Records—Provisional, subject to revision

DAY	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.
1	7.0	13	34	9.0	13	10	8.0	123	280	0.9	35	10
2	7.0	13	35	10	13	9.0	7.0	72	400	2.4	40	10
3	5.0	13	27	11	13	10	7.0	33	410	0.9	50	14
4	7.0	12	25	13	13	14	8.0	16	320	35	74	18
5	7.0	10	24	19	12	16	9.0	12	271	134	38	19
6	8.0	10	23	12	12	22	8.0	16	262	230	11	20
7	7.0	11	22	18	12	42	19	16	142	646	24	22
8	7.0	10	20	18	12	14	12	12	60	258	52	18
9	7.0	6.0	18	18	20	11	8.0	9.0	58	105	40	16
10	6.0	3.0	15	18	19	11	8.0	12	28	52	24	24
11	6.0	12	13	16	16	12	9.0	38	2.4	105	22	25
12	6.0	8.0	12	19	13	12	9.0	14	13	92	26	24
13	7.0	10	12	19	11	10	9.0	13	33	72	33	24
14	7.0	18	13	19	11	9.0	7.0	13	52	58	47	22
15	9.0	18	13	16	12	13	8.0	13	7.0	30	42	24
16	10	16	14	20	13	7.0	10	16	7.0	45	33	22
17	13	14	16	16	12	6.0	12	11	10	134	25	19
18	9.0	15	18	11	12	6.0	13	13	13	42	24	20
19	9.0	18	20	11	11	5.0	12	16	14	16	14	19
20	9.0	9	22	11	11	5.0	60	6.0	11	10	25	10
21	8.0	5	24	11	12	12	69	5.0	38	13	22	8.0
22	7.0	8	24	11	10	16	13	4.0	3.0	22	22	7.0
23	7.0	12	22	16	9.0	9.0	7.0	6.0	1.5	28	19	8.0
24	6.0	20	18	18	12	9.0	300	40	1.8	38	19	9.0
25	5.0	30	18	11	12	8.0	335	208	2.7	63	20	10
26	7.0	30	18	13	12	7.0	524	190	10	63	14	8.0
27	7.0	31	18	13	13	6.0	628	123	9.0	55	14	5.0
28	7.0	32	18	14	13	6.0	573	66	3.0	42	20	4.0
29	7.0	32	14	14	11	7.0	512	63	2.4	35	19	4.0
30	13	33	11		10	8.0	740	127	5.0	33	12	5.0
31		33	10		10		340		.9	33		5.0
TOTAL												
sec. ft.	227.0	505.0	591	425.0	385.0	332.0	4284.0	1306.0	2470.7	2493.2	860	453.0
ac. ft.	450	1000	1170	843	764	659	8500	2590	4900	4950	1710	899
THE YEAR 28,440 acre-feet												

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ARKANSAS RIVER AT LAS ANIMAS, COLORADO

APPENDIX "B-2"
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PURGATOIRE RIVER NEAR LAS ANIMAS, COLORADO

Report Year ending October 31, 1964
 U S G S Records—Provisional, subject to revision

DAY	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.
1	3.0	7.5	14	8.0	7.5	5.4	5.0	69	2.3	0.5	0.8	1.0
2	3.0	7.0	18	7.0	7.5	5.0	5.0	41	2.6	.4	.7	1.0
3	3.0	7.5	28	10	6.2	9.5	4.2	22	2.3	.3	.7	.8
4	3.4	7.0	22	13	6.2	10	4.2	140	2.3	.8	.7	1.0
5	3.8	6.6	20	11	5.4	14	4.6	75	1.9	1.0	.7	1.0
6	3.4	6.6	22	9.5	5.0	13	4.2	65	1.9	182	.8	1.0
7	3.4	7.5	35	11	5.0	10	3.8	31	1.5	143	.6	1.0
8	3.4	12	19	10	6.2	12	3.0	15	1.7	39	.6	1.0
9	3.0	10	18	13	6.2	6.2	3.0	9.4	1.7	1300	.6	1.0
10	3.4	17	16	15	8.0	5.8	3.0	8.8	1.7	266	.7	1.2
11	4.2	14	12	12	5.0	7.5	3.0	7.0	1.5	169	1.2	1.2
12	4.2	12	9.2	11	5.0	9.5	3.0	6.2	1.9	96	1.2	1.0
13	4.2	8.0	8.2	12	5.4	8.0	2.8	5.4	1.5	51	1.2	1.2
14	4.2	5.6	7.6	13	4.2	10	2.8	5.0	1.2	26	1.2	1.0
15	4.2	3.1	8.4	12	4.2	8.0	2.8	4.2	1.2	13	1.5	1.0
16	7.0	3.1	10	11	3.4	5.8	2.8	3.4	1.5	7.0	1.2	.8
17	8.5	3.2	14	18	4.2	5.0	2.8	2.8	1.9	5.4	40	.8
18	8.5	3.5	17	10	5.0	6.6	2.6	3.4	1.5	3.4	31	1.5
19	7.5	3.8	21	14	6.2	5.8	2.3	2.8	1.0	2.3	5.8	1.2
20	8.0	3.0	25	10	7.0	6.6	4.6	2.8	248	1.9	2.8	1.2
21	8.0	3.5	28	11	8.0	12	5.4	2.8	112	1.9	2.1	1.2
22	8.5	4.1	29	18	5.0	8.0	1.9	2.8	15	1.5	1.9	1.2
23	8.0	4.6	26	14	22	8.0	1.7	2.8	4.2	1.5	1.7	1.5
24	7.5	5.0	19	12	9.5	9.0	1.7	2.6	1.9	1.0	1.5	1.7
25	8.0	5.6	18	13	5.0	6.2	2.1	2.3	1.5	1.0	1.0	1.5
26	5.8	5.0	20	19	4.6	5.4	6.2	2.3	6.2	.8	.7	1.5
27	5.8	4.7	22	18	4.2	6.2	111	2.3	1.5	.8	.8	1.5
28	5.8	6.0	19	17	5.4	5.0	345	2.1	.7	.8	1.0	1.5
29	5.8	8.0	14	12	4.2	4.6	321	2.1	.8	.8	1.0	1.5
30	7.5	11	9.5		4.2	4.6	202	2.3	.6	.8	1.0	1.2
31		13	9.0		3.8		96		.4	.8		1.5
TOTAL												
sec. ft.	164.0	218.5	557.9	364.5	188.7	232.7	1163.5	543.6	425.9	2319.7	106.7	36.7
ac. ft.	325	433	1110	723	374	462	2310	1080	845	4600	212	73
THE YEAR 12,550 acre-feet												

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PURGATOIRE RIVER NEAR LAS ANIMAS, COLORADO

APPENDIX "B-3"
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INFLOW INTO JOHN MARTIN RESERVOIR

Report Year ending October 31, 1964
 U S G S Records—Provisional, subject to revision

DAY	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.
1	10	20	48	17	20	15	13	192	282	1.4	36	11
2	10	20	53	17	20	14	12	113	403	2.8	41	11
3	8.0	20	55	21	19	20	11	55	412	1.2	51	15
4	10	19	47	26	19	24	12	156	322	36	75	19
5	11	17	44	30	17	30	14	87	273	135	39	20
6	11	17	45	22	17	35	12	81	264	412	12	21
7	10	18	57	29	17	52	23	47	144	789	25	23
8	10	22	39	28	18	26	15	27	62	297	53	19
9	10	16	36	31	26	17	11	18	60	1400	41	17
10	9.4	20	31	33	27	17	11	21	30	318	25	25
11	10	26	25	28	21	20	12	45	3.9	274	23	26
12	10	20	21	30	18	22	12	20	15	188	27	25
13	11	18	20	31	16	18	12	18	34	123	34	25
14	11	24	21	32	15	19	9.8	18	53	84	48	23
15	13	21	21	28	16	21	11	17	8.2	43	44	25
16	17	19	24	31	16	13	13	19	8.5	52	34	23
17	22	17	30	34	16	11	15	14	12	139	65	20
18	18	18	35	21	17	13	16	16	14	45	55	22
19	16	22	41	25	17	11	14	19	15	18	20	20
20	17	12	47	21	18	12	65	8.8	259	12	28	11
21	16	8.5	52	22	20	24	74	7.8	150	15	24	9.2
22	16	12	53	29	15	24	15	6.8	18	24	24	8.2
23	15	17	48	30	31	17	8.7	8.8	5.7	30	21	9.5
24	14	25	37	30	22	18	302	43	3.7	39	20	11
25	13	36	36	24	17	14	337	210	4.2	64	21	12
26	13	35	38	32	17	12	530	192	16	64	15	9.5
27	13	36	40	31	17	12	739	125	10	56	15	6.5
28	13	38	37	31	18	11	918	68	3.7	43	21	5.5
29	13	40	28	26	15	12	833	65	3.2	36	20	5.5
30	20	44	20		14	13	942	129	5.6	34	13	6.7
31		46	19		14		436		1.3	34		6.5
TOTAL												
sec. ft.	390.4	723.5	1148	790	570	567	5448.5	1847.2	2896.0	4809.4	970	491.1
ac. ft.	774	1440	2280	1570	1130	1120	10810	3660	5740	9540	1920	974
THE YEAR 40,960 acre-feet												

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INFLOW INTO JOHN MARTIN RESERVOIR

APPENDIX "B-4"
 * * * *

CONTENTS OF JOHN MARTIN RESERVOIR

Report Year ending October 31, 1964

Corps of Engineers records—Provisional, subject to revision

Midnight contents in Acre Feet from capacity table dated Nov. 1, 1962

DAY	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.
1	0	0	1527	5084	7295	9173	0	10359	0	0	0	0
2	0	0	1646	5158	7355	9238	0	10927	0	0	0	0
3	0	0	1792	5243	7446	9304	0	11265	0	0	0	0
4	0	0	1943	5292	7521	9435	0	11655	0	0	0	0
5	0	0	1991	5366	7611	9566	0	11921	0	0	0	0
6	0	0	2094	5452	7641	9665	0	12177	0	0	0	0
7	0	15	2173	5488	7746	8468	0	12405	0	0	0	0
8	0	52	2332	5574	7806	6464	0	12481	0	0	0	0
9	0	103	2428	5660	7867	4393	0	12481	0	0	0	0
10	0	137	2491	5745	7942	1888	0	12539	0	0	0	0
11	0	207	2656	5850	8017	0	0	12634	0	0	0	0
12	0	259	2811	5945	8077	0	0	12710	0	0	0	0
13	0	312	2957	6041	8122	0	0	12786	0	0	0	0
14	0	350	3073	6123	8182	0	0	12843	0	0	0	0
15	0	389	3170	6191	8212	0	0	12900	0	0	0	0
16	0	421	3248	6273	8272	0	0	12976	0	0	0	0
17	0	457	3325	6327	8317	0	0	13014	0	0	0	0
18	0	490	3451	6423	8377	0	0	11566	0	0	0	0
19	0	544	3593	6491	8438	0	0	9534	0	0	0	0
20	0	606	3757	6532	8513	0	0	7596	0	0	0	0
21	0	662	3899	6600	8573	0	0	5586	0	0	0	0
22	0	690	4031	6668	8648	0	0	3442	0	0	0	0
23	0	740	4163	6736	8681	0	0	1142	0	0	0	0
24	0	801	4283	6845	8714	0	0	0	0	0	0	0
25	0	866	4371	6927	8812	0	0	0	0	0	0	0
26	0	942	4469	7009	8894	0	0	0	0	0	0	0
27	0	1021	4631	7063	8927	0	0	0	0	0	0	0
28	0	1078	4741	7145	8976	0	0	0	0	0	0	0
29	0	1210	4851	7220	9009	0	900	0	0	0	0	0
30	0	1312	4925		9074	0	7686	0	0	0	0	0
31	0	1414	4986		9107		9632		0	0		0

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CONTENTS OF JOHN MARTIN RESERVOIR

APPENDIX "B-5"
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OUTFLOW FROM JOHN MARTIN RESERVOIR

Report Year ending October 31, 1964
 U S G S Records—Provisional, Subject to Revision

DAY	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.
1	42	39	2.8	2.6	2.6	2.3	36	4.3	202	12	34	34
2	40	38	2.8	2.6	2.6	2.3	38	4.0	327	9.9	31	30
3	40	35	2.3	2.6	2.8	2.6	38	3.8	376	12	43	26
4	40	34	2.3	2.6	2.8	3.0	39	3.6	332	9.0	48	31
5	46	33	2.3	2.3	2.6	2.6	42	3.3	260	53	61	35
6	42	34	2.6	3.3	2.6	2.6	39	3.0	272	226	39	33
7	40	19	2.8	4.8	3.6	626	43	3.0	206	820	29	31
8	39	3.8	2.8	4.0	3.8	982	46	2.8	110	562	40	31
9	35	3.8	2.6	3.0	2.8	990	40	2.8	71	990	53	31
10	35	3.8	2.8	2.3	2.8	990	39	2.6	63	634	39	34
11	34	3.6	2.8	2.3	3.3	1010	36	2.6	51	244	33	38
12	33	3.3	2.8	2.3	3.3	145	35	2.3	29	168	33	39
13	33	3.0	2.8	2.0	3.3	56	34	2.3	31	125	36	40
14	33	2.8	2.8	1.8	3.3	49	33	2.6	48	125	45	36
15	33	2.8	2.8	1.6	3.0	49	33	2.6	36	133	65	34
16	34	2.6	2.8	1.6	3.0	49	34	2.8	23	138	63	29
17	42	2.8	4.0	2.0	2.8	45	35	2.8	20	213	75	28
18	43	2.6	4.0	1.6	2.6	43	33	644	17	165	105	31
19	46	2.8	3.8	1.6	2.6	43	33	990	18	63	73	30
20	48	3.0	3.8	1.8	2.6	43	54	966	1000	33	56	28
21	51	3.3	3.6	1.8	2.8	42	136	950	288	26	54	24
22	46	3.3	3.0	2.3	2.6	49	92	958	83	28	51	28
23	43	3.3	2.8	2.0	2.6	46	57	966	30	34	46	30
24	43	3.0	2.6	2.8	2.8	42	130	806	19	33	43	35
25	42	3.0	2.6	2.8	2.8	39	340	125	15	46	43	35
26	39	3.0	2.6	2.8	2.6	38	440	188	61	56	40	35
27	36	3.0	2.6	2.8	2.8	36	556	138	56	57	38	35
28	36	3.0	2.6	2.6	2.8	34	838	108	23	46	38	31
29	34	3.0	2.3	2.6	2.8	40	604	81	16	36	43	30
30	35	3.0	2.6		2.6	36	16	90	14	36	40	26
31		2.8	2.6		2.6		5.7		14	34		29
TOTAL												
sec. ft.	1183	306.4	88.4	71.2	88.6	5537.4	3974.7	7061.2	4111	5166.9	1437	987
ac. ft.	2350	608	175	141	176	10980	7880	14010	8150	10250	2850	1960
THE YEAR 59,530 acre-feet												

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OUTFLOW FROM JOHN MARTIN RESERVOIR

APPENDIX "B-6"

ARKANSAS RIVER AT LAMAR, COLORADO

Report-Year ending October 31, 1964
U S G S Records—Provisional, Subject to Revision

DAY	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.
1	1.8	2.3	2.2	1.8	1.3	2.8	5.5	172	7.1	1.0	1.0	1.0
2	1.8	2.3	2.8	2.0	2.1	2.8	5.5	59	20	.5	1.0	1.0
3	1.8	2.6	2.8	2.3	2.6	3.1	5.5	25	16	.8	1.0	1.0
4	1.8	2.6	2.3	2.8	2.6	3.9	7.5	15	8.2	.5	1.2	1.2
5	2.0	2.6	2.3	2.3	2.3	3.9	6.0	13	12	.8	2.2	1.2
6	1.8	2.6	2.0	2.3	2.6	3.1	6.5	12	22	.8	7.1	1.0
7	2.0	2.6	2.0	2.2	2.6	49	4.7	10	13	54	2.0	.8
8	2.0	2.6	2.6	2.1	2.8	412	4.2	8.2	8.2	80	.8	.8
9	2.0	2.3	4.2	2.0	2.3	486	5.5	12	5.7	47	.5	.8
10	2.0	2.0	3.6	1.9	2.3	499	4.2	8.2	11	234	2.8	.8
11	1.8	2.0	2.8	1.8	2.3	499	3.9	7.8	14	27	2.2	2.0
12	1.8	2.0	2.6	1.8	2.6	267	3.6	7.8	23	16	1.8	7.8
13	1.8	2.0	2.3	2.8	2.6	10	2.8	7.4	13	9.8	1.2	9.0
14	2.1	2.0	2.6	11	2.6	7.5	2.6	6.8	12	4.8	1.5	9.4
15	2.1	2.1	2.6	10	2.6	3.6	2.6	6.0	20	4.0	8.5	9.4
16	2.0	2.3	2.6	10	2.3	2.1	2.6	5.4	13	7.1	16	9.0
17	2.6	2.4	2.6	11	2.6	1.8	2.6	4.8	11	7.8	16	7.4
18	2.3	2.5	2.6	11	3.4	5.5	3.1	23	10	8.5	27	8.2
19	2.3	2.5	2.6	14	2.8	11	2.8	369	6.4	25	32	11
20	2.6	2.5	2.6	16	3.1	14	2.3	399	16	5.4	18	13
21	2.6	2.2	2.0	16	2.3	14	2.1	396	32	2.8	16	12
22	2.6	2.4	1.7	16	2.3	11	13	408	5.0	2.2	13	10
23	2.6	2.5	1.7	7.5	2.3	9.5	8.0	424	3.2	1.5	11	10
24	2.6	2.5	1.5	3.1	2.3	4.2	4.7	424	3.0	1.2	8.5	10
25	2.3	2.5	1.5	3.1	2.8	4.5	27	115	2.0	1.5	6.4	14
26	2.3	2.6	1.5	3.1	3.1	5.0	61	9.4	1.5	1.5	5.7	14
27	2.6	2.3	1.5	2.3	2.8	5.5	117	7.8	1.0	4.0	1.8	13
28	2.3	2.3	1.5	2.0	3.1	5.5	158	6.8	1.2	5.4	1.2	11
29	2.3	2.1	1.5	1.8	3.1	5.5	528	6.4	1.5	2.2	1.2	9.8
30	2.3	2.0	1.5		3.4	4.5	3840	6.0	1.5	1.8	1.0	8.5
31		1.8	1.5		2.8		464		1.2	1.8		5.7
TOTAL												
sec. ft.	64.9	72.0	70.1	166.0	80.7	2356.3	5306.8	2974.8	314.7	560.7	209.6	213.8
ac. ft.	129	143	139	329	160	4670	10530	5900	624	1110	416	424
THE YEAR 24,570 acre-feet												

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ARKANSAS RIVER AT LAMAR, COLORADO

APPENDIX "B-7"
* * * *

ARKANSAS RIVER AT THE COLORADO-KANSAS STATELINE

Report Year ending October 31, 1964
 U S G S Records—Provisional, Subject to Revision

DAY	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.
1	32	51	52	51	51	30	34	1110	56	18	11	18
2	34	46	60	51	51	33	40	673	54	16	9.1	16
3	39	46	55	44	48	35	32	506	51	16	8.5	16
4	39	44	59	37	48	44	34	419	48	23	11	16
5	37	37	51	30	48	44	36	338	41	24	25	18
6	35	37	44	48	62	33	33	289	37	23	24	18
7	37	38	46	65	65	33	28	251	36	23	28	18
8	35	38	48	46	67	33	34	209	37	23	22	18
9	31	37	40	62	70	191	33	181	34	21	16	18
10	33	35	35	67	53	270	32	154	35	22	16	18
11	30	30	30	79	44	297	81	151	34	76	14	20
12	28	28	30	84	38	336	36	151	32	46	15	19
13	28	27	29	87	38	275	30	130	28	33	20	19
14	30	28	35	91	40	113	30	121	30	28	21	19
15	32	30	40	81	40	74	30	127	28	27	16	18
16	31	32	45	65	44	62	29	98	26	21	17	18
17	36	28	50	65	42	54	26	82	26	21	16	17
18	31	24	55	73	37	51	26	74	438	18	16	20
19	34	29	60	62	42	48	26	67	192	17	15	22
20	33	32	62	59	38	44	24	178	57	18	19	22
21	28	30	70	51	33	46	18	273	44	16	22	20
22	33	29	76	57	40	38	218	286	34	17	19	20
23	37	28	73	65	44	36	86	296	28	17	18	19
24	40	28	65	62	51	35	40	322	25	16	18	20
25	48	29	57	62	53	34	27	315	22	16	17	20
26	57	30	57	55	51	33	23	190	35	14	16	20
27	51	34	59	65	51	38	26	109	27	12	17	18
28	55	38	55	53	48	34	28	93	23	15	18	20
29	59	42	57	59	46	33	756	64	38	12	18	19
30	53	46	57	42	42	36	12000	58	23	13	18	19
31		44	57		35		6930		20	12		20

TOTAL	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.
sec. ft.	1126	1075	1609	1776	1460	2463	20826	7315	1639	674	520.6	583
ac. ft.	2230	2130	3190	3520	2900	4890	41310	14510	3250	1340	1030	1160

THE YEAR 81,460 acre-feet

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

ARKANSAS RIVER AT THE COLORADO-KANSAS STATELINE

APPENDIX "B-8"
 * * * *

ARKANSAS RIVER AT GARDEN CITY, KANSAS

Report-Year ending October 31, 1964
U S G S Records—Provisional, Subject to Revision

DAY	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.
1	4.5	19	12	19	23	3.1	0	3680	3.1	3.1	2.5	2.8
2	4.0	20	26	17	18	4.0	0	3810	3.8	5.8	2.4	2.5
3	7.9	18	46	16	18	2.9	0	1140	3.8	4.2	1.9	.6
4	6.5	18	51	8.3	17	1.1	0	616	5.5	6.9	2.3	.3
5	5.8	20	41	7.2	20	3.8	0	386	3.9	4.6	2.5	.5
6	6.3	21	32	12	16	4.0	0	250	3.4	2.5	1.7	1.8
7	6.8	26	25	12	16	3.2	0	178	3.8	1.4	2.4	2.3
8	6.8	10	33	11	14	1.6	0	135	3.8	1.9	4.6	2.5
9	6.8	6.0	13	21	19	1.3	0	90	5.2	.5	6.9	2.5
10	6.0	5.5	8.6	45	15	.1	0	76	1.6	.5	6.9	5.0
11	6.0	5.2	9.8	67	14	.3	.8	76	2.8	1.0	6.9	6.0
12	6.0	5.0	10	53	14	1.9	1.5	68	5.0	.6	5.0	8.6
13	5.5	5.0	9.4	35	14	2.2	3.1	57	6.3	.6	4.3	9.5
14	4.2	4.2	7.2	29	13	4.7	3.8	54	1.1	.6	8.4	10
15	3.0	4.5	6.0	28	10	2.9	4.0	44	4.0	3.9	6.9	8.6
16	1.7	4.2	7.2	31	7.9	.6	4.0	40	2.3	4.6	11	9.5
17	3.1	5.0	10	49	7.9	.3	5.0	32	2.2	8.6	8.6	6.3
18	3.1	6.8	15	66	9.0	.1	7.5	31	3.2	8.0	8.6	4.6
19	3.6	4.2	18	48	9.8	0	8.3	22	2.3	5.8	6.9	7.5
20	5.9	6.5	24	33	6.5	.1	8.3	19	1.5	5.4	5.0	6.7
21	6.3	6.8	33	26	11	.2	7.9	16	1.0	5.0	6.3	18
22	6.5	12	49	25	20	.1	6.8	14	1.0	5.0	6.9	9.5
23	5.8	12	50	24	24	0	2.3	12	.6	4.6	6.3	8.6
24	6.8	7.9	32	39	11	0	6.8	10	1.3	6.0	6.7	10
25	7.5	7.2	26	39	6.3	0	6.8	7.6	2.5	5.4	7.5	9.5
26	6.0	6.2	23	26	5.0	0	7.9	8.2	3.9	4.2	6.9	9.5
27	7.2	6.3	22	34	4.7	0	7.2	5.2	2.3	8.0	5.4	11
28	9.4	6.3	20	33	4.2	0	6.5	5.2	1.7	3.8	5.4	6.3
29	14	6.8	20	27	3.6	0	6.0	4.1	2.8	2.3	3.3	8.6
30	18	4.9	20		3.2	0	7.5	1.2	3.9	1.0	2.8	11
31		14	20		3.2		141		2.1	.5		9.5
TOTAL												
sec. ft.	191.0	304.5	719.2	880.5	378.3	38.5	253.0	10887.5	91.7	116.3	163.2	209.6
ac. ft.	379	604	1430	1750	750	76	502	21600	182	231	324	416
								THE YEAR	28,240	acre-feet		

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ARKANSAS RIVER AT GARDEN CITY, KANSAS

APPENDIX "B-9"
* * * *

DEMANDS BY COLORADO FOR WATER

Report Year ending October 31, 1964
 (Arkansas River Compact Administration Records)

DAY	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.
1												
2												
3												
4												
5												
6												
7				8:30 A.M.		390						
8						600						
9						600						
10						600						
11						588	11:30 P.M. Empty					
12												
13												
14												
15												
16												
17												
18							8:00 A.M.	402				
19								600				
20								600				
21								600				
22								600				
23								600				
24								474	7:00 P.M. Empty			
25												
26												
27												
28												
29												
30												
31												
TOTAL												
sec. ft.						2778		3876				
ac. ft.						5509		7686				
								THE YEAR	13,195	Ac. Ft.		

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DEMANDS BY COLORADO FOR WATER

APPENDIX "B-10"
 * * * *

DEMANDS BY KANSAS FOR WATER

Report-Year ending October 31, 1964
(Arkansas River Compact Administration Records)

DAY	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.
1												
2												
3												
4												
5												
6												
7				8:30 A.M.		260						
8						400						
9						400						
10						400						
11						392	11:30 P.M. Empty					
12												
13												
14												
15												
16												
17												
18							8:00 A.M.	268				
19								400				
20								400				
21								400				
22								400				
23								400				
24								316	7:00 P.M. Empty			
25												
26												
27												
28												
29												
30												
31												
TOTAL												
sec. ft.						1852		2584				
ac. ft.						3673		5124				
								THE YEAR	8,797 ac. ft.			

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DEMANDS BY KANSAS FOR WATER

APPENDIX "B-11"
* * * *

STATELINE FLOW ON DAYS OF KANSAS DEMAND*

Report Year ending October 31, 1964
 U S G S Records—Provisional, subject to revision

DAY	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.
1												
2												
3												
4												
5												
6												
7												
8												
9												
10								270				
11								297				
12								336				
13								275				
14								113				
15												
16												
17												
18												
19												
20												
21								273				
22								286				
23								296				
24								322				
25								315				
26								190				
27								109				
28												
29												
30												
31												
TOTAL								1291		1791		
sec. ft.								2560		3550		
ac. ft.												

The Year 6,110 Acre-Feet

* Three days' time is allowed for water released from John Martin Reservoir to reach State line.

APPENDIX "B-13"

* * * *

DIVERSIONS BY DITCHES IN COLORADO WATER DISTRICTS 14 AND 17

Report-Year ending October 31, 1964
 Source of Information, A.V.D.A. Reports
 Reservoir Water is that from Upstream Reservoirs above Pueblo
 (Acre-Feet)

	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	THE YEAR
Bessemer (River)	4,224	2,241	1,596	2,072	3,688	4,224	6,437	10,050	4,365	4,757	3,754	4,142	51,550
Res. or Imported	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Bessemer	4,224	2,241	1,596	2,072	3,688	4,224	6,437	10,050	4,365	4,757	3,754	4,142	51,550
West Pueblo (River)	95	0	0	0	0	0	161	317	196	196	167	173	1,305
Booth-Orchard Gr. (Riv.)	1,067	984	603	18	571	1,071	1,110	1,099	1,107	1,107	1,043	1,095	10,875
Excelsior (River)	0	0	0	0	0	0	202	510	0	40	0	0	752
Collier (River)	0	0	0	0	0	0	214	668	0	52	0	0	934
Colorado Canal (River) ..	0	872	3,510	569	0	0	678	0	0	0	0	0	5,629
Res. or Imported	0	0	0	0	0	0	5,104	9,159	13,088	13,552	807	0	41,710
Total Colo. Canal....	0	872	3,510	569	0	0	5,782	9,159	13,088	13,552	807	0	47,339
Highline (River)	2,487	3,044	4,549	5,118	4,583	3,391	5,721	6,328	4,329	4,892	3,339	3,442	51,223
Res. or Imported	0	0	0	0	0	0	0	0	1,455	1,864	0	0	3,319
Total Highline	2,487	3,044	4,549	5,118	4,583	3,391	5,721	6,328	5,784	6,756	3,339	3,442	54,542
Oxford Canal	700	583	339	504	1,285	777	1,912	4,870	984	1,551	805	861	15,171
Otero Canal (River).....	0	0	0	0	0	0	660	127	0	0	0	0	787
Catlin Canal (River)	2,134	3,270	4,180	5,743	11,454	1,517	4,622	15,816	11,959	7,767	169	0	68,631
Res. or Imported	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Catlin	2,134	3,270	4,180	5,743	11,454	1,517	4,622	15,816	11,959	7,767	169	0	68,631
Holbrook (River)	0	2,681	2,336	2,921	0	0	2,233	1,791	0	307	0	0	12,269
Rocky Ford (River)	4,603	1,933	1,329	1,307	3,175	6,005	4,612	6,167	6,441	5,953	4,829	5,223	51,577
Ft. Lyon Storage (Riv.)..	0	0	0	0	0	0	610	0	0	0	0	0	610
Ft. Lyon Canal (River) ..	9,952	12,902	14,620	14,198	12,360	8,862	11,240	29,312	9,762	10,232	2,172	3,174	138,786
Las Animas Cons. (Riv.)	1,461	391	0	0	1,511	1,011	1,057	3,363	2,181	1,985	504	333	13,797
Las Animas Town (River)	761	0	0	0	0	567	1,662	1,404	1,785	1,918	1,160	1,216	10,473
TOTAL													
River	27,484	28,901	33,062	32,450	38,627	27,425	43,131	81,822	43,109	40,757	17,942	19,659	434,369
Res. or Imported	0	0	0	0	0	0	5,104	9,159	14,543	15,416	807	0	45,029
GRAND TOTAL	27,484	28,901	33,062	32,450	38,627	27,425	48,235	90,981	57,652	56,173	18,749	19,659	479,398

APPENDIX "B-14"

* * * *

DIVERSIONS BY DITCHES IN COLORADO WATER DISTRICT 67

Report-Year Ending October 31, 1964

Source of Information A.V.D.A. Reports

(Acre-Feet)

	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	THE YEAR
Fort Bent Canal	958	178	0	0	0	1,269	767*	1,459	777	1,087	0	0	6,495
Keesee Ditch	458	59	0	0	0	637	486	244	666	627	694	676	4,547
Amity Canal	0	0	0	0	0	3,066	2,405	4,603	2,142	3,018	0	0	15,234
Lamar Canal	759	518	403	206	492	1,834	1,555	3,895	2,066	2,041	861	954	15,584
Hyde Ditch	119	105	77	58	119	24	0	0	0	0	0	0	502
Manvel Canal	0	0	0	0	0	0	0	0	0	0	0	0	0
X. Y. & Graham Canals	311	367	256	0	0	0	113	418	50	230	0	0	1,745
Buffalo Canal	960	704	430	218	750	2,064	1,533	2,294	2,822	2,046	1,180	831	15,832
Sisson Canal	169	0	0	0	0	174	83	179	184	60	0	0	849
TOTAL	3,734	1,931	1,166	482	1,361	9,068	6,942*	13,092	8,707	9,109	2,735	2,461	60,788

* Includes 244 Ac. Ft. for Keesee Ditch.

APPENDIX "B-15"

* * * *

DIVERSIONS BY DITCHES IN KANSAS

Report-Year Ending October 31, 1964

(Acre-Feet)

Frontier Ditch, U.S.G.S. Records

Other Ditches, Kansas Division of Water Resources Records

	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	THE YEAR
Frontier Ditch	495	0	0	0	0	1,060	1,660	117	1,590	1,220	965	948	8,055*
Alamo Canal	399	0	0	0	0	186	564	0	0	0	0	0	1,149
Ft. Aubrey Canal	630	21	43	0	0	121	197	141	494	84	35	27	1,793
Total Stateline to Syracuse	1,524	21	43	0	0	1,367	2,421	258	2,084	1,304	1,000	975	10,997
Amazon Canal	0	0	40	0	398	0	184	8,154	169	0	0	0	8,945
Great Eastern Canal.....	0	0	1,330	2,046	1,454	0	867	4,885	0	0	0	0	10,582
South Side Ditch.....	0	0	0	0	0	0	40	2,631	1,647	12	0	0	4,330
Farmers Ditch	0	0	0	0	669	3,220	121	2,653	245	0	0	0	6,908
Garden City Canal.....	0	0	0	0	0	49	479	185	111	2	0	0	826
Total Syracuse to Garden City.....	0	0	1,370	2,046	2,521	3,269	1,691	18,508	2,172	14	0	0	31,591
Total Stateline to Garden City.....	1,524	21	1,413	2,046	2,521	4,636	4,112	18,766	4,256	1,318	1,000	975	42,588

* 2,010 acre-feet returned directly to river.

APPENDIX "B-16"

* * * *

SUMMARY TABULATION

(Acre-Feet)

	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	THE YEAR	FROM APP. NO.
Arkansas River at Las Animas, Colo.....	450	1000	1170	843	764	659	8500	2590	4900	4950	1710	899	28440	B- 2
Purgatoire River near Las Animas, Colo.....	325	433	1110	723	374	462	2310	1080	845	4600	212	73	12550	B- 3
Inflow to John Martin Reservoir	774	1440	2280	1570	1130	1120	10810	3660	5740	9540	1920	974	40960	B- 4*
Reservoir contents at end of month.....	0	1414	4986	7220	9107	0	9632	0	0	0	0	0	0	B- 5
Net change in reservoir storage	0	+1414	+3572	+2234	+1887	-9107	+9632	-9632	0	0	0	0	0	B- 5
Outflow from John Martin Reservoir	2350	608	175	141	176	10980	7880	14010	8150	10250	2850	1960	59530	B- 6
Diversions in District 67, Colo.	3734	1931	1166	482	1361	9068	6942	13029	8707	9109	2735	2461	60788	B-14
Flow at Colorado-Kansas Stateline	2230	2130	3190	3520	2900	4890	41310	14510	3250	1340	1030	1160	81460	B- 8
Diversions in Kansas.....	1524	21	1413	2046	2521	4636	4112	18766	4256	1318	1000	975	42588	B-15
Arkansas River at Garden City, Kansas.....	379	604	1430	1750	750	76	502	21600	182	231	324	416	28240	B- 9

* Because of computation rules, figures in B-4 are not necessarily the exact sum of B-2 and B-3.

APPENDIX "C"

ROLAND H. TATE

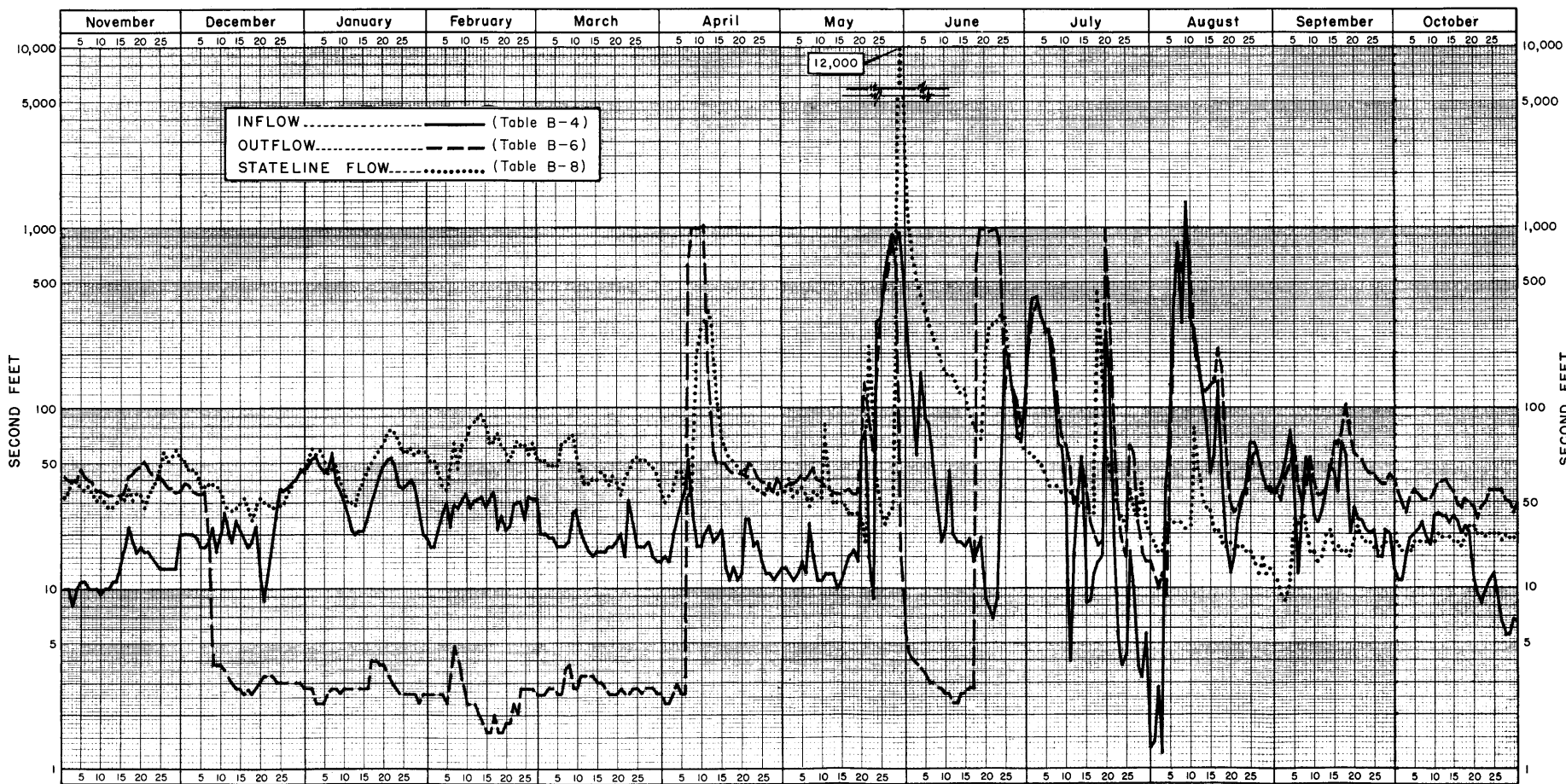
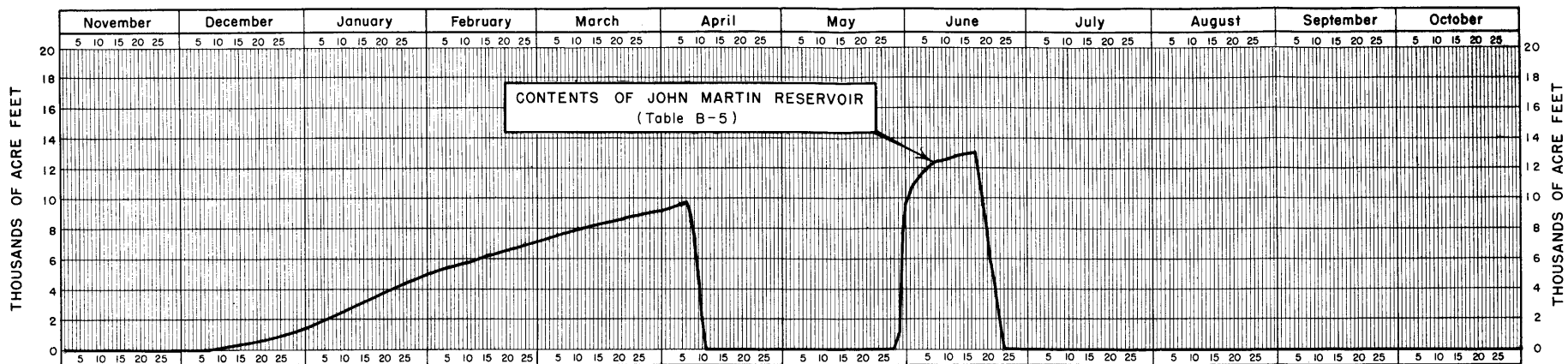
Our attention was called to the untimely passing of Judge Roland H. Tate, a former member, 1949-1957, of the Arkansas River Compact Administration and one of the men appointed in 1945 by the Governor of Kansas on the Commission that drafted the Compact.

Roland Tate contributed immensely from his wide experience in water matters and his knowledge of law, to the solution of difficult problems in the drafting of the Compact and in establishing the rules and regulations for its operation.

He was especially helpful during the initial stages of operation. All Associates of Roland Tate recognized his ability and appreciated his painstaking, conscientious contribution to the many problems confronting the Administration.

While he had retired from the Administration, the present members deeply mourn the early passing of Judge Tate, and recognize his earnest devotion to public service.

Now, therefore, be it resolved by the Arkansas River Compact Administration that this statement be placed upon the record and a copy be sent to the family of Roland H. Tate.



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