

**THIRTEENTH ANNUAL REPORT**

**ARKANSAS RIVER**

**COMPACT**

**ADMINISTRATION**

**(1961)**

For the Report-Year November 1, 1960  
to October 31, 1961

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LAMAR, COLORADO

December 12, 1961

Thirteenth  
Annual Report

ARKANSAS RIVER COMPACT  
ADMINISTRATION  
(1961)

For the Report Year November 1, 1960, to October 31, 1961

LAMAR, COLORADO

December 12, 1961

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THE ADMINISTRATION

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

L. R. KUIPER, DAVID JENKINS AND HACKET SMARTT  
*for Colorado*

R. V. SMRHA, LOGAN N. GREEN AND CARL E. BENTRUP  
*for Kansas*

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**Annual Report of**  
**ARKANSAS RIVER COMPACT ADMINISTRATION**  
**(1961)**

Report-Year November 1, 1960 to October 31, 1961

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, 1960 through October 31, 1961 as follows:

**1. *Members of the Administration***

Representative of the United States:

Carl G. Paulsen (Nov. 1, 1960 - Feb. 2, 1961)

F. M. Bell (June 23, 1961 - October 31, 1961)

Colorado Representatives:

Felix L. Sparks, Denver, Colorado (Nov. 1, 1960 - Oct. 1, 1961)

L. R. Kuiper, Denver, Colorado (Oct. 24 - Oct. 31, 1961)

David Jenkins, Las Animas, Colorado

Hacket Smartt, Lamar, Colorado

Kansas Representatives:

Carl E. Bentrup, Deerfield, Kansas

Logan N. Green, Garden City, Kansas

R. V. Smrha, Topeka, Kansas

**2. *Officers of the Administration***

Chairman:

Carl G. Paulsen (Nov. 1, 1960 - Feb. 2, 1961)

F. M. Bell (June 23, 1961 - Oct. 31, 1961)

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)

David Jenkins of Colorado

Engineering Committee:

R. V. Smrha of Kansas (Chairman)

Felix L. Sparks of Colorado (Nov. 1, 1960 - Oct. 1, 1961)

L. R. Kuiper of Colorado (Oct. 24, 1961 - Oct. 31, 1961)

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 16, 1960	Lamar, Colorado	Annual Meeting
March 28, 1961	Lamar, Colorado	Regular Meeting
April 18, 1961		Telephonic Meeting
June 3, 1961		Telephonic Meeting
June 23, 1961		Telephonic Meeting
July 25, 1961	Lamar, Colorado	Regular Meeting
August 12, 1961		Telephonic Meeting
August 16, 1961		Telephonic Meeting
October 24, 1961	Lamar, Colorado	Special Meeting

### **5. Fiscal**

(a) Balance on Hand October 31, 1960, Auditor's Report..\$4,961.99

(b) Receipts

State of Colorado, September 29, 1961..\$2,970.00

State of Kansas, October 16, 1961..... 1,980.00

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4,950.00

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\$9,911.99

(c) Disbursements by the Administration—November 1, 1960 to October 31, 1961:

<i>Voucher</i>			
No.	Date	Payee and Purpose	Amount
305	12-2-60	U. S. Geological Survey, Cooperative Agreement....	\$ 375.00
306	1-4-61	Treasurer of the United States, O.A.S.I. Fund.....	18.00
307	1-4-61	R. W. Rollins, Audit and Service.....	65.00
308	1-4-61	Secretary Salary, Nov. & Dec.....	195.00
309	1-4-61	Mtn. States T. & T. Co., Nov. & Dec. Service.....	30.45
310	2-23-61	U. S. Geological Survey, Cooperative Agreement....	375.00
311	2-23-61	Peerless Printing Co., Print 12 Annual Report.....	605.00
312	3-7-61	Mtn. States T. & T. Co., Jan. & Feb. Service.....	25.20
313	4-5-61	Secretary Salary, Jan., Feb. & March.....	291.00
314	4-5-61	Treasurer of the U.S.—Deposit by States.....	18.00
315	5-4-61	Mtn. States T. & T. Co., March & April Service....	29.15
316	5-4-61	U. S. Geological Survey, Cooperative Agreement....	375.00
317	7-3-61	Mtn. States T. & T. Co., May & June Service.....	51.75
318	7-3-61	Secretary Salary, April, May & June.....	291.00
319	7-3-61	Treasurer of United States, O.A.S.I. Fund.....	18.00
320	7-3-61	Secretary Mileage, Postage, Mail & Typing.....	97.12
321	7-24-61	U. S. Geological Survey, Cooperative Agreement....	375.00
322	9-1-61	Mtn. States T. & T. Co., July & August Service....	45.35
323	10-5-61	Valley Agency, Inc.—Secretary & Treasurer Bond..	25.00
324	10-5-61	Secretary Salary, July, Aug. & Sept. Salary.....	291.00
325	10-5-61	Treasurer of the U.S.—Deposit by States.....	18.00
326	10-24-61	U. S. Geological Survey, Cooperative Agreement....	412.50
327	10-30-61	The Star Journal Publishing Corp.—Advertising....	1.43
328	10-31-61	Secretary Salary, Oct.—Typing, Stamps & Mail....	145.68
329	10-31-61	Mtn. States T. & T. Co., Sept. & Oct. Service.....	35.30
Total Disbursements .....			<u>\$4,208.93</u>

(d) Balance on hand October 31, 1961.....\$5,703.06

(e) At the regular meeting held July 25, 1961 the Compact Administration adopted the following budget for the fiscal year July 1, 1962 through June 30, 1963 and copies of this budget were duly transmitted to the States of Colorado and Kansas:

Personal Services .....	\$4,675.00
Secretary Salary .....	\$1,200.00
Social Security .....	50.00
Gage Reports .....	1,650.00
Professional Services (Audit of Accounts) .....	75.00
Cooperative Gage Replacement and Rehabilitation .....	1,700.00
Capital Outlay .....	300.00
Maintenance and Operation.....	1,675.00
Bond, Treasurer .....	25.00
Printing .....	600.00
Official Publications .....	100.00
Travel Expense—Secretary and Employees .....	150.00
Typing and Mailing.....	200.00
Investigation and Inspection.....	150.00
Telephone and Telegraph.....	300.00
Office Supplies .....	150.00
Total Proposed Budget, 1962-1963.....	\$6,650.00
Estimated Carry-over as of June 30, 1962.....	1,700.00
Total to be appropriated by Colorado and Kansas.....	\$4,950.00

In accordance with Article VIII E (1), the amount of such budget payable by the State of Colorado is sixty percent thereof, or \$2,970.00, and the amount payable by the State of Kansas is forty percent thereof, or \$1,980.00.

- (f) 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, 1960 through October 31, 1961, 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 correla-

tions 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. In addition, the Corps furnished members of the Administration with copies of the published report on sedimentation of John Martin Reservoir. 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 Operations and Hydrologic Data***

At the beginning of the Compact year the reservoir was empty and it remained empty until 11 A.M. on December 1st, as during November, Colorado demanded the river flow up to 100 cfs as provided under Section A of Article V of the Arkansas River Compact.

The river flow below John Martin Dam during November averaged 57 cfs and Colorado diverted 5,966 acre feet and 3,610 acre feet crossed the stateline into Kansas.

At the end of the winter storage period on March 31st, 1961 the reservoir contained 22,168 acre feet, which was 25,335 acre feet less than the amount on hand on March 31st, 1960. On April 3rd, Kansas called for 200 cfs at which time the reservoir contained 22,556 acre feet. Colorado called for 350 cfs at 9 P.M. on April 11th. Both Colorado and Kansas increased their demands as more ditches started irrigating and at 7:30 P.M. on April 28th the reservoir was empty again.

Outside of the above storage the reservoir only contained water on 24 days in June and 4 days in August. This showed there were very few flash floods or prolonged periods of high water which the reservoir was built to constrain. During June, a flood occurred mostly below the dam and while Colorado was able to divert as much water as passed the dam, the stateline flow during the same time amounted to 21,200 Ac. Ft. or 160% of the flow through the reservoir.

Out of a total of 214 days in the irrigating season the reservoir was empty, and the Colorado ditches operated on priorities 159 days or 74% of the entire season. The quantities of water crossing the State-line as compared with the flow at the station below the dam showed the following percents:



April 46%, May 54%, June 160%, July 46%, August 38%, September 27% and October 59%.

In closing this section of the report we might add that the Engineering Committee has been assigned to make two studies:

1. Reservoir operations criteria to meet Kansas demands.
2. Hydrologic data on the effect of small pond construction.

These studies will be released at a later date.

## 8. *Gaging Stations*

Stream-flow records were collected at all of the Compact gaging stations. During the year emphasis was placed on performing additional field work and providing provisional discharge data on a current basis to Administration and State officials. The stations on the Arkansas River at Las Animas and the Purgatoire River at Las Animas were discussed at the July 25, 1961, meeting. It was determined that the needed improvements would have to be delayed because they depended somewhat on bridge construction plans of the Colorado State Highway Department and dike construction and channel rectification plans of the Corps of Engineers.

The budget for the fiscal year July 1, 1961, to June 30, 1962, approved by the Administration contained \$1,650 for partial support of the Compact gaging stations. The final cooperative agreement with the U. S. Geological Survey is as follows:

	ARCA	USGS	Total
1. Partial support of following			
Compact gaging stations.....	\$1,100	\$1,100	\$2,200
a. Arkansas River at Las Animas			
b. Purgatoire River near Las Animas			
c. Arkansas River below John Martin Reservoir			
d. Arkansas River near Coolidge, Kansas			
e. Frontier Ditch near Coolidge, Kansas			
2. Operation of Compact gaging station,			
Arkansas River at Lamar.....	550	550	1,100
Total.....	\$1,650	\$1,650	\$3,300

## **9. Findings of fact by the Administration**

(a) A special Telephonic Meeting was held on April 18, 1961 in accordance with Article IV, Section 3B, of the By-Laws for the purpose of declaring the Reservoir empty and notice to the State Engineer of Colorado that priority administration would commence on April 28, 1961, unless a change of condition justified cancellation or modification of that notice. Priority administration should commence, and decreed rights of water users in Colorado would be administered by the State Engineer of Colorado. The Reservoir was empty at 7:30 P.M. April 28, 1961.

(b) Heavy rains and damaging hail storms occurred in the Valley on June 2, 1961, causing much damage to crops and property, also cancelling the need for irrigation in Colorado below the John Martin Reservoir. Therefore, a telephonic meeting was held on June 3, 1961, for the purpose of declaring water available for storage. The result was that water was available and the gates were closed at 10:30 A.M. at which time storage began and the State Engineer was notified in accordance with Article IV, Section 3B, of the By-Laws.

(c) A special telephonic meeting of the Administration was held on June 23, 1961, in accordance with Article IV, Section 3B, of the By-Laws for the purpose of declaring the Reservoir empty. Notice was given to the State Engineer of Colorado that priority administration would commence on June 28, 1961, unless a change of condition 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 empty at 10:00 P.M., June 27, 1961.

(d) Mr. McGrath notified the Secretary about 6:00 P.M. Saturday, August 12, 1961 that he had just received word from Mr. Dave Hieser that there was about 5,500 CFS of water passing La Junta.

Upon receiving this information, a telephonic meeting was held Saturday evening, August 12, 1961 for the purpose of finding water available for storage.

It was decided to wait until Sunday morning, August 13th, and if upon further investigation, the Secretary found enough water in sight to warrant closing the gates and declaring water available for storage, he would do so. The gates were closed at 8:30 A.M. on August 13, 1961 and Mr. Whitten, State Engineer, was notified, also Mr. F. C. Snyder, Division Engineer.

(e) A telephonic meeting of the administration was held on August 16, 1961 in accordance with Article IV, Section 3B of the By-Laws for the purpose of declaring the reservoir empty and giving notice to the State Engineer of Colorado.

As a result of said meeting, the reservoir was declared to become empty on August 18th. Unless a change of conditions justified cancellation or modification of that notice, that priority administration should commence, and decreed rights of water users in Colorado would be administered by the State Engineer.

The State Engineer was notified, and the reservoir became empty at 1:00 A.M. August 18, 1961. The river continued to be administered by the State Engineer until 8:00 A.M. November 1, 1961, at which time the gates were closed and winter storage started.

The above Findings and Notifications were in form similar to those published in the Fifth Annual Arkansas River Compact Administration Report of 1953, Appendix C.

Respectfully submitted,

ARKANSAS RIVER COMPACT ADMINISTRATION  
BY:

F. M. BELL  
Representative of the United States and  
Chairman of the Administration

L. R. KUIPER  
DAVID JENKINS  
HACKET SMARTT  
Colorado Members of the Administration

R. V. SMRHA  
LOGAN N. GREEN  
CARL E. BENTRUP  
Kansas Members of the Administration

Lamar, Colorado  
December 12, 1961

## APPENDICES

for

### Annual Report of the

### Arkansas River Compact Administration

For the Report Year November 1, 1960 to October 31, 1961

- 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"—Diversions by Ditches in Colorado Water Districts 14 and 17.
- APPENDIX "B-14"—Diversions by Ditches in Colorado Water District 67.
- APPENDIX "B-15"—Diversions by Ditches in Kansas, Stateline to Garden City.
- APPENDIX "B-16"—Summary Tabulation.
- APPENDIX "C" —Resolution concerning Ivan C. Crawford.
- APPENDIX "D" —Resolution concerning Carl G. Paulsen
- PLATE I —Graphs showing inflow, outflow and contents of John Martin Reservoir and Stateline Flow for Report Year.

**APPENDIX "A"**

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**AUDITOR'S REPORT**

**ALVIN LARSEN AND COMPANY**

\* \* \* \*

Certified Public Accountants

Lamar, Colorado

December 14, 1961

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, 1961. 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 Balance for the Fiscal Year ended October 31, 1961.

Schedule 1—Statement of Receipts and Disbursements compared with Budget for the Budget Year July 1, 1960 to June 30, 1961.

The scope of our examination included the verification of receipts and the vouching of disbursements.

The requests for payment of funds to the administration for the budget year ended June 30, 1962 were sent to Colorado and Kansas on September 2, 1961. The amounts (Colorado—\$2,970.00 and Kansas—\$1,980.00) were received and placed on deposit in the First National Bank of Lamar on September 29, 1961 and October 16, 1961 respectively.

The disbursements, as listed, were all supported by cancelled checks drawn on the Compact's bank account. Amounts so expended were substantiated by verification of payee's statements, authorization of payment as evidenced in minutes of the Compact's meetings, or other supporting documents.

The Secretary's travel expense for the fiscal year ended October 31, 1961 was \$116.80. He drove 1060 miles at \$0.08 per mile for \$84.80 plus 32 days reading gage at Lamar at \$1.00 per day.

An analysis of the \$1,912.50 Surface Water Investigations by the U. S. Geological Survey is shown below.

December 21, 1960 (Period 7/1/60 to 12/31/60—1st Qtr.)	
Based on \$1,500 per annum.....	\$ 375.00
February 23, 1961 (Period 10/1/60 to 12/31/60—2nd Qtr.)	
Based on \$1,500 per annum.....	375.00
May 4, 1961 (Period 1/1/61 to 3/31/61—3rd Qtr.)	
Based on \$1,500 per annum.....	375.00
July 24, 1961 (Period 4/1/61 to 6/30/61—4th Qtr.)	
Based on \$1,500 per annum.....	375.00
October 21, 1961 (Period 7/1/61 to 9/30/61—1st Qtr.)	
Based on \$1,650 per annum.....	412.50
	<hr/>
	\$1,912.50

Financial Position of the Administration compared with last year is shown below.

#### COMPARATIVE BALANCE SHEET

	October 31, 1961	October 31, 1960
ASSETS		
Cash in Bank.....	\$5,703.06	\$4,961.99
Equipment (Portable Typewriter).....	92.50	92.50
	<hr/>	<hr/>
Total Assets .....	\$5,795.56	\$5,054.49
LIABILITIES AND CAPITAL		
O.A.S.I. Withheld but not remitted.....	\$ 3.00	\$ 3.00
Unexpended Fund Balance.....	5,700.06	4,958.99
Expended Fund Balance for Equipment.....	92.50	92.50
	<hr/>	<hr/>
Total Liabilities and Capital.....	<u>\$5,795.56</u>	<u>\$5,054.49</u>

#### OPINION

In our opinion the Statement of Receipts and Disbursements and Changes in Fund Balance presents fairly the cash balance of the Arkansas River Compact Administration at October 31, 1961 and the cash transactions for the fiscal year then ended on a basis consistent with that of the previous year.

Respectfully submitted,

ALVIN LARSEN AND COMPANY

By MARVIN STRAIT  
Certified Public Accountant

# EXHIBIT A

## ARKANSAS RIVER COMPACT ADMINISTRATION Lamar, Colorado

### STATEMENT OF RECEIPTS AND DISBURSEMENTS AND CHANGES IN FUND BALANCE FOR THE FISCAL YEAR ENDED OCTOBER 31, 1961

CASH IN BANK NOVEMBER 1, 1960.....	\$4,961.99
LESS: Unremitted Payroll Deduction on Secretary's Salary.....	3.00
	<hr/>
FUND BALANCE NOVEMBER 1, 1960.....	\$4,958.99
RECEIPTS:	
Revenue from assessments:	
Colorado Portion 60%.....	\$2,970.00
Kansas Portion 40%.....	1,980.00
	<hr/>
TOTAL RECEIPTS .....	4,950.00
	<hr/>
TOTAL AVAILABLE .....	\$9,908.99
DISBURSEMENTS:	
Surface Water Investigations	
U. S. Geological Survey.....	\$1,912.50
Salary of Secretary.....	1,200.00
Printing Annual Report.....	605.00
Telephone and Telegraph.....	217.20
Travel Expense of Secretary.....	116.80
Audit Fee .....	65.00
Payroll Taxes	
Administrations Share of O.A.S.I.....	36.00
Typing and Mailing.....	25.00
Premium on Treasurer's Bond.....	25.00
Office Supplies and Postage.....	5.00
Advertising Special Meeting.....	1.43
	<hr/>
TOTAL DISBURSEMENTS .....	4,208.93
	<hr/>
FUND BALANCE OCTOBER 31, 1961.....	<u>\$5,700.06</u>
REPRESENTED BY:	
Cash in Bank—First National Bank of Lamar—	
Per Direct Confirmation.....	\$6,297.97
LESS: Outstanding Checks	
No. 326 U. S. Geological Survey.....	\$ 412.50
No. 327 Star Journal Publishing.....	1.43
No. 328 Hacket Smartt .....	145.68
No. 329 Mountain States Tel. & Tel... ..	35.30
	<hr/>
	594.91
	<hr/>
	\$5,703.06
October Payroll Deduction on Secretary's Salary.....	3.00
	<hr/>
	<u>\$5,700.06</u>

# SCHEDULE 1

## ARKANSAS RIVER COMPACT ADMINISTRATION

Lamar, Colorado

### STATEMENT OF RECEIPTS AND DISBURSEMENTS COMPARED WITH BUDGET FOR THE BUDGET YEAR

JULY 1, 1960 TO JUNE 30, 1961

	<u>Actual</u>	<u>Budget</u>
CASH IN BANK—JULY 1, 1960.....	\$1,549.10	
RECEIPTS:		
Revenue from Assessments		
Colorado Portion 60%.....	\$2,880.00	\$2,880.00
Kansas Portion 40%.....	1,920.00	1,920.00
TOTAL RECEIPTS .....	<u>4,800.00</u>	<u>4,800.00</u>
TOTAL AVAILABLE .....	<u>\$6,349.10</u>	<u>\$4,800.00</u>
DISBURSEMENTS:		
Surface Water Investigations		
U. S. Geological Survey.....	\$1,850.00	\$1,500.00
Salary of Secretary.....	1,200.00	1,200.00
Printing Annual Report.....	605.00	600.00
Telephone and Telegraph.....	222.15	300.00
Travel .....	199.04	150.00
Audit Fee .....	65.00	75.00
Payroll Taxes		
Administrations Share .....	37.50	50.00
Typing and Mailing.....	25.00	200.00
Premium on Treasurer's Bond.....	25.00	25.00
Office Supplies and Postage.....	18.09	150.00
Investigation and Inspection.....		150.00
Official Publications .....		100.00
Capital Outlay .....		300.00
TOTAL DISBURSEMENTS .....	<u>\$4,246.78</u>	<u>\$4,800.00</u>
CASH IN BANK—JUNE 30, 1961.....	<u>\$2,102.32</u>	



NOTE 1—The Budget Year is for the period July 1, 1960 to June 30, 1961 which differs from the "Report Year" of November 1, 1960 to October 31, 1961. In order to compare actual operations with the budget it was necessary to combine the related months for the last two "Report Years."

NOTE 2—In order to make this statement comparable with prior years and with the budget and to keep from unintentionally shifting expenditures to different periods, we have, with the concurrence of the Secretary, included in this Schedule four checks dated July 3, 1961 that were intended to be dated June 30, 1961.

# ARKANSAS RIVER NEAR PUEBLO, COLORADO

Report Year Ending October 31, 1961

U.S.G.S Records - Provisional, Subject to Revision

DAY	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.
1	246	272	299	275	226	217	58	1840	977	1250	899	662
2	247	271	319	281	227	197	84	2260	910	1680	876	661
3	251	277	297	281	233	252	96	2380	788	2220	1200	578
4	248	290	304	287	257	264	123	2200	744	1510	1150	537
5	243	298	332	281	263	384	166	1080	711	1300	1100	518
6	232	255	309	281	251	384	204	813	744	1240	1210	527
7	232	274	288	263	239	367	184	889	843	1120	1230	527
8	237	287	302	257	232	339	210	1430	689	1060	1200	464
9	222	290	288	275	212	303	174	1660	1580	1080	1180	421
10	232	347	316	287	207	276	135	2000	744	1140	1340	682
11	232	347	374	301	192	302	121	2420	767	1180	1400	704
12	248	338	309	301	212	283	92	2200	856	2000	1500	577
13	236	331	295	294	217	193	97	1920	470	1390	1260	491
14	230	282	309	287	201	187	329	1790	488	1540	1240	557
15	246	278	302	281	212	202	430	1970	645	1260	1120	587
16	234	269	316	281	254	197	365	2130	533	842	1200	638
17	225	304	337	282	316	187	322	1830	394	734	1070	715
18	254	330	344	282	352	167	252	1530	326	833	1360	737
19	286	352	336	270	344	162	528	1440	280	888	1330	708
20	300	345	358	246	316	181	682	1480	264	711	1470	768
21	296	324	330	208	309	294	892	1580	282	766	1380	777
22	292	337	329	187	269	216	936	1470	337	667	1320	689
23	285	295	329	195	233	168	1140	1420	390	645	1030	700
24	296	289	322	210	222	172	1260	1370	351	633	1100	700
25	308	282	330	189	207	180	1240	1290	276	667	1080	689
26	301	302	346	210	212	198	1640	1170	510	899	950	645
27	320	323	339	249	202	111	1760	1150	794	1070	850	667
28	319	299	276	242	207	80	1880	965	1360	1390	762	700
29	291	311	283		233	55	1980	1000	892	977	684	755
30	254	330	287		227	47	1760	1010	1090	888	662	821
31		320	269		217		1700		836	910		766

## TOTAL

sec. ft.	7843	9449	9774	7283	7501	6565	20840	47687	20871	34490	34153	19968
ac. ft.	15560	18740	19390	14450	14880	13020	41340	94590	41400	68410	67740	39610
(a) ac. ft.	0	0	0	0	0	0	4085	0	5710	14320	6430	0
(b) ac. ft.	15560	18740	19390	14450	14880	13020	37260	94590	35690	54090	61310	39610

(a) Less upstream reservoir and transmountain water.

(b) Corrected total Ac. Ft.

THE YEAR 449,100 Acre Feet  
CORRECTED 418,600 Acre Feet

ARKANSAS RIVER NEAR PUEBLO, COLORADO

APPENDIX "B-1"

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# ARKANSAS RIVER AT LAS ANIMAS, COLORADO

Report Year Ending October 31, 1961

U.S.G.S. Records—Provisional, Subject to Revision

DAY	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.
1	64	31	38	50	45	23	9.4	492	392	106	185	298
2	42	34	45	28	41	24	13	720	294	102	152	276
3	30	36	48	43	41	23	19	1080	385	268	152	302
4	23	39	52	38	43	20	33	920	450	537	244	316
5	20	43	54	38	41	20	33	254	450	304	302	294
6	50	39	56	38	41	20	20	172	299	385	365	260
7	52	19	60	34	38	21	12	226	335	404	402	355
8	39	20	56	31	38	23	12	113	998	345	424	380
9	27	21	52	30	38	26	10	76	192	335	380	528
10	24	24	56	31	30	24	10	48	360	411	360	512
11	24	30	58	33	31	23	8.8	41	340	506	397	316
12	21	38	52	36	24	26	7.0	41	254	607	414	355
13	18	41	45	39	33	21	8.8	45	210	2000	397	345
14	19	37	48	41	34	16	14	47	60	154	574	280
15	18	46	54	45	30	16	9.4	58	37	108	512	260
16	17	41	56	47	24	17	7.6	24	22	99	430	240
17	16	35	38	36	24	19	7.6	26	37	76	419	219
18	15	54	38	34	30	15	10	26	78	189	448	216
19	15	90	38	30	30	9.4	10	24	102	506	414	222
20	13	123	36	28	26	8.8	15	19	60	370	402	240
21	14	95	38	27	16	8.2	20	19	25	385	419	264
22	15	82	38	27	19	8.2	28	21	18	360	490	280
23	12	88	38	28	19	10	20	11	18	299	448	272
24	13	92	39	31	19	9.4	66	10	142	290	430	380
25	16	90	39	38	18	7.0	182	38	86	263	380	386
26	16	79	21	36	21	7.0	345	28	35	226	442	402
27	19	64	36	45	21	7.6	457	23	20	185	419	392
28	21	54	99	43	26	7.0	375	210	15	202	370	397
29	27	36	150		21	8.8	245	392	16	280	289	386
30	27	43	222		23	10	464	430	91	386	248	386
31		39	131		23		380		142	248		355
TOTAL												
sec. ft.	727	1603	1831	1005	908	478.4	2851.6	5634	5963	10936	11308	10114
ac. ft.	1440	3180	3630	1990	1800	949	5660	11170	11830	21690	22430	20060
										THE YEAR	105,800	Acre Feet

ARKANSAS RIVER AT LAS ANIMAS, COLORADO

APPENDIX "B-2"

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## PURGATOIRE RIVER NEAR LAS ANIMAS, COLORADO

Report Year Ending October 31, 1961

U.S.G.S. Records—Provisional, Subject to Revision

DAY	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.
1	9.9	22	12	59	27	55	9.5	0.9	8.5	4.2	16	13
2	8.9	20	11	44	24	47	7.5	4.6	9.0	4.2	13	20
3	7.8	31	11	28	22	47	8.5	57	3.6	18	9.8	28
4	7.3	53	10	18	19	45	14	23	2.8	100	15	30
5	6.2	53	8.9	14	21	45	10	42	2.5	175	7.6	29
6	4.0	29	7.3	12	19	53	9.0	27	3.9	129	5.5	29
7	2.0	24	7.8	18	20	53	30	34	5.0	111	12	26
8	5.7	19	8.9	19	20	44	41	70	833	92	15	23
9	20	24	9.9	17	18	67	27	45	63	105	8.0	26
10	22	28	9.9	26	21	85	15	48	35	32	4.2	32
11	22	30	9.4	52	24	87	7.0	42	24	111	4.6	34
12	20	12	7.3	57	16	95	1.7	36	95	198	4.2	36
13	15	10	6.8	39	11	171	5.0	36	430	135	3.2	32
14	17	11	17	69	8.4	154	5.3	29	1260	117	2.7	25
15	15	12	24	154	22	178	4.6	44	300	171	3.2	5.5
16	17	15	30	112	24	182	2.8	55	211	188	3.2	3.8
17	21	20	33	81	32	138	2.5	45	123	114	3.2	20
18	17	25	23	67	47	168	3.6	80	92	95	3.5	14
19	16	37	21	57	49	144	2.1	65	70	155	3.8	16
20	14	38	17	45	37	93	2.5	22	57	143	5.5	20
21	14	30	16	37	52	75	3.9	10	105	123	4.6	21
22	4.0	34	21	32	50	94	2.3	11	230	95	15	7.6
23	4.0	35	23	29	50	57	2.5	6.0	206	70	12	14
24	3.6	34	29	28	44	35	1.9	7.0	188	29	12	15
25	3.6	35	22	31	34	18	1.5	6.5	85	16	12	15
26	2.2	27	22	27	34	7.0	1.1	6.5	47	8.6	20	17
27	2.0	20	34	27	31	4.2	.9	9.5	29	5.5	17	14
28	15	15	15	29	110	3.2	.9	3.9	17	4.2	13	14
29	17	10	20		93	3.9	.7	2.3	9.8	19	11	15
30	16	11	16		87	2.5	.5	2.1	5.9	57	13	15
31		13	15		69		.7		5.1	20		16
TOTAL												
sec. ft.	349.2	777	521.2	1228	1135.4	2250.8	225.5	870.3	4556.1	2644.7	272.8	625.9
ac. ft.	693	1540	1030	2440	2250	4460	447	1730	9040	5250	541	1240

THE YEAR 30,660 Acre Feet

PURGATOIRE RIVER NEAR LAS ANIMAS, COLORADO

APPENDIX "B-3"  
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INFLOW INTO JOHN MARTIN RESERVOIR  
Report Year Ending October 31, 1961  
U.S.G.S. Records—Provisional, Subject to Revision

DAY	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.
1	74	53	50	109	72	78	19	493	400	110	201	311
2	51	54	56	72	65	71	20	725	303	106	165	296
3	38	67	59	71	63	70	28	1140	389	286	162	330
4	30	92	62	56	62	65	47	943	453	637	259	346
5	26	96	63	52	62	65	43	296	452	479	310	323
6	54	68	63	50	60	73	29	199	303	514	370	289
7	54	43	68	52	58	74	42	260	340	515	414	381
8	45	39	65	50	58	67	53	183	1830	437	439	403
9	47	45	62	47	56	93	37	121	255	440	388	554
10	46	52	66	57	51	109	25	96	395	443	364	544
11	46	60	67	85	55	110	16	83	364	617	402	350
12	41	50	59	93	40	121	8.7	77	349	805	418	391
13	33	51	52	78	44	192	14	81	640	2140	400	377
14	36	48	65	110	42	170	19	76	1320	271	577	305
15	33	58	78	199	52	194	14	102	337	279	515	266
16	34	56	86	159	48	199	10	79	233	287	433	244
17	37	55	71	117	56	157	10	71	160	190	422	239
18	32	79	61	101	77	183	14	106	170	284	452	230
19	31	127	59	87	79	153	12	89	172	661	418	238
20	27	161	53	73	63	102	18	41	117	513	408	260
21	28	125	54	64	68	83	24	29	130	508	424	285
22	19	116	59	59	69	102	30	32	248	455	505	288
23	16	123	61	57	69	67	22	17	224	369	460	286
24	17	126	68	59	63	44	68	17	330	319	442	395
25	20	125	61	69	52	25	184	44	171	279	392	401
26	18	106	43	63	55	14	346	34	82	235	462	419
27	21	84	73	72	52	12	458	32	49	190	436	406
28	36	69	114	72	136	10	376	214	32	206	383	411
29	44	46	170		114	13	246	394	26	299	300	401
30	43	54	238		110	12	464	432	97	443	261	401
31		52	146		92		381		147	268		371
TOTAL												
sec. ft.	1077	2380	2352	2233	2043	2728	3077.7	6506	10518	13585	11582	10741
ac. ft.	2140	4720	4670	4430	4050	5410	6100	12900	20860	26950	22970	21300

THE YEAR 136,500 Acre Feet

INFLOW INTO JOHN MARTIN RESERVOIR

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APPENDIX "B-4"

CONTENTS OF JOHN MARTIN RESERVOIR  
 Report-Year Ending October 31, 1961  
 Corps of Engineers Records—Provisional, Subject to Revision  
 Midnight Contents in Acre Feet from Capacity Table Dated June 1, 1958

DAY	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.
1	0	253	6363	11121	17557	22374	0	0	0	0	0	0
2	0	664	6411	11461	17713	22556	0	0	0	0	0	0
3	0	1178	6484	11558	17853	22534	0	1417	0	0	0	0
4	0	1446	6548	11785	17977	22488	0	3835	0	0	0	0
5	0	1586	6677	11834	18142	22374	0	5459	0	0	0	0
6	0	1696	6832	12029	18328	22328	0	6258	0	0	0	0
7	0	1840	6986	12175	18451	22260	0	6870	0	0	0	0
8	0	2201	7088	12308	18555	22031	0	7474	0	0	0	0
9	0	2430	7243	12517	18658	21944	0	7731	0	0	0	0
10	0	2615	7410	12741	18762	21879	0	8080	0	0	0	0
11	0	2779	7538	12985	18906	21814	0	8317	0	0	0	0
12	0	2886	7666	13470	19030	21226	0	8540	0	0	0	0
13	0	3025	7801	13783	19133	20378	0	8708	0	1614	0	0
14	0	3164	7954	14194	19236	19609	0	8889	0	3041	0	0
15	0	3365	8150	14600	19340	18721	0	9056	0	3082	0	0
16	0	3478	8317	15061	19464	17895	0	9353	0	1798	0	0
17	0	3628	8498	15393	19629	16912	0	9578	0	0	0	0
18	0	3769	8694	15615	19794	15836	0	9805	0	0	0	0
19	0	3948	8847	15836	20009	14692	0	9654	0	0	0	0
20	0	4117	8958	16032	20204	13401	0	9126	0	0	0	0
21	0	4529	9126	16227	20400	11981	0	8708	0	0	0	0
22	0	4773	9277	16422	20552	10634	0	7870	0	0	0	0
23	0	4974	9458	16618	20639	9126	0	6574	0	0	0	0
24	0	5186	9638	16814	20879	7654	0	5388	0	0	0	0
25	0	5447	9729	16951	20987	6035	0	3976	0	0	0	0
26	0	5624	9805	17068	21096	4317	0	2312	0	0	0	0
27	0	5858	9865	17263	21204	2533	0	0	0	0	0	0
28	0	5941	9986	17400	21422	0	0	0	0	0	0	0
29	0	6059	10061		21705	0	0	0	0	0	0	0
30	0	6153	10332		21944	0	0	0	0	0	0	0
31		6258	10634		22168		0		0	0	0	0

CONTENTS OF JOHN MARTIN RESERVOIR

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APPENDIX "B-5"

# OUTFLOW FROM JOHN MARTIN RESERVOIR

Report Year Ending October 31, 1961

U.S.G.S. Records—Provisional, Subject to Revision

DAY	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.
1	120	14	1.8	6.6	3.0	3.6	46	415	613	159	260	296
2	90	3.8	1.8	3.6	3.0	3.6	54	526	520	192	192	314
3	75	3.8	3.3	4.0	3.0	49	46	324	314	120	178	345
4	77	3.6	6.2	3.8	3.0	105	83	5.7	368	420	244	376
5	54	3.6	2.6	4.3	3.0	108	90	3.6	415	568	304	381
6	51	3.3	2.0	9.0	3.0	108	67	3.6	440	598	390	354
7	71	3.3	2.3	5.7	2.8	162	63	3.6	368	526	415	376
8	61	3.3	2.0	4.0	2.8	168	81	3.6	586	460	440	445
9	54	3.0	2.3	3.3	3.0	144	73	3.6	974	435	460	440
10	63	2.8	2.6	3.3	2.8	147	65	3.0	556	405	405	550
11	73	2.8	2.6	3.0	2.8	147	53	2.8	475	480	430	485
12	77	2.6	2.6	3.0	2.8	372	40	2.6	381	622	450	358
13	67	2.3	2.6	3.0	2.8	604	38	2.6	470	520	425	465
14	56	2.3	2.3	3.0	3.0	628	38	2.3	604	415	440	390
15	51	2.3	2.3	3.0	3.0	646	34	2.3	950	628	440	340
16	46	2.0	2.3	3.0	3.3	640	40	2.6	562	830	445	304
17	49	2.0	2.6	3.0	3.6	709	39	2.6	280	860	445	284
18	57	2.0	2.8	3.0	3.6	742	33	2.6	196	363	475	280
19	56	2.0	3.0	3.0	3.3	735	36	171	206	496	465	276
20	51	1.8	3.0	3.0	3.3	774	43	304	168	634	410	292
21	51	1.8	3.3	3.0	3.3	808	51	300	125	574	425	309
22	51	1.8	3.3	3.0	3.3	830	51	425	240	532	455	327
23	43	1.8	3.6	3.0	3.3	808	59	616	210	430	490	318
24	43	1.8	3.6	2.8	3.3	822	49	670	292	386	490	372
25	48	1.8	3.6	3.0	3.0	838	85	652	284	322	485	440
26	51	1.8	3.8	3.0	3.0	830	202	728	147	276	465	445
27	40	1.8	3.6	3.0	3.3	875	350	768	92	213	455	440
28	28	1.8	3.6	3.0	3.6	754	470	146	65	220	440	430
29	28	1.8	3.6		3.8	48	363	248	51	256	332	425
30	22	1.8	3.6		3.6	36	309	345	40	386	292	425
31		1.8	4.0		3.6		381		128	381		455
TOTAL												
sec. ft.	1704	86.4	92.6	101.4	98.0	13644.2	3432	6685.1	11120	13707	12042	11737
ac. ft.	3380	171	184	201	194	27060	6810	13260	22060	27190	23880	23280

THE YEAR 147,700 Acre Feet

OUTFLOW FROM JOHN MARTIN RESERVOIR

APPENDIX "B-6"

## ARKANSAS RIVER AT LAMAR, COLORADO

Report Year Ending October 31, 1961

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	3.9	4.2	3.6	3.6	20	14	17	12	3.9	5.5	5.5
2	4.2	3.9	4.2	3.6	5.5	18	12	162	230	6.5	5.5	5.0
3	4.2	3.9	4.5	3.6	22	17	11	984	14	11	5.5	4.7
4	4.5	4.2	4.2	4.2	22	57	11	370	11	15	5.0	4.5
5	4.5	3.9	3.9	4.5	18	91	11	107	10	32	5.0	4.2
6	3.9	4.2	3.6	4.5	19	95	10	64	11	36	4.7	4.2
7	3.6	4.2	3.4	4.7	20	110	8.0	52	554	26	4.7	3.9
8	3.6	4.5	3.9	4.7	22	197	7.5	45	464	24	4.7	45
9	3.6	4.5	4.7	5.0	22	167	7.5	41	270	41	4.7	52
10	3.6	4.5	4.5	4.7	22	162	7.5	37	226	51	4.7	97
11	3.6	4.5	4.5	5.0	23	160	6.5	32	44	55	5.0	123
12	3.1	4.2	4.5	5.2	22	78	6.0	32	37	82	5.0	42
13	3.1	4.2	4.5	4.8	21	151	6.0	32	8.0	226	4.7	44
14	3.1	4.5	3.9	4.3	22	207	6.0	33	31	44	4.7	58
15	2.8	4.2	3.9	4.1	21	234	5.5	17	103	34	4.7	18
16	2.8	4.2	3.9	4.0	22	202	6.0	8.0	153	265	5.0	6.5
17	3.4	4.5	3.9	3.7	30	216	6.0	7.0	18	330	5.0	5.0
18	3.4	4.5	3.9	3.5	34	278	6.0	7.0	7.0	325	7.5	5.0
19	3.4	4.2	3.9	3.7	31	284	5.5	7.5	5.5	51	11	5.0
20	3.1	4.5	3.9	3.9	24	270	5.0	27	5.5	82	7.5	4.7
21	3.6	4.2	3.9	3.9	22	281	4.7	49	5.0	69	5.5	4.7
22	3.9	4.2	3.6	3.9	19	297	5.0	41	4.2	60	5.0	4.7
23	4.2	4.2	3.6	4.2	17	295	5.0	162	3.9	32	11	5.5
24	4.2	4.5	3.4	4.5	18	292	4.7	176	3.4	23	18	5.5
25	4.2	4.5	3.4	3.6	18	311	4.7	169	3.6	12	23	20
26	4.2	4.5	3.1	3.6	19	319	5.0	158	3.4	7.5	10	34
27	3.9	4.5	2.6	3.9	22	336	8.0	247	3.1	7.5	17	17
28	5.5	4.5	2.8	3.9	21	341	16	111	3.6	7.5	11	8.5
29	3.6	4.2	3.1		22	136	20	12	3.1	6.0	7.5	6.0
30	3.9	4.2	3.4		21	16	9.5	15	3.1	5.0	4.5	6.0
31		4.5	3.6		20		9.0		2.8	6.0		7.5
TOTAL												
sec. ft.	113.2	133.2	118.4	116.8	645.1	5638	249.6	3221.5	2253.2	1975.9	222.6	656.6
ac. ft.	225	264	235	232	1280	11180	495	6390	4470	3920	442	1300
THE YEAR 30,430 Acre Feet												

ARKANSAS RIVER AT LAMAR, COLORADO

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APPENDIX "B-7"



ARKANSAS RIVER AT THE COLORADO-KANSAS  
STATELINE

## ARKANSAS RIVER AT THE COLORADO-KANSAS STATELINE

Report-Year Ending October 31, 1961

U.S.G.S. Records—Provisional, Subject to Revision

DAY	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.
1	79	58	90	160	114	100	127	32	64	29	58	230
2	62	65	90	124	124	104	106	160	75	34	51	149
3	62	65	90	118	124	104	103	1950	154	40	50	140
4	68	62	100	107	107	104	102	2650	111	36	54	159
5	68	68	104	140	100	97	94	887	72	32	48	171
6	62	65	100	104	100	114	85	638	86	34	46	186
7	62	65	100	114	114	124	83	412	122	41	46	199
8	62	76	100	110	114	155	87	480	423	37	52	188
9	65	100	110	118	104	190	84	293	572	76	46	201
10	72	95	118	114	104	190	81	239	391	68	48	550
11	62	86	107	104	100	185	68	194	363	59	51	281
12	54	79	94	100	100	175	63	166	495	63	64	335
13	58	65	100	104	100	180	59	161	287	555	60	322
14	58	65	110	121	110	190	61	161	193	414	66	308
15	62	72	114	124	121	270	60	151	155	224	65	295
16	62	65	118	121	121	246	59	161	179	173	62	310
17	58	62	107	121	121	234	51	141	238	271	64	310
18	54	62	110	118	114	212	53	131	193	480	66	275
19	58	72	107	104	110	258	52	130	133	498	88	245
20	51	95	110	100	107	246	52	117	105	302	127	189
21	54	100	110	100	107	244	93	107	96	250	121	190
22	65	95	104	104	100	246	64	104	100	266	113	175
23	68	95	97	107	110	257	51	73	82	253	113	156
24	62	95	94	107	100	288	42	96	72	216	132	156
25	54	91	100	104	100	263	40	153	61	194	201	141
26	51	82	100	104	100	268	38	173	59	171	241	148
27	49	82	84	114	94	299	35	220	49	138	259	175
28	51	79	60	114	94	324	35	218	42	96	291	189
29	58	72	114		94	336	35	203	49	62	312	199
30	68	65	124		94	226	39	87	48	59	283	174
31		68	135		94		34		32	57		177
TOTAL												
sec. ft.	1819	2366	3201	3180	3296	6229	2036	10688	5101	5228	3278	6923
ac. ft.	3610	4690	6350	6310	6540	12360	4040	21200	10120	10370	6500	13730

THE YEAR 105,800 Acre Feet

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

APPENDIX "B-9"

\* \* \* \*

ARKANSAS RIVER AT GARDEN CITY, KANSAS

ARKANSAS RIVER AT GARDEN CITY, KANSAS

Report-Year Ending October 31, 1961

U.S.G.S. Records—Provisional, Subject to Revision

DAY	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.
1	13	15	39	72	27	15	9.0	9.0	12	11	8.0	12
2	13	14	28	66	24	15	12	6.5	38	12	8.0	12
3	13	20	29	45	24	15	11	9.0	16	8.0	7.6	13
4	13	44	30	29	24	14	15	163	9.4	22	6.8	11
5	12	49	29	19	25	11	14	595	13	12	7.6	11
6	11	34	29	39	24	14	11	1090	12	8.0	11	11
7	12	28	32	53	24	14	9.5	863	14	11	10	12
8	12	28	32	72	17	15	6.0	406	14	13	9.4	11
9	11	27	30	84	16	11	6.0	218	12	13	8.7	14
10	7.7	28	29	106	17	7.5	8.0	158	13	14	10	12
11	3.1	25	29	82	17	1.6	8.0	86	16	11	13	14
12	4.7	30	29	64	15	4.1	8.0	60	14	14	12	13
13	4.4	55	30	50	16	3.2	6.0	40	15	16	12	36
14	8.0	66	35	48	16	5.5	5.0	30	19	14	12	30
15	12	62	36	58	16	6.5	8.0	24	17	13	12	28
16	13	40	33	50	17	3.8	8.0	23	14	13	12	26
17	14	30	33	48	18	6.0	7.0	20	14	14	11	16
18	16	28	33	46	19	7.5	7.5	22	14	12	12	15
19	14	34	28	88	19	5.0	8.0	20	14	14	13	14
20	15	27	39	58	17	5.5	8.0	22	16	13	13	14
21	16	21	40	52	16	4.7	4.1	17	17	13	14	14
22	18	21	46	52	15	6.0	2.7	15	26	14	13	11
23	16	32	50	45	14	3.8	8.5	15	15	14	14	14
24	14	27	39	42	15	6.0	9.5	17	14	14	13	13
25	16	18	17	42	16	6.0	8.5	19	12	14	14	12
26	14	21	24	37	16	6.0	8.0	23	11	12	14	14
27	16	21	33	37	15	5.0	8.5	20	11	13	14	14
28	13	21	25	32	16	4.7	8.0	20	12	13	13	14
29	15	21	25		16	4.1	8.5	17	13	12	13	14
30	16	32	39		17	4.7	7.5	14	10	12	12	19
31		42	52		16		8.0		3.7	10		19
TOTAL												
sec. ft.	375.9	961	1022	1516	564	231.2	256.8	4041.5	451.1	399.0	343.1	483
ac. ft.	746	1910	2030	3010	1120	459	509	8020	895	791	681	958

THE YEAR 21,130 Acre Feet

DEMANDS BY COLORADO FOR WATER  
 Report Year Ending October 31, 1961  
 (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												
9												
10												
11						45	9:00 P.M.					
12						350						
13						350				260	8:30 A.M.	
14						357	8:30 A.M.			400		
15						360				400		
16						360				430	10:00 A.M.	
17						418	8:30 A.M.			450		
18						450				19	1:00 A.M.	
19						450		194	8:30 A.M.		Empty	
20						482	8:30 A.M.	300				
21						522	1:30 P.M.	300				
22						550		300				
23						550		420	9:15 A.M.			
24						550		500				
25						550		500				
26						550		532	8:30 A.M.			
27						550		505	10:00 P.M.			
28						447	7:30 P.M.		Empty			
29							Empty					
30												
31												
TOTAL												
sec. ft.						7,891		3,551		1,959		
ac. ft.						15,650		7,044		3,886		
									THE YEAR	26,580	Ac. Ft.	

DEMANDS BY COLORADO FOR WATER

APPENDIX "B-10"

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\*  
\*  
\*

DEMANDS BY KANSAS FOR WATER  
Report Year Ending October 31, 1961  
(Arkansas River Compact Administration Records)

DAY	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.
1												
2												
3						125	9:00 A.M.					
4						200						
5						200						
6						200						
7						200						
8						200						
9						200						
10						200						
11						200						
12						267	8:00 A.M.					
13						300						
14						300						
15						300				260	8:30 A.M.	
16						300				400		
17						300				400		
18						300				17	1:00 A.M.	
19						300					Empty	
20						300						
21						300						
22						300		130	8:30 A.M.			
23						300		200				
24						300		200				
25						300		200				
26						300		200				
27						300		183	10:00 P.M.			
28						244	7:30 P.M.		Empty			
29							Empty					
30												
31												
TOTAL						6,736		1,113		1,077		
sec. ft.												
ac. ft.						13,360		2,208		2,137		
								THE YEAR		17,705	Ac. Ft.	

DEMANDS BY KANSAS FOR WATER

APPENDIX "B-II"

\* \* \*

STATELINE FLOW ON DAYS OF KANSAS DEMAND\*

STATELINE FLOW ON DAYS OF KANSAS DEMAND\*

Report Year Ending October 31, 1961

U.S.G.S. Records—Provisional, Subject to Revision

DAY	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.
1							127					
2												
3												
4												
5												
6						114						
7						124						
8						155						
9						190						
10						190						
11						185						
12						175						
13						180						
14						190						
15						270						
16						246						
17						234						
18						212				480		
19						258				498		
20						246				302		
21						244				250		
22						246						
23						257						
24						288						
25						263		153				
26						268		173				
27						299		220				
28						324		218				
29						336		203				
30						226		87				
31												
TOTAL												
sec. ft.						5720	127	1054		1530		
ac. ft.						11350	252	2090		3030		

THE YEAR 16,720 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, 1961  
Source of Information, A.V.D.A. Reports and Report from the Fort Lyon Canal Co.  
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) .....	3,973	1,755	0	885	4,223	4,225	6,080	15,870	6,315	9,596	6,803	6,504	66,229
Res. or Imported .....	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Bessemer .....	3,973	1,755	0	885	4,223	4,225	6,080	15,870	6,315	9,596	6,803	6,504	66,229
West Pueblo (River) .....	0	0	0	0	0	165	214	448	214	266	179	139	1,625
Booth Orchard Gr. (Riv.) .....	482	0	0	0	837	1,053	1,154	984	1,123	1,166	1,071	1,107	8,977
Excelsior (River) .....	0	0	0	250	65	0	339	851	186	480	329	1,230	3,730
Collier (River) .....	0	0	0	0	0	0	91	524	80	242	133	615	1,685
Colorado Canal (River) ..	0	7,462	4,637	4,167	0	0	0	19,530	890	6,028	0	0	42,714
Res. or Imported .....	0	0	0	0	0	0	3,846	0	4,970	13,070	6,309	0	28,195
Total Colorado Canal .....	0	7,462	4,637	4,167	0	0	3,846	19,530	5,860	19,098	6,309	0	70,909
Highline (River) .....	4,147	1,940	1,168	1,615	4,955	4,316	4,072	16,756	6,450	9,511	5,498	6,143	66,571
Res. or Imported .....	0	0	0	0	0	0	160	0	625	970	0	0	1,755
Total Highline .....	4,147	1,940	1,168	1,615	4,955	4,316	4,232	16,756	7,075	10,481	5,498	6,143	68,326
Oxford Canal (River) ....	1,174	702	290	284	867	1,085	1,990	4,616	2,654	3,741	3,166	2,003	22,572
Otero Canal (River) .....	0	117	555	0	0	0	0	1,630	256	530	0	117	3,205
Catlin Canal (River) .....	5,264	1,710	1,212	2,461	5,667	9,036	8,450	13,670	12,500	13,862	11,933	9,743	95,508
Res. or Imported .....	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Catlin .....	5,264	1,710	1,212	2,461	5,667	9,036	8,450	13,670	12,500	13,862	11,933	9,743	95,508
Holbrook (River) .....	0	4,199	4,683	2,773	0	236	800	10,985	1,370	4,810	1,466	5,655	36,977
Rocky Ford (River) .....	2,692	1,886	1,529	992	964	4,502	6,150	5,226	5,910	6,081	4,875	5,302	46,109
Ft. Lyon Storage (River) ..	0	0	0	0	0	0	0	1,670	940	4,782	0	0	7,392
Ft. Lyon Canal (River) ..	17,744	17,648	18,266	17,226	21,744	15,024	14,334	42,310	18,612	32,308	27,202	18,090	260,498
Las Animas Cons. (River) ..	1,827	274	46	119	912	1,833	2,550	5,325	3,568	4,239	2,960	2,694	26,347
Las Animas Town (Riv.) ..	70	0	0	0	0	369	1,510	1,527	1,864	1,829	1,674	1,232	10,075
TOTAL													
River .....	37,373	37,693	32,386	30,772	40,234	41,844	47,724	141,922	62,932	99,471	67,289	60,574	700,214
Res. or Imported ....	0	0	0	0	0	0	4,006	0	5,595	14,040	6,309	0	29,950
	37,373	37,693	32,386	30,772	40,234	41,844	51,730	141,922	68,527	113,511	73,598	60,574	730,164

# APPENDIX "B-14"

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## DIVERSIONS BY DITCHES IN COLORADO WATER DISTRICT 67

Report Year Ending October 31, 1961  
Source of Information A.V.D.A. Reports  
(Acre Feet)

	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	THE YEAR
Ft. Bent Canal .....	222	0	0	0	0	2,291	1,620	1,198	2,803	2,225	2,721	1,230	14,310
Keesee Ditch .....	0	0	0	0	0	107	633	202	303	660	484	262	2,651
Amity Canal .....	3,261	0	0	0	0	10,430	2,376	5,950	14,540	15,854	16,397	17,528	86,336
Lamar Canal .....	932	865	492	444	143	2,672	2,307	2,656	6,188	5,574	5,508	4,370	32,151
Hyde Ditch .....	103	0	0	0	0	155	220	305	428	262	240	192	1,905
Manvel Canal .....	0	0	0	0	0	347	89	407	258	0	0	0	1,101
X. Y. & Graham Canals..	0	0	0	0	0	861	603	284	1,267	885	833	1,273	6,006
Buffalo Canal .....	1,448	1,020	583	0	75	2,553	2,192	2,227	3,025	3,025	1,825	1,291	19,264
Sisson Canal .....	0	0	0	0	0	0	160	56	206	0	0	0	422
TOTAL .....	5,966	1,885	1,075	444	218	19,416	10,200	13,285	29,018	28,485	28,008	26,146	164,146

# APPENDIX "B-15"

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## DIVERSIONS BY DITCHES IN KANSAS

Report Year Ending October 31, 1961

(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 .....	0	0	0	0	0	575	1,880	626	1,610	1,610	2,310	1,470	10,081*
Alamo Canal .....	0	0	0	0	260	468	473	29	0	59	0	0	1,289
Ft. Aubrey Canal .....	401	0	0	0	0	919	901	79	214	155	441	1,410	4,520†
Total Stateline to Syracuse .....	401	0	0	0	260	1,962	3,254	734	1,824	1,824	2,751	2,880	15,890
Amazon Canal .....	1,400	0	1,020	0	2,040	1,200	0	4,820	2,140	575	2,220	736	16,151
Great Eastern Canal .....	831	1,980	1,320	1,200	0	3,640	1,470	4,500	2,250	4,000	0	5,820	27,011
South Side Ditch .....	0	0	296	3,040	0	3,180	0	1,830	2,980	81	0	2,900	14,307
Farmers Ditch .....	0	0	0	34	4,220	1,110	1,450	1,920	1,220	2,750	1,800	750	15,254
Garden City Canal .....	101	0	0	0	0	0	272	682	168	150	0	97	1,470
Total Syracuse to Garden City .....	2,332	1,980	2,636	4,274	6,260	9,130	3,192	13,752	8,758	7,556	4,020	10,303	74,193
Total Stateline to Garden City .....	2,733	1,980	2,636	4,274	6,520	11,092	6,446	14,486	10,582	9,380	6,771	13,183	90,083

\* Includes 5,020 acre-feet returned directly to river

† Includes 215 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.	YEAR	FROM APP. NO.
Arkansas River at Las Animas, Colo. ....	1440	3180	3630	1990	1800	949	5660	11170	11830	21690	22430	20060	105800	B- 2
Purgatoire River near Las Animas, Colo. ....	693	1540	1030	2440	2250	4460	447	1730	9040	5250	541	1240	30660	B- 3
Inflow to John Martin Reservoir .....	2140	4720	4670	4430	4050	5410	6100	12900	20860	26950	22970	21300	136500	B- 4*
Reservoir contents at end of month .....	0	6258	10634	17400	22168	0	0	0	0	0	0	0	0	B- 5
Net change in reservoir storage .....	0	+6260	+4370	+6770	+4770	-22170	0	0	0	0	0	0	0	B- 5
Outflow from John Martin Reservoir .....	3380	171	184	201	194	27060	6810	13260	22060	27190	23880	23280	147700	B- 6
Diversions in District 67, Colo. ....	5966	1885	1075	444	218	19416	10200	13285	29018	28485	28008	26146	164146	B-14
Flow at Colorado-Kansas Stateline .....	3610	4690	6350	6310	6540	12360	4040	21200	10120	10370	6500	13730	105800	B- 8
Diversions in Kansas .....	2733	1980	2636	4274	6520	11092	6446	14486	10582	9380	6771	13183	90083	B-15
Arkansas River at Garden City, Kansas .....	746	1910	2030	3010	1120	459	509	8020	895	791	681	958	21130	B- 9

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

## APPENDIX "C"

\* \* \* \*

### RESOLUTION IN MEMORIAM

TO IVAN C. CRAWFORD

BE IT RESOLVED BY THE ARKANSAS RIVER COMPACT  
ADMINISTRATION:

We pause to express our profound grief caused by the passing of  
our former associate, Ivan C. Crawford.

Dean Crawford was an early member of our administration and  
through those years of service was a steady and guiding hand in its  
operation. His unusual attainments and devotion to purpose have been  
an invaluable aid to the accomplishment of our purposes.

Dean Crawford was possessed of those rare qualities of proficiency,  
affability and desire for helpfulness which has endeared him to all  
those with whom he was associated.

To his surviving wife we express our deepest sympathy. This  
resolution is ordered spread upon the minutes of this administration and  
the secretary is directed to send a copy thereof to Mrs. Crawford.

## APPENDIX "D"

\* \* \* \*

### RESOLUTION IN MEMORIAM

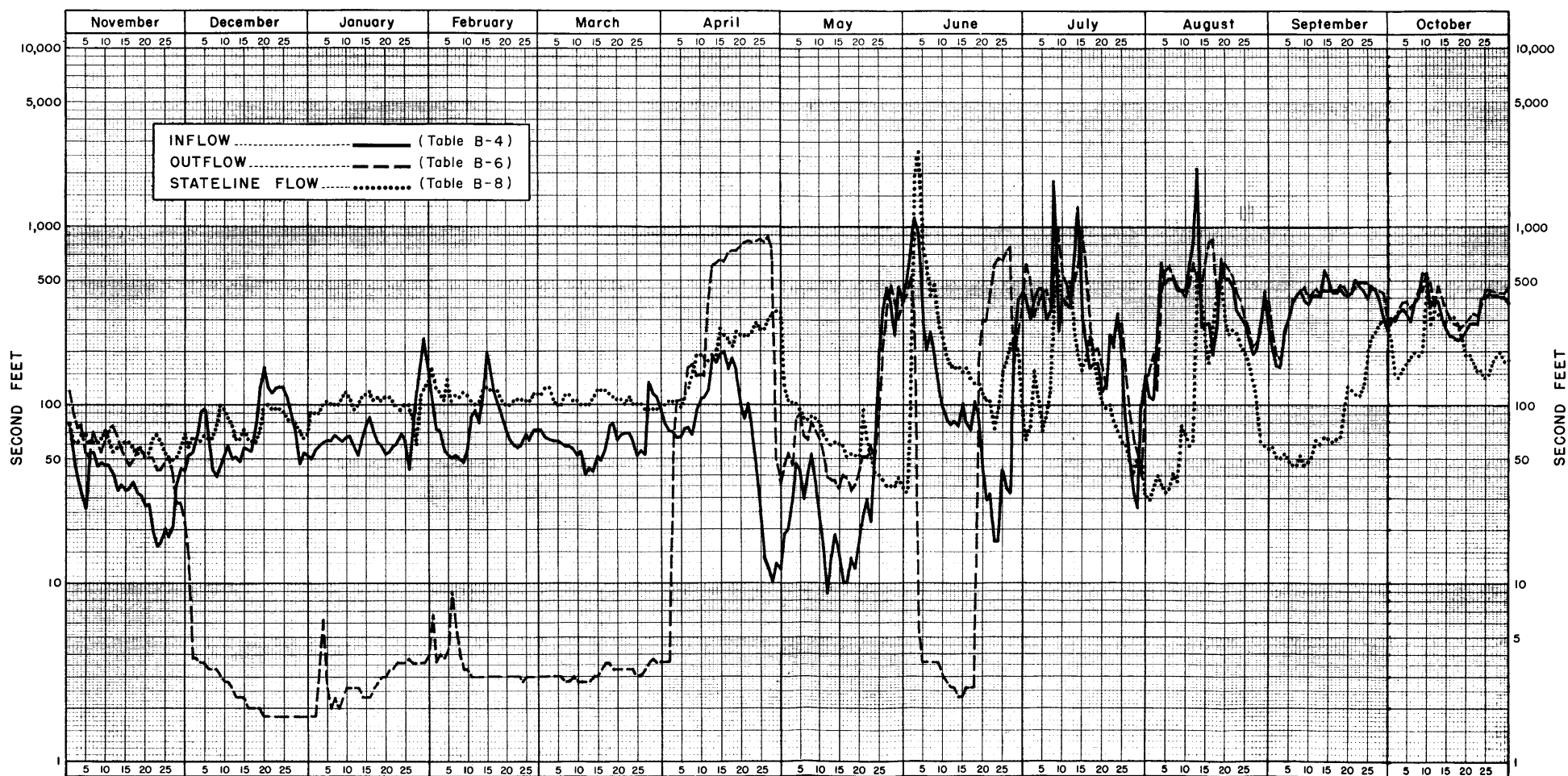
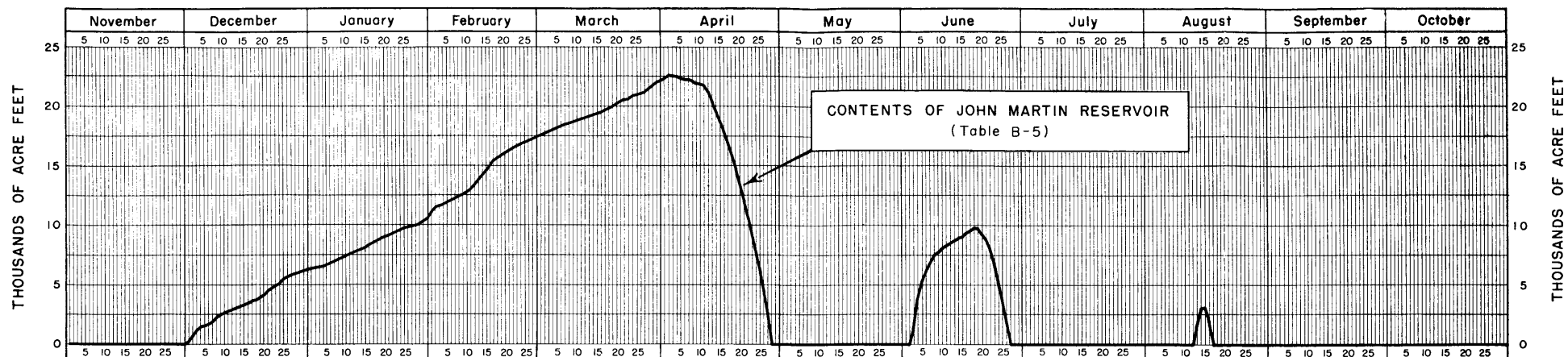
TO CARL G. PAULSEN

BE IT RESOLVED BY THE ARKANSAS RIVER COMPACT  
ADMINISTRATION:

That we were greatly grieved by the passing of our chairman, Carl  
G. Paulsen. The time seems short during which we were privileged to  
know and work with him. But, though the time was short, we learned  
to love and respect him for his many admirable qualities. He was always  
kind and considerate while performing those duties for which he was so  
eminently qualified. It was his rare mixture of common sense, efficiency  
and consideration for others that has endeared him to all of us.

To those of his family whom he left behind, we extend our deepest  
sympathy, knowing that they may obtain some solace by the memory of  
a life well lived.

It is directed that this resolution be spread upon the minutes of this  
administration and that a copy thereof be sent to his next of kin.



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

Report Year, November 1, 1960 - October 31, 1961