

FOURTEENTH ANNUAL REPORT

ARKANSAS RIVER

COMPACT

ADMINISTRATION

(1962)

For the Report-Year November 1, 1961
to October 31, 1962

LAMAR, COLORADO

December 11, 1962

Fourteenth
Annual Report

**ARKANSAS RIVER COMPACT
ADMINISTRATION**

(1962)

For the Report-Year November 1, 1961 to October 31, 1962

LAMAR, COLORADO

December 11, 1962

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
(1962)

Report-Year November 1, 1961 to October 31, 1962

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, 1961 through October 31, 1962 as follows:

1. *Members of the Administration*

Representative of the United States:

F. M. Bell

Colorado Representatives:

L. R. Kuiper, Denver, Colorado

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:

F. 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)

David Jenkins of Colorado

Engineering Committee:

R. V. Smrha of Kansas (Chairman)

L. R. Kuiper of Colorado

Operations Committee:

Carl E. Bentrup of Kansas (Chairman)

Hacket Smartt of Colorado

F. M. Bell, Representative of the United States, is ex-officio member of all standing committees.

4. *Meetings*

January 23, 1962	Lamar, Colorado	Annual Meeting
March 27, 1962	Lamar, Colorado	Regular Meeting
April 25, 1962		Telephonic Meeting
May 18, 1962		Telephonic Meeting
May 28, 1962		Telephonic Meeting
July 24, 1962		Telephonic Meeting
July 26, 1962		Telephonic Meeting
September 21, 1962	Colo. Springs, Colo.	Regular Meeting

5. *Fiscal*

(a) Balance on Hand October 31, 1961, Auditor's Report..\$5,703.06

(b) Receipts—None

(c) Disbursements by the Administration—November 1, 1961 to October 31, 1962:

<i>Date</i>	<i>Voucher No.</i>	<i>Payee and Purpose</i>	<i>Amount</i>
1/ 8/62	330	Telephone Co.—Nov., Dec. Service.....	\$ 31.20
1/ 8/62	331	Alvin Larsen So. Auditing 1961 Accounts.....	65.00
1/ 8/62	332	Hacket Smartt Nov. & Dec. Salary.....	194.00
1/ 8/62	333	Treasurer of the U.S.A. O.A.S.I. Fund.....	18.00
3/ 6/62	334	Telephone Co. Jan. and Feb. bill.....	22.70
3/ 6/62	335	U.S.G.S. 2nd Qtr., Cooperative Agreement.....	412.50
3/27/62	336	Peerless Printing for Annual Reports.....	630.00
4/ 6/62	337	Treasurer of U.S.A. O.A.S.I. Fund.....	18.75
4/ 6/62	338	Hacket Smartt, Jan., Feb., Mar. Salary.....	290.60
5/ 4/62	339	Telephone Co. March, April Service.....	25.95
6/30/62	340	U.S.G.S. 3rd Qtr. Agreement.....	412.00
6/30/62	341	Telephone Co. May telephone service.....	31.95
6/30/62	342	Hacket Smartt Apr., May and June Salary.....	290.65
6/30/62	343	Treasurer of the U.S.A. O.A.S.I.....	18.75
6/30/62	344	Telephone Co. June Service.....	19.50
8/ 6/62	345	U.S.G.S. 4th Qtr. Cooperative Agreement.....	413.00
8/ 6/62	346	Telephone Co. July Telephone Service.....	17.35
9/ 5/62	347	Lamar Daily News—Envelopes.....	13.50
9/ 5/62	348	M. S. Telephone Co.—August bill.....	20.45
9/27/62	349	Travel mileage	18.40
10/ 4/62	350	M. S. Telephone Co.—September bill.....	14.30
10/ 5/62	351	Hacket Smartt, July, Aug., Sept. Salary.....	290.60
10/ 5/62	352	Treasurer of the U.S.A. O.A.S.I.....	18.75
10/31/62	353	Treasurer's Bond	15.00
10/31/62	354	M. S. Telephone Co.—October bill.....	11.00
10/31/62	355	Secretary salary, Oct.; Typing, Stamps.....	205.88
Total Disbursements			<u>\$3,519.78</u>

(d) Balance on hand October 31, 1962.....\$2,183.28

(e) The Compact Administration, at a regular meeting held in Colorado Springs, Colorado, on September 21, 1962., estimated its expenses in accordance with expenditures during the past year and approved its budget for the fiscal year July 1, 1963, to June 30, 1964 as follows:

Personal Services		\$4,825.00
Secretary Salary	\$1,200.00	
Social Security	50.00	
Gage Reports	1,800.00	
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, 1963-1964.....		\$6,800.00
Estimated Carry-over as of June 30, 1963.....		1,850.00
Total to be appropriated by Colorado and Kansas.....		\$4,950.00

In accordance with Article VIII E (I), 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.

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, 1961 through October 31, 1962, 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. In addition, the Corps completed field surveys and computations for a revised capacity table for John Martin Reservoir for use in future years. 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, John Martin Reservoir was empty. Winter storage began with the closing of the gates at 8:00 a.m. on November 1, 1961. By the end of the winter storage period on March 31, 1962, water in the reservoir had accumulated to 34,725 acre feet. This was the third largest winter gain since the first year of operation under the Compact. The gates remained closed through April 8, 1962, at which time there were 35,970 acre feet of water in storage.

The first release of stored water was made beginning at 8:00 a.m. on April 9, 1962, to meet demands of both Colorado and Kansas. Releases were continued for both states until the reservoir was declared empty at noon on May 1, 1962.

River flow was passed through the reservoir until 7:45 a.m. on May 18, 1962, when the gates were closed to store runoff from heavy rains that occurred on May 16 and 17, 1962. The water accumulated in storage reached a maximum of 4,529 acre feet at midnight on May 20, 1962. Releases were begun at 8:30 a.m. on May 19, 1962, upon demand by Colorado and continued until the reservoir was declared empty at 5:00 p.m. on May 31, 1962.

River flow again was passed through the reservoir until 9:15 a.m. on July 25, 1962, when the gates were adjusted to limit outflow to the amount of Colorado demands and to store the remainder of runoff from flood flows. Releases from the reservoir were increased at 2:15 p.m. on July 25, 1962, to meet Kansas demands. The Kansas demand was cancelled at 4:15 p.m. on August 1, 1962, reinstated at 10:15 a.m. on August 6, 1962, and continued until the reservoir was declared empty at 2:00 a.m. on August 11, 1962. Maximum storage during this flood period was 11,818 acre feet.

The reservoir remained empty the remainder of the year.

Inflow into John Martin Reservoir during the irrigation season totalled 97,850 acre feet. This was the fourth lowest summer inflow since 1949-1950 and 63 per cent of the thirteen-year average.

Diversions downstream from John Martin Reservoir during the irrigation season were only 5 per cent less than the thirteen-year average. Total diversions April 1 to October 31, 1962, by the ditches in Colorado W. D. No. 67 were 151,002 acre feet. Ditch diversions in Kansas for the same period amounted to 75,143 acre feet or 90 per cent of the water crossing the stateline in that time.

Total reservoir releases April 1 to October 31 were 148,000 acre feet which is 78,035 acre feet less than total diversions. Local runoff from areas below the reservoir and return flows provided 35 per cent of the water diverted during the irrigation season.

River flow was passed through the reservoir averaging:

5.0 c.f.s. from November 1, 1961, to April 8, 1962
467 c. f.s. from May 1, 1962, to May 16, 1962
479 c.f.s. from June 1, 1962 to July 24, 1962
65 c.f.s. from Aug. 11, 1962, to October 31, 1962.

Stateline flow for corresponding periods averaged 136 c.f.s., 104 c.f.s., 234 c.f.s., and 47 c.f.s., respectively.

The total discharge for the year at Garden City was 52,760 acre feet of which 75 per cent occurred as winter flows amounting to 39,570 acre feet. Runoff following rains in May and June accounted for an additional 6,600 acre feet during two short periods. The remaining discharge at Garden City was 6,590 acre feet or an average of 17 c.f.s.

The Engineering Committee completed a study of reservoir operations which was submitted to and accepted by the Administration on March 27, 1962. Studies of the effect of small ponds on water supplies have not been completed.

On April 24 and 25, 1962, the Operations Committee made an inspection of measuring devices on the ditches between John Martin Dam and Pueblo. A report on this assignment was submitted to and accepted by the Administration on September 21, 1962.

8. Gaging Stations

Stream-flow records of satisfactory accuracy were obtained at all of the Compact stations. Emphasis was continued on performing additional field work and providing 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 deteriorated because of aggradation of the channel past the gage. This diverted a greater percentage of the flow to the bypass channel and made it increasingly difficult to maintain current stage-discharge relations for operation. The station should be relocated or channel improvements effected as soon as bridge plans of the Colorado State Highway Department and channel improvement plans of the Corps of Engineers are firm.

No action has been taken on replacement of the radio stage-reporting equipment at the two State line stations. Although this equipment operated satisfactorily most of the time, it is not dependable because of obsolescence and should be replaced with modern radio or telephonic equipment. The installation of telephonic stage-reporting equipment at the two inflow stations at Las Animas to facilitate and improve reservoir operations during summer flash floods should also be considered.

The Administration approved a cooperative agreement with the U. S. Geological Survey for fiscal year July 1, 1962 to June 30, 1963 for \$3,600, \$1,800 from each party. Twelve hundred dollars is for the full operation of the Compact gaging station at Lamar and the remaining \$2,400 is for partial support of the other five Compact gaging stations.

9. Findings of fact by the Administration

(a) A special Telephonic Meeting of the Administration was held April 25, 1962 in accordance with Article IV, 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 May 1, 1962 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 12:00 a.m. May 1, 1962.

(b) Heavy rains throughout the Arkansas Valley on the 16th and 17th of May reduced the demand for water by the Colorado water users, so a special Telephonic Meeting was held as provided in Article IV, 3B of the by-laws of the Administration for the purpose of considering water available for storage. The result of this meeting was that water was available for storage. The gates at the dam were closed at 7:45 a.m. May 18 and the State Engineer was notified as was the Division Engineer Mr. F. C. Snyder.

(c) A special Telephonic Meeting was held by the Administration on May 28, 1962 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 May 31, 1962. Notice was given 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 5:00 p.m., May 31, 1962 or 1700.

(d) Due to heavy run-off in the Arkansas River at 8 a.m. on July 24, 11,000 cfs reported at Oxford dam, a gage height of 3.08 at the Highline Dam. A special Telephonic Meeting was held in accordance with Article IV, 3B of the by-laws, for the purpose of declaring storage in John Martin Reservoir. The result of this meeting was to declare water available for storage. The gates were closed at 8:45 a.m. on July 25, and storage began. The State Engineer was notified as was the Division Engineer Mr. F. C. Snyder.

(e) A special Telephonic Meeting was held on July 26, 1962, as provided in Article IV, 3B of the by-laws of the Administration for the purpose of declaring the reservoir empty. The reservoir was declared at this meeting to become empty on July 26, 1962. The State Engineer was notified that commencing on this date, 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 V. F of the Compact.

The time was later extended to Aug. 5th and again to August 15. Then, on August 9 the time was advanced to August 11. The State Engineer was notified of all changes as was the Division Engineer Mr. F. C. Snyder. The reservoir was declared empty at 2 a.m. on August 11. The State Engineer was notified as was Mr. F. C. Snyder.

The reservoir remained empty until October 31, 1962, when the gates were closed at 1 a.m. on November 1.

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.

Respcctfully 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 11, 1962

APPENDICES

for

Annual Report of the Arkansas River Compact Administration

For the Report-Year November 1, 1961 to October 31, 1962

- 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.
- 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
Reyher Building
Lamar, Colorado

December 10, 1962

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, 1962. 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, 1962.

Schedule 1—Statement of Receipts and Disbursements compared with Budget for the Budget Year July 1, 1961 to June 30, 1962.

In the minutes of the meeting of September 21, 1962 a motion was made and approved to call upon Colorado and Kansas for operating funds for this year, however, these funds were not received as of October 31, 1962 and accordingly for the fiscal year ended October 31, 1962 there are no receipts.

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, and/or other supporting documents.

The secretary's travel expense for the fiscal year ended October 31, 1961 was \$113.28. He drove 1,016 miles at \$0.08 per mile for \$81.28 plus 32 days reading gage at Lamar at \$1.00 per day.

An analysis of the \$1,237.50 surface water investigations by the U. S. Geological Survey is shown below.

March 6, 1961 (Period 10-1-61 to 12-31-61—2nd quarter)	
Based on \$1,650.00 per annum.....	\$ 412.50
May 4, 1962 (Period 1-1-62 to 3-31-62—3rd quarter) Based	
on \$1,650.00 per annum.....	412.00
August 6, 1962 (Period 4-1-62 to 6-30-62—4th quarter) Based	
on \$1,650.00 per annum.....	413.00
	\$1,237.50

Financial position of the administration compared with last year is shown below.

COMPARATIVE BALANCE SHEET

ASSETS	October 31, 1962	October 31, 1961
Cash in Bank.....	\$2,183.28	\$5,703.06
Equipment (Portable Typewriter).....	92.50	92.50
	\$2,275.78	\$5,795.56
LIABILITIES AND FUND BALANCES		
O.A.S.I. withheld but not remitted.....	\$ 3.00	\$ 3.00
Unexpended Fund Balance.....	2,180.28	5,700.06
Expended Fund Balance Equipment.....	92.50	92.50
	\$2,275.78	\$5,795.56

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, 1962 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, 1962

CASH IN BANK NOVEMBER 1, 1961.....	\$5,703.06
LESS: Unremitted Payroll Deduction on Secretary's Salary....	3.00
	<hr/>
FUND BALANCE NOVEMBER 1, 1961.....	\$5,700.06
RECEIPTS	None
	<hr/>
TOTAL AVAILABLE	\$5,700.06
DISBURSEMENTS:	
Surface Water Investigations	
U. S. Geological Survey.....	\$1,237.50
Salary of Secretary.....	1,200.00
Printing of Annual Report.....	630.00
Telephone and Telegraph.....	194.40
Travel Expense of Secretary.....	113.28
Audit Fee	65.00
Payroll Taxes (Employers Share of OASI)	37.10
Premium on Treasurer's Bond.....	15.00
Typing and Mailing.....	14.00
Office Supplies	13.50
	<hr/>
TOTAL DISBURSEMENTS	3,519.78
FUND BALANCE OCTOBER 31, 1962.....	<u>\$2,180.28</u>
Cash in Bank—First National Bank in Lamar—	
Per Direct Confirmation.....	\$2,415.16
LESS: Outstanding Checks	
No. 353 Valley Agency.....	\$ 15.00
No. 354 Mountain States Tel. & Tel.	11.00
No. 355 Hackett Smartt.....	205.88
	<hr/>
	231.88
	<hr/>
	\$2,183.28
October Payroll Deduction on Secretary's Salary.....	3.00
	<hr/>
	<u>\$2,180.28</u>

SCHEDULE 1

ARKANSAS RIVER COMPACT ADMINISTRATION

Lamar, Colorado

STATEMENT OF RECEIPTS AND DISBURSEMENTS COMPARED WITH
BUDGET FOR THE BUDGET YEAR
JULY 1, 1961 TO JUNE 30, 1962

	<u>Actual</u>	<u>Budget</u>
CASH IN BANK JULY 1, 1961.....	\$2,102.32	
RECEIPTS:		
Revenue From Assessments		
Colorado Portion 60%.....	\$2,970.00	\$2,970.00
Kansas Portion 40%.....	1,980.00	1,980.00
TOTAL RECEIPTS	<u>4,950.00</u>	<u>\$4,950.00</u>
TOTAL AVAILABLE	\$7,052.32	\$4,950.00
DISBURSEMENTS:		
Surface Water Investigators		
U. S. Geological Survey.....	\$1,612.00	1,650.00
Salary of Secretary.....	1,200.00	1,200.00
Printing of Annual Report.....	630.00	600.00
Telephone and Telegraph.....	211.95	300.00
Audit Fee	65.00	75.00
Payroll Tax (Employers Portion)	36.75	50.00
Typing and Mailing.....	25.00	200.00
Treasurer's Bond	25.00	25.00
Travel Expense	19.68	150.00
Office Supplies and Postage.....	5.43	150.00
Official Publications		100.00
Investigation and Inspection.....		150.00
Capital Outlay		300.00
TOTAL DISBURSEMENTS	<u>3,830.81</u>	<u>\$4,950.00</u>
CASH IN BANK JUNE 30, 1962.....	<u>\$3,221.51</u>	

NOTE: The budget year is for the period July 1, 1961 to June 30, 1962, which differs from the "Report Year" of November 1, 1961 to October 31, 1962. In order to compare actual operations with the budget it was necessary to combine the related months for the last two report years.

ARKANSAS RIVER NEAR PUEBLO, COLORADO
 Report Year ending October 31, 1962
 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	865	685	503	580	351	293	1380	1070	2720	933	283	242
2	765	718	503	590	361	279	1160	1120	3040	900	241	215
3	722	718	512	590	369	272	923	1150	2930	778	229	203
4	678	707	522	578	361	271	768	1400	2860	598	214	190
5	655	650	551	569	383	286	834	1570	2800	648	214	160
6	644	560	571	497	370	285	912	1800	2540	658	254	168
7	634	577	575	488	386	271	945	2190	2340	527	173	212
8	722	608	577	506	352	447	1120	2150	2560	686	202	176
9	678	600	516	497	321	658	1350	1990	2290	941	584	128
10	689	581	452	524	344	629	1680	1920	2130	918	604	113
11	700	529	392	579	328	744	1900	1920	2040	896	613	122
12	710	509	432	660	278	777	2050	2280	1900	1090	556	156
13	721	500	442	702	292	800	2180	2470	1900	1120	502	115
14	613	510	432	600	307	800	2210	2870	1630	1060	501	109
15	507	540	442	458	306	878	2080	3220	1400	995	501	125
16	607	531	404	417	320	988	1480	2620	1190	984	501	125
17	633	573	394	392	321	1110	1190	1880	1030	984	501	129
18	633	593	393	416	321	1170	1000	1820	1140	973	509	212
19	603	573	394	376	344	1210	937	1710	1120	1030	509	258
20	561	631	401	352	368	1190	827	1910	1420	1100	545	338
21	571	600	443	360	344	1350	805	2600	1690	1240	581	361
22	601	630	412	352	307	1520	1000	2930	1540	1300	458	354
23	571	591	411	359	286	1430	939	2910	1460	1310	308	317
24	571	573	442	368	272	1250	740	2720	1380	1280	293	303
25	581	592	461	368	258	1330	644	2590	1340	1180	286	295
26	571	573	461	361	231	1290	718	2490	1340	1080	258	281
27	611	544	461	352	218	1230	939	2470	1300	1030	251	288
28	611	543	481	343	231	1140	1180	2490	1290	826	278	281
29	611	523	511		252	1180	1090	2490	1260	444	270	281
30	652	563	550		307	1380	1040	2460	1490	348	229	253
31		503	570		314		1060		1090	318		260
TOTAL												
sec ft.	19291	18128	14611	13234	9803	26458	37081	65210	56160	28175	11448	6770
ac. ft.	38260	35960	28980	26250	19440	52480	73550	129300	111400	55880	22710	13430
(a) ac. ft.						14030	695		14510	23860	8240	
(b) ac. ft.					100	87						
(c) ac. ft.	38260	35960	28980	26250	19540	38540	72860	129300	96890	32020	14470	13430

(a) Less upstream reservoir and transmountain water.
 (b) Plus Bessemer waste below Pueblo gage.
 (c) Corrected total Ac. Ft.

THE YEAR 607,600 Acre Feet
 CORRECTED 546,500 Acre Feet

ARKANSAS RIVER NEAR PUEBLO, COLORADO

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ARKANSAS RIVER AT LAS ANIMAS, COLORADO
 Report-Year Ending October 31, 1962
 U.S.G.S. Records—Provisional, Subject to Revision

DAY	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.
1	116	50	62	105	76	70	505	350	505	111	21	8.0
2	101	43	59	88	88	46	575	438	589	97	15	14
3	93	50	55	82	84	23	418	450	498	78	11	14
4	95	39	53	88	82	32	295	405	568	72	9.4	14
5	84	44	44	77	91	15	350	328	596	65	11	14
6	88	53	57	66	82	11	394	394	232	55	12	14
7	73	48	48	71	89	20	457	457	161	51	9.4	14
8	61	52	52	64	80	30	438	383	118	49	8.0	12
9	52	43	38	75	84	26	484	484	410	47	8.0	12
10	43	25	39	73	89	18	512	272	496	31	9.4	12
11	75	22	43	68	89	10	418	286	394	22	9.4	11
12	97	19	43	62	93	10	300	431	547	22	11	11
13	73	21	46	57	95	11	317	457	491	27	11	9.4
14	57	29	46	88	84	9.3	300	512	438	29	12	9.4
15	48	35	46	88	75	20	533	218	356	26	18	9.4
16	64	45	43	82	70	16	1100	158	161	21	15	12
17	43	50	39	82	61	10	1290	450	118	18	16	12
18	48	52	38	91	52	10	350	470	205	15	14	12
19	80	58	34	99	53	20	214	228	282	14	15	16
20	88	64	34	95	44	15	137	328	306	15	21	21
21	84	65	34	89	39	7.6	64	438	794	44	18	35
22	88	64	34	91	34	7.6	46	561	113	110	14	75
23	70	63	33	93	21	62	64	194	306	96	12	88
24	57	62	32	90	7.6	55	73	164	827	142	12	99
25	62	64	34	84	7.6	26	97	450	1360	130	15	88
26	57	66	39	77	15	19	44	378	194	133	15	85
27	53	68	46	69	12	10	28	306	637	130	12	80
28	62	68	56	62	10	6.8	21	241	250	88	12	80
29	61	55	76		9.3	21	21	210	228	38	12	83
30	50	59	95		15	38	43	638	129	19	11	75
31		59	111		24		118		99	15		62
TOTAL												
sec. ft.	2123	1535	1509	2256	1755.5	675.3	10006	11079	12408	1810	389.6	1101.2
ac. ft	4210	3040	2990	4470	3480	1340	19850	21970	24610	3590	773	2180
THE YEAR 92,500 Acre Feet												

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ARKANSAS RIVER AT LAS ANIMAS, COLORADO

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APPENDIX "B-2"

PURGATOIRE RIVER NEAR LAS ANIMAS, COLORADO

Report-Year Ending October 31, 1962

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

DAY	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.
1	28	36	15	52	12	22	12	6.9	15	276	2.8	2.5
2	26	32	16	65	13	23	8.5	5.7	58	188	2.6	2.4
3	32	40	17	78	14	16	6.5	4.5	24	177	2.6	2.5
4	35	41	17	86	20	16	6.1	4.0	8.2	90	2.8	2.3
5	45	49	18	92	29	14	5.7	3.2	274	39	2.8	2.5
6	34	41	18	84	40	15	4.5	3.8	355	17	2.8	2.6
7	26	38	19	47	43	21	4.2	3.8	174	9.8	2.6	2.3
8	26	43	20	45	38	21	4.5	5.3	294	9.2	2.6	2.8
9	30	30	18	58	32	25	6.5	41	611	7.6	2.9	2.3
10	37	15	15	60	32	22	4.2	6.9	68	6.5	2.8	3.2
11	38	9	10	56	31	19	4.0	14	11	6.5	2.6	2.9
12	15	7	6.6	43	29	19	3.8	16	7.6	6.2	2.5	2.4
13	16	7	7.2	34	23	12	4.5	9.2	7.0	5.5	2.3	2.4
14	27	7.5	6.2	30	60	9.2	3.0	121	38	4.9	2.5	2.8
15	43	7.5	5.2	27	26	7.7	2.5	56	380	3.9	2.3	3.6
16	47	7.5	4.8	25	26	7.3	149	13	201	3.6	2.3	2.9
17	54	7.5	4.7	24	23	4.9	265	9.2	181	3.2	2.3	2.9
18	58	8	4.7	24	23	4.5	195	25	50	3.2	2.1	3.0
19	67	8	4.7	25	41	4.2	112	16	55	3.0	2.5	3.3
20	84	8	4.7	26	43	4.0	45	7.3	45	3.0	2.6	41
21	70	9	4.7	20	34	4.0	77	3.5	437	2.6	2.4	39
22	80	8.5	4.7	17	19	9.8	67	350	174	2.8	2.4	3.9
23	70	8	4.8	15	17	11	47	50	41	2.8	2.5	9.2
24	60	8.5	5.0	14	17	9.8	31	14	183	2.9	3.0	7.6
25	56	8.5	5.8	13	31	6.9	40	9.2	1250	2.9	4.6	3.9
26	49	9	7.0	12	23	5.3	67	310	425	2.9	4.6	5.2
27	47	9.5	10	11	6.1	5.7	67	166	1310	3.2	3.3	12
28	56	10	15	11	5.3	10	67	110	166	3.2	3.0	25
29	43	12	22		5.7	6.5	60	50	165	2.9	2.8	24
30	45	13	27		9.8	9.8	45	22	166	2.8	2.5	6.5
31		14	40		20		22		218	2.9		3.2
TOTAL												
sec. ft.	1344	552.0	377.8	1094	785.9	365.6	1436.5	1456.5	7391.8	895.0	82.4	232.1
ac. ft.	2670	1090	749	2170	1560	725	2850	2890	14660	1780	163	460
THE YEAR 31,770 Acre Feet												

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PURGATOIRE RIVER NEAR LAS ANIMAS, COLORADO

APPENDIX "B-3"

* * * *

INFLOW INTO JOHN MARTIN RESERVOIR
 Report-Year Ending October 31, 1962
 U.S.G.S. Records—Provisional, Subject to Revision

DAY	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.
1	144	86	77	157	88	92	517	357	520	387	24	10
2	127	75	75	153	101	69	584	444	647	285	18	16
3	125	90	72	160	98	39	424	454	522	255	14	16
4	130	80	70	174	102	48	301	409	576	162	12	16
5	129	93	62	169	120	29	356	331	870	104	14	16
6	122	94	75	150	122	26	398	398	587	72	15	17
7	99	86	67	118	132	41	461	461	335	61	12	16
8	87	95	72	109	118	51	442	388	412	58	11	15
9	82	73	56	133	116	51	490	525	1020	55	11	14
10	80	40	54	133	121	40	516	279	564	38	12	15
11	113	31	53	124	120	29	422	300	405	28	12	14
12	112	26	50	105	122	29	304	447	555	28	14	13
13	89	28	53	91	118	23	322	466	498	32	13	12
14	84	36	52	118	144	18	303	633	476	34	14	12
15	91	42	51	115	101	28	536	274	736	30	20	13
16	111	52	48	107	96	23	1250	171	362	25	17	15
17	97	58	44	106	84	15	1560	459	299	21	18	15
18	106	60	43	115	75	14	545	495	255	18	16	15
19	147	66	39	124	94	24	326	244	337	17	18	19
20	172	72	39	121	87	19	182	335	351	18	24	62
21	154	74	39	109	73	12	141	442	1230	47	20	74
22	168	72	39	108	53	17	113	911	287	113	16	79
23	140	71	38	108	38	73	111	244	347	99	14	97
24	117	70	37	104	25	65	104	178	1010	145	15	107
25	118	72	40	97	39	33	137	459	2610	133	20	92
26	106	75	46	89	38	24	111	688	619	136	20	90
27	100	78	56	80	18	16	95	472	1950	133	15	92
28	118	78	71	73	15	17	88	351	416	91	15	105
29	104	67	98		15	28	81	260	393	41	15	107
30	95	72	122		25	48	88	660	295	22	14	82
31		73	151		44		140		317	18		65
TOTAL												
sec. ft.	3467	2085	1889	3350	2542	1041	11448	12535	19801	2706	473	1331
ac. ft.	6880	4140	3750	6640	5040	2060	22710	24860	39270	5370	938	2640
	THE YEAR 124,300 Acre Feet											

INFLOW INTO JOHN MARTIN RESERVOIR

APPENDIX "B-4"

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CONTENTS OF JOHN MARTIN RESERVOIR
 Report-Year Ending October 31, 1962
 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	587	10453	16110	20791	27889	34838	0	0	0	10634	0	0
2	943	10666	16325	21161	28114	35121	0	0	0	10715	0	0
3	1214	10958	16500	21640	28715	35263	0	0	0	10483	0	0
4	1826	11186	16696	22100	29216	35404	0	0	0	10076	0	0
5	2034	11380	16873	22397	29608	35602	0	0	0	9428	0	0
6	2533	11575	17009	22716	29870	35687	0	0	0	8289	0	0
7	2828	11802	17146	22945	30210	35857	0	0	0	6832	0	0
8	3148	12029	17400	23242	30524	35970	0	0	0	5059	0	0
9	3534	12256	17439	23630	30785	34951	0	0	0	3189	0	0
10	3835	12430	17537	23859	31098	33465	0	0	0	261	0	0
11	4117	12482	17635	24134	31308	32130	0	0	0	0	0	0
12	4529	12551	17752	24484	31570	30707	0	0	0	0	0	0
13	4847	12690	17874	24699	31831	29478	0	0	0	0	0	0
14	5165	12846	17998	24986	32103	28164	0	0	0	0	0	0
15	5541	12985	18163	25274	32376	26711	0	0	0	0	0	0
16	5858	13159	18286	25562	32512	25394	0	0	0	0	0	0
17	6176	13332	18410	25825	32730	23859	0	0	0	0	0	0
18	6472	13505	18534	25992	32921	22488	3238	0	0	0	0	0
19	6793	13644	18617	26160	33139	20987	4317	0	0	0	0	0
20	7165	13818	18741	26472	33275	19443	4529	0	0	0	0	0
21	7538	13991	18865	26711	33465	17895	4306	0	0	0	0	0
22	7926	14176	18989	26962	33602	16305	3910	0	0	0	0	0
23	8289	14360	19112	27062	33738	14544	3497	0	0	0	0	0
24	8610	14581	19174	27212	33820	13002	3148	0	0	0	0	0
25	8875	14766	19277	27412	33928	11315	2902	0	1148	0	0	0
26	9126	14988	19402	27487	34010	9578	2500	0	4317	0	0	0
27	9428	15190	19526	27613	34174	7705	2145	0	8791	0	0	0
28	9729	15375	19691	27713	34228	5718	1683	0	11818	0	0	0
29	9971	15467	19856		34337	3647	1148	0	11802	0	0	0
30	10182	15652	20139		34612	1502	552	0	11575	0	0	0
31		15895	20443		34725		0	0	11023	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, 1962
 U.S.G.S. Records—Provisional, Subject to Revision

DAY	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.
1	177	3.6	4.0	3.0	4.0	3.8	808	368	905	592	45	36
2	6.2	3.8	4.3	3.0	4.0	4.0	586	465	598	327	43	39
3	4.3	3.8	4.0	3.0	4.3	4.0	550	502	550	358	43	42
4	4.3	3.8	4.0	3.3	4.3	4.0	405	475	490	435	42	42
5	4.3	3.8	3.8	3.6	3.8	4.0	376	425	532	455	39	43
6	4.0	3.8	3.8	3.6	5.2	4.0	415	405	728	646	38	46
7	3.8	3.8	3.3	3.6	4.0	3.8	470	480	350	860	38	45
8	3.8	3.8	3.6	3.8	4.3	3.8	475	550	228	868	39	38
9	4.0	4.0	3.3	4.0	4.3	518	475	490	556	875	39	39
10	3.8	4.0	3.0	3.8	4.3	830	514	460	696	935	43	43
11	4.0	4.0	3.3	3.8	4.3	748	465	309	336	211	45	43
12	4.3	4.3	3.3	4.0	4.0	716	425	415	480	59	43	40
13	4.3	4.3	3.6	3.8	4.3	716	336	455	538	56	38	39
14	4.3	4.3	3.6	3.8	4.3	754	368	470	485	54	38	39
15	4.3	4.3	3.3	3.8	4.3	774	415	465	580	49	42	46
16	4.3	4.3	3.0	3.8	4.0	787	604	252	610	48	46	46
17	4.3	4.3	3.3	3.8	4.0	800	1240	318	372	43	39	46
18	4.3	4.3	3.3	3.8	4.0	815	711	514	526	39	46	46
19	4.3	4.3	3.3	4.0	4.0	845	161	368	658	36	43	46
20	4.3	4.3	3.3	3.8	3.8	860	292	314	440	36	46	51
21	4.3	4.3	3.3	4.3	3.8	868	322	368	562	40	48	75
22	4.8	4.3	3.0	4.3	3.8	890	358	580	860	108	46	98
23	4.3	4.3	3.3	4.3	4.0	958	336	562	490	136	43	112
24	4.0	4.3	3.3	4.3	4.0	950	318	248	520	147	42	128
25	3.8	4.3	3.3	4.3	4.0	950	314	368	768	185	43	125
26	3.6	4.3	3.0	4.3	4.0	974	314	475	890	159	43	120
27	3.6	4.3	3.0	4.0	3.8	1020	309	592	353	168	40	122
28	3.6	4.3	3.0	3.8	3.8	1040	300	420	508	159	39	136
29	3.6	4.0	3.0		4.0	1010	296	284	709	92	36	136
30	3.6	4.0	3.0		4.3	966	300	372	716	54	36	133
31		4.0	2.8		3.8		333		709	46		125
TOTAL												
sec. ft.	297.4	127.3	104.4	106.7	126.8	18820.4	13591	12769	17743	8276	1251	2165
ac. ft.	590	252	207	212	252	37330	26960	25330	35190	16420	2480	4290
THE YEAR 149,500 Acre Feet												

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OUTFLOW FROM JOHN MARTIN RESERVOIR

* * * * *
 APPENDIX "B-6"

ARKANSAS RIVER AT LAMAR, COLORADO
 Report Year Ending October 31, 1962
 U.S.G.S. Records—Provisional, Subject to Revision

DAY	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	
1	19	44	44	52	65	17	359	11	147	303	4.7	4.5	
2	14	42	44	49	60	9.5	142	6.5	115	82	4.5	4.7	
3	41	48	44	48	55	7.5	86	37	30	12	4.7	4.7	
4	42	49	46	46	48	7.0	14	56	252	10	5.0	4.7	
5	45	52	41	45	42	7.0	8.0	36	471	13	5.5	4.7	
6	41	48	39	44	30	6.5	9.5	9.5	467	16	6.0	4.7	
7	33	56	41	44	27	6.0	6.5	34	338	295	5.5	4.7	
8	31	56	35	44	25	6.5	8.5	134	37	362	5.0	4.2	
9	34	58	32	44	24	17	7.5	131	11	356	4.7	3.9	
10	38	57	28	42	23	391	15	181	136	376	4.7	3.9	
11	36	56	25	42	23	362	28	54	56	260	4.5	3.9	
12	41	56	27	42	26	370	6.5	294	9.0	14	4.2	3.9	
13	51	55	31	42	25	376	6.5	81	8.0	11	3.9	3.9	
14	54	54	29	42	26	327	5.0	64	9.5	9.5	4.2	3.9	
15	58	53	28	42	25	316	5.0	95	10	8.5	4.2	4.2	
16	55	53	25	44	25	319	32	23	25	8.0	4.2	4.2	
17	52	52	25	44	26	347	204	8.5	11	7.5	4.5	4.5	
18	52	56	24	45	23	339	770	19	9.5	7.5	4.5	4.5	
19	51	57	24	44	23	370	25	52	130	7.5	4.5	4.5	
20	54	58	25	44	23	370	9.5	8.5	11	7.0	4.5	4.7	
21	54	58	26	42	24	388	7.0	7.0	18	7.0	4.5	4.5	
22	51	56	27	44	24	373	6.5	56	167	7.5	4.5	4.5	
23	52	54	32	45	25	430	7.0	257	23	8.0	4.7	5.0	
24	54	52	36	50	23	427	7.0	21	9.0	8.5	4.7	6.0	
25	56	51	35	60	23	430	7.0	6.5	49	8.0	4.7	6.5	
26	54	49	42	69	23	412	7.0	425	234	8.0	4.5	5.5	
27	54	49	55	70	22	452	6.5	162	1400	8.0	4.2	5.0	
28	52	48	62	69	20	467	5.5	17	176	7.0	4.5	6.0	
29	48	47	61		16	464	5.0	6.0	336	6.5	4.5	6.5	
30	45	46	56		18	400	5.5	4.5	325	5.5	4.5	6.5	
31		45	52		17		5.0		303	5.0		6.5	
TOTAL													
sec. ft.	1362	1615	1141	1338	879	8214.0	1816.5	2297.0	5323.0	2244.5	138.8	149.4	
ac. ft.	2700	3200	2260	2650	1740	16290	3600	4560	10560	4450	275	296	
								THE YEAR 52,580 Acre Feet					

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ARKANSAS RIVER AT LAMAR, COLORADO

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APPENDIX "B-7"

ARKANSAS RIVER AT THE COLORADO-KANSAS STATELINE

Report-Year Ending October 31, 1962

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

DAY	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.
1	169	155	128	202	100	118	390	288	80	676	33	36
2	206	140	121	180	110	114	378	336	83	439	36	34
3	240	128	121	150	125	118	282	402	148	309	36	38
4	185	140	132	145	150	124	198	440	112	195	56	41
5	151	155	132	150	155	132	162	372	127	154	54	46
6	157	165	135	160	155	132	128	372	326	127	50	44
7	152	175	135	160	155	110	111	578	315	97	50	42
8	144	170	124	165	145	107	105	592	306	154	52	42
9	143	165	70	165	128	97	89	571	157	222	126	35
10	144	130	65	145	121	91	75	537	146	280	75	34
11	150	100	80	135	118	270	66	504	149	330	49	36
12	152	80	100	132	110	426	69	426	165	319	42	37
13	148	80	100	145	124	441	66	402	107	134	50	35
14	147	110	93	140	135	390	85	288	94	88	52	35
15	184	130	87	155	155	339	80	264	92	74	46	36
16	188	132	84	150	145	344	84	218	103	64	41	36
17	170	135	81	145	135	349	145	196	158	52	38	44
18	175	136	78	150	132	323	2710	218	131	42	41	50
19	180	134	75	140	118	329	1330	175	83	51	42	47
20	165	135	73	140	118	350	500	128	205	55	52	42
21	160	134	71	165	118	345	325	124	137	53	59	49
22	155	137	68	170	140	331	300	107	111	56	48	52
23	150	150	87	175	145	333	354	95	161	47	65	53
24	140	145	106	170	132	409	370	236	281	45	43	63
25	135	150	125	135	118	391	336	417	170	46	36	65
26	135	165	144	90	114	377	283	196	143	43	36	59
27	132	160	163	60	110	388	287	257	586	39	33	44
28	140	128	183	70	107	404	275	294	918	35	39	54
29	145	124	204		104	441	262	190	434	33	34	52
30	165	132	224		100	454	221	116	414	32	37	55
31		140	202		114		231		396	32		59
TOTAL												
sec. ft.	4807	4260	3591	4089	3936	8577	10297	9339	6838	4323	1451	1395
ac. ft.	9530	8450	7120	8110	7810	17010	20420	18520	13560	8570	2880	2770

THE YEAR 124,800 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, 1962

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

DAY	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.
1	18	180	222	288	52	45	19	18	41	31	0.7	1.6
2	19	180	216	281	74	43	19	29	35	123	0.5	1.0
3	47	171	207	270	100	41	19	69	32	47	4.2	1.4
4	50	168	201	256	138	47	19	72	28	20	3.4	.7
5	34	168	183	239	168	43	18	58	25	14	0.1	.6
6	30	165	165	225	201	45	13	52	23	10	0	1.5
7	28	171	150	219	207	41	10	49	15	9.4	0.6	0
8	34	177	168	207	192	36	10	81	17	6.4	3.4	0
9	67	183	130	204	183	35	13	198	16	4.8	6.0	2.2
10	83	105	98	201	183	35	13	295	14	6.8	4.8	2.6
11	96	26	54	174	177	26	13	306	12	6.0	4.8	1.2
12	103	24	60	122	174	23	11	270	8.7	6.0	4.8	0
13	111	32	69	103	171	29	7.2	264	7.2	4.4	4.8	0
14	116	45	69	90	168	23	9.4	250	6.8	4.4	5.2	0
15	141	62	74	83	165	25	12	242	6.4	7.2	4.4	0
16	138	74	78	76	162	24	12	213	6.0	5.2	5.2	.1
17	141	86	83	74	168	20	11	174	5.2	4.0	4.4	0
18	189	103	78	67	165	18	8.7	141	4.0	4.8	3.2	0
19	186	108	76	65	165	16	16	106	3.6	3.6	1.4	.1
20	174	124	76	62	165	16	4.6	78	3.0	2.7	2.8	0
21	180	138	76	60	168	16	3.7	67	2.8	1.9	4.0	0
22	177	159	78	58	165	18	10.6	58	2.8	1.1	4.0	.2
23	177	156	78	58	159	18	6.7	52	3.5	2.2	4.0	2.2
24	177	159	81	47	174	18	4.9	49	6.0	0.5	3.8	1.8
25	180	171	86	32	186	23	4.3	41	3.6	0.5	3.2	3.7
26	174	183	96	32	174	29	3.6	45	3.6	0.1	1.3	3.0
27	177	183	100	34	165	28	3.2	62	4.8	0.2	1.2	3.4
28	177	144	119	43	156	26	2.8	86	3.6	0.1	1.2	3.4
29	180	159	141		100	22	2.5	47	3.4	0	1.2	5.2
30	180	168	195		58	23	2.3	52	2.0	1.1	1.2	3.0
31		207	274		49		1.9		1.1	2.2		.3
TOTAL												
sec. ft.	3584	4179	3781	3670	4732	852	1444.3	3524	374.0	330.6	89.8	39.2
ac. ft.	7110	8290	7500	7280	9390	1690	2860	6990	742	656	178	78
THE YEAR 52,760 Acre Feet												

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ARKANSAS RIVER AT GARDEN CITY, KANSAS

APPENDIX "B-9"
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DEMANDS BY COLORADO FOR WATER
 Report Year Ending October 31, 1962
 (Arkansas River Compact Administration Records)

DAY	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.
1							275	12 Noon		450		
2								Empty		450		
3										450		
4										450		
5										450		
6										450 ¹		
7										473	1:00 P.M.	
8										500		
9				8:00 A.M.		300				500		
10						450				565	8:30 A.M.	
11					2:00 P.M.	430				50 ¹	2:00 A.M.	
12						400					Empty	
13						400						
14				8:30 A.M.		432						
15						450						
16						450						
17						450						
18						450						
19						450	162	8:30 A.M.				
20				8:30 A.M.		466	280	9:30 A.M.				
21						475	300					
22					3:30 P.M.	502	339	8:15 A.M.				
23						550	321	8:30 A.M.				
24						550	300					
25						550	300		338	9:15 A.M.		
26						550	300		509	2:15 P.M.		
27						550	300			450		
28						550	300			450		
29						550	300			450		
30						550	300			450		
31							212	5:00 P.M.	450			
TOTAL								Empty				
sec. ft.						10,505	3,989		3,097	4,788		
ac. ft.						20,836	7,912		6,143	9,497		
									THE YEAR	44,388	Acre Feet	

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DEMANDS BY COLORADO FOR WATER

* * * * *

APPENDIX "B-10"

DEMANDS BY KANSAS FOR WATER
 Report-Year Ending October 31, 1962
 (Arkansas River Compact Administration Records)

DAY	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.
1							200	12 Noon		271	4:15 P.M.	
2								Empty			Cancelled	
3												
4												
5												
6										229	10:15 A.M.	
7										400		
8										400		
9					8:00 A.M.	233				400		
10						350				400		
11						350				33	2:00 A.M.	
12						350					Empty	
13						350						
14						350						
15						350						
16						350						
17						350						
18					8:30 A.M.	382						
19						400						
20						400						
21						400						
22						400						
23						400						
24						400						
25						400		2:15 P.M.	163			
26						400						
27						400						
28						400						
29						400						
30						400						
31												400
TOTAL						8,215	200		2,563	2,133		
sec. ft.						16,294	397		5,084	4,231		
ac. ft.									THE YEAR	26,006	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, 1962

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

DAY	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.
1							390			676		
2							378			439		
3							282			309		
4							198			195		
5												
6												
7												
8												
9										222		
10										280		
11										330		
12						426				319		
13						441				134		
14						390				88		
15						339						
16						344						
17						349						
18						323						
19						329						
20						350						
21						345						
22						331						
23						333						
24						409						
25						391						
26						377						
27						388						
28						404			918			
29						441			434			
30						454			414			
31									396			
TOTAL							7164	1248		2162	2992	
sec. ft.							14210	2480		4290	5930	
ac. ft.												

THE YEAR 26,910 Acre Feet

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

STATELINE FLOW ON DAYS OF KANSAS DEMAND*

APPENDIX "B-12"
* * * *

APPENDIX "B-13"

* * * *

DIVERSIONS BY DITCHES IN COLORADO WATER DISTRICTS 14 AND 17

Report-Year Ending October 31, 1962
 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)	0	173	268	974	1,377	6,034	10,790	15,330	15,713	4,951	4,225	4,366	64,201
Res. or Imported	0	0	0	0	0	0	0	0	0	1,686	853	0	2,539
Total Bessemer	0	173	268	974	1,377	6,034	10,790	15,330	15,713	6,637	5,078	4,366	66,740
West Pueblo (River)	0	0	0	0	28	288	323	409	407	194	179	173	2,001
Booth-Orchard Gr. (Riv.)	978	0	0	0	452	1,071	1,144	1,071	1,107	1,107	1,071	1,107	9,108
Excelsior (River)	1,190	377	0	0	0	397	1,129	1,331	1,636	54	0	0	6,114
Collier (River)	595	188	0	0	0	198	351	508	484	28	0	0	2,352
Colorado Canal (River) ..	0	13,154	19,507	13,470	2,606	0	387	14,658	10,389	298	0	0	74,469
Res. or Imported	0	0	0	0	0	12,496	0	0	13,438	19,990	8,033	0	53,957
Total Colorado Canal	0	13,154	19,507	13,470	2,606	12,496	387	14,658	23,827	20,288	8,033	0	128,426
Highline (River)	8,479	4,387	1,716	4,060	4,943	5,877	10,213	17,921	15,298	4,677	3,392	4,076	85,039
Res. or Imported	0	0	0	0	0	1,264	680	0	785	2,873	60	0	5,662
Total Highline	8,479	4,387	1,716	4,060	4,943	7,141	10,893	17,921	16,083	7,550	3,452	4,076	90,701
Oxford Canal (River)	1,626	492	83	540	1,569	3,723	3,888	4,963	6,426	2,271	821	841	27,243
Otero Canal (River)	4,009	825	0	0	788	0	163	2,563	2,200	54	0	0	10,602
Catlin Canal (River)	5,581	3,848	1,914	4,518	10,163	14,033	15,574	17,088	15,445	13,805	3,051	4,048	109,068
Res. or Imported	0	0	0	0	0	0	0	0	0	532	0	0	532
Total Catlin	5,581	3,848	1,914	4,518	10,163	14,033	15,574	17,088	15,445	14,337	3,051	4,048	109,600
Helbrook (River)	18,801	1,369	0	4,986	0	785	3,900	9,475	9,364	97	0	0	48,777
Rocky Ford (River)	4,066	2,142	1,398	1,646	3,668	4,624	5,494	5,574	5,300	5,990	5,673	6,171	51,746
Ft. Lyon Storage (Riv.) ..	0	2,170	3,485	2,810	1,350	0	0	0	5,118	0	0	0	14,933
Ft. Lyon Canal (Riv.)	25,270	23,088	17,388	15,976	18,220	31,274	39,974	41,192	47,742	14,590	9,696	10,164	294,574
Las Animas Cons. (River) ..	2,539	680	0	0	1,412	4,221	3,919	5,476	5,665	2,842	1,537	2,053	30,344
Las Animas Town (Riv.) ..	565	0	0	0	276	1,335	1,650	1,886	1,559	1,323	1,367	1,109	11,070
TOTAL													
River	73,699	52,893	45,759	48,980	46,852	73,860	98,899	139,445	143,853	52,281	31,012	34,108	841,641
Res. or Imported	0	0	0	0	0	13,760	680	0	14,223	25,081	8,946	0	62,690
	73,699	52,893	45,759	48,980	46,852	87,620	99,579	139,445	158,076	77,362	39,958	34,108	904,331

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APPENDIX "B-14"

* * * *

DIVERSIONS BY DITCHES IN COLORADO WATER DISTRICT 67

Report-Year Ending October 31, 1962
 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.....	595	0	0	0	0	*2,612	†2,463	2,184	3,322	2,297	1,450	1,212	16,135
Keesee Ditch	30	0	0	0	0	333	887	595	881	829	611	704	4,870
Amity Canal	547	0	0	0	0	12,353	16,124	16,372	19,323	6,645	0	397	71,761
Lamar Canal	1,898	879	0	0	0	5,411	5,524	5,806	9,080	5,375	1,137	1,295	36,405
Hyde Ditch	204	36	0	0	0	105	280	351	420	214	87	111	1,808
Manvel Canal	0	0	0	0	0	365	81	107	790	206	0	0	1,549
X. Y. & Graham Canals..	85	0	0	0	0	446	1,043	1,619	1,866	780	518	714	7,071
Buffalo Canal	1,198	611	0	0	0	1,652	2,769	3,134	3,328	2,241	1,573	980	17,486
Sisson Canal	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	4,557	1,526	0	0	0	23,277	29,171	30,168	39,010	18,587	5,376	5,413	157,085

* Includes 175 Ac. Ft. for Keesee

† Includes 230 Ac. Ft. for Keesee

APPENDIX "B-15"

* * * *

DIVERSIONS BY DITCHES IN KANSAS

Report Year Ending October 31, 1962

(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	661	0	0	0	0	1,490	1,840	391	2,020	1,780	1,760	1,650	11,592*
Alamo Canal	0	0	0	0	0	602	451	0	169	418	339	474	2,453
Ft. Aubrey Canal.....	0	0	0	0	0	300	933	759	862	794	729	501	4,878†
Total Stateline to Syracuse	661	0	0	0	0	2,392	3,224	1,150	3,051	2,992	2,828	2,625	18,923
Amazon Canal	1,680	0	0	161	0	4,360	3,200	5,150	2,640	520	0	0	17,711
Great Eastern Canal.....	222	0	0	3,560	908	1,760	4,990	2,320	496	1,280	71	0	15,607
South Side Ditch.....	0	0	0	0	0	1,840	3,120	3,770	547	3,210	0	0	12,487
Farmers Ditch	0	0	0	0	343	5,220	3,210	196	4,050	1,450	163	855	15,487
Garden City Canal.....	0	0	0	0	0	383	824	302	111	322	521	0	2,463
Total Syracuse to Garden City.....	1,902	0	0	3,721	1,251	13,563	15,344	11,738	7,844	6,782	755	855	63,755
Total Stateline to Garden City.....	2,563	0	0	3,721	1,251	15,955	18,568	12,888	10,895	9,774	3,583	3,480	82,678

* Includes 4,400 acre-feet returned directly to river

† Includes 265 acre-feet returned directly to river

APPENDIX "B-16"

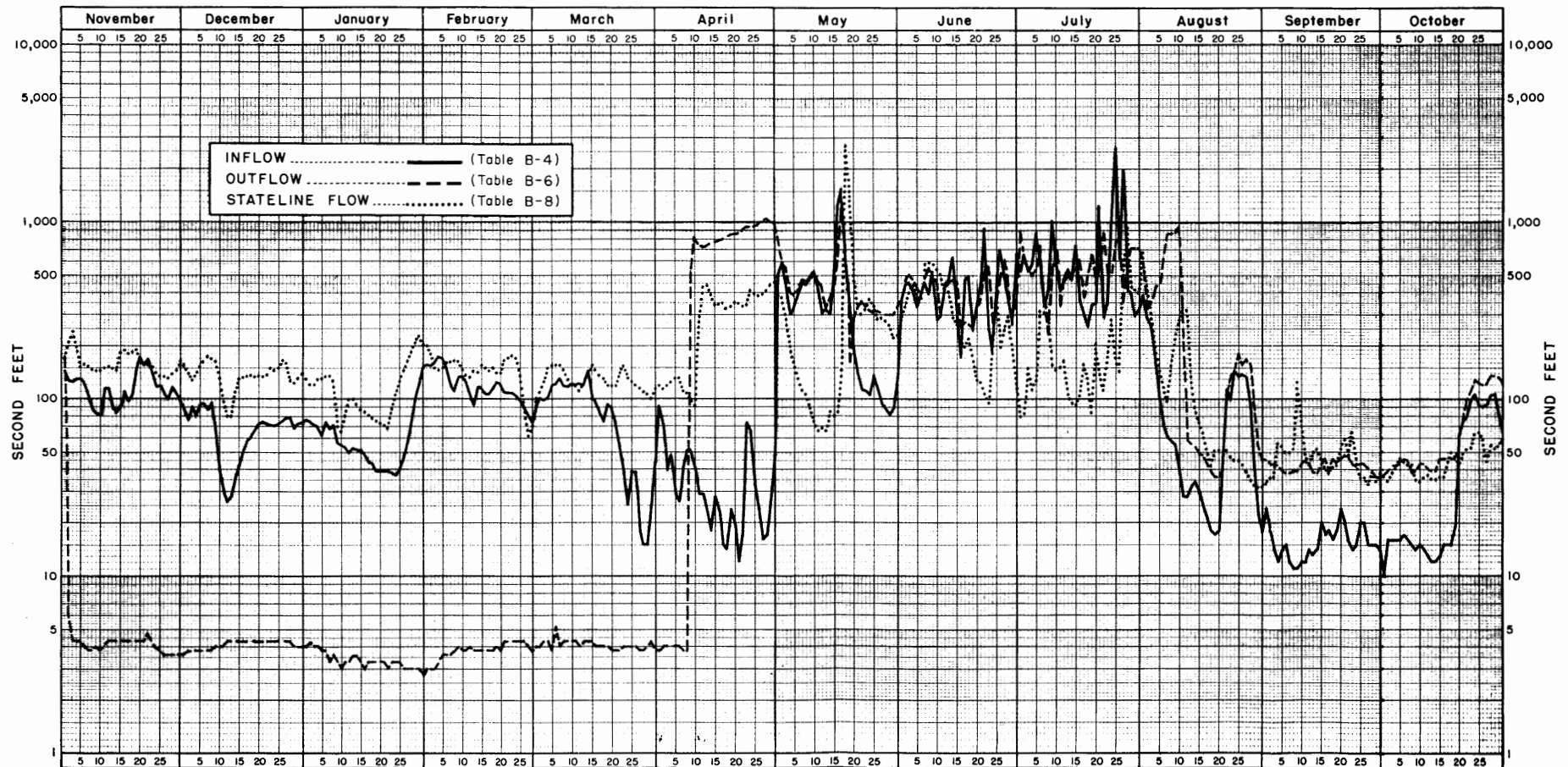
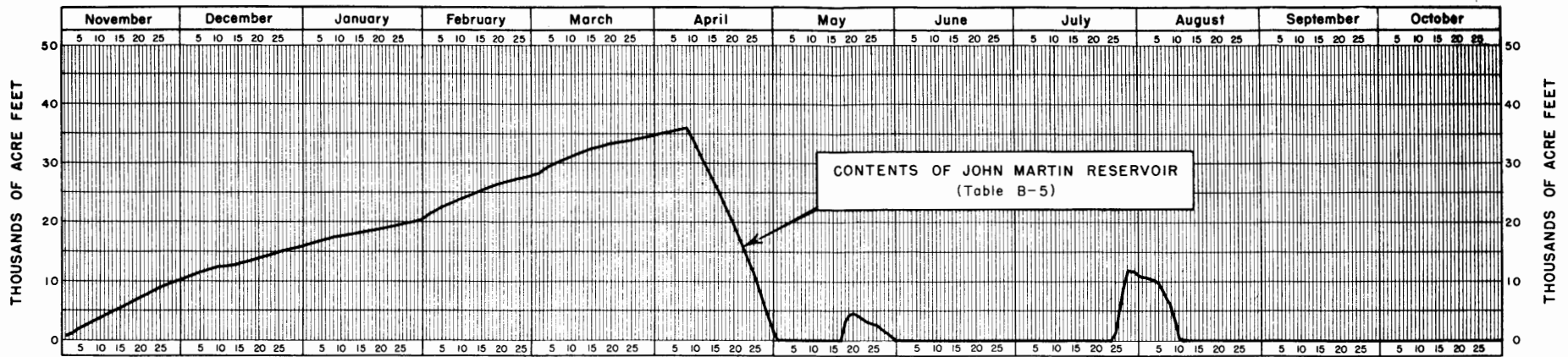
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SUMMARY TABULATION

(Acre-Feet)

	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	YEAR	FROM APP. NO.
Arkansas River at Las Animas, Colo.	4210	3040	2990	4470	3480	1340	19850	21970	24610	3590	773	2180	92500	B- 2
Purgatoire River near Las Animas, Colo.	2670	1090	749	2170	1560	725	2850	2890	14660	1780	163	460	31770	B- 3
Inflow to John Martin Reservoir	6880	4140	3750	6640	5040	2060	22710	24860	39270	5370	938	2640	124300	B- 4*
Reservoir contents at end of month.....	10182	15895	20443	27713	34725	1502	0	0	11023	0	0	0	0	B- 5
Net change in reservoir storage	+10182	+5713	+4548	+7270	+7012	-33223	-1502	0	+11023	-11023	0	0	0	B- 5
Outflow from John Martin Reservoir	590	252	207	212	252	37330	26960	25330	35190	16420	2480	4290	149500	B- 6
Diversions in District 67, Colo.	4557	1526	0	0	0	23277	29171	30168	39010	18587	5376	5413	157085	B-14
Flow at Colorado-Kansas Stateline	9530	8450	7120	8110	7810	17010	20420	18520	13560	8570	2880	2770	124800	B- 8
Diversions in Kansas.....	2563	0	0	3721	1251	15955	18358	12988	10895	9774	3583	3480	82568	B-15
Arkansas River at Garden City, Kansas.....	7110	8290	7500	7280	9390	1690	2860	6990	742	656	178	78	52760	B- 9

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



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

Report Year, November 1, 1961 - October 31, 1962