

FORTY-FOURTH ANNUAL REPORT OF THE ARKANSAS RIVER COMPACT ADMINISTRATION

**1992 Compact Year
November 1, 1991 to October 31, 1992**

THE ADMINISTRATION

FRANK G. COOLEY
Chairman and Representative of the United States

DAVID W. WALKER,
CARL G. GENOVA, and JAMES G. ROGERS
for Colorado

DAVID L. POPE,
LOLA FOX, and RANDY HAYZLETT
for Kansas

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**TO THE PRESIDENT OF THE UNITED STATES,
THE GOVERNOR OF THE STATE OF KANSAS, AND
THE GOVERNOR OF THE STATE OF COLORADO,**

SIRS:

Pursuant to Article VIII of the Arkansas River Compact, the Arkansas River Compact Administration submits its Forty-Fourth Annual Report covering Compact Year 1992, November 1, 1991 through October 31, 1992, as follows.

1. MEMBERS of the ADMINISTRATION

- **Representative of the United States:**
Frank G. Cooley; Meeker, Colorado
- **Colorado Representatives:**
David W. Walker; Denver, Colorado (Nov. 1, 1991 - Feb. 2, 1992)
Sarah Duncan; Denver, Colorado (Feb. 3, 1992 - July 31, 1992)
Eugene I. Jencsok; Denver, Colorado (Aug. 1-14, 1992)
Daries C. Lile; Denver, Colorado (Aug. 15, 1992 - Oct. 31, 1992)
Carl G. Genova; Pueblo, Colorado
James G. Rogers; Lamar, Colorado
- **Kansas Representatives:**
David L. Pope; Topeka, Kansas
Lola Fox; Syracuse, Kansas
Randy Hayzlett; Lakin, Kansas

2. OFFICERS of the ADMINISTRATION (as elected Dec. 10, 1991)

- Chairman: Frank G. Cooley
- Vice Chairman: Carl G. Genova
- Treasurer: James G. Rogers
- Recording Secretary: Bernice Carr
- Operations Secretary: Steven J. Witte

3. STANDING COMMITTEES (as appointed Dec. 10, 1991)

- Administrative and Legal Committee:
Lola Fox (Chair), David W. Walker
- Engineering Committee:
Carl G. Genova (Chair), David L. Pope
- Operations Committee:
Randy Hayzlett (Chair), James G. Rogers
- The Representative of the United States, Frank G. Cooley, is an ex-officio member of all standing committees.

4. MEETINGS

- Annual Meetings: Lamar, Dec. 10, 1991; Lamar, Dec. 8, 1992.
- Special Meetings: Telephonic, June 22, 1992; Telephonic, July 20, 1992; Denver: Aug. 10, 1992.
- Engineering Committee: Denver, Aug. 10, 1992; Lamar, Dec. 7, 1992
- Operations Committee: Lamar, Dec. 9, 1991; Lamar, Dec. 7, 1992
- Administrative & Legal Committee: did not meet

Minutes (transcripts) of the Annual Meetings are not included in this annual report. Minutes were provided to the Compact Administration and to each state previously. Copies of the minutes are also available upon request from the Administration office in Lamar. The minutes of the Annual Meetings also contain summaries of the Engineering and Operations Committee meetings.

Three Special Meetings were held during the summer of 1992 to discuss and plan the Administration's response to a lawsuit filed against it, certain Colorado water officials, and the U.S. Army Corps of Engineers by two Colorado ditch companies (Highland Irrigation Co. and Nine Mile Canal Co.). Case No. 92-1151 was filed in U.S. District Court, District of Colorado, on June 8, 1992. The Administration filed its answer on July 22, 1992. The case was stayed by Court Order on August 20, 1992 pending resolution of the Kansas v. Colorado litigation by the U.S. Supreme Court. At the December 8, 1992 Annual Meeting the Administration retained outside counsel, Mr. William Hillhouse of Denver, Colorado, to represent it in this matter.

At its December 7, 1992 meeting the Operations Committee reviewed the "Annual Report of the Operations Secretary Concerning the Operation of John Martin, 1992" (hereinafter "Oper. Sec. 92 Report") and recommended its acceptance and approval which was given by the full Administration at the December 8, 1992 Annual Meeting. Much of the data contained in this annual report is derived from that report.

In February 1992 Mr. David Walker resigned as Director of the Colorado Water Conservation Board (CWCB), and no longer served on the Administration. Colorado was represented by acting Directors of the CWCB, until Mr. Daries C. Lile was appointed as the new Director, effective August 15, 1992. At the December 8, 1992 Annual Meeting Mr. Lile was introduced and welcomed to the Administration, and a brief resolution acknowledging Mr. Walker's service was adopted.

5. FISCAL

Article VIII E.(1) of the Compact provides that expenses incident to the administration of the Compact not paid by the United States shall be borne by the states on the basis of 60% to Colorado and 40% to Kansas. Budgets for such expenses are prepared annually, and the states are assessed their proportionate share of the budgeted expenses at the beginning of each Fiscal Year (FY). The Administration's FY runs from July 1 to June 30. The fiscal affairs of the Administration for Compact Year 1992 involve portions of the Administration's FY 1991-92 (11/1/91 to 6/30/92) and FY 1992-93 (7/1/92 to 10/31/92). The Treasurer reported on the financial status of the Administration for the relevant periods of those fiscal years at the Annual Meetings held on December 10, 1991 and December 8, 1992.

At the December 10, 1991 Annual Meeting the following budget actions were taken:

- FY 1991-92 budget previously adopted was reviewed and left unchanged with anticipated expenses of \$40,550;
- FY 1992-93 budget previously adopted was revised to reflect anticipated expenses of \$46,175;
- FY 1993-94 budget was adopted with anticipated expenses of \$43,105.

Copies of these budgets are included in this report as Appendix A-1.

At the close of the fiscal year on June 30, 1992 the Administration had a cash balance of \$22,382 as shown in the FY 1991-92 Auditor's Report accepted at the December 8, 1992 Annual Meeting. The Auditor's Report is included herein as Appendix A-2. On December 7, 1992 the Administration had a cash balance of \$48,538 as reported by the Treasurer and shown on Appendix A-3.

6. FACTS ABOUT THE JOHN MARTIN RESERVOIR PROJECT

The John Martin Reservoir ("JMR") Project was built by the United States Army Corps of Engineers ("Corps of Engineers"). The project was authorized by Congress in the Flood Control Act of June 22, 1936 when the federal responsibility for flood control throughout the country was assigned to the Corps of Engineers. It is located on the Arkansas River, 58 miles upstream from the Colorado-Kansas Stateline and 18 miles upstream from the City of Lamar, Colorado. Construction of the project began in the fall of 1939, but work was suspended due to World War II from the spring of 1943 to the spring of 1946. The project was completed in October, 1948, at a cost of about \$15 million. The War Department Civil Appropriation Act of June 24, 1940 changed the name of the project from Caddoa Reservoir Project to John Martin Reservoir Project, in honor of the late Congressman John A. Martin of Colorado. It is operated by the United States Army Corps of Engineers, Albuquerque (New Mexico) District. The Corps stations a resident reservoir manager at Hasty, Colorado, adjacent to the project.

The JMR Project is a part of the comprehensive plan for the control of floods and the development of water resources in the Arkansas River Basin. A 1986 resurvey of the reservoir, in official use since February 1, 1988, shows 259,562 acre-feet of storage capacity above elevation 3851.87 for flood control protection of the fertile Arkansas River Valley downstream of the dam. The release of stored flood waters is planned so that, when combined with flows originating downstream from the dam, the capacity of the river channel will not be exceeded. Downstream flood damages prevented by JMR already exceed the cost of the project, and total project benefits to date have surpassed the \$117 million mark.

The reservoir also provides 348,683 acre-feet of storage space for conservation and recreation purposes below elevation 3851.87. JMR supplies water to irrigated lands as far downstream as Garden City, Kansas. The conservation pool can store up to 338,639 acre-feet of water for irrigation. Upon request of the Arkansas River Compact Administration, irrigation water for downstream water users is released by the Corps of Engineers through outlet works in the base of the dam.

Recreation and favorable fish and wildlife habitats are also provided by the project. In 1965 Congress authorized a permanent pool to improve habitat and recreation values at JMR. The Administration subsequently approved the use of up to 15,000 acre-feet of storage space at JMR for these purposes. Colorado provides water to the permanent pool pursuant to procedures adopted by the Administration. Reservoir lands are open to public use for outdoor recreation, water sports, fishing,

boating, and camping. During construction some embankment material was obtained from a 75-acre tract of land immediately downstream of the dam. This excavated area, averaging 12 feet deep, filled with water and formed Lake Hasty, now used for year-round recreation. North of the reservoir, a half-mile segment of the historic Santa Fe Trail has been enclosed by a fence and marked with an appropriate sign.

John Martin Dam consists of a concrete gravity structure 1,644 feet long and 120 feet high, and an earthfill structure 2,600 feet long. The concrete gravity structure contains a spillway controlled by sixteen 30 foot by 64 foot tainter gates and their operating machinery. There are earthen wing dams on either side of the main dam. The north wing dam is 3,880 feet long, connecting to the earthfill structure of the main dam at the north abutment. The south wing dam is 5,807 feet long and connects to the south end of the concrete structure of the main dam. A bituminous-surfaced roadway, 21 feet wide, extends along the crest of the north wing dam, main dam, and south wing dam. The overall length of the structure is 2.6 miles. Detailed project data, based on the 1986 resurvey, is shown below.

DAM

Total length, feet	13,945
Maximum height above streambed, feet.....	118
Width of roadway on dam, feet	21

SPILLWAY

Total length, including piers, feet	1,174
Crest gates, 30' x 64', each	16
Discharge capacity, cfs	639,200

OUTLET WORKS

Sluicing conduits, 6' x 7.5', each	4
Regulating conduits, 4' x 4', each	2
Total outlet capacity at elevation 3,851, cfs	14,700

RESERVOIR

Capacity at elevation 3,870, acre-feet	608,245
Flood control storage, acre-feet.....	259,562
Conservation and recreation storage, acre-feet	348,683
Water surface at spillway crest, acres.....	8,975
Water surface at top of conservation pool, acres	11,645
Water surface at top of flood control pool, acres	17,151
Drainage areas, square miles	18,915

7. COOPERATIVE STUDIES and ACTIVITIES

Article VIII.G.(1) of Arkansas River Compact requires the Administration to cooperate with the chief official of each of the states of Colorado and Kansas charged with the administration of water rights in their respective states, and with the Federal agencies in systematically determining and correlating the facts pertaining to the flow and diversion of the water of the Arkansas River and to the operation and siltation of John Martin Reservoir and other related structures. Article VIII.G.(2) requests the Director of the United States Geological Survey ("USGS"), 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 the appropriate state officials in such determinations and correlations of stream flow and related data. Under the By-Laws of the Administration, these cooperative studies and activities are assigned to the Engineering Committee of the Administration.

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 USGS has continued the operation of the compact gaging stations and the analysis of and compilation of the hydrologic data presented in this report and used in the administration of the Compact. The USGS also reported to the Administration on a variety of water resource studies it was conducting in the Arkansas River Basin. The Corps of Engineers continued to operate the conservation pool of John Martin Reservoir in accordance with the terms of the Compact and the resolutions and orders of the Administration. The Corps informed the Administration of its plan to conduct new capacity surveys at John Martin and Trinidad Reservoirs during 1993. The Corps also reported on the pending allocation of excess space at Trinidad Reservoir and on channel capacity problems along the Purgatoire River downstream of the City of Trinidad.

8. WATER SUPPLY and RESERVOIR OPERATION

John Martin Reservoir ("JMR") is operated pursuant to the "Resolution Concerning an Operating Plan for John Martin Reservoir" ("Operating Plan" or "Operation Plan") adopted by the Compact Administration on April 24, 1980. Minor revisions to the Operating Plan were made on May 10, 1984 and December 11, 1984, but the plan has remained unchanged since 1984. Accordingly, a system of water storage accounts exists at JMR into which reservoir inflows are distributed for physical release at a later date. While these accounts have often been referred to as "Article II" and "Article III" accounts, the correct designation, based on the organization of the Operating Plan Resolution, is "Section II" and "Section III" accounts. This report uses the term "Section" or "agreement" whenever referring to the various accounts established pursuant to the Operating Plan. More specifically, the Operating Plan created the following account system at JMR:

- Accounts established by Section II
 - Kansas account
 - Colorado Irrigation District 67 ditch accounts (Fort Bent Canal, Keesee Canal, Amity Canal, Lamar Canal, Hyde Canal, Manvel Ditch, X-Y/Graham Ditch, Buffalo Canal, Sisson-Stubbs Ditch)
 - Kansas transit loss account
- Accounts established by Section III
 - Amity Great Plains Reservoir account
 - Fort Lyon Canal account
 - Las Animas Consolidated Ditch account

In addition to these accounts, water is also accounted for at JMR as conservation storage and in the permanent and the flood control pools.

An overview of general reservoir operations during Compact Year 1992 is summarized in Table 1. This table reflects actual reservoir operations showing the volumes of water physically stored, released, and evaporated at JMR between November 1, 1991 and October 31, 1992. During the year 74,896.79 acre-feet of water was stored in JMR, 13,327 acre-feet evaporated, and 56,671.50 acre-feet was released to downstream users. This operation resulted in an increase in contents for the year of almost 4,900 acre-feet. The remainder of this section provides a detailed description of reservoir operations.

TABLE 1					
JOHN MARTIN RESERVOIR ANNUAL OPERATION (AF) COMPACT YEAR 1992					
Month	Contents Begin Month	Inflow to Storage	Evaporation	Storage Release	Contents End Month
Nov. '91	8,386.58	13,304.42	241.00	0.00	21,450.00
Dec.	21,450.00	11,468.00	327.00	0.00	32,591.00
Jan. '92	32,591.00	13,107.00	347.00	0.00	45,351.00
Feb.	45,351.00	18,561.00	817.00	0.00	63,095.00
Mar.	63,095.00	9,060.00	1,564.00	0.00	70,591.00
Winter Subtotal		65,500.42	3,296.00	0.00	
Apr.	70,591.00	2,163.17	1,988.00	21,671.15	49,095.02
May	49,095.02	352.08	1,802.00	13,442.04	34,203.06
June	34,203.06	2,157.23	1,713.00	629.01	34,018.28
July	34,018.28	2,260.97	1,625.00	15,595.98	19,058.27
Aug.	19,058.27	2,462.92	1,098.00	4,163.58	16,259.61
Sept.	16,259.61	0.00	1,153.00	1,169.74	13,936.87
Oct. '92	13,936.87	0.00	652.00	0.00	13,284.87
Summer Subtotal		9,396.37	10,031.00	56,671.50	
Year Total		74,896.79	13,327.00	56,671.50	
NOTES					
[1] Peak contents, 70,800 AF; reached on April 4, 1992.					
[2] Source: Oper. Sec. 92 Report Tables I, II, VI, and VIII (includes City of Lamar temporary sub-account operations).					

The 1992 Arkansas River Compact Year and the winter season for JMR began at 0001 hours November 1, 1991 with 8,386.58 acre-feet in the reservoir distributed as shown in Table 2. Winter storage officially ended at 2400 hours on March 31, 1992 with a total inflow to the reservoir of 65,500.42 acre-feet. Conservation storage received 37,944.32 acre-feet of water which was held for subsequent release to the various Section II accounts after March 31, pursuant to the Operating Plan. An additional 27,556.10 acre-feet was stored at JMR during the period November 15, 1991 to March 15, 1992 pursuant to Section III of the 1980 Operating Plan and the Pueblo Winter Water Storage Program ("WWSP"), as shown on Table 3.

TABLE 2 JOHN MARTIN RESERVOIR CONTENTS DISTRIBUTION NOVEMBER 1, 1991 [AF] BEGIN COMPACT YEAR 1992		
<u>Storage Component</u>	<u>Subtotal</u>	<u>Contents</u>
Conservation Storage		0.00
Agreement Accounts		
Section II Agreement Accounts		
Kansas Account	0.00	
Dist. 67 Accounts	1,848.27	
Transit Loss Account	<u>3,770.56</u>	
Subtotal Section II	5,618.83	
Section III Agreement Accounts		
Amity	0.00	
Ft. Lyon	0.00	
Las Animas Cons.	<u>0.00</u>	
Subtotal Section III	<u>0.00</u>	
Total All Accounts	5,618.83	5,618.83
Flood Pool		0.00
Permanent Pool		<u>2,767.75</u>
Total Reservoir Contents		8,386.58
NOTES		
[1] Source: Oper. Sec. 92 Report, November accounting sheets, and Oper. Sec. 91 Report, Table XIII.		

TABLE 3						JOHN MARTIN RESERVOIR	
SECTION III ACCOUNTS WINTER INFLOW DISTRIBUTION							
(NOV. 15, 1991 - MAR. 15, 1992) [AF]							
Month	Contents	Inflow to		Storage	Contents		
	<u>Begin Month</u>	<u>Storage</u>	<u>Evaporation</u>	<u>Release</u>	<u>End Month</u>		
Nov. '91	0.00	2,572.09	10.54	0.00	2,561.55		
Dec.	2,561.55	4,326.88	58.52	0.00	6,829.91		
Jan. '92	6,829.91	5,849.01	83.52	0.00	12,595.40		
Feb.	12,595.40	12,049.90	267.11	0.00	24,378.19		
Mar.	24,378.19	2,758.22	311.40	26,825.01	0.00		
Winter Total		27,556.10	731.09	26,825.01			

NOTES:

[1] Inflow stored at JMR during the period Nov. 15, 1991 through March 15, 1992 pursuant to Section III of the 1980 Operating Plan and the Pueblo WWSP.

[2] Not a physical release from JMR, WWSP water allocated to individual Section III Operating Plan accounts on March 16, 1992 as follows:

	Total	Transfer to	Net to
<u>Account</u>	<u>Allocation</u>	<u>transit loss</u>	<u>Account</u>
Amity	20,242.17	7,084.76	13,157.41
Ft Lyon	2,741.50	959.52	1,781.98
Las Animas	3,841.34	1,344.47	2,496.87
Total	26,825.01	9,388.75	17,436.26

[3] Source: Oper. Sec. 92 Report, Table II, and monthly accounting sheets for Section III account distribution.

No water was bypassed through the reservoir during the winter season. Several transfers into and between accounts did occur. These transfers adjusted the volume of water owned by individual entities, but did not change the total contents of JMR. In November the excess water in the transit loss account, 3,770.56 acre-feet, was reallocated to the Kansas and District 67 Section II accounts. On March 16, 1992 the 26,825.01 acre-feet of WWSP water held in the JMR conservation pool was distributed into the appropriate Section III agreement accounts. Following this distribution, 35% of each individual Section III account inflow was reallocated to the transit loss account, a total of 9,388.75 acre-feet. After these actions, the allocation of the reservoir contents at the conclusion of the winter compact storage period on March 31, 1992 was as shown on Table 4. The total contents on March 31, as rounded and published by the USGS, was 70,600 acre-feet which agrees with the value of 70,591 acre-feet measured by the Corps of Engineers and used by the Operations Secretary in his 1992 Report.

TABLE 4 JOHN MARTIN RESERVOIR CONTENTS DISTRIBUTION MARCH 31, 1992 [AF] COMPACT YEAR 1992		
<u>Storage Component</u>	<u>Subtotal</u>	<u>Contents</u>
Conservation Storage		36,275.20
Agreement Accounts		
Section II Agreement Accounts		
Kansas Account	1,099.87	
Dist. 67 Accounts	4,115.40	
Transit Loss Account	<u>9,286.02</u>	
Subtotal Section II	14,501.29	
Section III Agreement Accounts		
Amity	13,013.48	
Ft. Lyon	1,762.48	
Las Animas Cons.	<u>2,469.56</u>	
Subtotal Section III	<u>17,245.52</u>	
Total All Accounts	31,746.81	31,746.81
Flood Pool		0.00
Permanent Pool		<u>2,568.99</u>
Total Reservoir Contents		70,591.00
NOTES		
[1] Source: Oper. Sec. 92 Report, March accounting sheets.		

The summer storage season began at 0001 hours April 1, 1992. Transfer of 36,275.20 acre-feet of winter conservation storage into the Section II accounts began on April 1, 1992 in accordance with the Operation Plan and was completed on April 17, 1992. Conservation storage operations are detailed in Table 5. During the period April 1 to 18, 2,163.17 acre-feet of summer conservation storage was accumulated. After a reduction for evaporation this water was also distributed to the Section II accounts. Kansas received 40% of the April conservation storage transfers (15,236.05 acre-feet) and the Colorado District 67 ditches received 60% (22,854.11 acre-feet), a total of 38,090.16 acre-feet. With moderate runoff there were no flood control operations during Compact Year 1992, as reflected in Table 5A, Flood Pool Operations. Peak contents in JMR of 70,800 acre-feet was reached on April 4, 1992.

During June, July, and August 1992 brief periods of high runoff resulted in additional summer inflow of 4,499.97 acre-feet to conservation storage. After reduction for evaporation, 4,498.30 acre-feet was subsequently transferred to the Section II accounts, Kansas receiving 40% (1,799.32 acre-feet), and Colorado District 67 ditches 60% (2,698.98 acre-feet). No other inflows to conservation storage occurred during the remainder of the year.

TABLE 5 JOHN MARTIN RESERVOIR CONSERVATION STORAGE OPERATION (AF) COMPACT YEAR 1992						
Month	Contents Begin Month	Inflow to Storage	Evaporation	Storage Release	Contents End Month	
Nov. '91	0.00	10,732.33	105.73	0.00	10,626.60	
Dec.	10,626.60	7,141.12	171.38	0.00	17,596.34	
Jan. '92	17,596.34	7,257.99	188.63	0.00	24,665.70	
Feb.	24,665.70	6,511.10	426.49	0.00	30,750.31	
Mar.	30,750.31	6,301.78	776.89	0.00	36,275.20	
Winter Subtotal		37,944.32	1,669.12	0.00		
Apr.	36,275.20	2,163.17	348.21	38,090.16	0.00	
May	0.00	0.00	0.00	0.00	0.00	
June	0.00	934.95	0.35	934.60	0.00	
July	0.00	1,442.18	0.67	1,441.51	0.00	
Aug.	0.00	2,122.84	0.65	2,122.19	0.00	
Sept.	0.00	0.00	0.00	0.00	0.00	
Oct. '92	0.00	0.00	0.00	0.00	0.00	
Summer Subtotal		6,663.14	349.88	42,588.46		
Year Total		44,607.46	2,019.00	42,588.46		
NOTES:						
[1] Not a physical release from JMR, transferred to operating plan accounts.						
[2] Source: Oper. Sec. 92 Report, Table I.						

TABLE 5A JOHN MARTIN RESERVOIR FLOOD POOL OPERATION [AF] COMPACT YEAR 1992					
Month	Contents Begin Month	Inflow to Storage	Evaporation	Storage Release	Contents End Month
Nov. '91	0.00	0.00	0.00	0.00	0.00
Dec.	0.00	0.00	0.00	0.00	0.00
Jan. '92	0.00	0.00	0.00	0.00	0.00
Feb.	0.00	0.00	0.00	0.00	0.00
Mar	0.00	0.00	0.00	0.00	0.00
Winter Subtotal		0.00	0.00	0.00	
Apr.	0.00	0.00	0.00	0.00	0.00
May	0.00	0.00	0.00	0.00	0.00
June	0.00	0.00	0.00	0.00	0.00
July	0.00	0.00	0.00	0.00	0.00
Aug.	0.00	0.00	0.00	0.00	0.00
Sept.	0.00	0.00	0.00	0.00	0.00
Oct. '92	0.00	0.00	0.00	0.00	0.00
Summer Subtotal		0.00	0.00	0.00	
Year Total		0.00	0.00	0.00	
NOTES					
[1] No flood pool operations in CY 1992.					
[2] Source: Oper. Sec. 92 Report, Table IX.					

During the summer storage season 1,914.44 acre-feet was stored in the Amity Canal Section III account pursuant to the Great Plains Reservoir ("GPR") decree. Another 818.79 acre-feet was temporarily stored in a sub-account of the Ft. Bent Canal account for reregulation of the City of Lamar's transmountain Fry-Ark water under procedures approved by the Administration and described in the Operations Secretary Report. No water was stored in the permanent pool at JMR during the summer season. Combined operations of all the accounts established by Sections II and III of the Operating Plan are shown in Table 6. Operations of the Section II and III accounts during Compact Year 1992 are separately shown in Tables 7 and 8.

TABLE 6

**JOHN MARTIN RESERVOIR
AGREEMENT ACCOUNTS OPERATION (AF)
COMPACT YEAR 1992**

<u>Month</u>	<u>Contents Begin Month</u>	<u>Inflow to Storage</u>	<u>Evaporation</u>	<u>Storage Release</u>	<u>Contents End Month</u>
Nov. '91	5,618.83	0.00	83.57	0.00	5,535.26
Dec.	5,535.26	0.00	65.06	0.00	5,470.20
Jan. '92	5,470.20	0.00	50.14	0.00	5,420.06
Feb.	5,420.06	0.00	82.68	0.00	5,337.38
Mar.	5,337.38	26,825.01	415.58	0.00	31,746.81
Winter Subtotal		26,825.01	697.03	0.00	
Apr.	31,746.81	38,090.16	1,556.99	21,671.15	46,608.83
May	46,608.83	352.08	1,690.20	13,442.04	31,828.67
June	31,828.67	2,156.88	1,594.97	629.01	31,761.57
July	31,761.57	2,260.30	1,485.00	15,595.98	16,940.89
Aug.	16,940.89	2,462.27	962.93	4,163.58	14,276.65
Sept.	14,276.65	0.00	1,006.63	1,169.74	12,100.28
Oct. '92	12,100.28	0.00	566.10	0.00	11,534.18
Summer Subtotal		45,321.69	8,862.82	56,671.50	
Year Total		72,146.70	9,559.85	56,671.50	

NOTES

- [1] Table includes the sum of all Section II and III accounts and City of Lamar temporary operations with Fry-Ark water using the Ft. Bent Canal.
 [2] Transfers between accounts are neither an inflow or a release for Table 6 values.
 [3] Source: Oper. Sec. 92 Report, Table VI and monthly accounting sheets.

TABLE 7

**JOHN MARTIN RESERVOIR
SECTION II ACCOUNTS OPERATION (AF)
COMPACT YEAR 1992**

<u>Month</u>	<u>Contents Begin Month</u>	<u>Inflow to Storage</u>	<u>Evaporation</u>	<u>Storage Release</u>	<u>Contents End Month</u>
Nov. '91	5,618.83	0.00	83.57	0.00	5,535.26
Dec.	5,535.26	0.00	65.06	0.00	5,470.20
Jan. '92	5,470.20	0.00	50.14	0.00	5,420.06
Feb.	5,420.06	0.00	82.68	0.00	5,337.38
Mar.	5,337.38	9,388.75	224.84	0.00	14,501.29
Winter Subtotal		9,388.75	506.29	0.00	
Apr.	14,501.29	38,090.16	1,016.81	19,645.46	31,929.18
May	31,929.18	0.00	1,306.38	3,728.74	26,894.06
June	26,894.06	1,362.39	1,342.32	457.01	26,457.12
July	26,457.12	2,260.30	1,201.43	14,351.99	13,164.00
Aug.	13,164.00	2,241.22	841.00	1,260.48	13,303.74
Sept.	13,303.74	0.00	970.79	232.67	12,100.28
Oct. '92	12,100.28	0.00	566.10	0.00	11,534.18
Summer Subtotal		43,954.07	7,244.83	39,676.35	
Year Total		53,342.82	7,751.12	39,676.35	

NOTES

- [1] Sect. II accounts: Kansas, see Table 9; transit loss, see Table 11; District 67 ditches, see Table 12A; City of Lamar, included as part of District 67.
 [2] Inflows include 9,935.57 AF of water transferred to transit loss account from Section III accounts, see Tables 8 and 11.
 [3] Inflows and releases do not include transfers between various Section II accounts.
 [4] Source: Oper. Sec. 92 Report, Table VI.

TABLE 8

**JOHN MARTIN RESERVOIR
SECTION III ACCOUNTS OPERATION (AF)
COMPACT YEAR 1992**

Month	Contents Begin Month	Inflow to Storage	Evaporation	Storage Release	Contents End Month
Nov. '91	0.00	0.00	0.00	0.00	0.00
Dec	0.00	0.00	0.00	0.00	0.00
Jan. '92	0.00	0.00	0.00	0.00	0.00
Feb.	0.00	0.00	0.00	0.00	0.00
Mar.	0.00	26,825.01	190.74	9,388.75	17,245.52
Winter Subtotal		26,825.01	190.74	9,388.75	
Apr.	17,245.52	0.00	540.18	2,025.69	14,679.65
May	14,679.65	352.08	383.82	9,713.30	4,934.61
June	4,934.61	1,222.28	252.65	599.79	5,304.45
July	5,304.45	0.00	283.57	1,243.99	3,776.89
Aug.	3,776.89	340.08	121.93	3,022.13	972.91
Sept.	972.91	0.00	35.84	937.07	0.00
Oct. '92	0.00	0.00	0.00	0.00	0.00
Summer Subtotal		1,914.44	1,617.99	17,541.97	
Year Total		28,739.45	1,808.73	26,930.72	

NOTES

- [1] Winter inflow stored at JMR per Pueblo WWSP, summer inflow per GPR decree.
 [2] Releases include 9,388.75 AF (March) and 546.82 AF (summer) [35% of inflow] transferred to transit loss account, a total of 9,935.57 AF. Additional transfer against May 352.08 AF inflow to Amity account made Nov. 1, 1992, see 1993 accounting.
 [3] Inflows and releases do not include transfers between Section III accounts.
 [4] Source: Oper. Sec. 92 Report, Tables III, IV, V, and monthly accounting sheets.

Kansas called for releases from its account of 11,074.55 acre-feet during a single run from July 7 to July 21, 1992. A separate transit loss account release of 1,475.22 acre-feet was made to support deliveries of Kansas account water to the Stateline. Operations of the Kansas and transit loss accounts are summarized in Tables 9, 10, and 11, and detailed on a daily basis in Appendices B-12 and B-13.

The procedure used to calculate deliveries of requested releases is described in an annual agreement between the states. The Stateline flow attributed to Kansas demands for releases from JMR is calculated using a lag/rundown period to account for the transit time between JMR and the Stateline. Generally, deliveries begin 2 days after the release from JMR commences and continue for up to 7 days following the end of the release. The agreement for 1992, dated Dec. 10, 1991, states in part:

"3. Credit for delivery to Kansas will stop at the Stateline 7 days after the end of the run at JMR. No credit for over delivery will be carried forward to any subsequent run...

4. When the daily average flow at the Stateline exceeds the demand, delivery will be credited at not to exceed 105% of the demand."

The total Stateline flow on days of Kansas demands, determined pursuant to this agreement by the Operations Secretary using provisional data was 17,867 acre-feet. This provisional flow remained unchanged when USGS discharge records were finalized and published. Of this Stateline flow, 14,541 acre-feet was determined pursuant to the annual agreement to be a credited delivery against the releases from the Kansas account.

The operation of the transit loss account in Compact Year 1992 is shown in Table 11. Inflows to the transit loss account are by transfer of 35% of Section III account inflows, as required by the Operating Plan. Releases were made as necessary to support deliveries to the Stateline during the period of Kansas demand. The November 1991 release was the reallocation of excess transit loss account water to the other Section II accounts, and was not a physical release from the reservoir.

TABLE 9 JOHN MARTIN RESERVOIR KANSAS ACCOUNT OPERATION (AF) COMPACT YEAR 1992					
Month	Contents <u>Begin Month</u>	Inflow to <u>Storage</u>	<u>Evaporation</u>	Storage <u>Release</u>	Contents <u>End Month</u>
Nov. '91	0.00	1,185.03	17.65	0.00	1,167.38
Dec.	1,167.38	0.00	13.72	0.00	1,153.66
Jan. '92	1,153.66	0.00	10.58	0.00	1,143.08
Feb.	1,143.08	0.00	17.45	0.00	1,125.63
Mar.	1,125.63	0.00	25.76	0.00	1,099.87
Winter		1,185.03	85.16	0.00	
Apr.	1,099.87	15,236.05	384.15	0.00	15,951.77
May	15,951.77	0.00	717.22	0.00	15,234.55
June	15,234.55	373.84	757.24	0.00	14,851.15
July	14,851.15	576.61	539.69	11,074.55	3,813.52
Aug.	3,813.52	848.87	250.55	0.00	4,411.84
Sept.	4,411.84	0.00	325.71	0.00	4,086.13
Oct. '92	4,086.13	0.00	191.18	0.00	3,894.95
Summer		17,035.37	3,165.74	11,074.55	
Year Total		18,220.40	3,250.90	11,074.55	
NOTES					
[1] November inflow is Kansas share (11/35) of transfer of excess transit loss account water.					
[2] Source: Oper. Sec. 92 Report, monthly accounting sheets.					

TABLE 10

**JOHN MARTIN RESERVOIR
KANSAS DEMANDS and RELEASES [AF]
COMPACT YEAR 1992**

<u>Month</u>	<u>Demand/ Release</u>	<u>Transit Loss Acct. Release</u>	<u>Stateline Flow</u>	<u>Credited Delivery</u>
Nov. '91	0.00	0.00	0	0
Dec.	0.00	0.00	0	0
Jan. '92	0.00	0.00	0	0
Feb.	0.00	0.00	0	0
Mar.	0.00	0.00	0	0
Winter Subtotal	0.00	0.00	0	0
Apr.	0.00	0.00	0	0
May	0.00	0.00	0	0
June	0.00	0.00	0	0
July	11,074.55	1,475.22	17,867	14,541
Aug.	0.00	0.00	0	0
Sept.	0.00	0.00	0	0
Oct. '92	0.00	0.00	0	0
Summer Subtotal	11,074.55	1,475.22	17,867	14,541
Year Total	11,074.55	1,475.22	17,867	14,541

NOTES

[1] Stateline flow equals sum of Frontier Ditch and Arkansas River at Coolidge, Kansas gaged flows on days of Kansas demands, adjusted for transit times and "rundown" period.

[2] Source: Oper. Sec. 92 Report, Table XI, XII, and XIII.

TABLE 11

**JOHN MARTIN RESERVOIR
TRANSIT LOSS ACCOUNT SUMMARY [AF]
COMPACT YEAR 1992**

<u>Month</u>	<u>Contents Begin Month</u>	<u>Inflow to Storage</u>	<u>Evaporation</u>	<u>Storage Release</u>	<u>Contents End Month</u>
Nov. '91	3,770.56	0.00	0.00	3,770.56	0.00
Dec.	0.00	0.00	0.00	0.00	0.00
Jan. '92	0.00	0.00	0.00	0.00	0.00
Feb.	0.00	0.00	0.00	0.00	0.00
Mar.	0.00	9,388.75	102.73	0.00	9,286.02
Winter Subtotal		9,388.75	102.73	3,770.56	
Apr.	9,286.02	0.00	299.36	0.00	8,986.66
May	8,986.66	0.00	404.08	0.00	8,582.58
June	8,582.58	427.79	431.95	0.00	8,578.42
July	8,578.42	0.00	465.12	1,475.22	6,638.08
Aug.	6,638.08	119.03	422.49	0.00	6,334.62
Sept.	6,334.62	0.00	467.60	0.00	5,867.02
Oct. '92	5,867.02	0.00	274.48	0.00	5,592.54
Summer Subtotal		546.82	2,765.08	1,475.22	
Year Total		9,935.57	2,867.81	5,245.78	

NOTES

[1] Inflows are transfers from Section III accounts.

[2] Transit loss account totals included with Section II accounts in Table 7.

[3] Nov. 1991 release is reallocation to Kansas account (11/35) and to Colorado ditch accounts (24/35) pursuant to the 1980 Operating Plan and annual agreement.

[4] Additional inflow to transit loss account re Amity made on Nov. 1, 1992.

[5] Source: Oper. Sec. 92 Report, Table VII.

Combined operations of the Section II accounts for the ditches in Irrigation District 67 of Colorado are shown in Table 12A. The data in Table 12A includes amounts resulting from reregulation of the City of Lamar's transmountain Fryingpan-Arkansas Project water in a temporary Ft. Bent Canal sub-account. In July, 1992, 818.79 acre-feet was delivered into this sub-account, 15.69 acre-feet was evaporated, and 803.10 acre-feet was released from JMR to the Ft. Bent Canal for recharge of the city's well field. Combined Section III accounts operations were previously shown in Table 8. Total releases from all Section II and III accounts to Colorado ditches during the 1992 Compact Year totaled 44,121.73 acre-feet, as summarized in Table 12B.

TABLE 12A JOHN MARTIN RESERVOIR COLORADO DISTRICT 67 DITCHES SECTION II ACCOUNTS OPERATION (AF) COMPACT YEAR 1992					
Month	Contents Begin Month	Inflow to Storage	Evaporation	Storage Release	Contents End Month
Nov. '91	1,848.27	2,585.53	65.92	0.00	4,367.88
Dec	4,367.88	0.00	51.34	0.00	4,316.54
Jan. '92	4,316.54	0.00	39.56	0.00	4,276.98
Feb.	4,276.98	0.00	65.23	0.00	4,211.75
Mar.	4,211.75	0.00	96.35	0.00	4,115.40
Winter Subtotal		2,585.53	318.40	0.00	
Apr.	4,115.40	22,854.11	333.30	19,645.46	6,990.75
May	6,990.75	0.00	185.08	3,728.74	3,076.93
June	3,076.93	560.76	153.13	457.01	3,027.55
July	3,027.55	1,683.69	196.62	1,802.22	2,712.40
Aug.	2,712.40	1,273.32	167.96	1,260.48	2,557.28
Sept.	2,557.28	0.00	177.48	232.67	2,147.13
Oct. '92	2,147.13	0.00	100.44	0.00	2,046.69
Summer Subtotal		26,371.88	1,314.01	27,126.58	
Year Total		28,957.41	1,632.41	27,126.58	
NOTES					
[1] Includes City of Lamar temporary sub-account.					
[2] Nov. inflow is Colorado share (24/35) of redistribution of excess transit loss account water.					
[3] Transfers between ditch accounts, if any, not included as an inflow or release.					
[4] Source: Oper. Sec. 92 Report, monthly accounting sheets.					

TABLE 12B JOHN MARTIN RESERVOIR SUMMARY OF RELEASES TO COLORADO DITCHES [AF] COMPACT YEAR 1992			
<u>Month</u>	<u>Release from</u> <u>Sec. II Acct.</u>	<u>Release from</u> <u>Sec. III Acct.</u>	<u>Total Colorado</u> <u>Release to River</u>
Nov. '91	0.00	0.00	0.00
Dec.	0.00	0.00	0.00
Jan. '92	0.00	0.00	0.00
Feb.	0.00	0.00	0.00
Mar.	0.00	0.00	0.00
Winter Subtotal	0.00	0.00	0.00
Apr.	19,645.46	2,025.69	21,671.15
May	3,728.74	9,713.30	13,442.04
June	457.01	172.00	629.01
July	1,802.22	1,243.99	3,046.21
Aug.	1,260.48	2,903.10	4,163.58
Sept.	232.67	937.07	1,169.74
Oct. '92	0.00	0.00	0.00
Summer Subtotal	27,126.58	16,995.15	44,121.73
Year Total	27,126.58	16,995.15	44,121.73

NOTES

[1] Includes release of City of Lamar's transmountain Fry-Ark water at 803.10 AF.
[2] Source: Oper. Sec. 92 Report, Table X.

The permanent pool in John Martin Reservoir received no inflow in Compact Year 1992. Contents declined over 1,000 acre-feet due to evaporation, leaving 1,750.69 acre-feet in the pool at the close of the year. Permanent pool operations are shown in Table 13.

TABLE 13 JOHN MARTIN RESERVOIR PERMANENT POOL OPERATION [AF] COMPACT YEAR 1992					
<u>Month</u>	<u>Contents</u> <u>Begin Month</u>	<u>Inflow to</u> <u>Storage</u>	<u>Evaporation</u>	<u>Storage</u> <u>Release</u>	<u>Contents</u> <u>End Month</u>
Nov. '91	2,767.75	0.00	41.16	0.00	2,726.59
Dec.	2,726.59	0.00	32.04	0.00	2,694.55
Jan. '92	2,694.55	0.00	24.71	0.00	2,669.84
Feb.	2,669.84	0.00	40.72	0.00	2,629.12
Mar.	2,629.12	0.00	60.13	0.00	2,568.99
Winter Subtotal		0.00	198.76	0.00	
Apr.	2,568.99	0.00	82.80	0.00	2,486.19
May	2,486.19	0.00	111.80	0.00	2,374.39
June	2,374.39	0.00	117.68	0.00	2,256.71
July	2,256.71	0.00	139.33	0.00	2,117.38
Aug.	2,117.38	0.00	134.42	0.00	1,982.96
Sept.	1,982.96	0.00	146.37	0.00	1,836.59
Oct. '92	1,836.59	0.00	85.90	0.00	1,750.69
Summer Subtotal		0.00	818.30	0.00	
Year Total		0.00	1,017.06	0.00	

NOTES

[1] Source: Oper. Sec. 92 Report, Table VIII

Compact Year 1992 ended at 2400 hours on October 31, 1992. JMR contained 13,284.87 acre-feet, as determined by the Operations Secretary accounting, which agrees reasonably well with the 13,600 acre-feet subsequently published by the USGS. An adjustment to reservoir accounting was made by the Operations Secretary on November 1, 1992 by crediting approximately 320 acre-feet of additional inflow to conservation storage. This reconciled the records of JMR contents for the start of Compact Year 1993. JMR contained approximately 4,900 acre-feet more water than at the beginning of Compact Year 1992. The final contents were allocated as shown in Table 14.

TABLE 14 JOHN MARTIN RESERVOIR CONTENTS DISTRIBUTION OCTOBER 31, 1992 (AF) END COMPACT YEAR 1992		
<u>Storage Component</u>	<u>Subtotal</u>	<u>Contents</u>
Conservation Storage		0.00
Agreement Accounts		
Section II Agreement Accounts		
Kansas Account	3,894.95	
Dist. 67 Accounts	2,046.69	
Transit Loss Account	<u>5,592.54</u>	
Subtotal Section II	11,534.18	
Section III Agreement Accounts		
Amity	0.00	
Ft. Lyon	0.00	
Las Animas Cons.	<u>0.00</u>	
Subtotal Section III	<u>0.00</u>	
Total All Accounts	11,534.18	11,534.18
Flood Pool		0.00
Permanent Pool		<u>1,750.69</u>
Total Reservoir Contents		13,284.87
NOTES		
[1] Source: Oper. Sec. 92 Report, Table XIII.		

The technical data for this section was compiled by the staff of the Colorado Water Conservation Board using data from the Annual Report of the Operations Secretary Concerning the Operation of John Martin, the USGS, the Colorado Division of Water Resources, the Kansas Division of Water Resources, and the minutes and correspondence of the Arkansas River Compact Administration.

9. GAGING STATIONS

The USGS operates eight gaging stations, as included in Appendix B, under their "Collection of Basic Records" program and through funding agreements with the Corps of Engineers and the Administration. For federal fiscal year 1991-1992 (October 1, 1991 to September 30, 1992) the Administration approved cooperative agreements with the Kansas and Colorado Districts of the USGS in the amount of \$26,450. The Administration was assessed one half of this amount, or \$13,225. These funds were used for supplemental stage and flow measurements at compact gaging sites in Colorado and Kansas, the operation of one station (Arkansas River near Granada, Colorado), and the preparation of records for this annual report. In 1992 the USGS installed a data collection platform (DCP) on the Arkansas River at Lamar, Colorado gage. As of 1992 all compact gaging stations are now linked via satellite to water resource management offices. The immediate retrieval of real time flow data has improved the administration of water deliveries under the Compact.

In general, streamflow records of satisfactory accuracy were obtained at the compact stations. Emphasis was again placed on obtaining more field data, particularly in the form of discharge measurements at various stages of flow. Additional measurements were also made by personnel of the Colorado State Engineer which were incorporated into the records as appropriate. The only significant problem at the stations during the year was the continuing unstable channels and controls.

10. FINDINGS of FACT by the ADMINISTRATION

There were no findings of fact made by the Administration during Compact Year 1992.

11. INVESTIGATIONS

There were no investigations undertaken by the Administration during Compact Year 1992.

12. CHRONOLOGY of EVENTS in KANSAS v. COLORADO LITIGATION

During Compact Year 1992 the trial in the liability phase of the litigation continued intermittently before the Special Master, Arthur L. Littleworth, in Pasadena, California. Various motions were filed during the period regarding additional discovery and admissibility of evidence. As of December 16, 1992 all evidentiary presentations in the liability phase of the litigation had been completed. Also during 1992 the Special Master issued orders dismissing Kansas' claims regarding Trinidad Reservoir and several counterclaims filed by Colorado.

13. RESOLUTION HONORING DAVID W. WALKER

ARKANSAS RIVER COMPACT ADMINISTRATION

307 South Fifth Street
LAMAR, COLORADO 81052

COLORADO
DARIES C. LILE, Denver
CARL GENOVA, Pueblo
JAMES G. ROGERS, Lamar

FRANK G. COOLEY
Chairman and Federal Representative
P.O. Box 66
Mosier, Colorado 81041

KANSAS
DAVID L. POPE, Topeka
RANDY HAYZLETT, Larned
LOLA FOX, Syracuse

RESOLUTION

WHEREAS, Mr. David W. Walker, in his capacity as Director of the Colorado Water Conservation Board, served as a representative from the State of Colorado to the Arkansas River Compact Administration; and

WHEREAS, Mr. Walker ably and steadfastly represented Colorado's interests with equanimity and fairness in a gentlemanly manner during his association with the Administration.

NOW, THEREFORE, BE IT RESOLVED by the Arkansas River Compact Administration that it does hereby express its gratitude and appreciation to David W. Walker for his outstanding service, dedication, and courtesy to the Administration and to the states, and further extends to him its best wishes for health and happiness in the future.

BE IT FURTHER RESOLVED that the Administration honor Mr. Walker for his service by including this Resolution in the Administration's 1992 Annual Report and instruct the Recording Secretary to send a copy of the Resolution to Mr. Walker.

Entered this 8th day of December, 1992, at the Annual Meeting of the Arkansas River Compact Administration held in Lamar, Colorado.


Frank G. Cooley, Chairman

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Appendix A-1

**REVISED FY 1991-92 BUDGET
(July 1, 1991 - June 30, 1992)**

EXPENDITURES

A. SALARIES AND CONTRACTUAL SERVICES		
1. Treasurer	\$ 2,000	
2. Recording Secretary	2,000	
3. Operations Secretary	6,100	
4. Auditor's Fees	700	
5. Court Reporter's Fees	<u>600</u>	
		\$11,400
B. GAGING STATIONS		
1. U.S. Geological Survey Cooperative Agreements for federal FY 1991	\$12,600	
2. State of Colorado Satellite System	<u>8,000</u>	
		\$20,600
C. OPERATING EXPENSES		
1. Treasurer's Bond	\$ 100	
2. 1990 Annual Reports (Printing)	5,000	
3. Telephone	1,000	
4. Office Supplies/Postage	400	
5. Printing/Copying	300	
6. Meetings	150	
7. Travel	0	
8. Rent	<u>600</u>	
		\$ 7,550
D. EQUIPMENT		
		0
E. CONTINGENCY		
		<u>1,000</u>
F. TOTAL		
		\$40,550

INCOME

A. ASSESSMENTS		
1. Colorado (60%)	\$15,750	
2. Kansas (40%)	<u>10,500</u>	
		\$26,250
B. INTEREST EARNINGS		
		3,000
C. MISCELLANEOUS		
		<u>0</u>
		\$29,250

<u>EXPENDITURES FROM SURPLUS</u>	\$11,300
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First adopted by the Arkansas River Compact Administration at its December 12, 1989 Annual Meeting and revised at its December 11, 1990 Annual Meeting.

_____/s/
James Rogers, Treasurer

Appendix A-1

FY 1992-93 BUDGET
(July 1, 1992 - June 30, 1993)

EXPENDITURES

A. SALARIES AND CONTRACTUAL SERVICES

1. Treasurer	\$ 2,000
2. Recording Secretary	2,000
3. Operations Secretary	6,100
4. Auditor's Fees	700
5. Court Reporter's Fees	<u>600</u>

\$11,400

B. GAGING STATIONS

1. U.S. Geological Survey Cooperative Agreements for federal FY 1992	\$13,225
2. State of Colorado Satellite System	<u>9,000</u>

\$22,225

C. OPERATING EXPENSES

1. Treasurer's Bond	\$ 100
2. Annual Reports (Printing 1989-91)	9,000
3. Telephone	1,000
4. Office Supplies/Postage	400
5. Printing/Copying	300
6. Meetings	150
7. Travel	0
8. Rent	<u>600</u>

\$11,500

D. EQUIPMENT

0

E. CONTINGENCY

1,000

F. TOTAL

\$46,175

INCOME

A. ASSESSMENTS

1. Colorado (60%)	\$23,400
2. Kansas (40%)	<u>15,600</u>

\$39,000

B. INTEREST EARNINGS

1,000

C. MISCELLANEOUS

0

\$40,000

EXPENDITURES FROM SURPLUS

\$ 6,175

Adopted by the Arkansas River Compact Administration at its December 11, 1990 Annual Meeting, and revised at its December 10, 1991 Annual Meeting.

/s/
James Rogers, Treasurer

Appendix A-1
REVISED FY 1993-94 BUDGET
(July 1, 1993 - June 30, 1994)

EXPENDITURES

A. SALARIES AND CONTRACTUAL SERVICES

1. Treasurer	\$ 2,000	
2. Recording Secretary	2,000	
3. Operations Secretary	6,100	
4. Auditor's Fees	700	
5. Court Reporter's Fees	<u>600</u>	
		\$11,400

B. GAGING STATIONS

1. U.S. Geological Survey Cooperative Agreements for federal FY 1993	\$14,155	
2. State of Colorado Satellite System	<u>10,000</u>	
		\$24,155

C. OPERATING EXPENSES

1. Treasurer's Bond	\$ 100	
2. Annual Report (Printing 1992)	4,000	
3. Telephone	1,000	
4. Office Supplies/Postage	400	
5. Printing/Copying	300	
6. Meetings	150	
7. Travel	0	
8. Rent	<u>600</u>	
		\$ 6,550

D. EQUIPMENT

0

E. CONTINGENCY

1,000

F. TOTAL

\$43,105

INCOME

A. ASSESSMENTS

1. Colorado (60%)	\$24,000	
2. Kansas (40%)	<u>16,000</u>	
		\$40,000

B. INTEREST EARNINGS

500

C. MISCELLANEOUS

0

\$40,500

EXPENDITURES FROM SURPLUS

\$ 2,605

Adopted by the Arkansas River Compact Administration at its December 10, 1991 Annual Meeting.

 /s/
 James Rogers, Treasurer

Appendix A-2
AUDITORS REPORT



Members
NSPA
PASC

Certified Public Accountants

Gary L. Anderson, C.P.A.
Ronald D. Anderson, P.A.

September, 2, 1992

We have audited the accompanying statements of assets, liabilities and equity - cash basis - of the Arkansas River Compact Administration as of June 30, 1992, and the related statements of revenue collected and expenses paid for the year then ended. These financial statements are the responsibility of the Administration's management. Our responsibility is to express an opinion on these financial statements based on our audit.

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.

As described in Note 1a, these financial statements were prepared on the basis of cash receipts and disbursements, which is a comprehensive basis of accounting other than generally accepted accounting principles.

In our opinion, the financial statements referred to above present fairly, in all material respects, the assets and liabilities - cash basis - of the Arkansas River Compact Administration as of June 30, 1992 and its revenue collected and expenses paid during the year then ended, on the basis of accounting described in Note 1a.

Anderson & Company, P.C.

Appendix A-2
AUDITORS REPORT

ARKANSAS RIVER COMPACT ADMINISTRATION
STATEMENT OF ASSETS AND LIABILITIES - CASH BASIS
June 30, 1992

ASSETS

Cash	\$ 22,382
Equipment	29,811
Concrete Control	<u>8,000</u>
<u>TOTAL ASSETS</u>	<u>\$ 60,193</u>

LIABILITIES

Liabilities	\$ <u>0</u>
-------------	-------------

CASH BASIS EQUITY

Expended:	
Equipment	\$ 29,811
Concrete Control	8,000
Unexpended	<u>22,382</u>
<u>TOTAL LIABILITIES AND CASH BASIS EQUITY</u>	<u>\$ 60,193</u>

See Accountant's Audit Report.

2

Appendix A-2
AUDITORS REPORT

ARKANSAS RIVER COMPACT ADMINISTRATION
STATEMENT OF REVENUES COLLECTED AND EXPENSES PAID
and CHANGES IN CASH BALANCE
For the Year Ended June 30, 1992

<u>CASH BALANCE</u> - July 1, 1991		<u>\$ 29,949</u>
<u>REVENUES</u>		
Revenues from Assessments		
Colorado - 60%	\$ 15,750	
Kansas - 40%	10,500	
Interest	<u>1,716</u>	
<u>TOTAL REVENUES</u>		27,966
<u>EXPENSES</u>		
Treasurer Bond	\$ 100	
Geological Survey	12,425	
Satellite Access Fee	8,000	
Operations Secretary	7,509	
Refund Prior Year Payroll Taxes	257	
Office Rent	600	
Auditor Fee	350	
Office Supplies and Postage	155	
Copying & Binding	252	
Meeting Expense	330	
Court Reporter Fee	468	
Telephone	1,087	
Recording Secretary and Treasurer	<u>4,000</u>	
<u>TOTAL EXPENSES</u>		(35,533)
<u>EXCESS OF EXPENSES OVER REVENUES</u>		<u>(7,567)</u>
<u>CASH BALANCE</u> - June 30, 1992		<u>\$ 22,382</u>

See Accountant's Audit Report.
3

Appendix A-2 **AUDITORS REPORT**

ARKANSAS RIVER COMPACT ADMINISTRATION **STATEMENT OF REVENUES COLLECTED** **and EXPENSES PAID WITH BUDGET COMPARISON** **For the Budget Year July 1, 1991 to June 30, 1992**

	<u>ACTUAL</u>	<u>BUDGET</u>	<u>OVER(UNDER)</u>
<u>REVENUES</u>			
Revenues from Assessments:			
Colorado - 60%	\$ 15,750	\$ 15,750	\$ 0
Kansas - 40%	10,500	10,500	0
Interest	<u>1,716</u>	<u>3,000</u>	<u>(1,284)</u>
<u>TOTAL REVENUES</u>	<u>27,966</u>	<u>29,250</u>	<u>(1,284)</u>
<u>EXPENSES</u>			
U.S. Geological Survey	\$ 12,425	\$ 12,600	\$ (175)
Satellite Access Fee	8,000	8,000	0
Operation Secretary	7,509	6,100	1,409
Treasurers Bond	100	100	0
Telephone	1,087	1,000	87
Court Reporter Fee	468	600	(132)
Recording Secretary & Treasurer	4,000	4,000	0
Meeting Expense	330	150	180
Auditor Fee	350	700	(350)
Office Supplies & Postage	155	400	(245)
Printing and Copying	252	300	(48)
Printing Annual Reports -			
1989 and 1990	0	5,000	(5,000)
Office Rent	600	600	0
Contingency	<u>257</u>	<u>1,000</u>	<u>(743)</u>
<u>TOTAL EXPENSES</u>	<u>35,533</u>	<u>40,550</u>	<u>(5,017)</u>
<u>BUDGET DEFICIT</u>	<u>\$ (7,567)</u>	<u>\$ (11,300)</u>	<u>\$ 3,733</u>

See Accountant's Audit Report.

4

Appendix A-2
AUDITORS REPORT

ARKANSAS RIVER COMPACT ADMINISTRATION
NOTES TO CASH BASIS STATEMENTS
June 30, 1992

NOTE 1 - Summary of significant accounting policies:

- a. The Administration maintains financial records using the cash basis of accounting. By using the cash basis of accounting, certain revenues are recognized when received rather than when earned, and certain expenses and purchases of assets are recognized when cash is disbursed rather than when the obligation is incurred.

Appendix A-3
CASH BALANCE STATEMENT

ARKANSAS RIVER COMPACT ADMINISTRATION

307 South Fifth Street
LAMAR, COLORADO 81052

COLORADO
DAVID W. WALKER, Denver
CARL GENOVA, Pueblo
JAMES G. ROGERS, Lamar

FRANK G. COOLEY
Chairman and Federal Representative
P.O. Box 98
Meeker, Colorado

KANSAS
DAVID L. POPE, Topeka
RANDY RAYZLETT, Lakin
LOLA FOX, Syracuse

ARKANSAS RIVER COMPACT ADMINISTRATION
STATEMENT OF CASH RECEIPTS & DISBURSEMENTS & CHANGE IN CASH BALANCE
FROM JULY 1, 1992 THRU DECEMBER 7, 1992

CASH BALANCE: July 1, 1992		\$22,381.70
RECEIPTS:		
COLORADO	\$23,400.00	
KANSAS	15,600.00	
Interest Earned since July 1	691.18	
TOTAL RECEIPTS		\$39,691.18
DISBURSEMENTS		
Treasurer's Bond	\$ 100.00	
U. S. Geological Survey	8,250.00	
Salaries	2,000.00	
Telephone	724.42	
Office Rent	300.00	
Postage	80.00	
Copying-Supplies-Checks	99.40	
Audit	350.00	
Xerox & Bind ARCA Ann. Report	162.58	
Operations Secretary Acct.	1,305.50	
Meeting Expense	163.20	
TOTAL DISBURSEMENTS		\$13,535.10
EXCESS RECEIPTS OVER DISBURSEMENTS		<u>\$26,156.08</u>
CASH BALANCE:		<u>\$48,537.78</u>
FUNDS ON HAND:		
Checking Account	\$ 210.08	
Money Market Account	48,327.70	
TOTAL		<u><u>\$48,537.78</u></u>

B-1
1982

DISCHARGE: ARKANSAS RIVER ABOVE PUEBLO, COLORADO

U.S.G.S. PUBLISHED RECORDS, GAGING STATION # 7099400
DAILY MEAN DISCHARGE, CUBIC FEET PER SECOND
REPORT YEAR ENDING OCTOBER 31, 1982

B-1
1982

DAY	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	DAY
1	323	129	140	254	174	497	718	1,140	1,330	889	738	201	1
2	352	131	140	254	187	474	717	1,170	1,300	883	816	213	2
3	352	131	140	254	277	480	701	1,250	1,260	1,080	782	213	3
4	411	129	140	254	278	491	782	1,240	1,100	1,070	689	240	4
5	451	129	142	256	277	491	834	1,190	1,130	1,020	640	256	5
6	508	130	142	256	275	449	885	1,050	1,110	889	840	250	6
7	509	131	141	256	274	402	982	1,020	968	900	709	247	7
8	468	131	173	256	274	370	1,030	1,090	928	789	1,040	233	8
9	443	133	194	257	292	360	1,010	1,240	1,290	647	977	213	9
10	444	131	194	258	318	338	884	1,310	1,570	744	894	205	10
11	444	132	185	259	318	326	954	1,280	1,630	844	840	205	11
12	382	133	196	257	316	328	807	1,300	1,600	905	822	208	12
13	315	133	196	258	315	353	655	1,400	1,570	842	751	192	13
14	219	132	186	257	314	406	635	1,500	1,460	724	408	184	14
15	124	133	186	258	260	468	635	1,570	1,210	880	576	198	15
16	124	133	196	258	260	560	663	1,680	1,070	656	844	212	16
17	125	133	196	257	278	675	668	1,750	1,030	666	841	216	17
18	126	133	196	258	297	685	778	1,660	679	1,240	820	215	18
19	127	134	196	258	334	690	974	1,460	676	777	784	260	19
20	127	135	197	258	367	750	1,110	1,270	679	772	784	268	20
21	127	135	198	226	377	781	1,320	1,200	680	705	607	290	21
22	127	135	198	205	376	782	1,500	1,200	635	643	366	282	22
23	127	135	198	208	408	724	1,630	1,350	572	775	375	272	23
24	127	135	199	209	421	677	1,680	1,500	580	855	358	265	24
25	128	136	201	210	410	656	1,630	1,560	718	1,550	338	265	25
26	128	137	201	210	411	655	1,550	1,640	792	1,730	329	266	26
27	129	137	201	210	394	636	1,450	1,680	861	1,200	329	344	27
28	129	137	202	194	385	611	1,360	1,690	952	948	318	367	28
29	129	137	202	174	385	676	1,320	1,650	969	724	286	352	29
30	129	139	234	---	408	719	1,200	1,500	946	589	220	339	30
31	---	140	255	---	453	---	1,130	---	898	610	---	332	31
TOTAL CFS	7,654	4,139	5,796	6,981	10,113	16,490	32,172	41,560	32,193	27,486	18,941	7,822	TOTAL CFS
TOTAL AF	15,180	8,210	11,500	13,850	20,060	32,710	63,810	82,470	63,850	54,520	37,570	15,510	TOTAL AF
TOTAL YEAR	419,240 ACRE-FEET												

B-2a
1962

DISCHARGE: ARKANSAS RIVER AT LAS ANIMAS, COLORADO

U.S.G.S. PUBLISHED RECORDS, GAGING STATION # 7124000
DAILY MEAN DISCHARGE, CUBIC FEET PER SECOND
REPORT YEAR ENDING OCTOBER 31, 1962

B-2a
1962

DAY	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	DAY
1	100	124	121	123	161	27	206	425	553	182	423	61	1
2	110	126	122	136	152	25	154	445	473	285	378	74	2
3	376	129	118	188	139	24	144	473	541	242	271	66	3
4	454	135	124	206	150	23	133	379	715	216	249	54	4
5	123	142	138	213	148	23	143	317	760	144	256	46	5
6	505	135	130	222	138	22	128	336	673	90	277	42	6
7	348	124	120	215	178	22	108	282	519	54	261	40	7
8	205	124	177	225	146	22	88	352	408	58	257	41	8
9	177	124	197	212	138	22	98	681	287	54	337	54	9
10	119	124	172	207	137	22	171	487	99	37	315	75	10
11	80	126	172	202	142	22	243	366	159	35	280	82	11
12	88	126	179	248	143	22	355	710	277	42	248	78	12
13	63	126	170	355	137	21	447	548	421	74	188	70	13
14	63	119	160	374	132	21	471	332	462	72	173	72	14
15	86	112	150	376	117	22	343	178	398	208	154	89	15
16	185	109	180	378	71	22	282	69	524	270	155	86	16
17	190	111	253	381	46	22	213	256	401	253	161	57	17
18	182	114	284	381	39	22	179	455	315	202	114	53	18
19	188	118	331	374	37	22	328	517	227	284	116	52	19
20	187	121	275	378	34	22	387	578	245	311	133	84	20
21	182	124	185	370	33	22	387	574	442	354	137	70	21
22	160	124	154	378	33	22	487	580	326	290	174	63	22
23	151	122	143	393	31	22	590	532	223	205	186	77	23
24	142	120	140	368	29	22	438	544	143	183	200	91	24
25	140	114	136	238	29	22	452	612	119	261	199	102	25
26	136	113	135	197	28	22	501	591	234	278	142	111	26
27	129	110	132	186	28	22	471	619	147	263	112	114	27
28	134	111	121	186	28	22	497	456	88	118	103	130	28
29	135	113	114	163	31	22	523	503	69	324	95	128	29
30	132	113	116	—	32	22	490	683	70	452	89	141	30
31	—	120	119	—	28	22	403	—	70	446	—	178	31
TOTAL CFS	5,270	3,754	5,038	7,853	2,715	4,218	9,287	13,901	10,386	6,284	6,188	2,441	TOTAL CFS
TOTAL AF	10,450	7,450	9,990	15,580	5,380	8,370	18,420	27,570	20,600	12,450	12,290	4,840	TOTAL AF
TOTAL YEAR	153,410 ACRE FEET												

B-2b
1992

DISCHARGE: PURGATOIRE RIVER NEAR LAS ANIMAS, COLORADO

U.S.G.S. PUBLISHED RECORDS, GAGING STATION # 7128500
DAILY MEAN DISCHARGE CUBIC FEET PER SECOND
REPORT YEAR ENDING OCTOBER 31, 1992

B-2b
1992

DAY	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	DAY
1	9.0	32.0	32.0	34.0	20.0	8.9	6.7	15.0	11.0	47.0	76.0	13.0	1
2	8.5	22.0	28.0	33.0	24.0	21.0	6.3	16.0	12.0	58.0	106.0	7.4	2
3	8.0	27.0	28.0	39.0	21.0	18.0	6.3	18.0	11.0	104.0	113.0	9.6	3
4	11.0	28.0	32.0	43.0	19.0	12.0	7.1	18.0	8.8	420.0	108.0	13.0	4
5	28.0	32.0	30.0	42.0	17.0	15.0	8.1	16.0	6.5	221.0	94.0	17.0	5
6	32.0	32.0	31.0	40.0	18.0	25.0	8.9	100.0	6.2	77.0	98.0	14.0	6
7	25.0	31.0	34.0	40.0	15.0	21.0	6.7	30.0	4.1	46.0	43.0	18.0	7
8	29.0	33.0	32.0	40.0	10.0	22.0	6.8	26.0	3.5	41.0	30.0	28.0	8
9	35.0	31.0	28.0	37.0	19.0	20.0	5.7	70.0	963.0	48.0	24.0	28.0	9
10	45.0	31.0	30.0	35.0	27.0	17.0	5.2	89.0	346.0	52.0	20.0	25.0	10
11	41.0	35.0	42.0	35.0	29.0	18.0	5.3	98.0	52.0	41.0	16.0	24.0	11
12	33.0	38.0	41.0	34.0	27.0	20.0	4.7	39.0	25.0	87.0	18.0	25.0	12
13	32.0	36.0	34.0	34.0	24.0	22.0	4.7	35.0	24.0	189.0	16.0	25.0	13
14	31.0	33.0	24.0	34.0	22.0	26.0	8.5	26.0	49.0	87.0	12.0	26.0	14
15	26.0	28.0	20.0	33.0	18.0	24.0	5.3	15.0	23.0	162.0	7.4	28.0	15
16	31.0	27.0	25.0	31.0	16.0	17.0	6.3	7.2	38.0	78.0	6.4	28.0	16
17	28.0	31.0	30.0	32.0	41.0	20.0	4.2	14.0	46.0	93.0	8.9	32.0	17
18	31.0	31.0	38.0	31.0	37.0	16.0	6.0	7.3	30.0	67.0	7.6	33.0	18
19	34.0	35.0	30.0	31.0	44.0	12.0	4.7	7.7	107.0	66.0	4.9	35.0	19
20	42.0	41.0	27.0	31.0	35.0	13.0	4.1	4.8	54.0	163.0	6.1	33.0	20
21	45.0	38.0	27.0	28.0	38.0	26.0	4.5	6.1	103.0	100.0	4.8	33.0	21
22	46.0	37.0	36.0	26.0	39.0	15.0	4.0	8.7	183.0	134.0	6.5	28.0	22
23	42.0	37.0	32.0	25.0	33.0	12.0	2.7	21.0	210.0	189.0	6.1	26.0	23
24	37.0	37.0	34.0	28.0	32.0	11.0	2.6	9.2	114.0	117.0	4.4	24.0	24
25	38.0	37.0	37.0	28.0	26.0	12.0	2.4	12.0	72.0	97.0	4.1	27.0	25
26	41.0	40.0	40.0	30.0	21.0	9.8	3.9	59.0	343.0	376.0	6.3	26.0	26
27	36.0	38.0	35.0	31.0	22.0	8.8	5.2	58.0	341.0	350.0	11.0	27.0	27
28	32.0	35.0	36.0	30.0	31.0	8.2	4.0	23.0	184.0	212.0	14.0	25.0	28
29	33.0	35.0	36.0	21.0	53.0	8.2	4.2	20.0	124.0	157.0	11.0	26.0	29
30	34.0	33.0	35.0	—	24.0	8.6	5.3	16.0	115.0	113.0	15.0	27.0	30
31	—	31.0	33.0	—	11.0	—	9.6	—	81.0	88.0	—	27.0	31
TOTAL CFS	944.5	1,034.0	989.0	956.0	816.0	486.5	168.0	848.0	3,691.1	4,089.0	869.5	759.0	TOTAL CFS
TOTAL AF	1,870	2,050	1,980	1,900	1,620	965	333	1,680	7,320	8,070	1,720	1,510	TOTAL AF
TOTAL YEAR	31,018 ACRE-FEET												

B-2c
1992

RIVER FLOW INTO JOHN MARTIN RESERVOIR

CALCULATED USING U.S.G.S. PUBLISHED RECORDS. [1]
DAILY MEAN DISCHARGE, CUBIC FEET PER SECOND
REPORT YEAR ENDING OCTOBER 31, 1992

B-2c
1992

DAY	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	DAY
1	108	158	153	157	181	38	213	440	564	228	499	94	1
2	119	148	151	169	176	46	160	461	485	343	486	81	2
3	384	156	146	228	180	40	150	491	552	346	384	78	3
4	465	164	156	249	189	35	140	397	724	635	358	67	4
5	152	174	168	255	165	38	151	333	767	365	352	63	5
6	537	187	151	262	156	47	135	436	679	167	343	56	6
7	373	155	154	255	193	43	115	312	523	100	304	58	7
8	234	157	208	265	156	44	93	390	412	100	287	70	8
9	212	155	226	249	157	42	104	751	1,250	102	361	82	9
10	164	155	202	242	164	39	176	576	445	88	335	100	10
11	121	161	214	237	171	41	248	445	211	76	286	108	11
12	101	165	220	263	170	42	360	749	302	129	266	103	12
13	95	162	204	388	161	43	452	593	445	263	215	96	13
14	94	152	184	408	154	47	480	358	511	159	185	98	14
15	112	140	170	409	135	46	348	183	419	368	161	87	15
16	226	156	205	407	87	39	288	76	563	348	161	94	16
17	218	142	283	413	87	42	217	270	447	346	170	88	17
18	223	145	302	412	76	38	185	462	345	269	122	86	18
19	222	153	361	405	81	341	175	525	334	349	121	87	19
20	229	162	302	409	68	400	167	594	299	474	139	87	20
21	227	162	212	398	71	413	233	590	545	454	142	103	21
22	206	161	190	404	72	286	471	589	509	424	181	91	22
23	193	159	175	418	64	239	583	553	433	394	194	103	23
24	179	157	174	396	61	303	441	553	257	300	204	115	24
25	178	151	173	266	58	302	454	624	191	368	203	129	25
26	177	153	175	227	49	348	505	650	577	654	148	137	26
27	165	149	167	217	50	384	476	677	488	613	123	141	27
28	166	146	157	196	59	328	501	479	272	328	117	155	28
29	168	148	150	184	84	321	527	523	193	481	106	154	29
30	166	146	151	—	56	272	495	699	185	565	104	168	30
31	—	151	152	—	39	—	413	—	151	534	—	205	31
TOTAL CFS	6,215	4,788	6,037	8,809	3,531	4,705	9,455	14,749	14,077	10,353	7,068	3,200	TOTAL CFS
TOTAL AF	12,320	9,500	11,970	17,480	7,010	9,335	18,753	29,250	27,920	20,530	14,010	6,350	TOTAL AF
TOTAL YEAR	184,428 ACRE-FEET												

NOTES: [1] Riverflow into John Martin is the combined flow of the Arkansas at Las Animas [B-2a] and the Purgatoire near Las Animas [B-2b], rounded to the nearest CFS.

B-3
1982

CONTENTS OF JOHN MARTIN RESERVOIR

U.S.G.S. PRIMARY DATA, GAGING STATION # 7130000 [1]
MIDNIGHT CONTENTS TO NEAREST ACRE FOOT [2]
REPORT YEAR ENDING OCTOBER 31, 1982

B-3
1982

DAY	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	DAY
1	9,027	21,800	33,008	45,696	63,415	70,633	48,428	34,613	34,307	18,770	16,785	14,057	1
2	9,454	22,202	33,337	46,007	63,857	70,716	47,544	34,521	34,124	18,700	16,851	14,016	2
3	9,523	22,480	33,608	46,703	64,138	70,758	46,563	34,460	34,032	18,770	16,763	13,985	3
4	9,644	22,784	33,972	47,228	64,622	70,800	45,661	34,276	34,276	19,680	16,675	13,974	4
5	10,031	23,191	34,307	47,755	65,068	70,758	44,595	34,063	34,582	19,954	16,544	13,891	5
6	10,919	23,650	34,644	48,286	65,392	70,591	43,638	33,881	34,952	19,309	16,392	13,788	6
7	11,748	24,008	35,075	48,677	65,677	69,837	42,868	33,669	34,124	18,677	16,110	13,871	7
8	12,471	24,393	35,388	48,956	66,125	68,839	41,744	33,488	32,591	18,170	15,852	13,809	8
9	13,012	24,753	35,685	49,788	66,452	67,806	40,775	33,699	31,246	17,650	15,723	13,829	9
10	13,418	25,296	36,355	50,257	66,779	66,779	39,945	34,246	30,930	17,404	15,659	13,871	10
11	13,809	25,763	36,800	50,765	67,107	65,555	38,189	34,337	29,352	16,851	15,573	13,954	11
12	14,016	26,129	37,374	51,276	67,435	64,501	36,568	34,460	27,959	16,414	15,488	14,036	12
13	14,285	26,486	37,858	52,156	67,723	63,455	35,211	34,705	26,812	16,305	15,275	13,974	13
14	14,474	26,865	38,244	52,931	68,012	62,299	34,048	34,582	25,737	16,067	14,978	13,860	14
15	14,683	27,183	38,503	53,711	68,260	60,996	32,630	34,398	24,856	15,809	14,683	13,786	15
16	15,254	27,476	38,731	54,570	68,549	59,785	31,150	33,941	24,034	15,680	14,516	13,728	16
17	15,787	27,771	39,156	55,357	68,798	58,548	30,609	33,457	23,344	15,637	14,495	13,747	17
18	16,305	28,148	39,780	55,960	68,922	57,324	30,979	33,217	22,303	15,381	14,432	13,768	18
19	16,873	28,528	40,442	56,678	69,088	56,337	30,354	33,367	21,177	15,084	14,432	13,726	19
20	17,337	28,856	41,076	57,476	69,254	55,658	34,798	33,638	20,220	15,084	14,411	13,644	20
21	17,807	29,186	41,778	58,366	69,337	55,020	34,460	33,911	20,051	15,126	14,390	13,521	21
22	18,285	29,602	42,249	59,087	69,462	54,607	34,368	33,820	20,123	15,232	14,328	13,500	22
23	18,700	29,910	42,596	59,901	69,629	53,786	34,398	33,729	20,293	15,402	14,369	13,521	23
24	19,097	30,276	42,857	60,682	69,754	53,090	34,398	33,457	20,026	15,701	14,307	13,521	24
25	19,523	30,616	43,196	61,310	69,837	52,377	34,429	33,427	19,906	15,552	14,307	13,603	25
26	19,858	30,959	43,604	61,784	69,921	51,678	34,307	33,457	20,026	15,938	14,203	13,603	26
27	20,269	31,275	43,945	62,259	70,046	51,129	34,490	34,154	20,512	16,544	14,016	13,500	27
28	20,634	31,652	44,287	62,656	70,255	50,620	34,552	34,429	20,390	16,457	13,983	13,418	28
29	21,078	32,002	44,698	63,095	70,339	49,932	34,521	34,124	20,002	16,283	13,985	13,377	29
30	21,450	32,237	45,007	---	70,465	49,320	34,644	34,398	19,452	16,418	14,036	13,337	30
31	---	32,710	45,351	---	70,591	---	34,705	---	19,050	16,632	---	13,582	31
USGS PUBLISHED END OF MONTH CONTENTS [2]:													
21,500 32,700 45,400 63,100 70,600 49,300 34,700 34,400 19,100 16,700 14,000 13,600													

NOTES: [1] Determined from elevation-capacity table placed in use Feb. 1, 1988.
[2] Final published record rounded per USGS procedures.

B-4
1962

OUTFLOW: ARKANSAS RIVER BELOW JOHN MARTIN RESERVOIR

U.S.G.S. PUBLISHED RECORDS, GAGING STATION # 7130500

DAILY MEAN DISCHARGE, CUBIC FEET PER SECOND

REPORT YEAR ENDING OCTOBER 31, 1962

B-4
1962

DAY	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	DAY
1	1.9	2.0	1.6	1.8	1.8	11.0	614.0	504.0	581.0	310.0	389.0	96.0	1
2	1.5	2.0	1.6	1.8	2.0	18.0	614.0	504.0	515.0	307.0	389.0	96.0	2
3	1.4	2.0	1.8	2.2	2.1	18.0	615.0	504.0	469.0	330.0	391.0	96.0	3
4	1.4	2.0	1.8	2.0	2.2	18.0	612.0	504.0	469.0	351.0	388.0	96.0	4
5	1.5	2.2	1.8	1.7	2.2	18.0	610.0	488.0	470.0	485.0	389.0	96.0	5
6	1.4	2.2	1.8	1.8	2.0	16.0	608.0	476.0	498.0	553.0	388.0	96.0	6
7	1.4	2.2	1.8	1.8	2.0	431.0	571.0	454.0	863.0	421.0	386.0	81.0	7
8	1.4	2.2	2.0	1.8	2.0	536.0	547.0	439.0	1,100.0	343.0	385.0	76.0	8
9	1.4	2.2	1.9	1.8	2.0	541.0	546.0	440.0	1,100.0	342.0	335.0	83.0	9
10	1.4	2.1	2.0	1.8	2.0	596.0	544.0	456.0	1,100.0	351.0	313.0	87.0	10
11	1.4	1.6	2.0	1.8	2.3	585.0	544.0	457.0	985.0	339.0	322.0	85.0	11
12	1.4	1.6	2.0	1.8	2.2	582.0	529.0	489.0	920.0	302.0	322.0	85.0	12
13	1.4	1.5	2.3	1.8	2.1	603.0	520.0	517.0	923.0	292.0	322.0	125.0	13
14	1.4	1.6	2.0	1.8	2.2	646.0	523.0	517.0	909.0	317.0	321.0	157.0	14
15	1.4	1.6	2.1	1.8	2.2	643.0	526.0	406.0	857.0	364.0	305.0	158.0	15
16	2.0	1.6	1.8	1.8	2.2	640.0	523.0	347.0	826.0	380.0	248.0	120.0	16
17	1.8	1.8	1.8	1.8	2.2	641.0	504.0	395.0	834.0	387.0	173.0	98.0	17
18	1.8	1.7	1.8	1.7	1.8	641.0	485.0	408.0	845.0	383.0	164.0	96.0	18
19	1.8	1.6	1.8	1.8	1.8	638.0	488.0	421.0	841.0	391.0	154.0	114.0	19
20	1.8	1.6	1.8	1.8	1.7	637.0	410.0	428.0	785.0	383.0	151.0	157.0	20
21	1.7	1.6	3.4	1.8	1.6	621.0	357.0	425.0	570.0	345.0	151.0	174.0	21
22	1.8	1.5	4.4	1.8	1.6	603.0	407.0	525.0	468.0	307.0	170.0	131.0	22
23	2.0	1.4	7.1	1.8	1.6	625.0	431.0	592.0	477.0	295.0	182.0	114.0	23
24	2.0	1.4	2.2	1.8	1.6	618.0	430.0	592.0	476.0	299.0	183.0	121.0	24
25	2.0	1.4	2.0	1.9	1.8	606.0	425.0	591.0	442.0	357.0	183.0	120.0	25
26	2.0	1.6	2.0	1.8	1.8	608.0	454.0	589.0	420.0	397.0	201.0	152.0	26
27	2.0	1.6	2.0	1.8	1.7	607.0	455.0	345.0	423.0	402.0	200.0	190.0	27
28	2.0	1.6	2.0	1.9	1.8	610.0	479.0	474.0	425.0	398.0	158.0	201.0	28
29	2.1	1.6	1.8	1.8	1.8	612.0	505.0	478.0	424.0	393.0	106.0	199.0	29
30	2.0	1.6	1.8	1.8	1.6	612.0	509.0	545.0	425.0	383.0	96.0	202.0	30
31	---	1.6	1.8	---	1.7	---	507.0	---	356.0	381.0	---	142.0	31
TOTAL CFS	50.3	54.2	67.0	52.8	59.0	14,897.0	15,894.0	14,308.0	20,804.0	11,318.0	7,876.0	3,846.0	TOTAL CFS
TOTAL AF	100	108	133	105	117	29,150	31,530	28,380	41,280	22,450	15,620	7,630	TOTAL AF
TOTAL YEAR	176,563 ACRE-Feet												

B-5
1962

DISCHARGE: ARKANSAS RIVER AT LAMAR, COLORADO

U.S.G.S. PUBLISHED RECORDS, GAGING STATION # 7133000
DAILY MEAN DISCHARGE, CUBIC FEET PER SECOND
REPORT YEAR ENDING OCTOBER 31, 1962B-5
1962

DAY	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	DAY
1	20.0	27.0	20.0	19.0	20.0	5.2	48.0	34.0	13.0	9.7	7.9	13.0	1
2	30.0	29.0	20.0	19.0	20.0	5.2	51.0	15.0	11.0	9.8	7.2	8.1	2
3	25.0	30.0	21.0	24.0	20.0	5.0	53.0	8.0	7.4	8.6	7.7	6.8	3
4	35.0	29.0	21.0	25.0	20.0	4.4	53.0	7.4	9.6	7.2	7.9	5.9	4
5	40.0	29.0	20.0	23.0	23.0	4.9	51.0	7.7	9.4	16.0	7.2	5.0	5
6	41.0	29.0	20.0	21.0	22.0	4.9	50.0	7.4	10.0	12.0	6.5	4.0	6
7	38.0	28.0	20.0	21.0	21.0	4.9	51.0	6.7	74.0	18.0	5.4	3.8	7
8	36.0	28.0	20.0	20.0	19.0	11.0	51.0	7.1	539.0	20.0	5.0	3.8	8
9	34.0	27.0	20.0	20.0	22.0	27.0	51.0	9.7	641.0	13.0	5.0	4.0	9
10	32.0	26.0	22.0	22.0	20.0	42.0	52.0	10.0	646.0	80.0	4.8	3.8	10
11	32.0	28.0	20.0	21.0	19.0	29.0	53.0	11.0	645.0	34.0	14.0	3.8	11
12	31.0	31.0	20.0	21.0	20.0	31.0	50.0	6.5	654.0	16.0	21.0	4.0	12
13	23.0	31.0	20.0	20.0	17.0	39.0	52.0	6.8	603.0	14.0	21.0	4.2	13
14	22.0	27.0	20.0	21.0	15.0	54.0	56.0	6.3	513.0	15.0	18.0	4.5	14
15	22.0	26.0	19.0	20.0	14.0	43.0	61.0	5.5	439.0	13.0	16.0	5.0	15
16	26.0	26.0	18.0	20.0	14.0	43.0	63.0	4.8	431.0	13.0	5.2	4.5	16
17	28.0	25.0	18.0	21.0	13.0	46.0	65.0	5.0	410.0	29.0	5.4	7.3	17
18	27.0	25.0	17.0	19.0	12.0	51.0	47.0	4.4	434.0	41.0	5.4	5.0	18
19	32.0	27.0	20.0	18.0	9.0	57.0	43.0	4.0	440.0	23.0	7.4	4.1	19
20	33.0	26.0	19.0	17.0	6.6	57.0	38.0	10.0	471.0	10.0	6.5	4.0	20
21	31.0	25.0	17.0	17.0	5.6	45.0	11.0	7.8	610.0	8.0	7.4	11.0	21
22	30.0	24.0	18.0	16.0	5.2	30.0	8.9	4.6	181.0	9.0	6.7	5.5	22
23	28.0	23.0	18.0	16.0	6.1	25.0	7.7	31.0	65.0	7.0	6.2	4.9	23
24	26.0	22.0	18.0	17.0	6.2	27.0	7.6	33.0	31.0	9.2	5.2	11.0	24
25	26.0	22.0	20.0	18.0	5.1	26.0	7.0	48.0	40.0	18.0	5.0	16.0	25
26	26.0	22.0	19.0	20.0	5.7	33.0	6.7	53.0	260.0	7.9	4.6	4.8	26
27	28.0	22.0	19.0	20.0	4.9	37.0	19.0	319.0	91.0	7.1	4.8	4.2	27
28	28.0	22.0	18.0	20.0	4.7	36.0	31.0	65.0	34.0	8.0	5.1	3.9	28
29	27.0	21.0	19.0	20.0	5.1	41.0	43.0	30.0	16.0	5.9	18.0	5.2	29
30	27.0	20.0	18.0	—	5.3	49.0	55.0	14.0	14.0	5.9	18.0	4.5	30
31	—	21.0	18.0	—	5.7	—	84.0	—	13.0	6.0	—	4.3	31
TOTAL CFS	880.0	798.0	597.0	576.0	406.2	913.5	1,319.9	782.5	8,546.4	474.3	265.5	180.1	TOTAL CFS
TOTAL AF	1,770	1,580	1,180	1,140	806	1,810	2,620	1,550	16,950	841	527	357	TOTAL AF
TOTAL YEAR	31,231 ACRE-FEET												

B-6
1962

DISCHARGE: ARKANSAS RIVER NEAR GRANADA, COLORADO

U.S.G.S. PUBLISHED RECORDS, GAGING STATION # 7134180
DAILY MEAN DISCHARGE, CUBIC FEET PER SECOND
REPORT YEAR ENDING OCTOBER 31, 1962

B-6
1962

DAY	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	DAY
1	23.0	95.0	90.0	80.0	79.0	17.0	4.4	4.5	22.0	38.0	17.0	5.0	1
2	28.0	90.0	89.0	75.0	83.0	10.0	4.0	4.2	27.0	25.0	14.0	4.9	2
3	30.0	95.0	85.0	83.0	84.0	4.9	4.2	4.0	44.0	14.0	9.8	4.7	3
4	46.0	100.0	88.0	90.0	87.0	4.5	3.8	3.9	38.0	6.8	9.8	4.7	4
5	85.0	101.0	88.0	90.0	90.0	4.7	3.9	4.2	33.0	6.8	9.8	4.5	5
6	88.0	101.0	87.0	87.0	96.0	4.7	3.8	4.1	28.0	6.7	9.6	4.5	6
7	101.0	100.0	87.0	84.0	94.0	4.7	3.8	4.7	14.0	7.1	9.5	4.6	7
8	102.0	98.0	84.0	84.0	93.0	4.4	5.2	4.3	77.0	7.4	8.1	4.3	8
9	102.0	98.0	84.0	84.0	89.0	4.5	5.2	5.0	357.0	7.7	8.0	4.3	9
10	98.0	98.0	82.0	80.0	85.0	4.5	5.1	4.4	466.0	8.7	8.3	4.3	10
11	98.0	98.0	82.0	80.0	84.0	4.5	5.6	4.9	507.0	14.0	8.3	4.3	11
12	98.0	106.0	85.0	78.0	84.0	5.8	4.0	5.4	527.0	9.8	8.5	4.2	12
13	94.0	106.0	84.0	79.0	82.0	4.9	4.1	5.7	543.0	10.0	7.7	4.0	13
14	84.0	101.0	81.0	79.0	70.0	5.7	4.4	5.0	468.0	11.0	7.2	4.0	14
15	81.0	101.0	78.0	75.0	64.0	6.1	4.3	5.0	407.0	11.0	7.4	4.0	15
16	85.0	97.0	72.0	74.0	61.0	4.9	5.1	4.7	394.0	50.0	6.8	3.8	16
17	92.0	93.0	80.0	73.0	58.0	3.6	5.4	4.8	368.0	60.0	6.2	3.8	17
18	95.0	89.0	83.0	73.0	58.0	4.0	4.3	5.1	390.0	47.0	6.0	3.8	18
19	98.0	98.0	81.0	74.0	56.0	6.8	4.2	5.4	396.0	52.0	6.2	3.9	19
20	102.0	98.0	79.0	75.0	56.0	7.8	4.6	6.2	417.0	39.0	5.2	4.0	20
21	102.0	97.0	81.0	75.0	54.0	7.8	4.4	6.8	436.0	28.0	5.3	4.0	21
22	98.0	96.0	82.0	75.0	49.0	6.6	4.4	5.5	565.0	19.0	5.5	4.1	22
23	94.0	95.0	78.0	75.0	48.0	4.3	4.5	5.6	231.0	17.0	4.9	3.9	23
24	94.0	93.0	78.0	75.0	37.0	4.4	4.2	5.5	143.0	13.0	4.9	4.1	24
25	95.0	93.0	78.0	75.0	28.0	3.7	4.1	6.2	80.0	14.0	5.8	4.4	25
26	95.0	92.0	78.0	76.0	26.0	3.7	5.0	9.1	139.0	19.0	4.6	3.9	26
27	95.0	89.0	78.0	76.0	27.0	5.3	5.6	13.0	210.0	19.0	4.7	3.7	27
28	94.0	92.0	78.0	77.0	25.0	6.1	4.4	16.0	129.0	15.0	4.9	4.0	28
29	94.0	92.0	77.0	78.0	24.0	5.3	4.3	56.0	87.0	14.0	4.8	3.8	29
30	95.0	91.0	78.0	--	21.0	5.3	5.4	35.0	69.0	14.0	5.0	3.5	30
31	--	90.0	78.0	--	17.0	--	4.2	--	55.0	16.0	--	3.5	31
TOTAL CFS	2,589.0	2,962.0	2,533.0	2,279.0	1,907.0	170.5	139.9	399.2	7,668.0	621.1	223.5	128.6	TOTAL CFS
TOTAL AF	5,140	5,910	5,020	4,520	3,780	338	277	792	15,210	1,230	443	255	TOTAL AF
TOTAL YEAR	42,915 ACRE-FEET												

B-7a
1992

DISCHARGE: ARKANSAS RIVER NEAR COOLIDGE, KANSAS

U.S.G.S. PUBLISHED RECORDS, GAGING STATION # 7137500
DAILY MEAN DISCHARGE, CUBIC FEET PER SECOND
REPORT YEAR ENDING OCTOBER 31, 1992

B-7a
1992

DAY	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	DAY
1	50	101	103	105	98	69	27	63	180	147	101	44	1
2	55	102	108	104	95	70	27	75	149	119	100	46	2
3	60	100	108	110	97	77	58	62	183	97	86	44	3
4	63	105	106	112	102	77	56	59	167	91	83	49	4
5	80	106	108	112	100	77	52	58	129	87	75	48	5
6	90	107	108	111	103	67	49	51	78	86	74	50	6
7	91	107	110	109	105	54	50	54	67	85	71	54	7
8	95	107	106	107	104	57	41	55	56	87	67	64	8
9	98	106	106	107	100	63	48	92	136	75	70	67	9
10	97	107	104	106	94	92	47	101	291	113	64	68	10
11	97	107	106	105	95	70	43	92	374	149	56	59	11
12	98	112	108	104	94	58	33	75	407	135	58	60	12
13	98	114	106	104	94	67	24	73	664	108	59	59	13
14	98	112	106	105	93	66	18	90	804	95	61	55	14
15	90	110	102	98	92	65	21	96	489	99	56	55	15
16	97	109	101	98	91	64	21	60	448	103	53	55	16
17	99	106	102	98	89	89	23	37	422	1,050	49	62	17
18	100	105	105	95	90	72	31	26	419	464	36	69	18
19	102	107	105	95	88	106	32	18	433	268	41	66	19
20	102	110	104	96	88	120	26	18	429	246	38	59	20
21	104	109	105	96	86	112	23	44	510	205	36	55	21
22	99	112	106	95	86	77	17	40	623	172	32	44	22
23	98	109	104	95	84	44	15	33	374	145	38	43	23
24	100	108	104	94	84	25	15	28	239	124	31	42	24
25	101	108	107	95	77	18	15	110	193	111	32	49	25
26	103	108	106	96	72	15	18	110	1,020	109	31	48	26
27	102	107	105	95	71	16	33	158	561	121	37	50	27
28	102	107	104	96	72	22	51	332	378	116	37	57	28
29	104	109	106	96	70	28	50	246	246	111	33	66	29
30	103	108	104	—	68	25	42	194	193	102	35	82	30
31	—	111	104	—	67	—	45	—	173	98	—	71	31
TOTAL CFS	2,770	3,336	3,272	2,940	2,749	1,842	1,051	2,550	10,616	5,121	1,640	1,740	TOTAL CFS
TOTAL AF	5,490	6,620	6,490	5,830	5,450	3,650	2,080	5,060	21,060	10,160	3,250	3,450	TOTAL AF
TOTAL YEAR	76,590 ACRE FEET												

B-7b
1992

DISCHARGE: FRONTIER DITCH NEAR COOLIDGE, KANSAS

U.S.G.S. PUBLISHED RECORDS, GAGING STATION # 7137000
DAILY MEAN DISCHARGE, CUBIC FEET PER SECOND
REPORT YEAR ENDING OCTOBER 31, 1992

B-7b
1992

DAY	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	DAY
1	0.1	0.0	0.0	0.0	0.0	0.0	38.0	24.0	0.0	26.0	33.0	14.0	1
2	0.0	0.0	0.0	0.0	0.0	0.0	49.0	24.0	0.0	26.0	36.0	17.0	2
3	0.0	0.0	0.0	0.0	0.0	0.0	29.0	24.0	0.0	26.0	29.0	11.0	3
4	0.0	0.0	0.0	0.0	0.0	0.0	33.0	23.0	0.0	26.0	25.0	0.4	4
5	0.0	0.0	0.0	0.0	0.0	0.0	26.0	22.0	3.2	25.0	25.0	0.1	5
6	0.0	0.0	0.0	0.0	0.0	0.0	24.0	22.0	23.0	25.0	30.0	0.0	6
7	0.0	0.0	0.0	0.0	0.0	0.0	22.0	21.0	18.0	24.0	28.0	0.0	7
8	0.0	0.0	0.0	0.0	0.0	0.0	25.0	19.0	19.0	25.0	24.0	0.0	8
9	0.0	0.0	0.0	0.0	0.0	0.0	24.0	10.0	23.0	24.0	20.0	0.0	9
10	0.0	0.0	0.0	0.0	0.0	0.0	21.0	0.0	26.0	25.0	16.0	0.0	10
11	0.0	0.0	0.0	0.0	0.0	0.0	25.0	0.0	33.0	6.4	15.0	0.0	11
12	0.0	0.0	0.0	0.0	0.0	0.0	30.0	0.0	40.0	0.4	15.0	0.0	12
13	0.0	0.0	0.0	0.0	0.0	0.0	30.0	0.0	30.0	0.0	14.0	0.0	13
14	0.0	0.0	0.0	0.0	0.0	0.0	31.0	0.0	17.0	0.0	14.0	0.0	14
15	0.0	0.0	0.0	0.0	0.0	0.0	29.0	0.0	0.6	0.0	12.0	0.0	15
16	0.0	0.0	0.0	0.0	0.0	0.0	28.0	2.5	0.0	0.0	11.0	0.0	16
17	0.0	0.0	0.0	0.0	0.0	0.0	33.0	20.0	0.0	5.6	15.0	0.0	17
18	0.0	0.0	0.0	0.0	0.0	0.0	30.0	20.0	0.0	0.4	33.0	0.0	18
19	0.0	0.0	0.0	0.0	0.0	0.0	27.0	25.0	0.0	0.0	33.0	0.0	19
20	0.0	0.0	0.0	0.0	0.0	0.0	26.0	25.0	0.0	0.0	32.0	0.0	20
21	0.0	0.0	0.0	0.0	0.0	0.0	26.0	26.0	0.0	0.0	30.0	0.0	21
22	0.0	0.0	0.0	0.0	0.0	0.0	26.0	26.0	0.0	0.0	29.0	0.0	22
23	0.0	0.0	0.0	0.0	0.0	0.0	27.0	25.0	10.0	0.0	29.0	0.0	23
24	0.0	0.0	0.0	0.0	0.0	0.0	26.0	26.0	26.0	9.5	29.0	0.0	24
25	0.0	0.0	0.0	0.0	0.0	0.0	26.0	13.0	21.0	24.0	29.0	0.0	25
26	0.0	0.0	0.0	0.0	0.0	0.0	26.0	0.0	19.0	36.0	29.0	0.0	26
27	0.0	0.0	0.0	0.0	0.0	0.0	36.0	25.0	0.0	40.0	28.0	0.0	27
28	0.0	0.0	0.0	0.0	0.0	0.0	35.0	25.0	0.0	36.0	25.0	0.0	28
29	0.0	0.0	0.0	0.0	0.0	0.0	36.0	26.0	0.0	11.0	33.0	0.0	29
30	0.0	0.0	0.0	0.0	0.0	0.0	43.0	25.0	21.0	32.0	17.0	0.0	30
31	—	—	—	—	—	—	25.0	0.0	25.0	32.0	—	0.0	31
TOTAL CFS	0.1	0.0	0.0	0.0	0.0	0.0	863.0	397.5	365.9	507.3	726.0	42.5	TOTAL CFS
TOTAL AF	0	0	0	0	0	0	601	1,710	786	1,010	1,440	84	TOTAL AF
TOTAL YEAR	6,359 ACRE-FEET												

NOTES: [1] USGS data rounded to nearest 0.1 CFS.

B-7c
1982

STATELINE FLOW

CALCULATED USING U.S.G.S. PUBLISHED RECORDS, [1]
DAILY MEAN DISCHARGE, CUBIC FEET PER SECOND
REPORT YEAR ENDING OCTOBER 31, 1982

B-7c
1982

DAY	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	DAY
1	50	101	109	105	96	69	65	87	160	173	134	58	1
2	55	102	108	104	95	70	76	99	149	145	136	63	2
3	60	100	106	110	97	77	87	86	183	123	115	55	3
4	63	105	108	112	102	77	89	82	167	117	108	49	4
5	80	106	108	112	100	77	78	80	132	112	100	48	5
6	90	107	108	111	103	67	73	73	101	111	104	50	6
7	91	107	110	109	105	54	72	75	85	109	98	54	7
8	95	107	106	107	104	57	66	74	75	112	91	64	8
9	98	108	106	107	100	63	72	102	159	100	90	67	9
10	97	107	104	106	94	92	68	101	317	138	80	69	10
11	97	107	108	105	95	70	68	92	407	155	71	69	11
12	96	112	108	104	94	58	63	75	447	135	73	60	12
13	96	114	106	104	94	67	54	73	694	109	73	59	13
14	96	112	106	105	93	66	49	90	621	95	75	55	14
15	90	110	102	99	92	65	50	98	480	99	68	55	15
16	97	109	101	98	91	64	49	63	449	103	64	55	16
17	99	108	102	98	89	69	56	57	422	1,058	64	62	17
18	100	105	105	95	90	72	61	46	419	464	69	69	18
19	102	107	105	95	88	108	59	43	433	268	74	66	19
20	102	110	104	96	88	120	52	43	428	246	70	59	20
21	104	109	105	98	88	112	49	70	510	205	66	55	21
22	99	112	106	95	86	90	43	66	623	172	61	44	22
23	98	109	104	95	84	73	42	56	384	145	67	43	23
24	100	108	104	94	84	58	41	54	285	134	60	42	24
25	101	108	107	95	77	55	41	123	214	135	61	49	25
26	103	108	106	96	72	51	44	110	1,039	145	60	48	26
27	102	107	105	95	71	54	58	158	561	161	65	50	27
28	102	107	104	96	72	57	76	332	378	152	62	57	28
29	104	109	106	98	70	67	76	246	257	144	54	66	29
30	103	108	104	—	68	68	67	194	214	134	52	82	30
31	—	111	104	—	67	—	70	—	198	131	—	71	31
TOTAL CFS	2,770	3,336	3,272	2,940	2,749	2,145	1,914	2,948	10,982	5,628	2,366	1,782	TOTAL CFS
TOTAL AF	5,480	6,620	6,490	5,830	5,450	4,251	3,790	5,848	21,786	11,170	4,690	3,534	TOTAL AF
TOTAL YEAR	84,949 ACRE-FEET												

NOTES: [1] The daily stateline flow is the sum of the flow of the Arkansas near Coolidge [B-7a] and the Frontier Ditch near Coolidge [B-7b], rounded to the nearest CFS.

B-8
1982

DISCHARGE: ARKANSAS RIVER AT GARDEN CITY, KANSAS

U.S.G.S. PUBLISHED RECORDS, GAGING STATION # 7136000
DAILY MEAN DISCHARGE CUBIC FEET PER SECOND [1]
REPORT YEAR ENDING OCTOBER 31, 1982

B-8
1982

DAY	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	DAY
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8
9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15
16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16
17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17
18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18
19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20
21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21
22	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22
23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23
24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25
26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26
27	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27
28	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28
29	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30
31	---	0.0	0.0	0.0	0.0	0.0	0.0	---	0.0	0.0	0.0	0.0	31
TOTAL CFS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	TOTAL CFS
TOTAL AF	0	0	0	0	0	0	0	0	0	0	0	0	TOTAL AF
TOTAL YEAR	0 ACRE-FEET												

NOTES: [1] Rounded to nearest 0.1 CFS.

[2] No recorded flows in CY 1982

B-9
1962

CONTENTS JOHN MARTIN RESERVOIR CONSERVATION STORAGE

OPERATIONS SECRETARY, ARCA MONTHLY ACCOUNTING SHEETS
MIDNIGHT CONTENTS [2400 HOURS] TO NEAREST ACRE FOOT (1)
REPORT YEAR ENDING OCTOBER 31, 1962

B-9
1962

DAY	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	DAY
1	640	10,824	17,896	24,876	30,960	34,822	0	0	0	0	0	0	1
2	1,067	11,087	18,078	25,045	31,132	32,478	0	0	0	0	0	0	2
3	1,136	11,220	18,212	25,578	31,328	30,118	0	0	0	0	0	0	3
4	1,257	11,376	18,442	25,843	31,584	27,760	0	0	0	0	0	0	4
5	1,644	11,631	18,645	26,082	31,871	25,384	0	0	0	0	0	0	5
6	2,533	11,984	18,823	26,310	32,036	23,034	0	0	0	0	0	0	6
7	3,363	12,217	19,117	26,454	32,177	20,749	0	0	0	0	0	0	7
8	4,082	12,385	19,284	26,756	32,431	18,871	0	0	0	0	0	0	8
9	4,721	12,631	19,600	26,906	32,603	16,922	0	327	0	0	0	0	9
10	5,052	13,086	19,853	27,036	32,786	15,003	0	0	0	0	0	0	10
11	5,366	13,342	20,144	27,255	32,969	13,092	0	0	0	0	0	0	11
12	5,641	13,563	20,501	27,481	33,146	11,146	0	0	0	0	0	0	12
13	5,886	13,789	20,790	27,715	33,283	9,285	0	0	0	0	0	0	13
14	6,090	14,017	20,978	27,918	33,429	7,433	0	0	0	0	0	0	14
15	6,347	14,203	21,038	28,098	33,590	5,568	0	0	0	0	0	0	15
16	6,891	14,371	21,084	28,319	33,854	3,853	0	0	0	0	0	0	16
17	7,209	14,546	21,283	28,508	34,128	1,794	0	0	0	0	0	0	17
18	7,521	14,801	21,618	28,693	34,278	0	0	0	0	0	0	0	18
19	7,883	15,056	21,982	28,919	34,470	0	0	0	0	0	0	0	19
20	8,149	15,253	22,236	29,158	34,661	0	0	0	0	0	0	0	20
21	8,418	15,449	22,631	29,384	34,770	0	0	0	0	0	0	0	21
22	8,656	15,730	22,894	29,573	34,920	0	0	0	0	0	0	0	22
23	8,895	15,904	23,066	29,783	35,113	0	0	0	0	0	0	0	23
24	9,128	16,138	23,185	29,942	35,263	0	0	0	0	0	0	0	24
25	9,397	16,350	23,374	30,097	35,371	0	0	0	0	0	0	0	25
26	9,626	16,598	23,637	30,243	35,480	0	0	0	0	0	0	0	26
27	9,886	16,763	23,829	30,390	35,630	0	0	226	0	412	0	0	27
28	10,107	17,049	24,020	30,566	35,834	0	0	0	0	0	0	0	28
29	10,403	17,250	24,284	30,750	35,973	0	0	0	0	0	0	0	29
30	10,627	17,423	24,458	---	36,124	0	0	0	0	0	0	0	30
31	---	17,586	24,666	---	36,275	---	0	---	0	0	---	0	31

NOTES: (1) Values are the volume of winter and/or summer compact water remaining in storage prior to release to storage accounts, as reported by the Operations Secretary.

B-10
1962

TRANSFER OF WATER FROM JMR CONSERVATION STORAGE

TRANSFERRED INTO JOHN MARTIN RESERVOIR AGREEMENT ACCOUNTS
OPERATIONS SECRETARY, ARCA, IN ACRE FEET
REPORT YEAR ENDING OCTOBER 31, 1962

B-10
1962

DAY	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	DAY
1	0.0	0.0	0.0	0.0	0.0	1,549.6	0.0	0.0	0.0	0.0	0.0	0.0	1
2	0.0	0.0	0.0	0.0	0.0	2,479.4	0.0	0.0	0.0	0.0	0.0	0.0	2
3	0.0	0.0	0.0	0.0	0.0	2,479.4	0.0	0.0	0.0	0.0	0.0	0.0	3
4	0.0	0.0	0.0	0.0	0.0	2,479.4	0.0	0.0	0.0	0.0	0.0	0.0	4
5	0.0	0.0	0.0	0.0	0.0	2,479.4	0.0	0.0	0.0	0.0	0.0	0.0	5
6	0.0	0.0	0.0	0.0	0.0	2,479.4	0.0	0.0	0.0	0.0	0.0	0.0	6
7	0.0	0.0	0.0	0.0	0.0	2,405.6	0.0	0.0	0.0	0.0	0.0	0.0	7
8	0.0	0.0	0.0	0.0	0.0	1,983.5	0.0	0.0	0.0	0.0	0.0	0.0	8
9	0.0	0.0	0.0	0.0	0.0	1,983.5	0.0	0.0	165.3	0.0	0.0	0.0	9
10	0.0	0.0	0.0	0.0	0.0	1,983.5	0.0	0.0	1,276.2	0.0	0.0	0.0	10
11	0.0	0.0	0.0	0.0	0.0	1,983.5	0.0	0.0	0.0	0.0	0.0	0.0	11
12	0.0	0.0	0.0	0.0	0.0	1,983.5	0.0	0.0	0.0	0.0	0.0	0.0	12
13	0.0	0.0	0.0	0.0	0.0	1,983.5	0.0	0.0	0.0	0.0	0.0	0.0	13
14	0.0	0.0	0.0	0.0	0.0	1,983.5	0.0	0.0	0.0	0.0	0.0	0.0	14
15	0.0	0.0	0.0	0.0	0.0	1,983.5	0.0	0.0	0.0	0.0	0.0	0.0	15
16	0.0	0.0	0.0	0.0	0.0	1,983.5	0.0	0.0	0.0	0.0	0.0	0.0	16
17	0.0	0.0	0.0	0.0	0.0	1,983.5	0.0	0.0	0.0	0.0	0.0	0.0	17
18	0.0	0.0	0.0	0.0	0.0	1,903.0	0.0	0.0	0.0	0.0	0.0	0.0	18
19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20
21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21
22	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22
23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23
24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25
26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	826.5	0.0	0.0	26
27	0.0	0.0	0.0	0.0	0.0	0.0	0.0	578.5	0.0	1,295.7	0.0	0.0	27
28	0.0	0.0	0.0	0.0	0.0	0.0	0.0	356.1	0.0	0.0	0.0	0.0	28
29	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30
31	---	0.0	0.0	0.0	0.0	---	0.0	---	0.0	0.0	0.0	0.0	31
TOTAL AF	0.0	0.0	0.0	0.0	0.0	38,090.2	0.0	934.6	1,441.5	2,122.2	0.0	0.0	TOTAL AF
TOTAL YEAR	42,588 ACRE FEET												

NOTES: [1] All conservation storage water was apportioned into Colorado and Kansas accounts as follows: 40% to Kansas and 60% to Colorado.
as described in the Administration's 1960 Operating Plan for John Martin Reservoir Resolution.

[2] Values reported are "winter compact water" and "summer compact water" releases from monthly accounting sheets, to nearest 0.1 AF.

B-11
1992

DEMANDS BY COLORADO FOR AGREEMENT ACCOUNT WATER

B-11
1992RELEASES TO COLORADO USERS FROM JOHN MARTIN RESERVOIR
OPERATIONS SECRETARY, ARCA : IN ACRE FEET
REPORT YEAR ENDING OCTOBER 31, 1992

DAY	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	DAY
1	0.0	0.0	0.0	0.0	0.0	18.5	585.2	0.0	0.0	0.0	10.0	0.0	1
2	0.0	0.0	0.0	0.0	0.0	28.5	897.5	0.0	0.0	0.0	10.0	0.0	2
3	0.0	0.0	0.0	0.0	0.0	29.5	897.5	0.0	0.0	0.0	10.0	0.0	3
4	0.0	0.0	0.0	0.0	0.0	28.5	886.9	0.0	0.0	0.0	10.0	0.0	4
5	0.0	0.0	0.0	0.0	0.0	29.5	920.7	0.0	0.0	0.0	10.0	0.0	5
6	0.0	0.0	0.0	0.0	0.0	311.3	914.4	0.0	24.9	0.0	0.8	0.0	6
7	0.0	0.0	0.0	0.0	0.0	818.9	823.8	0.0	75.1	188.3	0.0	0.0	7
8	0.0	0.0	0.0	0.0	0.0	1,024.8	791.1	0.0	210.5	414.3	0.0	0.0	8
9	0.0	0.0	0.0	0.0	0.0	1,037.9	802.7	0.0	351.1	462.2	0.0	0.0	9
10	0.0	0.0	0.0	0.0	0.0	1,087.9	792.3	0.0	917.8	462.2	28.2	0.0	10
11	0.0	0.0	0.0	0.0	0.0	1,127.2	768.3	0.0	197.4	465.8	100.9	0.0	11
12	0.0	0.0	0.0	0.0	0.0	1,127.2	735.9	0.0	122.0	244.5	97.5	0.0	12
13	0.0	0.0	0.0	0.0	0.0	1,148.5	249.3	0.0	52.3	263.0	248.9	0.0	13
14	0.0	0.0	0.0	0.0	0.0	1,262.6	153.7	0.0	139.1	171.7	248.9	0.0	14
15	0.0	0.0	0.0	0.0	0.0	1,287.8	222.8	0.0	139.1	171.7	212.8	0.0	15
16	0.0	0.0	0.0	0.0	0.0	1,287.8	418.6	16.5	139.1	70.8	178.9	0.0	16
17	0.0	0.0	0.0	0.0	0.0	1,287.8	550.8	99.2	116.8	51.3	0.0	0.0	17
18	0.0	0.0	0.0	0.0	0.0	1,262.4	563.2	58.3	108.3	39.7	0.0	0.0	18
19	0.0	0.0	0.0	0.0	0.0	962.6	554.6	0.0	109.3	39.7	0.0	0.0	19
20	0.0	0.0	0.0	0.0	0.0	963.0	413.3	0.0	109.3	39.7	0.0	0.0	20
21	0.0	0.0	0.0	0.0	0.0	518.9	350.6	0.0	109.3	5.1	0.0	0.0	21
22	0.0	0.0	0.0	0.0	0.0	598.0	49.6	0.0	50.9	0.0	0.0	0.0	22
23	0.0	0.0	0.0	0.0	0.0	812.1	49.6	0.0	9.9	0.0	0.0	0.0	23
24	0.0	0.0	0.0	0.0	0.0	806.4	49.6	0.0	0.0	0.0	0.0	0.0	24
25	0.0	0.0	0.0	0.0	0.0	788.4	0.0	0.0	0.0	0.0	0.0	0.0	25
26	0.0	0.0	0.0	0.0	0.0	693.2	0.0	0.0	0.0	350.2	0.0	0.0	26
27	0.0	0.0	0.0	0.0	0.0	409.3	0.0	282.9	0.0	640.5	0.0	0.0	27
28	0.0	0.0	0.0	0.0	0.0	405.8	0.0	174.1	0.0	53.1	0.0	0.0	28
29	0.0	0.0	0.0	0.0	0.0	401.5	0.0	0.0	0.0	10.0	0.0	0.0	29
30	0.0	0.0	0.0	0.0	0.0	401.5	0.0	0.0	0.0	10.0	0.0	0.0	30
31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	63.0	10.0	0.0	0.0	31
TOTAL AF	0.0	0.0	0.0	0.0	0.0	21,871.2	13,442.0	628.0	3,046.2	4,163.6	1,168.7	0.0	TOTAL AF
TOTAL YEAR	44,122 ACRE FEET												

NOTES: [1] Operations Secretary data rounded to the nearest 0.1 AF.

B-12
1992

DEMANDS BY KANSAS FOR AGREEMENT ACCOUNT WATER

RELEASES TO KANSAS USERS FROM JOHN MARTIN RESERVOIR [1]
OPERATIONS SECRETARY, ARCA : IN ACRE FEET
REPORT YEAR ENDING OCTOBER 31, 1992

B-12
1992

DAY	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	DAY
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	495.9	0.0	0.0	0.0	7
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	793.4	0.0	0.0	0.0	8
9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	793.4	0.0	0.0	0.0	9
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	793.4	0.0	0.0	0.0	10
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	793.4	0.0	0.0	0.0	11
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	793.4	0.0	0.0	0.0	12
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	793.4	0.0	0.0	0.0	13
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	793.4	0.0	0.0	0.0	14
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	793.4	0.0	0.0	0.0	15
16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	793.4	0.0	0.0	0.0	16
17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	793.4	0.0	0.0	0.0	17
18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	793.4	0.0	0.0	0.0	18
19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	793.4	0.0	0.0	0.0	19
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	793.4	0.0	0.0	0.0	20
21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	284.5	0.0	0.0	0.0	21
22	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22
23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23
24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25
26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26
27	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27
28	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28
29	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30
31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	31
TOTAL AF	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11,074.6	0.0	0.0	0.0	TOTAL AF
TOTAL YEAR	11,075 ACRE FEET												

NOTES: [1] Does not include releases from transit loss account.

[2] Operations Secretary data rounded to the nearest 0.1 AF.

B-13
1992

STATELINE FLOWS ON DAYS OF KANSAS DEMANDS
FRONTIER DITCH PLUS ARKANSAS RIVER AT THE STATELINE
OPERATIONS SECRETARY, ARCA, IN ACRE FEET (1)(2)
REPORT YEAR ENDING OCTOBER 31, 1992

B-13
1992

DAY	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	DAY
1	0	0	0	0	0	0	0	0	0	0	0	0	1
2	0	0	0	0	0	0	0	0	0	0	0	0	2
3	0	0	0	0	0	0	0	0	0	0	0	0	3
4	0	0	0	0	0	0	0	0	0	0	0	0	4
5	0	0	0	0	0	0	0	0	0	0	0	0	5
6	0	0	0	0	0	0	0	0	0	0	0	0	6
7	0	0	0	0	0	0	0	0	0	0	0	0	7
8	0	0	0	0	0	0	0	0	0	0	0	0	8
9	0	0	0	0	0	0	0	0	315	0	0	0	9
10	0	0	0	0	0	0	0	0	629	0	0	0	10
11	0	0	0	0	0	0	0	0	807	0	0	0	11
12	0	0	0	0	0	0	0	0	887	0	0	0	12
13	0	0	0	0	0	0	0	0	1,374	0	0	0	13
14	0	0	0	0	0	0	0	0	1,232	0	0	0	14
15	0	0	0	0	0	0	0	0	972	0	0	0	15
16	0	0	0	0	0	0	0	0	890	0	0	0	16
17	0	0	0	0	0	0	0	0	837	0	0	0	17
18	0	0	0	0	0	0	0	0	831	0	0	0	18
19	0	0	0	0	0	0	0	0	859	0	0	0	19
20	0	0	0	0	0	0	0	0	851	0	0	0	20
21	0	0	0	0	0	0	0	0	1,011	0	0	0	21
22	0	0	0	0	0	0	0	0	1,236	0	0	0	22
23	0	0	0	0	0	0	0	0	762	0	0	0	23
24	0	0	0	0	0	0	0	0	526	0	0	0	24
25	0	0	0	0	0	0	0	0	424	0	0	0	25
26	0	0	0	0	0	0	0	0	2,061	0	0	0	26
27	0	0	0	0	0	0	0	0	1,113	0	0	0	27
28	0	0	0	0	0	0	0	0	250	0	0	0	28
29	0	0	0	0	0	0	0	0	0	0	0	0	29
30	0	0	0	0	0	0	0	0	0	0	0	0	30
31	0	0	0	0	0	0	0	0	0	0	0	0	31
TOTAL AF	0	0	0	0	0	0	0	0	17,867	0	0	0	TOTAL AF
TOTAL YEAR	17,867 ACRE FEET												

NOTES [1] Stateline flow is sum of Arkansas River and Frontier Ditch near Coolidge, Kansas, on days of Kansas demand, including applicable rundown period, rounded to nearest acre foot as presented in Oper. Sec. 92 Report Table XI, and USGS published data shown in Appendix B-7c.
[2] July 28 is partial day.

B-14a
1992

DIVERSIONS BY DITCHES, COLORADO WATER DISTRICT 14
SOURCE: COLO. DWR, WATER COMMISSIONER MONTHLY REPORTS, ACRE-FEET
REPORT YEAR ENDING OCTOBER 31, 1992

B-14a
1992

DITCH OR CANAL	SOURCE	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	YEAR
BESSEMER	RIVER	1,975.2	0.0	0.0	0.0	2,527.8	4,142.5	6,324.6	11,393.2	5,112.5	5,306.7	4,323.7	4,409.7	45,515.8
	RES./IMP	18.6	0.0	0.0	0.0	38.6	249.4	3,149.4	355.6	3,735.7	3,735.7	177.3	121.2	11,581.5
	TOTAL	1,993.8	0.0	0.0	0.0	2,566.4	4,391.9	9,474.0	11,748.8	8,848.2	9,042.4	4,501.0	4,530.9	57,097.3
MINNEQUAJUNION	RIVER	6,835.5	3,816.8	1,638.5	4,758.8	4,657.9	6,982.8	7,306.9	3,521.4	7,382.2	6,058.4	3,058.9	7,337.3	63,363.3
	RES./IMP	0.0	0.0	0.0	0.0	0.0	13.9	30.7	29.8	30.7	30.7	29.8	30.7	196.3
	TOTAL	6,835.5	3,816.8	1,638.5	4,758.8	4,657.9	6,996.7	7,337.6	3,551.2	7,412.9	6,089.1	3,088.7	7,368.0	63,559.6
WEST PUEBLO	RIVER	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	RES./IMP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	TOTAL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COLLIER	RIVER	13,307.1	10,111.3	0.0	2,496.9	8,215.7	529.2	4,187.4	4,867.2	4,752.9	6,870.9	4,293.9	0.0	61,832.5
	RES./IMP	0.0	0.0	0.0	0.0	0.0	13.4	75.4	0.0	353.5	158.6	0.0	0.0	600.9
	TOTAL	13,307.1	10,111.3	0.0	2,496.9	8,215.7	542.6	4,262.8	4,867.2	5,106.4	7,024.5	4,293.9	0.0	62,433.4
HIGHLINE	RIVER	3,236.3	0.0	0.0	0.0	3,213.2	7,273.6	7,068.3	9,834.4	7,428.0	9,131.5	6,617.0	6,624.1	60,426.2
	RES./IMP	0.0	0.0	0.0	0.0	900.1	2,886.0	3,432.3	1,078.5	3,310.0	2,891.0	0.0	0.0	14,497.8
	TOTAL	3,236.3	0.0	0.0	0.0	4,113.3	10,159.6	10,500.6	10,912.9	10,738.0	12,022.5	6,617.0	6,624.1	74,924.0
OXFORD-FARMER RIVER	RIVER	148.7	0.0	0.0	0.0	1,088.8	4,164.9	2,954.7	4,498.7	4,857.2	2,321.3	1,773.2	1,035.3	22,842.7
	RES./IMP	0.0	0.0	0.0	0.0	0.0	338.4	757.4	0.0	488.6	911.5	0.0	0.0	2,476.0
	TOTAL	148.7	0.0	0.0	0.0	1,088.8	4,503.3	3,712.1	4,498.7	5,345.8	3,232.8	1,773.2	1,035.3	25,318.7
SUBTOTAL DISTRICT # 14	RIVER	25,502.8	13,928.1	1,638.5	7,253.7	19,703.3	23,116.9	27,872.6	34,144.6	29,583.6	31,719.4	20,086.4	19,437.1	253,976.8
	RES./IMP	18.6	0.0	0.0	0.0	938.7	3,487.2	7,414.5	1,434.1	7,887.8	7,886.9	177.3	121.2	28,156.2
	TOTAL	25,521.4	13,928.1	1,638.5	7,253.7	20,642.0	26,604.1	35,287.1	35,578.7	37,431.4	39,416.3	20,273.7	19,558.3	283,133.1

NOTES:

[1] "River" refers to direct flow surface diversions of native Arkansas River flows.

[2] "Res." refers to diversion of stored water released from reservoirs.

[3] "Imp." refers to diversions of imported non-native (trans-mountain) water brought into the Arkansas Basin for use by the canal.

[4] Colorado DWR data rounded to nearest 0.1 acre feet

B-14b
1992

DIVERSIONS BY DITCHES, COLORADO WATER DISTRICT 17

SOURCE: COLO. DWR, WATER COMMISSIONER MONTHLY REPORTS, ACRE-FEET
REPORT YEAR ENDING OCTOBER 31, 1992B-14b
1992

DITCH/CANAL SOURCE	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	YEAR
OTERO													
RIVER	1,639.9	42.9	0.0	125.6	2,669.4	0.0	0.0	738.0	0.0	1,189.5	1.0	0.0	6,406.3
RES./IMP.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	266.2	58.6	0.0	324.8
TOTAL	1,639.9	42.9	0.0	125.6	2,669.4	0.0	0.0	738.0	0.0	1,455.8	59.6	0.0	6,731.1
CATLIN													
RIVER	0.0	0.0	0.0	0.0	5,517.8	11,404.1	14,811.4	1,275.3	15,148.9	13,696.6	12,147.1	7,430.0	82,431.1
RES./IMP.	0.0	0.0	0.0	0.0	0.0	6,112.7	551.3	0.0	0.0	1,540.7	0.0	2,330.9	10,535.5
TOTAL	0.0	0.0	0.0	0.0	5,517.8	17,516.8	15,362.7	1,275.3	15,148.9	15,237.2	12,147.1	9,760.9	92,966.6
HOLBROOK													
RIVER	2,236.7	0.0	1,774.3	3,508.8	0.0	5.8	424.6	8,093.6	585.8	3,699.6	233.0	0.0	20,563.1
RES./IMP.	0.0	0.0	0.0	0.0	0.0	3,480.0	2,934.9	807.8	3,098.8	3,063.8	0.0	0.0	14,005.3
TOTAL	2,236.7	0.0	1,774.3	3,508.8	0.0	3,485.8	3,359.5	8,901.4	4,284.6	6,763.4	233.0	0.0	34,568.4
ROCKY FORD													
RIVER	0.0	0.0	0.0	81.1	1,746.2	2,608.0	3,873.8	3,108.5	4,368.9	3,751.0	2,257.4	2,184.9	23,988.8
RES./IMP.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	57,163.4
TOTAL	0.0	0.0	0.0	81.1	1,746.2	2,608.0	3,873.8	3,108.5	4,368.9	3,751.0	2,257.4	2,184.9	23,988.8
FT. LYON													
RIVER	8,262.4	13,029.4	20,371.2	10,638.2	4,862.1	0.0	0.0	0.0	256.4	0.0	0.0	0.0	256.4
RES./IMP.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	8,262.4	13,029.4	20,371.2	10,638.2	4,862.1	0.0	0.0	0.0	256.4	0.0	0.0	0.0	256.4
FT. LYON													
RIVER	5,916.2	0.0	0.0	0.0	12,737.5	17,366.9	19,921.8	41,394.1	18,387.3	17,381.6	14,180.6	10,388.0	157,863.8
RES./IMP.	0.0	0.0	0.0	0.0	0.0	0.0	1,719.9	0.0	172.0	6,768.5	0.0	4,307.5	0.0
KICK-BIRD	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	5,916.2	0.0	0.0	0.0	12,737.5	19,106.8	19,921.8	41,566.1	25,155.8	17,381.6	14,180.6	10,388.0	170,651.7
LAS ANIMAS CON													
RIVER	232.7	0.0	0.0	0.0	1,428.9	3,386.2	4,769.3	4,867.0	4,382.1	4,218.5	3,038.7	2,915.8	29,080.0
RES./IMP.	18,055.1	13,072.3	22,145.6	14,354.7	28,533.0	31,405.8	39,031.4	54,589.5	38,486.9	39,718.3	28,819.1	20,012.8	346,236.3
DISTRICT # 17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	979.8	10,723.6	4,890.7	4,366.1	2,330.9	38,089.9
TOTAL	18,055.1	13,072.3	22,145.6	14,354.7	28,533.0	31,405.8	39,031.4	55,578.3	49,212.5	44,509.0	33,185.2	22,343.8	386,326.3
SUBTOTAL	43,557.9	27,000.4	23,764.0	21,608.4	48,236.3	54,522.7	66,904.0	88,744.2	68,052.5	71,437.7	48,915.4	39,449.9	802,213.2
DISTRICTS													
#14 + # 17	19.6	0.0	0.0	0.0	938.7	14,799.8	10,900.7	2,413.9	18,591.4	12,587.5	4,543.4	2,452.1	67,246.2
TOTAL	43,576.5	27,000.4	23,764.0	21,608.4	49,175.0	69,322.4	77,804.7	91,158.1	86,643.9	84,025.3	53,458.8	41,902.0	869,459.4

NOTES: (1) "River" refers to direct flow surface diversions of native Arkansas River flows.

(2) "Res." refers to diversion of stored water released from reservoirs.

(3) "Imp." refers to diversions of imported non-native (trans-mountain) water brought into the Arkansas Basin for use by the canal.

(4) Colorado DWR data rounded to nearest 0.1 acre feet

B-14c
1992

DIVERSIONS BY DITCHES, COLORADO WATER DISTRICT 67
SOURCE: COLO. DWR, WATER COMMISSIONER MONTHLY REPORTS, ACRE-FEET [1]
REPORT-YEAR ENDING OCTOBER 31, 1992

B-14c
1992

DITCH OR CANAL	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	YEAR
FORT BENT	0.0	0.0	0.0	0.0	0.0	1,977.6	3,159.7	3,364.0	3,036.7	1,934.7	1,660.2	1,753.4	16,788.4
KESSEE DITCH	0.0	0.0	0.0	0.0	55.5	803.3	844.9	896.5	833.1	892.6	904.5	807.3	6,037.7
AMITY	0.0	0.0	0.0	0.0	0.0	16,042.6	18,351.3	17,448.9	18,061.8	15,368.2	9,568.4	1,416.2	96,257.3
LAMAR	158.7	0.0	0.0	0.0	41.7	6,271.8	6,208.4	7,134.7	7,229.9	6,541.6	5,405.0	5,454.6	44,444.3
HYDE	0.0	0.0	0.0	0.0	25.8	140.8	212.2	414.6	614.9	466.1	319.3	287.6	2,481.4
MANVEL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	210.3	0.0	0.0	210.3
X.Y. & GRAHAM	0.0	0.0	0.0	0.0	343.2	856.9	1,088.9	803.3	745.8	1,650.3	956.1	466.1	6,910.5
BUFFALO	0.0	0.0	0.0	0.0	0.0	3,617.9	4,494.6	3,738.9	3,669.5	4,347.8	3,592.1	3,318.4	26,777.3
TOTAL NATIVE	158.7	0.0	0.0	0.0	466.1	29,710.9	34,358.1	33,800.8	34,191.6	31,311.5	22,405.6	13,501.7	199,905.0
TRANSMOUNTAIN DELIVERY [2]									799.4				799.4
TOTAL DIST. 67	158.7	0.0	0.0	0.0	466.1	29,710.9	34,358.1	33,800.8	34,990.9	31,311.5	22,405.6	13,501.7	200,704.4

[1] DWR data rounded to nearest 0.1 acre foot

NOTES:

[2] City of Lamar's receipt of Fry-Ark water via Ft. Bent Canal.

B-16
1962

DIVERSIONS BY DITCHES, KANSAS STATELINE TO GARDEN CITY

B-16

1962

COMPILED BY KANSAS DIV. OF WATER RESOURCES, ACRE-FEET, (1)
REPORT YEAR ENDING OCTOBER 31, 1962

DITCH OR CANAL	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	YEAR
DIVERSIONS STATELINE TO SYRACUSE													
FRONTIER [2]	0	0	0	0	0	601	1,710	788	553	1,010	1,440	18	6,120
FT. AUBREY [3]	0	0	0	0	0	0	0	0	173	0	0	66	239
SUBTOTAL STATELINE													
TO SYRACUSE [2,3]	0	0	0	0	0	601	1,710	788	726	1,010	1,440	84	6,359
DIVERSIONS SYRACUSE TO GARDEN CITY													
AMAZON	0	0	0	0	0	1,655	0	0	5,448	1,936	944	0	9,983
GREAT EASTERN	0	1,987	1,938	3,635	0	0	0	849	4,251	2,894	0	0	15,354
SOUTH SIDE	0	0	0	0	0	0	0	0	0	4,580	2,350	2,903	9,833
FARMERS	0	0	0	0	1,748	651	0	420	3,430	24	0	0	6,273
GARDEN CITY	0	0	0	0	0	336	230	166	284	86	0	156	1,258
SUBTOTAL SYRACUSE													
TO GARDEN CITY	0	1,987	1,938	3,635	1,748	2,642	230	1,235	13,413	9,520	3,294	3,059	42,701
TOTAL DIVERSIONS STATELINE TO GARDEN CITY													
TOTAL STATELINE TO													
GARDEN CITY [2]	0	1,987	1,938	3,635	1,748	3,243	1,940	2,023	14,139	10,530	4,734	3,143	49,080

NOTES:

[1] Frontier Ditch is USGS record, other ditches are Kansas DWR records.

[2] Frontier Ditch total diversion includes 1,120 AF returned directly to the River.

[3] Diverted by Frontier Ditch as authorized under the Ft. Aubrey water right, an uncalculated amount of this water was also returned to the river.

B-16
1992

TRANSMOUNTAIN DIVERSIONS INTO THE ARKANSAS BASIN

SOURCE: DIVISION ENGINEER, COLORADO WATER DIV. 2, ACRE-FEET, [1]
REPORT YEAR ENDING OCTOBER 31, 1992B-16
1992

STRUCTURE/OWNER	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	YEAR
TWIN LAKES TUNNEL [2]	308.0	346.0	94.0	121.0	124.0	725.0	13,380.0	17,480.0	8,830.0	403.0	31.0	42.0	41,862.0
HOMESTAKE TUNNEL [3]	4,580.0	0.0	0.0	0.0	5,900.0	4,930.0	0.0	0.0	0.0	2,680.0	5,840.0	97.0	24,027.0
WURTZ DITCH [PUEBLO]	0.0	0.0	0.0	0.0	0.0	0.0	937.0	549.0	151.0	14.0	0.0	0.0	1,651.0
LARKSPUR DITCH [CATLIN]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	64.0	56.0	85.0	30.0	0.0	205.0
EWING DITCH [PUEBLO]	0.0	0.0	0.0	0.0	0.0	0.0	12.0	314.0	158.0	76.0	47.0	10.0	1,612.0
COLUMBINE DITCH [PUEBLO]	0.0	0.0	0.0	0.0	0.0	0.0	556.0	838.0	187.0	31.0	0.0	0.0	1,612.0
BOUSTED TUNNEL [SECWCD]	160.0	160.0	160.0	172.0	174.0	378.0	21,670.0	23,840.0	8,990.0	910.0	262.0	163.0	57,038.0
BUSK-IVANHOE TUNNEL [4]	0.0	0.0	0.0	0.0	0.0	0.0	2,160.0	1,930.0	889.0	170.0	24.0	44.0	5,217.0
BLUE RIVER PROJECT [5]	433.0	380.0	526.0	649.0	546.0	441.0	289.0	0.0	298.0	506.0	421.0	144.0	4,631.0
TRANSMOUNTAIN TOTAL	5,479.0	886.0	780.0	942.0	6,744.0	6,486.0	39,306.0	45,004.0	19,557.0	4,845.0	6,653.0	500.0	137,184.0

NOTES:

- [1] Transmountain water diverted into the Arkansas Basin through a facility is generally delivered to some type of storage prior to use. The values reported reflect water diverted into the basin, generally to storage, and are not necessarily measured as flow below Pueblo.
- [2] Twin Lakes ownership: Colorado Spgs. 54.65%, Pueblo 23.14%, Pueblo West 11.56%, Aurora 4.9%, others 5.75%; (also known as Independence Pass Tunnel).
- [3] Homestake ownership: Colorado Spgs. 50%, Aurora 50%.
- [4] Busk-Ivanhoe ownership: Pueblo 50%, Aurora 49%, others 1%; (also known as Carlton Tunnel).
- [5] Values show amount of transmountain water "delivered into the Colorado Springs potable water system" from the Blue and South Platte Rivers via Hoosier Tunnel and Montgomery Pipeline, as shown in Table 2 of City's Blue River letter report for water year 1992 (October data from subsequent report).
- [6] Aurora owned transmountain water is generally rediverted into and used in the South Platte River Basin via the Otero Pump Station and Spinney Mountain Reservoir. Total imports for Compact Year 1992 should be reduced by 17,979 AF to reflect water used by Aurora outside the Arkansas Basin.

B-17
1992

SUMMARY TABULATION
COMPILED BY COLORADO WATER CON. BOARD., ACRE FEET
REPORT YEAR ENDING OCTOBER 31, 1992

B-17
1992

STATION DATA	SOURCE	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEP	OCT	YEAR
Arkansas River	App													
at Las Animas	B-2a	10,450	7,450	9,980	15,580	5,390	9,370	18,420	27,570	20,600	12,460	12,290	4,840	153,410
Purgatoire River	App													
near Las Animas	B-2b	1,870	2,050	1,980	1,900	1,620	965	333	1,880	7,320	8,070	1,720	1,510	31,018
River Flow into	App													
John Martin Res.	B-2c	12,320	9,500	11,970	17,480	7,010	9,335	18,753	28,250	27,920	20,530	14,010	6,350	184,428
End Month JMR	App													
contents [USGS]	B-3	21,500	32,700	45,400	63,100	70,600	49,300	34,700	34,400	19,100	18,700	14,000	13,600	N/A
Net Change in		13,113	11,200	12,700	17,700	7,500	(21,300)	(14,600)	(300)	(15,300)	(2,400)	(2,700)	(400)	5,213
JMR Contents	calc													
Evaporation from	Table													
John Martin Res.	1	241	327	347	817	1,564	1,988	1,802	1,713	1,825	1,088	1,153	852	13,327
Outflow from	App													
John Martin Res.	B-4	100	108	133	105	117	29,150	31,530	28,380	41,260	22,450	15,620	7,630	176,583
Diversions in	App													
District 67	B-14c	159	0	0	0	466	29,711	34,358	33,801	34,981	31,312	22,406	13,502	200,704
Arkansas River at	App													
State line	B-7c	5,480	6,620	6,490	5,830	5,450	4,251	3,790	5,848	21,786	11,170	4,680	3,534	84,948
Diversions by	App													
ditches in Kansas	B-15	0	1,987	1,939	3,635	1,748	3,243	1,940	2,023	14,139	10,530	4,734	3,143	49,080

NOTES:

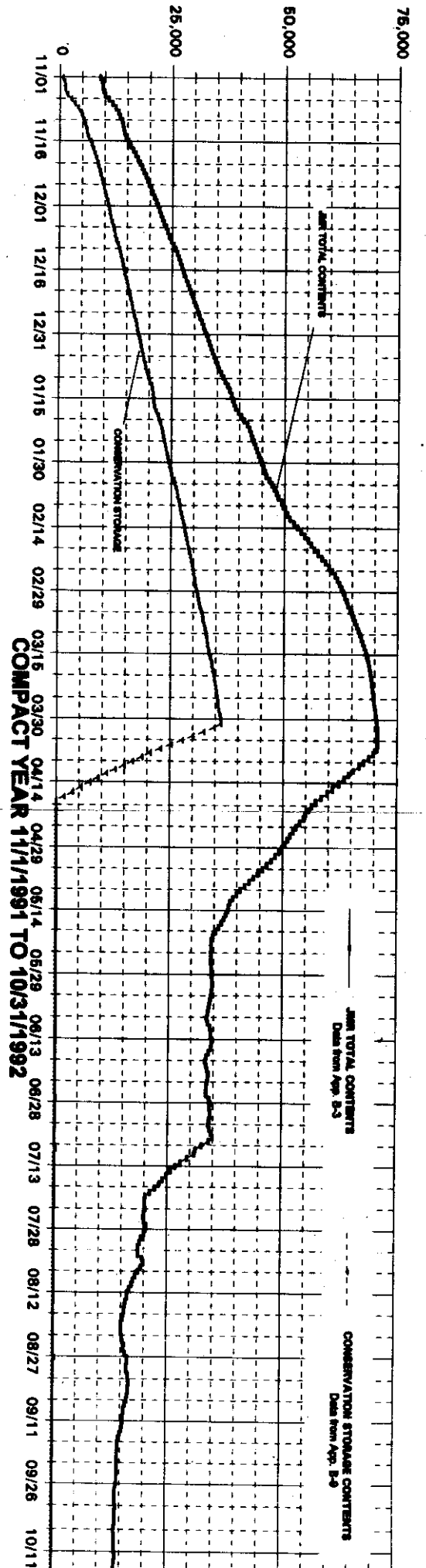
[1] Beginning contents of JMR at 0001 hours, Nov. 1, 1981 was 8,388.66 AF.

[2] Diversions by ditches in Kansas includes 1,120 AF, and an undetermined amount of water authorized from the Fort Aubrey water right, diverted by Frontier and returned directly to the River, see Appendix B-15 notes [2] and [3].

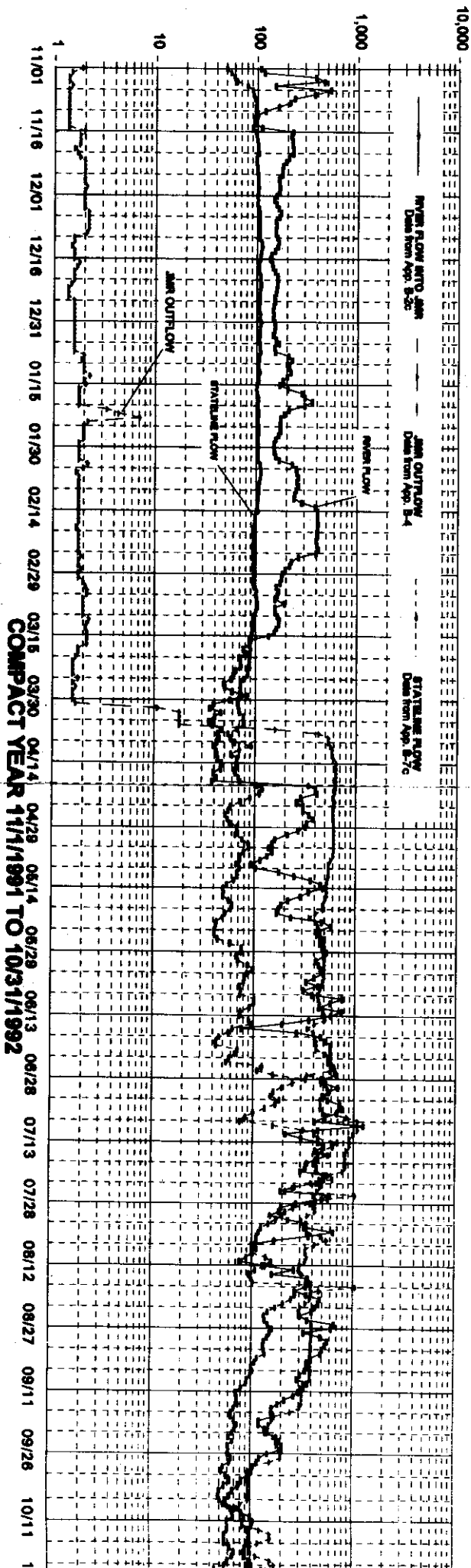
Notes

Notes

CONTENTS IN ACRE-FEET



FLOW IN SECOND FEET



STATE I: INFLOW, OUTFLOW, STATELINE FLOW, AND CONTENTS OF JMR