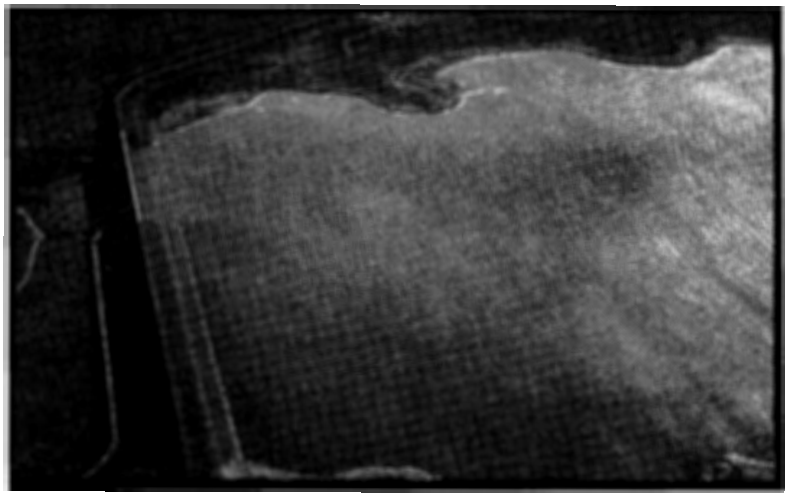
FORTY-THIRD ANNUAL REPORT OF THE

ARKANSAS RIVER COMPACT ADMINISTRATION

1991 COMPACT YEAR

November 1, 1990 to October 31,1991



307 South Fifth Street
Lamar, Colorado 81052

FORTY-THIRD ANNUAL REPORT OF THE ARKANSAS RIVER COMPACT ADMINISTRATION

1991 Compact Year
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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

****

307 South Fifth Street
Lamar, Colorado 81052

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ARKANSAS RIVER COMPACT ADMINISTRATION
FORTY-THIRD ANNUAL REPORT
1991

TO THE PRESIDENT OF THE UNITED STATES AND THE GOVERNORS OF THE STATES OF COLORADO AND KANSAS, SIRS:

Pursuant to Article VIII of the Arkansas River Compact, the Arkansas River Compact Administration submits its report for the 1991 Report-Year, November 1, 1990 through October 31, 1991, as follows:

1. MEMBERS of the ADMINISTRATION

- Representative of the United States:
  Frank G. Cooley; Meeker, Colorado

- Colorado Representatives:
  David W. Walker; Denver, Colorado
  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 (elected Dec. 11, 1990)

- 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 (appointed Dec. 11, 1990)

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

4. MEETINGS

- Administrative & Legal Committee: did not meet
- Engineering Committee: did not meet
- Operations Committee: Dec. 10, 1990 & Dec. 9, 1991
- Annual Meeting, Lamar: Dec. 11, 1990 & Dec. 10, 1991

The minutes of the December Annual Meetings are not included in this annual report. Transcripts of the meeting 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 a summary of the Operations Committee discussions.

Prior to coming together for the 1990 Annual Meeting several members of the Administration retired and were replaced by the Governors of their respective states. In Colorado, David W. Walker replaced J. William McDonald as Director of the Colorado Water Conservation Board and took his seat on the Administration. In Kansas, Lola Fox of Syracuse and Randy Hayzlett of Lakin were appointed to the seats formerly held by Ron Olomon and Carl Bentrup. These members assumed their new roles during Compact Year 1991 at the December 11, 1990 Annual Meeting. At the 1990 Annual Meeting three resolutions expressing the Administration's appreciation to the retiring members were adopted.

At its December 9, 1991 meeting the Operations Committee reviewed the "Annual Report of the Operations Secretary Concerning the Operation of John Martin, 1991" (hereinafter "Oper. Sec. 91 Report") and recommended its acceptance and approval which was given by the full Administration at the December 10, 1991 Annual Meeting. Much of the data contained in this annual report is derived from that report.

5. FISCAL

The Administration's Fiscal Year (FY) runs from July 1 to June 30. The fiscal affairs of the Administration for Compact Year 1991 involve portions of the Administration's FY 1990-91 (11/1/90 to 6/30/91) and FY 1991-92 (7/1/91 to 10/31/91). 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 11, 1990 and December 10, 1991.

At the December 11, 1990 Annual Meeting the following budget actions were taken:

- FY 1990-91 budget previously adopted was revised to reflect anticipated expenses of $41,280;
- FY 1991-92 budget previously adopted was revised to reflect anticipated expenses of $40,550;
- FY 1992-93 budget was adopted with anticipated expenses of $41,045.

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

At the close of the fiscal year on June 30, 1991 the Administration had a cash balance of $29,949 as shown in the FY 1990-91 Auditor's Report accepted at the December 10, 1991 Annual Meeting. The Auditor's Report is included herein as Appendix A-2. On December 9, 1991 the Administration had a cash balance of $42,320 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 survey 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 and 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, cubic feet per second	639,200

OUTLET WORKS

Sluicing conduits, 6' x 7.5', each	4
Regulating conduits, 4' x 4', each	2

RESERVOIR

Capacity, acre-feet at elevation 3,870.00	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 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 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.

8. WATER SUPPLY, RESERVOIR OPERATION, and HYDROLOGIC DATA

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 1991 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, 1990 and October 31, 1991. During the year 65,020.79 acre-feet of water was stored in JMR, 12,654 acre-feet evaporated, and 61,569.03 acre-feet was released to downstream users. This operation resulted in a reduction in contents for the year of slightly over 9,200 acre-feet. The remainder of this section provides a detailed description of reservoir operations.

TABLE 1

JOHN MARTIN RESERVOIR
ANNUAL OPERATION [AF]
COMPACT YEAR 1991

Month	Contents Begin Month	Inflow to Storage	Evaporation	Storage Release	Contents End Month
Nov. '90	17,588.82	11,772.18	478.00	0.00	28,883.00
Dec.	28,883.00	8,473.00	238.00	0.00	37,118.00
Jan. '91	37,118.00	10,285.00	0.00	0.00	47,403.00
Feb.	47,403.00	15,331.00	316.00	0.00	62,418.00
Mar.	62,418.00	9,659.05	1,647.00	175.05	70,255.00
Winter Subtotal		55,520.23	2,679.00	175.05	
Apr.	70,255.00	1,852.40	1,668.00	27,027.33	43,412.07
May	43,412.07	0.00	2,074.00	6,349.67	34,988.40
June	34,988.40	0.00	2,174.00	11,059.42	21,754.98
July	21,754.98	7,648.16	1,477.00	16,570.54	11,355.60
Aug.	11,355.60	0.00	1,025.00	204.58	10,126.02
Sept.	10,126.02	0.00	895.00	38.01	9,193.01
Oct. '91	9,193.01	0.00	662.00	144.43	8,386.58
Summer Subtotal		9,500.56	9,975.00	61,393.98	
Year Total		65,020.79	12,654.00	61,569.03	

NOTES

[1] Peak contents, 70,297 AF; reached on March 31, 1991.

[2] Source: Oper. Sec. 91 Report Tables I, II, VI, and VIII (includes City of Lamar temporary sub-account operations).

The 1991 Arkansas River Compact Year and the winter season for JMR began at 0001 hours November 1, 1990 with 17,588.82 acre-feet in the reservoir distributed as shown in Table 2. Winter storage officially ended at 2400 hours on March 31, 1991 with a total inflow to the reservoir of 55,520.23 acre-feet. Conservation storage received 29,170.11 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 26,350.12 acre-feet was stored at JMR during the period November 15, 1990 to March 15, 1991 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, 1990 [AF]
BEGIN COMPACT YEAR 1991

Storage Component	Subtotal	Contents
Conservation Storage		0.00
Agreement Accounts		
Section II Agreement Accounts		
Kansas Account	3,789.73	
Dist. 67 Accounts	2,002.89	
Transit Loss Account	6,987.74	
Subtotal Section II	12,780.36	
Section III Agreement Accounts		
Amity	0.00	
Ft. Lyon	0.00	
Las Animas Cons.	0.00	
Subtotal Section III	0.00	
Total All Accounts	12,780.36	12,780.36
Flood Pool		0.00
Permanent Pool		4,808.46
Total Reservoir Contents		17,588.82

NOTES

[1] Source: Oper. Sec. 91 Report, November accounting sheets, and Oper. Sec. 90 Report, Table XIII.

TABLE 3 **JOHN MARTIN RESERVOIR**
SECTION III ACCOUNTS WINTER INFLOW DISTRIBUTION
(NOV. 15, 1990 - MAR. 15, 1991) [AF]

Month	Contents Begin Month	Inflow to Storage	Evaporation	Storage Release	Contents End Month
Nov. '90	0.00	2,966.67	17.59	0.00	2,949.08
Dec.	2,949.08	3,671.50	30.99	0.00	6,589.59
Jan. '91	6,589.59	5,219.03	0.00	0.00	11,808.62
Feb.	11,808.62	10,843.63	104.43	0.00	22,547.82
Mar.	22,547.82	3,649.29	338.11	25,859.00	0.00
Winter Total		26,350.12	491.12	25,859.00	

NOTES:

[1] Inflow stored at JMR during the period Nov. 15, 1990 through March 15, 1991 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 18, 1991 as follows:

Account	Total Allocation	Transfer to transit loss	Net to Account
Amity	18,897.31	6,614.06	12,283.25
Ft Lyon	3,413.83	1,194.84	2,218.99
Las Animas	3,547.86	1,241.75	2,306.11
Total	25,859.00	9,050.65	16,808.35

[3] Source: Oper. Sec. 91 Report, Table II, and monthly accounting sheet for Section III account distribution.

No water was bypassed through the reservoir, but a small storage release of 175.05 acre-feet was made to one Colorado ditch during the winter season. Several transfers into and between accounts also occurred. 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, 6,981.38 acre-feet, was reallocated to the Kansas and District 67 Section II accounts. On March 18, 1991 the 25,859.00 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's inflow was reallocated to the transit loss account, a total of 9,050.65 acre-feet. After these actions, the allocation of the reservoir contents at the conclusion of the winter compact storage period on March 31, 1991 was as shown on Table 4. The total contents on March 31, as published by the USGS, was 70,297 acre-feet which agrees closely with the Operations Secretary Report value of 70,255 acre-feet.

TABLE 4 **JOHN MARTIN RESERVOIR**
CONTENTS DISTRIBUTION MARCH 31,1991 [AF]
COMPACT YEAR 1991

Storage Component	Subtotal	Contents
Conservation Storage		28,250.81
Agreement Accounts		
Section II Agreement Accounts		
Kansas Account	5,648.06	
Dist. 67 Accounts	6,237.24	
Transit Loss Account	8,953.64	
Subtotal Section II	20,838.94	
Section III Agreement Accounts		
Amity	12,151.56	
Ft. Lyon	2,195.20	
Las Animas Cons.	2,281.40	
Subtotal Section III	16,628.16	
Total All Accounts	37,467.10	37,467.10
Flood Pool		0.00
Permanent Pool		4,537.09
Total Reservoir Contents		70,255.00

NOTES
[1] Source: Oper. Sec. 91 Report, March accounting sheets.

The summer storage season began at 0001 hours April 1, 1991. Transfer of 28,250.81 acre-feet of winter conservation storage into the Section II accounts began on April 1, 1991 in accordance with the Operation Plan and was completed on April 14, 1991. Conservation storage operations are detailed in Table 5. During the period April 1 to 15, 1,852.40 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 (11,966.87 acre-feet) and the Colorado District 67 ditches received 60% (17,950.32 acre-feet). With moderate runoff there were no flood control operations during Compact Year 1991, as reflected in Table 5A, Flood Pool Operations. Peak contents in JMR of 70,297 acre-feet was reached on March 31, 1991.

On July 2, 1991 a three day period of high runoff resulted in additional summer inflow of 5,665.73 acre-feet to conservation storage. After reduction for evaporation, 5,652.86 acre-feet was subsequently transferred to the Section II accounts, Kansas receiving 40% - 2,261.15 acre-feet, and Colorado District 67 ditches 60% - 3,391.71 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 1991

Month	Contents Begin Month	Inflow to Storage	Evaporation	Storage Release	Contents End Month
Nov.'90	0.00	8,805.51	100.65	0.00	8,704.86
Dec.	8,704.86	4,801.50	77.27	0.00	13,429.09
Jan. '91	13,429.09	5,065.97	0.00	0.00	18,495.06
Feb.	18,495.06	4,487.37	118.86	0.00	22,863.57
Mar.	22,863.57	6,009.76	622.52	0.00	28,250.81
Winter Subtotal		29,170.11	919.30	0.00	
Apr.	28,250.81	1,852.40	186.02	29,917.19	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	5,665.73	12.87	5,652.86	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. '91	0.00	0.00	0.00	0.00	0.00
Summer Subtotal		7,518.13	198.89	35,570.05	
Year Total		36,688.24	1,118.19	35,570.05	

NOTES:
[1] Not a physical release from JMR, transferred to operating plan accounts.
[2] Source: Oper. Sec. 91 Report, Table I.

TABLE 5A

JOHN MARTIN RESERVOIR
FLOOD POOL OPERATION [AF]
COMPACT YEAR 1991

Month	Contents Begin Month	Inflow to Storage	Evaporation	Storage Release	Contents End Month
Nov. '90	0.00	0.00	0.00	0.00	0.00
Dec.	0.00	0.00	0.00	0.00	0.00
Jan. '91	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. '91	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 1991.
[2] Source: Oper. Sec. 91 Report, Table IX.

During the summer storage season 1,079.67 acre-feet was stored in the Amity Canal's Section III account pursuant to the Great Plains Reservoir ("GPR") decree. Another 824.14 acre-feet was temporarily stored in a sub-account of the Ft. Bent Canal's 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. In addition, 78.62 acre-feet of water obtained by the Colorado Div. Of Wildlife 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 1991 are separately shown in Tables 7 and 8.

TABLE 6 **JOHN MARTIN RESERVOIR**
AGREEMENT ACCOUNTS OPERATION [AF]
COMPACT YEAR 1991

Month	Contents Begin Month	Inflow to Storage	Evaporation	Storage Release	Contents End Month
Nov. '90	12,780.36	0.00	261.43	0.00	12,518.93
Dec.	12,518.93	0.00	94.27	0.00	12,424.66
Jan. '91	12,424.66	0.00	0.00	0.00	12,424.66
Feb.	12,424.66	0.00	67.37	0.00	12,357.29
Mar.	12,357.29	25,859.00	574.14	175.05	37,467.10
Winter Subtotal		25,859.00	997.21	175.05	
Apr.	37,467.10	29,917.19	1,349.53	27,027.33	39,007.43
May	39,007.43	0.00	1,844.29	6,349.67	30,813.47
June	30,813.47	0.00	1,893.97	11,059.42	17,860.08
July	17,860.08	7,556.67	1,096.33	16,570.54	7,749.88
Aug.	7,749.88	0.00	694.76	204.58	6,850.54
Sept.	6,850.54	0.00	605.51	38.01	6,207.02
Oct. '91	6,207.02	0.00	443.76	144.43	5,618.83
Summer Subtotal		37,473.86	7,928.15	61,393.98	
Year Total		63,332.86	8,925.36	61,569.03	

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. 91 Report, Table VI and monthly accounting sheets.

TABLE 7 **JOHN MARTIN RESERVOIR**
SECTION II ACCOUNTS OPERATION [AF]
COMPACT YEAR 1991

Month	Contents Begin Month	Inflow to Storage	Evaporation	Storage Release	Contents End Month
Nov. '90	12,780.36	0.00	261.43	0.00	12,518.93
Dec	12,518.93	0.00	94.27	0.00	12,424.66
Jan. '91	12,424.66	0.00	0.00	0.00	12,424.66
Feb.	12,424.66	0.00	67.37	0.00	12,357.29
Mar.	12,357.29	9,050.65	393.95	175.05	20,838.94
Winter Subtotal		9,050.65	817.02	175.05	
Apr.	20,838.94	29,917.19	930.26	18,617.56	31,208.31
May	31,208.31	0.00	1,620.54	645.02	28,942.75
June	28,942.75	0.00	1,795.67	10,449.46	16,697.62
July	16,697.62	6,849.90	1,019.14	14,778.50	7,749.88
Aug.	7,749.88	0.00	694.76	204.58	6,850.54
Sept.	6,850.54	0.00	605.51	38.01	6,207.02
Oct. '91	6,207.02	0.00	443.76	144.43	5,618.83
Summer Subtotal		36,767.09	7,109.64	44,877.56	
Year Total		45,817.74	7,926.66	45,052.61	

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 9,423.55 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. 91 Report, Table VI.

TABLE 8

JOHN MARTIN RESERVOIR
JMR SECTION III ACCOUNTS OPERATION [AF]
COMPACT YEAR 1991

Month	Contents Begin Month	Inflow to Storage	Evaporation	Storage Release	Contents End Month
Nov. '90	0.00	0.00	0.00	0.00	0.00
Dec	0.00	0.00	0.00	0.00	0.00
Jan. '91	0.00	0.00	0.00	0.00	0.00
Feb.	0.00	0.00	0.00	0.00	0.00
Mar.	0.00	25,859.00	180.19	9,050.65	16,628.16
Winter Subtotal		25,859.00	180.19	9,050.65	
Apr.	16,628.16	0.00	419.27	8,409.77	7,799.12
May	7,799.12	0.00	223.75	5,704.65	1,870.72
June	1,870.72	0.00	98.30	609.96	1,162.46
July	1,162.46	1,079.67	77.19	2,164.94	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. '91	0.00	0.00	0.00	0.00	0.00
Summer Subtotal		1,079.67	818.51	16,889.32	
Year Total		26,938.67	998.70	25,939.97	

NOTES

[1] Winter inflow stored at JMR per Pueblo WWSP, summer inflow per GPR decree.
[2] Releases include 9,050.65 AF [March] and 372.90 AF [July] [35% of inflow] transferred to transit loss account, a total of 9,423.55 AF.
[3] Inflows and releases do not include transfers between Section III accounts.
[4] Source: Oper. Sec. 91 Report, Tables III, IV, V, and monthly accounting sheets.

Kansas called for releases from its account of 17,387.90 acre-feet during a single run from June 21 to July 13, 1991. A separate transit loss account release of 2,665.35 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. These operations are also detailed on a daily basis in Appendices B-12 and B-13.

By 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. To determine whether the requested release has been delivered, the states further agree that no part of the daily Stateline flow exceeding 105% of Kansas' demand will be credited toward those deliveries. The annual operating agreement for 1991 (dated Dec. 11, 1990) 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, calculated pursuant to this agreement by the Operations Secretary using provisional data was 20,736 acre-feet. The calculated flow was adjusted to 21,332 acre-feet when final USGS discharge records became available. Differences between quantities in Table 10 of this report and Table XI in the Operations Secretary Annual Report reflect the fact that Table 10 is based on final corrected USGS gaged flows, while Table XI was prepared by the Operations Secretary immediately following the end of the Compact Year when only provisional flow data was available. Of this Stateline flow, 19,431 acre-feet was determined pursuant to the annual agreement to be a credited delivery against the releases from the Kansas account. In Compact Year 1991 USGS finalization of Stateline flow data resulted in a change of 124 acre-feet in the volume of the credited delivery.

TABLE 9

JOHN MARTIN RESERVOIR
JMR KANSAS ACCOUNT OPERATION [AF]
COMPACT YEAR 1991

Month	Contents Begin Month	Inflow to Storage	Evaporation	Storage Release	Contents End Month
Nov. '90	3,789.73	2,194.15	120.40	0.00	5,863.48
Dec.	5,863.48	0.00	44.15	0.00	5,819.33
Jan. '91	5,819.33	0.00	0.00	0.00	5,819.33
Feb.	5,819.33	0.00	31.55	0.00	5,787.78
Mar.	5,787.78	0.00	139.72	0.00	5,648.06
Winter Subtotal		2,194.15	335.82	0.00	
Apr.	5,648.06	11,966.87	437.97	0.00	17,176.96
May	17,176.96	0.00	895.86	0.00	16,281.10
June	16,281.10	0.00	984.44	7,636.48	7,660.18
July	7,660.18	2,261.15	169.91	9,751.42	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. '91	0.00	0.00	0.00	0.00	0.00
Summer Subtotal		14,228.02	2,488.18	17,387.90	
Year Total		16,422.17	2,824.00	17,387.90	

NOTES

[1] November inflow is Kansas share (11/35) of transfer of excess transit loss account water.

[2] Source: Oper. Sec. 91 Report, monthly accounting sheets.

TABLE 10 **JOHN MARTIN RESERVOIR**
JMR KANSAS DEMANDS and RELEASES [AF]
COMPACT YEAR 1991

Month	Demand/ Release	Transit Loss Acct. Release	Stateline Flow	Credited Delivery
Nov. '90	0.00	0.00	0	0
Dec.	0.00	0.00	0	0
Jan. '91	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	0	0	0
May	0	0	0	0
June	7,636.48	2,293.44	5,743	5,591
July	9,751.42	371.91	15,589	13,840
Aug.	0	0	0	0
Sept.	0	0	0	0
Oct. '91	0	0	0	0
Summer Subtotal	17,387.90	2,665.35	21,332	19,431
Year Total	17,387.90	2,665.35	21,332	19,431

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. Generally, deliveries begin 2 days after the release from JMR commences and continue for up to 7 days following the end of the release.

[3] Demands at the end of month are partially satisfied by deliveries in the following month due to rundown period and transit time between JMR and the Stateline.

[4] Source: Oper. Sec. 91 Report, Table XI, revised using final USGS published data.

The operation of the transit loss account in Compact Year 1991 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 1990 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 11 **JOHN MARTIN RESERVOIR**
JMR TRANSIT LOSS ACCOUNT SUMMARY [AF]
COMPACT YEAR 1991

Month	Contents Begin Month	Inflow to Storage	Evaporation	Storage Release	Contents End Month
Nov. '90	6,987.74	0.00	6.36	6,981.38	0.00
Dec.	0.00	0.00	0.00	0.00	0.00
Jan. '91	0.00	0.00	0.00	0.00	0.00
Feb.	0.00	0.00	0.00	0.00	0.00
Mar.	0.00	9,050.65	97.01	0.00	8,953.64
Winter Subtotal		9,050.65	103.37	6,981.38	
Apr.	8,953.64	0.00	261.36	0.00	8,692.28
May	8,692.28	0.00	453.35	0.00	8,238.93
June	8,238.93	0.00	534.29	2,293.44	5,411.20
July	5,411.20	372.90	499.99	371.91	4,912.20
Aug.	4,912.20	0.00	449.88	0.00	4,462.32
Sept.	4,462.32	0.00	394.44	0.00	4,067.88
Oct. '91	4,067.88	0.00	297.32	0.00	3,770.56
Summer Subtotal		372.90	2,890.63	2,665.35	
Year Total		9,423.55	2,994.00	9,646.73	

NOTES

[1] Inflows are transfers from Section III accounts.
[2] Transit loss account totals included with Section II accounts in Table 7.
[3] Nov. 1990 not a physical release to river from storage; reallocated 2,194.15 AF (11/35) to Kansas account and 4,787.23 AF (24/35) to Colorado ditch accounts pursuant to Section III of the 1980 Operating Plan and the annual operating agreement for 1991.
[4] Source: Oper. Sec. 91 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, 1991, 824.14 acre-feet was delivered into this sub-account, 35.24 acre-feet was evaporated, and 788.90 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 1991 Compact Year totaled 41,515.78 acre-feet, as summarized in Table 12B.

TABLE 12A **JOHN MARTIN RESERVOIR**
COLORADO DISTRICT 67 DITCHES SECTION II ACCOUNTS OPERATION [AF]
COMPACT YEAR 1991

Month	Contents Begin Month	Inflow to Storage	Evaporation	Storage Release	Contents End Month
Nov. '90	2,002.89	4,787.23	134.67	0.00	6,655.45
Dec	6,655.45	0.00	50.12	0.00	6,605.33
Jan. '91	6,605.33	0.00	0.00	0.00	6,605.33
Feb.	6,605.33	0.00	35.82	0.00	6,569.51
Mar.	6,569.51	0.00	157.22	175.05	6,237.24
Winter Subtotal		4,787.23	377.83	175.05	
Apr.	6,237.24	17,950.32	230.93	18,617.56	5,339.07
May	5,339.07	0.00	271.33	645.02	4,422.72
June	4,422.72	0.00	276.94	519.54	3,626.24
July	3,626.24	4,215.85	349.24	4,655.17	2,837.68
Aug.	2,837.68	0.00	244.88	204.58	2,388.22
Sept.	2,388.22	0.00	211.07	38.01	2,139.14
Oct. '91	2,139.14	0.00	146.44	144.43	1,848.27
Summer Subtotal		22,166.17	1,730.83	24,824.31	
Year Total		26,953.40	2,108.66	24,999.36	

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. 91 Report, monthly accounting sheets.

TABLE 12B **JOHN MARTIN RESERVOIR**
SUMMARY OF RELEASES TO COLORADO DITCHES [AF]
COMPACT YEAR 1991

Month	Release from Sec. II Acct.	Release from Sec. III Acct	Total Colorado Release to River
Nov. '90	0.00	0.00	0.00
Dec.	0.00	0.00	0.00
Jan. '91	0.00	0.00	0.00
Feb.	0.00	0.00	0.00
Mar.	175.05	0.00	175.05
Winter Subtotal	175.05	0.00	175.05
Apr.	18,617.56	8,409.77	27,027.33
May	645.02	5,704.65	6,349.67
June	519.54	609.96	1,129.50
July	4,655.17	1,792.04	6,447.21
Aug.	204.58	0.00	204.58
Sept.	38.01	0.00	38.01
Oct. '91	144.43	0.00	144.43
Summer Subtotal	24,824.31	16,516.42	41,340.73
Year Total	24,999.36	16,516.42	41,515.78

NOTES

[1] Includes release of City of Lamar's transmountain Fry-Ark water at 788.90 AF.
[2] Source: Oper. Sec. 91 Report, Table X.

The permanent pool in John Martin Reservoir received only 78.62 acre-feet of inflow from approved water sources available to the Colorado Division of Wildlife in Compact Year 1991. The pool contents declined over 2,100 acre-feet due to evaporation. At the close of Compact Year 1991 the permanent pool contained 2,767.75 acre-feet. Permanent pool operations during the year are shown in Table 13.

TABLE 13
JOHN MARTIN RESERVOIR
JMR PERMANENT POOL OPERATION [AF]
COMPACT YEAR 1991

Month	Contents Begin Month	Inflow to Storage	Evaporation	Storage Release	Contents End Month
Nov. '90	4,808.46	0.00	98.33	0.00	4,710.13
Dec.	4,710.13	0.00	35.47	0.00	4,674.66
Jan. '91	4,674.66	0.00	0.00	0.00	4,674.66
Feb.	4,674.66	0.00	25.34	0.00	4,649.32
Mar.	4,649.32	0.00	112.23	0.00	4,537.09
Winter Subtotal		0.00	271.37	0.00	
Apr.	4,537.09	0.00	132.45	0.00	4,404.64
May	4,404.64	0.00	229.71	0.00	4,174.93
June	4,174.93	0.00	280.03	0.00	3,894.90
July	3,894.90	78.62	367.80	0.00	3,605.72
Aug.	3,605.72	0.00	330.24	0.00	3,275.48
Sept.	3,275.48	0.00	289.49	0.00	2,985.99
Oct. '91	2,985.99	0.00	218.24	0.00	2,767.75
Summer Subtotal		78.62	1,847.96	0.00	
Year Total		78.62	2,119.33	0.00	

NOTES
[1] Source: Oper. Sec. 91 Report, Table VIII

Compact Year 1991 ended at 2400 hours on October 31, 1991. JMR contained 8,386.58 acre-feet, as determined by the Operations Secretary accounting, which agrees well with the 8,670 acre-feet subsequently published by the USGS. An adjustment to reservoir accounting was made by the Operations Secretary on November 1, 1991 by crediting approximately 285 acre-feet of additional inflow to conservation storage. This reconciled the records of JMR contents for the start of Compact Year 1992. JMR contained approximately 9,200 acre-feet less water than at the beginning of Compact Year 1991. The final contents were allocated as shown in Table 14.

TABLE 14 **JOHN MARTIN RESERVOIR**
CONTENTS DISTRIBUTION OCTOBER 31,1991 [AF]
END COMPACT YEAR 1991

Storage Component	Subtotal	Contents
Conservation Storage		0.00
Agreement Accounts		
Section II Agreement Accounts		
Kansas Account	0.00	
Dist. 67 Accounts	1,848.27	
Transit Loss Account	3,770.56	
Subtotal Section II	5,618.83	
Section III Agreement Accounts		
Amity	0.00	
Ft. Lyon	0.00	
Las Animas Cons.	0.00	
Subtotal Section III	0.00	
Total All Accounts	5,618.83	5,618.83
Flood Pool		0.00
Permanent Pool		2,767.75
Total Reservoir Contents		8,386.58

NOTES

[1] Source: Oper. Sec. 91 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 1990-1991 (October 1, 1990 to September 30, 1991) the Administration approved a cooperative agreement with the USGS in the amount of $24,850. The Administration was assessed one half of this amount, or $12,425. These funds were used for supplemental measurements at seven gaging sites, the operation of one station (Arkansas River near Granada, Colorado), operation of a telemark gage at John Martin Dam, maintenance of radio equipment, and the preparation of records for this annual report.

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. Several more measurements were made by the USGS at each site than are required under its agreement with the Administration. Additional measurements were made by personnel of the Colorado State Engineer which were also incorporated into the records. 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 1991.

11. INVESTIGATIONS

There were no investigations undertaken by the Administration during Compact Year 1991.

12. CHRONOLOGY of EVENTS in KANSAS v. COLORADO LITIGATION

During Compact Year 1991 the trial in the liability phase of the litigation continued intermittently before the Special Master in Pasadena, California. Various motions were filed during the period regarding additional discovery and admissibility of evidence. Kansas requested, and the Special Master granted, a partial continuance in the presentation of its case.

APPENDICES

Appendix A-1

REVISED FY 1990-91 BUDGET
(July 1, 1990 - June 30, 1991)

EXPENDITURES		
A. SALARIES AND CONTRACTUAL SERVICES		
1. Treasurer	$ 1,750	
2. Recording Secretary	1,750	
3. Operations Secretary	6,100	
4. Auditor's Fees	700	
5. Court Reporter's Fees	560	
		$10,900
B. GAGING STATIONS		
1. U.S. Geological Survey Cooperative Agreements for federal FY 1990	$11,830	
2. St. of Colorado Satellite System	8,000	
		$19,830
C. OPERATING EXPENSES		
1. Treasurer's Bond	$ 100	
2. 1988/89 Annual Reports (Printing)	7,000	
3. Telephone	1,000	
4. Office Supplies/Postage	400	
5. Printing/Copying	300	
6. Meetings	150	
7. Travel	0	
8. Rent	600	
		$ 9,550
D. EQUIPMENT		0
E. CONTINGENCY		1,000
F. TOTAL		$41,280
INCOME		
A. ASSESSMENTS		
1. Colorado (60%)	$15,000	
2. Kansas (40%)	10,000	
		$25,000
B. INTEREST EARNINGS		1,500
C. MISCELLANEOUS		0
		$26,500
EXPENDITURES FROM SURPLUS		$14,780

Adopted by the Arkansas River Compact Administration at its December 13, 1988 Annual Meeting and revised at its December 11, 1990 Annual Meeting.

/s/
James Rogers, Treasurer

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	600	
		$11,400
B. GAGING STATIONS		
1. U.S. Geological Survey Cooperative Agreements for federal FY 1991	$12,600	
2. St. of Colorado Satellite System	8,000	
		$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	600	
		$ 7,550
D. EQUIPMENT		0
E. CONTINGENCY		1,000
F. TOTAL		$40,550
INCOME		
A. ASSESSMENTS		
1. Colorado (60%)	$15,750	
2. Kansas (40%)	10,500	
		$26,250
B. INTEREST EARNINGS		3,000
C. MISCELLANEOUS		0
		$29,250
EXPENDITURES FROM SURPLUS		$11,300

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	600	
		$ 11,400
B. GAGING STATIONS		
1. U.S. Geological Survey Cooperative Agreements for federal FY 1992	$13,095	
2. St. of Colorado Satellite System	9,000	
		$22,095
C. OPERATING EXPENSES		
1. Treasurer's Bond	$ 100	
2. 1991 Annual Reports (Printing)	4,000	
3. Telephone	1,000	
4. Office Supplies/Postage	400	
5. Printing/Copying	300	
6. Meetings	150	
7. Travel	0	
8. Rent	600	
		$ 6,550
D. EQUIPMENT		0
E. CONTINGENCY		1,000
F. TOTAL		$41,045
INCOME		
A. ASSESSMENTS		
1. Colorado (60%)	$23,400	
2. Kansas (40%)	15,600	
		$39,000
B. INTEREST EARNINGS		2,000
C. MISCELLANEOUS		0
		$41,000
EXPENDITURES FROM SURPLUS		$ 45

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

/s/
James Rogers, Treasurer

Appendix A-2
AUDITORS REPORT

ANDERSON & COMPANY P.C.

Members NSPA PASC ▪ Certified Public Accountants ▪ Gary L. Anderson, C.P.A. Ronald D. Anderson, P.A.

October 17, 1991

We have audited the accompanying statements of assets, liabilities and equity - cash basis - of the Arkansas River Compact Administration as of June 30, 1991, 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, 1991 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.

Anderson & Company, P.C.

4th & Parmenter ▪ P. O. Box 1077 ▪ Lamar, Colorado 81052 ▪ (719) 336-7785

Appendix A-2
AUDITORS REPORT

ARKANSAS RIVER COMPACT ADMINISTRATION
STATEMENT OF ASSETS AND LIABILITIES - CASH BASIS
June 30, 1991

ASSETS	
Cash	$ 29,949
Equipment	29,811
Concrete Control	8,000
TOTAL ASSETS	$ 67,760
LIABILITIES	
Liabilities	$ 0
CASH BASIS EQUITY	
Expended:	
Equipment	$ 29,811
Concrete Control	8,000
Unexpended	29,949
TOTAL LIABILITIES AND CASH BASIS EQUITY	$ 67,760

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, 1991

CASH BALANCE - July 1, 1990		$ 34,890
REVENUES		
Revenues from Assessments		
Colorado - 60%	$ 15,000	
Kansas - 40%	10,000	
Interest	2,302	
Payroll Tax Refund	515	
TOTAL REVENUES		27,817
EXPENSES		
Treasurers Bond	$ 100	
Geological Survey	11,830	
Satellite Access Fee	8,000	
Operations Secretary	3,602	
Printing Annual Report - 1987	2,557	
Office Rent	600	
Auditor Fee	350	
Office Supplies and Postage	174	
Copying	132	
Meeting Expense	199	
Court Reporter Fee	643	
Telephone	1,071	
Recording Secretary and Treasurer	3,500	
TOTAL EXPENSES		32,758
EXCESS OF EXPENSES OVER REVENUES		(4,941)
CASH BALANCE - June 30, 1991		$ 29,949

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, 1990 to June 30, 1991

	ACTUAL	BUDGET	OVER(UNDER)
REVENUES			
Revenues from Assessments:			
Colorado - 60%	$ 15,000	$ 15,000	$ 0
Kansas - 40%	10,000	10,000	0
Interest	2,302	1,500	802
Miscellaneous	515	0	515
TOTAL REVENUES	27,817	26,500	1,317
EXPENSES			
U.S. Geological Survey	$ 11,830	$ 11,830	$ 0
Satellite Access Fee	8,000	8,000	0
Operation Secretary	3,602	6,100	(2,498)
Treasurers Bond	100	100	0
Telephone	1,071	1,000	71
Court Reporter Fee	643	600	43
Recording Secretary & Treasurer	3,500	3,000	500
Meeting Expense	199	150	49
Auditor Fee	350	700	(350)
Office Supplies & Postage	174	400	(226)
Printing and Copying	132	300	(168)
Printing Annual Reports - 1988 and 1989	0	7,000	(7,000)
Print Annual Report- 1987	2,557	0	2,557
Office Rent	600	600	0
Contingency	0	1,000	(1,000)
TOTAL EXPENSES	32,758	40,780	(8,022)
BUDGET DEFICIT	$(4,941)	$(14,280)	$ 9,339

See Accountant's Audit Report.
4

Appendix A-2
AUDITORS REPORT

ARKANSAS RIVER COMPACT ADMINISTRATION
NOTES TO CASH BASIS STATEMENTS
June 30, 1991

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
J. WILLIAM McDONALD, Denver
CARL GENOVA, Pueblo
JAMES G. ROGERS, Lamar
Treasurer

FRANK G. COOLEY
Chairman and Federal Representative
P.O. Box 98
Meeker, Colorado 81641

KANSAS
DAVID L. POPE, Topeka
CARL E. BENTRUP, Deerfield
Vice Chairman
RON OLOMON, Garden City

ARKANSAS RIVER COMPACT ADMINISTRATION

STATEMENT OF CASH RECEIPTS & DISBURSEMENTS & CHANGE IN CASH BALANCE

FROM JULY 1, 1991 THRU DECEMBER 9, 1991

CASH BALANCE: July 1, 1991			$29,948.83
RECEIPTS:			
Colorado	$15,750.00		
Kansas	10,500.00		
Interest Earned since July 1	991.37		
TOTAL RECEIPTS		$27,241.37	
DISBURSEMENTS:			
Refund-Leo Idler-½ SS overpayment-1986	$ 257.40		
Treasurer's Bond	100.00		
U. S. Geological Survey	7,675.00		
Salaries	2,000.00		
Telephone	445.49		
Office Rent	300.00		
Postage	80.00		
Supplies & Copies	58.05		
Audit	350.00		
Operations Secretary Account	3,604.15		
TOTAL DISBURSEMENTS		$14,870.09	
EXCESS RECEIPTS OVER DISBURSEMENTS			$12,371.28
CASH BALANCE:			$42,320.11
FUNDS ON HAND:			
Checking Account		$ 210.08	
Money Market Account		42,110.03	
TOTAL			$42,320.11

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, 1991

DAY	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	DAY
1	446	110	120	193	141	278	649	2,030	1,530	811	436	241	1
2	483	110	121	193	127	328	649	1,730	1,560	535	388	223	2
3	502	110	122	193	126	353	674	1,380	1,490	560	303	206	3
4	502	110	207	226	127	387	708	1,160	1,570	756	418	202	4
5	602	110	324	272	127	399	682	959	1,550	809	486	202	5
6	702	109	324	272	126	350	550	841	1,460	908	445	254	6
7	747	109	268	272	124	322	549	1,040	1,140	912	379	282	7
8	749	109	211	272	124	339	507	1,200	1,210	872	339	251	8
9	734	110	210	272	124	378	482	1,380	1,300	928	298	276	9
10	716	111	210	272	124	384	446	1,820	1,480	1,130	292	299	10
11	715	112	210	272	124	383	312	2,190	1,650	1,130	275	281	11
12	716	114	210	272	125	364	275	2,440	1,660	1,210	266	250	12
13	762	114	210	260	97	354	306	2,710	1,350	1,950	266	251	13
14	547	113	212	252	161	307	324	2,780	1,360	1,970	255	250	14
15	103	114	213	237	367	301	375	2,380	1,380	1,180	249	277	15
16	103	114	213	228	334	308	452	2,200	1,360	910	250	304	16
17	105	113	213	229	309	299	512	2,230	1,440	864	260	311	17
18	107	112	213	230	257	300	553	2,220	1,490	812	257	281	18
19	109	114	213	230	290	275	565	2,040	1,520	874	249	263	19
20	108	124	213	208	344	105	621	1,830	1,560	963	236	228	20
21	108	131	213	200	344	105	874	1,680	1,540	959	230	195	21
22	109	131	342	201	344	103	1,030	1,900	1,520	824	220	187	22
23	110	129	559	166	344	94	1,220	1,970	1,610	642	208	185	23
24	111	125	558	145	345	82	1,730	1,860	1,660	567	212	187	24
25	109	124	364	144	364	80	1,680	1,710	1,590	567	209	203	25
26	110	122	211	162	377	91	1,210	1,630	1,550	522	216	213	26
27	110	121	210	172	369	228	1,240	1,720	1,540	411	227	213	27
28	113	121	210	159	357	228	1,480	1,830	1,470	482	235	202	28
29	111	120	199	---	333	255	1,840	1,620	1,340	526	238	194	29
30	110	120	192	---	321	509	2,070	1,530	1,300	505	238	208	30
31	---	120	193	---	280	---	2,110	---	1,290	492	---	245	31
TOTAL CFS	10,659	3,606	7,488	6,204	7,456	8,289	26,675	54,010	45,470	26,581	8,580	7,364	TOTAL CFS
TOTAL AF	21,140	7,150	14,850	12,310	14,790	16,440	52,910	107,100	90,190	52,720	17,020	14,610	TOTAL AF
TOTAL YEAR	421,230	ACRE-FEET											

B-2a
1991

DISCHARGE: ARKANSAS RIVER AT LAS ANIMAS,COLORADO

B-2a
1991

U.S.G.S. PUBLISHED RECORDS, GAGING STATION # 7124000
DAILY MEAN DISCHARGE,CUBIC FEET PER SECOND
REPORT YEAR ENDING OCTOBER 31, 1991

DAY	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	DAY
1	136	118	105	229	208	25	22	504	374	257	116	35	1
2	94	118	110	210	244	23	20	497	432	246	102	24	2
3	96	116	115	196	203	22	19	498	804	275	80	22	3
4	94	120	120	156	189	21	18	549	587	310	158	21	4
5	94	124	120	140	178	21	26	472	496	366	117	22	5
6	90	125	125	135	161	21	35	514	485	135	332	23	6
7	79	119	130	130	144	21	34	536	530	88	316	25	7
8	74	114	140	148	129	21	29	520	495	241	309	33	8
9	70	111	145	161	123	22	23	482	532	471	284	32	9
10	62	112	150	161	127	21	20	512	319	266	217	28	10
11	58	111	160	174	125	21	17	500	236	83	181	24	11
12	54	113	160	185	121	23	17	543	191	46	146	24	12
13	54	117	160	172	118	21	17	660	378	251	120	27	13
14	59	121	156	184	118	21	17	525	442	358	116	37	14
15	201	113	145	326	93	21	17	633	403	414	103	38	15
16	292	111	136	366	63	21	17	756	247	396	97	39	16
17	203	111	128	364	50	19	18	488	138	448	102	42	17
18	184	112	124	362	41	17	17	431	70	383	86	43	18
19	178	100	124	354	32	18	18	443	48	322	74	48	19
20	170	90	124	345	29	17	17	580	48	332	64	66	20
21	151	90	124	336	29	18	17	555	79	427	61	79	21
22	134	92	124	327	30	17	42	604	252	413	54	85	22
23	132	95	131	312	28	26	62	551	427	343	44	81	23
24	137	98	137	300	28	32	47	525	399	462	43	76	24
25	143	100	120	261	26	24	79	520	488	462	37	67	25
26	144	110	119	235	23	24	157	478	410	380	34	60	26
27	136	110	140	223	23	22	309	477	406	309	49	59	27
28	133	110	150	191	23	21	369	449	443	285	51	62	28
29	126	105	130	---	23	21	378	464	357	248	46	68	29
30	118	100	150	---	26	21	396	475	331	192	44	75	30
31	---	105	181	---	28	---	454	---	308	134	---	90	31
TOTAL CFS	3,696	3,391	4,183	6,683	2,783	643	2,728	15,741	11,155	9,343	3,583	1,455	TOTAL CFS
TOTAL AF	7,330	6,730	8,300	13,260	5,520	1,280	5,410	31,220	22,130	18,530	7,110	2,890	TOTAL AF
TOTAL YEAR	129,710	ACRE FEET											

B-2b
1991

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, 1991

B-2b
1991

DAY	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	DAY
1	25.0	20.0	25.0	29.0	16.0	11.0	11.0	11.0	23.0	15.0	11.0	2.4	1
2	40.0	21.0	24.0	32.0	12.0	9.7	6.7	16.0	352.0	13.0	7.9	2.4	2
3	36.0	20.0	24.0	31.0	14.0	11.0	3.7	11.0	203.0	17.0	6.0	2.8	3
4	48.0	17.0	24.0	30.0	25.0	11.0	3.0	11.0	50.0	15.0	21.0	4.0	4
5	53.0	20.0	24.0	30.0	32.0	9.2	4.5	15.0	27.0	140.0	12.0	4.6	5
6	52.0	31.0	25.0	29.0	31.0	8.3	6.1	23.0	13.0	270.0	6.1	3.2	6
7	52.0	21.0	25.0	28.0	31.0	6.6	5.3	41.0	5.4	82.0	5.8	2.4	7
8	46.0	21.0	26.0	30.0	28.0	8.5	5.0	35.0	58.0	203.0	5.4	2.3	8
9	45.0	18.0	27.0	31.0	27.0	11.0	4.6	34.0	123.0	209.0	5.8	2.5	9
10	44.0	21.0	25.0	33.0	28.0	10.0	7.4	26.0	34.0	357.0	6.7	2.4	10
11	39.0	17.0	24.0	32.0	27.0	9.0	3.0	15.0	22.0	231.0	6.3	2.6	11
12	32.0	21.0	26.0	31.0	28.0	8.2	2.1	17.0	18.0	219.0	5.8	2.6	12
13	31.0	19.0	27.0	30.0	25.0	5.6	11.0	41.0	13.0	91.0	5.9	2.9	13
14	31.0	26.0	28.0	28.0	17.0	5.3	9.7	48.0	6.9	48.0	17.0	3.4	14
15	27.0	21.0	30.0	28.0	21.0	5.1	7.3	37.0	2.5	58.0	19.0	3.6	15
16	22.0	19.0	31.0	26.0	45.0	5.0	5.4	34.0	3.1	47.0	21.0	3.8	16
17	22.0	17.0	33.0	27.0	34.0	5.4	2.4	54.0	3.9	50.0	20.0	3.8	17
18	18.0	16.0	31.0	27.0	34.0	5.7	1.5	38.0	3.6	199.0	20.0	4.2	18
19	23.0	15.0	29.0	26.0	22.0	7.5	2.7	41.0	3.1	154.0	20.0	5.4	19
20	20.0	14.0	30.0	26.0	19.0	6.4	2.9	27.0	3.8	88.0	20.0	5.5	20
21	18.0	11.0	32.0	25.0	14.0	5.9	4.1	19.0	5.2	40.0	17.0	5.0	21
22	17.0	10.0	35.0	25.0	11.0	4.1	4.0	14.0	2.6	66.0	13.0	6.2	22
23	17.0	11.0	32.0	22.0	9.7	4.2	4.1	10.0	3.8	124.0	10.0	4.5	23
24	18.0	13.0	30.0	18.0	5.8	6.0	5.0	7.0	34.0	75.0	7.7	3.9	24
25	18.0	15.0	35.0	15.0	4.7	3.9	8.6	5.0	78.0	33.0	6.1	9.5	25
26	18.0	17.0	32.0	17.0	5.3	2.7	6.3	3.6	47.0	20.0	4.1	12.0	26
27	17.0	19.0	30.0	22.0	11.0	1.9	4.2	3.6	113.0	14.0	3.2	17.0	27
28	17.0	22.0	29.0	15.0	7.7	1.9	7.4	3.6	80.0	9.1	3.6	25.0	28
29	18.0	23.0	30.0	---	8.4	3.0	5.2	3.2	106.0	6.7	3.2	29.0	29
30	20.0	21.0	30.0	---	9.7	4.0	5.5	27.0	60.0	10.0	2.0	32.0	30
31	---	24.0	30.0	---	13.0	---	7.9	---	25.0	10.0	---	25.0	31
TOTAL CFS	884.0	581.0	883.0	743.0	616.3	197.1	167.6	671.0	1,522.9	2,913.8	312.6	235.9	TOTAL CFS
TOTAL AF	1,750	1,150	1,750	1,470	1,220	391	332	1,330	3,020	5,780	620	468	TOTAL AF
TOTAL YEAR	19,281	ACRE-FEET											

B-2c
1991

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, 1991

B-2c
1991

DAY	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	DAY
1	161	138	130	258	224	36	33	515	397	272	127	37	1
2	134	139	134	242	256	33	27	513	784	259	110	26	2
3	132	136	139	227	217	33	23	509	1,007	292	86	25	3
4	142	137	144	186	214	32	21	560	637	325	179	25	4
5	147	144	144	170	210	30	31	487	523	506	129	27	5
6	142	156	150	164	192	29	41	537	498	405	338	26	6
7	131	140	155	158	175	28	39	577	535	170	322	27	7
8	120	135	166	178	157	30	34	555	553	444	314	35	8
9	115	129	172	192	150	33	28	516	655	680	290	35	9
10	106	133	175	194	155	31	27	538	353	623	224	30	10
11	97	128	184	206	152	30	20	515	258	314	187	27	11
12	86	134	186	216	149	31	19	560	209	265	152	27	12
13	85	136	187	202	143	27	28	701	391	342	126	30	13
14	90	147	184	212	135	26	27	573	449	406	133	40	14
15	228	134	175	354	114	26	24	670	406	472	122	42	15
16	314	130	167	392	108	26	22	790	250	443	118	43	16
17	225	128	161	391	84	24	20	542	142	498	122	46	17
18	202	128	155	389	75	23	19	469	74	582	106	47	18
19	201	115	153	380	54	26	21	484	51	476	94	53	19
20	190	104	154	371	48	23	20	607	52	420	84	72	20
21	169	101	156	361	43	24	21	574	84	467	78	84	21
22	151	102	159	352	41	21	46	618	255	479	67	91	22
23	149	106	163	334	38	30	66	561	431	467	54	86	23
24	155	111	167	318	34	38	52	532	433	537	51	80	24
25	161	115	155	276	31	28	88	525	566	495	43	77	25
26	162	127	151	252	28	27	163	482	457	400	38	72	26
27	153	129	170	245	34	24	313	481	519	323	52	76	27
28	150	132	179	206	31	23	376	453	523	294	55	87	28
29	144	128	160	---	31	24	383	467	463	255	49	97	29
30	138	121	180	---	36	25	402	502	391	202	46	107	30
31	---	129	211	---	41	---	462	---	333	144	---	115	31
TOTAL CFS	4,580	3,972	5,066	7,426	3,399	840	2,896	16,412	12,678	12,257	3,896	1,691	TOTAL CFS
TOTAL AF	9,080	7,880	10,050	14,730	6,740	1,671	5,742	32,550	25,150	24,310	7,730	3,358	TOTAL AF
TOTAL YEAR	148,991	ACRE-FEET											

NOTES: [1] River flow 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
1991

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, 1991

B-3
1991

DAY	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	DAY
1	18,399	29,158	37,278	47,861	62,776	70,130	43,027	34,644	20,439	11,576	10,353	9,333	1
2	18,793	29,547	37,502	48,464	63,375	69,546	42,688	34,644	21,725	11,768	10,407	9,231	2
3	19,239	29,798	37,759	49,034	63,937	68,715	42,081	34,460	22,657	11,768	10,389	9,145	3
4	19,547	30,079	38,017	49,500	64,461	67,806	41,980	34,490	22,455	11,748	10,497	9,128	4
5	19,882	30,389	38,244	49,860	64,825	66,820	41,644	34,246	21,600	11,672	10,371	9,095	5
6	20,172	30,702	38,503	50,221	65,149	65,799	41,208	34,521	20,561	11,462	10,013	9,078	6
7	20,488	31,016	38,992	50,511	65,595	64,744	40,875	34,398	19,762	10,937	9,978	9,095	7
8	20,830	31,333	39,189	50,910	65,921	63,776	40,442	34,154	19,262	10,570	9,872	9,061	8
9	21,102	31,681	39,550	51,349	66,247	62,776	39,912	33,881	18,886	10,771	9,837	9,078	9
10	21,426	32,002	39,879	51,752	66,574	61,626	39,451	33,790	17,740	11,292	9,996	9,061	10
11	21,725	32,208	40,243	52,193	66,984	60,213	39,320	33,578	16,807	11,086	9,996	9,027	11
12	21,976	32,532	40,542	52,414	67,189	59,280	39,320	33,367	15,723	11,067	9,978	9,027	12
13	22,228	32,799	40,908	53,117	67,354	58,087	39,221	33,397	15,021	10,900	9,854	8,976	13
14	22,480	33,157	41,409	53,488	67,559	56,905	38,960	33,337	14,957	10,845	9,732	8,959	14
15	22,734	33,458	41,745	54,047	68,012	55,847	38,862	33,247	14,662	10,789	9,749	8,959	15
16	23,344	33,760	42,148	54,682	68,466	54,720	38,731	33,427	14,161	10,789	9,662	8,942	16
17	23,957	34,154	42,519	55,282	68,590	53,637	38,503	33,397	13,541	10,588	9,575	8,925	17
18	24,367	34,429	42,857	55,771	68,880	52,746	38,308	33,187	13,214	10,808	9,592	8,875	18
19	24,908	34,705	43,230	56,830	69,088	51,642	38,308	33,038	12,951	10,789	9,575	8,841	19
20	25,322	34,798	43,502	57,514	69,213	50,656	38,244	33,157	12,710	11,067	9,558	8,892	20
21	25,737	34,921	43,843	58,202	69,129	49,860	38,082	32,562	12,590	10,919	9,592	8,925	21
22	26,103	35,076	44,150	58,856	69,254	48,927	38,017	31,797	12,570	10,698	9,540	8,909	22
23	26,444	35,261	44,458	59,474	69,296	48,144	37,952	30,844	12,352	10,497	9,471	8,909	23
24	26,786	35,479	44,800	60,135	69,379	47,473	37,662	29,742	12,293	10,661	9,402	8,841	24
25	27,130	35,698	45,007	60,760	69,462	46,738	36,990	28,555	12,156	10,606	9,351	8,774	25
26	27,423	35,917	45,247	61,232	69,587	46,077	36,293	27,316	12,195	10,479	9,351	8,708	26
27	27,770	36,136	45,799	61,744	69,504	45,351	35,760	25,998	12,214	10,353	9,333	8,641	27
28	28,175	36,388	46,494	62,457	69,587	44,732	35,354	24,831	12,372	10,299	9,368	8,624	28
29	28,473	36,641	46,842	---	70,004	44,047	35,075	23,089	12,372	10,227	9,419	8,591	29
30	28,883	36,863	47,087	---	70,213	43,604	34,983	21,575	12,234	10,227	9,351	8,624	30
31	---	37,054	47,368	---	70,297	---	34,798	---	11,980	10,335	---	8,674	31
USGS PUBLISHED END OF MONTH CONTENTS [1]:													
	28,800	37,000	47,400	62,500	70,300	43,600	34,900	21,700	12,000	10,300	9,350	8,670	

NOTES: [1] Final published record uses this data rounded per USGS procedures.

[2] Determined with elevation-capacity table provided by U.S. Army Corps of Engineers and placed in use Feb. 1, 1988.

B-4 1991

OUTFLOW: ARKANSAS RIVER BELOW JOHN MARTIN RESERVOIR

B-4 1991

U.S.G.S. PUBLISHED RECORDS, GAGING STATION # 7130500
DAILY MEAN DISCHARGE,CUBIC FEET PER SECOND
REPORT YEAR ENDING OCTOBER 31, 1991

DAY	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	DAY
1	3.7	2.9	2.2	7.6	3.9	143.0	258.0	427.0	1,010.0	457.0	89.0	74.0	1
2	2.8	2.8	2.2	4.1	4.1	364.0	245.0	427.0	922.0	313.0	89.0	74.0	2
3	3.1	2.6	2.2	5.2	3.9	467.0	225.0	443.0	815.0	284.0	97.0	58.0	3
4	2.8	2.7	2.2	6.1	3.8	492.0	210.0	476.0	928.0	322.0	103.0	46.0	4
5	2.5	2.8	2.2	5.9	3.9	513.0	210.0	505.0	951.0	404.0	310.0	45.0	5
6	2.5	2.8	2.2	5.4	3.8	542.0	219.0	514.0	964.0	522.0	363.0	45.0	6
7	2.6	2.8	2.2	4.4	3.7	540.0	216.0	544.0	957.0	521.0	321.0	45.0	7
8	2.7	2.8	2.2	4.1	3.6	547.0	225.0	559.0	855.0	459.0	317.0	45.0	8
9	2.7	2.8	2.2	4.1	3.6	551.0	236.0	561.0	976.0	430.0	285.0	45.0	9
10	2.8	2.8	2.3	4.1	3.7	554.0	233.0	562.0	915.0	430.0	218.0	45.0	10
11	2.9	2.8	2.5	8.4	3.5	560.0	127.0	565.0	840.0	434.0	193.0	45.0	11
12	3.1	2.8	2.5	4.4	2.9	567.0	51.0	568.0	865.0	434.0	193.0	46.0	12
13	3.0	2.8	2.5	4.4	3.2	569.0	58.0	615.0	599.0	424.0	192.0	46.0	13
14	2.0	2.8	2.3	4.6	10.0	566.0	88.0	591.0	483.0	419.0	170.0	46.0	14
15	2.1	2.8	2.1	4.7	8.8	566.0	105.0	563.0	507.0	420.0	156.0	52.0	15
16	2.2	2.8	2.0	4.6	3.1	563.0	111.0	561.0	524.0	463.0	144.0	61.0	16
17	2.3	2.8	1.8	5.0	3.1	524.0	91.0	564.0	515.0	451.0	137.0	63.0	17
18	2.5	2.8	1.8	4.9	9.3	497.0	74.0	486.0	331.0	430.0	105.0	63.0	18
19	2.5	2.8	1.8	5.0	13.0	493.0	74.0	442.0	164.0	429.0	91.0	63.0	19
20	2.4	2.8	1.8	4.5	9.1	492.0	64.0	448.0	133.0	431.0	91.0	63.0	20
21	2.6	2.8	1.8	4.5	9.3	490.0	54.0	802.0	130.0	488.0	90.0	80.0	21
22	2.7	2.8	1.8	4.5	8.5	436.0	53.0	989.0	225.0	528.0	89.0	109.0	22
23	3.0	2.8	1.9	4.5	8.2	389.0	71.0	990.0	404.0	478.0	78.0	116.0	23
24	3.1	2.6	1.8	4.4	8.2	383.0	201.0	1,060.0	458.0	449.0	69.0	115.0	24
25	3.1	2.4	1.8	4.1	8.2	376.0	372.0	1,050.0	507.0	449.0	67.0	115.0	25
26	3.0	2.2	2.0	4.1	7.9	373.0	415.0	1,040.0	483.0	450.0	55.0	115.0	26
27	2.8	2.0	2.2	3.8	5.4	329.0	414.0	1,090.0	448.0	377.0	46.0	116.0	27
28	2.8	2.0	2.2	3.8	3.5	330.0	438.0	1,110.0	448.0	313.0	46.0	116.0	28
29	2.8	2.0	2.1	---	3.7	320.0	377.0	1,110.0	454.0	272.0	46.0	115.0	29
30	2.9	2.0	2.1	---	3.7	301.0	333.0	1,120.0	458.0	197.0	63.0	114.0	30
31	---	2.1	6.7	---	3.4	---	393.0	---	458.0	118.0	---	71.0	31
TOTAL CFS	82.0	81.5	69.6	135.2	174.0	13,837.0	6,241.0	20,782.0	18,727.0	12,596.0	4,313.0	2,252.0	TOTAL CFS
TOTAL AF	163	162	138	268	345	27,450	12,380	41,220	37,140	24,980	8,550	4,470	TOTAL AF
TOTAL YEAR	157,266	ACRE-FEET											

DISCHARGE: ARKANSAS RIVER AT LAMAR,COLORADO

B-5
1991

U.S.G.S. PUBLISHED RECORDS, GAGING STATION # 7133000
DAILY MEAN DISCHARGE,CUBIC FEET PER SECOND
REPORT YEAR ENDING OCTOBER 31, 1991

DAY	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	DAY
1	42.0	25.0	22.0	21.0	5.1	8.0	9.9	5.0	674.0	18.0	21.0	25.0	1
2	43.0	25.0	20.0	23.0	6 1	12.0	9.5	7.0	532.0	18.0	16.0	27.0	2
3	43.0	25.0	20.0	24.0	6.8	15.0	9.2	10.0	535.0	24.0	15.0	26.0	3
4	40.0	26.0	20.0	22.0	7.3	11.0	9.8	7.5	493.0	26.0	134.0	23.0	4
5	35.0	26.0	24.0	22.0	7.2	14.0	8.9	6.0	511.0	15.0	24.0	23.0	5
6	31.0	25.0	23.0	22.0	6.0	24.0	8.4	15.0	525.0	12.0	16.0	17.0	6
7	29.0	25.0	22.0	21.0	5.5	23.0	8.1	50.0	514.0	13.0	22.0	9.4	7
8	28.0	26.0	24.0	21.0	5.2	27.0	8.1	20.0	527.0	10.0	16.0	9.5	8
9	26.0	25.0	24.0	21.0	6.0	40.0	13.0	6.0	544.0	10.0	15.0	9.2	9
10	29.0	25.0	24.0	21.0	6.7	44.0	9.9	5.0	517.0	10.0	24.0	8.5	10
11	30.0	27.0	24.0	20.0	7.6	49.0	7.4	5.5	507.0	10.0	13.0	8.1	11
12	30.0	28.0	24.0	21.0	6.5	56.0	13.0	6.0	562.0	22.0	12.0	8.5	12
13	30.0	27.0	23.0	23.0	6.0	60.0	6.4	7.0	456.0	83.0	11.0	8.3	13
14	30.0	27.0	24.0	21.0	5.5	67.0	6.3	8.0	139.0	18.0	11.0	8.1	14
15	29.0	26.0	25.0	21.0	5.0	68.0	6.1	10.0	65.0	14.0	13.0	8.5	15
16	29.0	27.0	23.0	22.0	5.0	68.0	6.3	250.0	26.0	14.0	11.0	8.4	16
17	29.0	27.0	22.0	22.0	6.0	68.0	6.3	70.0	19.0	16.0	11.0	8.0	17
18	31.0	27.0	22.0	22.0	6.6	65.0	5.8	30.0	17.0	12.0	8.6	7.6	18
19	28.0	27.0	22.0	19.0	6.6	57.0	5.2	20.0	15.0	13.0	7.8	7.6	19
20	27.0	21.0	22.0	18.0	5.1	55.0	6.2	10.0	18.0	55.0	7.6	8.1	20
21	26.0	18.0	23.0	10.0	4.8	55.0	5.7	100.0	14.0	20.0	7.5	8.1	21
22	26.0	17.0	22.0	7.4	4.5	53.0	5.2	400.0	11.0	17.0	7.8	8.3	22
23	25.0	18.0	21.0	7.2	4.5	43.0	5.3	430.0	10.0	13.0	7.6	10.0	23
24	26.0	20.0	21.0	6.6	4.9	39.0	4.9	450.0	22.0	14.0	8.9	9.3	24
25	26.0	21.0	22.0	5.3	6.1	30.0	4.9	480.0	12.0	13.0	11.0	10.0	25
26	26.0	20.0	22.0	5.4	4.4	25.0	4.8	510.0	12.0	13.0	10.0	9.4	26
27	26.0	22.0	23.0	5.3	4.9	26.0	4.7	563.0	9.7	13.0	9.5	11.0	27
28	26.0	24.0	23.0	5.1	5.2	20.0	5.0	645.0	8.4	11.0	8.9	10.0	28
29	26.0	21.0	20.0	---	7.4	12.0	4.8	654.0	7.4	9.8	8.3	7.4	29
30	25.0	19.0	21.0	---	7.6	11.0	4.8	985.0	6.5	12.0	21.0	10.0	30
31	---	19.0	22.0	---	7.4	---	4.8	---	7.7	15.0	---	13.0	31
TOTAL CFS	897.0	736.0	694.0	479.3	183.5	1,145.0	218.7	5,765.0	7,316.7	563.8	509.5	365.3	TOTAL CFS
TOTAL AF	1,780	1,460	1,380	951	364	2,270	434	11,430	14,510	1,120	1,010	725	TOTAL AF
TOTAL YEAR	37,434	ACRE-FEET											

DISCHARGE: ARKANSAS RIVER NEAR GRANADA, COLORADO

B-6
1991

U.S.G.S. PUBLISHED RECORDS, GAGING STATION # 7134180
DAILY MEAN DISCHARGE,CUBIC FEET PER SECOND
REPORT YEAR ENDING OCTOBER 31, 1991

DAY	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	DAY
1	21.0	90.0	92.0	77.0	70.0	7.7	10.0	4.1	678.0	11.0	9.9	7.5	1
2	47.0	89.0	89.0	80.0	67.0	8.6	29.0	4.1	499.0	12.0	11.0	6.2	2
3	73.0	83.0	87.0	83.0	67.0	8.5	32.0	5.2	431.0	14.0	11.0	5.0	3
4	92.0	85.0	85.0	81.0	66.0	10.0	33.0	7.6	419.0	23.0	10.0	5.0	4
5	95.0	85.0	84.0	82.0	71.0	12.0	31.0	7.2	393.0	24.0	23.0	5.0	5
6	94.0	85.0	85.0	83.0	69.0	8.4	29.0	4.6	407.0	9.8	8.8	5.0	6
7	91.0	84.0	85.0	82.0	64.0	8.7	28.0	21.0	397.0	8.6	7.7	5.0	7
8	91.0	84.0	87.0	83.0	54.0	7.4	25.0	30.0	403.0	7.9	7.3	5.0	8
9	88.0	84.0	86.0	84.0	46.0	8.4	24.0	14.0	404.0	8.1	7.1	5.0	9
10	87.0	88.0	89.0	82.0	43.0	8.5	26.0	4.0	414.0	8.2	7.1	4.8	10
11	86.0	91.0	89.0	80.0	42.0	7.8	27.0	3.7	371.0	8.3	7.0	4.8	11
12	86.0	91.0	88.0	81.0	40.0	9.4	24.0	3.9	419.0	7.4	6.9	4.8	12
13	87.0	92.0	89.0	82.0	42.0	8.0	19.0	4.7	455.0	16.0	6.8	4.8	13
14	86.0	95.0	91.0	80.0	41.0	10.0	13.0	5.4	270.0	12.0	6.5	4.8	14
15	86.0	92.0	94.0	79.0	42.0	9.5	4.8	5.4	151.0	7.8	6.2	4.8	15
16	87.0	92.0	94.0	80.0	46.0	7.0	4.4	8.5	67.0	10.0	6.2	4.8	16
17	88.0	97.0	90.0	80.0	50.0	5.7	4.2	121.0	48.0	14.0	6.3	4.8	17
18	90.0	98.0	89.0	77.0	52.0	5.3	4.1	20.0	31.0	18.0	6.3	4.8	18
19	91.0	93.0	88.0	76.0	48.0	5.5	4.3	5.4	21.0	15.0	6.1	6.0	19
20	90.0	72.0	87.0	77.0	45.0	4.6	4.3	4.7	16.0	16.0	6.0	5.6	20
21	85.0	70.0	82.0	76.0	41.0	5.3	4.3	3.8	13.0	13.0	5.9	6.0	21
22	83.0	70.0	82.0	73.0	40.0	5.0	5.1	71.0	12.0	8.3	5.9	5.6	22
23	84.0	72.0	82.0	73.0	24.0	4.7	5.0	296.0	8.6	8.2	6.2	5.6	23
24	86.0	78.0	83.0	71.0	6.7	4.7	4.3	333.0	8.6	8.3	5.7	5.1	24
25	87.0	80.0	82.0	70.0	5.6	4.6	4.2	400.0	8.2	8.6	5.6	4.8	25
26	90.0	83.0	79.0	71.0	5.0	4.5	4.2	392.0	7.9	8.8	5.5	4.8	26
27	91.0	86.0	79.0	67.0	4.9	4.4	3.9	402.0	7.5	9.5	5.3	5.0	27
28	91.0	91.0	78.0	68.0	5.1	5.2	4.3	457.0	7.8	9.9	5.2	9.9	28
29	91.0	79.0	77.0	---	5.5	4.2	3.9	488.0	8.0	10.0	6.4	16.0	29
30	91.0	74.0	72.0	---	8.1	4.1	3.9	564.0	8.9	10.0	7.9	18.0	30
31	---	75.0	75.0	---	8.0	---	3.9	---	10.0	10.0	---	21.0	31
TOTAL CFS	2,535.0	2,628.0	2,639.0	2,178.0	1,218.9	207.7	423.1	3,691.3	6,394.5	355.7	226.8	205.3	TOTAL CFS
TOTAL AF	5,030	5,210	5,230	4,320	2,420	412	839	7,320	12,680	706	450	407	TOTAL AF
TOTAL YEAR	45,024	ACRE-FEET											

DISCHARGE: ARKANSAS RIVER NEAR COOLIDGE, KANSAS

B-7a
1991

U.S.G.S. PUBLISHED RECORDS, GAGING STATION # 7137500
DAILY MEAN DISCHARGE,CUBIC FEET PER SECOND
REPORT YEAR ENDING OCTOBER 31, 1991

DAY	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	DAY
1	83	112	120	123	122	65	101	22	594	50	51	25	1
2	80	111	125	127	119	64	94	23	513	51	55	31	2
3	123	106	128	129	118	63	114	25	473	57	48	27	3
4	135	105	130	129	120	72	100	33	449	104	42	28	4
5	132	110	130	130	122	115	102	27	390	251	33	38	5
6	133	112	135	132	118	82	91	115	380	158	32	46	6
7	124	113	133	132	117	60	58	123	384	109	31	43	7
8	100	113	136	132	112	93	43	112	390	105	30	28	8
9	89	114	134	133	104	76	46	90	404	96	26	26	9
10	96	116	134	134	100	72	43	74	411	81	22	20	10
11	109	126	136	132	95	74	45	49	389	77	34	17	11
12	96	125	141	131	91	89	50	28	507	102	39	20	12
13	85	125	146	135	89	97	44	35	457	144	39	20	13
14	85	117	156	133	90	101	35	48	407	132	37	29	14
15	85	112	149	131	92	85	32	45	286	130	28	27	15
16	92	115	145	133	95	60	27	51	227	108	27	27	16
17	108	123	142	134	99	47	31	144	148	94	28	22	17
18	121	124	139	129	97	47	26	138	125	99	28	17	18
19	120	121	139	121	97	47	22	94	111	113	31	20	19
20	123	105	137	126	94	41	21	74	99	103	36	29	20
21	118	110	133	128	92	52	24	61	90	110	37	32	21
22	110	120	132	126	90	62	25	62	82	103	28	24	22
23	109	120	132	125	89	50	32	245	91	86	27	23	23
24	110	125	130	124	90	52	51	309	79	69	24	25	24
25	109	125	130	121	87	46	77	316	73	61	28	23	25
26	111	125	127	121	96	47	44	323	71	55	35	24	26
27	111	120	127	121	98	48	42	329	78	48	28	26	27
28	109	120	128	121	95	58	45	345	69	50	27	37	28
29	108	120	123	---	80	104	44	383	70	62	20	39	29
30	113	120	119	---	74	112	25	416	58	60	18	42	30
31	---	120	122	---	70	---	27	---	56	57	---	46	31
TOTAL CFS	3,227	3,630	4,138	3,593	3,052	2,081	1,561	4,139	7,961	2,925	969	881	TOTAL CFS
TOTAL AF	6,400	7,200	8,210	7,130	6,050	4,130	3,100	8,210	15,790	5,800	1,920	1,750	TOTAL AF
TOTAL YEAR	75,690	ACRE FEET											

B-7b 1991

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, 1991

B-7b 1991

DAY	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	DAY
1	33.0	0.0	0.0	0.0	0.0	0.0	0.0	22.0	38.0	0.0	0.0	19.0	1
2	32.0	0.0	0.0	0.0	0.0	0.0	0.0	23.0	36.0	0.0	0.0	18.0	2
3	23.0	0.0	0.0	0.0	0.0	0.0	0.0	26.0	39.0	0.0	0.0	17.0	3
4	0.9	0.0	0.0	0.0	0.0	0.0	0.0	24.0	35.0	0.0	0.0	18.0	4
5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	35.0	41.0	0.0	19.0	18.0	5
6	0.3	0.0	0.0	0.0	0.0	0.0	0.0	33.0	49.0	0.0	33.0	18.0	6
7	0.0	0.0	0.0	0.0	0.0	0.0	19.0	0.1	50.0	0.0	24.0	17.0	7
8	9.7	0.0	0.0	0.0	0.0	0.0	29.0	0.0	49.0	0.0	25.0	18.0	8
9	18.0	0.0	0.0	0.0	0.0	0.0	23.0	0.0	50.0	0.0	27.0	19.0	9
10	10.0	0.0	0.0	0.0	0.0	0.0	22.0	0.0	44.0	0.0	29.0	18.0	10
11	2.7	0.0	0.0	0.0	0.0	0.0	21.0	21.0	42.0	0.0	30.0	18.0	11
12	12.0	0.0	0.0	0.0	0.0	0.0	22.0	40.0	51.0	12.0	31.0	19.0	12
13	21.0	0.0	0.0	0.0	0.0	0.0	25.0	46.0	48.0	32.0	22.0	18.0	13
14	21.0	0.0	0.0	0.0	0.0	0.0	19.0	37.0	41.0	14.0	17.0	18.0	14
15	21.0	0.0	0.0	0.0	0.0	19.0	22.0	24.0	27.0	0.2	16.0	17.0	15
16	17.0	0.0	0.0	0.0	0.0	42.0	25.0	26.0	29.0	0.0	18.0	17.0	16
17	6.9	0.0	0.0	0.0	0.0	56.0	27.0	25.0	45.0	0.0	21.0	24.0	17
18	0.6	0.0	0.0	0.0	0.0	58.0	26.0	38.0	38.0	0.0	19.0	21.0	18
19	0.3	0.0	0.0	0.0	0.0	63.0	26.0	21.0	27.0	0.0	18.0	17.0	19
20	0.0	0.0	0.0	0.0	0.0	62.0	26.0	18.0	19.0	0.0	19.0	16.0	20
21	0.0	0.0	0.0	0.0	0.0	60.0	24.0	15.0	13.0	0.0	18.0	16.0	21
22	0.0	0.0	0.0	0.0	0.0	43.0	20.0	4.8	20.0	0.0	17.0	13.0	22
23	0.0	0.0	0.0	0.0	0.0	41.0	19.0	0.0	25.0	0.0	16.0	13.0	23
24	0.0	0.0	0.0	0.0	0.0	39.0	8.4	0.0	25.0	0.0	18.0	13.0	24
25	0.0	0.0	0.0	0.0	0.0	36.0	0.2	6.6	30.0	0.0	19.0	12.0	25
26	0.0	0.0	0.0	0.0	0.0	37.0	0.0	29.0	22.0	0.0	16.0	13.0	26
27	0.0	0.0	0.0	0.0	0.0	34.0	0.0	32.0	0.4	0.0	18.0	13.0	27
28	0.0	0.0	0.0	0.0	0.0	30.0	0.0	44.0	0.0	0.0	18.0	14.0	28
29	0.0	0.0	0.0	---	0.0	17.0	6.3	59.0	0.0	0.0	18.0	7.2	29
30	0.0	0.0	0.0	---	0.0	0.0	20.0	59.0	0.0	0.0	19.0	4.3	30
31	---	0.0	0.0	---	0.0	---	20.0	---	0.0	0.0	---	0.5	31
TOTAL CFS	229.9	0.0	0.0	0.0	0.0	637.0	449.9	708.5	933.4	58.2	545.0	484.0	TOTAL CFS
TOTAL AF	456	0	0	0	0	1,260	892	1,410	1,850	115	1,080	960	TOTAL AF
TOTAL YEAR	8,023	ACRE-FEET											

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

STATELINE FLOW

CALCULATED USING U.S.G.S. PUBLISHED RECORDS [1]
DAILY MEAN DISCHARGE,CUBIC FEET PER SECOND
REPORT YEAR ENDING OCTOBER 31, 1991

B-7c
1991

DAY	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	DAY
1	116	112	120	123	122	65	101	44	632	50	51	44	1
2	112	111	125	127	119	64	94	46	549	51	55	49	2
3	146	106	128	129	118	63	114	51	512	57	48	44	3
4	136	105	130	129	120	72	100	57	484	104	42	46	4
5	133	110	130	130	122	115	102	62	431	251	52	56	5
6	133	112	135	132	118	82	91	148	429	158	65	64	6
7	124	113	133	132	117	60	77	123	434	109	55	60	7
8	110	113	136	132	112	93	72	112	439	105	55	46	8
9	107	114	134	133	104	76	69	90	454	96	53	45	9
10	106	116	134	134	100	72	65	74	455	81	51	38	10
11	112	126	136	132	95	74	66	70	431	77	64	35	11
12	108	125	141	131	91	89	72	68	558	114	70	39	12
13	106	125	146	135	89	97	69	81	505	176	61	38	13
14	106	117	156	133	90	101	54	85	448	146	54	47	14
15	106	112	149	131	92	104	54	69	313	130	44	44	15
16	109	115	145	133	95	102	52	77	256	108	45	44	16
17	115	123	142	134	99	103	58	169	193	94	49	46	17
18	122	124	139	129	97	105	52	176	163	99	47	38	18
19	120	121	139	121	97	110	48	115	138	113	49	37	19
20	123	105	137	126	94	103	47	92	118	103	55	45	20
21	118	110	133	128	92	112	48	76	103	110	55	48	21
22	110	120	132	126	90	105	45	67	102	103	45	37	22
23	109	120	132	125	89	91	51	245	116	86	43	36	23
24	110	125	130	124	90	91	59	309	104	69	42	38	24
25	109	125	130	121	87	82	77	323	103	61	47	35	25
26	111	125	127	121	96	84	44	352	93	55	51	37	26
27	111	120	127	121	98	82	42	361	78	48	46	39	27
28	109	120	128	121	95	88	45	389	69	50	45	51	28
29	108	120	123	---	80	121	50	442	70	62	38	46	29
30	113	120	119	---	74	112	45	475	58	60	37	46	30
31	---	120	122	---	70	0	47	---	56	57	---	46	31
TOTAL CFS	3,457	3,630	4,138	3,593	3,052	2,718	2,011	4,847	8,894	2,983	1,514	1,365	TOTAL CFS
TOTAL AF	6,856	7,200	8,210	7,130	6,050	5,390	3,992	9,620	17,640	5,915	3,000	2,710	TOTAL AF
TOTAL YEAR	83,713	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.

DISCHARGE: ARKANSAS RIVER AT GARDEN CITY, KANSAS

B-8
1991

U.S.G.S. PUBLISHED RECORDS, GAGING STATION # 7139000
DAILY MEAN DISCHARGE,CUBIC FEET PER SECOND [1], [2]
REPORT YEAR ENDING OCTOBER 31, 1991

DAY	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	DAY
1	0.0	0.0	0.0	8.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1
2	0.0	0.0	0.0	99.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2
3	0.0	0.0	0.0	69.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3
4	0.0	0.0	0.0	71.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4
5	0.0	0.0	0.0	84.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5
6	0.0	0.0	0.0	86.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6
7	0.0	0.0	0.0	56.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7
8	0.0	0.0	0.0	59.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8
9	0.0	0.0	0.0	68.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9
10	0.0	0.0	0.0	76.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10
11	0.0	0.0	0.0	52.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11
12	0.0	0.0	0.0	21.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12
13	0.0	0.0	0.0	12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13
14	0.0	0.0	0.0	7.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14
15	0.0	0.0	0.0	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15
16	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16
17	0.0	0.0	0.0	0.7	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	0.4	---	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29
30	0.0	0.0	5.0	---	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30
31	---	0.0	8.0	---	0.0	---	0.0	---	0.0	0.0	---	0.0	31
TOTAL CFS	0.0	0.0	13.4	773.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	TOTAL CFS
TOTAL AF	0	0	27	1,530	0	0	0	0	0	0	0	0	TOTAL AF
TOTAL YEAR	1,557	ACRE-FEET											

NOTES: [1] January data is estimated values per U.S.G.S.
[2] Rounded to nearest 0.1 CFS

B-9 **CONTENTS JOHN MARTIN RESERVOIR CONSERVATION STORAGE** **B-9**

1991 OPERATIONS SECRETARY, ARCA MONTHLY ACCOUNTING SHEETS 1991

MIDNIGHT CONTENTS [2400 HOURS] ACRE FEET [1]

REPORT YEAR ENDING OCTOBER 31, 1991

DAY	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	DAY
1	803	8,880	13,527	18,635	22,976	25,941	0	0	0	0	0	0	1
2	1,240	9,086	13,657	18,801	23,094	23,677	0	0	2,003	0	0	0	2
3	1,707	9,265	13,788	18,957	23,200	21,307	0	0	2,271	0	0	0	3
4	1,987	9,444	13,936	19,106	23,312	19,322	0	0	704	0	0	0	4
5	2,371	9,595	14,086	19,250	23,452	17,444	0	0	0	0	0	0	5
6	2,677	9,803	14,214	19,397	23,647	15,581	0	0	0	0	0	0	6
7	3,023	9,983	14,467	19,542	23,832	13,684	0	0	0	0	0	0	7
8	3,327	10,168	14,591	19,745	24,043	11,902	0	0	0	0	0	0	8
9	3,704	10,359	14,779	19,981	24,238	10,006	0	0	0	0	0	0	9
10	3,958	10,526	14,950	20,164	24,443	8,113	0	0	0	0	0	0	10
11	4,263	10,692	15,141	20,348	24,646	6,153	0	0	0	0	0	0	11
12	4,520	10,800	15,315	20,551	24,769	4,347	0	0	0	0	0	0	12
13	4,810	10,972	15,504	20,705	24,854	2,398	0	0	0	0	0	0	13
14	5,071	11,202	15,694	20,876	24,998	463	0	0	0	0	0	0	14
15	5,319	11,370	15,906	21,036	25,302	0	0	0	0	0	0	0	15
16	5,787	11,577	16,166	21,190	25,788	0	0	0	0	0	0	0	16
17	5,956	11,790	16,372	21,338	25,986	0	0	0	0	0	0	0	17
18	6,125	11,945	16,552	21,492	26,193	0	0	0	0	0	0	0	18
19	6,346	12,094	16,772	21,645	26,490	0	0	0	0	0	0	0	19
20	6,581	12,145	16,959	21,793	26,581	0	0	0	0	0	0	0	20
21	6,812	12,229	17,113	21,939	26,672	0	0	0	0	0	0	0	21
22	7,012	12,314	17,233	22,085	26,804	0	0	0	0	0	0	0	22
23	7,215	12,415	17,388	22,224	26,936	0	0	0	0	0	0	0	23
24	7,424	12,534	17,603	22,361	27,067	0	0	0	0	0	0	0	24
25	7,628	12,636	17,710	22,486	27,199	0	0	0	0	0	0	0	25
26	7,832	12,756	17,839	22,601	27,289	0	0	0	0	0	0	0	26
27	8,022	12,876	17,973	22,724	27,342	0	0	0	0	0	0	0	27
28	8,261	13,013	18,093	22,864	27,455	0	0	0	0	0	0	0	28
29	8,482	13,172	18,227	---	27,748	0	0	0	0	0	0	0	29
30	8,705	13,300	18,361	---	28,167	0	0	0	0	0	0	0	30
31	---	13,429	18,495	---	28,251	---	0	---	0	0	---	0	31

NOTES: [1] Values are the volume of winter and/or summer compact water remaining in conservation storage prior to release to storage accounts, as reported by the Operations Secretary, and rounded to the nearest AF.

B-10 1991

TRANSFER OF COMPACT WATER FROM CONSERVATION STORAGE

B-10 1991

TRANSFERRED INTO JOHN MARTIN RESERVOIR AGREEMENT ACCOUNTS [1]
OPERATIONS SECRETARY, ARCA ; IN ACRE FEET [2]
REPORT YEAR ENDING OCTOBER 31, 1991

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	2,479.4	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	661.2	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	1,983.5	0.0	0.0	0.0	3
4	0.0	0.0	0.0	0.0	0.0	2,146.7	0.0	0.0	1,983.5	0.0	0.0	0.0	4
5	0.0	0.0	0.0	0.0	0.0	1,983.5	0.0	0.0	1,024.7	0.0	0.0	0.0	5
6	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	6
7	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	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	0.0	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	0.0	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	497.3	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	29
30	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	31
TOTAL AF	0.0	0.0	0.0	0.0	0.0	29,917.2	0.0	0.0	5,652.9	0.0	0.0	0.0	TOTAL AF
TOTAL YEAR	35,570 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 1980 Colorado-Kansas Operating Plan Resolution.

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

B-11
1991

DEMANDS BY COLORADO FOR AGREEMENT ACCOUNT WATER

RELEASES TO COLORADO WATER USERS FROM JOHN MARTIN RESERVOIR
OPERATIONS SECRETARY, ARCA ; IN ACRE FEET [1]
REPORT YEAR ENDING OCTOBER 31, 1991

B-11
1991

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	300.3	454.1	141.1	70.4	0.0	0.0	60.8	1
2	0.0	0.0	0.0	0.0	0.0	747.5	408.1	144.2	404.1	20.2	0.0	60.8	2
3	0.0	0.0	0.0	0.0	0.0	950.7	302.7	107.1	800.2	32.4	0.0	22.8	3
4	0.0	0.0	0.0	0.0	0.0	1,004.3	302.7	56.2	1,057.6	32.4	0.0	0.0	4
5	0.0	0.0	0.0	0.0	0.0	1,049.6	302.7	49.6	930.1	0.0	0.0	0.0	5
6	0.0	0.0	0.0	0.0	0.0	1,097.6	302.7	49.6	292.5	0.0	0.0	0.0	6
7	0.0	0.0	0.0	0.0	0.0	1,097.6	271.1	49.6	177.3	0.0	0.0	0.0	7
8	0.0	0.0	0.0	0.0	0.0	1,110.4	289.4	49.6	129.1	15.0	0.0	0.0	8
9	0.0	0.0	0.0	0.0	0.0	1,118.2	311.7	22.3	0.0	23.9	0.0	0.0	9
10	0.0	0.0	0.0	0.0	0.0	1,126.9	311.7	19.8	14.9	23.9	0.0	0.0	10
11	0.0	0.0	0.0	0.0	0.0	1,169.9	275.0	19.8	184.0	23.9	0.0	0.0	11
12	0.0	0.0	0.0	0.0	0.0	1,176.1	90.5	14.9	419.0	23.9	0.0	0.0	12
13	0.0	0.0	0.0	0.0	0.0	1,176.1	0.0	0.0	387.1	9.0	0.0	0.0	13
14	0.0	0.0	0.0	0.0	12.3	1,176.1	0.0	0.0	89.4	0.0	0.0	0.0	14
15	0.0	0.0	0.0	0.0	7.9	1,094.3	0.0	0.0	89.4	0.0	0.0	0.0	15
16	0.0	0.0	0.0	0.0	0.0	1,057.7	15.0	0.0	96.7	0.0	0.0	0.0	16
17	0.0	0.0	0.0	0.0	0.0	974.0	24.0	0.0	99.3	0.0	0.0	0.0	17
18	0.0	0.0	0.0	0.0	10.2	923.7	24.0	0.0	114.3	0.0	0.0	0.0	18
19	0.0	0.0	0.0	0.0	17.4	923.7	24.0	0.0	129.9	0.0	0.0	0.0	19
20	0.0	0.0	0.0	0.0	17.4	923.7	24.0	0.0	123.3	0.0	0.0	0.0	20
21	0.0	0.0	0.0	0.0	17.4	923.7	24.0	18.0	123.3	0.0	0.0	0.0	21
22	0.0	0.0	0.0	0.0	17.4	798.7	24.0	28.8	123.3	0.0	0.0	0.0	22
23	0.0	0.0	0.0	0.0	17.4	723.7	114.6	28.8	123.3	0.0	0.0	0.0	23
24	0.0	0.0	0.0	0.0	17.4	723.7	452.8	28.8	123.3	0.0	0.0	0.0	24
25	0.0	0.0	0.0	0.0	17.4	723.7	627.0	28.8	78.6	0.0	0.0	0.0	25
26	0.0	0.0	0.0	0.0	17.4	735.8	646.9	28.8	59.7	0.0	0.0	0.0	26
27	0.0	0.0	0.0	0.0	5.3	556.2	199.9	28.8	59.7	0.0	0.0	0.0	27
28	0.0	0.0	0.0	0.0	0.0	556.2	59.5	66.0	59.7	0.0	0.0	0.0	28
29	0.0	0.0	0.0	---	0.0	556.2	168.6	78.4	40.7	0.0	0.0	0.0	29
30	0.0	0.0	0.0	---	0.0	531.3	168.6	70.7	39.8	0.0	38.0	0.0	30
31	---	0.0	0.0	---	0.0	---	130.2	---	7.2	0.0	---	0.0	31
TOTAL AF	0.0	0.0	0.0	0.0	175.1	27,027.3	6,349.7	1,129.5	6,447.2	204.6	38.0	144.4	TOTAL AF
TOTAL YEAR	41,516	ACRE FEET											

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

B-12 **DEMANDS BY KANSAS FOR AGREEMENT ACCOUNT WATER** **B-12**

1991

RELEASES TO KANSAS WATER USERS FROM JOHN MARTIN RESERVOIR [1]
OPERATIONS SECRETARY, ARCA ; IN ACRE FEET [2]
REPORT YEAR ENDING OCTOBER 31, 1991

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	793.4	0.0	0.0	0.0	1
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	793.4	0.0	0.0	0.0	2
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	793.4	0.0	0.0	0.0	3
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	793.4	0.0	0.0	0.0	4
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	793.4	0.0	0.0	0.0	5
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	793.4	0.0	0.0	0.0	6
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	793.4	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	230.6	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	495.9	0.0	0.0	0.0	0.0	21
22	0.0	0.0	0.0	0.0	0.0	0.0	0.0	793.4	0.0	0.0	0.0	0.0	22
23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	793.4	0.0	0.0	0.0	0.0	23
24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	793.4	0.0	0.0	0.0	0.0	24
25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	793.4	0.0	0.0	0.0	0.0	25
26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	793.4	0.0	0.0	0.0	0.0	26
27	0.0	0.0	0.0	0.0	0.0	0.0	0.0	793.4	0.0	0.0	0.0	0.0	27
28	0.0	0.0	0.0	0.0	0.0	0.0	0.0	793.4	0.0	0.0	0.0	0.0	28
29	0.0	0.0	0.0	—	0.0	0.0	0.0	793.4	0.0	0.0	0.0	0.0	29
30	0.0	0.0	0.0	—	0.0	0.0	0.0	793.4	0.0	0.0	0.0	0.0	30
31	—	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	7,636.5	9,751.4	0.0	0.0	0.0	TOTAL AF
TOTAL YEAR	17,388 ACRE FEET												

NOTES: [1] Does not include releases from transit loss account.
[2] Operations Secretary data rounded to the nearest 0.1 AF.

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, 1991

DAY	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	DAY
1	0	0	0	0	0	0	0	0	1,254	0	0	0	1
2	0	0	0	0	0	0	0	0	1,089	0	0	0	2
3	0	0	0	0	0	0	0	0	1,016	0	0	0	3
4	0	0	0	0	0	0	0	0	960	0	0	0	4
5	0	0	0	0	0	0	0	0	855	0	0	0	5
6	0	0	0	0	0	0	0	0	851	0	0	0	6
7	0	0	0	0	0	0	0	0	861	0	0	0	7
8	0	0	0	0	0	0	0	0	871	0	0	0	8
9	0	0	0	0	0	0	0	0	901	0	0	0	9
10	0	0	0	0	0	0	0	0	902	0	0	0	10
11	0	0	0	0	0	0	0	0	855	0	0	0	11
12	0	0	0	0	0	0	0	0	1,107	0	0	0	12
13	0	0	0	0	0	0	0	0	1,002	0	0	0	13
14	0	0	0	0	0	0	0	0	889	0	0	0	14
15	0	0	0	0	0	0	0	0	621	0	0	0	15
16	0	0	0	0	0	0	0	0	508	0	0	0	16
17	0	0	0	0	0	0	0	0	383	0	0	0	17
18	0	0	0	0	0	0	0	0	323	0	0	0	18
19	0	0	0	0	0	0	0	0	274	0	0	0	19
20	0	0	0	0	0	0	0	0	70	0	0	0	20
21	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	22
23	0	0	0	0	0	0	0	486	0	0	0	0	23
24	0	0	0	0	0	0	0	613	0	0	0	0	24
25	0	0	0	0	0	0	0	640	0	0	0	0	25
26	0	0	0	0	0	0	0	698	0	0	0	0	26
27	0	0	0	0	0	0	0	716	0	0	0	0	27
28	0	0	0	0	0	0	0	772	0	0	0	0	28
29	0	0	0	---	0	0	0	877	0	0	0	0	29
30	0	0	0	---	0	0	0	942	0	0	0	0	30
31	---	0	0	---	0	---	0	---	0	0	---	0	31
TOTAL AF	0	0	0	0	0	0	0	5,743	15,589	0	0	0	TOTAL AF
TOTAL YEAR	21,332 ACRE FEET												

NOTES: [1]Flow revised from that presented in Oper. Sec. 91 Report to reflect USGS published data.

[2] Stateline flow is sum of Arkansas River at Coolidge, Kansas and Frontier Ditch near Coolidge, on days of Kansas demand, including applicable rundown period.

B-14a
1991

DIVERSIONS BY DITCHES, COLORADO WATER DISTRICT 14

SOURCE: COLO. DWR, WATER COMMISSIONER MONTHLY REPORTS, ACRE-FEET, [1]
REPORT-YEAR ENDING OCTOBER 31,1991

B-14a
1991

DITCH OR CANAL	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	YEAR
BESSEMER													
RIVER	1,129.8	0.0	0.0	0.0	2,398.5	4,227.8	4,260.2	9,847.9	4,365.7	4,357.4	4,203.3	4,364.9	39,155.4
RES. / IMP.	0.0	0.0	0.0	0.0	0.0	1,108.8	3,733.0	1,537.0	3,634.2	1,708.6	809.3	0.0	12,530.9
TOTAL	1,129.8	0.0	0.0	0.0	2,398.5	5,336.6	7,993.1	11,384.9	7,999.9	6,066.0	5,012.6	4,364.9	51,686.3
MINNEQUA/UNION	1,315.5	4,294.2	3,387.2	6,594.1	1,751.1	6,262.9	6,024.7	3,091.9	7,081.8	2,013.8	6,328.6	489.9	48,635.6
WEST PUEBLO	3.3	0.0	0.0	0.0	0.0	1.3	52.4	119.0	0.0	4.9	0.0	0.0	180.8
EXCELSIOR	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	436.4	0.0	0.0	0.0	0.0	436.4
COLORADO													
RIVER	11,191.9	7,280.0	0.0	573.0	5,179.3	68.9	8,686.0	8,954.3	3,802.9	4,536.2	776.5	0.0	51,049.0
RES. / IMP.	0.0	0.0	0.0	0.0	0.0	1.7	499.2	696.8	636.3	540.1	74.9	0.0	2,478.9
TOTAL	11,191.9	7,280.0	0.0	573.0	5,179.3	70.6	9,185.2	9,651.1	4,469.2	5,076.2	851.4	0.0	53,527.9
HIGHLINE													
RIVER	3,034.0	0.0	0.0	0.0	3,552.2	6,099.0	7,306.0	15,850.0	9,895.2	11,332.8	6,718.7	5,828.4	69,616.2
RES. / IMP	0.0	0.0	0.0	0.0	2,025.7	3,007.3	2,646.0	1,797.1	3,756.1	2,147.1	0.0	0.0	15,379.2
TOTAL	3,034.0	0.0	0.0	0.0	5,577.8	9,106.4	9,952.0	17,647.0	13,651.3	13,479.9	6,718.7	5,828.4	84,995.4
OXFORD-FARMER													
RIVER	338.3	0.0	0.0	0.0	1,558.6	809.6	2,718.6	7,062.8	2,566.4	4,584.3	971.1	894.7	21,504.3
RES. / IMP	0.0	0.0	0.0	0.0	225.4	1,671.9	447.1	0.0	1,379.2	102.1	179.8	0.0	4,005.4
TOTAL	338.3	0.0	0.0	0.0	1,783.9	2,481.6	3,165.7	7,062.8	3,945.5	4,686.3	1,150.9	894.7	25,509.7
TOTAL DISTRICT # 14													
RIVER	17,012.8	11,574.1	3,387.2	7,167.2	14,439.6	17,469.6	29,047.9	45,362.2	27,711.9	26,829.2	18,998.2	11,577.8	230,577.6
RES./ IMP.	0.0	0.0	0.0	0.0	2,251.0	5,789.8	7,325.2	4,030.9	9,435.8	4,497.9	1,063.9	0.0	34,394.4
TOTAL	17,012.8	11,574.1	3,387.2	7,167.2	16,690.6	23,259.3	36,373.1	49,393.0	37,147.7	31,327.1	20,062.1	11,577.8	264,972.0

NOTES: [1] Colorado DWR data rounded to nearest 0.1 AF.

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

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

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

DIVERSIONS BY DITCHES, COLORADO WATER DISTRICT 17

SOURCE: COLO. DWR, WATER COMMISSIONER MONTHLY REPORTS, ACRE-FEET, [1]
REPORT-YEAR ENDING OCTOBER 31, 1991

B-14b
1991

DITCH OR CANAL	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	YEAR
OTERO													
RIVER	401.9	261.8	0.0	745.4	2,882.3	0.0	1.0	1,483.7	2.7	686.8	0.0	0.0	6,465.5
RES. / IMP.	0.0	0.0	0.0	0.0	0.0	0.0	425.4	203.8	286.1	172.6	0.0	0.0	1,087.9
TOTAL	401.9	261.8	0.0	745.4	2,882.3	0.0	426.4	1,687.5	288.9	859.4	0.0	0.0	7,553.4
CATLIN													
RIVER	3,504.1	0.0	0.0	0.0	6,539.3	4,003.1	9,533.3	16,765.7	14,965.1	16,107.2	9,447.3	7,049.7	87,914.7
RES. / IMP.	0.0	0.0	0.0	0.0	423.0	5,172.7	1,916.5	0.0	599.2	198.4	0.0	1,680.4	9,990.2
TOTAL	3,504.1	0.0	0.0	0.0	6,962.4	9,175.8	11,449.8	16,765.7	15,564.3	16,305.5	9,447.3	8,730.1	97,904.9
HOLBROOK													
RIVER	0.0	0.0	1,605.5	2,242.1	0.0	0.0	0.0	2,037.9	437.3	2,035.8	61.5	11.9	8,431.9
RES. / IMP.	0.0	0.0	0.0	0.0	0.0	964.5	6,709.8	1,902.1	1,184.9	60.1	0.0	0.0	10,821.5
TOTAL	0.0	0.0	1,605.5	2,242.1	0.0	964.5	6,709.8	3,940.0	1,622.2	2,095.9	61.5	11.9	19,253.4
ROCKY FORD	79.0	0.0	0.0	415.8	2,769.7	4,702.1	5,137.1	5,140.7	5,228.6	4,943.1	3,987.3	2,578.7	34,982.0
FT. LYON STORE													
RIVER	4,894.2	13,395.2	25,883.1	9,897.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	54,069.8
RES. / IMP.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	694.2	0.0	0.0	0.0	694.2
TOTAL	4,894.2	13,395.2	25,883.1	9,897.4	0.0	0.0	0.0	0.0	694.2	0.0	0.0	0.0	54,764.1
FT. LYON													
RIVER	20,223.3	0.0	0.0	0.0	8,802.2	9,425.8	12,386.5	36,117.3	14,696.7	27,802.4	10,044.1	10,066.7	149,564.9
RES. / IMP.	0.0	0.0	0.0	0.0	0.0	0.0	2,220.2	1,097.6	22,707.7	1,611.8	0.0	0.0	27,637.2
KICKING 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	20,223.3	0.0	0.0	0.0	8,802.2	9,425.8	14,606.7	37,214.8	37,404.3	29,414.2	10,044.1	10,066.7	177,202.1
LAS ANIMAS CON.	974.6	0.0	0.0	0.0	1,616.9	2,787.7	3,237.7	4,986.5	4,732.6	4,758.4	3,032.5	3,099.2	29,226.1
TOTAL DISTRICT # 17													
RIVER	29,102.6	13,657.0	27,488.6	13,300.6	20,993.5	18,130.9	27,057.8	61,545.2	35,330.5	51,575.3	23,540.1	19,707.0	341,428.9
RES. / IMP.	0.0	0.0	0.0	0.0	423.0	6,137.3	11,271.9	3,203.5	25,472.1	2,042.8	0.0	1,680.4	50,231.0
TOTAL	29,102.6	13,657.0	27,488.6	13,300.6	21,416.5	24,268.2	38,329.7	64,748.7	60,802.6	53,618.1	23,540.1	21,387.4	391,660.0
TOTAL DISTRICTS # 14 + # 17													
RIVER	46,115.4	25,231.1	30,875.8	20,467.8	35,433.1	35,600.5	56,105.7	106,907.4	63,042.4	78,404.5	42,538.3	31,284.8	572,006.6
RES. / IMP.	0.0	0.0	0.0	0.0	2,674.0	11,927.0	18,597.1	7,234.3	34,907.9	6,540.7	1,063.9	1,680.4	84,625.5
TOTAL	46,115.4	25,231.1	30,875.8	20,467.8	38,107.1	47,527.5	74,702.8	114,141.7	97,950.2	84,945.2	43,602.2	32,965.2	656,632.0

NOTES: [1] Colorado DWR data rounded to nearest 0.1 AF.

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

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

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

DIVERSIONS BY DITCHES, COLORADO WATER DISTRICT 67

B-14c
1991

SOURCE: COLO. DWR, WATER COMMISSIONER MONTHLY REPORTS, ACRE-FEET, [1]
REPORT-YEAR ENDING OCTOBER 31, 1991

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	1,801.0	1,937.9	3,953.1	3,143.9	2,848.3	1,763.3	1,467.8	16,915.3
KESSEE DITCH	0.0	0.0	0.0	0.0	255.9	843.0	870.8	930.3	948.1	870.8	841.0	882.7	6,442.4
AMITY	0.0	0.0	0.0	0.0	0.0	16,960.9	5,871.2	17,004.6	14,283.2	15,626.0	3,292.6	176.5	73,215.0
LAMAR	97.2	0.0	0.0	67.4	412.6	5,270.2	3,324.4	7,350.9	7,047.4	6,739.9	4,960.7	3,001.0	38,271.6
HYDE	0.0	0.0	0.0	0.0	11.9	339.2	172.6	466.1	398.7	386.8	285.6	329.3	2,390.1
MANVEL	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
X.Y. & GRAHAM	45.6	0.0	0.0	0.0	946.1	1,487.6	1,525.3	1,604.7	1,297.2	1,162.3	261.8	607.0	8,937.7
BUFFALO	63.5	0.0	0.0	0.0	152.7	3,731.0	1,868.5	3,326.3	3,524.7	3,629.8	3,407.7	1,824.8	21,528.9
TOTAL NATIVE	206.3	0.0	0.0	67.4	1,779.2	30,432.9	15,570.5	34,635.9	30,643.1	31,263.9	14,812.8	8,289.1	167,701.0
TRANSMOUNTAIN DELIVERY [2]									787.5				787.5
TOTAL DIST. 67	206.3	0.0	0.0	67.4	1,779.2	30,432.9	15,570.5	34,635.9	31,430.5	31,263.9	14,812.8	8,289.1	168,488.4

NOTES: [1] Colorado DWR monthly report data rounded to nearest 0.1 AF
[2] City of Lamar's receipt of Fry-Ark water via Ft. Bent Canal.

DIVERSIONS BY DITCHES, KANSAS STATELINE TO GARDEN CITY

B-15
1991

COMPILED BY KANSAS DIV. OF WATER RESOURCES [1]
REPORT-YEAR ENDING OCTOBER 31, 1991
ACRE-FEET

DITCH OR CANAL	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	YEAR
DIVERSIONS STATELINE TO SYRACUSE													
FRONTIER [2]	458	0	0	0	0	1,263	890	1,406	1,850	115	1,081	958	8,021
SUBTOTAL STATELINE TO SYRACUSE [2]	458	0	0	0	0	1,263	890	1,406	1,850	115	1,081	958	8,021
DIVERSIONS SYRACUSE TO GARDEN CITY													
AMAZON	0	0	0	0	730	0	1,835	0	2,940	0	0	0	5,505
GREAT EASTERN	2,563	1,105	0	3,326	827	0	0	496	5,330	0	0	0	13,647
SOUTH SIDE	0	0	0	0	0	0	34	1,267	3,233	0	0	0	4,534
FARMERS	1,531	0	0	0	1,325	1,722	883	871	688	1,244	0	0	8,264
GARDEN CITY	18	0	0	0	0	545	105	50	157	387	149	0	1,411
SUBTOTAL SYRACUSE TO GARDEN CITY	4,112	1,105	0	3,326	2,882	2,267	2,857	2,684	12,348	1,631	149	0	33,361
TOTAL DIVERSIONS STATELINE TO GARDEN CITY													
TOTAL STATELINE TO GARDEN CITY [2]	4,570	1,105	0	3,326	2,882	3,530	3,747	4,090	14,198	1,746	1,230	958	41,382

NOTES: [1] Frontier Ditch is USGS record, other ditches are Kansas DWR records.
[2] Frontier Ditch total diversion includes 1,273 AF returned directly to the River.

TRANSMOUNTAIN DIVERSIONS INTO THE ARKANSAS BASIN

SOURCE: DIVISION ENGINEER, COLORADO WATER DIV. 2, ACRE-FEET, [1]
REPORT-YEAR ENDING OCTOBER 31, 1991

B-16
1991

STRUCTURE/OWNER	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	YEAR
TWIN LAKES TUNNEL [2]	547.0	222.0	219.0	115.0	93.0	272.0	7,890.0	24,040.0	7,490.0	1,180.0	696.0	145.0	42,909.0
HOMESTAKE TUNNEL [3]	200.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	180.0	207.0	51.0	2,970.0	3,608.0
WURTZ DITCH [PUEBLO]	0.0	0.0	0.0	0.0	0.0	0.0	774.0	1,190.0	211.0	60.0	32.0	0.0	2,267.0
LARKSPUR DITCH [CATLIN]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	89.0	6.0	0.0	0.0	0.0	95.0
EWING DITCH [PUEBLO]	22.0	0.0	0.0	0.0	0.0	0.0	207.0	417.0	128.0	66.0	33.0	0.0	873.0
COLUMBINE DITCH [PUEBLO]	0.0	0.0	0.0	0.0	0.0	0.0	348.0	996.0	180.0	57.0	14.0	0.0	1,595.0
BOUSTED TUNNEL [SECWCD]	137.0	141.0	119.0	124.0	125.0	99.0	14,380.0	36,600.0	8,790.0	392.0	92.0	196.0	61,195.0
BUSK-IVANHOE TUNNEL [4]	0.0	0.0	0.0	0.0	0.0	0.0	1,310.0	3,230.0	748.0	178.0	107.0	39.0	5,612.0
BLUE RIVER PROJECT [5]	129.0	85.0	0.0	418.0	706.0	265.0	269.0	568.0	228.0	1,043.0	1,229.0	1,396.0	6,336.0
TRANSMOUNTAIN TOTAL	1,035.0	448.0	338.0	657.0	924.0	636.0	25,178.0	67,130.0	17,961.0	3,183.0	2,254.0	4,746.0	124,490.0

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 1991 (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 1991 should be reduced by 13,966 AF to reflect water used by Aurora outside the Arkansas Basin.

SUMMARY TABULATION

COMPILED BY COLORADO WATER CONSERVATION BOARD, ACRE-FEET
REPORT YEAR ENDING OCTOBER 31, 1991

B-17
1991

STATION/DATA	SOURCE	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEP	OCT	YEAR
Arkansas River at Las Animas	App B-2a	7,330	6,730	8,300	13,260	5,520	1,280	5,410	31,220	22,130	18,530	7,110	2,890	129,710
Purgatoire River near Las Animas	App B-2b	1,750	1,150	1,750	1,470	1,220	391	332	1,330	3,020	5,780	620	468	19,281
River Flow into John Martin Res.	App B-2c	9,080	7,880	10,050	14,730	6,740	1,671	5,742	32,550	25,150	24,310	7,730	3,358	148,991
End Month JMR Contents [1]	App B-3	28,800	37,000	47,400	62,500	70,300	43,600	34,900	21,700	12,000	10,300	9,350	8,670	N/A
Net Change in JMR Contents	calc-ulated	11,211	8,200	10,400	15,100	7,800	(26,700)	(8,700)	(13,200)	(9,700)	(1,700)	(950)	(680)	(8,919)
Evaporation from John Martin Res.	Table 1	478	238	0	316	1,647	1,668	2,074	2,174	1,477	1,025	895	662	12,654
Outflow from John Martin Res.	App B-4	163	162	138	268	345	27,450	12,380	41,220	37,140	24,980	8,550	4,470	157,266
Diversions in District 67	App B-14c	206	0	0	67	1,779	30,433	15,570	34,636	31,431	31,264	14,813	8,289	168,488
Arkansas River at Stateline	App B-7c	6,856	7,200	8,210	7,130	6,050	5,390	3,992	9,620	17,640	5,915	3,000	2,710	83,713
Diversions by ditches in Kansas [2]	App B-15	4,570	1,105	0	3,326	2,882	3,530	3,747	4,090	14,198	1,746	1,230	958	41,382

NOTES:
[1] Beginning contents of JMR at 0001 hours, Nov. 1, 1990 was 17,588.82 AF.
[2] Diversions by ditches in Kansas includes 1,273 AF diverted by Frontier and returned directly to the River, see Appendix B-15 and note 2 thereof.

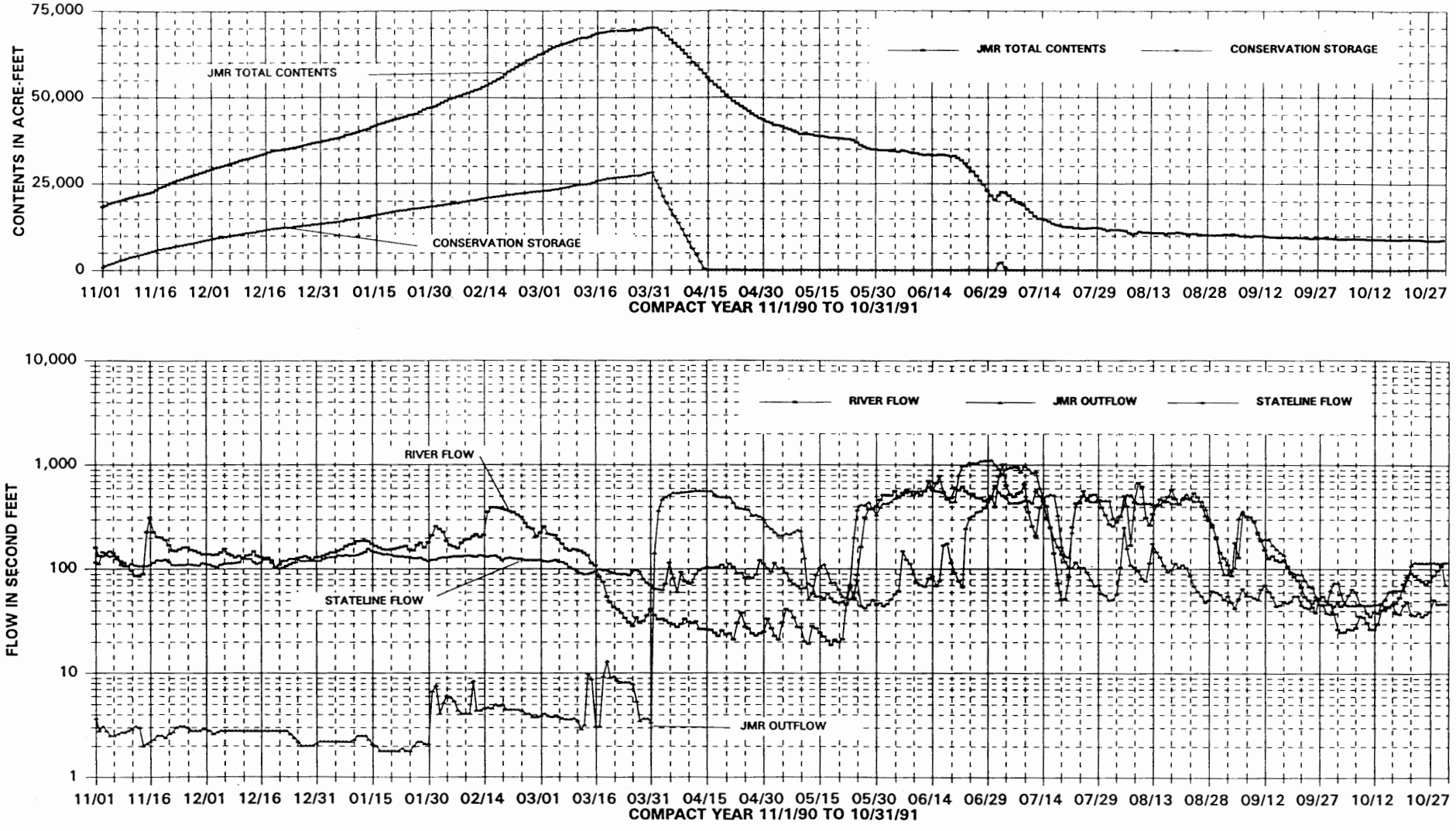

PLATE I: INFLOW, OUTFLOW, STATELINE FLOW, AND CONTENTS OF JMR