

THIRTY-NINTH ANNUAL REPORT

**ARKANSAS RIVER
COMPACT
ADMINISTRATION
(1987)**

For The Report-Year

November 1, 1986 to October 31, 1987

THE ADMINISTRATION

FRANK G. COOLEY
Chairman and Representative of the United States

**J. WILLIAM McDONALD,
CARL G. GENOVA and JIM ROGERS**
for Colorado

**DAVID POPE, CARL E. BENTRUP,
and RONALD OLOMON**
for Kansas

1000 South Main Street
Lamar, Colorado 81052

TABLE OF CONTENTS

	Page No.
1. Members of the Administration.....	3
2. Officers of the Administration.....	3
3. Standing Committees.....	4
4. Meetings.....	4
5. Fiscal (Treasurer's Report).....	5
6. Facts about John Martin Reservoir Project.....	9
7. Cooperative Studies and Activities.....	10
8. Water Supply, Reservoir Operation, and Hydrologic Data.....	11
9. Gaging Stations.....	20
10. Findings of Fact by the Administration.....	20
11. Investigations.....	21
12. Status of Kansas v. Colorado Lawsuit.....	21
13. Resolution Honoring Leo Idler.....	22
14. Resolution Honoring Howard Corrigan.....	24
Appendices:	
Appendix "A-1" Auditor's Report.....	27
Appendix "A-2" Operations Committee Report (No report at 12/8/87 was given).....	30
Appendix "A-3" Engineering Committee Report.....	31
Appendix "B-1" Daily Discharge; Arkansas River above Pueblo, Colorado.....	34
Appendix "B-2" Daily Discharge; Arkansas River at Las Animas, Colorado.....	35
Appendix "B-3" Daily Discharge; Purgatoire River near Las Animas, Colorado.....	36
Appendix "B-4" Daily River Flow into John Martin Reservoir.....	37
Appendix "B-5" Daily Contents of John Martin Reservoir.....	38
Appendix "B-5a" Daily Contents of John Martin Reservoir Conservation Pool.....	39
Appendix "B-6" Daily Outflow from John Martin Reservoir.....	40
Appendix "B-7" Daily Discharge; Arkansas River at Lamar, Colorado.....	41
Appendix "B-8" Daily Discharge; Arkansas River near Granada, Colorado.....	42
Appendix "B-9" Daily Discharge; Arkansas River at Colorado-Kansas Stateline.....	43
Appendix "B-10" Transfer of Compact Water from the John Martin Reservoir Conservation Pool into Agreement Accounts.....	44
Appendix "B-11" Demands by Colorado for Agreement Account Water in John Martin Reservoir.....	45
Appendix "B-12" Demands by Kansas for Agreement Account Water in John Martin Reservoir.....	46
Appendix "B-13" Stateline Flows of Days of Kansas Demands.....	47
Appendix "B-14a" Diversions by Ditches in Colorado Water District 14.....	48
Appendix "B-14b" Water District 17.....	49
Appendix "B-15" Diversions by Ditches in Colorado Water District 67.....	50
Appendix "B-16" Diversion by Ditches in Kansas: Stateline to Garden City.....	51
Appendix "B-17" Transmountain Diversions.....	52
Appendix "B-18" Summary Tabulation.....	54
Plate I Inflow, Outflow and Contents of John Martin Reservoir and Stateline Flow.....	Inside Back Cover



Annual Report Of
ARKANSAS RIVER COMPACT
ADMINISTRATION
1987

Report-Year November 1, 1986 to October 31, 1987

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

Sirs:

Pursuant to Article VIII of the Arkansas River Compact, the Arkansas River Compact Administration submits its report for the Report-Year November 1, 1986 through October 31, 1987, as follows:

1. Members of the Administration

Representative of the United States:

Frank G. Cooley

Colorado Representatives:

J. William McDonald, Denver
Carl G. Genova, Pueblo
James G. Rogers, Lamar

Kansas Representatives:

David L. Pope, Topeka
Carl E. Bentrup, Deerfield
Ronald Olomon, Garden City

2. Officers of the Administration

Chairman:

Frank G. Cooley

Vice Chairman:

Carl E. Bentrup

Recording Secretary:

Leo Idler, November 1 to December 31, 1986
Bernice Carr, January 1 to October 31, 1987

Treasurer:

Leo Idler, November 1, to December 31, 1986
Jim Rogers, January 1, 1987 to October 31, 1987

Operations Secretary:

Robert Jesse

3. Standing Committees:

Administrative and Legal Committee:

Carl E. Bentrup
J. William McDonald (Chairman)

Engineering Committee:

David Pope
Carl G. Genova (Chairman)

Operations Committee:

Ronald Olomon
James G. Rogers (Chairman)

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

4. Meetings:

December 9, 1986	Annual Meeting, Lamar, Colorado
February 5, 1987	Engineering Committee Meeting

The minutes of the December 9, 1986, annual meeting 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 Engineering Committee Report for 1987 is included as Appendix "A-3" to this report.

5. Fiscal

REVISED FY 1988-89 BUDGET
(July 1, 1988 - June 30, 1989)

EXPENDITURES

A. SALARIES AND CONTRACTUAL SERVICES:

1. Treasurer	\$ 1,000
2. Recording Secretary	1,000
3. Operations Secretary	6,100
4. Auditor's Fees	450
5. Court Reporter's Fees	1,500
6. Payroll Taxes	350
	<u>\$10,400</u>

B. GAGING STATIONS:

1. U.S. Geological Survey Cooperative Agreements for Federal FY 1988	\$10,695
2. State of Colorado Satellite System	7,000
	<u>\$17,695</u>

C. OPERATING EXPENSES:

1. Treasurer's Bond	\$ 100
2. 86-87 Annual Reports (Printing)	3,000
3. Telephone	2,000
4. Office Supplies/ Postage	300
5. Printing/ Copying	300
6. Meetings	100
7. Travel	0
	<u>\$ 5,800</u>

D. EQUIPMENT:

0

E. CONTINGENCY:

1,000

F. TOTAL:

\$34,895

INCOME

A. ASSESSMENTS

1. Colorado (60%)	\$12,000
2. Kansas (40%)	8,000
	<u>\$20,000</u>

B. INTEREST EARNINGS

3,000

C. MISCELLANEOUS

0

D. TOTAL

\$23,000

EXPENDITURES FROM SURPLUS

\$11,895

Adopted by the Arkansas River Compact Administration at its December 8,
1987, Annual Meeting.

_____/s/
Treasurer

REVISED FY 1987-88 BUDGET
(July 1, 1987 - June 30, 1988)

EXPENDITURES

A. SALARIES AND CONTRACTUAL SERVICES:

1. Treasurer	\$ 1,000
2. Recording Secretary	1,000
3. Operations Secretary	6,000
4. Auditor's Fees	450
5. Court Reporter's Fees	1,500
6. Payroll Taxes	350
	\$10,300

B. GAGING STATIONS:

1. U.S. Geological Survey Cooperative Agreements for Federal FY 1987	\$10,290
2. State of Colorado Satellite System	7,000
	\$17,290

C. OPERATING EXPENSES:

1. Treasurer's Bond	\$ 100
2. 1985 Annual Report (Printing)	3,000
3. Telephone	2,000
4. Office Supplies/ Postage	300
5. Printing/ Copying	300
6. Meetings	100
7. Travel	0
	\$ 5,800

D. OFFICE EQUIPMENT: 2,000

E. CONTINGENCY: 1,000

F. TOTAL: \$36,390

INCOME

A. ASSESSMENTS

1. Colorado (60%)	\$12,000
2. Kansas (40%)	8,000
	\$20,000

B. INTEREST EARNINGS..... 3,500

C. MISCELLANEOUS..... 0

D. TOTAL\$23,500

EXPENDITURES FROM SURPLUS\$11,895

Adopted by the Arkansas River Compact Administration at its December 8,
1987, Annual Meeting.

_____/s/_____
Treasurer

ARKANSAS RIVER COMPACT ADMINISTRATION
STATEMENT OF CASH RECEIPTS AND
DISBURSEMENTS & CHANGES IN CASH BALANCE
FOR YEAR ENDED JUNE 30, 1987

CASH BALANCE, JULY 1, 1986.....	\$51,879
RECEIPTS:	
Colorado	16,800
Kansas.....	11,200
Interest	3,830
Miscellaneous Income	85
TOTAL RECEIPTS.....	31,915
DISBURSEMENTS:	
Treasurer's Bond	100
U.S. Geological Survey	11,185
Equipment.....	1,641
Rent	1,537
Professional Fees.....	450
Office Supplies	375
Printing	165
Secretary's Salary	2,950
Payroll Taxes	300
Telephone.....	1,084
Annual Report	3,027
Recording Secretary & Court Reporter.....	2,688
Miscellaneous	29
Travel & Meetings.....	439
TOTAL DISBURSEMENTS.....	25,970
EXCESS OF DISBURSEMENTS OVER RECEIPTS.....	(5,945)
CASH BALANCE, JUNE 30, 1987.....	\$57,824

**ARKANSAS RIVER COMPACT ADMINISTRATION
STATEMENT OF CASH RECEIPTS AND
DISBURSEMENTS & CHANGES IN CASH BALANCE
FROM JULY 1, 1987 TO DECEMBER 1, 1987**

CASH BALANCE, JULY 1, 1987.....	<u>\$57,824.00</u>
RECEIPTS:	
Kansas.....	8,000.00
Colorado.....	12,000.00
Interest on Savings since July.....	199.75
Miscellaneous Income.....	59.61
TOTAL RECEIPTS.....	<u>\$20,259.36</u>
DISBURSEMENTS:	
Treasurer's Bond.....	100.00
U.S. Geological Survey.....	6,465.00
Professional Fees.....	600.00
Copying.....	153.36
Rent.....	250.00
Salaries.....	1,000.00
Telephone.....	349.40
Office Supplies & Postage.....	33.80
Operation's Secretary's Account.....	2,278.03
TOTAL DISBURSEMENTS.....	<u>11,229.59</u>
EXCESS OF DISBURSEMENTS OVER RECEIPTS.....	<u>\$ 9,029.77</u>
CASH BALANCE, DECEMBER 1, 1987.....	<u>\$66,853.77</u>
CASH IN BANK.....	\$ 164.16
SAVINGS ACCOUNT.....	21,358.17
CERTIFICATE OF DEPOSIT.....	45,331.44
	<u>66,853.77</u>

6. Facts about the John Martin Project:

The John Martin Reservoir Project was built by the Corps of Engineers, United States Army. 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 by 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 Engineer District, Albuquerque, New Mexico. Mr. Russell Smith has been the resident superintendent of the project since October, 1976.

The John Martin Reservoir 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 survey of the reservoir in 1980 shows 260,281 acre-feet of storage capacity above elevation 3851.85 for flood control and protection of the fertile Arkansas River Valley below the dam. The reservoir also provides 355,225 acre-feet of storage space for conservation and recreation below elevation 3851.85.

John Martin Reservoir supplies water to the irrigated lands below the dam as far downstream as Garden City, Kansas. The top of the conservation pool, excluding recreation storage, is 3,851 feet above mean sea level, which provides 345,271 acre-feet of water for irrigation. Upon request of the Arkansas River Compact Administration, irrigation water for downstream water users is released through the outlet works in the base of the dam.

The release of stored flood waters in excess of the conservation and recreation pool or above elevation 3,851.85 feet are planned so that, when combined with flows originating downstream from the dam, the capacity of the channel will not be exceeded. Downstream flood damages prevented by John Martin dam already exceed the cost of the project and the total project benefits to date have surpassed the \$115 million mark.

Recreation and favorable fish and wildlife habitats are derived from this project. With reservoir lands open to all, there are many attractive public use areas for outdoor recreation, water sports, fishing and boating, or just relaxed living. 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, center of year-round recreation.

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 gated spillway provided with sixteen 30 foot by 64 foot tainter gates with 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 are 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'	16
Discharge capacity, cubic feet per second	639,200

OUTLET WORKS	
Sluicing conduits, 6' x 7½'	4
Regulating conduits, 4' x 4'	2

RESERVOIR	
Capacity, acre-feet at elevation 3,870.00	615,506
Flood control storage, acre-feet	260,281
Conservation (irrigation) and recreation, storage, acre-feet at elevation 3,851.85	355,225
Water surface at spillway crest, acres	8,960
Water surface at top of conservation pool, acres	11,655
Water surface at top of flood control pool, acres	17,630
Drainage area, square miles	18,915

A ½-mile segment of the historic Santa Fe Trail north of the reservoir has been enclosed by a fence. An appropriate sign marks this historic site.

7. Cooperative Studies and Activities:

- (a) 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, 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.
- (b) During the year covered by this report the Administration has received excellent cooperation from all agencies referred to in the foregoing provisions of the Compact. The United States Geological Survey 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.
- (c) The Corps of Engineers continued to operate the conservation pool

of John Martin Reservoir in accordance with the terms of the Compact and the orders of the Administration. A new area capacity table for John Martin Reservoir was issued by the Army Corps of Engineers and put into effect August 12, 1981.

8. Water Supply, Reservoir Operations and Hydrologic Data.

Reservoir operations at John Martin followed the operating plan adopted by the Compact Administration on April 24, 1980. This operating plan was revised on May 10, 1984 and December 11, 1984 but has not been revised since that time. Accordingly, a system of water storage accounts exists in John Martin Reservoir into which reservoir inflows are distributed for release at a later date. Operations during compact year 1987 are described below.

TABLE 1
JOHN MARTIN RESERVOIR OPERATION
COMPACT YEAR 1987

End of Month	Inflow	(a.f.) Release	Evaporation	Contents
October	—	—	—	226,308.00
November	35,471.00	0	1,358.00	260,421.00
December	27,422.00	0	1,398.00	286,445.00
January	34,075.00	0	1,065.00	319,455.00
February	17,949.00	0	2,215.00	335,189.00
March	36,111.38	14,058.38	4,360.00	352,882.00
Winter Totals	151,028.38	14,058.38	10,396.00	
April	75,909.00	69,994.00	6,383.00	352,414.00
May	225,285.82	155,517.82	6,102.00	416,080.00
June	114,253.00	158,913.00	8,702.00	362,718.00
July	14,720.00	52,678.93	10,754.00	314,005.07
August	13,650.00	49,949.11	6,251.00	271,454.96
September	13,171.00	18,617.31	4,435.00	261,573.65
October	6,754.00	19,101.80	2,858.00	246,367.85
Summer Totals	463,742.82	524,771.97	45,485.00	
Compact Year 1987 Totals	614,771.20	538,830.35	55,881.00	

The 1987 Arkansas River Compact Year and the winter season for John Martin Reservoir began at 0001 hour November 1, 1986 with 226,308 acre-feet in the reservoir distributed as follows:

TABLE 2
JOHN MARTIN RESERVOIR
NOVEMBER 1, 1986 CONTENTS DISTRIBUTION

Agreement Accounts	218,490.47 a.f.
Permanent Pool	7,817.53 a.f.
	226,308.00 a.f.

Winter Storage officially ended at 2400 hour on March 31, 1987, with a total inflow to the reservoir of 151,028.38 a.f. Of this total inflow 14,058.38 a.f. was either called for by Colorado or spilled from the reservoir during the later part of March and 10,396 a.f. was lost due to evaporation. This left a balance of 126,574.00 a.f. Inflow was distributed to the accounts pursuant to the operating plan as follows:

TABLE 3
JOHN MARTIN RESERVOIR
WINTER INFLOW DISTRIBUTION
(a.f.)

Winter Compact Water		98,551.39
Other Winter Water		35,586.00
*Amity Canal, Article III:	18,676.15	
*Ft. Lyon Canal Article III:	8,825.42	
*Las Animas Consolidated, Article III:	7,492.15	
*Other Winter Water Evaporation:	592.28	
Amity Alternate Storage Decree		16,890.99
Total Inflow		151,028.38
*Transferred to Article III accounts shown at 2400 hours March 15, 1987.		

The conservation pool limit, elevation 3851.85 feet and contents of 352,882 a.f., was reached on March 25, 1987. Releases of account water, as specified by the spill criteria in paragraph IIG of the operating plan, then commenced and continued until May 5, 1987. On May 5, 1987, streamflow began to exceed the established safe channel capacity of 3,000 cfs below John Martin. In order to monitor the amount of water stored under flood control operations, a temporary flood pool account was created. Water held in the flood pool account was water which could be neither released into a compact storage account nor released through the dam without exceeding the safe channel capacity downstream. Storage in and releases from the temporary flood pool account continued until flood control operations ceased on July 7, 1987 at 1400 hours. At the close of flood control operations the flood pool account was empty.

During flood control operations, all Article III water and most of the Agreement account water was spilled from John Martin Reservoir. A total of 410,447.59 a.f. spilled from John Martin Reservoir during flood control operations. At 0800 hours on May 31, 1987 a pool elevation record of 3856.8 feet was reached, this represented 416,861 a.f. of stored water.

The operation of the flood pool account was as follows during compact year 1987:

TABLE 4
JOHN MARTIN RESERVOIR
FLOOD POOL OPERATION
(a.f.)

Month	Contents Beg. of Month	Inflow	Evaporation	Release	Contents End of Month
May	0.0	214,481.05	5,484.00	148,245.58	60,751.47
June	60,751.47	114,253.00	8,702.00	158,913.00	7,389.47
July	7,389.47	6,246.00	1,893.00	11,742.47	0.0
Totals		334,980.05	16,079.00	318,901.05	

Following the transfer of winter stored inflows to John Martin Reservoir into the agreement accounts, the allocation of the reservoir contents on March 31, 1987, were as follows:

TABLE 5
JOHN MARTIN RESERVOIR
CONTENTS ALLOCATION
MARCH 31, 1987
(a.f.)

Compact Water	99,425.12
Agreement Water	245,898.23
*Amity Article III:	35,070.05
*Ft. Lyon Article III:	4,106.69
*Las Animas Consolidated Article III:	3,467.27
Permanent Pool	7,558.64
Total Contents	352,882.00

*Article III water included in Agreement Water Totals.

The total contents according to the Corps of Engineers was 353,468 a.f. There is a difference of 586.0 af between these two values which is less than .2 of a percent. This is a very good comparison.

No releases were made from John Martin until March 13, 1987 when the Lamar Canal called for a four day release of 370.38 a.f. of its summer stored water. On March 19, 1987, there was a release adjustment from Article III accounts of 661.58 a.f. made for transit losses between Las Animas and John Martin Reservoir. Between March 21 and 24, Amity stored under its alternate storage decree 1,931.55 a.f. of which 35 percent (676.04) was transferred to the transit loss account. On March 24, 1987, and thereafter water was either called from or forced from all Article III accounts.

The summer storage season began at 0001 April 1, 1987. The first transfer of conservation storage into the agreement accounts pursuant to the operating plan occurred on April 7, 1987 at 0800 hours. However, with all the conservation storage filled, forced releases from the agreement accounts continued to occur. During the summer season 463,742.82 a.f. entered the reservoir. This water, less evaporation losses, was either released into accounts in accordance with the Operating Plan, spilled to river, or held in

the flood pool as required under flood control operations. The conservation pool still contained 13,624.41 a.f. at 2400 hours, October 31, 1987. This water, less evaporation charges is carried over until the summer compact water season of 1988.

The summer operations of the conservation pool are tabulated as follows:

TABLE 6
JOHN MARTIN RESERVOIR
CONSERVATION POOL
SUMMER OPERATIONS
(a.f.)

Month	Contents Beg. of Month	Inflow	Evaporation	Release	Contents End of Month
April	99,425.12	71,744.00	343.85	59,091.89	111,733.38
May	111,733.38	156,571.74	193.39	76,860.75	191,250.98
June	191,250.98	158,913.00	0.00	74,381.40	275,782.58
July	275,782.58	20,504.47	6,307.77	76,860.78	213,118.50
Aug.	213,118.50	13,340.43	3,936.75	76,860.78	145,661.40
Sept.	145,661.40	13,109.11	1,973.18	74,381.40	82,415.93
Oct.	82,415.93	6,754.00	589.75	74,955.77	13,624.41
Totals		440,936.75	13,344.69	513,392.77	

Water was transferred from conservation storage to the agreement accounts pursuant to the operating plan as follows:

TABLE 7
JOHN MARTIN RESERVOIR
AGREEMENT ACCOUNT
SUMMER OPERATIONS 1/
(a.f.)

Month	Contents Beg. of Month	Inflow	Evaporation	Release	Contents End of Month
April	245,898.23	59,091.89	755.12	71,089.00	233,146.00
May	233,146.00	76,860.75	411.38	155,517.82	154,077.00
June	154,077.55	74,381.40	0.00	158,913.00	69,545.95
July	69,545.95	76,860.78	2,295.73	52,966.93	91,144.07
Aug.	91,144.07	77,122.90	2,105.03	49,949.11	116,212.83
Sept.	116,212.83	74,381.40	2,302.48	18,617.31	169,674.44
Oct.	169,674.44	74,955.77	2,162.38	19,101.80	223,366.03
Totals		513,654.89	10,032.12	526,154.97	

1/ Agreement Accounts here include all accounts in Article II D and III A, B, and C.

Summer Operations of the Article III accounts were as follows during Compact year 1987. Pursuant to the Operating Plan for John Martin Reservoir, the Amity Canal is the only entity currently entitled to store Article III water during the summer storage season. The Fort Lyon Canal and Las Animas Consolidated Canal may however make releases of any accumulated winter stored Article III water during the summer storage season.

During April, 1987, all Article III water was released from the accounts pursuant to the spill criteria. No Article III water was in storage until August 29, 1987, when the Amity stored 262.12 a.f. in its account.

There is no longer a Las Animas Golf Course Account. There was no well augmentation water handled during Compact Year 1987 due to the high runoff conditions. Summer operations of Article III accounts are summarized in Table 8.

TABLE 8
JOHN MARTIN RESERVOIR
ARTICLE III ACCOUNTS
SUMMER OPERATIONS SUMMARY
(a.f.)

Month	Contents Beg. of Month	Inflow	Evaporation	Release	Contents End of Month
April	42644.01	0	35.10	42608.91*	0
May	0	0	0	0	0
June	0	0	0	0	0
July	0	0	0	0	0
Aug.	0	262.12	.12	91.74	170.17
Sept.	170.17	0	2.82	0	167.35
Oct.	167.35	0	1.82	0	165.53
Totals		262.12	39.95	42700.65	

*All Article III water was forceably released from storage pursuant to the John Martin Reservoir Operating Plan Spill Criteria.

Demands and releases to Kansas are summarized in the following table.

TABLE 9
JOHN MARTIN RESERVOIR
KANSAS DEMANDS & RELEASES
SUMMER OPERATIONS
(a.f.)

Month	Demand/ Releases	Transit Loss Acct. Releases	Stateline Flow	Credited Against Demand ^{1/}
April	11392.04*	0.00	27620.24	2/
May	62889.20*	0.00	131710.95	2/
June	81129.57*	0.00	147725.33	2/
July	17172.82**	359.52	30991.79	12574.15**
August	15066.34	1326.53	23861.51	15819.66
Sept.	1983.50	198.36	4487.07	2081.66
Oct.	7144.69	1020.72	12972.49	7501.92
Totals	196778.16	2905.13	379369.37	37978.39

1/ This column reflects the computations called for by the operating plan and by paragraphs 3 and 4 of the December 9, 1986, "Agreement" for compact year 1987, which paragraph 4 states that: "When the average daily flow at the Stateline exceeds demand, delivery will be credited at not to exceed 105% of the demand".

2/ During 1987, flood control operations forced water from all accounts. Thus, Kansas made no actual demands and there was no "credit against demand" determination made.

* Forced releases by Corps of Engineers calculated separately.

** 5197.44 a.f. forced release, "credit against demand" calculated on the balance of 11,975.38 a.f.

Kansas had 160,608.25 a.f. forced from its account in compact year 1987 due to flood control operations at John Martin. As a result, Kansas demand for compact year 1987 totalled only 36,169.91 a.f. with a Transit Loss Account release of 2,905.13 a.f. for a total release of 39,075.04 a.f. The total stateline flow on days of forced releases from the Kansas account and actual days of Kansas demands, including the appropriate run down period following each demand release, was 379,369.37 a.f. of which 37,978.39 a.f. was credited against the demand of Kansas.

The operation of the Transit Loss Account in compact year 1987 was as follows:

TABLE 10
JOHN MARTIN RESERVOIR
TRANSIT LOSS ACCOUNT SUMMARY
(a.f.)

Month	Contents Beg. of Month	Inflow	Evaporation	Release	Contents End of Month
November	13297.41	5235.81	24.40	13297.41	5211.41
December	5211.41	0.00	26.59	0.00	5184.82
January	5184.82	0.00	18.58	0.00	5166.24
February	5166.24	0.00	34.67	0.00	5131.57
March	5131.57	12923.83	142.11	0.00	17913.29
April	17913.29	0.00	56.99	0.00	17856.30
May	17856.30	0.00	31.35	0.00	17824.95
June	17824.95	0.00	0.00	0.00	17824.95
July	17824.95	0.00	458.50	359.52	17006.93
August	17006.93	91.74	342.38	1326.53	15429.76
September	15429.76	0.00	253.50	199.36	14977.90
October	14977.90	0.00	162.13	1020.72	13795.00
Totals		18251.38	1551.20	16202.54	

* Transferred 4179.19 A.F. (11/35) to Kansas Account and 9118.22 A.F. (24/35) to Colorado Ditch Accounts Pursuant to Article III of the 1980 Operating Plan and the December, 1986 Annual Agreement.

Releases to Colorado Ditches during the 1987 compact year are summarized as follows:

TABLE 11
JOHN MARTIN RESERVOIR
SUMMARY OF RELEASES
TO COLORADO DITCHES

Month	Acre-Feet
March	14058.38 *
April	58601.96 **
May	92628.62 **
June	77783.43 **
July	35146.59***
August	33556.24
September	16435.45
October	10936.39
Totals	339147.06

* 13688.00 a.f. Forced Release

** All Forced Release

*** 7137.33 Forced Release

The permanent pool in John Martin was filled to its 10,000 a.f. limit under free river conditions on May 21, 1987 when 2,478.61 was placed into it. Inflow into the permanent pool also occurred in August and September of 1987 when 109.34 a.f. were added under the CDOW Muddy Creek decrees. Operations of the permanent pool are summarized in the following table:

TABLE 12
JOHN MARTIN RESERVOIR
PERMANENT POOL OPERATIONS
(a.f.)

Month	Contents Beg. of Month	Inflow	Evaporation	Release	Contents End of Month
November	7817.53	0.00	42.94	0.00	7774.59
December	7774.59	0.00	39.67	0.00	7734.92
January	7734.92	0.00	27.73	0.00	7707.19
February	7707.10	0.00	51.73	0.00	7655.46
March	7655.46	0.00	96.81	0.00	7558.65
April	7558.65	0.00	24.03	0.00	7534.62
May	7534.62	2478.61	13.23	0.00	10000.00
June	10000.00	0.00	0.00	0.00	10000.00
July	10000.00	0.00	257.50	0.00	9742.50
August	9742.50	47.45	209.22	0.00	9580.73
September	9580.73	61.89	159.34	0.00	9483.28
October	9483.28	0.00	105.87	0.00	9377.41
Totals		2587.95	1028.07	0.00	

At the close of the compact year on October 31, 1987 at 2400 hours the contents of John Martin Reservoir were allocated as follows:

TABLE 13
JOHN MARTIN RESERVOIR
CONTENTS ALLOCATION
OCTOBER 31, 1987
(a.f.)

Compact Water	13,624.41
Agreement Account Water	223,200.50
Article III Water	165.53
Permanent Pool	9,377.41
Total Contents	246,367.85

The technical data for this section were compiled by the Colorado Water Conservation Board staff using data from the Annual Report of the Operations Secretary, Arkansas River Compact Administration, the U.S. Geological Survey, Colorado Division of Water Resources, Kansas Division of Water Resources and the minutes and correspondence of the Arkansas River Compact Administration.

9. Gaging Stations

The U.S. Geological Survey operates eight gaging stations as indicated in Appendix B under their "Collection of Basic Records" program and through funding agreements with the U.S. Army Corps of Engineers and the Arkansas River Compact Administration. For the federal fiscal year October 1, 1986, to September 30, 1987, the compact administration approved a cooperative agreement with the U.S. Geological Survey in the amount of \$20,580 — \$10,290 for each party. The compact administration funds were used for supplemental measurements at seven gaging sites, the operation of one station, Arkansas River near Granada, Colorado; operation of a telemark at John Martin Dam, maintenance of radio equipment, and the preparation of records for the 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 at each site than are required under agreement with the Compact. Measurements made by personnel of the Colorado State Engineer were incorporated into the records.

There were no critical problems at the stations during the year, with the exception of the continuing unstable channels and controls, which in 1987 were more difficult than normal to account for because of the extremely high runoff.

10. Findings of Fact by the Administration.

There were no findings of fact made by the Administration during Compact year 1987.

11. Investigations

There were no investigations undertaken by the Administration during compact year 1987.

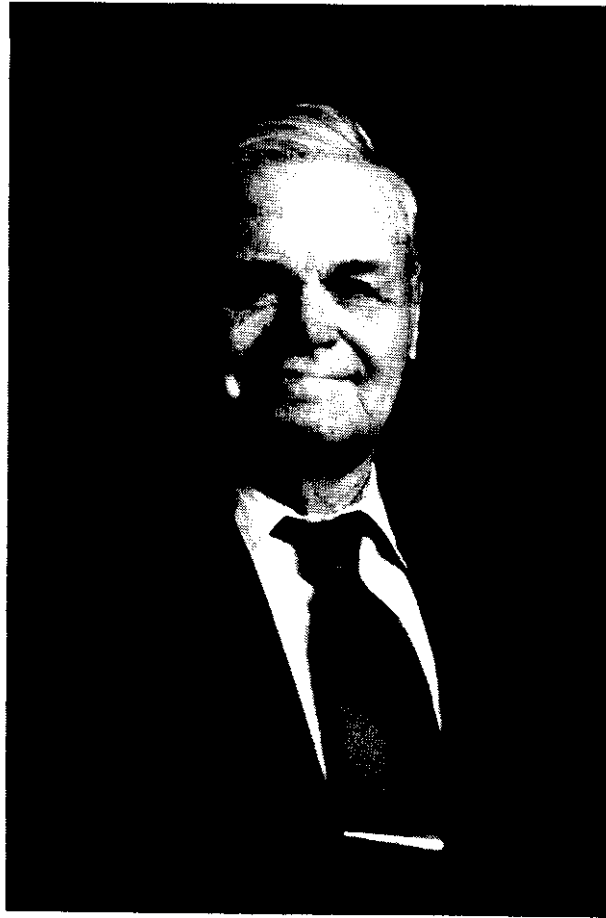
12. Chronology of Events in Kansas v. Colorado Lawsuit

The following is an informal summary of significant events in the pending lawsuit during this year;

CHRONOLOGY OF EVENTS

In Kansas v. Colorado

Date	Filed by Kansas, Colorado, Supreme Court	Title
October 19, 1987	Supreme Court	Arthur L. Littleworth appointed to replace the Honorable Wade H. McCree Jr. as special master. Judge McCree died of cancer in September, 1987 after an extended illness.



RESOLUTION

WHEREAS, Leo Idler served on the Arkansas River Compact Administration as the representative of Colorado Water District 67 for two terms from 1977 through 1985; and

WHEREAS, he ably and steadfastly represented the interests of District 67 water users with equanimity and fairness; and

WHEREAS, he at all times conducted these offices in a competent and thorough manner; and

WHEREAS, Leo Idler was instrumental in developing and implementing the 1980 operating plan for John Martin Reservoir to the benefit of both Kansas and Colorado; and

WHEREAS, Leo Idler has been a gentleman and a friend to his fellow members of the Administration and to all who had occasion to come before the Administration.

NOW, THEREFORE, BE IT RESOLVED by the Arkansas River Compact Administration that it does hereby express its gratitude and appreciation to Leo Idler for the services he has rendered and for the courtesies which he has extended to all during his tenure as a member and officer of the Administration.

Adopted by the Arkansas River Compact Administration at its December 9, 1986, Annual meeting.

/s/

Frank G. Cooley, Chairman



RESOLUTION

WHEREAS, Howard C. Corrigan was an employee of the Division of Water Resources, Kansas State Board of Agriculture, for 40 years; and

WHEREAS, Mr. Corrigan served as the Water Commissioner of the Garden City Field Office from 1964 until he retired on May 17, 1987; and

WHEREAS, Mr. Corrigan was widely known in the Arkansas River Valley, both in Kansas and Colorado; and

WHEREAS, Mr. Corrigan's extensive knowledge of water resources in the Arkansas River Valley were in an invaluable asset to the Arkansas River Compact Administration.

NOW THEREFORE, be it resolved by the Arkansas River Compact Administration that it does hereby acknowledge with gratitude the outstanding service of Howard C. Corrigan to the Administration and to the States of Kansas and Colorado, expresses its appreciation to Mr. Corrigan for his dedication, and extends to him its best wishes for continued good health and happiness in all of his future endeavors.

BE IT FURTHER RESOLVED that this Resolution be entered into the records of the Arkansas River Compact Administration and that the recording secretary be instructed to send a copy to Mr. Corrigan.

BE IT FURTHER RESOLVED that the Administration honor Mr. Corrigan for his many years of service by including his picture and appropriate dedicatory remarks in the Administration's annual report for the Compact Year 1987.

Entered this 7th day of December, 1987, at the annual meeting of the Arkansas River Compact Administration held in Lamar, Colorado.

_____/s/
Frank G. Cooley, Chairman

_____/s/
Carl E. Bentrup, Vice-Chairman

**APPENDICES
FOR
ANNUAL REPORT
OF THE
ARKANSAS RIVER
COMPACT ADMINISTRATION**

	For the Report-Year November 1, 1986 to October 31, 1987	
Appendix "A-1"	Auditor's Report	27
Appendix "A-2"	Operations Committee Report (No report at 12/8/87 was given)	30
Appendix "A-3"	Engineering Committee Report	31
Appendix "B-1"	Daily Discharge; Arkansas River above Pueblo, Colorado	34
Appendix "B-2"	Daily Discharge; Arkansas River at Las Animas, Colorado	35
Appendix "B-3"	Daily Discharge; Purgatoire River near Las Animas, Colorado	36
Appendix "B-4"	Daily River Flow into John Martin Reservoir	37
Appendix "B-5"	Daily Contents of John Martin Reservoir	38
Appendix "B-5a"	Daily Contents of John Martin Reservoir Conservation Pool	39
Appendix "B-6"	Daily Outflow from John Martin Reservoir	40
Appendix "B-7"	Daily Discharge; Arkansas River at Lamar, Colorado	41
Appendix "B-8"	Daily Discharge; Arkansas River near Granada, Colorado	42
Appendix "B-9"	Daily Discharge; Arkansas River at Colorado-Kansas Stateline	43
Appendix "B-10"	Transfer of Compact Water from the John Martin Reservoir Conservation Pool into Agreement Accounts	44
Appendix "B-11"	Demands by Colorado for Agreement Account Water in John Martin Reservoir	45
Appendix "B-12"	Demands by Kansas for Agreement Account Water in John Martin Reservoir	46
Appendix "B-13"	Stateline Flows of Days of Kansas Demands	47
Appendix	Diversions by Ditches in Colorado	
"B-14a"	Water District 14	48
"B-14b"	Water District 17	49
Appendix "B-15"	Diversions by Ditches in Colorado Water District 67	50
Appendix "B-16"	Diversion by Ditches in Kansas: Stateline to Garden City	51
Appendix "B-17"	Transmountain Diversions	52
Appendix "B-18"	Summary Tabulation	54
Plate I	Inflow, Outflow and Contents of John Martin Reservoir and Stateline Flow Inside Back Cover	

Appendix "A-1"

ARKANSAS RIVER COMPACT ADMINISTRATION
CASH BASIS FINANCIAL STATEMENTS
JUNE 30, 1987
with
REPORT OF INDEPENDENT CERTIFIED PUBLIC ACCOUNTANTS

CRIMOND, FARMER & COMPANY
Certified Public Accountants
203 East Oak, P.O. Box 1173, Lamar, CO 81052

ARKANSAS RIVER COMPACT ADMINISTRATION
TABLE OF CONTENTS TO CASH BASIS FINANCIAL STATEMENTS
JUNE 30, 1987

	Page
Table of Contents.....	1
Accountant's Report.....	1
Statement of Assets & Liabilities	
Arising from Cash Transactions.....	2
Statement of Cash Receipts & Disbursements	
and Changes in Cash Balance.....	3
Statement of Cash Receipts & Disbursements	
with Budget Comparison.....	4
Notes to Cash Basis Statements.....	5

CRIMOND, FARMER & COMPANY
Certified Public Accountants
To the Representatives of
Arkansas River Compact Administration
Lamar, Colorado 81052

We have examined the statement of assets & liabilities arising from cash transactions of the Arkansas River Compact Administration as of June 30, 1987, and the statement of cash receipts and disbursements, changes in cash balance and the statement of cash receipts and disbursements, with budget comparison for the year ended June 30, 1987. Our examination was conducted 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 of the notes to cash basis statements, the accompanying statements are prepared on the cash basis of accounting and accordingly they are not intended to be presented in conformity with generally accepted accounting principles.

In our opinion, the financial statement presents fairly the assets and liabilities arising from cash transactions of the Arkansas River Compact Administration as of June 30, 1987, and the results of cash transactions for the year then ended on a basis consistent with the previous year.

/s/ Crimond, Farmer & Co
Certified Public Accountants

September 22, 1987
Lamar, Colorado

**ARKANSAS RIVER COMPACT ADMINISTRATION
STATEMENT OF CASH RECEIPTS & DISBURSEMENTS
WITH BUDGET COMPARISON
FOR THE BUDGET YEAR
JULY 1, 1986 TO JUNE 30, 1987**

			OVER
	BUDGET	ACTUAL	(UNDER)
CASH BALANCE, JULY 1, 1986	\$ 0	\$51,879	\$51,879
RECEIPTS:			
Revenues from Assessments:			
Colorado - 60%	16,800	16,800	0
Kansas - 40%	11,200	11,200	0
Miscellaneous Income	0	85	85
Interest	0	3,830	3,830
TOTAL RECEIPTS	28,000	31,915	3,915
TOTAL TO ACCOUNT FOR	28,000	83,794	55,794
DISBURSEMENTS:			
U.S. Geological Survey	12,500	11,185	1,315
Operations Secretary	6,100	2,950	3,150
Treasurers Bond	100	100	0
Telephone	2,000	1,084	916
Payroll Taxes	250	300	(50)
Recording Secretary & Court Reporter	6,600	2,688	3,912
Travel & Meeting	100	439	(339)
Professional Fees	400	450	(50)
Office Supplies	350	375	(25)
Printing	350	165	185
Annual Report	5,000	3,027	1,973
Miscellaneous	0	29	(29)
Equipment	0	1,641	(1,641)
Rent	0	1,537	(1,537)
Contingency	2,000	0	2,000
TOTAL DISBURSEMENTS ..	35,750	25,970	9,780
CASH BALANCE, JUNE 30, 1987	\$ (7,750)	\$57,824	\$65,574

The accompanying notes are an integral part of the statements.

**ARKANSAS RIVER COMPACT ADMINISTRATION
NOTES TO CASH BASIS STATEMENTS
JUNE 30, 1987**

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 key accounts needed to present financial position and results of operations are omitted; examples of these accounts are accounts receivable and accounts payable.

ARKANSAS RIVER COMPACT ADMINISTRATION
STATEMENT OF ASSETS & LIABILITIES
ARISING FROM CASH TRANSACTIONS
June 30, 1987

ASSETS:	
Cash & Savings.....	\$57,824
Equipment.....	23,634
Concrete Control.....	8,000
TOTAL ASSETS	89,458
LIABILITIES:	
Liabilities	0
CASH BASIS EQUITY:	
Expended:	
Equipment.....	23,634
Concrete Control.....	8,000
Unexpended:	57,824
TOTAL CASH BASIS EQUITY- NOTE 1a	89,458
TOTAL LIABILITIES & CASH BASIS EQUITY.....	\$89,458

The accompanying notes are an integral part of the statements.

ARKANSAS RIVER COMPACT ADMINISTRATION
STATEMENT OF CASH RECEIPTS & DISBURSEMENTS
& CHANGES IN CASH BALANCE
FOR YEAR ENDED JUNE 30, 1987

CASH BALANCE, JULY 1, 1986.....	\$51,879
RECEIPTS:	
Revenue from Assessments:	
Colorado.....	16,800
Kansas	11,200
Interest	3,830
Miscellaneous Income.....	85
TOTAL RECEIPTS	31,915
DISBURSEMENTS:	
Treasurers Bond	100
Geological Survey	11,185
Equipment	1,641
Rent.....	1,537
Professional Fees	450
Office Supplies.....	375
Printing	165
Secretary's Salary	2,950
Payroll Taxes.....	300
Telephone	1,084
Annual Report.....	3,027
Recording Secretary & Court Reporter	2,688
Miscellaneous	29
Travel & Meetings	439
TOTAL DISBURSEMENTS	25,970
EXCESS OF DISBURSEMENTS OVER RECEIPTS	(5,945)
CASH BALANCE, JUNE 30, 1987.....	\$57,824

The accompanying notes are an integral part of the statements.

Appendix "A-2"
OPERATIONS COMMITTEE REPORT

(The operations committee report for 1987 deferred to Mr. Jesse's report of 1987 operations.)

Appendix "A-3"
ENGINEERING COMMITTEE REPORT

On December 2, 1987, the Engineering Committee of the Arkansas River Compact Administration met in Denver, Colorado. Carl Genova, chairman, called the meeting to order. David Pope, the other member of the Committee was present. Other persons also in attendance at the meeting were: Dennis Montgomery; Wendy Weiss; Hal Simpson; Bob Jesse; Leland Rolfs; James Bagley; Brent Spronk and Dale Book.

The first item discussed was the proposed transfer of the Keesee Ditch irrigation rights.

After discussion of the questions and concerns concerning the Keesee Ditch transfer, the following items were agreed to:

- 1) A period of record longer than the 20 years (1964-83) should be used. The period of record agreed to is 1950-83.
- 2) At least 1,400 acres had been irrigated by the Keesee Ditch since 1947.
- 3) That 65%, rather than 70%, was a more reasonable irrigation efficiency for the ditch.
- 4) HRS will be asked to re-run the model and compute all relevant parameters (consumptive use, return flows, etc.) for that period of record with a 65% efficiency and report the results.
- 5) That HRS should be requested to supply information as to when the land leveling and border irrigation system were completed.
- 6) Hal Simpson agreed to check his agency's crop distribution records for Keesee Ditch's crop distribution in the 1950's. No such records exist for the 60's.
- 7) Keesee Ditch should be required to substantiate whether 65% is a reasonable irrigation efficiency for the period November to March of each year.
- 8) HRS should be required to explain how effective precipitation was handled in the model. A more detailed explanation of how his water budget works is also needed.
- 9) Colorado indicated that they had done some sample comparisons using the distributive Glover analysis technique and the results (average monthly return flows) varied, at most, nine acre-feet per month (in the month of October) and the average annual total varied only by two acre-feet.
- 10) Hal Simpson checked his office records for depth to water when wells were drilled in that area. The average depth to water was 12 feet, but the wells were drilled during a particularly dry period. Additional follow-up checks should be made to determine average depth to water to see whether sub-irrigation of alfalfa was a possibility. HRS should address this issue in its report. Soil moisture storage figures are also to be checked based on soil surveys.

Mr. Pope indicated that the State of Kansas' position this spring was that the wells which were drilled post-compact and utilized to irrigate any of the 1,900 acres should also be dried up or made part of an augmentation plan approved by the State of Kansas before the Keesee Ditch transfer could be approved. The State of Kansas' position is that depletion or adverse affect will result if the wells are not dried up or suitable augmented.

The State of Colorado representatives indicated that the waters from these six wells were co-mingled on the 1,400 acres irrigated by the ditch, but felt

that the continued existence and use of those wells was a separate issue from the Keesee Ditch transfer which was before the Engineering Committee. Dennis Montgomery indicated that the State of Colorado could not agree to a finding by the Compact Administration for the transfer of the Keesee Ditch, that would require a dry up of the six wells to be used on the 500 net additional acres irrigated by the wells. Colorado did state, however, that if Keesee Ditch modified its plan for the proposed transfer and offered to dry up all of the wells which were to be used for the 500 acres, it would not object. Colorado further stated that the wells were junior rights subject to existing and future regulations by the State Engineer of all wells in the Arkansas River Valley.

Colorado also indicated that it felt that whether the Keesee Ditch transfer would cause depletion or adverse affect to the ditch diversion rights from the Arkansas River in Colorado Water District No. 67 and Kansas is a separate issue from whether the Compact Administration should grant Keesee Ditch a storage account in John Martin Reservoir. The first issue is essentially one of determining whether there will be any injury resulting from the transfer, the second issue is a discretionary matter for the Compact Administration.

After discussion it was also agreed that Jake Broyles was attempting to retain the prime 500 acres out of the 1,900 acres, rather than the 500 acres developed after the 1,400 acres were developed by the surface ditch right.

Kansas and Colorado agreed that when and if the transfer is activated that Broyles will henceforth no longer divert water from the Arkansas River for irrigation.

The next Keesee Ditch issues discussed by the Engineering Committee were:

- 1) Whether Keesee Ditch should be given a storage account in John Martin Reservoir.
- 2) What type of account it should be? and, if so,
- 3) Whether any storage charge should be imposed on water stored in such an account.

After observing that other ditches diverting water above John Martin Reservoir paid a 35% storage charge, in water, a monetary charge for use of storage was deemed inappropriate unless tied to the additional administrative and accounting expenses of the Compact Administration. The equities of allowing Keesee Ditch possibly a free storage account when other ditches were paying storage charges, and the possible beneficiaries of storage charges led the Engineering Committee to decide that whether a storage charge should be imposed was a policy question that should be decided by the entire Administration, rather than a technical question for the Engineering Committee.

The next Keesee Ditch issue that was discussed was whether Keesee Ditch should be allowed a "Pre-accumulation" account. After great discussion amongst the persons present, it was felt that the "Pre-accumulation" account desired by Keesee Ditch was being requested so that Keesee Ditch could transfer water which was already in its 1980 Agreement account, upstream in the spring when conditions were favorable and before it could be transferred into its Transfer account because of monthly limitations or the reduced rate authorized for the transfer.

The Engineering Committee agreed that, if the committee's interpretation of what Keesee Ditch was requesting was correct, that such a "Pre-accumulation" account could probably be allowed, but that it would have to be clearly spelled out in writing, with examples. HRS will be asked to write out a plain-language description with examples of the accounting under various scenarios.

Winter return flows were also discussed and Kansas indicated that it was concerned with maintaining historic conditions at the state line during the winter.

Various alternatives were discussed concerning the winter return flows. Colorado suggested possibly putting such winter return flows in the Kansas Transit Loss account. No agreement was reached on this issue.

The Engineering Committee then decided to give a status report to the Administration, indicating that committee has now met twice, and was asking HRS Consultants to provide additional information on certain issues identified above. The Committee raised the question of whether a public hearing should be held by either the Engineering Committee or the Administration on this proposed transfer.

Also, at this meeting the Engineering Committee received a briefing by Tommy Thompson, Southeastern Colorado Water Conservancy District, and Gary Soldano of the Colorado Department of Health concerning the Lake Cheraw issue. The Committee was given advance copies of Mr. Thompson's report which he is going to give to the Colorado Water Quality Control Commission on December 8, 1987, proposing a Phase I (temporary plan) controlled release of the top 2,500 acre-feet of water in Lake Cheraw, diluting it with other water and storing it in John Martin Reservoir.

The proposed plan for Phase I for Lake Cheraw had been developed by Bob Jesse, Gary Soldano, U.S.G.S., and Tommy Thompson as a Governor's ad hoc Committee.

Mr Soldano briefed the Committee on the quality of water in Lake Cheraw and the proposed plan for release. A copy of Mr. Thompson's and Mr. Soldano's reports and graphs were provided. No action was requested of the Committee on this matter nor was any taken.

Respectfully submitted,

/s/

Carl Genova
Chairman, Engineering Committee

/s/

David L. Pope
Member, Engineering Committee

APPENDIX "B-1"

ARKANSAS RIVER ABOVE PUEBLO, COLORADO

Report-Year ending October 31, 1987
USGS Records
USGS Gaging Station #07099400

B-1

DAY	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT
1	575	610	480	406	505	505	2050	1480	2340	1050	510	330
2	650	650	480	406	500	535	2060	1510	1960	1040	485	313
3	685	650	480	435	470	580	2140	1880	1560	1040	510	285
4	660	650	480	450	475	580	2290	2500	1550	1130	520	275
5	645	650	455	475	470	580	2170	2650	1290	1140	530	276
6	700	650	410	480	495	570	2060	2780	1360	812	545	276
7	716	650	349	485	515	660	2020	2960	1220	705	555	276
8	716	650	310	485	515	848	1830	3370	1030	695	545	282
9	716	650	282	485	600	868	1660	4310	1070	812	520	292
10	630	585	276	513	645	960	1730	5020	1150	932	520	305
11	560	470	276	530	645	1040	1840	5320	1130	824	450	310
12	615	402	276	530	645	1040	1910	5380	1030	680	485	310
13	615	402	276	530	645	1370	2090	4520	1090	728	485	294
14	465	420	276	530	645	1550	2470	3840	1050	740	455	289
15	65	420	276	530	650	1180	3210	3840	932	710	410	319
16	65	425	288	530	685	1070	3800	3570	806	722	435	384
17	65	425	258	530	580	1740	4380	3460	932	872	450	370
18	65	455	258	530	540	2680	4380	3460	932	816	425	370
19	65	485	258	530	520	2780	4110	2900	988	900	440	385
20	67	505	231	530	560	2400	3840	2500	948	782	450	384
21	71	505	211	530	585	1810	3740	2330	918	788	450	384
22	73	585	211	530	585	1470	3510	2180	925	812	450	384
23	75	630	214	530	540	1360	3090	2190	1060	1050	450	371
24	77	625	211	529	510	1510	2740	2250	1060	1140	425	355
25	142	625	211	525	510	1580	2300	2050	1000	1040	410	355
26	397	625	285	525	525	1590	2130	1970	925	967	374	382
27	530	625	307	555	550	1550	1940	1900	933	842	356	398
28	535	625	324	565	550	1550	1790	1760	995	758	356	409
29	535	535	324	---	550	1760	1680	1780	1090	748	352	415
30	535	480	363	---	495	1970	1570	2160	1140	680	352	415
31	---	485	406	---	490	---	1560	---	1100	595	---	415
TOTAL	12261	17157	9695	14219	17235	39674	78160	87780	35808	26470	13700	10622
sec.ft.	24320	34031	19230	28203	34186	78693	155070	174112	70630	52503	27174	21069
THE YEAR	719.221	acre-feet										

APPENDIX "B-2" **ARKANSAS RIVER AT** **LAS ANIMAS, COLORADO**

Report-Year ending October 31, 1987
 USGS Records
 USGS Gaging Station #07124000

B-2

DAY	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT
1	613	312	292	500	94	897	429	2880	201	45	45	51
2	645	325	298	540	93	887	340	2950	431	45	42	54
3	776	344	276	572	110	761	403	2710	242	53	42	48
4	925	328	283	519	161	677	1160	2590	224	122	42	46
5	887	364	280	453	181	691	2120	2720	184	100	40	54
6	912	418	285	251	100	779	1280	2600	325	64	37	50
7	848	421	293	160	85	642	1930	2740	182	62	41	51
8	858	438	506	135	90	606	2430	2560	94	71	84	48
9	720	462	798	111	91	542	2270	2200	118	66	90	48
10	701	456	721	120	91	744	1970	2810	73	62	76	49
11	711	461	713	105	101	594	2000	2900	59	58	59	57
12	712	679	647	97	102	588	2080	3080	59	67	316	62
13	589	529	693	98	120	764	1850	3050	58	50	124	63
14	537	349	574	100	109	891	1890	3180	58	49	84	61
15	692	331	278	152	115	1180	2530	2800	59	47	76	63
16	483	327	247	131	97	1180	3220	2260	64	48	88	63
17	405	325	194	140	76	913	4220	1860	84	43	63	62
18	364	331	350	122	91	539	5080	1760	83	39	77	65
19	356	342	400	124	387	1510	4730	1800	68	38	61	60
20	349	319	450	106	493	2780	5080	1370	59	40	61	52
21	317	325	450	108	862	2390	5730	990	58	42	60	47
22	292	328	450	113	880	1760	5930	502	59	39	66	49
23	285	320	400	104	881	1010	5570	238	60	39	58	55
24	273	318	400	105	887	685	5610	308	63	41	58	54
25	273	364	400	116	834	453	5240	245	61	39	55	46
26	268	376	400	106	784	434	4980	261	54	38	59	50
27	272	379	400	103	662	577	4470	191	49	36	56	58
28	293	350	420	96	772	476	4060	162	47	36	50	58
29	301	366	450	---	986	242	3870	137	48	32	47	62
30	305	385	500	---	1190	226	3640	131	49	57	47	60
31	---	351	---	---	1040	---	3280	---	47	48	---	59
TOTAL	15972	11725	13348	5387	12555	26318	99352	54205	3281	1711	2082	1703
sec.ft.	31660	23257	26476	10685	24003	52202	197065	107516	6508	3394	4130	3378
THE YEAR 491,194 acre-feet												

APPENDIX "B-3" **PURGATOIRE RIVER NEAR** **LAS ANIMAS, COLORADO**

Report-Year ending October 31, 1987
USGS Records
USGS Gaging Station #07128500

B-3

DAY	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT
1	35	41	35	77	46	130	243	184	58	3.5	71	20
2	58	40	33	71	56	139	198	171	49	5.0	50	15
3	56	40	41	66	53	159	237	136	65	11.9	45	18
4	55	40	50	70	46	250	305	131	111	88	42	12
5	74	45	53	70	42	214	1050	116	76	232	29	11
6	84	45	51	87	42	222	1220	79	52	89	27	20
7	122	40	46	82	46	187	2160	78	18	27	30	15
8	98	40	50	81	56	181	2630	78	19	12	47	11
9	98	35	49	53	147	138	1630	75	25	10	71	14
10	93	30	45	46	189	134	1110	61	19	11	70	16
11	80	28	43	40	152	152	784	83	31	79	76	16
12	77	28	42	38	126	207	645	42	10	23	74	12
13	67	30	42	33	104	267	510	43	5.0	31	46	12
14	69	34	42	35	103	309	423	34	2.8	162	37	17
15	48	35	42	47	93	267	428	27	7.0	210	39	15
16	43	34	30	61	119	236	351	28	17	146	34	14
17	44	35	25	62	155	274	314	38	31	68	34	18
18	45	33	25	61	160	310	303	39	19	39	240	28
19	45	35	26	59	150	414	284	56	9.1	25	100	37
20	42	38	27	57	153	519	271	40	6.1	17	71	33
21	39	40	27	58	132	717	286	14	4.6	17	60	35
22	40	40	28	56	206	468	290	38	6.8	30	52	33
23	40	42	32	53	173	338	1080	48	6.5	28	49	34
24	39	42	36	48	181	294	400	44	5.9	27	40	40
25	40	42	33	49	161	279	500	33	4.4	14	38	44
26	41	42	36	48	164	310	400	26	3.8	24	32	51
27	43	42	47	44	164	382	320	24	2.9	23	30	44
28	42	41	56	44	165	335	287	45	3.2	33	25	41
29	40	42	66	---	179	276	239	47	3.5	299	18	47
30	41	40	84	---	163	261	197	45	3.4	156	21	50
31	---	40	80	---	123	---	191	---	3.3	94	---	45
TOTAL												
sec.ft.	1772	1179	1326	1532	3876	8357	19044	1876	664.0	2141.5	1578	824
ac.ft.	3515	2339	2630	3039	7888	16576	37774	3721	1317	4248	3130	1634
THE YEAR 87.611 acre-feet												

APPENDIX "B-4"

RIVER FLOW INTO

JOHN MARTIN RESERVOIR

Report-Year ending October 31, 1987
USGS Records

B-4

DAY	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT
1	668	353	327	577	140	1027	672	3164	259	48.8	116	71
2	704	385	331	611	149	1026	838	3121	480	50	92	89
3	834	384	317	638	183	920	840	2848	307	172	87	86
4	990	368	333	589	207	927	1485	2721	335	210	84	88
5	961	409	333	523	223	905	3170	2836	240	332	89	85
6	986	483	336	318	142	1001	2500	2678	377	183	64	70
7	970	461	341	222	131	839	4080	2789	160	89	71	68
8	957	478	856	181	171	767	4860	2838	113	73	141	82
9	818	497	847	164	238	660	3800	2275	143	75	148	85
10	794	488	766	166	280	878	3080	2891	88	73	148	85
11	781	489	766	146	253	748	2784	2863	80	137	135	73
12	789	707	689	135	230	795	2705	3102	80	80	390	77
13	666	589	735	131	224	1031	3360	3323	83	81	120	78
14	608	383	816	135	212	1200	3313	3227	60.6	211	121	78
15	740	386	320	199	208	1447	2866	2827	68	257	115	78
16	528	361	277	182	216	1415	3571	2288	81	192	102	77
17	449	380	219	202	231	1089	4524	1928	115	111	97	80
18	409	384	375	183	251	849	5353	1789	102	78	317	93
19	401	377	426	183	817	1928	5004	1956	77.1	63	161	97
20	391	357	477	183	646	3299	5351	1410	65.1	57	132	85
21	356	385	477	166	894	3107	6016	904	62.6	59	120	82
22	332	386	478	166	1096	2246	6220	540	85.8	69	108	82
23	325	382	432	154	1354	1348	6630	288	85.5	67	107	88
24	312	380	435	154	1048	959	6010	352	88.8	68	96	94
25	313	406	423	165	995	735	6740	278	85.4	53	93	90
26	309	418	438	154	958	744	5380	287	87.8	62	91	101
27	315	421	447	147	828	959	4780	215	51.9	59	88	100
28	335	391	476	140	937	811	4327	207	60.2	69	75	99
29	341	408	516	---	1175	518	4109	184	52.5	428	65	109
30	346	425	584	---	1353	487	3837	176	52.4	213	88	110
31	---	391	580	---	1163	---	3471	---	50.3	142	---	104
TOTAL	17744	12904	14674	8919	16431	34675	118396	56081	3945.0	3852.5	3680	2527
SEC. FT.	35195	25596	29108	13724	32591	68778	234836	111237	7628	7642	7260	502

THE YEAR 578,805 acre-feet

The Riverflow into JMR is the sum of the daily flows of the Arkansas River near Las Animas (Appendix B-2) and the Purgatoire River near Las Animas (Appendix B-3).

APPENDIX "B-5"

CONTENTS OF

JOHN MARTIN RESERVOIR

B-5 Report-Year ending October 31, 1987
Corps of Engineers Records
(Midnight contents in acre-feet from capacity table based on April/June 1980 hydrographic surveys
and November 1980 aerial photographs, used since August 12, 1981)

DAY	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT
1	227635	261575	268852	320767	335418	353117	351948	415038	360566	311154	270861	261188
2	229050	262058	267565	321971	335648	353234	351126	413346	359013	309140	270371	260801
3	230354	263025	267971	323075	335877	353234	351126	411523	357937	308973	269791	260811
4	232489	263604	268784	324305	336449	353619	351477	409700	357220	304839	269211	260421
5	234483	264475	269385	325200	336679	354054	354980	408007	356395	303019	269148	260326
6	236204	265442	269904	325671	337022	354171	355342	408866	355810	301306	268891	260041
7	238198	266021	270311	326919	337251	353819	355693	407747	354873	299205	268341	259946
8	239739	267375	271666	327251	337584	353234	356774	411393	354288	297216	267954	259566
9	241098	268341	273236	327102	337824	353172	356850	411783	353819	295540	266988	258921
10	242748	269501	274597	327437	338357	353702	357730	411132	353000	293446	265442	257286
11	244329	269984	276168	327661	338084	353468	358594	412304	351946	291456	264981	256146
12	245537	271258	277425	327895	339542	354171	359238	413476	351009	289395	264785	254912
13	247118	272443	278100	328332	340000	354405	359220	415038	350072	287463	264688	253982
14	248327	273331	300147	328451	340115	354171	359524	413559	349282	286445	264088	252917
15	249829	274122	300776	328737	340115	353936	359224	414903	348081	285733	263701	252157
16	250744	274911	301949	330234	340230	352882	358161	412895	347037	284513	263315	251302
17	251682	275701	302270	330793	341032	352297	358535	409445	346158	283599	263216	250372
18	252537	276491	302591	331017	341719	351594	361403	408445	345158	282621	263121	249442
19	253297	277182	303233	331576	342750	352063	361109	404913	343781	281584	263116	248585
20	254057	277775	304303	331912	344010	352619	370155	401722	342864	280544	263216	248327
21	254912	278663	305267	332135	345856	353224	374433	397509	340688	279355	262832	248327
22	255482	279256	306231	332471	348081	354639	380544	394702	338168	277972	262735	248146
23	256146	280145	307408	332919	350423	353117	387167	388670	335782	276886	262546	247962
24	256621	280952	308479	333143	351477	352648	395487	382658	332919	275701	262542	247576
25	257286	281664	309658	333478	352297	352531	400983	379199	330682	275208	262251	247590
26	257951	282377	311047	334616	352882	352882	405168	375655	328444	274418	262251	247118
27	258426	283190	312675	334960	353819	353000	407747	372111	325983	273430	261981	246932
28	259186	283902	314643	335189	354171	352882	411462	368335	323075	272840	261981	246746
29	259851	284716	316393	---	354405	352531	415950	368545	320002	272443	261768	246560
30	260421	285428	317924	---	354171	352414	418731	36718	318611	271949	261575	246467
31	---	286445	319455	---	353468	---	416080	---	314206	271455	---	246374

NOTE:-- Difference between published U. S. Geological Survey and Compact report figures is due to rounding procedures. Figures in this table are rounded to the nearest acre-foot only.

APPENDIX "B-5a"

CONTENTS OF JOHN MARTIN RESERVOIR CONSERVATION POOL

CONTENTS OF JOHN MARTIN RESERVOIR
CONSERVATION POOL CONTENTS AT 2400 HOURS
REPORT YEAR ENDING OCTOBER 31, 1987
SOURCE: OPERATIONS SECRETARY, ARKANSAS RIVER
COMPACT ADMINISTRATION
(rounded to the nearest acre-foot)

DAY	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	DAY
1	2383	18293	32594	55581	66950	101609	110182	194752	276504	210713	143517	80022	1
2	3009	18493	32931	55992	67239	103408	108983	198252	276116	208677	141276	77613	2
3	3673	19158	33264	56379	67532	105216	108611	201752	275060	206771	139082	75402	3
4	4646	19417	33611	56959	68167	107033	108206	205253	274005	204925	136836	73193	4
5	5605	19974	33949	57265	68430	108850	109500	208754	272950	202716	134510	70993	5
6	6331	20589	34191	57570	68805	111124	111743	212255	271961	201001	132378	68563	6
7	7325	21252	34528	58007	69072	111498	115032	214015	270457	198707	130960	66321	7
8	7871	21714	35401	58326	69473	111459	118551	212461	268397	196366	128883	63886	8
9	8237	22258	36255	58758	69735	110684	122126	213162	266393	194252	126655	61409	9
10	8851	22973	36440	59079	70339	109647	125716	216323	264096	191780	124462	58926	10
11	9401	23117	36931	59395	71057	108717	129289	219913	261673	189344	122742	56496	11
12	9659	23849	37407	59594	71547	107780	132819	223502	259235	186835	120943	54101	12
13	10246	24389	37831	59920	72114	107338	136250	227092	256888	184441	118947	51939	13
14	10560	24783	38081	61029	72384	107198	139654	230682	254672	182525	116759	49544	14
15	10867	25244	38385	61355	72538	107790	143060	234271	252135	180644	114507	47365	15
16	11647	25718	38763	61793	72730	109365	146376	237861	249768	178256	112214	45087	16
17	12249	26205	39001	62339	73643	109821	149796	241450	247806	176250	110226	42735	17
18	12767	26698	39334	62665	74439	109719	153190	245040	245414	173726	108218	40379	18
19	13200	27081	39812	63102	76242	109615	156584	248630	242823	171807	106415	38157	19
20	13638	27364	40904	63426	77612	110435	159977	252219	240684	169428	104515	35847	20
21	14179	27952	41891	63753	79187	112496	163371	255809	238021	167178	102207	33687	21
22	14464	28337	42877	64079	80869	115221	166764	259399	235473	164689	100131	31386	22
23	14871	28818	44064	64403	82667	117351	170182	262988	232989	162300	98008	29203	23
24	15188	29324	45145	64729	83811	117493	173647	266578	230398	160186	95872	27021	24
25	15516	29741	46333	65393	86008	116744	177111	269178	227916	158467	93519	24839	25
26	15939	30109	47736	66070	88133	115610	180576	270814	225577	156386	91443	22505	26
27	16182	30559	49374	66423	89444	114637	184041	272355	223148	153922	89079	20343	27
28	16705	31016	51353	66664	91197	113760	185794	273895	220626	151746	86973	18591	28
29	17107	31402	53052	-	93445	112649	185255	275061	218136	149778	84667	16915	29
30	17408	31859	54538	-	96241	111733	187750	275783	215486	147776	82416	15277	30
31	-	32405	55159	-	99425	-	191251	-	213119	145661	-	13624	31

Note: Values are the sum of winter compact water and summer compact water as reported by the operations secretary.

APPENDIX "B-6"

OUTFLOW FROM JOHN MARTIN RESERVOIR

ARKANSAS RIVER BELOW

JOHN MARTIN RESERVOIR

B-6 Report-Year ending October 31, 1987
USGS Records
USGS Gaging Station #07130500

DAY	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT
1	5.8	6.3	4.4	7.5	7.3	1110	788	3080	1600	1410	412	188
2	4.0	5.8	6.3	7.8	7.3	888	988	3070	878	1380	414	188
3	4.4	5.8	6.3	7.3	7.7	897	871	3060	738	1380	421	188
4	4.4	5.3	7.8	7.3	8.3	908	876	3060	738	1300	423	188
5	4.4	5.3	7.3	7.3	8.1	909	1000	3050	738	1180	427	137
6	4.4	5.3	7.3	7.6	7.6	1130	2370	3050	771	1060	425	110
7	4.4	5.8	9.8	8.3	7.3	1190	2890	2230	591	1060	425	104
8	4.4	5.8	8.8	8.3	7.3	1190	2980	490	475	1060	405	104
9	4.0	5.8	5.8	8.3	7.3	827	2880	1860	488	1060	641	436
10	4.8	5.8	5.8	7.9	8.8	723	2970	2840	495	1060	947	653
11	4.8	5.8	5.8	7.8	9.2	784	2980	3000	523	1060	683	649
12	4.8	5.7	5.8	7.8	8.3	782	2980	3010	523	1040	391	649
13	4.8	5.3	8.3	7.8	50	1030	3020	3030	524	993	383	613
14	4.8	5.3	5.6	7.3	70	1170	3060	3020	529	787	364	587
15	4.4	4.9	6.3	7.3	70	1520	3060	3020	531	646	335	535
16	4.4	4.8	6.3	7.3	36	1850	3040	3040	544	644	325	514
17	4.8	4.8	6.3	7.5	8.0	1440	3040	3050	636	642	275	512
18	5.3	4.6	6.2	7.8	7.8	1220	3040	3040	688	644	230	512
19	4.8	4.4	6.8	7.8	7.8	1220	3040	3050	685	643	233	400
20	4.4	4.4	6.7	7.8	7.6	1630	3050	3050	681	644	231	240
21	5.3	4.4	6.7	7.8	6.7	2240	3060	3040	992	672	227	232
22	5.3	4.4	6.0	7.3	6.7	2630	3070	3040	1220	690	203	238
23	5.3	4.4	5.8	6.8	8.2	2290	3080	3030	1230	687	159	241
24	5.3	4.4	6.3	6.8	112	1310	3080	3020	1180	665	152	241
25	5.3	4.4	6.3	6.8	610	777	3080	2590	1150	640	136	241
26	5.5	4.4	6.3	7.0	700	695	3080	2050	1150	610	123	241
27	5.3	4.8	6.3	7.3	600	769	3100	1980	1110	564	121	241
28	5.3	4.4	6.1	7.5	808	816	2640	1960	1340	524	118	234
29	5.3	4.4	7.8	---	1040	699	834	1730	1510	514	113	227
30	5.8	4.4	8.2	---	1310	564	2510	1600	1400	516	138	205
31	---	4.4	7.3	---	1500	---	3100	---	1410	455	---	180
TOTAL	sec.ft. 146.0	155.8	205.1	211.1	7051.3	33208	79848	79840	27113	26220	9882	9888
ac.-ft.	290	308	407	419	13986	68835	158378	158561	53778	52007	19621	18633
THE YEAR 547,226 acre-feet												

APPENDIX "B-7" **ARKANSAS RIVER AT** **LAMAR, COLORADO**

B-7
 Report-Year ending October 31, 1987
 USGS Records
 USGS Gaging Station #07133000

DAY	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT
1	65	45	35	26	41	1350	119	2650	1100	732	40	18
2	61	41	30	28	41	1000	455	2620	956	718	35	18
3	39	42	30	28	30	952	554	2570	423	692	34	18
4	62	41	32	28	39	956	830	2540	384	656	32	19
5	58	41	33	28	43	956	522	2520	389	586	28	17
6	56	41	34	28	40	1040	1360	2500	379	438	25	17
7	57	40	34	28	41	1240	350	2500	405	359	35	17
8	57	39	32	28	41	1240	2740	2500	366	405	35	17
9	63	38	32	28	37	1090	2700	433	177	412	40	24
10	62	25	32	28	39	694	2650	1980	113	427	489	297
11	61	25	32	28	46	801	2630	2410	95	466	540	375
12	59	27	32	28	29	810	2730	2400	98	481	151	387
13	61	27	34	28	16	908	2650	2350	98	488	105	383
14	54	38	33	32	22	1200	2670	2340	61	449	60	320
15	54	39	32	46	41	1270	2540	2320	37	160	40	275
16	52	39	30	44	53	1710	2460	2300	30	117	35	237
17	51	39	30	39	38	1710	2490	2280	29	103	22	228
18	51	38	30	38	22	1320	2480	2270	34	80	23	224
19	50	38	30	37	13	1210	2470	2450	34	70	22	208
20	47	37	30	36	17	1300	2560	2350	35	60	21	90
21	47	36	30	35	38	1900	2580	2290	116	50	20	43
22	43	36	30	35	36	2380	2650	2340	528	45	20	36
23	42	34	30	34	35	2480	2650	2290	597	50	19	31
24	42	34	34	33	29	1330	2710	2300	554	60	19	29
25	41	34	33	34	146	520	3110	2260	495	55	19	31
26	40	34	32	39	788	305	2770	1500	479	55	19	37
27	41	36	32	48	585	281	2680	1370	471	65	19	37
28	43	33	31	43	684	362	2680	1400	510	60	20	34
29	44	31	29	---	997	313	641	1380	841	45	18	33
30	44	35	29	---	1070	141	1390	1120	814	45	18	32
31	---	31	29	---	1360	---	2430	---	747	40	---	31
TOTAL	1567	1114	976	937	6448	32669	66431	62612	11405	8499	2008	3562
sec. ft	3108	2210	1936	1859	12786	64799	131766	124191	22622	16858	3983	7065

THE YEAR 393,183 acre-feet

APPENDIX "B-8" **ARKANSAS RIVER NEAR** **GRANADA, COLORADO**

Report-Year ending October 31, 1987
 USGS Records #07134180
 USGS Gaging Station #07134180

B-8

DAY	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT
1	127	140	129	138	157	1490	165	2540	1350	770	85	40
2	136	124	131	132	151	1300	219	2640	1350	759	76	39
3	135	126	130	132	147	1060	328	2590	843	758	71	43
4	138	131	134	133	145	966	669	2590	602	719	62	44
5	131	148	136	132	143	968	474	2620	535	627	59	44
6	126	149	135	131	137	979	586	2580	482	475	56	43
7	123	148	132	132	132	1130	1270	2530	452	432	61	44
8	122	148	136	133	130	1270	1970	1890	478	426	77	45
9	125	147	135	134	124	1270	2320	446	375	428	80	47
10	132	139	135	133	118	945	2510	1180	291	439	143	79
11	135	135	135	135	119	867	2520	2080	233	446	334	208
12	154	141	135	133	120	884	2560	2370	206	470	297	278
13	155	155	132	134	120	903	2610	2380	198	474	157	312
14	179	150	125	137	102	1130	2560	2400	194	485	113	308
15	176	151	120	158	100	1230	2570	2400	184	346	88	288
16	187	146	122	161	110	1390	2470	2420	169	228	78	262
17	178	145	114	154	132	1670	2450	2360	158	180	66	254
18	187	143	118	149	119	1560	2460	2310	147	146	61	253
19	186	141	120	149	111	1290	2470	2400	152	126	54	261
20	166	139	120	149	108	1230	2550	2610	147	111	52	232
21	156	137	120	148	103	1400	2640	2420	137	98	53	259
22	152	136	118	148	101	1800	2120	2370	260	88	55	129
23	148	135	127	145	104	2110	2820	2380	468	95	52	117
24	145	134	135	143	111	2180	2870	2370	534	105	49	106
25	146	132	141	141	116	1130	3160	2410	516	100	46	105
26	143	131	144	148	444	582	3330	2220	500	97	44	105
27	146	133	143	170	588	402	3010	1730	501	116	43	105
28	143	134	142	165	608	389	2900	1620	464	107	42	103
29	144	132	140	---	774	370	2250	1580	701	92	39	106
30	147	131	136	---	987	265	828	1530	789	89	---	100
31	---	133	137	---	1250	---	1670	---	781	85	---	100
TOTAL	4459	4394	4057	3984	7709	34140	64230	65866	14107	9897	2538	4455
sec.ft	8844	8715	8047	7922	15291	67717	127400	130645	27981	19631	5034	8836
THE YEAR 436.063 acre-feet												

APPENDIX "B-9" **ARKANSAS RIVER AT THE** **COLORADO-KANSAS STATELINE**

B-9
 Report-Year ending October 31, 1987
 USGS Records

DAY	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.
1	235	203	174	181	198	1330	358	2408.1	1878.6	809	283	206
2	268	201	179	179	190	1320	307	2770	1698	784	271	192.7
3	281	215	181	178	188	1090	434	2839.5	1612	803	247	194
4	288	210	183	183	185	1030	647	2828.6	1408.3	835	228	197
5	291	201	188	182	191	1040	854	2847.9	1148.5	785	230	195
6	295	207	173	180	190	1080	985	2858	927	718	283	183.6
7	291	211	162	185	178	1090	1039	2800	840	582	332	172.6
8	279	213	166	178	179	1270	1602	2768	850	584	250	181.9
9	267	210	172	181	171	1330	1990	1418	734	558	282	183.2
10	268	203	175	180	168	1240	2240	1074	553	582	291.2	186
11	244	193	177	177	170	955	2281	1924	488	575	484	282
12	276	196	180	177	170	961	2305	2348	496	583	308	405
13	235	204	186	179	184	1000	2497	2456	474	607	386	486
14	246	204	193	183	197	1080	2818	2499	386	584	358	484
15	249	198	176	188	175	1260	2810	2571	386	586	316	453
16	251	196	188	192	189	1320	2691	2649	357	481	318	439
17	249	192	175	182	186	1310	2699	2521	326	393	287	435
18	244	192	189	185	200	1300	2639	2488	302.9	317	277	475
19	254	186	188	187	189	1400	2539	2853	298.9	311	252	474
20	235	190	172	188	180	1310	2601	2740	298	294	249	443
21	231	195	177	183	176	1300	2702	2708	273.5	277	271	372
22	233	183	176	179	165	1590	2794	2650	277.9	281	297	323
23	229	181	178	182	168	1860	2894	2649	475	281	305	313
24	227	181	182	180	170	2140	2942	2784	585	284	270	287
25	229	186	184	178	167	1930	3131	2743	592	271	248	277
26	218	184	187	178	217	1160	3313	2723	573	268	282	277
27	212	181	187	200	581	843	3257	2277.9	580	279	255	281
28	211	178	186	208	586	704	3109	1992.1	558	280	237	295
29	209	175	183	---	604	810	3087	2090	597	283	222	311
30	208	175	176	---	840	478	1884.2	2517	786	307	209	312
31	---	172	186	---	1010	---	1884.1	---	818	298	---	284
TOTAL	7473	6023	5508	5153	8306	36721	66403.3	74477.1	21604.6	14820	8639.2	9546.0
sec.ft.	14823	11947	10925	10221	18475	72836	131711	147725	42853	29395	17136	18934

THE YEAR 524,981 acre-feet

The daily discharges are the sum of the flows of the Arkansas River near Coolidge, Kansas, USGS Gaging Station #07137500 and the Frontier Ditch, USGS Gaging Station #07137000

APPENDIX "B-10"

TRANSFER OF COMPACT WATER FROM THE JOHN MARTIN RESERVOIR CONSERVATION POOL INTO AGREEMENT ACCOUNTS

Transfer of Compact Water from the John Martin Reservoir Conservation Pool
Into Agreement Accounts 1) 2)
Report-Year ending October 31, 1987
Source: Operations Secretary, Arkansas River Compact Administration
(acre-feet)

DAY	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	DAY
1	0.00	0.00	0.00	0.00	0.00	0.00	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	1
2	0.00	0.00	0.00	0.00	0.00	0.00	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	2
3	0.00	0.00	0.00	0.00	0.00	0.00	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	3
4	0.00	0.00	0.00	0.00	0.00	0.00	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	4
5	0.00	0.00	0.00	0.00	0.00	0.00	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	5
6	0.00	0.00	0.00	0.00	0.00	0.00	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	6
7	0.00	0.00	0.00	0.00	0.00	0.00	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	7
8	0.00	0.00	0.00	0.00	0.00	2,066.15	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	8
9	0.00	0.00	0.00	0.00	0.00	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	9
10	0.00	0.00	0.00	0.00	0.00	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	10
11	0.00	0.00	0.00	0.00	0.00	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	11
12	0.00	0.00	0.00	0.00	0.00	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	12
13	0.00	0.00	0.00	0.00	0.00	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	13
14	0.00	0.00	0.00	0.00	0.00	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	14
15	0.00	0.00	0.00	0.00	0.00	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	15
16	0.00	0.00	0.00	0.00	0.00	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	16
17	0.00	0.00	0.00	0.00	0.00	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	17
18	0.00	0.00	0.00	0.00	0.00	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	18
19	0.00	0.00	0.00	0.00	0.00	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	19
20	0.00	0.00	0.00	0.00	0.00	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	20
21	0.00	0.00	0.00	0.00	0.00	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	21
22	0.00	0.00	0.00	0.00	0.00	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	22
23	0.00	0.00	0.00	0.00	0.00	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	23
24	0.00	0.00	0.00	0.00	0.00	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	24
25	0.00	0.00	0.00	0.00	0.00	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	25
26	0.00	0.00	0.00	0.00	0.00	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	26
27	0.00	0.00	0.00	0.00	0.00	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	27
28	0.00	0.00	0.00	0.00	0.00	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	2,062.01	28
29	0.00	0.00	0.00	0.00	0.00	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	1,983.50	29
30	0.00	0.00	0.00	0.00	0.00	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	1,983.50	30
31	0.00	0.00	0.00	0.00	0.00	0.00	2,479.38	2,479.38	2,479.38	2,479.38	2,479.38	1,983.50	31
TOTAL	0.00	0.00	0.00	0.00	0.00	0.00	59,091.89	76,860.75	74,381.40	76,860.78	74,381.40	74,955.77	
THE YEAR:													

1) All conservation pool water was apportioned as follows in Colorado and Kansas Accounts:
40% to Kansas and 60% to Colorado, as described in the 1980 Colorado-Kansas Storage Resolution, and 35% of all "other water" delivered to John Martin Reservoir to the Kansas transit loss account.

2) Values reported are "JMR Agreement Water Inflow" from the operations secretary 1987 report.

APPENDIX "B-11"

DEMANDS BY COLORADO FOR AGREEMENT ACCOUNT WATER IN JOHN MARTIN RESERVOIR

Demands by Colorado for Agreement Account Water in John Martin Reservoir
Report-Year Ending October 31, 1987
Source: Operations Secretary, Arkansas River Compact Administration (1) 2) 3)
(acre-feet)

DAY	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	DAY
1	0.00	0.00	0.00	0.00	0.00	2,236.00@	589.61*	3,463.64*	1,623.16*	1,231.38	728.40	355.13	1
2	0.00	0.00	0.00	0.00	0.00	1,799.00@	943.38*	2,996.38*	1,254.60*	1,212.68	734.06	355.13	2
3	0.00	0.00	0.00	0.00	0.00	1,808.00@	943.38*	2,996.38*	854.40*	1,141.62	790.33	355.13	3
4	0.00	0.00	0.00	0.00	0.00	1,817.00@	874.48*	2,996.38*	854.40*	1,086.57	749.40	355.13	4
5	0.00	0.00	0.00	0.00	0.00	1,817.00@	1,548.77*	2,996.38*	854.40*	1,066.68	760.84	295.45	5
6	0.00	0.00	0.00	0.00	0.00	2,274.00@	2,833.20*	2,996.38*	894.60*	1,046.66	760.84	299.64	6
7	0.00	0.00	0.00	0.00	0.00	2,440.00@	3,461.40*	2,246.44*	799.77*	1,039.12	760.84	259.64	7
8	0.00	0.00	0.00	0.00	0.00	2,440.00@	3,598.80*	555.00*	882.44	1,013.83	714.81	259.64	8
9	0.00	0.00	0.00	0.00	0.00	1,705.00@	3,633.00*	1,908.00*	847.16	967.58	664.40	374.60	9
10	0.00	0.00	0.00	0.00	0.00	1,442.00@	3,641.40*	2,994.55*	926.12	877.06	637.50	441.71	10
11	0.00	0.00	0.00	0.00	0.00	1,549.00@	3,631.20*	3,034.74*	986.27	825.85	659.62	441.71	11
12	0.00	0.00	0.00	0.00	0.00	1,543.00@	3,606.00*	3,034.74*	933.11	888.23	685.74	441.71	12
13	0.00	0.00	0.00	0.00	0.00	2,037.00@	3,545.40*	3,034.74*	982.44	875.40	685.74	394.41	13
14	0.00	0.00	0.00	0.00	0.00	2,340.00@	3,531.00*	3,034.74*	1,003.77	1,077.52	581.83	282.25	14
15	0.00	0.00	0.00	0.00	0.00	3,071.00@	3,531.00*	3,034.74*	1,000.04	1,216.89	514.54	200.57	15
16	0.00	0.00	0.00	0.00	0.00	3,870.00@	3,495.00*	3,034.74*	1,367.78	1,216.89	520.69	181.72	16
17	0.00	0.00	0.00	0.00	0.00	2,698.00@	3,522.00*	3,034.74*	1,122.74	1,209.19	496.75	181.72	17
18	0.00	0.00	0.00	0.00	0.00	1,702.00@	3,523.80*	3,034.74*	1,131.28	1,209.06	512.13	181.72	18
19	0.00	0.00	0.00	0.00	0.00	2,443.00@	3,523.80*	3,034.74*	1,131.28	1,180.83	517.14	210.20	19
20	0.00	0.00	0.00	0.00	0.00	2,198.36*	3,523.80*	3,034.74*	1,131.28	1,200.03	517.14	458.43	20
21	0.00	0.00	0.00	0.00	0.00	2,724.00*	3,523.80*	2,738.60*	1,221.60	1,259.93	483.63	447.12	21
22	0.00	0.00	0.00	0.00	0.00	3,123.60*	3,523.80*	2,484.86*	1,342.43	1,282.22	427.90	440.34	22
23	0.00	0.00	0.00	0.00	0.00	2,764.80*	3,538.20*	2,483.32*	1,438.32	1,282.22	373.31	440.34	23
24	0.00	0.00	0.00	0.00	0.00	1,572.60*	3,566.40*	2,483.32*	1,374.96	1,251.00	354.52	440.34	24
25	0.00	0.00	0.00	0.00	0.00	1,268.00@	3,566.40*	2,208.96*	1,316.33	1,202.80	324.24	440.34	25
26	0.00	0.00	0.00	0.00	0.00	1,432.00@	3,566.40*	1,941.27*	1,316.33	1,134.93	299.40	440.34	26
27	0.00	0.00	0.00	0.00	0.00	1,204.00@	3,566.40*	1,829.97*	1,316.33	1,042.63	299.40	440.34	27
28	0.00	0.00	0.00	0.00	0.00	1,646.00@	3,539.80*	1,781.26*	1,429.37	936.68	299.40	427.44	28
29	0.00	0.00	0.00	0.00	0.00	2,142.00@	3,539.80*	1,781.26*	1,416.55	900.16	299.40	413.45	29
30	0.00	0.00	0.00	0.00	0.00	2,691.00@	3,539.80*	1,625.16*	1,368.17	900.16	339.51	371.74	30
31	0.00	0.00	0.00	0.00	0.00	3,080.00@	3,588.00*	—	1,302.65	780.44	—	348.96	31

Total 14,038.38 58,601.96 92,628.62 77,783.43 35,146.59 33,536.24 16,435.45 10,936.39
 Forced Demand 339,147.06 ACRE-Feet 249,839.34 ACRE-Feet WERE BY FORCED RELEASE. 89,307.72 ACRE-Feet WERE ACTUAL DEMAND.
 THE YEAR: 1987
 NOTE: 1) These values include no acre-feet of well augmentation water due to the high runoff conditions.
 2) Values reported are "JMR Agreement Water Release - Kansas Release - Transit Account Release" from the operations secretary 1987 report, except on Nov. 1, Apr. 17-19, and Jul. 7.

APPENDIX "B12"

DEMANDS BY KANSAS

FOR AGREEMENT ACCOUNT WATER IN JOHN MARTIN RESERVOIR

Demands by Kansas for Agreement Account Water in John Martin Reservoir
(Not including transit loss releases)
Report-Year Ending October 31, 1987
Source: Operations Secretary, Arkansas River Compact Administration 1)
(acre-feet)

DAY	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	DAY
1	0.00	0.00	0.00	0.00	0.00	0.00	681.83*	2,516.36*	1,575.84*	1,388.45	0.00	0.00	1
2	0.00	0.00	0.00	0.00	0.00	0.00	1,090.93*	2,983.62*	836.40*	1,388.45	0.00	0.00	2
3	0.00	0.00	0.00	0.00	0.00	0.00	1,090.93*	2,983.62*	569.60*	1,388.45	0.00	0.00	3
4	0.00	0.00	0.00	0.00	0.00	0.00	727.28*	2,983.62*	569.60*	1,388.45	0.00	0.00	4
5	0.00	0.00	0.00	0.00	0.00	0.00	812.23*	2,983.62*	569.60*	1,206.63	0.00	0.00	5
6	0.00	0.00	0.00	0.00	0.00	0.00	1,888.80*	2,983.62*	596.40*	991.75	0.00	0.00	6
7	0.00	0.00	0.00	0.00	0.00	0.00	2,307.60*	1,993.56*	480.00*	991.75	0.00	0.00	7
8	0.00	0.00	0.00	0.00	0.00	0.00	2,399.20*	370.00*	0.00	991.75	0.00	0.00	8
9	0.00	0.00	0.00	0.00	0.00	0.00	2,422.00*	1,272.00*	0.00	991.75	454.55	433.89	9
10	0.00	0.00	0.00	0.00	0.00	0.00	2,427.60*	2,646.45*	0.00	991.75	991.75	694.22	10
11	0.00	0.00	0.00	0.00	0.00	0.00	2,420.80*	3,034.26*	0.00	991.75	537.20	694.22	11
12	0.00	0.00	0.00	0.00	0.00	0.00	2,404.00*	3,034.26*	0.00	991.75	0.00	694.22	12
13	0.00	0.00	0.00	0.00	0.00	0.00	2,363.60*	3,034.26*	0.00	991.75	0.00	694.22	13
14	0.00	0.00	0.00	0.00	0.00	0.00	2,354.00*	3,034.26*	0.00	371.91	0.00	694.22	14
15	0.00	0.00	0.00	0.00	0.00	0.00	2,354.00*	3,034.26*	0.00	0.00	0.00	694.22	15
16	0.00	0.00	0.00	0.00	0.00	0.00	2,330.00*	3,034.26*	0.00	0.00	0.00	694.22	16
17	0.00	0.00	0.00	0.00	0.00	0.00	2,348.00*	3,034.26*	0.00	0.00	0.00	694.22	17
18	0.00	0.00	0.00	0.00	0.00	0.00	2,349.20*	3,034.26*	0.00	0.00	0.00	694.22	18
19	0.00	0.00	0.00	0.00	0.00	0.00	2,349.20*	3,034.26*	0.00	0.00	0.00	462.82	19
20	0.00	0.00	0.00	0.00	0.00	0.00	1,143.64*	3,034.26*	0.00	0.00	0.00	0.00	20
21	0.00	0.00	0.00	0.00	0.00	0.00	1,816.00*	3,330.40*	619.84	0.00	0.00	0.00	21
22	0.00	0.00	0.00	0.00	0.00	0.00	2,082.40*	3,330.40*	3,584.14*	991.75	0.00	0.00	22
23	0.00	0.00	0.00	0.00	0.00	0.00	1,843.20*	3,585.68*	991.75	0.00	0.00	0.00	23
24	0.00	0.00	0.00	0.00	0.00	0.00	1,048.40*	3,585.68*	991.75	0.00	0.00	0.00	24
25	0.00	0.00	0.00	0.00	0.00	0.00	692.40*	2,377.60*	2,871.04*	0.00	0.00	0.00	25
26	0.00	0.00	0.00	0.00	0.00	0.00	538.00*	2,377.60*	2,173.73*	991.75	0.00	0.00	26
27	0.00	0.00	0.00	0.00	0.00	0.00	602.40*	2,190.03*	991.75	0.00	0.00	0.00	27
28	0.00	0.00	0.00	0.00	0.00	0.00	641.20*	2,238.74*	1,239.69	0.00	0.00	0.00	28
29	0.00	0.00	0.00	0.00	0.00	0.00	547.20*	1,935.22*	1,388.45	0.00	0.00	0.00	29
30	0.00	0.00	0.00	0.00	0.00	0.00	437.20*	1,990.00*	1,575.84*	1,388.45	0.00	0.00	30
31	0.00	0.00	0.00	0.00	0.00	0.00	2,392.00*	1,388.45	0.00	0.00	0.00	0.00	31
Total	0.00	0.00	0.00	0.00	0.00	0.00	11,392.04	62,889.20	81,129.57	17,172.82	15,066.34	1,983.50	7,144.69
Forced	0.00	0.00	0.00	0.00	0.00	0.00	11,392.04	62,889.20	81,129.57	15,066.34	1,983.50	7,144.69	
Demand	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

THE YEAR: 196,778.16 ACRE-FEET 160,608.25 ACRE-FEET WERE BY FORCED RELEASE. 36,169.91 ACRE-FEET WERE ACTUAL DEMAND.
NOTE: 1) Releases under flood control calculated separately from normal operations.
*) Indicates the forced release of Agreement Account water caused by U.S. Army Corps of Engineers flood control operations.

APPENDIX "B-13"

STATELINE FLOWS ON DAYS OF KANSAS DEMANDS

Arkansas River at the State Line
State Line Flows on Days of Kansas Demands
Report-Year Ending October 31, 1987
(cubic feet per second)

DAY	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	DAY
1	—	—	—	—	—	—	358.00	2,408.10	1,876.60	809.00	—	—	1
2	—	—	—	—	—	—	307.00	2,770.00	1,696.00	794.00	—	—	2
3	—	—	—	—	—	—	434.00	2,839.50	1,612.00	803.00	—	—	3
4	—	—	—	—	—	—	647.00	2,828.60	1,408.30	825.00	—	—	4
5	—	—	—	—	—	—	854.00	2,847.90	1,149.50	785.00	—	—	5
6	—	—	—	—	—	—	665.00	2,858.00	927.00	719.00	—	—	6
7	—	—	—	—	—	—	1,039.00	2,800.00	840.00	592.00	—	—	7
8	—	—	—	—	—	—	1,502.00	2,769.00	—	564.00	—	—	8
9	—	—	—	—	—	—	1,990.00	1,418.00	—	559.00	262.00	183.20	9
10	—	—	—	—	—	—	2,240.00	1,074.00	—	582.00	291.20	186.00	10
11	—	—	—	—	—	—	2,291.00	1,924.00	—	575.00	494.00	282.00	11
12	—	—	—	—	—	—	2,305.00	2,348.00	—	593.00	509.00	405.00	12
13	—	—	—	—	—	—	2,497.00	2,456.00	—	607.00	368.00	456.00	13
14	—	—	—	—	—	—	2,518.00	2,469.00	—	604.00	338.00	460.00	14
15	—	—	—	—	—	—	2,610.00	2,571.00	—	566.00	—	453.00	15
16	—	—	—	—	—	—	2,691.00	2,549.00	—	451.00	—	439.00	16
17	—	—	—	—	—	—	2,699.00	2,521.00	—	393.00	—	435.00	17
18	—	—	—	—	—	—	2,639.00	2,488.00	—	327.00	—	475.00	18
19	—	—	—	—	—	—	2,539.00	2,653.00	—	311.00	—	474.00	19
20	—	—	—	—	—	1,310.00	2,601.00	2,740.00	—	294.00	—	443.00	20
21	—	—	—	—	—	1,300.00	2,702.00	2,709.00	273.50	277.00	—	372.00	21
22	—	—	—	—	—	1,590.00	2,794.00	2,680.00	277.90	—	—	323.00	22
23	—	—	—	—	—	1,860.00	2,894.00	2,649.00	475.00	—	—	313.00	23
24	—	—	—	—	—	2,140.00	2,942.00	2,764.00	585.00	—	—	287.00	24
25	—	—	—	—	—	1,930.00	3,131.00	2,743.00	592.00	—	—	277.00	25
26	—	—	—	—	—	1,160.00	3,313.00	2,723.00	573.00	—	—	277.00	26
27	—	—	—	—	—	843.00	3,257.00	2,277.90	580.00	—	—	—	27
28	—	—	—	—	—	704.00	3,109.00	1,992.10	558.00	—	—	—	28
29	—	—	—	—	—	610.00	3,067.00	2,090.00	597.00	—	—	—	29
30	—	—	—	—	—	478.00	1,884.20	2,517.00	786.00	—	—	—	30
31	—	—	—	—	—	—	1,884.10	—	818.00	—	—	—	31
Total													
CFS	0.00	0.00	0.00	0.00	0.00	13,925.00	66,403.30	74,477.10	15,624.80	12,030.00	2,262.20	6,540.20	
AC-FT	0.00	0.00	0.00	0.00	0.00	27,620.24	131,710.95	147,725.33	30,991.79	23,861.51	4,487.07	12,972.49	
THE YEAR:	379,369.37	ACRE-FEET	ACTUAL KANSAS DEMAND:	36,169.91	ACRE-FEET	105% KANSAS DEMAND:	37,978.41						

NOTE:
1) The daily discharges are the sum of the flows of the Arkansas River near Coolidge, Kansas and the Frontier Ditch as reported by the USGS. The annual total includes flows on day of forced releases from the Kansas account, actual Kansas account demands and the appropriate rundown period of up to seven days following each demand release only.
2) Flood control operations were forcing releases from accounts on April 20 through July 7, 1987.

APPENDIX "B-14a"

DIVERSIONS BY DITCHES

IN COLORADO WATER DISTRICT 14

Diversion by Ditches in Colorado
Water District 14
Report-Year ending October 31, 1987
Source: Water Commissioner's Monthly Reports
(acre-feet)

NAME OF CANAL	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	YEAR
Bessemer (River)	1,967.63	0.00	0.00	0.00	2,299.27	8,921.19	12,876.85	15,550.64	11,114.16	5,146.96	4,319.21	4,504.03	66,899.94
Res. or Imported	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3,700.22	5,398.89	367.54	0.00	9,466.65
Total Bessemer	1,967.63	0.00	0.00	0.00	2,299.27	8,921.19	12,876.85	15,550.64	14,814.38	10,545.85	4,886.75	4,504.03	76,366.59
Minnequa-Ft. Union	7,311.18	7,672.18	7,529.37	6,886.71	7,418.29	4,084.03	5,256.28	5,299.91	4,786.19	7,614.66	5,278.09	4,673.13	73,810.01
West Pueblo (River)	0.00	0.00	0.00	0.00	0.00	183.41	0.00	0.00	33.52	41.44	0.00	34.51	292.88
Excelsior (River)	0.00	0.00	0.00	0.00	0.00	0.00	472.07	83.31	0.00	0.00	0.00	0.00	555.38
Collier	0.00	0.00	0.00	0.00	0.00	0.00	1,249.61	208.27	0.00	0.00	0.00	0.00	1,457.88
Colorado Canal	8,545.03	0.00	0.00	0.00	5,279.60	4,094.10	14,640.97	20,214.38	4,154.60	1,336.44	746.31	0.00	99,011.43
Res. or Imported	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12,370.75	10,911.75	2,969.82	0.00	26,252.32
Total Colo. Canal	8,545.03	0.00	0.00	0.00	5,279.60	4,094.10	14,640.97	20,214.38	16,525.33	12,248.19	3,716.13	0.00	85,263.75
Highline (River)	3,410.03	0.00	0.00	3,656.74	5,818.00	15,082.91	14,206.60	31,127.70	18,833.33	10,920.83	7,496.18	7,505.56	118,057.88
Res. or Imported	0.00	0.00	0.00	0.00	0.00	2,968.64	0.00	0.00	1,211.34	2,229.77	735.18	0.00	7,164.93
Total Highline	3,410.03	0.00	0.00	3,656.74	5,818.00	18,051.55	14,206.60	31,127.70	20,044.67	13,150.60	8,231.36	7,505.56	125,222.81
Oxford Farmer's (River)	1,394.54	0.00	0.00	0.00	1,652.93	3,305.19	4,850.09	6,066.99	6,971.35	4,977.93	3,781.07	2,490.17	35,490.26
Res. or Imported	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	446.31	0.00	0.00	446.31
Total Oxford Farmer's	1,394.54	0.00	0.00	0.00	1,652.93	3,305.19	4,850.09	6,066.99	6,971.35	5,424.24	3,781.07	2,490.17	35,936.57
River District #14	22,628.41	7,672.18	7,529.37	10,543.45	22,468.09	35,670.83	53,552.47	78,551.20	45,893.15	30,038.26	21,820.86	19,207.40	355,575.67
Res. or Import	0.00	0.00	0.00	0.00	0.00	2,968.64	0.00	0.00	17,282.31	18,988.72	4,092.54	0.00	43,332.21
Dist. #14	22,628.41	7,672.18	7,529.37	10,543.45	22,468.09	38,639.47	53,552.47	78,551.20	63,175.46	49,026.98	25,913.40	19,207.40	398,907.88

APPENDIX "B-14b"

DIVERSIONS BY DITCHES

IN COLORADO WATER DISTRICT 17

Diversion by Ditches in Colorado
Water District 17
Report-Year ending October 31, 1987
Source: Water Commissioner's Monthly Reports
(acre-feet)

NAME OF CANAL	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	YEAR
Otero	649.70	552.50	0.00	0.00	3,314.49	3,243.72	1,714.58	2,285.49	660.80	181.17	1.07	0.00	12,604
Res. or Imported	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	145.61	709.42	103.98	0.00	961
Total Otero	649.70	552.50	0.00	0.00	3,314.49	3,243.72	1,714.58	2,285.49	806.41	890.59	107.05	0.00	13,565
Catlin Canal (River)	2,832.08	0.00	0.00	0.00	7,288.19	12,612.01	12,268.46	16,378.10	16,216.44	13,721.24	10,218.40	9,279.94	100,815
Res. or Imported	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.33	331.51	3,310.15	41.53	0.00	3,704
Total Catlin	2,832.08	0.00	0.00	0.00	7,288.19	12,612.01	12,268.46	16,398.43	16,547.95	17,031.39	10,259.93	9,279.94	104,518
Holbrook (River)	0.00	0.00	0.00	0.00	6,016.09	3,384.55	7,883.68	18,332.88	4,302.11	3,710.37	269.32	0.00	51,082
Res. or Imported	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3,295.35	4,514.74	1,864.91	711.90	10,388
Total Holbrook	0.00	0.00	0.00	0.00	6,016.09	3,384.55	7,883.68	18,332.88	7,597.46	8,225.11	2,135.23	711.90	61,470
Rocky Ford	1,325.77	0.00	0.00	0.00	1,604.39	3,400.47	5,199.88	3,889.78	5,533.91	6,617.91	5,949.89	3,267.84	40,176
Ft. Lyon Storage	15,118.24	45,140.49	8,477.48	0.00	3,027.68	1,672.09	8,344.58	0.00	2,935.58	0.00	0.00	0.00	84,746
Ft. Lyon (River)	3,366.55	0.00	6,225.06	46,064.43	22,268.08	39,706.56	45,509.13	52,607.34	40,362.12	26,321.78	32,676.58	25,754.78	340,862
Res. or Imported	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
Kicking Bird*	0.00	0.00	2,069.64	33,146.49	17,103.03	0.00	0.00	3,919.40	2,078.71	0.00	0.00	0.00	58,317
Total Ft. Lyon-K.B.	18,484.79	45,140.49	14,702.54	46,064.43	25,325.76	41,378.65	53,853.71	52,607.34	43,297.70	26,321.78	32,676.58	25,754.78	425,689
Las Animas Consol.	1,182.21	0.00	0.00	0.00	1,155.09	2,704.05	4,678.36	5,683.98	5,806.28	4,657.56	4,512.98	4,038.33	34,419
Native - District #17	24,474.55	45,692.99	14,702.54	53,684.91	43,868.55	73,021.99	83,587.70	100,821.70	76,901.24	54,542.01	51,064.90	42,340.89	664,704
Res. or Imported #17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.33	3,772.47	8,534.31	2,013.42	711.90	13,032
Total District #17	24,474.55	45,692.99	14,702.54	53,684.91	43,868.55	73,021.99	83,587.70	100,842.03	80,673.71	63,076.32	53,078.32	43,052.79	679,736
Native Dist #14-#17	47,102.96	53,365.17	22,231.91	64,228.36	66,336.64	108,692.82	137,139.99	179,372.90	122,794.39	84,580.27	72,885.76	61,548.29	1,020,279
Res. or Imp.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.33	21,054.78	27,523.03	6,105.96	711.90	58,385
Dist. #14-#17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.33	21,054.78	27,523.03	6,105.96	711.90	58,385
Total Dist. #14-#17	47,102.96	53,365.17	22,231.91	64,228.36	66,336.64	111,661.46	137,139.99	179,393.23	143,849.17	112,103.30	78,991.72	62,260.19	1,078,664
*Bifurcation from Fort Lyon													

APPENDIX "B-15"

DIVERSIONS BY DITCHES IN COLORADO WATER DISTRICT 67

Diversion by ditches in Water District 67
Report-Year Ending October 31, 1987
Source: Water Commissioner's Monthly Reports
(acre-feet)

NAME OF CANAL	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	YEAR
Fort Bent	0.00	0.00	0.00	0.00	0.00	404.44	3,131.95	3,306.49	4,653.29	4,673.12	794.19	772.97	17,736.45
Kessee Ditch	0.00	0.00	0.00	0.00	0.00	130.91	763.65	778.72	1,287.29	1,282.34	771.39	583.54	5,597.84
Amity	224.14	61.49	61.49	55.54	245.95	4,431.14	16,609.83	17,403.23	17,813.81	19,769.55	8,459.63	6,307.87	91,643.67
Lamar*	0.00	0.00	0.00	0.00	1,126.63	6,599.11	7,154.49	9,352.20	9,862.95	10,964.79	7,598.80	5,793.81	58,452.78
Hyde	0.00	0.00	0.00	0.00	0.00	24.20	447.08	558.16	397.69	485.96	440.34	172.57	2,526.00
Manvel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1,401.34	1,582.83	0.00	0.00	2,984.17
X.Y. & Graham	0.00	0.00	0.00	0.00	0.00	1,033.01	2,866.16	2,759.21	2,106.48	2,072.76	1,721.68	1,737.55	14,276.85
Buffalo	0.00	0.00	0.00	0.00	0.00	1,973.58	5,270.16	3,863.86	3,837.08	4,694.55	4,123.70	3,114.10	26,877.03
TOTAL DIST. 67	224.14	61.49	61.49	55.54	1,372.58	14,596.39	36,243.32	38,001.87	41,359.93	45,525.90	23,909.73	18,682.41	220,094.70
Trans. Min.													
Diversion	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
GRAND TOTAL	224.14	61.49	61.49	55.54	1,372.58	14,596.39	36,243.32	38,001.87	41,359.93	45,525.90	23,909.73	18,682.41	220,094.79

NOTE:

* Total reflects 1401.34 a.f. in July and 1582.83 a.f. in August when Lamar Canal served as a carrier for other users.

APPENDIX "B-16"

DIVERSIONS BY DITCHES IN KANSAS

STATELINE TO GARDEN CITY

Diversion by ditches in Kansas
 Stateline to Garden City
 Report Year Ending October 31, 1987
 Source: Frontier Ditch: U.S.G.S. Records
 Other Ditches: Kansas Division of Water Resources Records
 (acre-feet)

NAME OF CANAL	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	YEAR
Frontier Ditch	0.00	0.00	0.00	0.00	0.00	178.00	2,208.00	1,422.00	1,507.00	2,124.00	976.00	1,373.00	9,788.00*
Fl. Aubrey Canal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL													
STATELINE													
TO SYRACUSE	0.00	0.00	0.00	0.00	0.00	178.00	2,208.00	1,422.00	1,507.00	2,124.00	976.00	1,373.00	9,788.00*
Amazon Canal	0.00	0.00	0.00	0.00	0.00	1,849.00	5,635.00	5,439.00	9,872.00	8,446.00	1,658.00	4,941.00	37,840.00
Great Eastern Canal	0.00	0.00	0.00	0.00	2,152.00	936.00	3,818.00	2,471.00	2,184.00	7,256.00	774.00	0.00	19,591.00
South Side Ditch	0.00	0.00	0.00	0.00	0.00	587.00	5,226.00	540.00	4,879.00	5,915.00	1,454.00	3,066.00	21,667.00
Farmers Ditch	0.00	0.00	0.00	0.00	0.00	284.00	4,742.00	2,434.00	1,716.00	5,399.00	4,764.00	1,063.00	20,412.00
Garden City Canal	22.00	0.00	0.00	0.00	0.00	0.00	428.00	218.00	452.00	460.00	803.00	432.00	2,815.00
TOTAL SYRACUSE													
TO GARDEN CITY	22.00	0.00	0.00	0.00	2,152.00	3,666.00	19,849.00	11,102.00	19,103.00	27,476.00	9,453.00	9,502.00	102,325.00
TOTAL													
STATELINE													
TO GARDEN													
CITY	22.00	0.00	0.00	0.00	2,152.00	3,844.00	22,057.00	12,524.00	20,610.00	29,600.00	10,429.00	10,875.00	112,113.00

* 4558.00 acre-feet returned directly to the river

APPENDIX "B-17"

TRANSMOUNTAIN DIVERSIONS

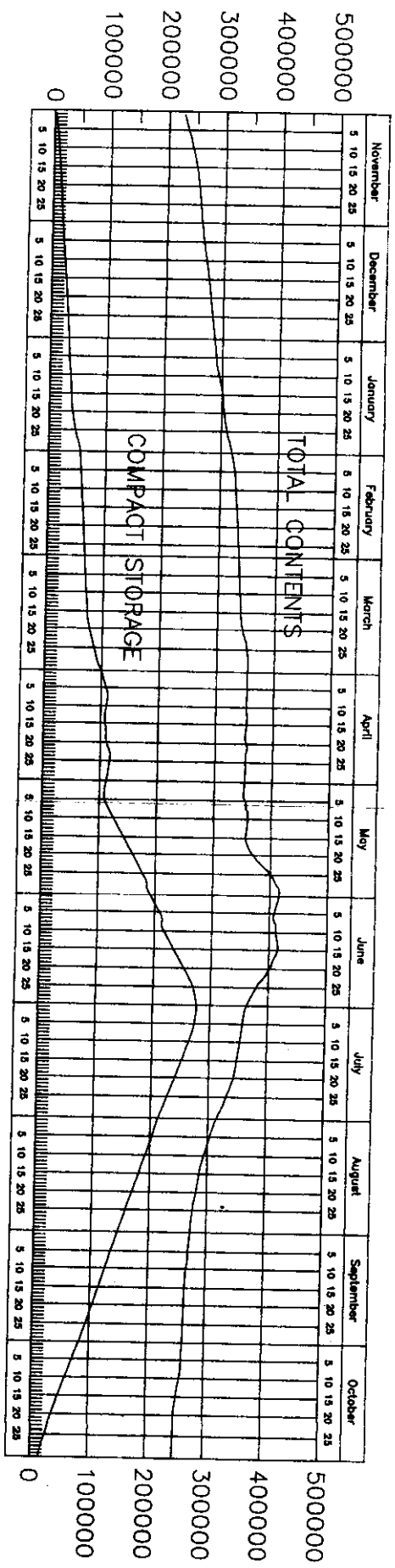
Transmountain Diversions Into The Arkansas Basin
Report-Year Ending October 31, 1987
Source: Division Engineer
Colorado Water Division #2
(acre-feet)

STRUCTURE	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	TOTAL
Twin Lake Tunnel	567.87	245.36	182.28	144.79	139.24	921.52	10,544.13	159.67	3,045.22	2,003.30	664.86	169.59	18,787.83 (1)
Colo. Springs - 54.65%													
Pueblo - 23.14%													
Pueblo West - 11.56%													
Aurora - 4.90%													
Homestake Tunnel	0.00	2,989.09	3,167.60	2,941.49	3,151.73	6,285.62	0.00	0.00	0.00	0.00	0.00	0.00	18,535.53 (1)
Aurora - 50%													
Colo. Springs - 50%													
Wurtz Ditch	0.00	0.00	0.00	0.00	0.00	0.00	977.45	934.61	225.32	62.86	0.00	0.00	2,200.24
Pueblo Bd. Water Works - 100%													
Larkspur Ditch	0.00	0.00	0.00	0.00	0.00	0.00	0.00	31.99	33.28	12.16	0.00	0.00	77.43
Cattlin													
Consolidated Co. - 100%													
Ewing Ditch	0.00	0.00	0.00	0.00	0.00	0.00	301.10	347.90	121.69	42.63	0.00	0.00	813.32
Pueblo Bd. Water Works - 100%													
Columbine Ditch	0.00	0.00	0.00	0.00	0.00	0.00	461.55	667.04	72.06	12.42	0.00	0.00	1,213.07
Pueblo Bd. Water Works - 100%													
Boulevard Tunnel	0.00	0.00	0.00	0.00	0.00	0.00	1,134.37	1,705.22	383.61	117.02	0.00	0.00	3,340.42
Southeast Colo. WCD - 100%													
Buck-Ivanhoe System/Carlton Tunnel	0.00	0.00	0.00	0.00	0.00	0.00	673.20	1,833.92	716.03	121.80	16.13	137.67	3,498.75 (1)
Pueblo Bd Water Works - 50%													
Buck-Ivanhoe Inc. - 50%													

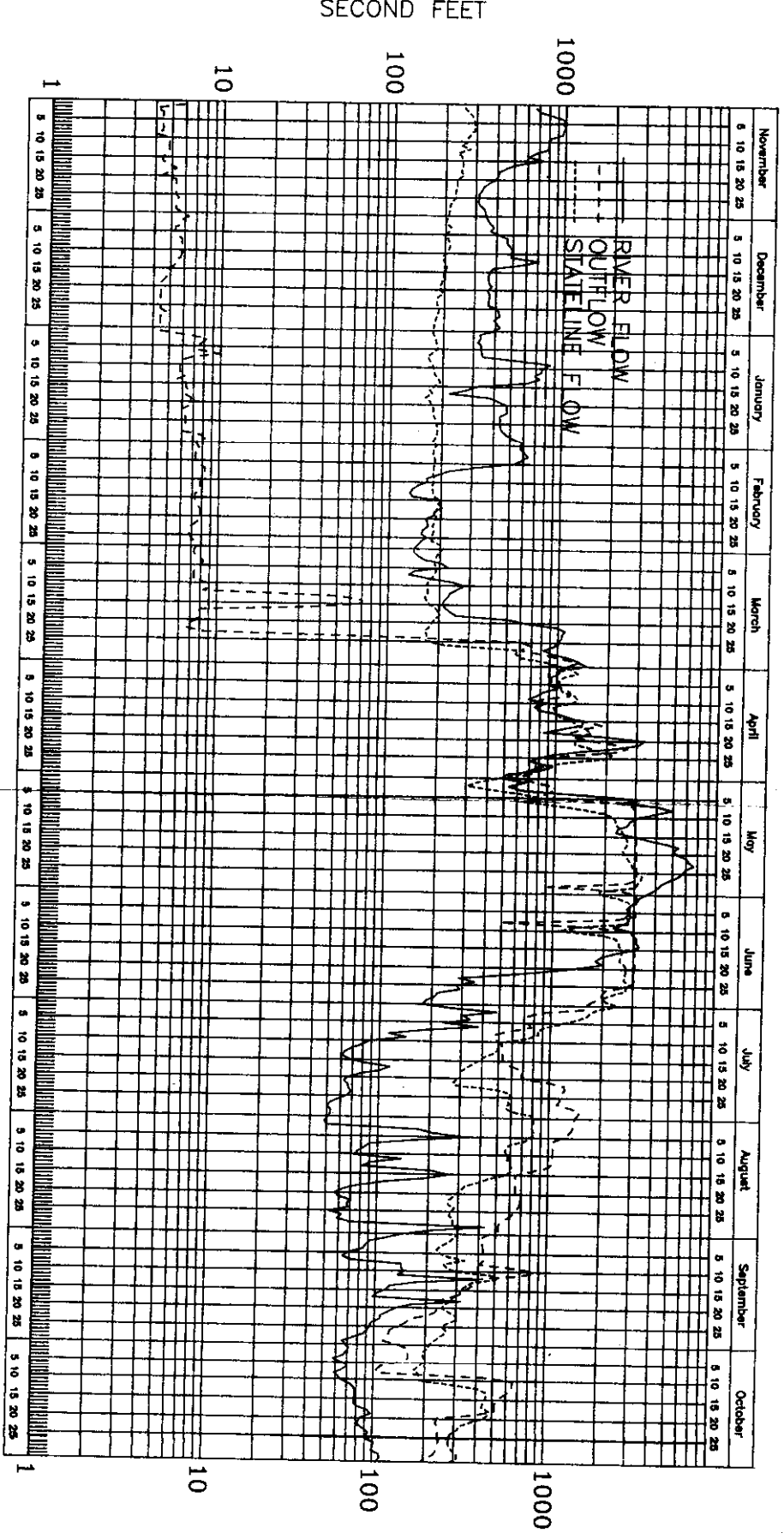
APPENDIX "B-18"

SUMMARY TABULATION

Summary Tabulation Report Year November 1, 1986 to October 31, 1987													
LOCATION	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	YEAR
Arkansas River at Las Animas													
Colorado - cfs	15,972.00	11,725.00	13,348.00	5,387.00	12,555.00	26,318.00	99,352.00	54,205.00	3,281.00	1,711.00	2,082.00	1,703.00	247,639.00
- a.f.	31,680.00	23,257.00	26,476.00	10,685.00	24,903.00	52,202.00	197,065.00	107,516.00	6,508.00	3,394.00	4,130.00	3,378.00	491,194.00
Purgatoire River near Las Animas,													
Colorado - cfs	1,772.00	1,179.00	1,326.00	1,532.00	3,876.00	8,357.00	19,044.00	1,876.00	664.00	2,141.50	1,578.00	824.00	44,169.50
- a.f.	3,515.00	2,339.00	2,630.00	3,039.00	7,688.00	16,576.00	37,774.00	3,721.00	1,317.00	4,248.00	3,130.00	1,634.00	87,611.00
River flow into John Martin Reservoir													
- cfs	17,744.00	12,904.00	14,674.00	6,919.00	16,431.00	34,675.00	118,396.00	56,081.00	3,945.00	3,852.50	3,660.00	2,527.00	291,806.50
- a.f.	35,195.00	25,596.00	29,106.00	13,724.00	32,591.00	68,778.00	234,839.00	111,237.00	7,825.00	7,642.00	7,260.00	5,012.00	578,805.00
Contents of John Martin Reservoir at end of Month - a.f.													
	260,421.00	286,445.00	319,455.00	335,189.00	353,468.00	352,414.00	416,080.00	362,718.00	314,206.00	271,455.00	261,575.00	246,374.00	
Net Change in Reservoir contents - a.f.													
	34,467.00	26,024.00	33,010.00	15,734.00	18,279.00	(1,054.00)	63,666.00	(53,362.00)	(48,512.00)	(42,751.00)	(9,880.00)	(15,201.00)	
Outflow from John Martin Reservoir - cfs													
- a.f.	146.00	155.80	205.10	211.10	7,051.30	35,208.00	79,848.00	79,940.00	27,113.00	26,220.00	9,892.00	9,898.00	275,888.30
	290.00	309.00	407.00	419.00	13,986.00	69,835.00	158,379.00	158,561.00	53,779.00	52,007.00	19,621.00	19,633.00	547,226.00
Diversion in District 67, Colorado - a.f.													
	224.14	61.49	61.49	55.54	1,372.58	14,596.39	36,243.32	38,001.87	41,359.93	45,525.90	23,909.73	18,682.41	220,094.79
Arkansas River at Colorado													
Kansas Stateline - cfs	7,473.00	6,023.00	5,508.00	5,153.00	8,306.00	36,721.00	66,403.30	74,477.10	21,604.60	14,820.00	8,639.20	9,546.00	264,674.20
- a.f.	14,823.00	11,947.00	10,925.00	10,221.00	16,475.00	72,836.00	131,711.00	147,725.00	42,853.00	29,395.00	17,136.00	18,934.00	524,981.00
Diversion by ditches in Kansas													
Stateline to Garden City - a.f.	22.00	0.00	0.00	0.00	2,152.00	3,844.00	22,057.00	12,524.00	20,610.00	29,600.00	10,429.00	10,875.00	112,113.00



SECOND FEET



INFLOW, OUTFLOW AND CONTENTS OF JOHN MARTIN RESERVOIR, AND STATELINE FLOW
 COMPACT YEAR 1987
 NOVEMBER 1, 1986 TO OCTOBER 31, 1987