#### ANNUAL REPORT

#### OF THE

#### **OPERATIONS SECRETARY**

#### CONCERNING THE OPERATION OF JOHN MARTIN RESERVOIR

<u>1982</u>

Submitted to The

**Operations Committee** 

ARKANSAS RIVER COMPACT ADMINISTRATION

November 15, 1982

#### TABLE OF CONTENTS

					Į	Page
Comments of Operation Secretary						. 1
Financial Status of Operations Secretary						. 2
Receipts and Invoices					-	.3-6
Contract Between State Engineer and Compact						. 7
Tables Showing Delivery of Water to Kansas						.8-10
Tables Showing Operation of John Martin During Compact Water Year 1982	•	•	•	•		.11-15
Precipitation in Inches					•	. 16
John Martin Reservoir - Computed Inflow A.F				•	•	. 17
Accounting Sheets - John Martin Winter Water				•		.18-29
John Martin Interim Accounting Sheets			•	•	-	.30-41
Accounting Sheets - John Martin Agreement Water						.42-65

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#### OPERATIONS SECRETARY'S COMMENTS

1982 was above average in snow pack as well as summer precipitation. A table of precipitation is enclosed in this Report.

No significant problems in administration were encountered during the year. The COMSAT Program was used extensively and was found to be quite valuable, although some improvement is still needed in communicating the latest shifts to the COMSAT.

All deliveries to Kansas were made on schedule, and the Secretary had excellent cooperation from Kansas Water Resources in Garden City.

During the year, State hydrographers made a total of 32 stream measurements on the Compact gauges and a total of 323 visits or personal gauge readings to verify gauge heights or make estimates of ice affected flows.

Also enclosed in this Report is a table showing the computed inflow to John Martin. This is a computation and includes all measured as well as un-measured inflow using the Daily Change in Contents.

#### FINANCIAL STATUS

0F

## OPERATIONS SECRETARY

1982 Contract between Colorado State Engineer Jeris Danielson and Arkansas River Compact Administration.

Salary for Secretary:

May .							-	\$	952.00
June.									952.00

Office Supplies:

Calcu	lators	(2)						\$260.95
Misc.	Suppli	es.						58.70

Telephone:

Install COMSAT		Jack.					\$270.	. 65	
		Tr	ነፐ $\mu$	11			\$2 <u>4</u> 94	30	

Contract allocated \$2500 to the Operations Secretary. All invoices and a copy of the Contract are hereto attached.

#### INVOICE

M. Helen Bever 1914 Sherwood Lane Pueblo, Colorado 81005

Secretary, month of May 1982

\$952.00

#### INVOICE

M. Helen Bever 1914 Sherwood Lane Pueblo, Colorado 81005

M. Weller Tolever

Secretary, month of June 1982

\$952.00

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CUSTOMER COPY

This agreement is subject to the terms and conditions as set forth herein and on the reverse side hereof, which the customer acknowledges having read and accepted.

DATE

<sup>R</sup>/O

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#### ARKANSAS RIVER COMPACT ADMINISTRATION

Principal Office - Court House, Lamar, Colorado

FIRST NATIONAL BANK IN LAMAR

LAMAR, COLORADO

Two Hundred and Seventy Dollars and 65/00 PAY AMOUNT \$ 270.65 roTHE Bell Telephone ORDER OF ٤. CHAIRMAN - VIČE CHAIRMAN 11 10 2 1 1 1 0 0 8 7 1 5 25411 000

17 A Y E E: DETACH THIS STATEMENT BEFORE DEPOSITING CHECK

Arkansas River Compact Administration - Lamar, Colorado

DATE	INVOICE NO.	DESCRIPTION	AMOUNT	NOTAVOSIA POLLOGOSA	NET AMOUNT
June 5,82		Install Telephone Comsat terminal jack  UN 16 1982  ISION ENGINEER EBLO, COLORADO			\$270.65

2 9999 0715 82

MAY 22 1982 303 545 2301 CURR CHGS 270.65 ARE DUE BY JUN 16

WHITE PRINTED TO THE OWNER.

TOTAL DUE

270.65

MOUNTAIN BELL DENVER CO 80244

COLO STATE GOVT IRRIGATION DIV ENGR 1906 W HORTHERN AV PUEBLO CO 81004

PLEASE RETURN THIS PAGE WITH YOUR PAYMENT - IF PAYING IN-PERSON BRING ENTIRE STATEMENT-DO NOT FOLD MUTILATE OR STAPLE THARK YOU

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#### CONTRACT

THIS AGREEMENT is made this 3rd day of May, 1982, by and between the State Engineer of the State of Colorado for the use and benefit of the Colorado Division of Water Resources (State Engineer), 1313 Sherman Street, Room 818, Denver, Colorado 80203, and the Arkansas River Compact Administration, 1001 South Main, Lamar, Colorado 81052.

WHEREAS, the Division Engineer, Water Division II in the Colorado Division of Water Resources serves as Operations Secretary for the Arkansas River Compact Administration; and

WHEREAS, the Arkansas River Compact Administration has previously approved of the use of up to \$2,500.00 of its funds for the maintenance of the office of the Operations Secretary for the six month period ending June 30, 1982.

NOW THEREFORE, it is hereby agreed that:

- The Division Engineer, in his capacity as the Operations Secretary, shall:
  - A. Regulate the gates of John Martin Reservoir in accordance with the Arkansas River Compact and any operating plans or procedures adopted thereunder; and
  - B. Keep accurate daily records on the water stored in John Martin Reservoir, including all matters appurtenant thereto such as the amount of water residing in or being transferred to special reservoir accounts, evaporation of water from the reservoir which is to be prorated among such accounts, and the determination of transit losses and the procedures for computing such in all matters regarding water being transferred to or from said reservoir and accounts therein; and
  - C. Prepare accurate reports of deliveries of water which reports shall be presented to the Administration's operations committee.
- In consideration of the services to be performed by the Division Engineer as Operations Secretary, the Arkansas River Compact Administration shall:
  - A. Pay a secretary for the office of the Operation's Secretary at a rate of \$952.00 per month for the months of May and June, 1982; and
  - B. Pay \$596.00 for the installation of a telephone, computer access, and incidental office expenses; and
  - C. Make all disbursements upon receipt of a properly prepared invoice from the Operations Secretary.

- C&lorado Divisi	lon of Water Resources
By Jeris A.	Manilton Danielson,
State En	gineer
Arkansas River	Compact Administration
Ву	
Frank C	oolev.

Chairman

### Delivery of Water To Kansas, 1982

Ι

1		
Release began @ John Martin Reservoir	6-21-82	1100 Hr.
Release ended @ John Martin	7-5-82	1744 Hr.
Kansas Account Transit Loss Account Other	1,628.0	3 A.Ft. 8 A.Ft. A.Ft.
TOTAL	15,909.1	1 A:Ft.
Arrived @ Frontier Ditch Headgate	6-23-82	0001 Hr.
Arrived @ Coolidge Gage	6-23-82	0300 Hr.
Runout ended @ Coolidge Gage	7-12-82	1744 Hr. #
Total Delivered @ Frontie Total Delivered @ Coolidge G		.Ft. .Ft.
Total Combined Delivery	16,601 A	.Ft. *

## II

Release begain @ John Martin Reservoir	8-4-82	1000 Hr.
Release Ended @ John Martin Reservoir	8-14-82	2011 Hr.

```
Kansas Account - - - - - - - - 8,659.03 A.Ft.
              Transit Loss Account - - - - - - 1,808.33 A.Ft.
                            ____ 336.96 A.Ft.
                            1900 Hr.
                                        8-5-82
Arrived @ Frontier Ditch Headgate
                                                  2200 Hr.
                                        8-5-82
Arrived @ Coolidge Gages
                                                  2011 Hr. #
                                        8-20-82
Runout Ended @ Coolidge Gage
                                        (Compund Release. Only 6 Day
                                         Runout taken.)
                                                  949 A.Ft.
              Total Delivered @ Frontier - - - -
           Total Delivered @ Coolidge Gage - - -
                                                7,761 A.Ft.
                                                8,710 A.Ft.
              Total Combined Delivery- --- - -
# Runout ends seven days after end of release @ John Martin.
  (Agreement of 3-12-82)
* No credit taken for flow total over 500 cfs.
                              III
                                                    1200 Hr.
                                        8-25-82
Release Began @ John Martin Reservoir
                                                    1319 Hr.
Release Ended @ John Martin Reservoir
                                        9-1-82
             Kansas Account - - - - - - - 7,054.89 A.Ft.
             Transit Loss Account - - - - - - 1,293.28 A.Ft.
                                                270.03 A.Ft.
                            TOTAL- - - - - - 8,518.20 A.Ft.
                                        8-26-82
                                                     2200 Hr.
Arrived @ Frontier Ditch Headgate
                                        8-27-82
                                                     0100 Hr.
Arrived @ Coolidge Gage
                                                     1319 Hr. #
                                         9-8-82
Runout Ended @ Coolidge Gage
```

Total Delivered @ Frontier - - - -

Total Combined Delivery - - - - -

Total Delivered @ Coolidge Gage - - - 6,455 A.Ft.

663 A.Ft.

#### IV

Release began @ John Martin Reservoir	9-14-82	1000 Hr.
Release ended @ John Martin Reservoir	9-17-82	2114 Hr.
Kansas Account		4.40 A.Ft. 0 A.Ft. 0 A.Ft.
TOTAL	<del>2,77</del>	4.40 A.Ft.
Arrived @ Frontier Headgate	9-15-82	1700 Hr.
Arrived @ Coolidge Gage	9-15-82	2000 Hr.
Runout Ended @ Coolidge Gage	9-24-82	2114 Hr. #
Tötal Delivered @ Frontier (to 0700 Total Delivered @ Coolidge Gage (to 070	Hr. 9-23) 00 Hr. 9-23) -	318 A.Ft. 3,283 A.Ft.
Total Combined Delivery (to 0700 Hr.	9-23)	3,601 A.Ft. *

(NOTE: Deliveries for releases No. I, II & III calculated from USGS Flow Sheets. Delivery for release No. IV calculated from COMSAT data.)

<sup>#</sup> Runout ends seven days after end of release @ John Martin. (Agreement of 3-12-82)

<sup>\*</sup> No credit taken for flow total over 500 cfs for release No. III nor over 400 cfs for Release No. IV.

# Operation of John Martin Reservoir During Compact Water Year 1982

# Winter Storage in John Martin Reservoir November 1, 1981 - April 17, 1982

Winter storage in John Martin Reservoir began at 0001 Hour, November 1, 1981. At that time the Conservation Pool was empty. The Reservoir contained 13,712.89 A.F. This water was distributed as follows: 8,152.25 A.F. in Agreement Accounts and 5,560.64 A.F. in the Recreation Pool. Winter storage ended at 1428 Hour, April 17, 1982. During this period a total of 44,426.80 A.F. was stored. This water was allocated to various accounts as specified in the Operating Plan, adopted by the Arkansas River Compact Administration on April 24, 1980. The following tables reflect the status of various accounts during Winter Storage.

TABLE I COMPACT WATER

	Contents Beg. of Month A.Ft.	Inflow A.Ft.	Evaporation A.Ft.	Releases A.Ft.	Contents End of Month A.Ft.
November December January February March April 1-17	0 4,687.48 9,307.67 14,543.23 18,568.18 23,565.00	4,750.25 4,734.00 5,389.00 4,321.00 5,555.00 2,064.55	62.77 113.81 153.44 296.05 558.18 312.34	0 0 0 0 0 25,317.21	4,687.48 9,307.67 14,543.23 18,568.18 23,565.00 2400 Hrs. 4/17
TOTALS		26,813.80	1,496.59	25,317.21	

TABLE II

AMITY CANAL WINTER WATER

	Contents Beg. of Month A.Ft.	Inflow A.Ft.	Evaporation A.Ft.	Releases A.Ft.	Contents End of Month A.Ft.
November December January February March April 1-17	0 0 4,705.58 9,641.31 14,553.33 16,840.64	0 4,743.00 5,027.00 5,122.00 2,721.00 0	0 37.42 91.27 209.98 433.69 14.09	0 0 0 0 0 16,826.55	0 4,705.58 9,641.31 14,553.33 16,840.64 (2400 Hrs. 4/17)
TOTALS		17,613.00	786.45	16,826.55	

TABLE III

AGREEMENT WATER

	Contents Beg. of Month A.Ft.	Inflow A.Ft.	Evaporation A.Ft.	Releases A.Ft.	Contents End of Month A.Ft.
November December January February March April 1-17	8,152.25 7,747.98 7,623.31 7,523.06 7,388.85 7,195.07	0 0 0 0 0 0 42,143.76	212.13 124.67 100.25 134.21 193.78 637.12	192.14 0 0 0 0 0 3,749.55	7,747.98 7,623.31 7,523.06 7,388.85 7,195.07 (2400 Hrs. 4/17) 44,952.16
TOTALS	, , , , , , , , , , , , , , , , , , , ,	42,143.76	1,402.16	3,941.69	

TABLE IV

PERMANENT RECREATION POOL

	Contents Beg. of Month A.Ft.	Inflow A.Ft.	Evaporation A.Ft.	Releases A.Ft.	Contents End of Month A.Ft.
November December January February March April 1-17	5,560.64 5,412.54 5,325.44 5,255.40 5,161.64 5,026.29	0 0 0 0 0	148.10 87.10 70.04 93.76 135.35 101.45	0 0 0	5,412.54 5,325.44 5,255.40 5,161.64 5,026.29 (2400 Hrs. 4/17) 4,924.84

# TABLE V ALLOCATION OF RESERVOIR CONTENTS

## IN ACRE FEET @ 2400 Hr. April 17, 1982

Total	Agreement	Compact	Amity Winter	Permanent Pool
Contents	Water	Water	Water	Water
49,877.00	44,952.16	0	0	

# Summer Storage in John Martin Reservoir April 17, 1982 - October 31, 1982 Conservation Pool

Summer storage began at 1428 Hour, April 17, 1982. At that time the Conservation Pool was empty. During the summer season, storage in the Conservation Pool totalled 62,250.23 A.Ft. This was all released into accounts in accordance with the  $\underline{\text{Operating Plan}}$ , adopted April 24, 1980. The Conservation Pool was empty at 2400 Hour, October 31, 1982.

TABLE VI
SUMMER OPERATIONS OF CONSERVATION POOL

	Contents, A.Ft. Beginning Date Shown	Inflow A.Ft.	Evaporation A.Ft.	Release A.Ft.	Contents, A.Ft. End of Month
April 17 May 1 June 1 July 1 Aug. 1 Sept. 1 Oct. 1	0 0 0 0 5,987.01 0 0	0 0 12,064.32 9,991.11 29,781.21 6,944.43 3,469.16	0 0 8.56 4.10 187.61 7.77 1.01	0 0 12,055.76 4,000.00 35,580.61 6,936.66 3,468.15	5,987.01 0 0
TOTALS	<u> </u>	62,250.23	209.05	62,041.18	

TABLE VII
STORAGE IN AND RELEASES FROM CONSERVATION POOL

Beginning of Storage	Ending of	Storage	Beginning	of Release	Ending of	Release
Hour Day	Hour	Day	Hour	Day	Hour	Day
1330 June 3 0900 June 19 1000 June 27 2400 July 29 0001 Aug. 12 0900 Aug. 22 0800 Sept. 14 0930 Oct. 1	0628 1124 1040 0953 1229 0536 1914 0916	June 6 June 22 June 28 Aug. 8 Aug. 13 Aug. 31 Sept. 17 Oct. 3	1330 0900 1000 2400 0001 0900 0800 0930	June 3 June 19 June 27 July 29 Aug. 12 Aug. 22 Sept. 14 Oct. 1	0628 1124 1040 0953 1229 0536 1914 0916	June 6 June 19 June 28 Aug. 8 Aug. 13 Aug. 31 Sept. 17 Oct. 3

TABLE VIII
SUMMER OPERATION OF PERMANENT RECREATION POOL

	Contents, A.Ft. Beginning Date Shown	Inflow A.Ft.	Evaporation A.Ft.	Release A.Ft.	Contents, A.Ft. End of Month
April 18 May 1 June 1 July 1 Aug. 1 Sept. 1 Oct. 1	4,924.84 4,852.72 4,611.58 4,480.83 4,110.14 3,779.88 3,537.11	0 0 103.28 0 0 22.99	72.12 241.14 234.03 370.69 330.26 265.76 162.91	0 0 0 0 0	4,852.72 4,611.58 4,480.83 4,110.14 3,779.88 3,537.11 3,374.20
TOTALS		126.27	1,676.91	0	

#### RELEASES FOR IRRIGATION

All waters stored in the Conservation Pool were first transferred to Agreement Accounts in accordance with the <u>Operating Plan</u>, dated April 24, 1980. Water was then released upon order by the Operations Secretary of the Compact Administration.

#### STATE OF KANSAS

Releases to the State of Kansas were made upon request from their account. In addition, releases were made from both the Transit Loss Account and the Sisson Ditch Account to assist delivery of the Kansas demand to Coolidge, Kansas.

TABLE IX
RELEASES TO STATE OF KANSAS, A.Ft.

	Kansas Agreement Account	Kansas Transit Loss Account:	Sisson Ditch Account	Total Release to Kansas
April May June July August September October	0 0 9,541.67 4,739.36 15,159.03 3,329.29 0	0 0 1,291.66 336.42 3,101.61 0	0 0 0 0 0 506.99 0	0 0 10,833.33 5,075.78 18,767.63 3,329.29 0
TOTALS	32,769.35	4,729.69	506.99	38,006.03

(Added to the minutes of the meeting of 12-14-82 was the statement that 32,769+ A.F. was released and 40,000+ A.F. from all sources arrived at State Line.)

#### STATE OF COLCRADO

Releases to the State of Colorado were made upon individual request of the various ditches in Colorado. Orders were placed with Water Commissioners who then transmitted them to the Operations Secretary. Appropriate transit losses using U.S.G.S. transit loss data for Reach 6 were deducted from diversions.

TABLE X

RELEASES TO STATE OF COLORADO

Month	Acre-Feet
April May June July August September October	16,171.54 11,672.93 4,319.61 3,081.56 19,316.79 3,575.42 814.66
TOTAL	58,952.51

TABLE XI
ALLOCATION OF CONTENTS @ 2400 HOUR, OCT. 31, 1982

Conservation Pool	Agreement Accounts	Permanent Pool	Total
0	8,866.80	3,374.20	12,241.00

Other Water	Kansas	Colorado Ditches
0	1,326.83	7,539.97

#### PRECIPITATION IN INCHES

	Leadville	Salida	Pueblo	Trinidad	Las Animas	Lamar	Garden City Kansas
Nov. 1981	0.87	0.03	0.04	0.38	0.13	0.53	
Dec.	2.41	0.17	0.67	0.44	0.48	0.38	
Jan. 1982	1.65	0.09	0.54	0.20	Trace	0.04	
Feb.	0.38	0.07	0.31	0.68	0.91	0.60	
Mar.	1.66	Buena Vista 0.26	0.33	0.44	0.46	0.51	
April	0.82	0.34	0.13	0.28	0.30	0.45	
May	1.16	ı 1.48	2.28	3.14	1.71	3.96	
June	Sugarloaf 0.88	↓ 0.70	1.75	2.77	4.81	3.11	
July	↓ 2.41	↓ 1.68	2.71	1.80	2.03	2.78	
Aug.	↓ 3.36	2.55	4.35	2.73	0.68	0.87	
Sept.	Leadville 1.77	↓ 2.12	2.24	2.97	1.47	1.47	
0ct	Not Avaialable	Not Available	0.37	Not Available	Not Available	Not Available	

#### JOHN MARTIN RESERVOIR

#### Computed Inflow A.F.

	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.
1	112	237	397	493	384	194	5	1,128	1,199	3,999	1,241	1,305
2	200	394	374	337	248	250	0	858	1,091	1,780	1,174	1,066
3	152	372	401	182	181	98	62	2,730	1,133	801	1,048	1,029
4	176	394	401	152	316	325	141	2,194	1,109	308	1,109	886
5	131	320	290	120	384	0	59	1,226	987	738	1,090	953
6	96	388	289	213	113	155	39	600	1,010	343	7,026	865
7	144	363	318	214	45	162	77	725	1,204	609	1,060	762
8	84	388	235	277	723	49	38	771	1,156	693	. 779	726
9	177	364	317	281	419	35	0	733	1,324	776	974	705
10	159	314	184	318	487	201	167	531	1,142	952	1,104	628
11	139	315	187	350	913	70	94	855	1,318	1,411	1,123	727
12	161	340	215	320	432	97	223	814	1,204	2,587	1,315	794
13	142	358	215	288	46	157	219	951	1,232	806	2,356	835
14	142	331	272	352	81	201	73	836	985	652	2,840	703
15	122	279	330	611	959	125	200	877	992	1,020	1,244	583
16	122	305	272	416	188	38	445	947	907	1,394	1,150	679
17	327	332	301	676	187	64	386	1,032	1,093	1,565	837	642
18	348	252	300	562	328	26	318	1,737	1,043	1,237	898	661
19	164	331	444	463	117	152	393	1,408	1,027	1,210	975	652
20	184	305	449	230	82	25	286	1,048	1,082	994	1,073	668
21	164	334	345	330	187	90	319	1,860	978	1,375	1,223	990
22	123	366	375	430	223	96	296	998	1,020	3,796	1,211	988
23	143	366	256	296	118	126	314	1,338	832	5,910	1,239	.980
24	143	151	345	364	83	94	276	1,230	672	3,856	1,249	906
25	168	70	376	230	153	6	330	1,404	578	1,917	1,255	978
26	87	231	465	363	188	203	360	1,219	554	724	886	896
27	220	313	465	297	119	135	418	1,639	583	617	760	825
28	154	312	345	368	153	21	830	1,325	544	614	<b>7</b> 13	768
29	199	232	573		337	258	797	700	1,158	478	954	769
30	131	258	388		121	0	1,007	1,376	2,702	267	1,230	731
31		285	358		85		958		6,369	739		614
TOTAL	4,814	9,600	10,482	9,533	8,400	3,453	9,130	35,090	38,228	44,168	41,136	25,314