

ANNUAL REPORT  
OF THE  
OPERATIONS SECRETARY

CONCERNING THE  
OPERATION OF JOHN MARTIN RESERVOIR

1984

Submitted to The  
Operations Committee  
ARKANSAS RIVER COMPACT ADMINISTRATION

November 15, 1984

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### WINTER STORAGE

Storage for Water Year 1983-84 in John Martin Reservoir began at 0001 hour, November 1, 1983. At that time the Conservation Pool was empty. The Reservoir contained 67,443.59 A.Ft. This water was distributed as follows: 54,066.62 A.Ft. in Agreement accounts and 13,376.97 A.Ft. in the Recreation Pool. Winter Storage ended at 0200 hour, May 18, 1984. This water was allocated to various accounts as specified in the Operating Plan, adopted by the Arkansas River Compact Administration on April 14, 1980. The following tables reflect the status of the various accounts.

## SUMMER STORAGE

Summer Storage season started at 0200 hour, May 18, 1984. At that time the Conservation Pool was empty. Storage was again declared at 0001 hour, May 26. Storage continued until 0946 hour, July 16. On August 21 at 0001 hour, Storage was declared. The Conservation Pool was declared empty at 0735 hour, Sept. 14. The final storage event of the year began at 1400 hour, Sept. 8, and continued until the end of the Compact year at 2400 hour, October 31. During the last storage period, inflow was in general less than the allowable transfer rate. Therefore, all storage was transferred to accounts and the Conservation Pool was empty at 2400 hour, Oct. 31.

The tables will reveal some modifications approved by the Compact Administration. The Fort Lyon Canal was permitted to deliver to John Martin water by-passed at La Junta and replaced by Adobe Creek Reservoir. The Amity Canal was permitted to use John Martin as an alternate place of summer storage for Great Plains Reservoir water. The Las Animas Consolidated Canal also utilized its allocated space. A small temporary account for augmentation by the Las Animas Golf Course was approved by the Commission.

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	0	6429.78	34.73	0	6395.05
December	6395.05	5235.04	43.81	0	11586.28
January	11586.28	6484.00	0	0	18070.28
February	18070.28	7221.74	116.78	0	25175.24
March	25175.24	14019.02	505.88	0	38688.38
April	38688.38	25107.16	467.40	53995.69	9332.45
May	9332.45	24619.79	67.52	33884.72	(2400 Hr. 5-18) 0
TOTALS		89116.53	1236.12	87880.41	

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	0	1623.00	3.06	0	1619.94
December	1619.94	9873.96	29.67	0	11464.23
January	11464.23	8616.00	0	0	20080.23
February	20080.23	7009.11	127.63	0	26961.71
March	26961.71	602.00	458.37	599.21	26506.13
April	26506.13	12019.55*	493.12	9277.14	28755.42
May	28755.42	0	363.78	0	(2400 Hr. 5-18) 28391.64
TOTALS		39743.62	1475.63	9876.35	

\* 1983 Winter Storage carry-over combined with this account.

TABLE III

Ft. Lyon 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	0	0	0	0	0
December	0	0	0	0	0
January	0	0	0	0	0
February	0	5164.15	15.37	0	5148.78
March	5148.78	2570.66	118.88	0	7600.56
April	7600.56	2195.46	91.88	3428.60	6275.54
May	6275.54	0	79.38	0	(2400 Hr. 5-18) 6196.16
TOTALS		9930.27	305.51	3428.60	

TABLE IV  
Las Animas Consolidated Winter Water

	Contents Beg. of Month A.Ft.	Inflow A.Ft.	Evaporation A.Ft.	Releases A.Ft.	Contents End of Month A.Ft.
November	0	0	0	0	0
December	0	0	0	0	0
January	0	0	0	0	0
February	0	0	0	0	0
March	0	4346.53	46.07	0	4300.46
April	4300.46	0	47.12	1505.16	2748.18
May	2748.18	0	34.79	0	(2400 Hr. 5-18) 2713.39
TOTALS		4346.53	127.98	1505.16	

TABLE V  
Agreement Water

	Contents Beg. of Month A.Ft.	Inflow A.Ft.	Evaporation A.Ft.	Releases A.Ft.	Contents End of Month A.Ft.
November	54066.62	0	542.78	62.37	53461.47
December	53461.47	0	272.90	0	53188.57
January	53188.57	0	0	0	53188.57
February	53188.57	0	263.85	0	52924.72
March	52924.72	0	891.88	0	52032.84
April	52032.84	94598.30	1926.30	3656.62	141048.22
May	141048.22	33884.72	1948.16	13035.82	(2400 Hr. 5-18) 159948.96
TOTALS		128483.02	5845.87	16754.81	

NOTE: Transit loss account contained 13802.76 A.Ft. @ 2400 Hr. 5-18-84.

TABLE VI  
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	13376.97	0	134.43	0	13242.54
December	13242.54	0	67.62	0	13174.92
January	13174.92	0	0	0	13174.92
February	13174.92	0	65.37	0	13109.55
March	13019.55	0	220.92	0	12888.63
April	12888.63	0	217.30	0	12671.33
May	12671.33	0	160.32	0	(2400 Hr. 5-18) 12511.01
TOTALS		0	865.96	0	

TABLE VII

Allocation of Reservoir Contents  
in Acre-Feet

@ 2400 Hr. May 18, 1984

Total Contents	Agreement Water	Compact Water	Winter Water	Permanent Pool Water
172459.97	159948.96	0	0	12511.01

TABLE VIII

Conservation Pool

	Contents, A.F. Beg. Date Shown	Inflow A.F.	Evaporation A.F.		Contents, A.F. End of Month
May 18	0	26,862.03	24.12	11,901.00	14,936.91
June 1	14,936.91	79,754.48	670.35	72,609.86	21,411.18
July 1	21,411.18	31,730.30	173.01	52,968.47	0
Aug. 1	0	42,613.70	145.08	23,828.19	18,640.43
Sept. 1	18,640.43	7,906.85	134.81	26,412.47	0
Oct. 1	0	33,192.73	1,147.29	33,192.44	
TOTALS		222,060.09	1,147.66	220,912.43	

Included in Conservation Pool inflow was a 35 percent storage charge from Fort Lyon Canal's Adobe Creek Reservoir water.

TABLE IX

Permanent Recreation Pool

	Contents, A.F. Beg. Date Shown	Inflow A.F.	Evaporation A.F.	Release A.F.	Contents, A.F. End of Month
May 18	12,511.01	0	127.75	0	12,383.26
June 1	12,383.26	0	339.89	0	12,043.37
July 1	12,043.37	0	368.01	0	11,675.36
Aug. 1	11,675.36	78.09	306.64	0	11,446.81
Sept. 1	11,446.81	0	255.48	0	11,191.33
Oct. 1	11,191.33	2,122.41	103.71	0	13,210.03
TOTALS		2,200.50	1,501.48	0	

The inflow to the recreation pool consisted of a small storage in August under Division of Wildlife's Muddy Creek decree, and purchased trans-mountain water.



The following three accounts have been traditionally labelled as "Winter Water". However, two of these accounts accumulated summer storage this season. Therefore, the designation was changed to "Article III Water", from the authorizing Article in the 1980 Operating Plan, in order to eliminate any confusion relating to the season of storage.

TABLE X

Amity Canal Article III Water

	Contents A.Ft. Beg. Date Shown	Inflow A.Ft.	Evaporation A.Ft.	Release A.Ft.	Contents A.Ft. End of Month
May 18	28391.64	0	289.94	0	28101.70
June 1	28101.70	0	771.38	0	27330.32
July 1	27330.32	17362.68	1039.79	6031.92	37621.29
Aug. 1	37621.29	19423.51	1098.94	6798.23	49147.63
Sept. 1	49147.63	3992.74	1147.86	1397.47	50595.04
Oct. 1	50595.04	28799.68	502.57	10079.88	68812.27
TOTALS		69578.61	4850.48	24307.50	

TABLE XI

Ft. Lyon Canal Article III Water

	Contents A.Ft. Beg. Date Shown	Inflow A.Ft.	Evaporation A.Ft.	Release A.Ft.	Contents A.Ft. End of Month
May 18	6196.16	0	63.27	0	6132.89
June 1	6132.89	0	168.35	0	5964.54
July 1	5964.54	13973.93	407.07	4890.88	14640.52
Aug. 1	14640.52	0	179.97	14460.55	0
Sept. 1	0	0	0	0	0
Oct. 1	0	0	0	0	0
TOTALS		13973.93	818.66	19351.43	

TABLE XII

## Las Animas Consolidated Article III Water

	Contents, A.Ft. Beg. Date Shown	Inflow A.Ft.	Evaporation A.Ft.	Release A.Ft.	Contents, A.Ft. End of Month
May 18	2713.39	0	27.70	0	2685.69
June 1	2685.69	0	73.72	0	2611.97
July 1	2611.97	0	79.79	0	2532.18
Aug. 1	2532.18	0	60.56	336.90	2134.72
Sept. 1	2134.72	0	43.55	1202.00	889.17
Oct. 1	889.17	0	7.88	0	881.29*
TOTALS		0	293.20	1538.90	

\* Transferred to Conservation Pool @ 001 Hr., Nov. 1, 1984  
per Article III-C of 1980 Operating Resolution.

TABLE XIII

Las Animas Consolidated  
for Golf Course Exchange

	Contents, A.Ft. Beg. Date Shown	Inflow A.Ft.	Evaporation A.Ft.	Release A.Ft.	Contents, A.Ft. End of Month
May 18	0	143.88	.03	50.36	93.49
June 1	93.49	125.12	4.71	43.80	170.10
July 1	170.10	0	4.86	17.25	147.99
Aug. 1	147.99	0	3.71	12.34	131.94
Sept. 1	131.94	0	2.89	8.51	120.54
Oct. 1	120.54	0	1.05	2.43	117.06
TOTALS		269.00	17.25	134.69	

TABLE XIV

## Transit Loss Account

	Contents, A.Ft. Beg. Date Shown	Inflow A.Ft.	Evaporation A.Ft.	Release A.Ft.	Contents, A.Ft. End of Month
May 18	13802.76	50.36	140.96	0	13712.16
June 1	13712.16	43.80	323.52	3273.17	10159.27
July 1	10159.27	10940.05*	429.70	6060.18**	14609.44
Aug. 1	14609.44	6810.57	443.86	0	20976.15
Sept. 1	20976.15	1405.98	495.66	0	21886.47
Oct. 1	21886.47	10082.31	223.18	0	31745.60***
TOTALS		29333.07	2056.88	9333.35	

\* Includes 4890.88 A.Ft. of 35% charge on Adobe Creek Reservoir Storage.

\*\* Includes 4890.88 - 33.20 evap. = 4857.68 A.Ft. 35% charge on Adobe Creek Res.  
storage released to Conservation Pool.

\*\*\* Includes 4890.88 A.Ft. of 35% charge on Adobe Creek Reservoir Storage account @ 0001 Hr. 11/1/84

Table XV

Releases to State of Kansas, A.F.

Month	Kansas Agreement Account	Kansas Transit Loss Account	Total Releases to Kansas
May	0	0	0
June	23,818.53	3,273.17	27,091.70
July	17,582.91	1,202.50	18,785.41
August	21,149.07	0	21,149.07
September	29,107.86	0	29,107.86
October	247.94	0	247.94
TOTALS	91,906.31	4,475.67	96,381.98

Table XVI

Releases to State of Colorado, A.F.

MONTH	ACRE FEET
April	3,656.62
May	25,565.14
June	39,269.90
July	33,898.11
August	30,638.33
September	20,255.59
October	2,583.02
TOTAL	155,866.71

Releases to State of Kansas

Release No. 1 to Kansas began at 1500 hours, June 6, at a rate of 500.0 c.f.s. An initial release of 200.0 c.f.s. from the Transit Loss Account was begun at the same time. The transit loss release was gradually reduced to 0 at 1500 hours, June 18. At 1500 hours, June 29, the release rate was cut to 400.0 c.f.s. At 0900 hours, July 5, the demand was cancelled.

Release No. 2 began at 0800 hours, July 10 at a rate of 500.00 c.f.s. A transit loss release of 150.00 c.f.s. was begun at the same time. The transit loss release was reduced to 50 c.f.s. at 0900 hours, July 13, and to 0 at 0900 hours, July 16. The 500.00 c.f.s. release was cancelled at 0900 hours, July 16.

Release No. 3 began at 0900 hours, July 20, at a rate of 500.00 c.f.s. No transit loss water was released. The 500.00 c.f.s. release was cancelled at 1330 hours, July 28.

Release No. 4 was begun at 1100 hours, Aug. 9 at a rate of 400.00 c.f.s. No transit loss water was released. The release was increased to 500.00 c.f.s. at 1100 hours, August 15. A 500.00 c.f.s. release rate was maintained until 0900 hours, Sept. 29, when it was cut to 300.00 c.f.s. At 1000 hours, Oct. 1, the release was cancelled.

TABLE XVII

Releases and Delivery to State Line 1984

Month	Demand	Transit Loss Added	State Line*	Credited*	Delivery
June	23818.53	3273.17	23658.00	22855	-963.53
July	17582.91	1202.50	34797.00	25701	8118.09
August	21149.07		22927.00	22179	1029.93
September	29107.86		31092.00	29898	790.14
October	247.94		6413	4364	4116.06
TOTALS	91906.31			104997	13090.69

\* Includes Flow at Frontier Ditch.

\*\* Computed per Agreement of March 6, 1984.

	Demand	Transit Loss	State Line	Credited	Delivery
June 1 - July 5	27289.66	3273.17	31465	30360	3070.34
July 10 - 16	5991.83	1202.50	9831	6213	221.17
July 20 - 28	8119.95	0	17159	11984	3864.05
Aug. 9 - Oct. 1	50504.87	0	60432	56440	5935.13
TOTAL	91906.31	4475.67	11887	104998	13090.69

Release No. 2 began at 0800 hours, July 10 at a rate of 500.00 c.f.s. A transit loss release of 150.00 c.f.s. was begun at the same time. The transit loss release was reduced to 50 c.f.s. at 0900 hours, July 13, and to 0 at 0900 hours, July 16. The 500.00 c.f.s. release was cancelled at 0900 hours, July 16.

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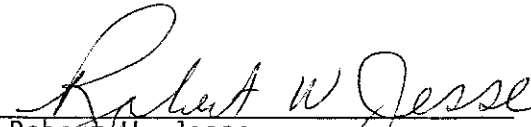
\*\* Computed per Agreement of March 6, 1984.

March 6, 1984

AGREEMENT

1. This Agreement will expire Nov. 1, 1984
2. Kansas and Colorado will cooperate in all release rates to secure the most efficient delivery of water to the Stateline and to Kansas water users.
3. Credit for delivery to Kansas will stop at the Stateline 7 days after the end of the run at John Martin Reservoir. No credit for over-delivery will be carried forward to any subsequent run.
  - 3a. In the event Kansas calls for a second run before the first run's 7 days have elapsed, then there will be a meeting between the Kansas Water Commissioner and the Colorado Division Engineer to establish the delivery.
4. When delivery of water to the Stateline exceeds the demand of 400 to 600 c.f.s., delivery will be computed at not to exceed 105% of daily average flow.
5. 35% of all "other water" will be transferred into Kansas transit loss account. In the event that water in Kansas transit loss account exceeds the transit loss at the end of the irrigation year, the excess balance will be transferred into the Kansas and Colorado storage accounts.

  
Howard Corrigan, Hydrologist  
Kansas State Board of Agriculture  
Division of Water Resources

  
Robert W. Jesse  
Colorado Division Engineer

PRECIPITATION IN INCHES

	Leadville	Buena Vista	Pueblo	Trinidad	Las Animas	Lamar	Garden City Kansas
Nov. 1983	1.18	0.66	0.61	1.61	0.45	0.43	
Dec.	3.51	0.35	0.73	0.89	0.40	0.41	
Jan. 1984	0.17	0.25	0.20	0.14	0.51	0.68	
Feb.	0.27	0.08	Trace	0.97	0.59	1.06	
Mar.	0.98	0.76	1.06	1.99	--	2.09	
April	0.79	0.57	0.69	1.26	1.30	2.15	
May	0.47	0.13	0.24	0.62	2.17	0.82	
June	0.92	0.97	0.31	3.09	0.40	0.21	
July	2.40	1.68	1.68	2.61	1.78	2.73	
Aug.	--	--	--	--	--	--	
Sept.	--	--	--	--	--	--	
Oct.	--	--	--	--	--	--	

JOHN MARTIN RESERVOIR  
 1983-84 Computed Inflow A.F.  
 @ 0001 Hrs.

	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.
1	796			865	565	732	627	4011	2510	686	2195	939
2	571	459		758	323	1009		3838	2385	276	1590	863
3	172	724	441	489	566	271		4475	3322	760	1430	733
4	250	987	344	757	444	324	3109	4940	4613	770	1113	1145
5	341	855	489	435	201	459	3930	4827	4199	948	1873	
6	258	508		435	382	733	3143	5141	2886	740	0	
7	235	768				340	1405	3914	2102	722	345	
8	286	592		489		374	1210	2481	2071	997	749	2701
9	246	791		711	796	937	1061	2032	1127	86	662	1535
10	239	475	586	511	931	1002	937	1880	1370	783	648	1356
11	199	520	902	567	1145	1152	644	2046	200	417	742	1263
12	199	881	503	342	1207	923	683	1021	860	581	262	1883
13	242	610	603	455	1020	1028	1232	967	2087	534	227	1104
14	314		403	511	1082		1296	1500	1549	377	429	1584
15	204	431	154	591		1075	1269	2177	2359	695	225	2375
16	333	340	303	592	708	1073	1038	1546	1044	0	735	3081
17	272	444	403	1615	331	827	1292	1090	1469	519	610	2763
18	463	166	254	320	1625	1004	1016	2978	1156	152	744	1653
19	216	306	503	1036	469	403	2367	3508	1133	132	12990	3446
20	217	353	303	864	533	1377	2141	3045	381	1085	667	3347
21	260		453	875	533	1513	1639	2754	476	2364	640	3273
22	211		303	874	855	1521	1129	1920	525	5381	788	3919
23	244	191	469	875	662	1019	901	1953	228	7317	166	2882
24	246	378	521	757	468	914	1032	1999	856	10090	584	3073
25	331	379	572	699	985	1089	1066	2490	325	5125	363	3153
26	374	332	417	1013	339	658	2702	2252	109	3366	504	3039
27	247	285	572	415	598	692	4091	2215	126	4486	835	2739
28	75	519	623	477		928	4792	2182	804	4909	916	2872
29	289	332	624	487		917		2451	1056	2514	939	3001
30			624		670	896	5655	2289	605	2245	677	2161
31			727		401		4062		160	2160		3805