

MINUTES OF
ARKANSAS RIVER COMPACT ADMINISTRATION

REGULAR MEETING

March 27, 1962

Court House
Lamar, Colorado

Attendance:

For Colorado:

David Jenkins, Las Animas
Hacket Smartt, Lamar

For Kansas:

Logan N. Green, Garden City, Kansas, Vice-Chairman
Carl E. Bentrup, Deerfield, Kansas
R. V. Smrha, Topeka, Kansas

For the United States:

F. M. Bell, Denver, Chairman

Others Attending:

John T. Martin	Corps of Engineers	Albuquerque, N.M.
F. C. Snyder	State Engr. Office-Div. Engr.	Pueblo
Robert A. Buchhagen	Corps of Engineers	John Martin Dam
J. W. Odell	U.S. Geological Survey	Denver
M. J. Greer	U.S. Bureau of Reclamation	Denver
W. C. Fagerquist	U.S. Bureau of Reclamation	Pueblo
R. J. McGrath	Water Comm. #66 & #67	Lamar
Ross W. Moor	U.S. Geological Survey	Lamar
Guy M. Vincent	Kans. Div. of Water Res.	Garden City, Kans.
Don Bogart	Colo. Game & Fish Dept.	Lamar
Floyd Hazzard	Colo. Game & Fish Dept.	Lamar
Donald W. Wurm	Colo. Game & Fish Dept.	Pueblo
F. N. Leatherwood	Ft. Lyon Canal Co.	Las Animas
William Pattie	Twin Lakes Res. & Canal Co.	Ordway
George H. Doak	Twin Lakes Res. & Canal Co.	Olney Springs
William Howland	Amity Mutual Irrig. Co.	Holly
Fred L. Boydston, Jr.	Colo. Water Cons. Board	Denver

The Chairman called the meeting to order at 9:45 A. M. and read a letter from Mr. Kuiper assigning Mr. Boydston to act as his proxy for this meeting. Mr. Smrha reminded the Chairman that the matter of a proposed change to the By-Laws concerning proxy assignments had been referred to the Legal and Administrative Committee and suggested that action on the proxy for Mr. Kuiper be held in abeyance until the Committee report had been made. The Chairman so ordered.

Chairman Bell asked for consideration of the minutes of the adjourned annual meeting held January 23, 1962, and after some discussion the minutes were approved as written upon a motion by Mr. Smartt, seconded by Mr. Green and affirmative votes of the two states.

Mr. Bell then said that the Chairman had no formal report to make at this meeting, but that he had a letter from Colonel Arfman saying that Mr. Buchhagen had been appointed Resident Engineer at John Martin Reservoir.

Mr. Smartt gave the report of the Secretary as follows:

SECRETARY'S REPORT TO MARCH 27, 1962

The Secretary received a postal card on February 7, 1962, from a Mr. Robert Sperry, Law Librarian of the Valparaiso University of Valparaiso, Indiana, asking for copies of our annual reports that were available. He also asked if there were any charges for these reports. I was able to find copies of all the annual reports which I mailed to him and advised him that there were no charges.

On February 19th a letter was received from Mr. Philip A. Danielson regarding a meeting scheduled to be held in La Junta, Colorado, May 18, 1962, by the Arkansas Valley Ditch Association for the purpose of a hearing regarding the transfer of water from the Model Land and Irrigation Company to the proposed Trinidad Reservoir of the Purgatoire Project. Mr. Danielson expressed hope that members of the Compact Administration would be able to attend this meeting. If so, he would like to be notified.

Not having received the Annual Reports to distribute up to this time, this concludes my report.

Respectfully,

/s/ HACKET SMARTT
Hacket Smartt, Secretary
Arkansas River Compact Admn.

Mr. Smartt then gave the report of the Treasurer as follows:

TREASURER'S REPORT TO MARCH 27, 1962

Balance on Hand November 1, 1961 \$ 5,703.06

<u>Voucher No.</u>	<u>Date</u>	<u>Purpose and Payee</u>	
330	1/8/62	M.S.T. & T. Co., Nov. & Dec. service	\$ 31.20
331	1/8/62	Alvin Larsen Co., Auditing 1961 Accounts	65.00
332	1/8/62	Hacket Smartt, Secretary, November & December salary	194.00
333	1/8/62	Treasurer of the U.S.A.- O.A.S.I., 4th Quarter, 1961	18.00
334	3/6/62	M.S.T. & T. Co., Jan. & Feb. service	22.70
335	3/6/62	U. S. Geological Survey - 2nd Qtr. Cooperative Agree- ment	<u>412.50</u>
Total Disbursements this Period			<u>743.40</u>
Balance Funds Available 3/27/62			\$ 4,959.66

A motion by Mr. Smrha, seconded by Mr. Bentrup, to accept the reports of the Secretary and Treasurer was passed by vote of the States.

Mr. Green reported for the Administrative and Legal Committee and requested that a written report which follows be accepted for inclusion in the minutes:

REPORT OF ADMINISTRATIVE AND LEGAL COMMITTEE

At the request of the Administration, your committee hereby tenders a written report supplementing the oral report made at the March 1962 meeting.

The question submitted to this committee was whether or not the Administration may lawfully amend its By-Laws to provide for the appointment of a proxy by a member who fails to attend the meeting.

It is our understanding that the proposed amendment would authorize a proxy for all purposes. In other words,

the proxy would have authority to act and vote generally in the place of the absent member.

After careful consideration, your committee feels compelled to answer this question in the negative.

To adopt such amendment would, in our opinion, be the granting of the right of a member to delegate to another the duties which such member was appointed to fulfill, not only ministerial duties but also duties involving discretion and judgment.

We have no doubt that the Administration or any member thereof may delegate to another such duties as are merely ministerial. In fact Article VIII Paragraph F of the Compact authorizes the Administration to "employ" engineering, legal, clerical and other aid, etc., but adds "such employees shall be paid by and be responsible to the Administration and shall not be considered to be employees of either state".

Such provision makes it clear that the Administration as constituted and the individual members thereof are burdened with the sole responsibility of all questions involving discretion and judgment and such duties cannot be delegated to a proxy who is in fact a mere agent acting for an absent member.

The following is quoted from 42 American Jurisprudence under the topic "Public Administrative Law", page 387, Paragraph 73:

"It is a general principal of law, expressed in the maxim 'delegatus non potest delegare', that a delegated power may not be further delegated by the person to whom such power is delegated. Apart from statute, whether administrative officers in whom certain powers are vested or upon whom certain duties are imposed may deputize others to exercise such powers or perform such duties usually depends upon whether the particular act or duty sought to be delegated is ministerial, on the one hand, or, on the other, discretionary or quasi-judicial. Merely ministerial functions may be delegated to assistants whose employment is authorized, but there is no authority to delegate acts discretionary or quasi-judicial in nature. Authority from the legislature is necessary to the power of a commission to appoint a general deputy who may exercise quasi-judicial powers. If such deputy may be appointed or the commission is

given authority by the legislature to depute quasi-judicial matters to others, it may do so. Statutory authority to a commission to employ agents, statisticians, experts, attorneys, and such other assistants and employees as may be necessary to perform its duties does not give the commission authority, either directly or by implication, to depute those matters which are quasi-judicial in character."

NOTE: The Latin phrase quoted in the above paragraph is defined by Blacks Law Dictionary page 546 as follows:

"Delegatus non potest delegare. A delegate cannot delegate; an agent cannot delegate his functions to a subagent without the knowledge or consent of the principal; the person to whom an office or duty is delegated cannot lawfully devolve the duty on another, unless he be expressly authorized so to do."

Quasi-judicial is defined by Words and Phrases as follows:

"A quasi-judicial power is one imposed upon an officer or a board involving the exercise of discretion, judicial in its nature, in connection with and as incidental to the administration of matters assigned or entrusted to such officer or board."

The case of Moore vs. Wilson reported in Volume 84, Kansas Reports, page 745, was one in which the livestock commissioner appointed a deputy to ascertain whether certain livestock were afflicted with infectious diseases and, if so, to establish a quarantine. This was a duty imposed upon the livestock commissioner and there was no authority granted by the legislature for the appointment of a deputy. Syllabus No. 1 to such case reads as follows:

"Ordinarily, official duties of a ministerial character may be delegated to another, but those involving the exercise of judgment and discretion may not be entrusted to a deputy or other person, unless legislative authority to do so is given."

In Mechem's Public Offices, Section 567 it is said:

"In those cases in which the proper execution of the office requires, on the part of the officer, the exercise of judgment or discretion, the presumption is that he was chosen because he was deemed fit and competent to exercise that judgment and discretion and, unless power to substitute another in his place has been given to him, he cannot delegate his duties to another."

There are many decided cases holding to the same effect as the above and the rule seems to be universal in its application, as we can find no exceptions.

There is nothing in the Compact which would authorize the Administration, or any member thereof, to act by proxy upon any matter involving judgment or discretion and for the foregoing reasons, we conclude that the amendment as offered is improper and should not be adopted.

/s/ LOGAN N. GREEN
Chairman

After some discussion during which Mr. Green proposed that action on the report be deferred until Mr. Kuiper was present, Mr. Smartt moved that action on the subject of a change in the By-Laws with respect to proxies be postponed until the next meeting of the Administration. The motion was seconded by Mr. Bentrup and subsequently passed.

Mr. Smrha reported for the Engineering Commmttee and said that the assignment to determine the effect of small pond construction on water supply was being studied by the Colorado Water Conservation Board, and although the study was complete, some field observations would be made this summer and therefor additional time is requested for this report until the Annual Meeting. With relation to the assignment to study reservoir operations, Mr. Smrha gave the results of the operation studies and said he would like to file a formal report for inclusion in the minutes. The report is herewith attached as Exhibit A to these minutes. After some discussion on the operating problems and timing of releases the report of the Engineering Committee was accepted by vote of the states on a motion by Mr. Green and seconded by Mr. Smartt.

Mr. Bentrup gave the report of the Operations Committee as follows:

OPERATIONS COMMITTEE REPORT
March 27, 1962

The gates at the Reservoir were closed at 8:00 A. M. November 1, 1961, at which time the reservoir was empty. Storage at 8:00 A. M. January 23, 1962, 19,030 acre-feet. Water in Storage at 12:00 A. M. March 27th, 34,019 acre-feet.

Respectfully submitted,

CARL BENTRUP
Chairman

Mr. Smartt read the letter from Mr. Danielson informing the Administration of a meeting to be held in La Junta the evening of May 18, 1962, to discuss the proposed transfer of the Model storage right to Trinidad Reservoir, and inviting the members of the Administration to attend. Discussion ensued and resulted in a motion by Mr. Smrha that the Chairman shall attend the meeting and officially represent the Administration. The motion was seconded by Mr. Green and passed by vote of the states. The Secretary was instructed to notify Mr. Danielson that the Administration will be represented at the meeting.

Mr. Bell said that a proposed amendment to the By-Laws has been included in the notice of this meeting and should be considered at this time. Mr. Green moved and Mr. Jenkins seconded the motion that Paragraph 7, Article IV of the By-Laws be amended to read as follows:

- "7. A quorum for any meeting of the Administration and the casting of votes by representatives of the States on the Administration shall be in accord with Paragraph D of Article VIII of the Arkansas River Compact; and any action by the Administration shall be determined by vote as required by such Paragraph D of Article VIII of the Compact. If a quorum is not present at any meeting, the members of the Administration present, one or more, may adjourn from time to time without further notice until a quorum is obtained."

The motion passed by vote of the two states.

Mr. Jenkins questioned what had been done about checking the diversions both above and below John Martin Reservoir. Mr. Moor said that he has inspected the measuring devices below John Martin Reservoir and that there has been no improvement on the X. Y. Canal;

the Manvel Canal flume is not level and is virtually inoperative; and the Keesee flume has no bottom in it. The others appear to be in good shape. Mr. Bentrup said that the Operations Committee will schedule further inspections soon, but he questioned the value of these inspections if repairs are not made. Mr. McGrath said the Keesee has promised to make repairs, and he also reviewed the conditions of the measuring devices. In the general discussion which followed it was brought out that the X. Y. has received help from the U. S. G. S. and the Soil Conservation Service, and it is thought that they now have the equipment necessary to make the repairs. Mr. Jenkins said that there are violations above the reservoir and cited several small diversions that he thinks are illegal. He said that many people in his district have asked him to have the Administration do something about the situation. He advocated hiring such legal, clerical or engineering help necessary to study this problem. Discussion ensued on the responsibility of the State Engineer to enforce these laws and how an inspection is probably needed to determine the seriousness of the situation. Mr. Bentrup said the Operations Committee will file a report on their inspection at the next meeting.

Mr. Bell introduced Mr. Odell, the newly appointed District Engineer in the Colorado District of the U. S. Geological Survey.

Mr. Greer said he wanted to report that work is in progress on operating criteria for the Trinidad Project.

Mr. Martin reported that progress is being made on a resurvey of John Martin Reservoir and the degradation of the channel downstream from the Reservoir. The revised records of the reservoir capacity will be available when the resurvey is completed, and a sedimentation report will be made current.

Mr. Snyder said that forecasts made on snow pack appear to indicate that the runoff should be good this year. He also said that an item in a Pueblo newspaper reported that hearings on the Model Reservoir transfer have been continued to August 20th.

Mr. Vincent said that a recent report on a local Kansas radio station had been that John Martin Reservoir was full. He had corrected the report.

Mr. Green said that he would like to suggest that the By-Laws be changed to eliminate regular meetings of the Administration and have a requirement for only an annual meeting and all others be called meetings. He said he would like the opinions of the other members on this. After some discussion, it was agreed that the

Legal Committee would draw up necessary changes to Article IV of the By-Laws eliminating references to all regular meetings and the suggested changes would be sent out with notices of the next meeting.

Mr. Green also said that he had been talking with former members of the Administration and they had indicated that they would like to attend one of the meetings, and he therefor suggested that a special meeting be held at the Broadmoor Hotel in Colorado Springs. Discussion ensued and it was eventually agreed to adjourn the regular meeting of July 24, and hold an adjourned meeting at the Broadmoor Hotel, Friday, September 21, at 10:00 A. M. A possible program suggested would be to conduct the regular business of the Administration in the morning and leave the afternoon free to have remarks from the former members, the Governors of Colorado and Kansas, and other visitors to the meeting.

Mr. Smrha said that since the July meeting will be postponed, he desired that the Secretary send him a preliminary copy of the proposed budget as soon after June 30 as possible. Mr. Smartt agreed to do this. Mr. Odell said that it may be necessary to increase the participation of the Administration because the Las Animas station is not good and some channel work may have to be done, and also there is a bill before Congress to increase salaries.

Mr. Smartt said that Mr. McGrath had suggested to him that the old radio gage removed from the station below the dam be installed at the Lamar gage. In the discussion following, Mr. Moor said that this was not possible since parts had been robbed from the radio to repair the others. Mr. Smrha suggested, and it was agreed, that Mr. Smartt should continue reading the gage at Lamar as before. Mr. Bell suggested that consideration should be given to having a telmark gage installed there.

Mr. Howland reported that the Amity would probably not call for reservoir water until about April 15. Mr. McGrath said that most of the ditches will not call for water until about April 15. Mr. Bentrup said that Kansas ditches do not contemplate calling for water right away, and asked Mr. Smartt to notify him immediately when a call is made by Colorado.

The meeting adjourned at 11:35 A. M.

EXHIBIT A

Report of Engineering Committee Arkansas River Compact Administration March 27, 1962

Pursuant to the assignment made to the Engineering Committee by the Administration at their meeting on July 25, 1961, a study has been made of the 1961 irrigation season operations. The results of this study are tabulated in the accompanying computation.

During the 1961 irrigation season, there were three periods in which stored water was released from John Martin Reservoir.

The first period began at 9:00 a.m. on April 3, 1961, when Kansas made a request for delivery of 200 second-feet at the Stateline. This request was increased to 300 second-feet at 8:00 a.m. on April 12, 1961, and continued in effect until the reservoir was emptied at 7:30 p.m. on April 28, 1961. Colorado first made a request for release of water at 9:00 p.m. on April 11, 1961. The records show, however, that diversions ranging from 20 to 48 second-feet were being made in Colorado during the preceding 10 days. Subsequent requests for increased releases were made by Colorado on April 14, 17, 20 and 21 and remained effective until the reservoir was emptied on April 28, 1961.

In the 26-day period, April 3-28, Kansas requests for delivery of water at the Stateline were met on only 4 days. The first of these was not until the 12th day after the initial Kansas request on April 3. The other 3 days were on the 15th to 17th day, inclusive, after the Kansas request on April 12 for increased deliveries at the Stateline. Normally 3 days' time is allowed for water released from John Martin Reservoir to reach the Stateline.

During the 18-day period, April 11-28, Colorado demands exceeded the requested releases on all but 6 days. These demands were greater by as much as 74 c.f.s. (20%) on April 15 and 182 c.f.s. (41%) on April 28.

The second and third periods in June and August were much shorter than the one in April. In June releases began at 8:30 a.m. on the 19th at the request of Colorado. On June 22 Kansas requested delivery at the Stateline. Both requests continued until the reservoir was emptied at 10:00 p.m. on June 27, 1961. During this period, Kansas requests were met on 4 days and Colorado demands exceeded the requested releases on 2 days.

The third period of releases began at 8:30 a.m. on August 13 at the request of Colorado. At 8:30 a.m. on August 15, Kansas requested delivery of water at the Stateline. The reservoir was emptied at 1:00 a.m. on August 18, 1961. During this period, Colorado demands exceeded requests on 3 days and Kansas requests were met on 2 days by Stateline flow.

From the results of this operation study it is concluded as follows:

1. When only Kansas has a request for delivery, such as during the period April 3-11, 1961, reservoir releases generally are insufficient to meet those requests at the Stateline.

2. After two to three days of releases the extent of any needed adjustments should become apparent and operations should be modified as necessary to meet the Kansas requests.

3. When Stateline flows do not meet Kansas requests, it will be necessary to improve operation and administration procedures by (a) increasing releases from the reservoir, (b) limiting Colorado diversions to the amount of their requests or, (c) some combination of (a) and (b).

Respectfully submitted,

Engineering Committee
Arkansas River Compact Administration

/s/ L. R. Kuiper
L. R. Kuiper, Member

/s/ R. V. Smrha
R. V. Smrha, Chairman

ARKANSAS RIVER COMPACT ADMINISTRATION

DAILY OPERATIONS STUDY

Month of *April*, 1961

Sheet 1 of 3

	1	2	3	4	5	6	7
	Reservoir Inflow				Authorized Demands For Releases		
Date	John Martin	Arkansas	Purgatoire	Total	To Colorado	To Kansas	Total
	Reservoir Storage	River at Las Animas	River near Las Animas	Inflow to Reservoir	at the Dam	at the Stateline	Authorized Demands
	ac. ft.	c.f.s.	c.f.s.	c.f.s.	c.f.s.	c.f.s.	c.f.s.
1	22,374	23	55	78	828	500	1,328
2	22,625	24	47	71	821		1,321
3	22,534	23	47	70	820		1,320
4	22,488	20	45	65	815		1,315
5	22,420	20	45	65	815		1,315
6	22,328	20	53	73	823		1,323
7	22,260	21	53	74	824		1,324
8	22,031	23	44	67	817		1,317
9	21,944	26	67	93	843		1,343
10	21,879	24	85	109	859		1,359
11	21,814	23	87	110	860		1,360
12	21,226	26	95	121	871		1,371
13	20,378	21	171	192	942	500	1,442
14	19,609	16	154	170	770	400	1,170
15	18,721	16	178	194	794		1,194
16	17,895	17	182	199	799		1,199
17	16,912	19	138	157	757		1,157
18	15,836	15	168	183	783		1,183
19	14,692	9.4	144	153	753		1,153
20	13,401	8.8	93	102	702		1,102
21	11,981	8.2	75	83	683		1,083
22	10,634	8.2	94	102	702		1,102
23	9,126	10	57	67	667		1,067
24	7,654	9.4	35	44	644		1,044
25	6,035	7.0	18	25	625		1,025
26	4,317	7.0	2.0	14	614		1,014
27	2,533	7.6	4.2	12	612		1,012
28	Empty 7:30 p.m. 0	7.0	3.2	10	610	400	1,010
29	0	8.8	3.9	13			
30	0	10	2.5	12			
31							

Totals

ARKANSAS RIVER COMPACT ADMINISTRATION

DAILY OPERATIONS STUDY

Month of *April*, 1961

Sheet 2 of 3

8	9	10	11	12	13	14
John Martin	Arkansas	Hyde Ditch	9-10	8-11	Outflow from	11-13
Reservoir	River at	Diversion	Outflow	Colorado	Reach #2	Colorado
Outflow	Lamar		from	Demand	Stateline	Demand
			Reach #1	Reach #1	Flow	Reach #2
	1-day lag	1-day lag			3-day lag	
c.f.s.	c.f.s.	c.f.s.	c.f.s.	c.f.s.	c.f.s.	c.f.s.
36	18	0				
36	17					
49	57		57	-8	114	-57
105	91		91	14	124	-33
108	95		95	13	155	-60
108	110		110	-2	190	-80
162	197		197	-35	190	7
168	167		167	1	185	-18
144	162		162	-18	175	-13
147	160		160	-13	180	-20
147	78	0	78	69	190	-112
372	151	3	148	224	270	-122
604	207	3	204	400	246	-42
628	234	3	231	397	234	-3
646	202	3	199	447	212	-13
640	216	3	213	427	258	-45
709	278	3	275	434	246	29
742	284	5	279	463	244	35
735	270	5	265	470	246	19
774	281	5	276	498	257	19
808	297	3	294	514	288	6
830	295	5	290	540	263	27
808	292	5	287	521	268	19
822	311	5	306	516	299	7
838	319	5	314	524	324	-10
830	336	5	331	499	336	-5
875	341	5	336	539	226	110
754	136	5	131	623	127	4
48	16	5				
36	14	5				

ARKANSAS RIVER COMPACT ADMINISTRATION

DAILY OPERATIONS STUDY

Month of *April*, 1961

Sheet 3 of 3

15	16	17	18	19	20	21	
12+14	Stateline	15+16					
Total	Flow on	Total	Colorado	Reported	Stateline	Kansas	Date
Colorado-	Days of	Actual	Diversions	Colorado	Flow	Demand	
Demand	Kansas	Demand	W. D. 67	Demands			
	3-day lag						
c.f.g.	c.f.g.	c.f.g.	c.f.g.	c.f.g.	c.f.g.	c.f.g.	
			20		100		1
			20		104		2
-65	114	49	20		104	9:00 a.m. 125	3
-19	124	105	20		104	200	4
-47	155	108	20		97	200	5
-82	190	108	32		114	200	6
-28	190	162	48		124	200	7
-17	185	168	48		155	200	8
-31	175	144	48		190	200	9
-33	180	147	48		190	200	10
-43	190	147	198	9:00 p.m. 45	185	200	11
102	270	372	418	350	175	8:00 a.m. 265	12
358	246	604	417	350	180	300	13
394	234	628	492	8:30 a.m. 355	190	300	14
434	212	646	492	360	270	300	15
382	258	640	501	360	246	300	16
463	246	709	506	8:30 a.m. 420	234	300	17
498	244	742	502	450	212	300	18
489	246	735	510	450	258	300	19
517	257	774	556	8:30 a.m. 480	246	300	20
520	288	808	574	1:30 p.m. 520	244	300	21
567	263	830	583	550	246	300	22
540	268	808	583	550	257	300	23
523	299	822	586	550	288	300	24
514	324	838	586	550	263	300	25
494	336	830	586	550	268	300	26
649	226	875	586	550	299	300	27
627	127	754	371	Empty 7:30 p.m. 445	324	Empty 7:30 p.m. 245	28
			221		336		29
			165		226		30
					127 (shut)		31

ARKANSAS RIVER COMPACT ADMINISTRATION

DAILY OPERATIONS STUDY

Month of *June*, 1961

Sheet 1 of 3

	1	2	3	4	5	6	7
	Reservoir Inflow				Authorized Demands For Releases		
Date	John Martin Reservoir Storage	Arkansas River at Las Animas	Purgatoire River near Las Animas	Total Inflow to Reservoir	To Colorado at the Dam	To Kansas at the Stateline	Total Authorized Demands
	ac. ft.	c.f.s.	c.f.s.	c.f.s.	c.f.s.	c.f.s.	c.f.s.
1	0	492	0.9	493			
2	0	720	4.6	725			
3	<i>Gates Closed</i> 10:30 a.m. 417	1080	57	1140	1100	650	1750
4	3835	920	23	943	1100	650	1750
5	5459	254	42	296	896	400	1296
6	6258	172	27	199	799	400	1199
7	6870	226	34	260	860	400	1260
8	7474	113	70	183	783	400	1183
9	7731	76	45	121	721	400	1121
10	8080	48	48	96	696	400	1096
11	8317	41	42	83	683	400	1083
12	8540	41	36	77	677	400	1077
13	8708	45	36	81	681	400	1081
14	8889	47	29	76	676	400	1076
15	msg.	58	44	102	702	400	1102
16	9353	24	55	79	679	400	1079
17	9578	26	45	71	671	400	1071
18	9805	26	80	106	706	400	1106
19	9654	20	65	89	689	400	1089
20	9126	19	22	41	641	400	1041
21	8708	19	10	29	629	400	1029
22	7870	21	11	32	632	400	1032
23	6574	11	6.0	17	617	400	1017
24	5388	10	7.0	17	617	400	1017
25	3976	38	6.5	44	644	400	1044
26	2312	28	6.5	34	634	400	1034
27	<i>Empty</i> 10:30 p.m. 0	23	9.5	32	632	400	1032
28		210	3.9	214			
29		392	2.3	394			
30		430	2.1	432			
31							

Totals

ARKANSAS RIVER COMPACT ADMINISTRATION

DAILY OPERATIONS STUDY

Month of *June*, 1961

Sheet 2 of 3

8	9	10	11	12	13	14
			9-10	8-11		11-13
John Martin	Arkansas	Hyde Ditch	Outflow	Colorado	Outflow from	Colorado
Reservoir	River at	Diversion	from	Demand	Reach #2	Demand
Outflow	Lamar		Reach #1	Reach #1	Stateline	Reach #2
					Flow	
c.f.s.	1-day lag c.f.s.	1-day lag c.f.s.	c.f.s.	c.f.s.	3-day lag c.f.s.	c.f.s.
415	162					
526	984					
324	370					
5.7	107					
3.6	64					
3.6	52					
3.6	45					
3.6	41					
3.6	37					
3.0	32					
2.8	32					
2.6	32					
2.6	33					
2.3	17					
2.3	8.0					
2.6	7.0					
2.6	7.0					
2.6	7.5					
171	27					
304	49					
300	41					
425	162	5	157	268	153	4
616	176	7	169	447	173	-4
670	169	7	162	508	220	-58
652	158	7	151	501	218	-67
728	247	7	240	488	203	37
768	111	7	104	664	87	17
146	12					
248	15					
345	12					

Gates
opened
8:30 a.m.

ARKANSAS RIVER COMPACT ADMINISTRATION

DAILY OPERATIONS STUDY

Month of June, 1961

Sheet 3 of 13

15	16	17	18	19	20	21	
12+14	Stateline	15+16					
Total	Flow on	Total	Colorado	Reported	Stateline	Kansas	Date
Colorado	Days of	Actual	Diversions	Colorado	Flow	Demand	
Demand	Kansas	Demand	W. D. 67	Demands			
	3-day lag						
c.f.s.	c.f.s.	c.f.s.	c.f.s.	c.f.s.	c.f.s.	c.f.s.	
					32		1
					160		2
					1950		3
					2650		4
					887		5
					638		6
					412		7
					480		8
					293		9
					239		10
					194		11
					166		12
					161		13
					161		14
					151		15
					161		16
					141		17
					131		18
171		171	246	8:30 a.m. 195	130		19
304		304	290	300	117		20
300		300	304	300	107		21
272	153	425	412	300	104	8:30 a.m. 130	22
443	173	616	571	500	73	200	23
450	220	670	576	500	96	200	24
434	218	652	573	500	153	200	25
525	203	728	590	8:30 a.m. 530	173	200	26
681	87	768	435	Empty 10:00 p.m. 505	220	Empty 10:00 p.m. 185	27
					218		28
					203		29
					87		30
							31

ARKANSAS RIVER COMPACT ADMINISTRATION

DAILY OPERATIONS STUDY

Month of *August*, 1961

Sheet 1 of 3

	1	2	3	4	5	6	7
		Reservoir Inflow			Authorized Demands For Releases		
Date	John Martin	Arkansas	Purgatoire	Total	To Colorado	To Kansas	Total
	Reservoir Storage	River at Las Animas	River near Las Animas	Inflow to Reservoir	at the Dam	at the Stateline	Authorized Demands
	ac. ft.	c.f.s.	c.f.s.	c.f.s.	c.f.s.	c.f.s.	" c.f.s.
1	0	106	42	110			
2		102	42	106			
3		268	18	286			
4		537	100	637			
5		304	175	479			
6		385	129	514			
7		404	111	515			
8		345	92	437			
9		335	105	440			
10		411	32	443			
11		506	111	617			
12	0	607	198	805			
13	1,060	2,000	135	2,140	1,100	650	1,750
14	3,091	154	117	271	871	400	1,271
15	3,082	108	171	279	879	400	1,279
16	1,798	99	188	287	887	400	1,287
17	0	76	114	190	790	400	1,190
18	Empty 1:00 a.m.	189	95	284			
19		506	155	661			
20		370	143	513			
21		385	123	508			
22		360	95	455			
23		299	70	369			
24		290	29	319			
25		263	16	279			
26		226	8.6	235			
27		185	5.5	190			
28		202	4.2	206			
29		280	19	299			
30		386	57	443			
31	0	248	20	268			

Totals

ARKANSAS RIVER COMPACT ADMINISTRATION

DAILY OPERATIONS STUDY

Month of *August*, 1961

Sheet 2 of 3

8	9	10	11	12	13	14
			9-10	8-11		11-13
John Martin	Arkansas	Hyde Ditch	Outflow	Colorado	Outflow from	Colorado
Reservoir	River at	Diversion	from	Demand	Reach #2	Demand
Outflow	Lamar		Reach #1	Reach #1	Stateline	Reach #2
					Flow	
c.f.s.	1-day lag c.f.s.	1-day lag c.f.s.	c.f.s.	c.f.s.	3-day lag c.f.s.	c.f.s.
159	65					
192	11					
120	15					
420	32					
568	36					
598	26					
526	24					
460	41					
435	51					
405	55					
480	82					
622	226					
520	44					
415	34					
628	265	0	265	363	480	7215
830	330	0	330	500	498	7168
860	325	0	325	535	302	23
363	51					
446	82					
634	69					
574	60					
532	32					
430	23					
386	12					
322	7.5					
276	7.5					
213	7.5					
220	6.0					
256	5.0					
386	6.0					
381	5.5					

ARKANSAS RIVER COMPACT ADMINISTRATION

DAILY OPERATIONS STUDY

Month of *August*, 1961

Sheet 3 of 3

15	16	17	18	19	20	21	
12+14	Stateline	15+16					
Total	Flow on	Total	Colorado	Reported	Stateline	Kansas	Dat
Colorado	Days of	Actual	Diversions	Colorado	Flow	Demand	
Demand	Kansas	Demand	W. D. 67	Demand			
	3-day lag						
c.f.s.	c.f.s.	c.f.s.	c.f.s.	c.f.s.	c.f.s.	c.f.s.	
					29		1
					34		2
					40		3
					36		4
					32		5
					34		6
					41		7
					37		8
					76		9
					68		10
					59		11
					63		12
520		520	476	8:30 a.m. 260	555		13
415		415	512	400	414		14
148	480	628	589	400	224	8:30 a.m. 260	15
332	498	830	562	9:00 a.m. 430	173	400	16
558	302	860	448	450	271	400	17
				Empty 1:00 a.m.	480	Empty 1:00 a.m.	18
					498		19
					302		20
					250		21
					266		22
					253		23
					216		24
					194		25
					171		26
					138		27
					96		28
					62		29
					59		30
					57		31

ARKANSAS RIVER COMPACT ADMINISTRATION
DAILY OPERATIONS STUDY
COMPUTATION PROCEDURE

Column 1 - John Martin Reservoir Storage

Storage in acre-feet as shown on the "Daily Report of Operation of John Martin Reservoir".

Used to determine the "Authorized Demands" under the provisions of Article V, Paragraphs B, C, and E of the Compact.

Table I may be used when storage in the reservoir is more than 20,000 acre-feet, and Table II when storage in the reservoir is less than 20,000 acre-feet.

Column 2 - Arkansas River at Las Animas

Discharge in second-feet at the gaging station as determined by the U. S. Geological Survey.

Column 3 - Purgatoire River near Las Animas

Discharge in second-feet at the gaging station as determined by the U. S. Geological Survey.

Column 4 - Total Inflow to Reservoir

Is the measure of "river flow" as defined in Article III, Paragraph H, of the Arkansas River Compact.

Computed as the sum of Column 2 and Column 3. Entered into Table I or Table II to determine "Authorized Demands".

Column 5 - Authorized Demand for Release to Colorado at the Dam

Is the demand for release to which Colorado is entitled under the provisions of Article V, Paragraphs B, C, and E(3) of the Compact.

Taken from Table I or Table II opposite the appropriate inflow to the reservoir as shown in Column 4.

Column 6 - Authorized Demand for Release to Kansas at Stateline

Is the demand for release to which Kansas is entitled under the provisions of Article V, Paragraphs B, C, and E(3) of the Compact.

Taken from Table I or Table II opposite the appropriate inflow to the reservoir as shown in Column 4.

Column 7 - Total Authorized Demands

Is the sum of Column 5 and Column 6.

Column 8 - John Martin Reservoir Outflow

Discharge in second-feet at the gaging station below John Martin Reservoir as determined by the U. S. Geological Survey.

Column 9 - Arkansas River at Lamar

Discharge in second-feet at the gaging station at Lamar as determined by the U. S. Geological Survey.

Allowance is made for travel time of one day for water released from the reservoir to reach the Lamar gage or a one-day lag.

Column 10 - Hyde Ditch Diversion

Diversion in second-feet from tabulation of daily diversions as given by the Colorado Water Conservation Board. One-day lag or time of travel from the dam to the diversion point of the Hyde Ditch.

Column 11 - Outflow from Reach #1

Discharge of the Arkansas River in second-feet below the diversion point of the Hyde Ditch.

Computed by subtracting Column 10 from Column 9.

Column 12 - Colorado Demand Reach #1

The "Demand," in second-feet, on John Martin Reservoir by Colorado diversions in that section of the Arkansas River between John Martin Dam and a point immediately below the Hyde Ditch diversion point.

Computed by subtracting Column 11 from Column 8.

Column 13 - Outflow from Reach #2, Stateline Flow

Is the sum of the discharges in second-feet of the Arkansas River near Coolidge and the Frontier Ditch near Coolidge as determined by the U. S. Geological Survey.

Allowance is made for travel time of three days for water released from the reservoir to reach the Stateline or a three-day lag.

Column 14 - Colorado Demand Reach #2

The "Demand," in second-feet, on John Martin Reservoir by Colorado diversions in that section of the Arkansas River between a point immediately below the Hyde Ditch diversion point and the Stateline.

Computed by subtracting Column 13 from Column 11.

Column 15 - Total Colorado Demand

The "Demand," in second-feet, on John Martin Reservoir by all Colorado diversions below the reservoir.

Computed by adding Column 12 to Column 14.

On days of no demand by Kansas, the total Colorado Demand is equal to the outflow of John Martin Reservoir as given in Column 8.

Column 16 - Stateline Flow on Days of Kansas Demand
Is the same as defined for Column 13.

Column 17 - Total Actual Demand
The "Total Demand" on John Martin Reservoir is the sum of "Total Colorado Demand" and the "Stateline Flow on Days of Kansas Demand".

Computed by adding Column 15 and Column 16 and equals the outflow from John Martin Reservoir as given in Column 8.

On days of no demand by Kansas, the "Total Actual Demand" is equal to the "Total Colorado Demand" as given in Column 15.

Column 18 - Colorado Diversions W. D. 67
The sum of diversions by all ditches and canals in Colorado Water District 67, as defined by Article III, Paragraph G of the Arkansas River Compact.

Computed with no lag between the time of release of water from the reservoir and the time of diversions of the Ft. Bent and Keesee canals; one-day lag time for diversions by the Amity, Lamar and Hyde canals; and, two-day lag time for diversions by the remaining 5 canals in Water District 67.

Column 19 - Reported Colorado Demands
The requests for releases as made by the authorized representative of the water users in Colorado.

Column 20 - Stateline Flow
The sum of the discharges in second-feet of the Arkansas River near Coolidge and the Frontier Ditch near Coolidge as determined by the U. S. Geological Survey.

Tabulated without an allowance for lag in time of travel of water released from John Martin Reservoir.

Column 21 - Kansas Demand
The request from the authorized representative of the water users in Kansas for delivery of water to which Kansas is entitled at the Stateline.

ARKANSAS RIVER COMPACT ADMINISTRATION

AUTHORIZED DEMANDS FOR RELEASES FROM JOHN MARTIN RESERVOIR Under the Provisions of Article V, Paragraphs B, C, and E(3)

Table I
Storage More Than 20,000 Acre-feet

Inflow Into John Martin Reservoir c.f.s.	Authorized Demands For Releases		
	To Colorado at John Martin Dam c.f.s.	To Kansas at Stateline c.f.s.	Total Authorized Demands c.f.s.
0	750	500	1,250
50	800	500	1,300
100	850	500	1,350
150	900	500	1,400
200	950	500	1,450
250	1,000	500	1,500
300	1,050	500	1,550
350	1,100	500	1,600
400	1,150	500	1,650
450	1,200	500	1,700
500	1,250	500	1,750
550	1,250	550	1,800
600	1,250	600	1,850
650	1,250	650	1,900
700	1,250	700	1,950
750	1,250	750	2,000
Over 750	1,250	750	2,000

ARKANSAS RIVER COMPACT ADMINISTRATION

AUTHORIZED DEMANDS FOR RELEASES FROM JOHN MARTIN RESERVOIR Under the Provisions of Article V, Paragraphs B, C, and E(3)

Table II
Storage Less Than 20,000 Acre-feet

Inflow Into John Martin Reservoir c.f.s.	Authorized Demands For Releases		
	To Colorado at John Martin Dam c.f.s.	To Kansas at Stateline c.f.s.	Total Authorized Demands c.f.s.
0	600	400	1,000
50	650	400	1,050
100	700	400	1,100
150	750	400	1,150
200	800	400	1,200
250	850	400	1,250
300	900	400	1,300
350	950	400	1,350
400	1,000	400	1,400
450	1,050	400	1,450
500	1,100	400	1,500
550	1,100	450	1,550
600	1,100	500	1,600
650	1,100	550	1,650
700	1,100	600	1,700
750	1,100	650	1,750
Over 750	1,100	650	1,750

Colorado Water District 67

Month of *April*, 1961

Canal Diversions in Cfs.

Date	No Lag		1-Day Lag			2-Day Lag					Totals
	Pt. Bent	Keesee	Amity	Lamar	Hyde	Manvel	X. Y.	Graham	Buffalo	Sisson	
1	0	0	0	0	0	0	0	0	20	0	20
2									20		20
3									20		20
4									20		20
5									20		20
6									32		32
7									48		48
8									48		48
9									48		48
10			0						48		48
11	0		150		0		0		48		198
12	40		300		3		27		48		418
13	39		299	0	3		27		49		417
14	54		299	60	3		27		49		492
15	54		299	60	3	0	27		49		492
16	54		299	60	3	10	26		49		501
17	54		299	60	3	10	26		54		506
18	54	0	299	60	5	10	26		48		502
19	54	8	299	60	5	10	26		48		510
20	54	8	299	101	5	15	26		48		556
21	64	14	299	105	3	15	26		48		574
22	64	14	299	105	5	15	26		55		583
23	64	14	299	105	5	15	26		55		583
24	64	14	299	105	5	15	29		55		586
25	64	14	299	105	5	15	29		55		586
26	64	14	299	105	5	15	29		55		586
27	64	14	299	105	5	15	29		55		586
28	64	14	96	105	5	15	29		43		371
29	64	14	11	46	5	15	29		37		221
30	28	14	0	47	5	10	29	0	32	0	165
31											
Totals Cfs.											
Totals Ac. Ft.											

Period of Releases from Storage

Colorado Water District 67

Month of June, 1961

Canal Diversions in Cfs.

Date	Pt. Reut.	No Lag		1-Day Lag		2-Day Lag		Totals	
		Keesee	Amity	Leazar	Hyde	Marvel	X. Y. Graham	Buffalo	Sisson
1	28	15	134	92	5	0	0	NR	0
2	28	14	0	0	0	0	0	NR	0
3	0	0	65	0	0	15	0	75	0
4			56		10	15		37	
5			32		7	15		37	
6			16		7	15		37	
7			16		7	15		37	
8			16		5	15		37	
9			10		5	15		37	
10			11		5	15		37	
11			10		5	15		37	
12			8		5	10		37	
13			8		5	10		37	
14			18		5	10		37	
15			6		5	10		37	
16			0		5	10		37	
17			0		5	0		30	
18			0		5	0		30	
19	0		149	65	0	0		32	246
20	28		149	73	3	0	0	37	290
21	28	0	149	77	3	0	15	32	304
22	28	8	224	92	5	3	9	43	412
23	60	14	299	116	7	3	29	43	571
24	60	14	299	123	7	3	18	52	576
25	60	14	299	129	7	3	18	43	573
26	60	14	299	129	7	5	18	54	590
27	60	14	166	122	7	0	18	44	435
28	60	14	58	44	5	0	18	32	
29	28	15	180	103	5	0	18	32	
30	28	14	248	84	5	20	29	32	
31									
Totals Cfs.									
Totals Ac. Ft.									
2-23-62									

Period of Releases
from Storage

Empty at 10:00 a.m.

Releases at 8:30 a.m.

Colorado Water District 67

Month of *August*, 1961

Canal Diversions in Cfs.

CUMULATIVE DIVERSIONS IN CFS.														
	No Lag		1-Day Lag			2-Day Lag								
	Date	Ft. Bent	Keesee	Amity	Lamar	Hyde	Manvel	X. Y.	Graham	Buffalo	Sisson			Totals
	1	28	14	62	100	2	0	0	0	32	0			
	2	28	14	5	88	2		0		37				
	3	28	14	110	62	2		0		32				
	4	28	14	301	83	2		0		58				
	5	28	14	350	99	5		18		60				
	6	61	14	319	99	7		29		55				
	7	61	14	282	113	7		18		75				
	8	61	14	276	84	10		15		55				
	9	28	14	252	88	7		18		60				
	10	28	14	284	91	7		18		55				
	11	28	14	376	91	7		26		55				
	12	28	14	269	96	15		23		90				
Storage Releases @ 8:30 a.m.	13	61	14	299	NR	10		18		74				476
	14	70	14	300	58	7		18		55				512
	15	70	14	299	90	0		18		68				549
	16	70	14	312	88	0		20		68				562
	17	70	14	216	78	0		15		65				448
Empty @ 1:00 a.m.	18	0	14	308	75	0		18		55				
	19	28	14	424	77	0		20		58				
	20	28	0	432	111	5		20		58				
	21	28	6	412	111	5		20		58				
	22	28	6	326	111	5		18		55				
	23	28	6	282	111	5		18		32				
	24	28	6	202	105	5		15		32				
	25	28	7	221	81	5		15		32				
	26	28	0	164	81	3		13		32				
	27	28	0	129	67	3		13		32				
	28	28	10	125	92	3		11		32				
	29	28	14	225	90	3		11		32				
	30	28	14	284	90	3		11		32				
	31	28	14	157	77	3	0	11	0	32	0			
Totals Cfs.														
Totals Ac. Ft.														
2-23-62														

↑
Period of
Releases
from
Storage
↓