ARKANSAS RIVER COMPACT ADMINISTRATION

REGULAR MEETING

March 23, 1954

LAMAR, COLORADO

Attendance -

For Colorado:

Ivan C. Crawford, Denver; Director Colorado Water Conservation Board
Harry B. Mendenhall, Rocky Ford; Chairman of Colorado Representatives
Harry C. Nevius, Lamar; Administration Secretary and Treasurer

For Kansas:

Wm. E. Leavitt, Garden City
R. V. Smrha, Topeka; Acting Chairman of Kansas Representatives

For the United States:

Brig. Gen. Hans Kramer, San Francisco, Calif.; Chairman of the Administration

Absent:

Roland H. Tate, Garden City, Kansas, Administration Vice-Chairman

Others Attending:

John T. Martin, Corps of Engineers, Albuquerque, New Mexico
R. M. Gildersleeve, Colorado Water Conservation Board, Denver
Omer Griffin, Ass't Colorado Attorney General, Denver
Guy M. Vincent, Kansas Water Resources, Garden City, Kansas
Francis M. Bell, U.S.G.S., Denver, Colorado
Ross W. Moor, U.S.G.S., Lamar, Colorado
H. N. Dallimore, Bessemer Irrig. Ditch Co., Pueblo, Colorado
F. C. Snyder, Division Engineer, I. D. #1, Pueblo, Colorado
James E. Bone, Corps of Engineers, John Martin Dam
L. E. Des Rosiers, Concessionaire, Caddoa, Colorado
George W. Colburn, Colorado Water Conservation Board, Denver

The regular March meeting of the Arkansas River Compact Administration convened in the Courthouse, Lamar, Colorado at 9:40 A. M., March 23, 1954. Representatives were present as shown on roster. Representative Tate of Kansas was unavoidably absent.

The Minutes of the regular meeting of December 22, 1953, were approved as corrected.

Chairman Kramer gave his report as follows:

A. Mr. James E. Bone has had his title changed from Reservoir Manager, John Martin Reservoir, to Resident Engineer.

B. The Administration was in receipt of a letter and a revised Area-Capacity table for John Martin Reservoir made by the Albuquerque District Office, Corps of Engineers, dated February 1, 1954. They are reproduced for the record:

CORPS OF ENGINEERS, U. S. ARMY
OFFICE OF THE DISTRICT ENGINEER
ALBUQUERQUE DISTRICT
P.O. BOX 1538
ALBUQUERQUE, NEW MEXICO

Refer to File No.SWDGC-2 1 February 1954

SUBJECT:Partial Revised Area-Capacity Table, John Martin Reservoir, Colorado

TO: Hans Kramer, Brig. Gen., U.S.A. (Ret.)
Chairman and Representative of the U.S.
Arkansas River Compact Administration
417 Montgomery Street
San Francisco 4, California

Dear General Kramer:

The Area-Capacity Table for John Martin Reservoir, revised 1 September 1952, and now in use, has been revised to elevation 3799, effective 1 February 1954. Sheets 1 through 4 showing this revision are inclosed.

The revision was made without a resurvey by using the reservoir elevations and the quantity of inflow and outflow plus the estimated evaporation during the draw down periods in April and July 1953 to compute the reservoir capacity. The results were coordinated with the U.S. Geological Survey, Denver, Colorado. The reservoir surface areas were adjusted to fit the revised capacities. It is believed this method is as accurate for Compact purposes as the partial resurvey method used in 1950 and cost considerably less.

FOR THE DISTRICT ENGINEER:

Sincerely yours,

s/ F. O. Reeves

F. O. REEVES
Chief, Engineering Division

Incl (in sext)
Area-Capacity Table
John Martin Res.

ALBUQUERQUE DISTRICT
CORPS OF ENGINEERS
ALBQUERQUE, NEW MEXICO

JOHN MARTIN RESERVOIR
AREA - CAPACITY

Sheet 1 of 15 Sheets

1951 Survey
Adopted 1 April 1952
Revised 1 Sept. 1952
Revised 1 Feb. 1954
To Elev. 3799.0

Elevation (Feet)	Surface Area (Acres)	Storage Capacity (Acre Ft)	Elevation (Feet)	Surface Area (Acres)	Storage Capacity (Acre Ft)	Elevation (Feet)	Surface Area (Acres)	Storage Capacity (Acre Ft)
3764.2	0	0	3776.4	166	251	3778.6	401	869
3768.0	0.5	0	.5	177	268	.7	412	909
3769.0	1.5	1	.6	187	286	.8	423	951
3770.0	2	3	.7	195	305	.9	434	994
3771.0	5	7	.8	204	325	3779.0	445	1038
3772.0	8	14	.9	214	346	.1	456	1083
3773.0	16	26	3777.0	225	368	.2	467	1129
3774.0	34	51	.1	236	391	.3	478	1176
3775.0	62	99	.2	247	415	.4	489	1225
.1	67	105	.3	258	440	.5	500	1274
.2	73	112	.4	269	467	.6	512	1325
.3	81	120	.5	280	494	.7	523	1377
.4	89	129	.6	291	523	.8	534	1429
.5	97	138	.7	302	552	.9	545	1483
.6	103	148	.8	313	583	3780.0	556	1538
.7	108	158	.9	324	615	.1	567	1594
.8	113	170	3778.0	335	648	.2	578	1651
.9	118	181	.1	346	682	.3	590	1710
3776.0	125	193	.2	357	717	.4	601	1769
.1	134	206	.3	368	753	.5	612	1830
.2	143	220	.4	379	791	.6	623	1892
.3	154	235	.5	390	829	.7	634	1954

ALBUQUERQUE DISTRICT
CORPS OF ENGINEERS
ALBQUERQUE, NEW MEXICO

JOHN MARTIN RESERVOIR
AREA - CAPACITY

Sheet 2 of 15 Sheets

1951 Survey
Adopted 1 April 1952
Revised 1 Sept. 1952
Revised 1 Feb. 1954
To Elev. 3799.0

Elevation (Feet)	Surface Area (Acres)	Storage Capacity (Acre Ft)	Elevation (Feet)	Surface Area (Acres)	Storage Capacity (Acre Ft)	Elevation (Feet)	Surface Area (Acres)	Storage Capacity (Acre Ft)
3780.8	646	2019	3783.0	912	3724	3785.2	1342	6178
.9	657	2084	.1	930	3816	.3	1368	6314
3781.0	668	2150	.2	948	3910	.4	1394	6452
.1	680	2217	.3	965	4005	.5	1420	6593
.2	691	2286	.4	983	4103	.6	1446	6736
.3	702	2356	.5	1001	4202	.7	1472	6882
.4	714	2427	.6	1019	4303	.8	1498	7030
.5	726	2499	.7	1037	4406	.9	1524	7181
.6	737	2572	.8	1054	4511	3786.0	1550	7335
.7	748	2646	.9	1072	4617	.1	1576	7491
.8	760	2721	3784.0	1090	4725	.2	1603	7650
.9	772	2798	.1	1110	4835	.3	1629	7812
3782.0	783	2876	.2	1130	4947	.4	1656	7976
.1	796	2955	.3	1150	5061	.5	1682	8143
.2	809	3035	.4	1170	5177	.6	1708	8313
.3	822	3116	.5	1190	5295	.7	1735	8485
.4	835	3199	.6	1210	5415	.8	1761	8660
.5	848	3283	.7	1230	5537	.9	1788	8837
.6	860	3368	.8	1250	5661	3787.0	1814	9017
.7	873	3455	.9	1270	5787	.1	1828	9199
.8	886	3543	3785.0	1290	5915	.2	1841	9382
.9	899	3632	.1	1316	6045	.3	1855	9567

ALBUQUERQUE DISTRICT
CORPS OF ENGINEERS
ALBUQUERQUE, NEW MEXICO

JOHN MARTIN RESERVOIR
AREA - CAPACITY

Sheet 3 of 15 Sheets

1951 Survey
Adopted 1 April 1952
Revised 1 Sept. 1952
Revised 1 Feb. 1954
To Elev. 3799.0

Elevation (Feet)	Surface Area (Acres)	Storage Capacity (Acre Ft)	Elevation (Feet)	Surface Area (Acres)	Storage Capacity (Acre Ft)	Elevation (Feet)	Surface Area (Acres)	Storage Capacity (Acre Ft)
3787.4	1868	9753	3789.6	2078	14,128	3791.8	2194	18,834
.5	1882	9941	.7	2084	14,336	.9	2198	19,054
.6	1896	10,130	.8	2091	14,545	3792.0	2203	19,274
.7	1909	10,320	.9	2097	14,754	.1	2207	19,494
.8	1923	10,512	3790.0	2104	14,964	.2	2211	19,715
.9	1936	10,705	.1	2109	15,175	.3	2215	19,936
3788.0	1950	10,899	.2	2115	15,386	.4	2219	20,158
.1	1959	11,094	.3	2120	15,598	.5	2222	20,380
.2	1968	11,290	.4	2125	15,810	.6	2226	20,602
.3	1976	11,487	.5	2130	16,023	.7	2230	20,825
.4	1985	11,685	.6	2136	16,236	.8	2234	21,048
.5	1994	11,884	.7	2141	16,450	.9	2238	21,272
.6	2003	12,084	.8	2146	16,664	3793.0	2242	21,496
.7	2012	12,285	.9	2152	16,879	.1	2246	21,720
.8	2020	12,487	3791.0	2157	17,094	.2	2250	21,945
.9	2029	12,690	.1	2162	17,310	.3	2254	22,170
3789.0	2038	12,893	.2	2166	17,526	.4	2258	22,396
.1	2045	13,097	.3	2171	17,743	.5	2262	22,622
.2	2051	13,302	.4	2175	17,960	.6	2265	22,848
.3	2058	13,507	.5	2180	18,178	.7	2269	23,075
.4	2064	13,713	.6	2185	18,396	.8	2273	23,302
.5	2071	13,920	.7	2189	18,615	.9	2277	23,530

ALBUQUERQUE DISTRICT
CORPS OF ENGINEERS
ALBQUERQUE, NEW MEXICO

JOHN MARTIN RESERVOIR
AREA - CAPACITY

Sheet 4 of 15 Sheets

1951 Survey
Adopted 1 April 1952
Revised 1 Sept. 1952
Revised 1 Feb. 1954
To Elev. 3799.0

Elevation (Feet)	Surface Area (Acres)	Storage Capacity (Acre Ft)	Elevation (Feet)	Surface Area (Acres)	Storage Capacity (Acre Ft)	Elevation (Feet)	Surface Area (Acres)	Storage Capacity (Acre Ft)
3794.0	2281	23,758	3796.2	2380	28,880	3798.4	2534	34,270
.1	2285	23,986	.3	2385	29,118	.5	2543	34,524
.2	2289	24,215	.4	2391	29,357	.6	2552	34,779
.3	2293	24,444	.5	2397	29,596	.7	2561	35,035
.4	2297	24,674	.6	2403	29,836	.8	2571	35,292
.5	2302	24,904	.7	2409	30,077	.9	2580	35,549
.6	2306	25,134	.8	2414	30,318	3799.0	2589	35,807
.7	2310	25,365	.9	2420	30,560	.1	2600	36,066
.8	2314	25,596	3797.0	2426	30,802	.2	2611	36,327
.9	2318	25,828	.1	2433	31,045	.3	2622	36,589
3795.0	2322	26,060	.2	2440	31,289	.4	2633	36,852
.1	2327	26,292	.3	2447	31,533	.5	2644	37,116
.2	2331	26,525	.4	2454	31,778	.6	2655	37,381
.3	2336	26,758	.5	2462	32,024	.7	2666	37,647
.4	2340	26,992	.6	2469	32,271	.8	2677	37,914
.5	2345	27,226	.7	2476	32,518	.9	2688	38,182
.6	2350	27,461	.8	2483	32,766	3800.0	2699	38,451
.7	2354	27,696	.9	2490	33,015	.1	2708	38,721
.8	2359	27,932	3798.0	2497	33,264	.2	2717	38,992
.9	2363	28,168	.1	2506	33,514	.3	2726	39,264
3796.0	2368	28,405	.2	2515	33,765	.4	2735	39,537
.1	2374	28,642	.3	2525	34,017	.5	2744	39,811

C. The Chairman presented a letter, dated March 3, 1954 from the Albuquerque District Office, Corps of Engineers, being a report on a sedimentation study. A copy of this letter will be furnished each member of the Administration by Mr. Martin of the Corps of Engineers.

D. The following two letters are introduced into the record with reference to the Purgatoire (Picket Wire) River.

REPRESENTATIVE OF UNITED STATES
HANS KRAMER, Brig.Gen.USA. Ret.
Chairman
417 Montgomery Street
San Francisco 4, California

ARKANSAS RIVER COMPACT ADMINISTRATION
PRINCIPAL OFFICE - COURT HOUSE
LAMAR, COLORADO

January 20, 1954

Colonel Herbert D. Vogel, C. E.
Division Engineer
Southwestern Division
Corps of Engineers
1114 Commerce Street
Dallas 2, Texas

My dear Colonel:

Receipt is acknowledged of your Notice of Survey Report on Investigations of the Purgatoire (Picket Wire) River, Colorado, issued December 29, 1953.

While the subject Report was in draft form, the Arkansas River Compact Administration was privileged to participate in informal review with the Albuquerque District. It is noted that the Report, presumably somewhat revised on the basis of that informal review, has now been forwarded to the Board of Engineers for Rivers and Harbors.

You are aware, of course, of the official interest of the Administration in this subject by virtue of the provisions of Article IV-D of the Arkansas River Compact. In view of that interest, it is requested that, when the Report is furnished to the Governors of the interested States for official comment, a copy be sent to me for concurrent review by the Administration. Thereupon the official comments of the Administration will be transmitted to the Governors of Colorado and Kansas for incorporation, if they see fit, in their respective official comments.

Sincerely yours,

Hans Kramer

cc: Colonel Lynn C. Barnes

CORPS OF ENGINEERS, U.S. ARMY
OFFICE OF THE DIVISION ENGINEER
SOUTHWESTERN DIVISION
1114 Commerce Street
DALLAS, TEXAS

Refer to File No. SWDGW 28 January 1954

Brig. Gen. Hans Kramer, USA, Ret.
Representative of the United States
Arkansas River Compact Administration
417 Montgomery Street
San Francisco 4, California

Dear General Kramer:

Receipt is acknowledged of your letter of 20 January 1954, with reference to the issuance of the Public Notice of submission of the report on survey of Purgatoire (Picket Wire) River, Colorado, and to your official interest in the report.

In accordance with your request, at such time as this office receives advice that the Chief of Engineers has submitted the Purgatoire River Report to the Governors of the interested States for their official comment, I shall be pleased to send you a copy for concurrent review by the Compact Administration.

Sincerely yours,

HERBERT D. VOGEL
Brigadier General, USA
Division Engineer

Chairman Kramer made comments on the subject indicating the Administration's interest. Mr. Smrha stated his view that the respective states should first review the report, making their comments thereon, after which the Administration should likewise review it. Mr. Crawford said that he concurred in the review procedure; however, he realized it offered a possibility for diversity of opinion. The Chairman said that he felt that the Administration should, if necessary, collaborate in order to achieve consistency.

E. Chairman Kramer stated that he was in receipt of the 5th Annual Report of the Administration, and had made official distribution of the same. He complimented Dean Crawford's office on the excellence of production.

General Kramer then called for the report of the Secretary.

Mr. Nevius made his report as Secretary as follows:

A. He placed in the record a copy of a letter notifying the State Engineer of Colorado and the District Engineer, Albuquerque District, Corps of Engineers, relative to the action of the Administration, December 22, 1953.

REPRESENTATIVE OF UNITED STATES
HANS KRAMER, BIRG.GEN. USA. RET.
Chairman

ARKANSAS RIVER COMPACT ADMINISTRATION
PRINCIPAL OFFICE - COURT HOUSE
LAMAR, COLORADO

January 2, 1954

Mr. M. C. Hinderlider
State Engineer
State Capitol Building
Denver, Colorado

Col. Lynn C. Barnes
District Engineer
U. S. Corps of Engineers
Albuquerque, New Mexico

Gentlemen:

At the December 22, 1953 meeting of the Arkansas River Compact Administration the motion passed July 22, 1952;

> "Moved that the further study of the problems pertaining to operation of John Martin Reservoir and Dam during periods when the reservoir is empty and Colorado is operating under decreed priorities is referred to the Operations Committee of the Arkansas River Compact Administration, and during the interim pending adoption of additional rules and regulations relating to operation of the reservoir and dam by the Administration, all river flow up to and including 2,000 c.f.s. shall be passed through the reservoir as expeditiously as practicable: Provided that the present status quo shall be preserved during such interim except as herein otherwise provided."

was rescinded, and the Secretary was instructed to notify the State Engineer of Colorado and the Corps of Engineers, District Office, Albuquerque, New Mexico.

Respectfully yours,

(Signed) Harry C. Nevius
Secretary

Copies to:
James E. Bone, Resident Engineer, Caddoa, Colo.
F. C. Snyder, Division Engineer, Pueblo, Colo.
R. J. McGrath, Water Commissioner

B. Mr. Nevius stated that he would make local distribution of the 5th Annual Report in the immediate future.

Mr. Nevius made his report as Treasurer as follows:

ARKANSAS RIVER COMPACT ADMINISTRATION
Report of the Treasurer, March 23, 1954

Balance on hand October 31, 1953, Auditor's Report $ 3,600.07

Disbursements

Voucher	Date		$
114	12/23/53	Treas. of U.S. Deposits by States	6.00
115	12/31/53	Secretary Salary Nov. & Dec. (less $3.00 F.I.C.A.)	197.00
116		Robert W. Rollins, Audit	65.00
117		Mtn. States T. & T. Co. Nov. & Dec. Service & Tolls	38.35
118		Treas. of U.S. Deposits by States	12.00
119	3/10/54	Secretary Salary Jan. & Feb. (less $4.00 F.I.C.A.)	196.00
120		Mtn. States T. & T. Co. Jan. & Feb. Service & Tolls	22.50
			$ 536.85

Balance on hand March 23, 1954 $ 3,063.22

Mr. Nevius, in the absence of Mr. Tate, reported for the Administrative and Legal Committee stating that in the Plains Water Corporation matter, there had been no change; their allegation was being held to Adobe Creek and all other claims have been withdrawn.

Mr. Smrha stated that there had been no formal meeting by the Engineering Committee and no report would be made.

Mr. Mendenhall made the report of the Operations Committee with the following statement:

March 23, 1954

Snow pack on the Arkansas River watershed is only approximately 72% of normal as of March the 1st. Soil moisture under the snow is below normal. Summer run off is expected to be approximately 75% of normal.

With an open winter most of the water upstream from John Martin Reservoir has been diverted for direct irrigation and for this reason the present amount in storage in John Martin Reservoir, namely 15,300 acre feet is only 20% of normal.

Unless we have late snows and early rains, the prospect for a satisfactory amount of water from storage in the reservoir is not at all flattering.

The Chairman then submitted to the Administration the Report of the meeting of the Committee of the Whole as reproduced and distributed to the Representatives.

Mr. Leavitt made the motion: "That the Report of the Committee of the Whole be placed in the record of the Administration without action".

Mr. Crawford seconded the motion and it was adopted upon vote.

The report follows:

REPORT OF THE MEETING OF THE COMMITTEE OF THE WHOLE
ARKANSAS RIVER COMPACT ADMINISTRATION
JANUARY 26, 1954

Pursuant to action taken at the Arkansas River Compact Administration meeting December 22, 1953, the representatives met in Lamar, Colorado, January 26, 1954, as a Committee of the Whole to discuss, study and report to the Administration at its next meeting any recommended revisions of the Rules and Regulations.

The Meeting convened at 9:45 A.M., Brig. Gen. Hans Kramer, U. S. Representative, as Chairman. Committee members, the Representatives of their respective states, were all present with their advisors and others as invited and shown by the roster attached.

Chairman Kramer noted that this was not a formal meeting of the Administration but was meeting as a Committee of the Whole, in a study session.

Mr. Nevius reviewed the contents of four letters regarding the operation of the reservoir previously received by the Administration and tabled for discussion at this meeting. He stated no other communications on this subject had been received to date. The letters referred to are as follows:

Office of
THE CITY ATTORNEY
Colorado Springs, Colorado

December 19, 1953

Arkansas River Compact Administration
Lamar, Colorado

Chairman and Members of the Compact Commission:

The City of Colorado Springs has been advised that you have under consideration an amendment to the Rules and Regulations of Arkansas River Compact Administration, as follows:

"At such times as the John Martin Reservoir has been declared empty and the State Engineer of Colorado is administering the decreed rights of water users in Colorado on the basis of priorities, the gates of John Martin Dam shall be opened and the waters of the Arkansas River shall pass through as though the dam did not exist."

"In case of any flash flood in excess of the requirements of Colorado and Kansas, the Secretary of the Administration acting under the authority of the Operations Committee of the Administration shall request the manager of John Martin Dam to restrict such flash flood to the extent that only such water shall be passed through the dam as may be properly used in Colorado and Kansas."

"The above arrangement shall continue until such time as it may appear to the Administration that a sufficient quantity of water has been or will be stored to justify taking over the operation of the reservoir."

The first paragraph of the proposed rules and regulations appear to conform to the Compact and no comment thereon is offered at this time.

The second and third paragraphs are clearly a violation of the Compact in the following respects:

(a) While John Martin Reservoir is actually or technically empty, and the State Engineer is administering the stream, he must distribute the available water to Colorado users alone. Neither he nor anyone else is empowered to release any water for Kansas use. (Art. VG)

(b) The proposed amendment does not define a flash flood and consequently the Secretary under this amendment could cause the storage of flood flows and the release of stored waters for indefinite periods while at the same time the State Engineer would be enforcing District 67 priorities against upstream water rights, in violation of Art. VD.

The unauthorized delivery of water to Kansas tends to keep the reservoir depleted, thus extending the periods of an empty reservoir with authorized restrictions on upstream rights. The proposal to retain water in the reservoir while the State Engineer administers the stream, due to an empty reservoir by declaration of the Commission, also extends the authorized periods for restricting upstream diversions.

Colorado Springs owns and operates the water system supplying its inhabitants and many of the water rights in use on this system are junior to some rights in District 67. The City cannot be expected to accept an encroachment on its water rights and supplies contrary to the provisions of the Arkansas River Compact.

If the Commission desires to improve water service to the Kansas lands, this should be done within Compact authorizations and without damage to upstream rights by more economical use of water, and by refraining from making findings of an impending empty reservoir pursuant to Art. VF of the Compact.

We are further advised that the Commission has in the past, by resolution, authorized a release of 2000 second feet during flash floods. Again, the Compact does not authorize withholding of any water while the reservoir is officially empty. If such a resolution is in force, it is requested that we be so informed, and be furnished a copy thereof.

Very truly yours,

/s/ Frederick T. Henry
Frederick T. Henry
City Attorney

CATLIN CANAL COMPANY

Albert R. Stover, Secretary and Treas. Sam Bingman, Supt.

Manzanola, Colo.

Sept. 5, 1953

Mr. H. C. Nevius
Secretary of the Administration
Lamar, Colorado

Dear Mr. Nevius:

We hereby acknowledge receipt of the letter from the Arkansas Valley Ditch Association, dated August 21, 1953, concerning the John Martin Reservoir.

Upon receipt of notice of meeting concerning the John Martin Reservoir, the Catlin Canal Company will send their representatives down to this meeting.

Thank you very much.

Very truly yours,

/s/ Albert R. Stover
Secretary-Treasurer

La Junta, Colorado
September 6, 1953

Mr. H. C. Nevius, Secretary
Lamar, Colorado

Dear Mr. Nevius:

In relation to the operations of John Martin Reservoir, Our irrigation district has been well pleased with a good job well done by your operations committee.

We would suggest that at any time storage is present the operations committee take over operations at once. We believe by carefully controlling the volume of outlet at once we, as a ditch above the reservoir, will share with other ditches, similarly located, a prolonged period of time from the benefits of storage.

Thanking you as an Operations Committee for your excellent work and assuring you of our cooperation for the mutual benefits of all concerned.

Very truly yours,
Holbrook Irrigation Dist.

/s/ Simon Schultz
President of Board

THE FORT BENT DITCH COMPANY
Irrigates 10,000 acres of land
in Bent and Prowers Counties.

September 17, 1953

The Arkansas River Compact Administration
H. C. Nevius, Secy.,
Lamar, Colorado

Dear Sir:

The following resolution was unanimously adopted at the regular meeting of the Board of Directors of the Fort Bent Ditch Company held September 5, 1953.

"The Directors of the Fort Bent Ditch Company have no constructive criticism to offer and feel that the Arkansas River Company Board should be commended on the handling of the water through the John Martin Reservoir during the present irrigation season."

Very truly yours,

/s/ Towers Deeter
Fort Bent Ditch Company
Towers Deeter, Secy.,
P. O. Box 401
Lamar, Colorado

A letter from the Fort Lyon Canal Company, dated July 28, 1953, which is recorded in the Administration's Minutes of that date was also reviewed.

The next subject of discussion was the Opinion of the Attorney General of Colorado, December 4, 1953. Mr. Tate stated that he does not concur with the opinion as written and differs with the interpretation of Article VB of the Compact.

A general discussion ensued on Articles VF and VG of the Compact.

Mr. Ireland stated that as his memory served, it was the premise of the Compact Commission to make the most efficient use of water. The Compact Commissioners assumed that the men who would administer the compact would accept the same premise.

Certain restrictive language in Section VB, Mr. Tate said, is interpreted by him as a prohibition of the rights of Kansas and for the exclusive benefit of upstream appropriators, some of which might anticipate semi-daily adjustments of the gates.

Mr. Ireland suggests that a State official of Colorado might cooperate in some of the problems concerning the operation of the reservoir, provided that in no way would there be a violation of the state laws.

Mr. Nevius reviewed the operation of the reservoir the past season.

Mr. Tate in answer to a question by Mr. Ireland, stated his opinion that it was correct for the Administration to stipulate the figure of 2000 cfs. in its motion of July 22, 1952.

Chairman Kramer noted that this motion was questioned at once by the Colorado State Engineer and that it was rescinded by formal action of the Administration on December 22, 1953.

Mr. Tate said he felt that the rescinding was not done because of the feeling that the Administration was on weak ground, but because it created contention. He thinks that the wording of the original action was unfortunate in that it was subject to misinterpretation.

There was further discussion regarding operation of the reservoir. It was pointed out that Art. VF makes it mandatory for the Administration to make a Finding of water being again available (from storage.)

Mr. Tate observed that he thought basically the difference is that a few say that the Administration is not sufficiently prompt in its action.

Gen. Kramer stated that this criticism was not now valid because of the adoption on December 22, 1953, of the telephone meeting amendment to the By-laws.

Mr. Mendenhall said that action could not always be as rapid as all might desire because of the impracticability of prediction of floods.

It was noted that the only criticism is from the Fort Lyon Canal Company regarding the Reservoir operation. All other comment has been favorable.

In discussion of the opinion of the Attorney General of Colorado, Mr. Ireland said that the statement that there shall be no prohibition of storage is correct.

Mr. Tate read the resolution that had been rescinded and commented on its language but noted specifically that the intent was certainly not at fault.

Mr. Ireland asked Kansas what effect storage of small freshets has had on that State. Mr. Tate stated that at times it has been detrimental to Kansas -- only in a very minor way up to date. Larger amounts of storage would hurt Kansas interests more.

There was discussion on division of river inflows up to 750 cfs both as to times when the reservoir was empty and when there was storage in it. It was stated that when there is storage, there is no question on interpretation -- Kansas can demand an amount above 500 cfs up to 750 cfs.; if there is no storage in the reservoir, Kansas has no such rights.

Gen. Kramer referred to the letter from the Colorado State Engineer of July 2, 1952, in which he objected and stated that prior to 1952, the maximum daily diversions by District 67 had amounted to 942 cfs.

Mr. Nevius took issue, stating that in 1953 the diversions would be a maximum of around 1200 cfs.

Gen. Kramer said that the question seems to be around the mechanics of the situation.

Mr. Tate observed that no matter what figure might be set that there would be objections from some source.

Chairman Kramer said he thought that no definite figure need be set; that the releases would be governed by the demand. He then offered the idea that perhaps a "cushion pool" would facilitate the mechanics of the Reservoir operation.

Mr. Tate wanted to know what the releases to Kansas would be during the build up of the "cushion pool" and unless a definite agreement was made prior to the creation of the "cushion pool", Kansas would not agree to the retention of the water.

Mr. Mendenhall said that he thought that the Operations Committee could meet the situation on any emergency which might come up.

Chairman Kramer called attention to a communication from Vena Pointer, Secretary of the Arkansas Valley Ditch Association, September 22, 1952, regarding the control of the reservoir gates by the Colorado State Engineer during periods of empty reservoir.

Mr. Crawford stated he was not in favor of now putting a definite limit on releases during a dry reservoir.

Mr. Tate favored the specification of a dependable amount.

Chairman Kramer requested that a communication by him dated January 8, 1954, be accepted by the Committee as an objective analysis and constructive criticism. He amplified his analysis in a distributed communication entitled "Draft of Suggested Amendment to Rules and Regulations of the Arkansas River Compact Administration."

The two communications are as follows:

REPRESENTATIVE OF UNITED STATES
HANS KRAMER, BRIG. GEN. USA. RET.

417 Montgomery Street
San Francisco 4, California

ARKANSAS RIVER COMPACT ADMINISTRATION

PRINCIPAL OFFICE - COURT HOUSE
LAMAR, COLORADO

January 8, 1954

Notes for Revision of ARCA Rules and Regulations

Experience in the 1952 and 1953 irrigation seasons has proven that the Administration's standing Rules and Regulations define satisfactory procedure and mechanics for implementing the provisions of Article V-F anticipation of an empty reservoir condition resulting from a steady drawdown of winter storage (over 20,000 AF). Experience has also shown that, after the river has been turned over to the State Engineer for priority administration -- and while the reservoir is officially "empty" -- difficulties develop in connection with the handling of flash summer floods. Such floods have the following characteristics:

(a) Duration and volume of inflow are difficult to predict.

(b) River flow rates (i.e., inflow) may exceed for brief periods the requirements of District 67.

Because of these characteristics, flash floods create a temporary surplus of water, which, in the interest of conservation, ought to be stored or, at least, detained in John Martin Reservoir for subsequent use. However, the State Engineer has taken the position that, under the laws of Colorado, he is not empowered to impound water. In view of that position and in order to effect as much conservation as practicable under the broad intent of the Compact, our Secretary has issued instructions from time to time regarding manipulation of John Martin gates during flash floods. Inasmuch as these instructions were issued concurrently with the State Engineer's priority administration and without an official finding by the Administration to change the status of the (empty) reservoir, there has resulted, on occasion, a dual administrative control with

corresponding divided responsibility. This condition of divided responsibility was the subject of the Arkansas River Ditch Association's motion of September 12, 1952, (which is recorded on Page 22 of the Administration's Minutes of October 28, 1952). Inasmuch as this Association comprises a high percentage of the water users affected by the Compact, its views deserve careful consideration in our present study.

Under a strict interpretation of Article V-F, it is technically possible for the Administration to effect the storage of temporarily surplus inflow by making a finding "that water is again available in the conservation pool for release .....". Upon notification of such a finding, the State Engineer would step out of the picture completely; operating conditions and releases would revert to the same basis as prevails when there is a substantial quantity of water in the conservation pool, say from 20,000 AF upwards. But if the temporary surplus accumulating from a summer freshet amounted to only 2,000 AF, demands by Colorado and Kansas under Article V-B could and probably would exhaust the storage in 24 hours, thereby necessitating a repetition of the procedure of "finding" an imminent empty reservoir and notifying the State Engineer to resume administration on the basis of decreed priorities. Obviously, such an on-again, off-again procedure with its inherent potential for confusion and misunderstanding might have to be repeated a number of times during a period of unsettled summer weather. It is noteworthy, however, that this very procedure, which has been found unworkable in actual practice, was envisioned in the formulation of the Compact. (See P. 14-77 of Record, Colorado-Kansas-Arkansas River Compact Commission).

As mentioned above, our Secretary, acting under the supervision of the Operations Committee, developed a working procedure to cope with the summer freshets of 1952 and 1953. The improvised modus operandi, though not covered by specific Administration rules, apparently overcame the difficulty arising from the State Engineer's lack of authority to store water. It had the serious defect, however, of being governed by the Administration's motion of July 22, 1952, which established a permissible river flow up to a maximum of 2,000 cfs. to be passed through John Martin Dam. On the few occasions when near-maximum outflow was permitted a lesser quantity of water was detained in the reservoir than would have been conservable with smaller outflow. Hence, this procedure tended, at least theoretically, to prolong the condition of "empty" reservoir and the burden imposed thereby on junior upstream appropriators. Moreover, it was held by the Attorney General of Colorado, in his opinion of December 4, 1953, that, in view of the provisions of Article V-G, no river flow could be passed for the benefit of Kansas while decreed priorities are in effect in Colorado, i.e., while the reservoir is "empty."

The Attorney General's opinion, just cited, in effect condemned the Administration's motion of July 22, 1952. Accordingly, the Administration rescinded its action on December 22, 1953. Although that recision has voided a source of operational difficulty and removed a cause for criticism, it has left a hiatus insofar as specific operating rules and regulations are concerned. It is that hiatus which the Administration now faces.

The crux of the existing situation is the need for a definitive procedure for implementing the second part of Article V-F, viz, "such priority administration by Colorado shall be continued until the Administration finds that water is again available in the conservation pool for release as provided in this Compact." The Attorney General of Colorado's opinion of December 4, 1953, holds that the above language "clearly contemplates that water shall be stored in the reservoir concurrently with the use of water in Water District No. 67 under priority administration." Two pertinent questions, on which a definitive procedure must be based, arise from that opinion.

(1) How much water should be accumulated to make practicable the discontinuance of priority administration?

(2) Who should be responsible for reservoir regulation to effect such accumulation concurrent with priority administration?

The answer to the first question is essentially a matter of judgment on the part of the Administration. As pointed out previously, a change-over cushion pool as small as 2,000 AF would be impracticable; on the other hand, experience indicates that it should not be as large as 20,000 AF. A cushion pool somewhere between these limits, possibly in the range of 10,000 AF, would seem to be a reasonable criterion. Certainly, the Administration should have no great difficulty in determining an acceptable figure.

The second question is not so simple to answer since it has some legal as well as human aspects. Nonetheless, it too is susceptible of rational analysis. The Attorney General's opinion gives legal sanction to the storage of surplus inflow while Colorado is under priority administration. The Arkansas River Ditch Association's position, previously referred to, is that there should be but one responsibility while the reservoir is "empty" and that the State Engineer should control the river and reservoir gates until the Administration discontinues priority administration by an official finding that water is again available for release under Article V-F. Recognition of these principles would mean, in effect, that the State Engineer's organization should exercise the required reservoir control by issuing instructions for manipulating the John Martin gates during freshets.

That conclusion must be considered, necessarily, in the light of the fact that the State Engineer, under Colorado laws, is not authorized to impound water. But under the Compact, the Administration is vested with that authority. Then why couldn't the Administration delegate its storage power to the State Engineer during periods of "empty" reservoir? Whether the State Engineer would be willing to accept such a delegation of authority would have to be determined but, to forestall a legal objection, the delegation might be termed for "detention" rather than "storage". In effect, then, the State Engineer would not be violating his statutory limitations but would be acting on behalf of and under the express authorization of the Administration.

Now, presuming the State Engineer's acceptance of the delegation of authority to detain surplus inflow, what would be the procedure for discontinuing priority administration, i.e., for resumption of exclusive operational control by the Administration? Let's assume, too, but merely for the sake of example, that the cushion pool has been set at, say, 8,000 AF. The State Engineer and his organization would, of course, have full knowledge of precipitation and flow conditions -- certainly as much knowledge as the Administration's personnel might have -- from which to form estimates of potential yield at John Martin. If and when these estimates indicated in the judgment of the State Engineer that the 8,000 AF figure was likely to be attained, he would be required to give notice of such prediction to the Administration. Thereupon the Administration would make an appropriate finding, under Article V-F, of the re-availability of water for release. In other words, the same procedure that is now applied in the case of a predicted "empty" reservoir would be applied to a predicted usable reservoir, except that in the latter case the prediction would emanate from the State Engineer.

The foregoing analysis warrants the conclusion that a sound, workable and generally acceptable program for amplifying the Administration's Rules and Regulations may be based on these salient points:

(1) Establishment of a reasonable cushion pool.

(2) Delegation of authority to the State Engineer to detain surplus inflow.

(3) Reliance upon the State Engineer's prediction for discontinuance of priority administration.

* * * * * * *

My only defense for this lengthy exposition is that it might have been longer! I trust, however, that it will provide food for serious thought and that it may help to focus the discussions in the Administration's study session on January 26, 1954. I would suggest to any member who may be unable to attend that session that he communicate his independent views, or comments on my views, to the Secretary.

/s/ Hans Kramer
Hans Kramer

Copy to each Administration Member
Copy to Mr. Gail L. Ireland

DRAFT
(by Gen. Kramer, 1/15/54)
of

Suggested Amendment to Rules and Regulations

of the

Arkansas River Compact Administration

The Rules and Regulations of the Arkansas River Compact Administration effective April 15, 1950, are amended by adding the following:

4. The principles and procedures stated in the following subparagraphs shall apply when, under the provisions of Article V-F of the Compact, a condition of "empty reservoir" exists and administration by the State Engineer of Colorado of water rights on the basis of decreed priorities is in effect. Portions of existing Rules and Regulations in conflict or inconsistent herewith are hereby rescinded.

(a) In order to establish a workable and reasonably stable basis for operation, the condition of "empty reservoir" will continue in force and no finding of a change in such condition will be made by the Administration until a content of _____ acre-feet in the conservation pool of John Martin Reservoir is attained or predicted in accordance with (c) below.

(b) In the event of flash floods which produce inflow at John Martin Reservoir in excess of the immediate requirements of Colorado Water District 67, the resulting excess water shall be temporarily detained in John Martin Reservoir by appropriate manipulation of the control gates. Necessary instructions for this purpose shall be issued by the State Engineer of Colorado, or his duly authorized representative, directly to the Reservoir Manager. In effecting such temporary detention, under authority hereby delegated by the Administration, the State Engineer or his duly authorized representative shall be deemed to be acting on behalf of the Administration. Water thus temporarily detained is not intended to be construed as being "stored" under the laws of Colorado nor as "water available in the conservation pool for release" under Article V F of the Compact.

(c) When, in the judgment of the State Engineer of Colorado or his duly authorized representative, the volume of water detained under (b) above reaches or is liable to reach _____ acre-feet, he shall give prompt notice of that fact or prediction to the Secretary of the Administration who shall transmit such notice to the Administration as expeditiously as possible. Thereupon, the Administration shall take appropriate action, under the revisions of Article V-F of the Compact, with respect to the re-availability for release of water in the conservation pool.

This amendment shall be subject to the approval of the District Engineer, Corps of Engineers, Albuquerque, New Mexico, pursuant to Article VIII-B- (2) of the Compact and of the State Engineer of Colorado. Upon such approval and after publication as required by Article VI-3 of the By-Laws of the Administration, it shall become effective on _____ 1954.

After the presentation of the above, the Committee recessed for lunch.

The meeting reconvened at 1:20 P.M.

Gen. Kramer reiterated his stand as Chairman in offering his communication to promote discussion. At the suggestion of Mr. Crawford, the Chairman read aloud his communication of the Draft of the Suggested Amendment and commented that this could be considered as a suggested Rule No. 4. During the reading of the Draft, Chairman Kramer made supplemental explanation of the various points.

During the ensuing discussion, Chairman Kramer read an additional proviso which required a reaffirmation of the plan if it was to continue beyond October 31, 1954.

A general discussion was continued concerning the benefits and/or detrimental effects of the suggested Amendment on the various sections of the river. Mr. Crawford, Mr. Smrha and later joined by Mr. Martin, discussed the subject of Engineering studies to determine the relative benefits to the river sections under the suggested Amendment. It was the consensus that the Engineering Committee would meet with no objection from the rest of the Committee if they undertook pertinent operation studies.

As the meeting of the Committee of the Whole approached conclusion, the Chairman, with the assistance of Mr. Tate, and others, summarized the Committee's actions as follows:

1. The Committee has no changes to recommend at the present time;

2. The life and functions of the Committee should be continued;

3. The Committee suggests further study by the Administration's Engineering Committee of the operation of the reservoir under various conditions and in light of further experience, and that;

4. Pending further study, that the operation of the reservoir be continued on the status quo as of this date.

A motion to adjourn was passed unanimously at 2:30 P.M.

Others Attending Meeting of January 26, 1954

Warden J. Noe, Special Asst. Attorney General, Topeka, Kansas

Gail L. Ireland, Special Advisor and Original Compact Commissioner, 802 Midland Savings Bldg., Denver, Colorado

Omer Griffin, Asst. Attorney General, Denver, Colorado

Guy M. Vincent, Engineer Kansas Water Resources, Garden City, Kansas

John T. Martin, Corps of Engineers, Albuquerque, N. M.

Geo. W. Colburn, CWCB Recorder, Denver, Colorado

Chairman Kramer stated that although no official meeting of the Engineering Committee had been held, there had been some studies made as the result of the Committee of the Whole's meeting on January 26, 1954. He requested Mr. Crawford, in whose office the studies had been made, to make some introductory remarks, if there were no objections. No objection being raised, Mr. Crawford stated that he had requested Mr. Gildersleeve, Chief Engineer of the Colorado Water Conservation Board, to make some factual studies of the inflow to John Martin Reservoir as time and conditions permitted. Mr. Gildersleeve stated that he and the staff had pursued such a study and distributed a Memorandum he had prepared for Mr. Crawford. Mr. Gildersleeve proceeded to explain his report, graphs and tabulations.

Mr. Bell and Mr. Nevius asked questions relative to the above Memorandum. Mr. Leavitt commented relating to the grouping of the Kansas Ditches. Mr. Gildersleeve replied giving his reasons for such grouping.

Chairman Kramer requested that the Memorandum be made a part of the record as follows:

M E M O R A N D U M

March 1954

To: Ivan C. Crawford

From: R. M. Gildersleeve

Subject: Historic Inflows to John Martin Reservoir in Excess of 2,000 c.f.s.

Pursuant to your request, the engineering staff has summarized data with respect to historic inflows to John Martin Reservoir of more than 2,000 c.f.s. for the period 1931 - 1953. The attached tabulation shows the distribution of such inflows throughout the period. In the 22 years of the period, exclusive of the year 1942, there were 59 instances in which mean daily inflows to the reservoir were in excess of 2,000 c.f.s., the duration of such instances ranging between 1 day and 16 days. In 50 cases the mean daily flow on the first day was between 2,000 c.f.s. and 5,000 c.f.s.; in 5 cases, between 5,000 c.f.s. and 10,000 c.f.s.; and on 4 different occasions the inflow on the initial day was more than 10,000 c.f.s. During the year 1942, there was a period of about 45 consecutive days on which mean daily inflow was above 2,000 c.f.s., beginning with April 19.

For the purpose of analyzing the possible effects of the flood inflows under conditions of priority administration on the river, the period was divided into two groups of 11 years each, prior and subsequent to the operation of the reservoir.

For the years 1931 - 1941, records are available of daily flows at either La Junta or Las Animas, and on the Purgatoire, at Lamar, Holly and Garden City. Records of the diversions of the "Garden City" group of ditches have also been published.

Records of daily stream flows at the same points are also available for the 1943 - 1953 period, and also either actual diversions or demands for the same group of ditches. However, during this period there was water stored in the reservoir most of the time, and it is a matter of judgment as to what the flows at Holly and Garden City might have been under a different pattern of releases from the reservoir.

As a further breakdown in the analysis, the inflows were divided into three groups: those of mean daily amounts between 2,000 and 5,000 c.f.s., those between 5,000 and 10,000 c.f.s., and those above 10,000 c.f.s. The number of days of duration of inflows above 2,000 c.f.s. was also noted, with the flow on the initial day determining the group placement of a flood flow. The floods were also segregated roughly into four classifications:

(a) Mean daily flow at Holly of not more than 1,000 c.f.s. for one or two days, with no significant flow past Garden City.

(b) Mean daily flow at Holly in excess of 1,000 c.f.s. for one or two days, with no significant flow past Garden City.

(c) Runoff or climatic conditions below the reservoir such that Holly flows would be in excess of 2,000 c.f.s., with considerable amounts of water passing Garden City.

(d) Inflows of such amount or duration that there would be no doubt that sufficient storage would accumulate for a finding of water in the reservoir.

The classification in which the various floods might be placed is indicated on the attached tabulation. This segregation is a matter of judgment and is based on inspection of mean daily streamflows and diversions as recorded. A detailed study of hydrographs, together with definite knowledge of climatic and ground water conditions, might result in a somewhat different segregation. However, this analysis should be a reasonable indication of what might be expected to occur during a period of water supply such as that of the years 1931 - 1953.

It would appear that significant storage might be possible for floods with mean daily flow on the first day in excess of 5,000 c.f.s., without any material detriment to interests above or below the reservoir, if releases should be made at those times for diversion requirements in Water District 67 only. The same thing is probably true for inflows between 2,000 and 5,000 c.f.s., with durations of four or more days. Excluding those, there would remain 22 floods in the 1931 - 1941 period, and 17 floods in the 1943 - 1953 period for further consideration, all with mean daily flows on the first day between 2,000 and 5,000 c.f.s., and with durations of from one to three days.

For the eleven years prior to the operation of the reservoir, if 10 of these floods fall in classification (c), there are 12 remaining in classifications (a) and (b). Of these, 3 would probably be in classification (a), which includes inflows of one day duration, from which water users in Kansas historically derived minor benefits. The remaining 9 floods in classification (b) which occured in the eleven years are those during which water users in Kansas historically made substantial diversions for periods of from two to four days.

On a similar basis for the 1943 - 1953 period, there would be 12 floods in classification (c), 2 in classification (a), and 3 which would have a (b) classification. There would thus be a total of 12 classification (b) floods over the period of twenty-three years considered.

The estimated amounts of water which would accumulate in the reservoir in these 12 cases, with releases being made in conformance with recorded diversions in Water District 67, are shown as follows:

1933 - 6/12 15,000 a. f.

1934 - 7/27 3,000 a. f.
9/15 13,000 " "

1935 - 9/ 8 6,000 " "

1938 -	9/14	4,000 a. f.
1941 -	5/24	7,000 " "
	8/20	8,000 " "
	8/27	7,000 " "
	9/23	15,000 " "
1946 -	8/27	10,500 " "
1947 -	6/12	4,000 " "
1951 -	8/ 4	4,500 " "

From 4 of the floods, storage in excess of 10,000 acre-feet might be possible and a finding of water in the reservoir would result in a regulated supply below the reservoir for periods of a week or more, depending on the magnitude of subsequent inflows, as compared with about three days of diversions made from the flood flows historically.

For the first 3 floods in 1941, subsequent inflows were such that probably storage of more than 10,000 acre feet would also have accumulated. This would leave 5 floods during the 23 year period, on which the effect of releases only for Water District 67 requirements would be to reduce Stateline flows below historical amounts for one or two days, with a consequent reduction of diversion opportunity below the Stateline on those days.

MEAN DAILY INFLOWS
John Martin Reservoir
(Values in Cubic Feet Per Second)

Year	2,000 c.f.s. - 5,000 c.f.s. (Initial Day) Consecutive Days Above 2,000 c.f.s. 1 day	2 days	3 days	over 3 days	5,000 c.f.s. - 10,000 c.f.s. (Initial Day) Consecutive Days Above 2,000 c.f.s. 1 day	2 days	3 days	Above 10,000 c.f.s. (Initial Day)	Sums
1931	1(a)								1
32	1(a)								1
33	1(c)	1(c)	1(b)			1(d)			4
34	1(b)	1(b)							2
35	1(b) 3(c)					1(c)		1(d)	
36		1(c)		1(d)		1(c)		1(d)	4
37		1(c)		1(c)					2
38	1(b) 1(c)		1(c)	1(c)					4
39									0
40	1(a)								1
1941		2(b) 1(c)	2(b)				1(c)		6
Subtotal	11	7	4	3		3	1	2	31
	3(a) 3(b) 5(c)	3(b) 4(c)	3(b) 1(c)	2(c) 1(d)		2(c) 1(d)	1(c)	2(d)	
1943									
44				1(d)					1
45		1(c)		1(c)					2
46			1(b)						1
47	1(c)	1(b)		3(c)					5
48			1(c)	1(d)					2
49	1(c)	1(c)		1(c)				1(d)	
50	1(c)		1(c)	1(c)					
51	1(a) 1(b) 4(c)				1(c)				7
52									0
1953	1(a)	1(c)						1(d)	3
Subtotal	10	4	3	8	1			2	28
	2(a) 1(b) 7(c)	1(b) 3(c)	1(b) 2(c)	6(c) 2(d)	1(c)			2(d)	
TOTAL	21	11	7	11	1	3	1	4	59
	5(a) 4(b) 12(c)	4(b) 7(c)	4(b) 3(c)	8(c) 3(d)	1(c)	2(c) 1(d)	1(c)	4(d)	

Mr. Mendenhall discussed the needs of Kansas and Colorado relative to the small amount of storage now and in prospect for the reservoir as of April 1, 1954 and the length of time it would last.

Chairman Kramer noted that the Compact had definite provisions in Article V-C limiting releases when storage was less than 20,000 a. f.

Chairman Kramer requested that if and when telephonic meetings were held by the Administration to make a finding, under Article V-F of the Compact, that he and other non-participants be promptly notified in the form of minutes of the meeting.

The Representatives were reminded that the next regular meeting was scheduled at Lamar, Colorado for Tuesday, July 27, 1954.

The meeting adjourned at 11:45 A. M.

YEAR	DAY	Inflow to John Martin (c.f.s.)	Garden City Group Ditch Diversions * (c.f.s.)
1931	May 31	2,450	405) 319)
1932	July 31	3,580	388) 386)
1933	May 4	9,290	725)
	" 5	10,110	773) 681)
	June 12	3,605	921
	" 13	5,109	1,030
	" 14	2,000	412
	August 27	3,000	808)
	" 28	4,200	786) 730)
	September 12	4,300	639) 427)
1934	July 27	2,413	204) 153)
	September 15	5,140	1,024
	" 16	2,610	811
1935	May 19	17,500	314) 682)
	May 31	3,637	589) 614)
	June 27	2,158	544) 672)
	July 22	7,130	1,041)
	" 23	2,215	1,103) 894)
	August 29	2,547	936) 958)
	September 8	3,696	835) 667)
1936	May 8	6,235	644)
	" 9	3,210	957) 686)
	May 24	2,765	930
	" 25	3,350	963

YEAR	DAY	Inflow to John Martin (c.f.s.)	Garden City Group Ditch Diversions * (c.f.s.)
1936	July 28	11,520	1,015
	" 29	5,150	1,165
	" 30	6,240	966
	August 4	2,750	831
	" 5	3,470	1,025
	" 6	4,940	1,277
	" 7	19,440	904
	" 8	13,259	693
	" 9	3,865	561
1937	May 31	3,932	1,005)
	June 1	7,420	1,088)
			1,037)
	September 5	3,060	681)
	" 6	6,040	1,638)
	" 7	2,237	1,438)
	" 8	5,290	1,487)
			1,112
1938	June 17	2,100	1,027
	July 18	3,280	1,108
	" 19	1,610	1,267
	" 20	1,500	1,328
	" 21	3,100	1,058
	" 22	1,820	1,147
	September 2	1,190	1,523
	" 3	1,180	1,697
	" 4	2,340	1,770
	" 5	5,990	1,593
	" 6	1,450	1,112
	September 14	2,160	1,049
1940	September 11	3,460	309)
			201)
1941	May 3	6,110	1,294
	" 4	3,210	1,200
	" 5	2,450	1,392
	May 24	2,580	826
	" 25	1,730	282
	August 20	2,590	682
	" 21	2,030	961
	" 22	2,440	903
	" 23	1,560	731

YEAR	DAY	Inflow to John Martin (c.f.s.)	Garden City Group Ditch Diversions * (c.f.s.)
1941	August 27	2,340	1,105)
	" 28	2,250	1,106)
			1,128)
	September 23	4,020	1,145
	" 24	3,640	1,157
	" 25	1,510	903
	October 24	4,840	0)
	" 25	4,060	0)
			0)
1944	May 27	2,275	41
	" 28	21,600	108
	" 29	8,760	91
	" 30	5,180	86
	" 31	4,700	83
	June 1	3,780	81
	" 2	3,370	79
	" 3	3,314	96
	" 4	3,242	69
	" 5	2,822	106
	" 6	2,309	109
	" 7	2,017	112
1945	July 11	3,265	287
	" 12	2,320	282
	August 7	2,944	119)
	" 8	5,412	378)
	" 9	4,196	640)
	" 10	2,326	670)
			627)
1946	August 27	1,875	522
	" 28	3,056	977
	" 29	2,093	991
1947	May 16	3,736	5)
	" 17	6,840	4)
	" 18	3,440	5)
	" 19	2,575	81)
	" 20	2,922	54)
	" 21	3,200	77)
	" 22	2,070	109)
	" 23	1,491	63)
	" 24	1,758	48)
	" 25	2,842	35)
	" 26	2,080	2)
			0)

YEAR	DAY	Inflow to John Martin (c.f.s.)	Garden City Group Ditch Diversions * (c.f.s.)
1947	June 12	2,079	215
	" 13	2,114	227
	June 19	4,809	25)
	" 20	8,463	161)
	" 21	9,027	214)
	" 22	6,867	215)
	" 23	7,692	200)
	" 24	6,858	222)
	" 25	5,606	227)
	" 26	4,376	326)
	" 27	3,243	457)
	" 28	2,647	509)
	" 29	2,382	530)
	" 30	2,279	423)
			289)
	July 7	2,931	195)
	" 8	3,584	188)
	" 9	3,659	197)
	" 10	5,880	144)
	" 11	3,578	108)
	" 12	2,403	97)
	" 13	2,011	93)
			96)
	July 24	2,185	518
1948	May 31	4,110	632)
	June 1	13,520	501)
	" 2	7,520	399)
	" 3	5,780	320)
	" 4	4,912	280)
	" 5	5,197	269)
	" 6	5,066	275)
	" 7	3,779	298)
	" 8	3,021	329)
	" 9	2,744	367)
	" 10	2,222	396)
	" 11	2,026	450)
	" 12	2,161	443)
	" 13	4,402	342)
	" 14	8,224	306)
	" 15	3,118	262)
			256)

YEAR	DAY	Inflow to John Martin (c.f.s.)	Garden City Group Ditch Diversions * (c.f.s.)
1948	June 20	5,292	429
	" 21	5,390	446
	" 22	2,790	486
1949	June 5	13,390	0)
	" 6	4,140	0)
	" 7	3,260	0)
	" 8	2,175	0)
			0)
	June 15	3,248	0
	" 16	1,901	0
	June 20	3,009	0
	" 21	2,595	0
	" 22	2,156	0
	" 23	2,650	0
	July 15	3,450	112
1950	July 24	3,810	214
	" 25	772	230
	" 26	2,800	150
	" 27	8,110	0
	August 29	2,314	0
	September 14	2,536	71
	" 15	446	40
	" 16	2,369	37
1951	June 15	4,012	0
	July 12	2,630	Demand 0
	July 23	7,020	" 0
	July 31	2,247	" 500
	August 4	3,112	" 500
	August 11	2,571	" 350
	August 21	3,339	" 350

* Diversions resulting from flood flows in the Arkansas River.

YEAR	DAY	INFLOW TO JOHN MARTIN (c.f.s.)	DIVERSIONS IN W. D. 67 * CADDOA TO LAMAR (c.f.s.)	LAMAR TO STATELINE (c.f.s.)	TOTAL (c.f.s.)
1931	May 31	2,450	734	51	785
			610	55	665
1932	July 31	3,580	868	349	1,217
1933	May 4	9,290	487	58	545
	" 5	10,110	593	91	684
	June 12	3,605	797	147	944
	" 13	5,109	984	255	1,239
	" 14	2,000	937	275	1,212
	August 27	3,000	334	68	402
	" 28	4,200	342	18	360
	September 12	4,300	486	36	522
1934	July 27	2,413	688	254	942
	September 15	5,140	507	299	806
	" 16	2,610	641	261	902
1935	May 19	17,500	964	43	1,007
	May 31	3,637	812	26	838
			844	63	907
	June 27	2,158	687	113	800
	July 22	7,130	863	148	1,011
	" 23	2,215	884	118	1,002
	August 29	2,547	962	142	1,104
	September 8	3,696	716	66	782
1936	May 8	6,235	650	125	775
	" 9	3,210	645	165	810
	May 24	2,765	755	163	918
	" 25	3,350	617	181	798
	July 28	11,520	573	89	662
	" 29	5,150	882	203	1,085
	" 30	6,240	681	149	830

YEAR	DAY	INFLOW TO JOHN MARTIN (c.f.s.)	DIVERSIONS IN W. D. 67 * CADDOA TO LAMAR (c.f.s.)	LAMAR TO STATELINE (c.f.s.)	TOTAL (c.f.s.)
1936	August 4	2,750	660	95	755
	" 5	3,470	743	93	836
	" 6	4,940	658	106	764
	" 7	19,440	877	125	1,002
	" 8	13,259	811	148	959
	" 9	3,865	607	119	726
1937	May 31	3,932	852	94	946
	June 1	7,420	859	93	952
	September 5	3,060	715	90	805
	" 6	6,040	761	123	884
	" 7	2,237	625	84	709
	" 8	5,290	642	62	704
1938	June 17	2,100	445	74	519
	July 18	3,280	590	64	654
	" 19	1,610	615	96	711
	" 20	1,500	654	116	770
	" 21	3,100	566	96	662
	" 22	1,820	601	96	697
	September 2	1,190	597	75	672
	" 3	1,180	678	107	785
	" 4	2,340	438	107	545
	" 5	5,990	373	113	486
	" 6	1,450	244	95	339
	September 14	2,160	521	101	622
1940	September 11	3,460	916	140	1,056
1941	May 3	6,110	0	7	7
	" 4	3,210	182	7	189
	" 5	2,450	296	7	303
	May 24	2,580	383	76	459
	" 25	1,730	411	71	482
	August 20	2,590	735	37	772
	" 21	2,030	799	119	918
	" 22	2,440	705	102	807
	" 23	1,560	640	85	725
	August 27	2,340	459	59	518
	" 28	2,250	496	57	553

YEAR	DAY	INFLOW TO JOHN MARTIN (c.f.s.)	DIVERSIONS IN W. D. 67 * CADDOA TO LAMAR (c.f.s.)	LAMAR TO STATELINE (c.f.s.)	TOTAL (c.f.s.)
1941	September 23	4,020	356	72	428
	" 24	3,640	413	38	451
	" 25	1,510	359	30	389
	October 24	4,840	39	74	113
	" 25	4,060	0	74	74
1944	May 27	2,275	160	72	232
	" 28	21,600	165	74	239
	" 29	8,760	136	87	223
	" 30	5,180	135	77	212
	" 31	4,700	137	68	205
	June 1	3,780	155	54	209
	" 2	3,370	167	54	221
	" 3	3,314	214	54	268
	" 4	3,242	235	54	289
	" 5	2,822	170	54	224
	" 6	2,309	246	54	300
	" 7	2,017	242	54	296
1945	July 11	3,265	531	72	603
	" 12	2,320	258	41	299
	August 7	2,944	709	113	822
	" 8	5,412	779	92	871
	" 9	4,196	645	142	787
	" 10	2,326	557	116	673
1946	August 27	1,875	532	84	616
	" 28	3,056	368	87	455
	" 29	2,093	368	53	421
1947	May 16	3,736	289	41	330
	" 17	6,840	224	36	260
	" 18	3,440	139	41	180
	" 19	2,575	145	34	179
	" 20	2,922	145	32	177
	" 21	3,200	144	30	174
	" 22	2,070	307	40	347
	" 23	1,491	468	22	490
	" 24	1,758	436	22	458
	" 25	2,842	418	22	440
	" 26	2,080	419	17	436
	June 12	2,079	667	43	710
	" 13	2,114	681	58	739

YEAR	DAY	INFLOW TO JOHN MARTIN (c.f.s.)	DIVERSIONS IN W. D. 67 * CADDOA TO LAMAR (c.f.s.)	LAMAR TO STATELINE (c.f.s.)	TOTAL (c.f.s.)
1947	June 19	4,809	709	28	737
	" 20	8,463	702	89	791
	" 21	9,027	693	134	827
	" 22	6,867	665	126	791
	" 23	7,692	659	128	787
	" 24	6,858	665	143	808
	" 25	5,606	618	155	773
	" 26	4,376	452	148	600
	" 27	3,243	356	154	510
	" 28	2,647	616	171	787
	" 29	2,382	618	166	784
	" 30	2,279	641	158	799
	July 7	2,931	622	156	778
	" 8	3,584	586	158	744
	" 9	3,659	512	132	644
	" 10	5,880	463	136	599
	" 11	3,578	431	154	585
	" 12	2,403	430	187	617
	" 13	2,011	249	191	440
	July 24	2,185	560	124	684
1948	May 31	4,110	78	50	128
	June 1	13,520	84	46	130
	" 2	7,520	52	46	98
	" 3	5,780	42	46	88
	" 4	4,912	52	36	88
	" 5	5,197	100	36	136
	" 6	5,066	78	36	114
	" 7	3,779	189	36	225
	" 8	3,021	194	43	237
	" 9	2,744	295	51	346
	" 10	2,222	291	60	351
	" 11	2,026	308	65	373
	" 12	2,161	305	65	370
	" 13	4,402	309	59	368
	" 14	8,224	316	58	374
	" 15	3,118	332	58	390
	June 20	5,292	314	83	397
	" 21	5,390	307	69	376
	" 22	2,790	279	64	343

YEAR	DAY	INFLOW TO JOHN MARTIN (c.f.s.)	DIVERSIONS IN W. D. 67 * CADDOA TO LAMAR (c.f.s.)	LAMAR TO STATELINE (c.f.s.)	TOTAL (c.f.s.)
1949	June 5	13,390	0	0	0
	" 6	4,140	0	0	0
	" 7	3,260	0	0	0
	" 8	2,175	0	0	0
	June 15	3,248	0	0	0
	" 16	1,901	0	0	0
	June 20	3,009	105	3	108
	" 21	2,595	207	3	210
	" 22	2,156	353	3	356
	" 23	2,650	497	3	500
	July 15	3,450	589	110	699
1950	July 24	3,810	456	31	487
	" 25	772	437	35	472
	" 26	2,800	430	36	466
	" 27	8,110	434	39	473
	August 29	2,314	300	80	380
	September 14	2,536	446	78	524
	" 15	446	436	72	508
	" 16	2,369	490	71	561
1951	June 15	4,012	36	5	41
	July 12	2,630	456	7	463
	July 23	7,020	620	77	697
	July 31	2,247	690	107	797
	August 4	3,112	667	104	771
	August 11	2,571	318	85	403
	August 21	3,339	600	90	690

* Diversions resulting from flood flows in the Arkansas River

092-39-9-74 STATE OF COLORADO WATER CONSERVATION BOARD -- ENGINEERING DEPARTMENT

PLOTTED CHECKED

MEAN DAILY CFS

10,000

10,000

10,000

10,000

10,000

0

1947 (Cont.)

Inflow

Stored

Lamar

Holly

Garden City

June 19 - 30

July 7 - 13

July 24

1948

May 31 - June 15

June 20, 21, 22

13,525

12055

1949

June 5 - 8

June 15, 16.

June 20 - 23.

July 15

13,290

14,520

10,800 17,200

1950

July 24 - 27

Aug. 29

Sept. 14 - 16.

June 15.

July 12.

July 23

July 31

Aug. 4.

Aug. 11.

Aug. 21.

1951

1952 - NO INFLOWS IN EXCESS OF 2000 CFS.

STATE of COLORADO WATER CONSERVATION BOARD — ENGINEERING DEPARTMENT

PLOTTED CHECKED

1942 WAS VERY GOOD WATER YEAR — INFLOWS IN EXCESS OF 2000 C.F.S. FROM APRIL 19 THRU JULY 5 EXCEPT FOR FIVE DAYS IN JUNE.

1943 - NO INFLOWS IN EXCESS OF 2000 C.F.S.

MEAN DAILY C.F.S.

10,000

1944

Inflow

Stored

May 27 - June 7

Lamar

Holly

Garden City

July 11, 12.

Aug. 7, 8, 9, 10.

1945

10,000

Aug. 27, 28, 29.

1946

0

May 16 - 26

1947

June 12, 13.

STATE OF COLORADO WATER CONSERVATION BOARD ENGINEERING DEPARTMENT

PLOTTED CHECKED

MEAN DAILY C.F.S.

1936

Lamar

Inflow

May 8, 9

Holly

Garden City

7,400

May 24, 25

July 28, 29, 30

7,520

12,200
7,660

Aug. 4, 5, 6, 7, 8, 9

19,040
8,259

19,260
14,100

13,530
12,509

1937

May 21, [illegible]

Sept. 5, 6, 7, 8

1938

June 17

July 18, 19, 20, 21, 22.

Sept. 2, 3, 4, 5, 6.

Sept. 14.

1939 - NO INFLOWS IN EXCESS OF 2000 C.F.S.

1940

Sept. 11.

1941

May 3, 4, 5.

May 24, 25.

Aug. 20, 21, 22, 23.

Aug. 27, 28.

Sept. 23, 24, 25.

Oct. 24, 25.

STATE OF COLORADO WATER CONSERVATION BOARD -- ENGINEERING DEPARTMENT

PLOTTED CHECKED

MEAN DAILY C.F.S.

10,000
5,000
0
10,000
0
10,000
0
10,000
0
10,000
0

1933

May 31.
Inflow to John Martin
Lamar
Holly
Garden City

1934

July 31

May 4,5

21,200

1935

June 12,13,14

Aug. 27,28

Sept 12

1933

July 27

Sept. 15,16

1934

May 19

May 31

June 27

July 22,23

Aug. 29

Sept. 8

1935