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MINUTES OF THE

6TH MEETING

COLORADO RIVER COMMISSION.

The 6th meeting of the Colorado River Commission was held at the Department of Commerce, Washington, D. C., Monday morning, January 30, 1922, at 10 A.M. There were present:

Herbert Hoover	Representing the U. S.	Chairman
R. E. Caldwell	"	Utah
Delph E. Carpenter	"	Colorado
Stephen B. Davis	"	New Mexico
Frank C. Emerson	"	Wyoming
W. F. McClure	"	California
W. S. Norviel	"	Arizona
James G. Scrugham	"	Nevada
Clarence C. Stetson		Executive Secretary.

The meeting was called to order by the Chairman at 10 A.M.

Mr. McClure stated that the Report of the Committee on Volume of Water would be ready in the afternoon.

The Commission then proceeded to consider the following Tables A, B and C with reference to water demand and avilable water supply.

The following Table A, prepared by the Reclamation Service and showing the Estimates of Areas and Water Requirements of the interested states was submitted:

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TABLE A.

AREAS AND WATER REQUIREMENTS.

(Reclamation Service Data)

State	Acres: Irrigated 1920	Acres: Probable additional	Water use—Ac.ft. per acre	Acre feet of water: Probably used on acres irrigated	Acre feet of water: Probable additional required
Wyoming	367,000	543,000	1.5	550,500	814,500
Colorado	740,000	1,018,000	1.5	1,110,000	1,527,000
Utah	359,000	456,000	1.5	538,500	684,000
New Mexico	34,000	483,000	2.0	68,000	966,000
Nevada	5,000	2,000	2.5	12,500	5,000
Arizona	501,000	676,000	3.0	1,503,000	2,028,000
California	458,000	481,000	4.4	2,015,200	2,116,400
Total U. S.	2,464,000	3,659,000		5,797,700	8,140,900
Mexico	190,000	610,000	4.4	836,000	2,684,000
Grand Total	2,654,000	4,269,000		6,633,700	10,824,900

Note (1): All data involve estimation in varying degree. The acre-feet of past use are in the nature of guess, but the water used is not included in run-off data used in estimates for the future. Figures for additional acres assume construction of storage and feasible canals.

Note (2): Figures of water requirement are intended to be "consumptive use" except for California and Mexico, for which figures of total diversion are used because return flow is not available for reuse.

Mr. Norviel then submitted on behalf of the Committee on Water Requirements the following Tables B and C:

TABLE B.

REPORT OF COMMITTEE ON WATER REQUIREMENTS ON TOTAL NUMBER NEW ACRES CLAIMED IRRIGABLE FOR WHICH WATER IS ASKED BY STATES IN COLORADO RIVER BASIN TO BE IRRIGATED FROM COLORADO AND TRIBUTARIES.

	Acres- new	Acre ft. duty	Acre feet Diversion	Acre-feet return	Acre ft. per a. con. use	Acre feet consumptive use
Wyoming	580,000	2 1/2	1,450,000	1	1 1/2	870,000
Colorado	1,515,000	2	3,030,000	7/10	13/10	1,969,500
	310,000	1	310,000	0	1	310,000
Utah	1,000,000	3	3,000,000	1/2	2 1/2	2,500,000
New Mexico	1,400,000	2 1/2	3,500,000	3/4	1 3/4	2,450,000
Nevada	82,000	3	246,000	1	2	164,000
Arizona	1,172,000	3 1/2	4,102,000	1,1/2	2	2,344,000
Calif. (new & old)	939,000	4	3,756,000	0	4	3,756,000
Total, U.S.	6,998,000		19,394,000			14,364,500
Total Mexico (new and old)	820,000	4	3,280,000	0	4	3,280,000
Grand Total	7,818,000		22,674,000			17,644,500

Practically all of the acres in this table in the State of Arizona are on the Gila and its tributaries, and the Little Colorado, - Perhaps more than 75% of the total, on both this and the Table C of cultivated lands, leaving a very small acreage to be irrigated direct from the Colorado River, the engineering data for which is insufficient upon which to base any accurate statement.

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TABLE C.

REPORT OF COMMITTEE ON WATER REQUIREMENTS ON CULTIVATED ACRES OF STATES IN COLORADO RIVER.

	Cultivated acres old	Acre feet duty	Acre feet diversion	Acre feet return	Acre feet loss	Acre feet consumptive use
Wyoming	400,000	2 1/2	1,000,000	1	1 1/2	600,000
Colorado	850,000	2	1,700,000	0.7	1.3	1,105,000
Utah	188,000	3	564,000	1	2	376,000
Nevada	35,350	3	106,050	1	2	70,700
New Mexico	57,000	2 1/2	142,500	3/4	1 3/4	99,750
Arizona	521,500	3 1/2	1,825,250	1 1/2	2	1,043,000
California	694,000	4	2,776,000	0	4	2,776,000
Old U. S. (total)	2,745,850		8,113,800			6,070,450
Mexico	200,000	4	800,000	0	4	800,000
	2,945,850		8,913,800			6,870,450
Old U. S.	2,745,850		8,113,800			6,070,450
New U. S.	6,998,000		19,394,000			14,364,500
Total U. S.	9,743,850		27,507,800			20,434,950
Total Mexico (new and old)	820,000		3,280,000			3,280,000
Grand Total	10,563,850		30,787,800			23,714,950

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After a discussion and comparison of the figures set forth in these tables with a view to water demand and available water supply, the various Commissioners expressed their opinions as to the possibility of reconciling on a twenty year basis (subject to revision at the termination of that period) their claims for new acres (see Table B) with the new acres which were estimated as irrigable by the Reclamation Service (see Table A). It was understood by the Commission that the records from 1899 to 1920 (See Appendix to Sixth Meeting "Summary of Average Annual Run-off at Principal Gaging Stations of U. S. Geological Survey in Colorado River Basin) showed an average annual run-off of 17,300,000 acre-feet of water at Yuma, which may be taken as about the amount available for (a) new irrigation in Wyoming, Colorado, Utah, New Mexico Nevada, Arizona and (b) new and old irrigation in California and Mexico. In considering the question of whether there is sufficient water to meet the demands of the different states it is necessary to include as "acres new" for California and Mexico in Table B both present irrigated and future irrigable lands as the gaging station at Yuma which records the available water supply is situated above the principal point at which water is now diverted for irrigation in California and Mexico.

(1) Mr. Emerson expressed his willingness to accept for Wyoming the new acres as estimated by the Reclamation Service in Table A provided the other states would also agree to do likewise, but was of the opinion that estimates of irrigable acreages at this

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time, in view of the limited information available, cannot be expected to be very accurate. He drew attention to the slight discrepancy between the Reclamation Service Estimates and Wyoming's claims in Table B.

(NOTE: The excess of Wyoming's claim over the Reclamation Service Estimate - 37,000 new acres.)

(2) Mr. Carpenter stated that the 310,000 new acres claimed by Colorado in Table B were outside the Colorado River Basin and would be reached by tunneling; that the 310,000 acre feet diversion would be total consumptive use for irrigation and power in the vicinity of Denver.

Mr. Carpenter also expressed the opinion that he could not agree to the reduction of new acres claimed by Colorado in Table B, as he considered that the figures were the result of a careful analysis.

(NOTE: The excess of Colorado's claim over the Reclamation Service Estimate - 807,000 new acres, including 310,000 acres outside the Basin, not estimated by the Reclamation Service.)

(3) Mr. Caldwell expressed the opinion that he could not agree to the reduction of new acres claimed by Utah in Table B without further examination as the records of his State were at present inadequate.

(NOTE: The excess of Utah's claims over Reclamation Service Estimate - 544,000 new acres.)

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(4) Judge Davis expressed the opinion that the estimates of new acres claimed by New Mexico in Table B might prove too liberal and that after further investigation, he might be able to agree to a reduction of this claim from 1,400,000 to 1,000,000 acres.

(NOTE: The excess of New Mexico's claim over Reclamation Service Estimate - 917,000 new acres

Allowing for Judge Davis' tentative agreement to reduce - 517,000 new acres.)

(5) Colonel Scrugham requested that the new acres estimated by the Reclamation Service in Table A be increased from 2,000 to 82,000 acres as stated in Table B, on the ground that the Reclamation Service had not at the time of making its estimates been cognizant of certain proposed projects in Nevada.

(NOTE: The excess of Nevada's claim over the Reclamation Service Estimate - 80,000 new acres.)

(6) Mr. Norviel explained that the 1,172,000 new acres claimed by Arizona in Table B was made up as follows:

496,000 acres irrigable from the Gila River
140,000 acres irrigable from the Virgin and Little Colorado Rivers and
536,000 acres irrigable from the main Colorado River.

Mr. Norviel also stated that the Reclamation Service estimate for new acreage for Arizona, i.e., 676,000 acres, was satisfactory and would cover any acreage which Arizona might desire to irrigate from the Colorado River and tributaries, exclusive of the Gila River, though further investigations may determine a much larger acreage of land to be irrigated from the Colorado.

(NOTE: The excess of Arizona's claims over Reclamation Service estimate. - 496,000 new acres.)

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(7) Mr. McClure explained to the Commission that the 939,000 new acres, reported in Table B was in fact the total acreage in California irrigable from the Colorado River. This total acreage was made up as follows: 458,000 "cultivated acres old"; he stated, i.e., acres irrigated at present and 481,000 new acres, i.e., acres susceptible of being irrigated - the figures for cultivated and new acres being in exact accord with the Reclamation Service Estimates in Table A.

Mr. McClure also expressed the opinion that the 694,000 "Cultivated acres old" credited California in Table C should, to make the records consistent, read 458,000.

(8) The Commission expressed the opinion that 620,000 new acres as estimated by the Reclamation Service in Table A was probably ample provision for Mexico.

As a result of the foregoing discussion Table B and C are revised to read as follows:

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TABLE B. (REVISED)

REPORT OF COMMITTEE ON WATER REQUIREMENTS ON TOTAL NUMBER NEW ACRES CLAIMED IRRIGABLE FOR WHICH WATER IS ASKED BY STATES IN COLORADO RIVER BASIN TO BE IRRIGATED FROM COLORADO AND TRIBUTARIES.

	Acres- new	Acre ft. duty	Acre feet Diversion	Acre feet return	Acre ft. per a. con. use	Acre feet consumptive use
Wyoming	580,000	2 1/2	1,450,000	1	1 1/2	870,000
Colorado	1,515,000	2	3,030,000	7/10	13/10	1,969,500
	310,000	1	310,000	0	1	310,000
Utah	1,000,000	3	3,000,000	1/2	2 1/2	2,500,000
New Mexico	1,400,000	2 1/2	3,500,000	3/4	1 3/4	2,450,000
Nevada	82,000	3	246,000	1	2	164,000
Arizona	1,172,000	3 1/2	4,102,000	1 1/2	2	2,344,000
California	481,000	4	1,924,000	0	4	1,924,000
Total U. S.	6,540,000		17,562,000			12,531,500
Mexico	620,000	4	2,480,000	0	4	2,480,000
	7,160,000		20,042,000			15,011,500

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TABLE C. (REVISED)

REPORT OF COMMITTEE ON WATER REQUIREMENT ON CULTIVATED ACRES OF STATES IN COLORADO RIVER.

	Cultivated acres old	Acre feet duty	Acre feet diversion	Acre feet return	Acre feet loss	Acre feet consumptive use
Wyoming	400,000	2 1/2	1,000,000	1	1 1/2	600,000
Colorado	850,000	2	1,700,000	0.7	1.3	1,105,000
Utah	188,000	3	564,000	1	2	376,000
Nevada	35,350	3	106,050	1	2	70,700
New Mexico	57,000	2 1/2	142,500	3/4	1 3/4	99,750
Arizona	521,500	3 1/2	1,825,250	1 1/2	2	1,043,000
California	458,000	4	1,832,000	0	4	1,832,000
U. S. Old	2,509,850		7,169,800			5,126,450
U. S. New	6,540,000		17,562,000			12,531,500
Total U. S.	9,049,850		24,731,800			17,657,950
Mexico, old	200,000	4	800,000	0	4	800,000
Mexico, new	620,000	4	2,480,000	0	4	2,480,000
GRAND TOTAL	9,869,850		28,011,800			20,937,950

Note:- In analyzing the foregoing "Revised Tables B and C" to determine if there is now sufficient surplus water to irrigate "New Acres" claimed by all the States and at the same time allow for any allocation that may be given to Mexico, it is necessary to include both "Cultivated Acres Old" (See Revised Table C) and "Acres New" for California and Mexico as "New Acres". This is due to the fact that the present diversion point for irrigation in California and Mexico is below the Gaging Station at Yuma, at which point the total flow of the Colorado River is recorded and an average annual run-off of 17,300,000 acre feet is shown.

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	Acres	Acre Ft. Duty	Acre Ft. Diversion	Acre Feet Return	Acre feet Loss	Acre feet Consumptive use
Total "New Acres," see Revised Table B	7,160,000		20,042,000			15,011,500
"Cultivated Acres Old", See Revised Table C,						
California	458,000	4	1,832,000	0	4	1,832,000
Mexico	200,000	4	800,000	0	4	800,000
	7,818,000		22,674,000			17,643,500

The foregoing table shows that the present available surplus of 17,300,000 acre feet average annual run-off will, on the claims of the various States and any allowance that may be accorded to Mexico, have to water 7,818,000 acres for which the diversion or duty will be 22,674,000 acre feet and the Consumptive Use will be 17,643,500 acre feet.

The discussion with reference to the foregoing tables also raised the question as to whether, in the light of the difference between new acreage as estimated by the Reclamation Service in Table A and as claimed by each State as irrigable in Table B, there would be sufficient water in the Colorado to meet the demands of the various states.

Judge Davis then submitted for the consideration of the Commission the following proposition as a basis for an agreement:

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"That no state nor any of the citizens thereof, shall obtain, nor shall any development on Colorado River in any of said states thereby create, a priority of rights, as to time or quantity of water by virtue of the earlier development and use of the waters of the Colorado River as against any other state, or the citizens thereof; and all priorities as between said states, with respect to the use of the waters of the Colorado River, are hereby specifically waived.

"The foregoing agreement is based upon the assumption, from information at present available, that the areas of land irrigable from the Colorado River in the several states are substantially as follows:

Wyoming	acres
Colorado	acres
Utah	acres
New Mexico	acres
Arizona	acres
Nevada	acres
California	acres

"There shall be created a permanent commission to be known as The Colorado River Commission.

(Here state the general purposes of the Commission)

"Whenever it shall be shown to the satisfaction of said Commission that there are lands within any state, in addition to the areas hereinbefore stated, which may be irrigated from the waters of the Colorado River without detriment to the proper irrigation of the areas hereinbefore stated for each State, the Commission shall have power to grant to such states the use of waters of said river for such additional acreage."

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Mr. McClure expressed a willingness to agree to this in principle provided it was not to become binding until storage should be provided for.

After a general discussion, it was found impossible to obtain the approval of all the States to the above proposal as a working basis: Arizona, California, Wyoming, Nevada and New Mexico assenting; Colorado and Utah dissenting.

The Chairman then submitted the following proposition for the consideration of the Commission:

"INASMUCH as these States claim equitable distribution and the Federal Government claims control of unappropriated water -

RESOLVED:

That a permanent Commission should be established to be called the Colorado River Commission;

That the Commission shall be vested with authority by the State and Federal Governments to:

(a). Determine on equitable division.

(b) To allot all unappropriated water.

That no division shall be determined until the construction of one of the major dams shall be assured."

After discussion, it was found impossible to obtain the unanimous approval of all the Commissioners to this proposition.

The meeting was adjourned at 12:00 noon; to reconvene at 2 P.M. the same day, Mr. Carpenter agreeing to present the Colorado view at that time.

Clarence C. Stetson.
Executive Secretary.

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DEPARTMENT OF THE INTERIOR

UNITED STATES GEOLOGICAL SURVEY

WASHINGTON

Office of the Director

January 30, 1922,

Mr. W. F. McClure,
Member Colorado River Board,
Department of Commerce.

Dear Mr. McClure:

In accordance with your conference with John C. Hoyt there has been prepared a summary of the average annual run-off at the principal gaging stations maintained by the U. S. Geological Survey in the Colorado River Basin. The attached map shows the location of the stations and the blue prints give the data available.

Very truly yours,

(signed) Geo. Otis Smith,

Director.

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DUMMY SHEET FOR

U. S. GEOLOGICAL SURVEY

MAP OF COLORADO RIVER DRAINAGE BASIN

SHOWING LOCATION OF BASE GAGING STATIONS

NEEDED IN THE DEVELOPMENT AND UTILIZATION

OF THE RIVER AND PRINCIPAL PROPOSED

RESERVOIR SITES.

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Flow in acre-feet at Gaging Stations in Colorado River drainage basin for climatological year ending September 30.

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1.- GREEN RIVER AT GREEN RIVER, WYO.
Drainage area, 7,670 square miles.

Year		Acre-feet
1895-96		1,420,000
1896-97		1,650,000
1897-98		1,580,000
1898-99		2,500,000
1899-1900	Record 1 mo.	
1900-01		1,300,000
1901-02		1,040,000
1902-03		1,310,000
1903-04		1,870,000
1904-05		1,010,000
1905-06		1,490,000
1907-14	No record	
1914-15	Record 6 mos.	
1915-16		1,750,000
1916-17		2,080,000
1917-18	Records 8-1/2 mos.	
1918-19		685,000
1919-20	Records 8-1/2 mos.	
Average		1,510,000

2.- GREEN RIVER NEAR BRIDGEPORT, UTAH.
Drainage area, 15,700 square miles.

1911-12		2,080,000
1912-13		2,430,000
1913-14		2,580,000
1914-15		1,260,000
Average		2,090,000

Flow in acre-feet at Gaging Stations in Colorado River drainage basin for climatological year ending September 30.

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3.- YAMPA RIVER NEAR MAYBELL, COLO.
Drainage area, 3,670 square miles.

Year		Acre-feet
1904	(April to October)	817,000
1905	do	956,000
1912	do	1,500,000
1916	do	1,020,000
1917	do	1,960,000
1918	dp	1,170,000
1919	do	802,000
1920	do	1,490,000
Average		1,210,000

4.- DUCHESNE RIVER AT MYTON, UTAH.
Drainage area, 2,750 square miles.

1899-1900		467,000
1900-01		504,000
1901-02		467,000
1903-11	(records 4 to 9 mos. each year)	
1911-12		591,000
1912-13		500,000
1913-14		746,000
1914-15		441,000
1915-16		622,000
1916-17		886,000
1917-18		454,000
1918-19		403,000
1919-20		588,000
Average		556,000

5.- UINTA RIVER AT FORT DUCHESNE
Drainage area, 672 square miles.

1899-1900	139,000
1900-01	163,000
1901-02	143,000
1908-09	301,000
1909-10	136,000
Average	176,000

Flow in acre-feet at Gaging Stations in Colorado River drainage basin for climatological year ending September 30.

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6.- GREEN RIVER AT GREEN RIVER, UTAH.
Drainage area, 41,000 square miles.

Year	Acre-feet
1894-95	4,500,000
1895-96	4,160,000
1896-97	5,980,000
1898-1904 (No record)	
1904-05 (Records 7 mos.)	
1905-06	6,360,000
1906-07	8,950,000
1907-08	4,290,000
1908-09	8,580,000
1909-10	4,710,000
1910-11	4,160,000
1911-12	6,160,000
1912-13	5,370,000
1913-14	7,080,000
1914-15	3,620,000
1915-16	5,740,000
1916-17	8,430,000
1917-18	5,110,000
1918-19	3,230,000
1919-20	5,950,000
Average	5,690,000

7.- SAN RAFAEL RIVER NEAR GREEN RIVER, UTAH.
Drainage area, 1,690 square miles.

1908-09 Records 5 mos.	
1909-10 " 9 mos.	
1910-11	157,000
1911-12	189,000
1912-13	192,000
1913-14	264,000
1914-15	101,000
1915-16	182,000
1916-17	318,000
1917-18	126,000
1918-19	
1919-20	
Average	191,000

Flow in acre-feet at Gaging Stations in Colorado River drainage basin for climatological year ending September 30.

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8.- GRAND RIVER NEAR MOAB AND CISCO, UTAH.
Drainage area 23,800 sq. mi. at Dewey ferry near Cisco; 24,300 at Moab station.

Records for 1913-14 at Moab station; other years at Cisco station.

Year	Acre-feet
1913-14	8,530,000
1914-15	5,350,000
1915-16	7,500,000
1916-17	8,760,000
Average	7,540,000

9.- GRAND RIVER NEAR FRUITA, COLO.
Drainage area, 16,800 square miles.

1908-09	7,590,000
1909-10	5,330,000
1910-11	5,970,000
1911-12	7,990,000
1912-13	4,910,000
1913-14	7,780,000
1914-15 (Not full year)	
1915-16	6,530,000
1916-17	7,800,000
1917-18	6,060,000
1918-19	4,230,000
1919-20	7,740,000
Average	6,540,000

10.- SAN JUAN RIVER AT FARMINGTON, N. MEX.

1904-05	3,000,000
1912-13	1,600,000
1913-14	2,370,000
Average	2,320,000

11.- ANIMAS RIVER AT FARMINGTON, N. MEX.

1904-05	1,090,000
1912-13	544,000
1913-14	991,000
Average	875,000

Flow in acre-feet at Gaging Stations in Colorado River drainage basin for climatological year ending September 30.

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12.- SAN JUAN RIVER NEAR BLUFF, UTAH.
Drainage area, 24,000 square miles.

Year	Acre-feet	
1914-15	2,700,000	(Nov., 1914-Sept. 1915)
1915-16	3,240,000	
1916-17	3,340,000	
Average	3,090,000	

13.- LITTLE COLORADO RIVER AT HOLBROOK, ARIZ.
Drainage area, 17,600 square miles.

1905 (June-Sept.)	37,000
1905-06	183,000
1906-07 (Oct.-Apr.)	91,400
Average	162,000

14.- VIRGIN RIVER AT VIRGIN, UTAH.
Drainage area, 1,010 square miles.

1909-10	219,000
1910-11	320,000
1911-12	136,000
1912-13	158,000
1913-14	216,000
1914-15 (Feb.-Sept.)	160,000
1915-16	282,000
1916-17	160,000
1917-18	167,000
Average	207,000

15.- COLORADO RIVER NEAR TOPOCK, ARIZ.
Drainage area, 171,000 square miles.

1917 (Feb.-Sept.)	18,800,000
1917-18	15,500,000
1918-19	12,900,000

Flow in acre-feet at Gaging Stations in Colorado River drainage basin for climatological year ending September 30.

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16.-- COLORADO RIVER AT YUMA, ARIZ.
Drainage area, 242,000 square miles.

Year	Acre-feet
1902 (Jan.-Sept.)	7,110,000
1902-03	11,100,000
1903-04	9,870,000
1904-05	18,900,000
1905-06	19,200,000
1906-07	26,000,000
1907-08	13,600,000
1908-09	26,100,000
1909-10	15,000,000
1910-11	16,200,000
1911-12	19,600,000
1912-13	12,000,000
1913-14	19,900,000
1914-15	15,800,000
1915-16	21,500,000
1916-17	22,100,000
1917-18	13,100,000
1918-19	10,700,000
1919-20	21,400,000
Average	17,300,000

17.-- GILA RIVER AT GUTHRIE, ARIZ.
Drainage area.

1911-12	149,000
1912-13	102,000
1913-14	227,000
1914-15	733,000
1915-16	336,000
1916-17	259,000
Average	301,000

18.-- SAN FRANCISCO RIVER AT CLIFTON, ARIZ.

1913-14	106,000
1914-15	681,000
1916-17	283,000
Average	357,000

Average Annual Run-Off at Principal Gaging Stations in Colorado River Basin.

Gaging Station	Number on map	Drainage area Square miles	Number of complete years of records	Average annual run-off Acre-feet
Green River at Green River, Wyo.	1	7,670	13	1,510,000
Green River at Bridge-port, Utah	2	15,700	4	2,090,000
Yampa River near May-bell, Colo.	3	3,670	8 periods Apr. - Oct.	1,210,000
Duchesne River at Myton, Utah	4	2,750	12	556,000
Uinta River at Fort Duchesne, Utah	5	672	5	176,000
Green River at Green River and Little Valley, Utah	6	41,000	18	5,690,000
San Rafael River near Green River, Utah	7	1,690	8	191,000
Grand River near Moab and Cisco, Utah	8	23,800	4	7,540,000
Grand River near Fruita, Colo.	9	16,800	11	6,540,000
San Juan River at Farmington,N.Mex.	10		3	2,320,000
Animas River at Farmington,N.Mex.	11		3	875,000
San Juan River near Bluff, Utah	12	24,000	3	3,090,000
Little Colorado River at Holbrook,Ariz.	13	17,600	2	162,000
Virgin River at Virgin, Utah	14	1,010	8	207,000
Colorado River near Topock, Ariz.	15	171,000	2	14,200,000
Colorado River at Yuma,Ariz.	16	242,000	18	17,300,000
Gila River at Guthrie, Ariz.	17		6	301,000
San Francisco River at Clifton,Ariz.	18		3	357,000