DEPARTMENT OF THE INTERIOR
Roy O. West, Secretary

U. S. GEOLOGICAL SURVEY
George Otis Smith, Director

Water-Supply Paper 589

SURFACE WATER SUPPLY OF THE UNITED STATES

1924

PART IX. COLORADO RIVER BASIN

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Prepared in cooperation with the States of
COLORADO, WYOMING, UTAH, AND ARIZONA

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SURFACE WATER SUPPLY OF COLORADO RIVER BASIN, 1924

AUTHORIZATION AND SCOPE OF WORK

This volume is one of a series of 14 reports presenting results of measurements of flow made on streams in the United States during the year ending September 30, 1924.

The data presented in these reports were collected by the United States Geological Survey under the following authority contained in the organic law (20 Stat. L., p. 394):

> *Provided*, That this officer [the Director] shall have the direction of the Geological Survey and the classification of public lands and examination of the geological structure, mineral resources, and products of the national domain.

The work was begun in 1888 in connection with special studies relating to irrigation in the arid West. Since the fiscal year ending June 30, 1895, successive appropriation bills passed by Congress have carried the following items:

> For gaging the streams and determining the water supply of the United States, and for the investigation of underground currents and artesian wells, and for the preparation of reports upon the best methods of utilizing the water resources.

Annual appropriations for the fiscal years ending June 30, 1895–1925

1895	$12,500.00	1908–1910	$100,000.00
1896	[1] 24,500.00	1911–1917	150,000.00
1897–1899	50,000.00	1918	175,000.00
1900	[2] 70,000.00	1919	148,244.10
1901–1902	100,000.00	1920	175,000.00
1903–1906	200,000.00	1921–1923	180,000.00
1907	150,000.00	1924–1925	170,000.00

In the execution of the work many private and State organizations have cooperated either by furnishing data or by assisting in collecting data. Acknowledgments for cooperation of the first kind are made in connection with the description of each station affected; cooperation of the second kind is acknowledged on page 9.

Measurements of stream flow have been made at about 4,990 points in the United States and also at many points in Alaska and the Hawaiian Islands. In July, 1924, 1,670 gaging stations were being maintained by the Survey and the cooperating organizations. Many miscellaneous discharge measurements are made at other points. In connection with this work data were also collected in regard to

[1] Includes $4,500 appropriated in act of Apr. 25, 1896.
[2] Includes $20,000 appropriated in deficiency act of Mar. 30, 1900.

precipitation, evaporation, storage reservoirs, river profiles, and water power in many sections of the country and will be made available in water-supply papers from time to time.

DEFINITION OF TERMS

The volume of water flowing in a stream—the "run-off" or "discharge"—is expressed in various terms, each of which has become associated with a certain class of work. These terms may be divided into two groups—(1) those that represent a rate of flow, as second-feet, gallons per minute, miner's inches, and discharge in second-feet per square mile, and (2) those that represent the actual quantity of water, as run-off in inches, acre-feet, and millions of cubic feet. The principal terms used in this series of reports are second-feet, second-feet per square mile, run-off in inches, and acre-feet. They may be defined as follows:

"Second-feet" is an abbreviation for "cubic feet per second." A second-foot is the rate of discharge of water flowing in a channel of rectangular cross section 1 foot wide and 1 foot deep at an average velocity of 1 foot per second. It is generally used as a fundamental unit from which others are computed.

"Second-feet per square mile" is the average number of cubic feet of water flowing per second from each square mile of area drained, on the assumption that the run-off is distributed uniformly both as regards time and area.

"Run-off in inches" is the depth to which an area would be covered if all the water flowing from it in a given period were uniformly distributed on the surface. It is used for comparing run-off with rainfall, which is usually expressed in depth in inches.

An "acre-foot," equivalent to 43,560 cubic feet, is the quantity required to cover an acre to the depth of 1 foot. The term is commonly used in connection with storage for irrigation.

The following terms not in common use are here defined:

"Stage-discharge relation," an abbreviation for the term "relation of gage height to discharge."

"Control," a term used to designate the section or sections of the stream below the gage which determine the stage-discharge relation at the gage. It should be noted that the control may not be the same section or sections at all stages.

The "point of zero flow" for a given gaging station is that point on the gage—the gage height—at which water ceases to flow over the control.

EXPLANATION OF DATA

The data presented in this report cover the year beginning October 1, 1923, and ending September 30, 1924. At the beginning of January in most parts of the United States much of the precipitation in the preceding three months is stored as ground water in the

form of snow or ice, or in ponds, lakes, and swamps, and this stored water passes off in the streams during the spring break-up. At the end of September, on the other hand, the only stored water available for run-off is possibly a small quantity in the ground; therefore the run-off for the year beginning October 1 is practically all derived from precipitation within that year.

The base data collected at gaging stations consist of records of stage, measurements of discharge, and general information used to supplement the gage heights and discharge measurements in determining the daily flow. The records of stage are obtained either from direct readings on a staff gage or from a water-stage recorder that gives a continuous record of the fluctuations. Measurements of discharge are made with a current meter. The general methods are outlined in standard textbooks on the measurement of river discharge.

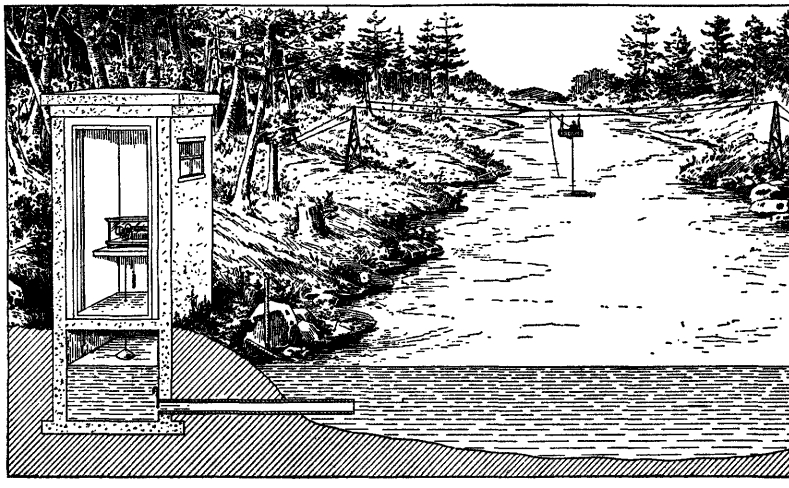

FIGURE 1.—Typical gaging station

A typical gaging station, equipped with water-stage recorder and measuring cables and car, is shown in Figure 1.

From the discharge measurements rating tables are prepared that give the discharge for any stage. The application of the daily gage heights to these rating tables, gives the daily discharge from which the monthly and yearly mean discharge is determined.

The data presented for each gaging station in the area covered by this report comprise a description of the station, a table giving results of discharge measurements, a table showing the daily discharge of the stream, and a table of monthly and yearly discharge and run-off.

If the base data are insufficient to determine the daily discharge, tables giving daily gage heights and results of discharge measurements are published.

The description of the station gives, in addition to statements regarding location and equipment, information in regard to any condition that may affect the constancy of the stage-discharge relation, covering such subjects as the occurrence of ice, the use of the stream for log driving, shifting of control, and the cause and effect of backwater; it gives also information as to diversions that decrease the flow at the gage, artificial regulation, maximum and minimum recorded stages, and the accuracy of the records.

The table of daily discharge gives, in general, the discharge in second-feet corresponding to the mean of the gage heights read each day. At stations on streams subject to sudden or rapid diurnal fluctuation the discharge obtained from the rating table and the mean daily gage height may not be the true mean discharge for the day. If such stations are equipped with water-stage recorders the mean daily discharge may be obtained by averaging discharge at regular intervals during the day, or by using the discharge integrator, an instrument operating on the principle of the planimeter and containing as an essential element the rating curve of the station.

In the table of monthly discharge the column headed "Maximum" gives the mean flow for the day when the mean gage height was highest. As the gage height is the mean for the day, it does not indicate correctly the stage when the water surface was at crest height and the corresponding discharge was consequently larger than given in the maximum column. Likewise, in the column headed "Minimum" the quantity given is the mean flow for the day when the mean gage height was lowest. The column headed "Mean" is the average flow in cubic feet for each second during the month. On this average flow computations recorded in the remaining columns, which are defined on page 2, are based.

ACCURACY OF FIELD DATA AND COMPUTED RESULTS

The accuracy of stream-flow data depends primarily (1) on the permanence of the stage-discharge relation and (2) on the accuracy of observation of stage, measurements of flow, and interpretation of records.

A paragraph in the description of the station or footnotes added to the tables gives information regarding the (1) permanence of the stage-discharge relation, (2) precision with which the discharge rating curve is defined, (3) refinement of gage readings, (4) frequency of gage readings, and (5) methods of applying daily gage heights to the rating table to obtain the daily discharge.

For the rating tables "well defined" indicates, in general, that the rating is probably accurate within 5 per cent; "fairly well defined," within 10 per cent; "poorly defined," within 15 to 25 per cent. These notes are very general and are based on the plotting of the individual measurements with reference to the mean rating curve.

The monthly means for any station may represent with high accuracy the quantity of water flowing past the gage, but the figures showing discharge per square mile and run-off in inches may be subject to gross errors caused by the inclusion of large noncontributing districts in the measured drainage area, by lack of information concerning water diverted for irrigation or other use, or by inability to interpret the effect of artificial regulation of the flow of the river above the station. "Second-feet per square mile" and "Run-off in inches" are therefore not computed if such errors appear probable. The computations are also omitted for stations on streams draining areas in which the annual rainfall is less than 20 inches. All figures representing "second-feet per square mile" and "run-off in inches" previously published by the Survey should be used with caution because of possible inherent but unknown sources of error.

Many gaging stations on streams in the irrigated sections of the United States are located above most of the diversions from those streams, and the discharge recorded does not show the water supply available for further development, as prior appropriations below the stations must first be satisfied. To give an idea of the amount of prior appropriations, a paragraph on diversions is presented in each station description. Where figures are given these can not be considered exact but as being the best information available.

The table of monthly discharge gives only a general idea of the flow at the station and should not be used for other than preliminary estimates; the tables of daily discharge allow more detailed studies of the variation in flow. It should be borne in mind, however, that the observations in each succeeding year may be expected to throw new light on data previously published.

PUBLICATIONS

Investigation of water resources by the United States Geological Survey has consisted in large part of measurements of the volume of flow of streams and studies of the conditions affecting that flow, but it has comprised also investigation of such closely allied subjects as irrigation, water storage, water powers, underground waters, and quality of waters. Most of the results of these investigations have been published in the series of water-supply papers, but some have appeared in the bulletins, professional papers, annual reports, and monographs.

The results of stream-flow measurements are now published annually in 12 parts, each part covering an area whose boundaries coincide with natural drainage features as indicated below:

Part I. North Atlantic slope basins (St. John River to York River).
II. South Atlantic and eastern Gulf of Mexico basins (James River to Mississippi River).

III. Ohio River basin.
IV. St. Lawrence River basin.
V. Upper Mississippi River and Hudson Bay basins.
VI. Missouri River basin.
VII. Lower Mississippi River basin.
VIII. Western Gulf of Mexico basins.
IX. Colorado River basin.
X. Great Basin.
XI. Pacific slope basins in California.
XII. North Pacific slope basins; in three volumes:
  A. Pacific slope basins in Washington and Upper Columbia River basin.
  B. Snake River basin.
  C. Lower Columbia River basin and Pacific slope basins in Oregon.

Water-supply papers and other publications of the United States Geological Survey containing data in regard to the water resources of the United States may be obtained or consulted as indicated below:

1. Copies may be purchased at nominal cost from the Superintendent of Documents, Government Printing Office, Washington, D. C., who will on application furnish lists giving prices.

2. Set of the reports may be consulted in the libraries of the principal cities in the United States.

3. Complete sets are available for consultation in the local office of the water-resources branch of the Geological Survey, as follows:

Boston, Mass., 2500 Customhouse.
Albany, N. Y., 904 Home Savings Bank.
Trenton, N. J., State House.
Charlottesville, Va., care of University of Virginia.
Asheville, N. C., 608 City Hall.
Chattanooga, Tenn., 830 Power Building.
Columbus, Ohio, Engineering Experiment Station, Ohio State University.
Chicago, Ill., 1510 Consumers Building.
Madison, Wis., care of Railroad Commission of Wisconsin.
Rolla, Mo., Rolla Building, School of Mines and Metallurgy.
Helena, Mont., 45–46 Federal Building.
Denver, Colo., 403 Post Office Building.
Salt Lake City, Utah, 313 Federal Building.
Idaho Falls, Idaho, 228 Federal Building.
Boise, Idaho, Federal Building.
Tacoma, Wash., 404 Federal Building.
Portland, Oreg., 606 Post Office Building.
San Francisco, Calif., 303 Customhouse.
Los Angeles, Calif., 600 Federal Building.
Tucson, Ariz., 106 College of Law Building, University of Arizona.
Austin, Tex., State Capitol.
Honolulu, Hawaii, Territorial Office Building.

A list of the Geological Survey's publications may be obtained by applying to the Director, United States Geological Survey, Washington, D. C.

Stream-flow records have been obtained at about 5,800 points in the United States, and the data obtained have been published in the reports tabulated on the following page:

Stream-flow data in reports of the United States Geological Survey

[A=Annual Report; B=Bulletin; W=Water-Supply Paper]

Report	Character of data	Year
10th A, pt. 2	Descriptive information only	
11th A, pt. 2	Monthly discharge and descriptive information	1884 to Sept., 1890.
12th A, pt. 2	do	1884 to June 30, 1891.
13th A, pt. 3	Mean discharge in second-feet	1884 to Dec. 31, 1892.
14th A, pt. 2	Monthly discharge (long-time records, 1871 to 1893)	1888 to Dec. 31, 1893.
B 131	Descriptions, measurements, gage heights, and ratings	1893 to 1894.
16th A, pt. 2	Descriptive information only	
B 140	Descriptions, measurements, gage heights, ratings, and monthly discharge (also many data covering earlier years).	1895.
W 11	Gage heights (also gage heights for earlier years)	1896.
18th A, pt. 4	Descriptions, measurements, ratings, and monthly discharge (also similar data for some earlier years).	1895 and 1896.
W 15	Descriptions, measurements, and gage heights, eastern United States, eastern Mississippi River, and Missouri River above junction with Kansas.	1897.
W 16	Descriptions, measurements, and gage heights, western Mississippi River below junction of Missouri and Platte, and western United States.	1897.
19th A, pt. 4	Descriptions, measurements, ratings, and monthly discharge (also some long-time records).	1897.
W 27	Measurements, ratings, and gage heights, eastern United States, eastern Mississippi River, and Missouri River.	1898.
W 28	Measurements, ratings, and gage heights, Arkansas River, and western United States.	1898.
20th A, pt. 4	Monthly discharge (also for many earlier years)	1898.
W 35 to 39	Descriptions, measurements, gage heights, and ratings	1899.
21st A, pt. 4	Monthly discharge	1899.
W 47 to 52	Descriptions, measurements, gage heights, and ratings	1900.
22d A, pt. 4	Monthly discharge	1900.
W 65, 66	Descriptions, measurements, gage heights, and ratings	1901.
W 75	Monthly discharge	1901.
W 82 to 85	Complete data	1902.
W 97 to 100	do	1903.
W 124 to 135	do	1904.
W 165 to 178	do	1905.
W 201 to 214	do	1906.
W 241 to 252	do	1907–8.
W 261 to 272	do	1909.
W 281 to 292	do	1910.
W 301 to 312	do	1911.
W 321 to 332	do	1912.
W 351 to 362	do	1913.
W 381 to 394	do	1914.
W 401 to 414	do	1915.
W 431 to 444	do	1916.
W 451 to 464	do	1917.
W 471 to 484	do	1918.
W 501 to 514	do	1919 and 1920.
W 521 to 534	do	1921.
W 541 to 554	do	1922.
W 561 to 574	do	1923.
W 581 to 594	do	1924.

The records at most of the stations discussed in these reports extend over a series of years, and miscellaneous measurements at many points other than regular gaging stations have been made each year. An index of the reports containing records obtained prior to 1904 has been published in Water-Supply Paper 119.

The following table gives, by years and drainage basins, the numbers of the papers on surface-water supply published from 1899 to 1920. The data from any particular station will, in general, be found in the reports covering the years during which the station was maintained. For example, data for Machias River at Whitneyville, Me., 1903 to 1920, are published in Water-Supply Papers 97, 124, 165, 201, 241, 261, 281, 301, 321, 351, 381, 401, 431, 451, 471, 501, and 521, which contain records for the New England streams from 1903 to 1921. Results of miscellaneous measurements are published by drainage basins.

Numbers of water-supply papers containing results of stream measurements, 1899–1924

Year	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII		
												A	B	C
1899 [a]	35	[b] 35, 36	36	36	36	[c] 36, 37	37	37	[d] 37, 38	38, [e] 39	38, [f] 39	38	38	38
1900 [g]	47, [h] 48	48	48, [i] 49	49	49	49, [j] 50	50	50	50	51	51	51	51	51
1901	65, 75	65, 75	65, 75	65, 75	[k] 65, 66, 75	66, 75	66, 75	[k] 65, 66, 75	66, 75	66, 75	66, 75	66, 75	66, 78	66, 75
1902	82	[b] 82, 83	83	[l] 82, 83	[k] 83, 85	84	[k] 83, 84	84	85	85	85	85	85	85
1903	97	[b] 97, 98	98	97	[k] 98, 99, [m] 100	99	[k] 98, 99	99	100	100	100	100	100	100
1904	[n] 124, [o] 125, [p] 126	[p] 126, 127	128	129	[k] 128, 130	130, [q] 131	[k] 128, 131	132	133	133, [r] 134	134	135	135	135
1905	[n] 165, [o] 166, [p] 167	[p] 167, 168	169	170	171	172	[k] 169, 173	174	176, [s] 177	176, [r] 177	177	178	178	[t] 177, 178
1906	[n] 201, [o] 202, [p] 203	[p] 203, 204	205	206	207	208	[k] 205, 209	210	211	212, [r] 213	213	214	214	214
1907–8	241	242	243	244	245	246	247	248	249	250, [r] 251	251	252	252	252
1909	261	262	263	264	265	266	267	268	269	270, [r] 271	271	272	272	272
1910	281	282	283	284	285	286	287	288	289	290	291	292	292	292
1911	301	302	303	304	305	306	307	308	309	310	311	312	312	312
1912	321	322	323	324	325	326	327	328	329	330	331	332–A	332–B	332–C
1913	351	352	353	354	355	356	357	358	359	360	361	362–A	362–B	362–C
1914	381	382	383	384	385	386	387	388	389	390	391	392	393	394
1915	401	402	403	404	405	406	407	408	409	410	411	412	413	414
1916	431	432	433	434	435	436	437	438	439	440	441	442	443	444
1917	451	452	453	454	455	456	457	458	459	460	461	462	463	464
1918	471	472	473	474	475	476	477	478	479	480	481	482	483	484
1919–20	501	502	503	504	505	506	507	508	509	510	511	512	513	514
1921	521	522	523	524	525	526	527	528	529	530	531	532	533	534
1922	541	542	543	544	545	546	547	548	549	550	551	552	553	554
1923	561	562	563	564	565	566	567	568	569	570	571	572	573	574
1924	581	582	583	584	585	586	587	588	589	590	591	592	593	594

[a] Rating tables and index to Water-Supply Papers 35–39 contained in Water-Supply Paper 39. Monthly discharge for 1899 in Twenty-first Annual Report, Part IV.
[b] James River only.
[c] Gallatin River.
[d] Green and Gunnison Rivers and Grand River above junction with Gunnison.
[e] Mohave River only.
[f] Kings and Kern Rivers and south Pacific slope basins.
[g] Rating tables and index to Water-Supply Papers 47–52 and data on precipitation, wells, and irrigation in California and Utah contained in Water-Supply Paper 52. Monthly discharge for 1900 in Twenty-second Annual Report, Part IV.
[h] Wissahickon and Schuylkill Rivers to James River.
[i] Scioto River.
[j] Loup and Platte Rivers near Columbus, Nebr., and all tributaries below junction with Platte.
[k] Tributaries of Mississippi from east.
[l] Lake Ontario and tributaries to St. Lawrence River proper.
[m] Hudson Bay only.
[n] New England rivers only.
[o] Hudson River to Delaware River, inclusive.
[p] Susquehanna River to Yadkin River, inclusive.
[q] Platte and Kansas Rivers.
[r] Great Basin in California, except Truckee and Carson River basins.
[s] Below junction with Gila.
[t] Rogue, Umpqua, and Siletz Rivers only.

COOPERATION

The work in Arizona, Utah, and Wyoming was carried on under cooperative agreement between the United States Geological Survey and the States, and special acknowledgments are due to the cooperating State officials, Vernon Vaughn, State water commissioner, of Arizona, R. E. Caldwell and Lloyd Garrison, State engineers of Utah; and Frank C. Emerson, State engineer of Wyoming.

The State engineer of Colorado, M. C. Hinderlider, paid the gage readers at several stations in that state.

Redlands Co. furnished gage reader for Gunnison River near Grand Junction, Colo. The United States Weather Bureau paid the gage reader on Green River at Green River, Wyo. Eden Irrigation & Land Co. paid for maintaining the station on Big Sandy Creek near Farson, Wyo.

In Utah financial assistance was rendered by the Office of Indian Affairs, Utah Power & Light Co., and Vernal Milling & Light Co.

In Arizona, financial assistance for work on the Colorado River was also rendered by the United States Bureau of Reclamation, United States Weather Bureau, Federal Power Commission, State of California, city of Los Angeles, Palo Verde Irrigation District, and Southern California Edison Co.

DIVISION OF WORK

Data for stations in Colorado and Wyoming were collected and prepared for publication under the direction of Robert Follansbee district engineer, who was assisted by P. V. Hodges, J. W. Mangan, and Miss Florence Hall.

Data for stations in Utah were collected and prepared for publication under the direction of A. B. Purton, district engineer, assisted by W. E. Dickinson, J. W. Mangan, M. T. Wilson, D. M. Corbett, and Miss Lysle Christensen.

Data for stations in Arizona were collected and prepared for publication under the direction of W. E. Dickinson, district engineer, assisted by D. A. Dudley, J. H. Gardiner, B. S. Barnes, R. G. Kasel, W. C. Chase, H. D. Empie, G. S. Hayes, J. E. Klohr, G. G. Sykes, and W. E. Code.

The records were reviewed and manuscript assembled by B. J. Peterson and J. H. Morgan.

GAGING-STATION RECORDS

COLORADO RIVER BASIN

COLORADO RIVER AND TRIBUTARIES ABOVE GREEN RIVER

COLORADO RIVER AT HOT SULPHUR SPRINGS, COLO.

LOCATION.—In sec. 2, T. 1 N., R. 78 W., at highway bridge near Denver & Salt Lake Railroad station in Hot Sulphur Springs, Grand County. Nearest tributary, Ute Bill Creek, enters some distance upstream.

DRAINAGE AREA.—785 square miles (measured on base map of Colorado; scale, 1:500,000).

RECORDS AVAILABLE.—July 22, 1904, to September 30, 1909; September 23, 1910, to October 31, 1924, when station was discontinued.

GAGE.—Chain on downstream side of bridge; read by Miss Gladys Wallace. Prior to April 16, 1906, staff gage set to datum 6.07 feet lower was located 1,000 feet downstream.

DISCHARGE MEASUREMENTS.—Made from bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of well-compacted gravel. Control 150 feet downstream; practically permanent during 1924. Banks not subject to overflow.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 8.3 feet at 11 a. m. June 14 (discharge, 8,950 second-feet); minimum discharge occurred during winter.

1904–1909; 1910–1924: Maximum stage recorded, 8.7 feet at 5 a. m. June 15, 1921 (discharge, 10,300 second-feet); minimum discharge, 63 second-feet February 25 and 26, 1908.

ICE.—Stage-discharge relation seriously affected by ice.

DIVERSIONS.—Water diverted from Colorado River and tributaries above station for irrigation of 18,000 acres. In addition, 7,510 acre-feet was diverted into Cache la Poudre drainage basin during 1924.

REGULATION.—Diurnal fluctuation during spring of year from alternate melting and freezing of mountain snow. No artificial regulation.

ACCURACY.—Stage-discharge relation practically permanent. Rating curve well defined. Gage read to half-tenths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table. Records good.

The following discharge measurements were made:

January 11, 1924: Gage height, 3.16 feet; discharge, 105 second-feet.

February 13, 1924: Discharge, 134 second-feet.

May 15, 1924: Gage height, 4.61 feet; discharge, 1,870 second-feet.

Daily discharge, in second-feet, of Colorado River at Hot Sulphur Springs, Colo., for the period October 1, 1923, to October 31, 1924

Day	Oct.	Nov.	May	June	July	Aug.	Sept.	Oct.
1	332	186	--------	1,590	2,020	294	117	100
2	345	190	--------	1,750	1,930	272	112	109
3	345	173	--------	1,840	1,840	272	106	117
4	397	167	--------	2,420	1,750	272	100	117
5	397	160	--------	3,000	1,670	315	100	117
6	414	148	--------	3,270	1,590	230	100	117
7	375	144	--------	3,870	1,670	223	100	160
8	332	135	--------	3,560	1,670	223	100	436
9	336	154	--------	3,270	1,670	219	100	401
10	302	151	--------	3,140	1,430	193	100	144
11	311	226	--------	3,000	1,360	193	100	126
12	328	259	--------	4,590	1,180	193	100	140
13	311	148	--------	6,090	1,070	193	100	157
14	276	141	--------	8,310	1,020	193	100	176
15	251	117	1,930	8,310	960	176	100	230
16	243	--------	2,110	6,860	960	173	100	230
17	259	--------	2,760	5,620	905	160	100	230
18	238	--------	2,530	4,990	850	160	100	230
19	259	--------	2,760	4,590	590	154	100	230
20	243	--------	2,310	3,560	615	135	100	349
21	219	--------	2,310	3,130	615	129	114	324
22	251	--------	2,210	3,270	565	129	114	264
23	243	--------	2,210	3,270	516	129	126	230
24	264	--------	2,110	3,270	468	129	132	230
25	247	--------	2,110	3,130	445	129	129	226
26	226	--------	2,530	3,130	423	129	120	220
27	230	--------	3,000	3,000	423	129	109	210
28	223	--------	3,000	2,760	401	129	104	190
29	238	--------	2,310	2,580	380	129	100	180
30	173	--------	2,110	2,210	358	126	100	160
31	148	--------	1,840	--------	336	117	--------	150

Monthly discharge of Colorado River at Hot Sulphur Springs, Colo., for the period October 1, 1923, to October 31, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
1923				
October	414	148	282	17,300
November 1-15	259	117	167	4,970
1924				
May 15-31	3,000	1,840	2,360	79,600
June	8,310	1,590	3,780	225,000
July	2,020	336	1,020	62,700
August	315	117	182	11,200
September	132	100	106	6,310
October	436	100	203	12,500

COLORADO RIVER AT GLENWOOD SPRINGS, COLO.

LOCATION.—In sec. 9, T. 6 S., R. 89 W., at Glenwood Springs, Garfield County. No Name Creek enters Colorado River 2 miles above station and Roaring Fork half a mile below.

DRAINAGE AREA.—4,560 square miles (measured on base map of Colorado; scale, 1:500,000).

RECORDS AVAILABLE.—January 1, 1900, to September 30, 1924; also May 12 to July 17, 1899, at point just above Roaring Fork.

GAGE.—Friez water-stage recorder on right bank in front of power house, installed May 17, 1910; inspected by C. H. Oberly.

DISCHARGE MEASUREMENTS.—Made from cable beneath State Street Bridge, a third of a mile below gage.

CHANNEL AND CONTROL.—Bed composed of well-compacted gravel, on which silt is deposited. Control is riffle 300 feet downstream which was practically permanent during 1924. Banks not subject to overflow except at extreme high stages.

EXTREMES OF DISCHARGE.—Maximum stage during year from water-stage recorder, 11.25 feet from noon to 2 p. m. June 15 (discharge, 24,500 second-feet); minimum mean daily stage, 2.85 feet January 2 and March 23 (discharge, 602 second-feet).

1900-1924: Maximum stage recorded, 12.55 feet at noon June 14 and 15, 1918 (discharge, 30,100 second-feet); minimum stage, 1.6 feet at 5 p. m. February 6, 1921 (discharge, 80 second-feet).

ICE.—Stage-discharge relation not affected by ice; hot water from springs keeps river open.

DIVERSIONS.—Between this station and Hot Sulphur Springs, diversions for irrigation of a few hundred acres. In addition, Colorado Power Co. has a decree for 1,250 second-feet for power. Water diverted for power is returned to river above Glenwood Springs.

REGULATION.—Shoshone power plant of Colorado Power Co., 7 miles upstream, controls flow during day at low water, but has insufficient pondage to control it for more than a few hours.

ACCURACY.—Stage-discharge relation practically permanent; not affected by ice. Rating curve well defined. Operation of water-stage recorder satisfactory. Daily discharge ascertained by applying to rating table mean daily gage height obtained by inspection of recorder graph. Records excellent except during periods of low water, for which they are good.

Discharge measurements of Colorado River at Glenwood Springs, Colo., during the year ending September 30, 1924

Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Jan. 13	3.26	910	Apr. 18	4.53	2,020
Feb. 15	3.18	832	Aug. 4	4.00	1,480

Daily discharge, in second-feet, of Colorado River at Glenwood Springs, Colo., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,940	1,530	1,010	782	775	852	796	2,280	7,610	6,990	1,870	972
2	1,910	1,560	935	602	810	733	803	2,600	7,300	6,390	1,870	1,070
3	1,910	1,600	1,090	726	635	761	824	3,400	7,930	6,100	1,710	965
4	1,920	1,570	980	733	928	712	1,060	4,700	8,900	5,530	1,520	1,020
5	1,970	1,510	898	740	740	712	1,170	6,240	11,300	5,250	1,440	1,070
6	1,970	1,500	882	782	705	622	1,260	6,390	13,200	4,700	1,400	912
7	1,960	1,440	890	670	817	663	1,460	5,960	15,700	4,570	1,450	852
8	1,960	1,350	1,090	761	824	768	1,740	5,670	16,100	4,700	1,410	1,010
9	1,910	1,340	958	875	831	950	2,300	5,530	14,800	5,110	1,370	1,020
10	1,830	1,370	761	875	719	905	3,040	4,840	13,200	5,110	1,350	1,040
11	1,820	1,370	698	942	1,000	1,050	3,210	4,970	12,800	4,570	1,340	1,130
12	1,830	1,390	761	912	761	958	2,500	5,810	15,700	4,320	1,290	1,260
13	1,860	1,410	860	875	831	950	2,510	7,300	18,200	3,950	1,210	1,040
14	1,890	1,390	740	905	831	928	3,520	8,090	21,700	3,500	1,260	875
15	1,840	1,370	898	782	920	905	5,870	8,570	23,400	3,190	1,070	817
16	1,820	1,340	838	796	995	860	4,940	9,400	23,400	3,090	1,250	838
17	1,800	1,170	712	942	905	810	2,830	10,100	21,200	3,090	1,290	782
18	1,790	1,070	684	958	838	852	2,120	11,100	18,200	3,190	1,260	775
19	1,770	1,070	691	928	1,020	890	1,820	11,700	16,100	3,090	1,250	995
20	1,660	1,060	705	810	845	852	1,870	11,500	14,000	2,750	1,130	1,100
21	1,640	1,100	796	875	920	868	2,220	10,600	11,700	2,540	1,010	1,070
22	1,640	1,200	912	958	965	942	3,000	10,600	10,200	2,400	995	1,170
23	1,710	1,230	789	928	912	602	3,720	10,400	9,910	2,340	1,020	1,160
24	1,760	1,220	845	920	684	995	4,190	9,910	9,910	2,100	1,110	1,170
25	1,760	1,090	782	965	684	782	4,440	9,230	9,570	2,100	1,060	1,160
26	1,720	1,210	845	970	677	775	3,190	9,570	9,570	2,040	1,080	1,150
27	1,660	1,020	942	950	918	803	2,400	11,000	8,900	1,980	1,080	1,060
28	1,690	965	905	920	988	905	2,160	11,300	8,570	1,940	1,050	1,110
29	1,710	935	860	880	1,000	890	2,10[illegible]	10,600	8,250	1,920	1,050	1,150
30	1,650	1,060	1,010	810	-------	898	2,100	9,230	7,610	1,920	1,020	1,130
31	1,580	-------	761	775	-------	852	-------	8,570	--------	1,920	958	-------

NOTE.—No gage-height record Jan. 26–29; discharge interpolated.

Monthly discharge of Colorado River at Glenwood Springs, Colo., for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	1,970	1,580	1,800	111,000
November	1,600	935	1,280	76,200
December	1,090	684	856	52,600
January	970	602	850	52,300
February	1,020	635	844	48,500
March	1,050	602	840	51,600
April	4,940	796	2,510	149,000
May	11,700	2,280	7,970	490,000
June	23,400	7,300	13,200	786,000
July	6,990	1,920	3,630	223,000
August	1,870	958	1,260	77,500
September	1,260	775	1,030	61,300
The year	23,400	602	3,000	2,180,000

COLORADO RIVER NEAR PALISADE, COLO.

LOCATION.—In sec. 2, T. 11 S., R. 98 W., at highway bridge, 2 miles above Palisade, Mesa County. Nearest important tributary, Plateau Creek, enters 6 miles above.

DRAINAGE AREA.—8,790 square miles (measured on base map of Colorado; scale, 1 : 500,000).

RECORDS AVAILABLE.—April 9, 1902, to September 30, 1924.

GAGE.—Chain gage on downstream side of bridge near midspan; read by A. Barnhisel.

DISCHARGE MEASUREMENTS.—Made from bridge, 2 miles below gage.

CHANNEL AND CONTROL.—Bed composed of gravel, silt, and scattered boulders. Control is at rapids 300 feet downstream; practically permanent. Banks not subject to overflow.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 22.4 feet at 6 p. m. June 16 (discharge, 37,900 second-feet); minimum stage, 11.4 feet on September 2 (discharge, 630 second-feet).

1902–1924: Maximum stage recorded, 24.4 feet at 7 a. m. June 16, 1921 (discharge, 52,400 second-feet); minimum stage, that of September 2, 1924.

ICE.—Stage-discharge relation affected by ice.

DIVERSIONS.—Principal diversion between Glenwood Springs and Palisade gaging station is the Government high line canal, which has a capacity of 1,425 second-feet. Of the amount diverted power water is returned to the river to supply a priority of 521 second-feet for the Grand Valley Canal.

REGULATION.—None.

COOPERATION.—Complete records furnished by United States Bureau of Reclamation.

Daily discharge, in second-feet, of Colorado River near Palisade, Colo., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3,210	2,540	2,060			1,640	1,540	3,000	13,200	11,900	1,980	750
2	3,210	2,540	2,180			1,700	1,540	3,780	12,600	11,000	1,860	630
3	3,210	2,540	2,060			1,860	1,640	4,810	12,900	10,100	1,810	670
4	3,120	2,540	1,940			1,920	1,860	7,300	14,800	8,790	1,760	750
5	3,210	2,540	1,880			1,760	1,980	10,100	18,200	8,180	1,700	750
6	3,390	2,540	1,940			1,700	2,360	11,200	21,600	7,880	1,590	790
7	3,300	2,460	2,000			1,760	3,080	10,200	25,500	7,800	1,440	670
8	3,210	2,460	1,940			1,700	3,780	9,420	26,600	8,030	1,490	670
9	3,300	2,390	2,000			1,640	3,980	9,420	24,500	8,940	1,440	790
10	3,210	2,390	2,000			1,640	4,180	9,260	21,600	8,640	1,440	1,100
11	3,480	2,700	1,700		1,700	1,590	4,390	9,260	21,900	7,740	1,240	1,340
12	3,120	2,540	1,700			1,640	4,600	10,600	24,300	7,160	1,240	1,440
13	2,860	2,460	1,760			1,640	3,580	13,100	29,300	6,470	1,150	1,640
14	2,860	2,390	1,760			1,700	4,390	14,300	34,600	5,960	1,150	1,590
15	2,940	2,320	1,700			1,640	6,210	14,800	34,300	5,360	1,440	1,490
16	2,860	2,250		1,770		1,640	7,300	15,600	34,000	4,920	1,200	1,390
17	2,860	2,250				1,640	5,030	17,000	33,400	4,500	1,200	1,540
18	2,780	2,250				1,700	3,160	18,400	28,200	4,600	1,290	1,340
19	2,700	2,060				1,810	2,860	19,700	24,500	4,600	1,200	1,390
20	2,620	2,000				1,760	2,570	19,700	22,100	3,880	1,240	1,290
21	2,540	2,000				1,700	2,860	18,800	19,200	3,580	1,060	1,440
22	2,540	2,000			1,640	1,640	3,230	17,600	17,400	3,310	830	1,390
23	2,860	2,060			1,590	1,640	5,360	17,200	17,000	3,080	965	1,440
24	2,780	2,120	1,700		1,540	1,640	6,340	16,600	16,600	2,860	750	1,440
25	2,700	2,120			1,540	1,640	6,880	15,400	16,200	2,500	920	1,340
26	2,620	1,880			1,540	1,640	5,960	15,800	15,800	2,290	790	1,390
27	2,540	1,820			1,590	1,700	3,480	17,800	15,000	2,220	750	1,340
28	2,620	1,700			1,540	1,810	3,480	19,200	14,100	2,100	830	1,240
29	2,700	1,940			1,590	1,860	3,160	18,200	13,900	2,100	830	1,290
30	2,540	2,000			-------	1,860	2,860	15,800	13,200	2,220	790	1,340
31	2,540	-------			-------	1,700	--------	14,100	--------	1,980	750	-------

NOTE.—Stage-discharge relation affected by ice Dec. 16 to Feb. 21; discharge based on comparison with flow of Colorado River and Roaring Fork at Glenwood Springs. Braced figures show mean discharge for period indicated. Figures have been changed slightly to conform to computation rules used by U. S. Geol. Survey.

Monthly discharge of Colorado River near Palisade, Colo., for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	3,480	2,540	2,920	180,000
November	2,700	1,700	2,260	134,000
December	2,180	----------	1,800	111,000
January	----------	----------	1,770	109,000
February	----------	1,540	1,660	95,500
March	1,920	1,590	1,710	105,000
April	7,300	1,540	3,790	226,000
May	19,700	3,000	13,500	830,000
June	34,600	12,600	21,200	1,260,000
July	11,900	1,980	5,640	347,000
August	1,980	750	1,230	75,600
September	1,640	630	1,190	70,800
The year	34,600	----------	4,880	3,540,000

COLORADO RIVER NEAR CISCO, UTAH

LOCATION.—In NW. ¼ sec. 17, T. 23 S., R. 24 E., 1 mile below mouth of Dolores River and 15 miles by road south of Cisco, Grand County.

DRAINAGE AREA.—24,100 square miles (measured on General Land Office map).

RECORDS AVAILABLE.—November 10, 1914, to September 30, 1917, and October 1, 1922, to September 30, 1924; 25 miles downstream at Moab, October 1, 1913, to November 10, 1914; flow about same at both places.

GAGE.—Au continuous water-stage recorder on left bank half a mile above suspension highway bridge, installed December 7, 1922; inspected by G. C. Brown.

DISCHARGE MEASUREMENTS.—Made from cable 400 feet below gage.

CHANNEL AND CONTROL.—Channel straight for several hundred feet above and below station. Left bank high and not subject to overflow; right bank in extreme floods is overflowed half a mile below. Bed composed of sand and gravel. Low-water control is at a riffie a quarter of a mile below gage; fairly permanent.

EXTREMES OF DISCHARGE.—Maximum stage during year, 14.90 feet at 10 a. m. June 16 (discharge, 51,300 second-feet); minimum stage, 1.14 feet at 8 p. m. September 3 (discharge, 844 second-feet).

1915–1917; 1923–1924: Maximum stage, 19.7 feet at 9 p. m. June 19, 1917 (discharge, 76,800 second-feet); minimum stage, 1.14 feet at 8 p. m. September 3, 1924 (discharge, 844 second-feet).

ICE.—Stage-discharge relation usually affected by ice.

DIVERSIONS.—Below practically all diversions. A large amount of water is diverted in Colorado for irrigation.

REGULATION.—Station is too far below to be affected, except in a general way, by regulation in Colorado.

ACCURACY.—Stage-discharge relation changed slightly about November 11; affected by ice December 13–19 and January 3 to February 19. Rating curve well defined. Operation of water-stage recorder satisfactory except October 17, January 3 to February 19, June 7–22, August 3–8, and September 27. Staff gage readings obtained June 11 and 16. Daily discharge determined by applying to rating table mean daily gage height ascertained from recorder graph or staff gage readings. Shifting-control method used November 11. Discharge during ice-affected periods and June 7–10, 12–15, and 17–22, estimated by comparing the combined flow of Cisco station and Green River at Green River station with the flow of Colorado River at Lees Ferry. Discharge interpolated August 3–8 and September 27 Records. good.

Discharge measurements of Colorado River near Cisco, Utah, during the year ending September 30, 1924

Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Nov. 2	3.30	4,210	May 19	11.03	33,500
Feb. 20	3.09	3,980	Aug. 21	1.71	1,570

Daily discharge, in second-feet, of Colorado River near Cisco, Utah., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5,490	4,250	3,160	2,880		2,850	2,790	9,830	23,700	15,200	2,850	958
2	5,540	4,190	3,570	2,210		2,920	2,620	10,700	21,800	14,000	2,830	970
3	5,590	4,230	3,590			2,830	2,450	13,300	21,000	13,000		899
4	5,250	4,300	3,390		2,500	2,970	2,700	17,100	22,000	11,800		866
5	5,180	4,280	3,530			3,070	2,900	21,600	25,100	10,600		982
											2,440	
6	5,250	4,170	3,240	2,200		2,880	3,650	24,400	31,300	10,100		877
7	5,280	4,020	3,010		2,690	2,780	5,060	25,100	36,200	9,820		922
8	5,400	3,980	3,120			2,600	6,910	23,900	41,000	9,890		982
9	5,300	4,000	3,010			2,670	9,570	23,700	37,500	10,500	2,040	982
10	5,130	4,000	3,300			2,650	11,300	24,200	34,000	11,200	1,940	7,840
11	5,110	7,020	2,970		3,400	2,620	11,900	24,500	30,400	11,900	1,810	3,370
12	4,970	5,690	2,460			2,430	12,700	25,700	34,300	10,700	1,720	3,010
13	4,830	4,760	2,300			2,870	12,400	26,500	38,200	9,860	1,610	2,560
14	4,740	4,520	2,300			2,790	13,200	27,700	42,100	8,890	1,760	2,400
15	4,860	4,390	2,400			2,720	16,300	28,800	46,000	7,970	2,120	2,290
16	4,880	4,080	2,400			2,880	18,000	29,200	49,900	7,210	2,280	2,230
17	4,720	3,960	2,400		4,000	2,830	15,100	29,900	46,000	6,430	1,980	2,200
18	4,560	3,920	2,300	2,500		2,690	11,200	31,400	42,000	6,090	1,840	2,200
19	4,470	3,810	2,400			2,650	9,040	33,100	38,100	6,060	1,900	2,210
20	4,340	3,530	2,560		4,080	2,630	8,290	32,600	34,200	5,920	1,750	2,200
21	4,210	3,570	2,810		3,980	2,670	9,670	31,400	30,200	5,400	1,560	2,200
22	4,130	3,570	3,010		4,020	2,630	12,200	29,600	26,300	4,900	1,540	2,180
23	4,880	3,590	3,550		3,590	2,670	14,500	28,600	22,400	4,340	1,450	2,180
24	5,470	3,450	3,410		3,370	2,700	16,200	27,300	21,400	3,870	1,380	2,170
25	4,880	3,690	2,960		3,160	2,450	17,900	25,200	20,800	3,670	1,310	2,260
26	4,700	3,670	2,830		2,990	2,790	17,000	24,200	20,000	3,260	1,230	2,280
27	4,500	3,650	3,070		2,830	2,580	14,300	26,200	19,400	3,010	1,090	2,150
28	4,390	3,640	3,510	2,600	2,870	2,700	12,100	29,900	18,300	2,870	1,010	2,020
29	4,360	3,390	3,350		2,870	2,940	10,900	31,000	17,200	2,870	1,040	1,940
30	4,340	3,260	3,300		-------	3,180	10,200	28,600	16,400	2,870	1,010	2,050
31	4,390	-------	3,430		-------	3,100	--------	26,400	--------	2,870	958	-------

NOTE.—Braced figures show estimated mean discharge for periods indicated.

Monthly discharge of Colorado River near Cisco, Utah, for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	5,590	4,130	4,880	300,000
November	7,020	3,260	4,090	243,000
December	3,590	2,300	2,990	184,000
January	--------	--------	2,440	150,000
February	--------	--------	3,280	189,000
March	3,180	2,430	2,770	170,000
April	18,000	2,450	10,400	619,000
May	33,100	9,830	25,500	1,570,000
June	49,900	16,400	30,200	1,800,000
July	15,200	2,870	7,650	470,000
August	2,850	958	1,830	113,000
September	7,840	866	2,080	124,000
The year	49,900	866	8,170	5,930,000

COLORADO RIVER AT LEES FERRY, ARIZ.

LOCATION.—At Lees Ferry just above mouth of Paria River, at head of Marble Gorge and lower end of Glen Canyon, Coconino County.

DRAINAGE AREA.—Not measured.

RECORDS AVAILABLE.—June 13, 1921, to September 30, 1924.

GAGE.—Continuous water-stage recorder installed January 19, 1923, on left bank at head of Paria riffle. Datum, 3,106.35 feet above sea level. Recorder inspected by J. E. Klohr and R. G. Kasel, resident hydrographers.

DISCHARGE MEASUREMENTS.—Made from cable about 1 mile upstream.

CHANNEL AND CONTROL.—Channel at measuring section varies in width from 350 feet at low water to 435 feet at high water. Bed is composed of sand and silt and is scoured several feet during each flood season. Control is Paria riffle; composed of gravel and boulders and has remained practically permanent during period of record.

EXTREMES OF DISCHARGE.—Maximum stage during year, 15.2 feet at midnight June 17 (discharge, 76,200 second-feet); minimum stage, 5.55 feet at 6 p. m. September 5 (discharge, 2,210 second-feet).

1921–1924: Maximum stage recorded, 26.5 feet (Dugway gage) at 2 p. m. June 18, 1921 (discharge, about 190,000 second-feet); minimum stage recorded, that of September 5, 1924.

The high-water mark of the flood of 1884 at the ranch near the mouth of Paria River, as identified by Jerry Johnson, is at elevation 3,137.1 feet above sea level.

ICE.—Stage-discharge relation January 8–27 was affected by diurnal collection of floating ice on Paria riffle.

DIVERSIONS.—Water is diverted from main river and tributaries above station for irrigation of about 1,500,000 acres.

REGULATION.—None.

ACCURACY.—Stage-discharge relation practically permanent during year. Rating curve is based on 58 discharge measurements made during year and is well defined. Operation of water-stage recorder satisfactory. Daily discharge ascertained by applying to rating table mean daily gage height obtained by inspection of recorder graph. Discharge during period of ice effect in January determined by using mid-afternoon gage heights. Records good.

Daily discharge, in second-feet, of Colorado River at Lees Ferry, Ariz., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	13,700	10,200	8,100	7,910	5,570	10,100	9,030	29,400	54,900	30,400	7,110	2,640
2	13,200	10,300	8,100	7,360	5,940	9,760	8,210	26,800	51,800	28,600	7,910	2,500
3	13,000	10,300	8,060	6,650	6,320	10,100	8,180	25,000	47,500	26,800	8,100	2,390
4	12,800	10,300	7,950	5,690	6,420	10,200	8,060	24,600	44,500	25,000	7,430	2,390
5	12,400	10,500	7,990	4,700	6,480	10,000	8,060	25,800	42,800	23,000	7,180	2,320
6	12,800	10,300	8,210	3,920	6,650	9,640	8,590	30,800	44,000	21,400	6,420	2,360
7	12,200	10,100	8,290	3,440	6,650	9,070	9,850	38,500	48,700	20,300	6,750	2,310
8	12,000	9,890	8,330	3,160	6,820	8,950	11,400	42,300	54,900	19,200	6,160	2,290
9	12,700	9,680	8,290	3,440	6,820	8,790	13,400	44,500	61,400	18,200	5,330	2,290
10	12,600	9,550	7,720	4,130	6,860	8,440	21,800	45,100	64,700	17,800	4,910	3,420
11	12,400	12,600	7,220	4,040	7,180	8,250	33,600	45,700	62,000	18,200	4,650	3,240
12	12,300	19,600	6,820	4,280	7,540	8,020	38,500	46,900	57,500	20,600	4,280	2,800
13	12,400	18,200	6,480	4,440	8,520	8,020	40,600	48,100	54,900	20,300	4,090	9,640
14	12,300	16,600	6,750	4,650	8,870	7,580	41,200	49,300	55,600	19,600	3,980	9,150
15	12,200	14,200	6,480	4,830	9,270	7,320	40,100	49,900	59,400	18,800	3,890	7,690
16	12,200	12,200	5,810	5,160	9,270	7,400	40,100	52,400	66,100	16,800	4,130	6,320
17	12,100	11,400	5,390	5,130	9,390	7,580	43,400	56,200	71,500	15,400	4,280	4,830
18	11,800	11,000	5,130	5,420	11,300	7,540	44,500	58,200	72,800	14,200	4,780	4,510
19	11,600	10,300	4,910	5,210	11,300	7,400	39,000	60,800	70,100	13,400	4,700	4,830
20	11,600	9,970	4,680	5,160	11,000	7,540	35,000	61,400	65,400	12,600	4,420	4,580

Daily discharge, in second-feet, of Colorado River at Lees Ferry, Ariz., for the year ending September 30, 1924—Continued

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
21	11,300	9,720	4,830	4,960	10,900	7,580	31,200	65,400	59,400	11,600	4,680	4,200
22	10,800	9,510	5,480	4,650	10,700	7,540	28,100	65,400	53,600	11,400	4,390	3,870
23	10,400	9,270	5,840	4,910	10,400	7,400	27,200	66,100	48,100	11,000	4,350	3,770
24	10,300	9,110	6,160	5,160	10,200	7,140	29,000	64,700	44,500	10,100	4,130	3,700
25	10,100	8,870	6,160	5,540	10,000	7,180	32,600	64,000	41,200	9,270	3,810	3,770
26	10,300	8,670	5,840	5,450	10,300	7,220	35,000	61,400	39,000	8,520	3,500	3,850
27	11,400	8,480	5,690	5,240	11,300	7,140	37,500	58,800	37,500	8,100	3,360	3,850
28	11,600	8,250	5,630	4,990	11,300	7,220	36,500	56,800	35,500	8,180	3,100	3,790
29	10,900	8,250	7,720	5,240	11,000	7,000	33,600	58,200	34,600	8,140	2,920	3,790
30	10,600	8,100	9,150	5,510	-------	8,630	30,800	58,800	32,200	8,670	2,800	3,850
31	10,300	-------	9,150	5,510	-------	9,070	-------	58,800	-------	6,650	2,750	-------

Monthly discharge of Colorado River at Lees Ferry, Ariz., for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	13,700	10,100	11,800	726,000
November	19,600	8,100	10,800	643,000
December	9,150	4,680	6,850	421,000
January	7,910	3,160	5,030	309,000
February	11,300	5,570	8,770	504,000
March	10,200	7,000	8,220	505,000
April	44,500	8,060	27,500	1,640,000
May	66,100	24,600	49,700	3,060,000
June	72,800	32,200	52,500	3,120,000
July	30,400	6,650	16,200	996,000
August	8,100	2,750	4,850	298,000
September	9,640	2,290	4,030	240,000
The year	72,800	2,290	17,200	12,500,000

COLORADO RIVER AT BRIGHT ANGEL CREEK, NEAR GRAND CANYON, ARIZ.

LOCATION.—300 feet above Kaibab Bridge, Grand Canyon National Park, a quarter of a mile above Bright Angel Creek and 11 miles by trail northeast of Grand Canyon, Coconino County.

DRAINAGE AREA.—Not measured.

RECORDS AVAILABLE.—October 1, 1922, to September 30, 1924.

GAGE.—Stevens continuous water-stage recorder in concrete shelter and stilling well on right bank. Inspected by G. G. Sykes and B. S. Barnes, resident hydrographers. Zero of gage is 2,420.3 feet above sea level.

DISCHARGE MEASUREMENTS.—Made from cable about 40 feet upstream from gage.

CHANNEL AND CONTROL.—The channel at the measuring section is 275 feet wide at low water and 300 feet at high water. The bed is silt and gravel which scours and fills each season. The control is a section about 50 feet wide at low water between Kaibab Bridge and the mouth of Bright Angel Creek. The flood of September, 1923, caused a slight change in the control.

EXTREMES OF DISCHARGE.—Maximum stage during year, 22.35 feet at 4 p. m. June 18 (discharge, 74,000 second-feet); minimum stage, 1.35 feet at 6 p. m. September 8 (discharge, 2,770 second-feet).

1923–1924: Maximum stage recorded, 28.5 feet at 6 p. m. September 19, 1923 (discharge, 112,000 second-feet); minimum discharge occurred on September 8, 1924.

DIVERSIONS.—Water is diverted from main river and tributaries above station for irrigation of about 1,500,000 acres.

REGULATION.—None.

ACCURACY.—Stage-discharge relation practically permanent after the flood of September, 1923. Rating curve is based on 62 discharge measurements and is about 0.1 foot lower in gage height at low stages and 0.2 foot lower at high stages than the curve used for the previous year. Operation of water-stage recorder satisfactory. Daily discharge ascertained by applying rating table to mean daily gage height obtained by inspecting recorder graph. Records good.

Daily discharge, in second-feet, of Colorado River at Bright Angel Creek near Grand Canyon, Ariz., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	14,400	10,600	8,600	12,600	6,450	11,200	9,510	29,700	56,700	30,500	7,460	3,070
2	14,100	10,600	8,440	10,300	6,520	10,600	9,000	27,800	52,900	28,900	7,760	3,020
3	13,900	11,300	8,440	9,170	6,660	10,300	8,600	25,200	48,800	27,800	7,980	2,940
4	13,800	12,600	8,280	8,100	6,870	10,400	8,920	24,100	44,800	25,600	7,980	2,930
5	13,500	11,700	8,140	6,800	7,080	10,500	9,260	24,500	42,900	24,100	8,520	2,890
6	12,900	11,200	8,210	5,680	7,080	10,200	9,600	27,400	42,900	22,100	8,840	2,810
7	13,000	10,900	8,520	4,930	7,160	9,850	9,760	35,100	46,300	20,500	7,910	2,850
8	12,300	10,700	8,600	4,300	7,380	9,260	13,100	41,000	52,400	20,200	7,540	2,790
9	12,400	10,500	8,680	4,040	7,380	9,170	15,600	43,800	59,400	19,300	6,590	2,800
0	13,000	10,300	8,520	4,330	7,380	9,000	19,300	44,800	65,100	18,200	5,780	3,060
11	12,800	13,700	8,060	4,740	7,540	8,600	29,700	44,800	65,100	18,400	5,330	7,610
12	12,600	35,100	7,540	4,720	7,910	8,360	37,300	45,800	60,500	20,500	5,110	4,680
13	12,600	30,500	7,160	4,930	8,520	8,280	41,900	46,800	56,100	22,100	4,760	3,470
14	12,500	21,100	6,870	4,980	9,680	8,280	43,400	47,800	54,500	20,500	4,590	11,000
15	12,600	18,200	7,080	5,240	9,680	7,910	42,400	48,800	56,700	19,900	4,330	9,170
16	12,500	14,900	6,730	5,420	10,100	7,760	41,400	50,300	63,900	19,000	4,250	8,060
17	12,400	13,000	6,100	5,490	10,200	7,760	42,400	53,500	70,800	16,600	4,440	6,730
18	12,300	12,200	5,820	5,520	11,100	7,980	45,800	55,600	73,200	15,400	4,620	5,490
19	12,100	11,600	5,560	5,680	11,800	7,980	42,900	57,200	72,600	14,400	5,060	5,190
20	11,800	11,000	5,300	5,680	11,200	8,060	37,300	59,400	68,500	13,500	4,980	5,360
21	11,500	10,400	5,230	5,620	11,000	8,060	32,900	62,800	61,600	12,500	4,750	5,040
22	11,300	10,100	5,420	5,460	11,100	8,060	28,500	65,100	55,600	11,900	4,830	4,610
23	11,000	9,940	5,960	5,370	10,700	7,910	26,300	65,100	49,300	11,400	4,800	4,260
24	10,700	9,760	6,380	5,610	10,500	7,840	27,000	65,100	45,300	10,900	4,640	4,150
25	10,500	9,510	6,660	5,750	10,300	7,540	30,500	63,900	42,400	10,100	4,550	4,080
26	10,400	9,420	6,660	5,890	10,900	7,540	34,200	62,200	40,000	9,340	4,140	4,080
27	10,900	9,170	6,590	5,960	11,400	7,540	37,700	59,400	37,700	9,080	3,820	4,190
28	11,900	8,920	39,500	5,820	11,600	7,540	37,700	57,200	36,400	8,760	3,650	4,200
29	11,700	8,760	30,900	5,750	11,600	7,680	35,100	56,700	34,600	9,000	3,420	4,200
30	11,200	8,680	19,900	6,030	-------	7,760	31,700	59,400	32,900	8,920	3,200	4,200
31	10,900	-------	15,400	6,310	-------	9,340	-------	59,400	-------	9,590	3,100	-------

Monthly discharge of Colorado River at Bright Angel Creek near Grand Canyon, Ariz., for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	14,400	10,400	12,200	750,000
November	35,100	8,680	12,900	768,000
December	39,500	5,200	9,650	593,000
January	12,600	4,040	6,010	370,000
February	11,800	6,450	9,200	529,000
March	11,200	7,540	8,650	532,000
April	45,800	8,600	28,000	1,670,000
May	65,100	24,100	48,700	2,990,000
June	73,200	32,900	53,000	3,150,000
July	30,500	8,760	17,100	1,050,000
August	8,840	3,100	5,440	334,000
September	11,000	2,790	4,630	276,000
The year	73,200	2,790	17,900	13,000,000

COLORADO RIVER NEAR TOPOCK, ARIZ.

LOCATION.—At lower end of a narrow section of Mohave Canyon, 3 miles below Topock, Mohave County.

DRAINAGE AREA.—171,000 square miles.

RECORDS AVAILABLE.—February 1, 1917, to September 30, 1924.

GAGE.—Stevens water-stage recorder on left bank; inspected by W. C. Chase, resident hydrographer. Zero of gage is 422.54 feet above sea level.

DISCHARGE MEASUREMENTS.—Made from cable about 20 feet upstream from gage.

CHANNEL AND CONTROL.—Channel is straight above and below gage. Banks are rock and have steep slopes. Bed is composed of sand and silt and shifts constantly. The control is indefinite.

EXTREMES OF DISCHARGE.—Maximum stage during year from water-stage recorder, 15.85 feet at 11 a. m. June 20 (discharge, 71,000 second-feet); minimum discharge, 3,250 second-feet on September 6.

1917–1924: Maximum stage recorded, 28.2 feet at 6 a. m. June 22, 1921 (discharge, 174,000 second-feet); minimum discharge occurred on September 6, 1924.

DIVERSIONS.—Water is diverted from main river and tributaries above the station for irrigation of about 1,500,000 acres.

ACCURACY.—Stage-discharge relation not permanent. During the year discharge measurements were made three times a week. Operation of water-stage recorder was satisfactory. Mean daily gage heights determined by inspecting recorder graph. Daily discharge ascertained by shifting-control method. Records good.

Daily discharge, in second-feet, of Colorado River near Topock, Ariz., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	19,200	12,500	11,200	25,500	6,850	12,100	8,700	39,100	57,800	35,800	10,700	3,790
2	16,900	12,300	11,200	20,200	6,900	12,600	8,500	35,200	58,200	34,800	9,200	3,750
3	16,400	12,000	10,500	17,200	7,100	12,600	9,050	32,400	57,200	32,400	10,400	3,810
4	15,600	11,500	9,950	14,800	7,050	12,400	10,500	29,900	54,200	30,800	9,150	3,580
5	14,900	11,200	9,350	13,000	6,850	11,500	10,500	28,500	50,600	29,800	7,850	3,300
6	15,300	11,700	9,300	11,300	7,250	10,600	9,500	26,600	46,400	28,400	7,950	3,250
7	14,900	13,900	9,800	10,200	7,670	10,700	9,850	26,500	44,300	26,200	8,500	3,450
8	15,100	12,400	9,550	9,000	7,900	10,800	10,200	26,800	44,000	24,100	8,450	3,650
9	14,200	12,200	9,900	7,850	8,200	10,700	10,400	32,600	45,700	23,600	9,300	3,600
10	14,400	17,500	9,450	6,870	8,080	10,500	11,100	39,200	51,200	22,800	8,800	3,670
11	13,300	13,200	9,500	6,250	8,350	10,300	14,800	42,200	55,700	20,600	7,850	3,500
12	13,100	12,700	9,850	5,700	8,380	9,550	20,000	43,500	60,400	19,400	7,550	7,000
13	13,400	12,300	10,500	5,290	8,500	9,470	29,700	44,200	62,300	19,200	6,700	6,900
14	13,100	28,500	10,100	5,550	8,400	9,400	42,700	45,800	59,600	19,000	6,200	7,000
15	12,900	33,300	9,300	6,150	8,800	9,150	48,700	47,200	57,200	22,100	5,400	7,480
16	13,400	24,500	8,950	6,070	9,350	8,950	49,500	47,800	55,000	22,500	5,300	5,800
17	13,300	20,000	8,900	6,550	10,200	8,970	46,800	48,600	55,500	21,300	4,800	7,950
18	13,900	18,800	8,000	6,530	10,600	9,000	45,700	50,100	58,900	20,700	4,600	10,600
19	13,900	16,300	8,520	6,950	10,600	8,850	45,200	52,700	65,900	19,100	4,500	9,450
20	13,700	14,500	8,750	6,850	11,200	9,000	47,300	55,300	70,400	16,800	4,400	8,150
21	13,300	14,000	7,600	7,000	11,800	9,050	45,800	56,500	69,500	15,900	4,550	7,460
22	13,100	13,400	7,350	6,950	13,200	9,470	41,800	58,300	67,700	15,500	4,600	6,190
23	13,200	12,900	6,850	7,030	12,500	9,100	36,900	61,200	63,800	14,500	5,150	5,550
24	12,100	12,300	6,750	6,950	12,300	9,100	32,100	63,700	58,300	13,200	5,050	5,700
25	12,500	12,300	6,600	6,950	11,600	9,000	29,900	64,800	52,700	12,900	4,650	5,480
26	11,700	11,300	6,950	6,870	11,100	9,000	29,700	64,200	46,900	12,900	4,950	4,750
27	11,500	10,600	7,900	6,550	11,300	8,500	31,600	64,700	42,900	12,300	4,950	4,470
28	11,200	10,700	7,700	6,670	10,900	8,450	34,000	62,100	40,800	11,400	4,640	4,330
29	11,200	11,100	9,000	6,750	11,300	8,400	37,400	60,500	39,200	10,800	4,750	4,300
30	11,300	11,100	24,500	7,000	-------	8,400	39,400	58,100	37,700	10,500	4,250	4,540
31	12,200	-------	41,800	7,010	-------	8,450	-------	56,700	-------	11,200	3,790	-------

Monthly discharge of Colorado River near Topock, Ariz., for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	19,200	11,200	13,700	842,000
November	33,300	10,600	14,700	875,000
December	41,800	6,600	10,500	646,000
January	25,500	5,290	8,820	542,000
February	13,200	6,850	9,460	544,000
March	12,600	8,400	9,810	603,000
April	49,500	8,500	28,200	1,680,000
May	64,800	26,500	47,300	2,910,000
June	70,400	37,700	54,300	3,230,000
July	35,800	10,500	20,300	1,250,000
August	10,700	3,790	6,420	395,000
September	10,600	3,250	5,420	323,000
The year	70,400	3,250	19,100	13,800,000

COLORADO RIVER AT YUMA, ARIZ.

LOCATION.—In NE. ¼ NE. ¼ sec. 35, T. 16 S., R. 22 E., San Bernardino base and meridian, 100 feet upstream from original Southern Pacific Railroad bridge and half a mile downstream from highway bridge at Yuma, Yuma County. Since the change in channel on June 7, 1920, Gila River enters from the east about 5 miles upstream from this station.

DRAINAGE AREA.—242,000 square miles (measured on map compiled from best available maps of the Colorado River basin).

RECORDS AVAILABLE.—April 1, 1878, to September 30, 1924. Gage heights only prior to January 1, 1902.

GAGE.—Stevens long-distance water-stage recorder installed May 1, 1922. Sender in stilling well on left bank 100 feet upstream from original Southern Pacific Railroad bridge at same point as vertical staff gage formerly used. Continuous recorder in office of Bureau of Reclamation at Yuma. Sender and recorder inspected daily by D. Martinez. Prior to installation of recorder vertical staff at same location and datum. Zero of gage is 102.79 feet above mean sea level.

DISCHARGE MEASUREMENTS.—Made from cable 1,100 feet downstream from gage.

CHANNEL AND CONTROL.—Bed composed of shifting sand and silt; subject to much scour during high water. No well-defined control.

EXTREMES OF DISCHARGE.—Maximum stage during year, 24.3 feet at 5 p. m. June 24 (discharge, 66,500 second-feet); minimum stage, 13.30 feet from 2 p. m. September 10 to 7 a. m. September 12 (discharge, 1,200 second-feet).

1902–1924: Maximum daily mean discharge, 240,000 second-feet January 22, 1916; minimum discharge, 1,200 second-feet in September, 1924.

DIVERSIONS.—Water is diverted for irrigation and power from main river and tributaries. Some water is diverted out of the drainage basin above this station. Water for the Yuma project of the United States Bureau of Reclamation is diverted from right side of river at Laguna Dam 15 miles upstream. Canal siphons under river at Yuma between gage and cable. Wasteway from canal returns water to river on right side half a mile below cable. Imperial irrigation district diverts water from river on right side 7 miles downstream from this station.

REGULATION.—Flow temporarily affected at times by sluicing at Laguna Dam. Storage on tributaries has very little effect on flow at this station.

ACCURACY.—Stage-discharge relation continually changing. Discharge measurements made three times a week throughout year with measurements made daily except Sunday during period of low water in August and September. Operation of water-stage recorder satisfactory. Daily discharge ascertained by shifting-control method of applying to standard rating table mean daily gage height determined from recorder graph.

COOPERATION.—Station operated by United States Bureau of Reclamation which furnished records of discharge measurements and daily discharge.

Daily discharge, in second-feet, of Colorado River at Yuma, Ariz., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	18,500	10,200	9,420	41,400	5,790	9,090	6,420	33,500	58,500	37,200	7,220	2,530
2	17,600	11,800	9,420	50,400	6,050	9,420	6,550	35,800	55,900	34,600	8,000	2,300
3	15,600	12,200	9,900	34,100	6,200	10,200	6,230	36,500	55,500	31,100	8,380	1,930
4	14,600	10,800	8,950	29,300	5,870	10,300	6,110	31,700	55,800	29,000	6,520	2,010
5	14,600	10,200	8,910	23,700	5,900	10,700	6,420	27,500	54,800	26,900	6,300	1,590
6	14,300	9,130	8,860	18,700	6,170	10,500	8,210	24,900	53,800	25,900	7,000	1,710
7	12,700	9,370	8,680	14,900	6,620	9,610	8,340	23,400	51,800	25,200	5,790	1,920
8	11,600	9,750	8,680	13,500	6,790	9,750	8,290	21,600	47,300	22,500	5,540	1,550
9	11,700	11,900	8,210	12,400	7,080	9,610	7,560	20,900	43,900	20,600	5,590	1,330
10	11,700	12,600	7,450	10,600	8,130	9,040	7,370	23,700	42,100	19,100	7,490	1,250
11	11,700	13,700	7,960	9,000	7,520	8,860	8,290	28,900	42,000	19,500	5,840	1,200
12	11,900	14,100	8,340	8,170	7,110	8,730	8,770	32,700	46,100	18,300	6,050	1,240
13	11,500	13,200	7,880	7,600	6,720	8,510	12,100	36,600	50,400	16,800	5,570	1,290
14	10,800	16,700	7,640	7,080	7,080	8,130	15,900	39,500	54,500	15,100	5,140	2,100
15	11,300	12,500	7,840	6,760	7,220	8,080	23,700	41,100	56,700	13,900	4,610	3,160
16	11,600	26,400	7,490	5,930	7,600	7,640	32,500	42,500	56,400	14,100	4,160	3,300
17	11,500	31,900	7,150	5,990	8,130	7,150	38,400	44,000	55,500	17,600	4,630	3,600
18	11,400	25,400	6,720	5,930	7,720	6,970	40,900	43,700	53,400	17,600	3,350	4,140
19	11,500	20,100	6,690	5,900	8,680	7,260	41,900	45,400	53,900	17,000	3,230	3,100
20	12,000	18,000	6,790	6,080	9,560	6,720	41,000	46,600	56,200	17,300	2,920	7,260
21	11,800	16,200	6,760	5,900	9,320	6,200	42,800	47,600	58,600	15,900	2,790	9,660
22	11,200	13,900	7,040	6,140	9,610	6,620	44,000	50,200	61,900	14,000	2,840	5,760
23	10,800	13,600	6,490	6,300	10,500	6,970	42,100	50,600	64,300	12,800	2,530	5,170
24	10,500	13,000	6,170	6,200	11,800	6,460	36,100	51,900	65,300	12,200	2,490	4,070
25	10,500	10,700	6,080	5,930	11,100	6,660	31,900	54,300	64,200	11,700	2,390	3,330
26	10,200	9,850	6,520	6,200	10,500	6,900	28,800	56,000	60,600	11,100	2,480	3,380
27	10,200	9,950	6,170	6,330	10,200	7,300	26,300	58,200	54,100	11,400	2,940	3,710
28	10,400	9,750	6,860	6,390	10,300	7,260	26,200	60,600	48,700	9,450	2,710	4,270
29	9,420	9,660	22,400	6,170	9,560	6,970	26,100	59,600	44,400	8,910	2,570	2,850
30	9,510	9,270	53,900	6,080	-------	6,760	29,500	59,700	40,400	8,210	2,830	2,620
31	9,270	-------	43,600	5,760	-------	6,460	-------	60,700	-------	7,520	3,950	-------

Monthly discharge of Colorado River at Yuma, Ariz., for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	18,500	9,270	12,000	738,000
November	31,900	9,130	13,900	827,000
December	53,900	6,080	10,800	664,000
January	50,400	5,760	12,400	762,000
February	11,800	5,790	8,100	466,000
March	10,700	6,200	8,090	497,000
April	44,000	6,110	22,300	1,330,000
May	60,700	20,900	41,600	2,560,000
June	65,300	40,400	53,600	3,190,000
July	37,200	7,520	18,100	1,110,000
August	8,380	2,390	4,640	285,000
September	9,660	1,200	3,110	185,000
The year	65,300	1,200	17,400	12,600,000

FRASER RIVER NEAR WEST PORTAL, COLO.[3]

LOCATION.—In NE. ¼ sec. 4, T. 2 S., R. 75 W., a quarter of a mile from Vasquez siding on Denver & Salt Lake Railroad and 1½ miles northwest of West Portal, Grand County. Nearest important tributary, Buck Creek, enters 7 miles upstream.

DRAINAGE AREA.—28 square miles (measured on special map).

RECORDS AVAILABLE.—September 23, 1910, to September 30, 1924.

GAGE.—Gurley water-stage recorder on left bank 300 feet upstream from old logging road crossing at Vasquez; inspected by forest ranger. During winter, readings taken from staff gage 1 mile upstream at railroad bridge.

DISCHARGE MEASUREMENTS.—Made from footbridge near gage or by wading.

CHANNEL AND CONTROL.—Bed composed of boulders and coarse gravel; fairly permanent. No well-defined control. Banks are not subject to overflow.

EXTREMES OF DISCHARGE.—Maximum stage during year from water-stage recorder, 2.33 feet at 7 p. m. June 14 (discharge, 442 second-feet); minimum discharge, 6.2 second-feet for several days during April.

1911–1924: Maximum discharge recorded, 820 second-feet at 9 p. m. June 13, 1918 (gage height, 2.9 feet); minimum discharge, 2 second-feet on March 30, 1912.

ICE.—Stage-discharge relation affected by ice.

DIVERSIONS.—Court decree for diversion of 53 second-feet across divide from headwaters of Fraser River into headwaters of Clear Creek. During 1924, 1,160 acre-feet were diverted. Below station, diversions for irrigation of 9,300 acres.

REGULATION.—Diurnal fluctuation during spring, caused by alternate melting and freezing of mountain snow. No artificial regulation.

ACCURACY.—Stage-discharge relation practically permanent at regular gage and slightly shifting at winter gage; affected by ice. Rating curve used October 1–24 and May 24 to September 30 well defined; curve for winter gage used October 25 to February 21, and curve used February 22 to May 23 are both fairly well defined. Operation of water-stage recorder satisfactory October 1–24 and May 24 to September 30 except for periods as explained in footnote to table of daily discharge; gage heights October 25 to May 23 from winter staff gage which was read once daily. Daily discharge ascertained by applying to rating tables daily staff gage reading or the mean daily gage height obtained by inspecting recorder graph; shifting-control method used February 1 to April 5. Records good except for periods when affected by ice and periods of missing gage heights, for which they are fair.

Discharge measurements of Fraser River near West Portal, Colo., during the year ending September 30, 1924

Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Jan. 8	0.62	12.7	June 9	1.58	152
Mar. 6	.56	6.3	July 17	1.02	85
Mar. 6	.56	6.7			

[3] Formerly called Fraser River near Arrow.

Daily discharge, in second-feet, of Fraser River near West Portal, Colo., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	21			13	10	6.5	7.1	17	117	110	33	16
2	20			13	10	6.5	7.7	28	119	98	31	12
3	22		14	13	10	6.5	7.7	30	123	90	30	12
4	23			13	9.5	6.5	7.7	41	154	85	30	12
5	22			13	9.0	6.5	7.7	43	188	80	31	12
6	22			13	9.0	6.5	8.0	62	192	76	29	14
7	24			13	9.5	6.5	8.8	65	232	73	26	14
8	24			12	9.5	6.5	8.8	41	244	70	25	13
9	25			12	9.2	6.5	8.8	43	208	67	25	15
10	26		12	12	9.2	6.5	8.8	43	235	65	24	17
11	26			12	8.9	6.5	8.8	43	283	63	25	22
12	28			12	8.3	6.5	8.8	43	315	62	24	15
13	31			12	8.0	7.1	10	43	367	60	24	13
14	28		13	12	8.0	7.1	11	75	388	58	24	13
15	25	14	13	12	8.0	7.1	13	136	356	56	27	13
16	22			12	7.8	6.5	7.4	136	328	70	24	12
17	18			12	7.8	6.5	6.8	136	295	76	23	12
18	15		14	12	7.6	6.5	6.8	140	283	65	22	12
19	18			12	8.0	6.5	6.8	136	235	59	21	12
20	16			12	7.8	6.5	6.2	136	208	56	19	13
21	18		14	12	7.8	6.5	6.2	136	208	54	18	16
22	16		14	11	7.4	6.5	6.2	147	202	52	17	17
23	15		14	11	7.4	6.5	6.2	154	198	48	17	17
24	16		14	11	6.8	6.5	7.4	150	200	47	18	16
25	15		14	11	6.8	6.5	8.0	143	192	43	22	16
26	15		14	11	6.8	6.5	6.8	158	185	42	19	16
27	15		14	10	6.8	6.5	6.2	166	178	41	17	17
28	15		13	10	6.8	6.5	6.2	161	170	40	16	16
29	14		13	10	6.8	6.5	7.4	146	155	39	15	16
30	14		13	10	-------	6.5	9.6	125	130	37	14	16
31	14	-------	13	10	-------	6.5	-------	119	-------	34	16	-------

NOTE.—No gage-height record Oct. 14–19 and June 29 to July 14; discharge based on comparison with Colorado River at Hot Sulphur Springs. Stage-discharge relation affected by ice Oct. 26 to Dec. 20, Dec. 26, Jan. 15–19, and Feb. 2–6; discharge based on temperature and gage-height record. Braced figures show mean discharge for period indicated

Monthly discharge of Fraser River near West Portal, Colo., for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	31	14	20.1	1,240
November	----------	----------	14.0	833
December	----------	----------	13.3	818
January	13	10	11.7	719
February	10	6.8	8.22	473
March	7.1	6.5	6.56	403
April	13	6.2	7.90	470
May	166	17	98.1	6,030
June	388	117	223	13,300
July	110	34	61.8	3,800
August	33	14	22.8	1,400
September	17	12	14.6	869
The year	388	6.2	41.8	30,400

WILLIAMS FORK NEAR PARSHALL, COLO.

LOCATION.—About sec. 36, T. 1 N., R. 79 W., at private bridge at Field's ranch, 4 miles above mouth of river and 4 miles south of Parshall, Grand County. Nearest tributary, Battle Creek, enters from west 2 miles below station.

DRAINAGE AREA.—185 square miles (measured on Forest Service atlas).

RECORDS AVAILABLE.—July 25, 1904, to September 30, 1924, when station was discontinued.

GAGE.—Bristol float-type water-stage recorder at left end of bridge installed October 18, 1919, and referred to previously used vertical staff on downstream side of bridge pier; inspected by F. A. Field.

DISCHARGE MEASUREMENTS.—Made from two-span bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of coarse gravel and small boulders. Control is gravel bar 50 feet downstream. Water will flow through small overflow channels at stage of 4.1 feet.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 4.36 feet from 7 to 8 a. m. June 5 (discharge, 964 second-feet); minimum discharge probably occurred during winter.

1904–1924: Maximum stage recorded, 6.0 feet at 9.45 a. m. June 14, 1918 (discharge, 2,520 second-feet); minimum stage, 2.1 feet on November 7, 1919 (discharge, 15 second-feet).

ICE.—Stage-discharge relation affected by ice.

DIVERSIONS.—Water diverted from Williams Fork for irrigation of 5,000 acres chiefly above station.

REGULATION.—Diurnal fluctuation during spring, caused by alternate melting and freezing of mountain snow.

ACCURACY.—Stage-discharge relation practically permanent; affected by ice. Rating curve well defined. Operation of water-stage recorder satisfactory October 1–18 and May 12 to September 30. Staff gage read to hundredths twice daily October 19 to May 10. Daily discharge ascertained by applying mean daily gage height to rating table. Records good except for periods when affected by ice, for which they are fair.

The following discharge measurements were made:

January 10, 1924: Gage height, 5.64 feet; discharge estimated, 45 second-feet.[4]
February 12, 1924: Gage height, 2.72 feet;[4] discharge, 41.3 second-feet.
May 15, 1924: Gage height, 3.51 feet; discharge, 298 second-feet.

Daily discharge, in second-feet, of Williams Fork near Parshall, Colo., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	95	74					79	132	376	486	93	41
2	95	91					72	145	437	479	82	66
3	91	81					72	206	493	451	79	68
4	95	77					61	280	628	424	72	72
5	95	74					69	370	588	424	76	79
6	91	82	52	45	40	40	72	364	660	418	72	69
7	88	60					86	260	740	388	68	74
8	77	64					95	232	780	382	71	88
9	72	72					100	220	700	388	68	88
10	74	64					107	196	700	358	61	74
11	79	95			40		104	238	780	346	63	60
12	84	74			41		69	280	910	295	63	82
13	81	64			48		96	328	865	256	63	84
14	74	64			55		132	316	910	236	55	72
15	79	55			61		176	358	910	216	81	66
16	77	68	51	46	76	44	130	328	865	216	86	64
17	74	58			58		84	437	820	203	66	61
18	81	63			55		84	451	780	176	48	68
19	88	64			50		89	493	865	182	37	76
20	89	58			48		79	430	740	142	39	89
21	93	68				60	145	458	700	135	50	98
22	91	77				62	394	493	700	122	55	91
23	93	68				65	236	516	700	100	57	82
24	102	58				68	394	444	700	98	54	82
25	77	72			40	60	532	437	700	91	36	89
26	102	66	44	50		58	228	486	660	86	32	88
27	95	58				64	88	508	628	79	44	82
28	93	55				63	107	548	612	89	54	81
29	89	54				74	88	472	612	74	61	84
30	74	54			-------	72	91	451	540	81	55	86
31	84	-------			-------	71	-------	376	-------	86	34	-------

NOTE.—Stage-discharge relation affected by ice Nov. 27 to Mar. 23; discharge based on temperature and gage-height record, two discharge measurements, and observer's notes.

[4] Stage-discharge relation affected by ice.

Monthly discharge of Williams Fork near Parshall, Colo., for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	102	72	86.2	5,300
November	95	54	67.7	4,030
December			48.8	3,000
January			47.1	2,900
February	76		44.6	2,570
March	74		50.2	3,090
April	532	61	139	8,270
May	548	132	363	22,300
June	910	376	703	41,800
July	486	74	242	14,900
August	93	32	60.5	3,720
September	98	41	76.8	4,570
The year	910		160	116,000

TROUBLESOME CREEK NEAR TROUBLESOME, COLO.

LOCATION.—In sec. 12, T. 1 N., R. 80 W., at highway bridge 1 mile north of Troublesome, Grand County. No tributary between station and mouth 1½ miles below.

DRAINAGE AREA.—172 square miles (measured on base map of Colorado; scale, 1:500,000).

RECORDS AVAILABLE.—April 26, 1922, to September 30, 1924, when station was discontinued. From July 22, 1902, to October 31, 1905, station maintained at practically same site.

GAGE.—Vertical staff fastened to piling near downstream side of left abutment; read by J. S. Gibson.

DISCHARGE MEASUREMENTS.—Made from bridge or by wading near-by.

CHANNEL AND CONTROL.—Bed composed of mud and gravel, probably shifting. Control is a gravel bar 75 feet downstream.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 2.90 feet at 7 a. m. June 6 and 7 (discharge, 440 second-feet); minimum stage, 1.38 feet at 6.30 a. m. July 22 (discharge, 7 second-feet).

1922–1924: Maximum stage recorded, 3.32 feet at 7 a. m. May 27 and 28, 1923 (discharge, 672 second-feet); minimum stage, 1.28 feet at 5.30 p. m. July 30, 1922 (discharge, 1 second-foot).

ICE.—Stage-discharge relation seriously affected by ice.

DIVERSIONS.—Water is diverted above station for irrigation of 5,000 acres.

REGULATION.—None, except that diversion for irrigation uses most of summer flow.

ACCURACY.—Stage-discharge relation slightly shifting. Rating curve used October 1 to November 15, and curve used May 1 to September 30 are both fairly well defined. Gage read to hundredths twice daily. Daily discharge ascertained by applying mean daily gage-height to rating table. Records good except those for low stages which are fair.

The following discharge measurements were made:

May 15, 1924: Gage height, 2.58 feet; discharge, 267 second-feet.

August 12, 1924: Gage height, 1.56 feet; discharge, 25.9 second-feet.

Daily discharge, in second-feet, of Troublesome Creek near Troublesome, Colo., for the year ending September 30, 1924

Day	Oct.	Nov.	May	June	July	Aug.	Sept.
1	30	30	133	219	21	29	19
2	30	31	131	231	20	26	19
3	32	31	131	280	20	23	18
4	34	37	235	330	17	24	18
5	32	34	235	440	18	24	15
6	32	27	235	412	25	25	15
7	31	21	211	440	26	23	17
8	30	27	199	412	40	22	15
9	32	32	157	305	39	25	17
10	37	32	167	244	75	26	28
11	35	37	199	215	50	26	28
12	34	37	231	227	35	23	21
13	34	34	276	253	26	21	26
14	35	31	305	227	20	21	25
15	32	32	305	195	19	22	20
16	40	--------	305	178	20	22	18
17	42	--------	305	152	24	22	17
18	42	--------	330	131	23	20	18
19	42	--------	305	111	17	20	17
20	42	--------	258	93	14	20	18
21	42	--------	235	78	10	20	17
22	42	--------	248	67	9	19	17
23	45	--------	235	60	14	20	18
24	48	--------	215	40	14	20	17
25	40	--------	223	40	12	22	16
26	43	--------	253	35	11	16	18
27	46	--------	305	33	10	20	18
28	45	--------	330	25	12	17	18
29	45	--------	258	24	18	19	16
30	31	--------	253	24	26	18	18
31	26	--------	227	--------	29	19	--------

Monthly discharge of Troublesome Creek near Troublesome, Colo., for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	48	26	37.1	2,280
November 1-15	37	21	31.5	937
May	330	131	240	14,800
June	440	24	184	10,900
July	75	9	23.0	1,410
August	29	16	21.7	1,330
September	28	15	18.7	1,110

BLUE RIVER AT DILLON, COLO.

LOCATION.—In sec. 18, T. 5 S., R. 77 W., at highway bridge on edge of Dillon, Summit County. Nearest tributaries, Snake River and Tenmile Creek, enter a short distance below.

DRAINAGE AREA.—129 square miles.

RECORDS AVAILABLE.—October 15, 1910, to September 30, 1924.

GAGE.—Gurley water-stage recorder installed April 21, 1920, and referred to vertical staff on right abutment of bridge, which was used previously; inspected by I. W. Blundell.

DISCHARGE MEASUREMENTS.—Made from bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of compact gravel upon which lodges débris from hydraulic dredges near Breckenridge. Control is riffle 50 feet downstream which shifts at long intervals. Banks not subject to overflow.

EXTREMES OF DISCHARGE.—Maximum stage during year from water-stage recorder, 3.6 feet at 1 p. m. June 14 (discharge, 1,180 second-feet); minimum discharge occurred during winter.

1911–1924: Maximum discharge recorded, that of June 14, 1924; minimum discharge, 14 second-feet on January 30 and February 9, 1915.

ICE.—Stage-discharge relation affected by ice.

DIVERSIONS.—Except for a small diversion across Boreas Pass, practically no diversions above station, which do not return water to river.

REGULATION.—Diurnal fluctuation during spring, caused by alternate melting and freezing of mountain snow. No artificial regulation.

ACCURACY.—Stage-discharge relation not permanent. Rating curve fairly well defined. Operation of water-stage recorder satisfactory. Daily discharge ascertained by shifting-control method July 1 to September 30; remainder of time by applying to rating table mean daily gage height obtained by inspection of recorder graph. Records good except for period of shifting control, for which they are fair.

The following discharge measurements were made:

May 17, 1924: Gage height, 2.40 feet; discharge, 326 second-feet.
June 13, 1924: Gage height, 3.26 feet; discharge, 901 second-feet.
July 28, 1924: Gage height, 1.70 feet; discharge, 143 second-feet.

Daily discharge, in second-feet, of Blue River at Dillon, Colo., for the year ending September 30, 1924

Day	Oct.	Apr.	May	June	July	Aug.	Sept.
1	80	--------	53	228	345	131	68
2	80	--------	76	225	316	129	68
3	80	--------	98	231	288	121	68
4	80	--------	103	258	272	111	66
5	80	--------	137	340	264	111	66
6	79	--------	158	431	275	113	66
7	--------	--------	148	584	272	113	65
8	--------	--------	142	624	414	110	65
9	--------	--------	133	527	414	104	65
10	--------	--------	131	461	311	99	64
11	--------	--------	135	533	288	96	66
12	--------	--------	168	645	268	93	66
13	--------	--------	219	864	244	92	67
14	--------	--------	244	976	222	92	69
15	--------	--------	258	896	213	90	67
16	--------	--------	289	784	210	92	66
17	--------	--------	325	736	228	90	65
18	--------	--------	381	645	254	87	64
19	--------	--------	392	597	222	84	64
20	--------	--------	355	503	201	82	64
21	--------	--------	340	455	183	81	63
22	--------	--------	360	449	178	79	62
23	--------	64	360	449	168	76	62
24	--------	64	320	437	160	71	64
25	--------	62	306	425	155	70	64
26	--------	59	350	420	153	70	64
27	--------	56	387	398	146	70	64
28	--------	54	360	386	137	70	63
29	--------	52	306	386	137	69	62
30	--------	53	264	360	135	68	62
31	--------	--------	240	--------	133	68	--------

Monthly discharge of Blue River at Dillon, Colo., for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October 1-6	80	79	79.8	950
April 23-30	64	52	58.0	920
May	392	53	243	14,900
June	976	225	508	30,200
July	414	133	232	14,300
August	131	68	91.4	5,620
September	69	62	65.0	3,870

EAGLE RIVER AT REDCLIFF, COLO.

LOCATION.—In sec. 29, T. 6 S., R. 80 W., at footbridge in Redcliff, Eagle County. Nearest tributary, Turkey Creek, enters 100 yards below station; Homestake Creek enters 1 mile below.

DRAINAGE AREA.—74 square miles (measured on topographic map).

RECORDS AVAILABLE.—January 1, 1911, to September 30, 1924.

GAGE.—Chain gage on downstream side of footbridge; read by Miss Hazel Howard. Staff gage in same section and referred to same datum, read during high water.

DISCHARGE MEASUREMENTS.—Made from highway bridge 300 yards above station or by wading.

CHANNEL AND CONTROL.—Bed composed of boulders and is very rough. Control short distance below gage; shifting at long intervals. Banks not subject to overflow.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 3.00 feet at 7.30 a. m. June 7 (discharge, 480 second-feet); minimum stage, 0.30 foot at 8 a. m. October 10 (discharge, 5 second-feet).

1911–1924: Maximum stage recorded, 4.0 feet on June 5, 1912 (discharge, 1,010 second-feet); minimum stage, 0.01 foot at 7 a. m. October 15, 1917 (discharge, 1 second-foot).

ICE.—Stage-discharge relation not affected by ice except for occasional short periods.

DIVERSIONS.—During 1923, 2,210 second-feet diverted from headwaters of Eagle River to Arkansas River basin. Very little land irrigated above gaging station.

REGULATION.—Diurnal fluctuation during spring caused by alternate melting and freezing of mountain snow. Filling of Pando ice pond in fall reduces flow for a few days.

ACCURACY.—Stage-discharge relation slightly shifting; not affected by ice. Rating curve well defined, applied indirectly October 1 to November 20. Gage read to hundredths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table. Records good.

The following discharge measurements were made:

January 17, 1924: Gage height, 0.82 foot; discharge, 17.7 second-feet.

April 21, 1924: Gage height, 1.38 feet; discharge, 52 second-feet.

May 16, 1924: Gage height, 2.32 feet; discharge, 231 second-feet.

Daily discharge, in second-feet, of Eagle River at Redcliff, Colo., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	26	18	16	12	13	11	16	56	173	99	30	21
2	26	18	16	13	13	12	14	72	173	92	26	20
3	25	18	19	13	13	12	16	107	185	85	26	20
4	24	18	18	13	14	12	14	142	255	78	27	20
5	21	18	17	12	13	12	20	151	290	78	27	18
6	20	18	16	12	14	12	22	142	342	78	25	20
7	9	18	16	12	15	12	24	151	420	85	24	20
8	7	18	16	13	14	12	27	136	380	99	22	20
9	6	19	15	13	15	12	51	142	290	92	22	21
10	6	22	14	13	14	12	54	151	272	85	21	21
11	8	21	13	13	12	12	52	173	272	78	20	18
12	9	20	14	14	11	12	29	211	360	72	20	8
13	11	18	14	13	10	12	56	255	360	60	21	10
14	11	17	16	13	12	12	85	225	380	60	25	17
15	15	17	18	13	12	12	92	272	325	60	26	22
16	17	18	17	13	12	12	66	255	325	60	21	19
17	17	17	13	15	12	12	32	325	272	72	19	20
18	20	17	14	13	11	12	37	240	219	66	18	20
19	20	16	14	13	10	12	38	308	211	55	18	19
20	17	15	13	13	10	12	48	272	185	47	19	20
21	18	16	13	13	10	12	66	255	162	45	21	21
22	18	16	13	12	11	11	85	290	151	40	22	20
23	20	15	14	12	10	11	107	272	142	41	20	16
24	22	16	14	13	12	10	107	225	132	35	18	8
25	20	15	13	13	12	10	92	240	124	30	19	9
26	18	14	13	13	12	10	72	240	118	31	20	11
27	18	15	13	13	10	11	54	272	115	33	20	17
28	18	16	13	13	11	11	43	240	107	35	20	20
29	18	15	13	13	12	12	41	197	99	33	18	20
30	18	16	14	12	-------	11	47	185	99	30	19	17
31	21	-------	13	13	-------	10	-------	173	-------	30	21	-------

Monthly discharge of Eagle River at Redcliff, Colo., for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	26	6	16.9	1,040
November	22	14	17.2	1,020
December	19	13	14.7	904
January	15	12	12.9	793
February	15	10	12.1	696
March	12	10	11.5	707
April	107	14	50.2	2,990
May	325	56	206	12,700
June	420	99	231	13,700
July	99	30	60.8	3,740
August	30	18	21.8	1,340
September	22	8	17.8	1,060
The year	420	6	56.0	40,700

EAGLE RIVER AT EAGLE, COLO.

LOCATION.—In sec. 33, T. 4 S., R. 84 W., at left bank 500 feet below highway bridge at Eagle, Eagle County. Nearest tributary, Brush Creek, enters three-quarters of a mile below station.

DRAINAGE AREA.—650 square miles (measured on base map of Colorado; scale 1:500,000).

RECORDS AVAILABLE.—January 17, 1911, to September 30, 1924, when station was discontinued. March 12, 1905, to February 10, 1907, station was maintained short distance below mouth of Brush Creek.

GAGE.—Gurley water-stage recorder installed April 5, 1919, and referred to inclined gage which had datum of chain gage on bridge used previously, but owing to slope of river, readings at present location were about 0.7 foot less than at bridge; inspected by forest ranger. Datum of inclined gage lowered 1.00 foot November 21, 1919.

DISCHARGE MEASUREMENTS.—Made from private bridge half a mile downstream.

CHANNEL AND CONTROL.—Bed composed of boulders. Control at rapids in which gage intake is located; somewhat shifting. Banks not subject to overflow.

EXTREMES OF DISCHARGE.—Maximum stage during year from water-stage recorder, 5.18 feet at 1 p. m. June 14 (discharge, 5,610 second-feet); minimum discharge occurred during winter.

1911–1924: Maximum stage recorded, 6.3 feet at 6 a. m. June 3, 1914 (discharge, 6,760 second-feet); minimum discharge, 61 second-feet on January 18, 1911.

ICE.—Stage-discharge relation seriously affected by ice.

DIVERSIONS.—Water diverted for irrigation of 2,900 acres from Eagle River, and 13,000 acres from tributaries, chiefly between Redcliff and Eagle.

REGULATION.—Diurnal fluctuation during spring caused by alternate melting and freezing of mountain snow. No artificial regulations.

ACCURACY.—Stage-discharge relation not permanent. Rating curve fairly well defined. Operation of water-stage recorder satisfactory except for periods as explained in footnote to table of daily discharge. Daily discharge ascertained by shifting-control method except from April 11 to July 19, when daily mean gage height was applied to rating table. Records good except for periods of missing gage heights, for which they are fair.

Discharge measurements of Eagle River at Eagle, Colo., during the year ending September 30, 1924

Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Jan. 16	* 0.88	56	May 19	3.41	2,180
Feb. 16	.62	138	Aug. 4	1.08	211
Apr. 20	1.06	234			

* Stage-discharge relation affected by ice.

Daily discharge, in second-feet, of Eagle River at Eagle, Colo., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	274	223	135	137	223	591	938	1,550	309	119
2	270	206	130	135	223	617	892	1,420	233	119
3	270	194	125	133	240	742	1,090	1,330	226	117
4	270	180	120	131	278	1,250	1,360	1,290	219	115
5	274	177	125	129	270	1,250	1,950	1,260	216	112
6	274		140	127	300	1,450	2,710	1,250	216	128
7	270		150	125	332	1,500	3,300	1,280	200	132
8	270		152	123	338	1,610	3,120	1,310	186	128
9	266		144		332	1,660	2,490	1,420	172	126
10	270	160	132		274	1,610	2,060	1,400	164	140
11	270		108		251	1,720	2,680	1,360	164	183
12	274		108		223	1,840	3,550	1,340	159	172
13	282		154		266	1,810	4,450	1,360	162	164
14	286		142	130	369	1,900	4,990	1,380	197	147
15	296		132		434	2,090	5,020	1,380	192	123
16	296		144		359	2,230	4,560	1,380	183	119
17	286		123		290	2,460	3,860	1,420	175	115
18	278		119		215	2,700	3,120	1,440	162	112
19	266		126		225	2,160	2,810	1,420	154	112
20	259		159		236	1,840	2,260	1,210	147	112
21	247		152		278	1,920	2,120	1,050	144	110
22	233		137		338	1,970	2,100	900	142	108
23	229	140	119		488	1,850	2,090	760	140	108
24	226		112		565	1,530	2,090	560	137	112
25	229		130	150	640	1,400	2,060	460	132	110
26	233		121		555	1,710	2,020	428	130	115
27	229		102		550	1,800	1,920	452	130	119
28	236		100		560	1,570	1,840	488	130	120
29	240		102		565	1,310	1,780	500	128	120
30	233		103	180	570	1,130	1,720	506	126	120
31	226	--------	100	209	--------	1,030	--------	482	121	--------

NOTE.—No gage-height record Nov. 1–30, Dec. 1–7, 28–31, Mar. 9–29, Apr. 6, 17–19, 25–30, July 20–25, Sept. 28–30; discharge based on comparison with flow of Roaring Fork at Glenwood Springs. Braced figures show mean discharge for periods indicated.

Monthly discharge of Eagle River at Eagle, Colo., for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	296	226	260	16,000
November	223	----------	156	9,280
December	159	100	127	7,810
March	209	----------	140	8,610
April	640	215	360	21,400
May	2,700	591	1,620	99,600
June	5,020	892	2,560	152,000
July	1,550	428	1,090	67,000
August	309	121	171	10,500
September	183	108	125	7,440

ROARING FORK AT GLENWOOD SPRINGS COLO.

LOCATION.—In sec. 9, T. 6 S., R. 89 W., 1,500 feet above mouth of river in Glenwood Springs, Garfield County.

DRAINAGE AREA.—1,460 square miles (measured on base map of Colorado; scale 1:500,000).

RECORDS AVAILABLE.—April 6, 1906, to September 30, 1909; September 21, 1910, to September 30, 1924.

GAGE.—Gurley water-stage recorder installed October 27, 1917, and referred to inclined staff on left bank 800 feet above highway bridge; inspected by C. H. Oberly.

DISCHARGE MEASUREMENTS—Made from single-span highway bridge.

CHANNEL AND CONTROL.—Bed composed of boulders and coarse gravel; shifting at long intervals. No well-defined control. Banks not subject to overflow.

EXTREMES OF DISCHARGE.—Maximum stage during year, from water-stage recorder, 6.85 feet at 7 a. m. June 14 and 15 (discharge, 12,500 second-feet); minimum stage, 0.81 foot at 11 a. m. January 20 (discharge, 282 second-feet).

1906–1909; 1910–1924: Maximum stage recorded, 8.7 feet on June 14, 1921, from high-water mark (discharge, 17,600 second-feet); minimum discharge, 225 second-feet on December 16, 1906 (gage height, 1.15 feet).

ICE.—Stage-discharge relation not seriously affected by ice except for short periods.

DIVERSIONS.—Water diverted for irrigation of 5,600 acres by Roaring Fork and 19,000 acres by tributaries, all above station.

REGULATION.—Diurnal fluctuation during spring, caused by alternate melting and freezing of mountain snow. No artificial regulation.

ACCURACY.—Stage-discharge relation practically permanent; slightly affected by ice. Rating curve well defined. Operation of water-stage recorder satisfactory. Daily discharge ascertained by applying mean daily gage height to rating table. Records excellent.

Discharge measurements of Roaring Fork at Glenwood Springs, Colo., during the year ending September 30, 1924

Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Jan. 15	* 1.19	518	Apr. 18	1.31	668
Feb. 12	.99	429	Aug. 4	1.45	779

* Stage-discharge relation affected by ice.

Daily discharge, in second-feet, of Roaring Fork at Glenwood Springs, Colo., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	963	736	533	494	619	349	410	972	2,900	3,540	847	456
2	946	713	518	494	549	364	479	1,100	2,980	3,160	831	433
3	963	705	502	502	541	417	464	1,520	3,540	2,820	783	433
4	980	720	471	502	464	410	525	1,970	4,400	2,660	776	425
5	963	697	456	518	494	395	572	2,240	5,940	2,660	760	425
6	998	689	487	494	502	379	642	2,100	7,060	2,660	736	448
7	989	658	549	470	440	395	713	2,040	7,760	2,820	681	425
8	938	642	549	500	410	410	752	2,100	6,640	3,250	635	410
9	900	650	518	505	395	357	799	2,100	5,140	2,900	596	433
10	840	635	433	500	395	387	799	2,170	5,140	2,520	611	541
11	820	666	440	480	387	433	783	2,520	6,500	2,240	588	697
12	800	658	580	448	364	402	705	2,980	8,040	2,200	564	689
13	750	642	510	417	402	379	760	3,440	9,440	2,090	564	697
14	658	619	487	494	395	417	946	3,440	11,100	1,960	611	674
15	642	596	564		425	417	1,070	3,850	10,800	1,830	674	642
16	619	611	510	518	417	395	895	3,960	10,300	1,790	658	627
17	603	557	518		387	364	736	4,400	8,880	1,870	619	619
18	572	487	525		402	395	674	5,010	6,640	1,680	596	611
19	572	487	533		387	387	689	4,400	6,500	1,540	564	611
20	627	494	564	425	387	357	713	4,290	5,140	1,420	549	611
21	689	494	572	494	387	357	807	4,290	4,880	1,350	525	658
22	689	487	564	541	410	364	938	4,290	5,270	1,280	518	642
23	708	479	533	580	379	372	1,170	3,850	5,270	1,170	502	635
24	728	502	525	596	342	395	1,350	3,440	5,010	1,140	494	596
25	710	525	564	580	349	372	1,350	3,960	4,880	1,070	494	580
26	700	464	580	580	364	402	1,090	5,010	4,880	1,020	487	580
27	675	487	580	580	402	425	946	4,640	4,400	963	479	580
28	660	425	494	666	364	448	887	4,070	4,290	938	464	572
29	680	448	580	627	372	440	847	3,440	4,290	946	464	564
30	689	541	588	580	-------	425	887	3,440	3,850	938	464	557
31	705	-------	502	611	-------	379	-------	3,070	-------	895	464	-------

NOTE.—No gage-height record Oct. 9–13, 23, 25–29, and Jan. 7–11; discharge based on comparison with flow of Colorado River at Glenwood Springs. Discharge Jan. 15–19, estimated because of ice effect on basis of one current-meter measurement.

Monthly discharge of Roaring Fork at Glenwood Springs, Colo., for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	998	572	767	47,200
November	736	425	584	34,800
December	580	433	527	32,400
January	666	417	525	32,300
February	619	342	418	24,000
March	448	349	393	24,200
April	1,350	410	813	48,400
May	5,010	972	3,230	199,000
June	11,100	2,900	6,060	361,000
July	3,540	895	1,910	117,000
August	847	464	600	36,900
September	697	410	562	33,400
The year	11,100	342	1,360	991,000

PARACHUTE CREEK AT GRAND VALLEY, COLO.

LOCATION.—In NW. ¼ sec. 12, T. 7 S., R. 96 W., at Aplin ranch, half a mile northwest of Grand Valley, Garfield County. No tributary between station and mouth, 1 mile below.

DRAINAGE AREA.—196 square miles (measured on base map of Colorado; scale, 1: 500,000).

RECORDS AVAILABLE.—April 7, 1921, to September 30, 1924.

GAGE.—Vertical staff attached to side of left abutment of private bridge; read by W. T. Aplin.

DISCHARGE MEASUREMENTS.—Made from single-span bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of compact silt on shale rock. Control at rapids 200 feet downstream; slightly shifting during high water. Banks not subject to overflow.

EXTREMES OF DISCHARGE.—Maximum stage, no data; minimum stage recorded, 0.10 foot August 24 and 27–31 (discharge, 0.1 second-foot).

1921–1924: Maximum stage recorded, 3.0 feet at 5 p. m. May 9, 1922 (discharge, 790 second-feet); minimum discharge, same as for 1924.

ICE.—Stage-discharge relation seriously affected by ice.

DIVERSIONS.—Water diverted for irrigation of 2,000 acres, all above station.

REGULATION.—Diurnal fluctuation during spring due to alternate melting and freezing of mountain snow. No artificial regulation.

COOPERATION.—Complete records furnished by State engineer.

Daily discharge, in second-feet, of Parachute Creek at Grand Valley, Colo., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	23	19	13	16	14	100	60	1.3	0.8	0.5
2	23	19	13	16	14	118	53	.8	.8	.8
3	23	19	14	16	17	114	46	.8	.8	.8
4	23	19	13	16	20	142	53	.8	1.0	.8
5	23	18	13	16	27	155	53	.8	1.3	.5
6	23	18	13	16	36	118	46	.8	1.8	.5
7	23	18	13	16	79	130	40	.8	1.8	1.8
8	23	18	13	16	132	130	35	.8	1.8	.8
9	23	18	13	15	132	96	35	10	1.8	.8
10	23	18	16	15	120	96	33	6.0	1.3	3.6
11	23	21	13	18	90	88	30	6.0	.8	19
12	23	21	13	16	90	88	22	4.8	.8	14
13	23	18	13	16	132	88	16	3.6	.8	14
14	23	19	13	15	171	77	12	3.6	.8	14
15	20	19	13	16	158	68	14	2.7	1.8	14
16	18	19	13	16	70	53	16	2.7	.8	14
17	18	18	13	16	47	37	14	1.8	.8	14
18	18	18	13	18	62	35	12	1.3	1.3	9.6
19	20	18	13	16	62	35	9.6	.8	1.8	9.6
20	20	18	13	16	70	30	9.6	.8	1.3	9.6
21	20	18	13	18	98	26	7.8	.8	.8	6
22	22	18	13	18	150	19	7.8	.8	.2	6
23	22	13	13	18	328	19	7.8	.8	.2	6
24	24	14	13	18	168	14	6.0	.8	.1	6
25	24	13	13	18	118	12	4.8	.8	.2	6
26	18	13	13	18	107	14	3.6	.8	.2	6
27	22	13	11	18	107	22	2.7	.8	.1	6
28	20	13	11	18	96	22	2.7	.8	.1	6
29	22	13	13	18	96	35	1.8	.8	.1	6
30	20	13	13	18	96	46	1.8	.8	.1	6
31	18	-------	13	15	-------	60	-------	.8	.1	-------

Monthly discharge of Parachute Creek at Grand Valley, Colo., for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	24	18	21.5	1,320
November	21	13	17.1	1,020
December	16	11	13.0	799
January	-------	-------	12	738
February	-------	-------	15	863
March	18	15	16.6	1,020
April	328	14	96.9	5,770
May	155	12	673	4,140
June	60	1.8	21.9	1,300
July	10	.8	1.93	119
August	1.8	.1	.85	52
September	19	.5	6.76	402
The year	328	.1	24.2	17,500

ROAN CREEK NEAR DE BEQUE, COLO.

LOCATION.—On line between secs. 10 and 15, T. 7 S., R. 98 W., at highway bridge 11 miles north of De Beque, Mesa County. Nearest tributary, Kimball Creek, enters a half mile above.

DRAINAGE AREA.—210 square miles (measured on base map of Colorado; scale, 1:500,000).

RECORDS AVAILABLE.—April 8, 1921, to September 30, 1924.

GAGE.—Chain gage attached to downstream side of bridge; read by J. D. Nethery.

DISCHARGE MEASUREMENTS.—Made from single-span bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of compact mud and gravel; shifting. No well-defined control. Banks not subject to overflow.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 2.68 feet at 7 p. m. April 8 (discharge, 214 second-feet); minimum stage, 0.9 foot on several days during summer (discharge, 16 second-feet).

1921–1924: Maximum discharge, 1,110 second-feet, May 21, 1922; minimum discharge, 8 second-feet at 7.30 p. m. August 4, 1922.

ICE.—Stage-discharge relation seriously affected by ice.

DIVERSIONS.—Water diverted for irrigation of 2,200 acres by Roan Creek, chiefly below station; also 3,400 acres from tributaries.

REGULATION.—Diurnal fluctutation during spring from alternate melting and freezing of mountain snow. No artificial regulation.

COOPERATION.—Complete records furnished by State engineer.

Daily discharge, in second-feet, of Roan Creek near De Beque, Colo., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	37	37	29	30	31	76	62	25	18	18
2	36	36	22	31	33	79	64	22	18	17
3	34	34	27	32	41	80	66	21	17	17
4	36	34	27	31	60	83	70	22	17	16
5	34	36	27	31	68	91	72	22	18	17
6	36	34	27	31	109	85	68	22	18	17
7	36	36	28	31	143	85	66	24	18	18
8	36	35	28	30	167	87	66	27	17	18
9	36	34	27	26	115	88	61	26	17	20
10	34	35	--------	28	95	78	56	28	18	27
11	34	42	--------	31	83	80	56	28	17	27
12	33	37	--------	30	100	78	54	25	17	25
13	34	34	--------	30	118	68	53	25	18	24
14	34	34	--------	30	136	68	52	22	19	25
15	34	34	--------	31	110	66	54	21	18	25
16	34	31	--------	30	73	62	52	19	18	25
17	34	32	--------	26	62	55	51	20	17	25
18	34	32	--------	32	60	45	49	20	18	25
19	34	31	--------	31	66	42	49	21	18	24
20	34	31	--------		91	31	44	19	17	25
21	34	32	--------	32 32	108	27	42	21	18	25
22	35	31	--------	33	117	27	42	21	17	24
23	43	30	--------	33	127	28	43	20	17	24
24	38	31	--------	32	118	31	41	18	17	24
25	37	30	--------		90	33	38	18	17	23
26	37	33	--------	32 33	91	35	35	19	17	25
27	37	30	--------	33	90	42	36	18	18	27
28	37	25	--------	41	85	45	33	19	18	27
29	37	28	--------	32	76	52	32	18	18	27
30	36	31	--------	32	77	54	30	18	18	27
31	36	--------	--------	25	--------	55	--------	18	18	--------

Monthly discharge of Roan Creek near De Beque, Colo., for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	43	33	35.5	2,180
November	42	25	33.0	1,960
December			27	1,610
January			30	1,840
February			33	1,900
March	41	25	31.0	1,910
April	167	31	91.3	5,430
May	91	27	59.9	3,680
June	72	30	51.2	3,050
July	28	18	21.5	1,320
August	19	17	17.6	1,080
September	27	16	22.9	1,360
The year	167		37.7	27,300

TAYLOR RIVER AT ALMONT, COLO.

LOCATION.—In sec. 22, T. 51 N., R. 1 E., at highway bridge in Almont, Gunnison County, 300 feet above junction of Taylor and East Rivers.

DRAINAGE AREA.—440 square miles (measured on base map of Colorado; scale, 1:500,000).

RECORDS AVAILABLE.—July 27, 1910, to September 30, 1924.

GAGE.—Bristol float-type water-stage recorder installed April 16, 1922, on downstream end of center pier and referred to staff gage used previously; inspected by J. W. Brittain.

DISCHARGE MEASUREMENTS.—Made from two-span bridge.

CHANNEL AND CONTROL.—Bed composed of small boulders and coarse gravel; slightly shifting. No well-defined control.

EXTREMES OF DISCHARGE.—Maximum stage during year from water-stage recorder, 4.3 feet from 1 to 2 p. m. June 14 (discharge, 2,670 second-feet); minimum discharge occurred during winter.

1910–1924: Maximum discharge recorded, 3,760 second-feet on June 9, 1920; minimum stage, 1.2 feet, several days during August, 1913 (discharge, 50 second-feet).

ICE.—Stage-discharge relation affected by ice during winter.

DIVERSIONS.—Water diverted for irrigation of 1,800 acres by Taylor River.

Regulation.—None.

ACCURACY.—Stage-discharge relation practically permanent; affected by ice. Rating curve well defined. Chain gage read to quarter-tenths twice daily November 16 to April 19. Remainder of time operation of water-stage recorder satisfactory. Daily discharge ascertained by applying mean daily gage height to rating table. Records good except for period affected by ice, for which they are fair.

Discharge measurements of Taylor River at Almont, Colo., during the year ending September 30, 1924

Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Jan. 21	* 3.01	150	May 20	3.02	862
Feb. 18	* 2.13	134	July 23	2.16	304
Apr. 22	2.20	305			

* Stage-discharge relation affected by ice.

Daily discharge, in second-feet, of Taylor River at Almont, Colo., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	315	238	195				102	1,060	726	726	288	189
2	315	226	189				140	1,060	694	678	262	192
3	315	212	177				140	710	906	646	258	186
4	315	198	177				145	1,000	1,360	600	258	186
5	325	195	177			116	145	710	1,880	578	262	189
				146	145							
6	355	216	183				152	592	1,900	592	262	189
7	365	206	183				180	592	2,090	608	284	189
8	355	202	180				223	592	1,640	750	292	186
9	340	220	171			104	242	615	1,460	615	279	186
10	330	212	162			102	223	694	1,360	555	279	198
11	325	226	162			162	226	758	1,560	570	270	223
12	315	226	160			148	212	862	1,880	492	266	209
13	315	212	160			122	223	1,010	2,200	466	266	202
14	315	189				136	284	1,010	2,230	426	279	180
15	315	180				136	365	980	2,070	402	274	160
				155	139							
16	315	206				131	209	1,040	2,230	398	242	162
17	320	202				131	180	1,230	1,840	433	230	162
18	335	206	166			150	171	1,240	1,520	414	226	162
19	345	206				150	180	1,150	1,410	365	216	165
20	355	183				150	260	980	1,190	340	206	165
21	355	189				152	340	1,120	1,120	330	206	168
22	325	186				145	420	1,160	1,080	310	220	165
23	262	189				131	534	1,020	1,010	302	216	165
24	238	195				142	608	924	970	302	216	165
25	230	198			123	140	414	1,060	960	302	209	165
				154								
26	230	171	150			142	292	1,230	942	288	209	171
27	230	162				145	262	1,140	870	284	198	174
28	238	140				142	262	960	846	292	202	177
29	238	140				140	306	888	822	292	206	189
30	223	195			-------	138	790	830	750	288	198	192
31	226	-------			-------	102	-------	822	-------	297	195	-------

NOTE.—Stage-discharge relation affected by ice December 14 to March 8. Discharge based on temperature and gage-height records, two discharge measurements, and observer's notes. Braced figures show mean discharge for period indicated.

Monthly discharge of Taylor River at Almont, Colo., for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	365	223	303	18,600
November	238	140	198	11,800
December	195	150	164	10,100
January	----------	----------	152	9,350
February	----------	----------	136	7,820
March	162	102	131	8,060
April	790	102	274	16,300
May	1,240	592	937	57,600
June	2,230	694	1,380	82,100
July	726	284	450	27,700
August	292	195	241	14,800
September	223	160	180	10,700
The year	2,230	102	379	275,000

GUNNISON RIVER NEAR GUNNISON, COLO.

LOCATION.—In sec. 3, T. 49 N., R. 1 W., at highway bridge 2 miles southwest of Gunnison, Gunnison County. Nearest tributary, Tomichi Creek, enters 1 mile below.

DRAINAGE AREA.—1,010 square miles (measured on map in Forest atlas).

RECORDS AVAILABLE.—November 27, 1910, to November 30, 1914; April 27, 1916, to September 30, 1924.

GAGE.—Chain gage on downstream side of bridge; datum lowered 1.00 foot October 15, 1919; read by C. W. Chinery.

DISCHARGE MEASUREMENTS.—Made from single-span bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of coarse gravel and small boulders. Control at well-defined rapids below bridge; somewhat shifting. Banks not subject to overflow except during extreme high stages.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 4.3 feet at 7 a. m. June 14 (discharge, 4,750 second-feet); minimum discharge probably occurred during winter.

1910–1914; 1916–1924: Maximum stage recorded, 4.05 feet (old datum) at 8 a. m. June 13, 1918 (discharge, 11,400 second-feet); minimum discharge recorded, 126 second-feet January 2, 1919.

ICE.—Stage-discharge relation seriously affected by ice.

DIVERSIONS.—Water diverted for irrigation of 8,800 acres by Gunnison River between this station and forks at Almont.

REGULATION.—None.

ACCURACY.—Stage-discharge relation not permanent; affected by ice. Rating curve fairly well defined. Gage read to hundredths twice daily. Daily discharge ascertained by shifting-control method except March 21 to April 7 and May 15 to July 14 when mean daily gage height was applied directly to rating table. Records good except for period affected by ice for which they are fair.

Discharge measurements of Gunnison River near Gunnison, Colo., during the year ending September 30, 1924

Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Jan. 21	[a] 2.14	229	May 21	3.29	2,740
Feb. 18	[a] 1.80	242	July 23	1.58	504
Apr. 23	2.35	1,410			

[a] Stage-discharge relation affected by ice.

Daily discharge, in second-feet, of Gunnison River near Gunnison, Colo., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	578	439	285				300	1,310	1,650	1,400	366	236
2	540	460	275				285	1,360	1,710	1,300	349	222
3	548	446	270				305	1,840	1,840	1,170	349	213
4	563	418	260				354	2,200	2,450	1,150	354	213
5	570	418	265				425	2,030	3,210	1,090	425	217
6	578	354	222				548	1,790	3,810	1,060	386	227
7	610	332	246				704	1,770	3,950	1,070	360	227
8	555	349	280				846	1,800	3,510	1,250	354	227
9	518	360	270				1,030	1,960	2,840	1,150	344	222
10	532	338	265				919	2,040	2,710	1,040	344	241
11	518	380	236			220	919	2,320	2,910	1,000	360	270
12	525	392	227				888	2,560	3,510	930	344	260
13	548	349	217				1,030	2,710	4,110	908	349	236
14	548	338	208				1,300	2,760	4,270	835	406	222
15	525	290	204		225		1,410	2,720	4,070	722	412	227
16	518	285	217	230			930	2,650	3,830	731	392	213
17	502	275	217				578	2,720	3,210	778	360	217
18	488	275	208				594	2,690	2,870	816	349	217
19	481	280	213				634	2,630	2,780	668	354	222
20	481	275	217				750	2,510	2,400	618	300	217
21	488	275	208			246	1,100	2,620	2,330	548	275	213
22	481	280	213			232	1,210	2,690	2,330	525	270	217
23	481	280	217			217	1,600	2,450	2,200	467	280	208
24	481	290	222			197	1,870	2,280	2,000	453	280	204
25	488	295	222			222	1,270	2,280	2,000	412	270	193
26	510	265	227			246	1,040	2,200	2,010	412	285	204
27	481	270	217			241	920	2,720	1,770	392	270	213
28	481	285	204			222	846	2,630	1,800	399	250	208
29	474	300	208			217	797	2,030	1,710	406	260	208
30	453	300	208		-------	217	988	1,880	1,580	392	255	208
31	386	-------	208		-------	246	-------	1,840	-------	392	241	-------

NOTE.—Stage-discharge relation affected by ice Dec. 28 to Mar. 20; discharge based on temperature and gage-height record and two discharge measurements. Braced figures show mean discharge for periods indicated.

Monthly discharge of Gunnison River near Gunnison, Colo., for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	610	386	514	31,600
November	460	265	330	19,600
December	285	204	231	14,200
January			230	14,100
February			225	12,900
March	246		223	13,700
April	1,870	285	880	52,400
May	2,760	1,310	2,260	139,000
June	4,270	1,580	2,720	162,000
July	1,400	392	790	48,600
August	425	241	329	20,200
September	270	193	221	13,200
The year	4,270		745	542,000

NOTE.—Mean discharge for January and February based on temperature record, two discharge measurements, and comparison with flow of near-by streams.

GUNNISON RIVER NEAR GRAND JUNCTION, COLO.

LOCATION.—In NW. ¼ sec. 35, T. 1 S., R. 1 W., a quarter of a mile below the Redlands Co.'s canal and 2 miles above Grand Junction, Mesa County, and mouth of Gunnison River; below all tributaries.

DRAINAGE AREA.—8,020 square miles (measured on base map of Colorado; scale 1:500,000).

RECORDS AVAILABLE.—April 1, 1917, to September 30, 1924. From October 19, 1894, to December 21, 1895, and May 2, 1897, to September 30, 1899, station maintained nearer mouth.

GAGE.—Vertical staff at left bank a quarter of a mile below canal intake; read by employee of Redlands Co.

DISCHARGE MEASUREMENTS.—Made from car and cable at gage section.

CHANNEL AND CONTROL.—Bed composed of well-compacted gravel; permanent. Control at rapids 500 feet downstream; somewhat shifting. Banks high and not subject to overflow.

EXTREMES OF DISCHARGE.—Combined flow: Maximum stage recorded during year, 8.3 feet at 5 p. m. May 28 (discharge, 12,800 second-feet); minimum discharge, 155 second-feet at 5 p. m. September 6.

1917–1924: Maximum stage recorded, 14.95 feet at 8 a. m. and noon May 23, 1920 (discharge, 35,700 second-feet); minimum discharge, that of September 6, 1924.

ICE.—Stage-discharge relation affected by ice for short periods.

DIVERSIONS.—Below all diversions from Gunnison River and tributaries. Most of water diverted through Redlands canal is for pumping and is returned to Colorado River below mouth of the Gunnison.

COMBINED FLOW.—Combined flow of Gunnison River and Redlands power canal represents flow of Gunnison River which enters Colorado River, less about 25 second-feet, which is used during irrigation season.

ACCURACY.—Stage-discharge relation not permanent; affected by ice. Two well-defined rating curves used for river; one October 1 to July 14, and other July 15 to September 30. Fairly well defined rating curve used for canal. Gages read to half-tenths twice daily. Daily discharge ascertained by applying mean daily gage height to rating tables except periods October 1–9 and July 7–14 for river and July 19 to September 30 for canal, when shifting-control method was used. Records fair.

Discharge measurements of Gunnison River and Redlands power canal near Grand Junction, Colo., during the year ending September 30, 1924

Date	River		Date	Canal	
	Gage height	Discharge		Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 13	2.71	1,270	Oct. 13	4.81	549
Nov. 22	2.09	780	Nov. 27	3.45	274
Dec. 30	[a] 2.75	1,020	Nov. 27	2.48	159
Feb 1	[a] 3.34	898	Mar. 12	4.25	410
Feb. 17	[a] 3.53	1,320	Aug. 3	3.90	376
Mar. 13	1.75	571	Sept. 26	4.37	420
Apr. 8	3.80	2,650			
May 6	7.55	10,400			
Aug. 3	−.30	[b] 5			
Sept. 26	1.05	100			

[a] Stage-discharge relation affected by ice.
[b] Estimated.

Daily discharge, in second-feet, of Gunnison River near Grand Junction, Colo., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,070	1,110	642			900	545	2,370	8,660	2,860	8	5
2	1,380	1,110	612			1,000	545	3,920	8,270	2,510	5	6
3	1,540	1,240	612	990	890	1,040	490	5,460	8,400	2,300	5	5
4	1,560	1,390	612			1,080	490	9,280	8,860	2,090	5	5
5	1,580	1,390	612			940	690	10,900	11,500	1,580	5	5
6	1,640	1,340	612			836	755	10,300	14,000	1,470	5	9
7	1,600	1,240	612			617	860	8,800	14,400	1,520	9	20
8	1,590	1,200	612	1,000	950	372	2,580	9,370	14,300	1,470	5	30
9	1,620	1,030	612			406	3,000	8,800	11,800	1,520	6	50
10	1,420	1,030	686			416	4,160	8,800	9,370	1,830	5	63
11	1,390	1,150	849			427	3,530	10,700	8,800	1,900	5	83
12	1,390	1,340	849			572	4,000	11,600	9,810	2,020	3	72
13	1,290	1,200	972		1,000	435	4,000	11,500	12,100	1,640	4	60
14	1,340	1,110	972			385	4,000	11,800	14,400	1,050	8	62
15	1,390	1,070	972	990		295	4,840	11,500	14,500	750	9	51
16	1,290	1,030				295	5,270	11,200	13,700	675	8	98
17	1,240	1,030				304	4,160	10,900	12,400	550	15	94
18	1,200	909	1,080		1,200	318	2,790	11,800	10,700	550	9	57
19	1,200	874				295	2,370	11,600	9,660	469	9	49
20	1,110	874				295	1,900	10,900	8,940	443	4	65
21	1,110	874				295	2,650	10,300	7,160	212	6	62
22	1,110	874				362	3,680	9,520	6,260	182	6	69
23	1,110	874	1,050		1,000	435	4,420	9,520	5,840	116	6	72
24	1,110	804				435	6,040	8,400	5,360	74	6	82
25	1,200	804				462	5,740	7,960	5,180	60	9	92
26	1,660	804		950		490	5,360	8,400	5,010	40	5	104
27	1,920	734			900	572	3,680	10,600	4,670	57	4	97
28	1,110	734	1,030			600	3,000	12,300	4,160	57	4	104
29	1,110	734				600	2,860	12,300	3,680	77	5	146
30	1,110	672			-------	600	2,230	11,200	4,160	10	5	146
31	1,110	-------			-------	545	-------	10,300	--------	7	5	-------

NOTE.—Stage-discharge relation affected by ice Dec. 10 to Mar. 11; discharge based on temperature and gage-height record, four discharge measurements, and comparison with flow of Colorado River near Palisade. No gage-height record July 26 to Aug. 2, Aug. 4 to Sept. 10, and Sept. 12 to 24; discharge based on comparison with flow at near-by stations. Braced figures show mean discharge for periods indicated.

Monthly discharge of Gunnison River near Grand Junction, Colo., for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	1,920	1,070	1,340	82,400
November	1,390	672	1,020	60,700
December	----------	----------	893	54,900
January	----------	----------	977	60,100
February	----------	----------	993	57,100
March	----------	----------	536	33,000
April	6,040	490	3,020	180,000
May	12,300	2,370	9,750	600,000
June	14,500	3,680	9,200	547,000
July	2,860	7	971	59,700
August	15	3	6.2	381
September	146	5	62.1	3,700
The year	14,500	----------	2,400	1,740,000

Combined daily discharge, in second-feet, of Gunnison River and Redlands power canal near Grand Junction, Colo., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,570	1,630	1,120			900	1,060	2,870	9,230	3,460	525	183
2	1,920	1,630	1,090			1,000	1,060	4,460	8,880	3,110	400	175
3	2,080	1,760	1,090	990	890	1,100	1,010	6,010	9,020	2,920	381	162
4	2,100	1,910	1,020			1,200	701	9,850	9,480	2,700	343	163
5	2,100	1,900	1,090			1,100	1,070	11,500	12,100	2,210	339	160
6	2,010	1,840	1,090			1,000	1,250	10,900	14,600	2,080	343	160
7	1,970	1,740	1,090			900	1,360	9,400	15,000	2,140	375	169
8	2,130	1,410	1,090	1,000	950	880	3,080	9,980	14,900	2,100	343	203
9	2,160	1,550	1,090			870	3,500	9,420	12,400	2,150	340	205
10	1,960	1,550	1,060			860	4,640	9,420	9,980	2,460	298	300
11	1,930	1,670				850	4,000	11,300	9,420	2,530	265	654
12	1,940	1,860				850	4,420	12,200	10,300	2,640	255	440
13	1,830	1,720	1,060		1,000	858	4,420	12,100	12,600	2,270	235	360
14	1,880	1,610				808	4,420	12,400	14,900	1,660	340	380
15	1,930	1,570		990		718	5,290	12,100	14,900	1,370	320	360
16	1,830	1,530				718	5,700	11,800	14,100	1,290	350	350
17	1,780	1,530				727	4,590	11,500	12,800	1,160	440	340
18	1,740	1,410	1,080		1,200	741	3,210	12,400	11,100	1,170	320	350
19	1,740	1,350				718	2,760	12,200	10,000	1,090	270	410
20	1,650	1,350				718	2,310	11,500	9,450	1,060	220	450
21	1,650	1,350				708	3,120	10,900	7,780	812	210	440
22	1,630	1,350				785	4,120	10,100	6,880	782	210	500
23	1,630	1,350	1,050		1,000	858	4,990	10,100	6,460	672	210	520
24	1,630	1,280				858	6,610	9,020	5,980	573	210	530
25	1,720	1,280				885	6,260	8,580	5,660	531	200	540
26	2,180	1,280		950		913	5,880	9,020	5,550	500	190	531
27	2,440	1,090			900	1,060	4,180	11,200	5,210	470	180	545
28	1,630	1,210	1,030			1,130	3,480	12,600	4,700	460	170	531
29	1,630	1,210				1,140	3,340	12,300	4,300	490	163	573
30	1,630	1,150			-------	1,140	2,690	11,200	4,780	500	190	573
31	1,630	-------			-------	1,060	-------	10,600	-------	585	190	-------

Combined monthly discharge of Gunnison River and Redlands power canal near Grand Junction, Colo., for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	2,440	1,570	1,860	114,000
November	1,910	1,090	1,500	89,300
December			1,060	65,200
January			977	60,100
February			993	57,100
March	1,200	708	905	55,600
April	6,610	701	3,480	207,000
May	12,600	2,870	10,300	633,000
June	15,000	4,300	9,750	580,000
July	3,460	460	1,550	95,300
August	525	163	285	17,500
September	654	160	375	22,300
The year	15,000		2,750	2,000,000

LAKE FORK AT LAKE CITY COLO.

LOCATION.—In sec. 34, T. 44 N., R. 4 W., at private bridge a third of a mile above Henson Creek, in Lake City, Hinsdale County.

DRAINAGE AREA.—126 square miles (measured on topographic map).

RECORDS AVAILABLE.—April 21, 1918, to September 30, 1924, when station was discontinued.

GAGE.—Vertical staff fastened to downstream side of right bridge abutment; read by Eugene Otis.

DISCHARGE MEASUREMENTS.—Made by wading or from bridge.

CHANNEL AND CONTROL.—Bed of stream composed of coarse, well-compacted gravel. Control at small rapids 250 feet downstream; somewhat shifting at long intervals.

EXTREMES OF DISCHARGE.—Maximum stage recorded, 2.66 feet at 7 a. m. June 15 (discharge, 1,200 second-feet); minimum stage recorded, 0.40 foot on March 21 and 22 (discharge, 10 second-feet).

1918–1924: Maximum discharge, 1,560 second-feet on June 12 and 15, 1921; minimum discharge, 10 second-feet, March 20, 1919, and March 21, and 22, 1924.

ICE.—Stage-discharge relation seriously affected by ice.

DIVERSIONS.—Practically none which do not return to stream above station.

REGULATION.—Flow naturally regulated by Lake San Cristobal, 4 miles upstream; area 1 square mile. During low water operation of power plant, located 1 mile upstream, may influence discharge slightly.

ACCURACY.—Stage-discharge relation practically permanent. Rating curve well defined. Gage read to quarter-tenths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table. Records excellent.

The following discharge measurements were made:

May 22, 1924: Gage height, 2.21 feet; discharge, 480 second-feet.

July 25, 1924: Gage height, 1.22 feet; discharge, 85 second-feet.

Daily discharge, in second-feet, of Lake Fork at Lake City, Colo., for the year ending September 30, 1924

Day	Oct.	Nov.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	96	42	--------	14	64	215	394	82	19
2	96	44	--------	13	74	215	362	77	22
3	96	39	--------	12	78	278	322	70	20
4	96	36	--------	12	123	400	300	67	19
5	92	35	--------	12	219	495	273	66	17
6	92	38	--------	16	219	580	255	61	16
7	90	38	--------	33	215	630	251	56	15
8	82	38	--------	39	212	630	243	50	18
9	78	36	--------	39	201	580	223	46	19
10	77	34	--------	39	231	580	208	43	18
11	72	34	--------	38	255	580	208	42	17
12	72	35	--------	31	255	700	212	44	16
13	74	35	--------	34	300	885	194	42	16
14	70	34	--------	50	345	1,000	180	49	22
15	64	32	--------	63	400	1,150	168	50	22
16	63	--------	--------	63	400	770	150	53	19
17	61	--------	--------	64	400	770	150	45	19
18	63	--------	--------	90	495	770	147	45	21
19	63	--------	17	150	530	630	136	63	19
20	58	--------	11	136	495	530	126	90	19
21	53	--------	10	77	495	530	116	31	19
22	27	--------	10	100	495	530	107	21	16
23	31	--------	11	139	460	495	98	27	17
24	43	--------	11	174	460	495	94	27	19
25	49	--------	10	159	460	495	86	26	19
26	46	--------	11	147	460	495	80	25	17
27	46	--------	11	118	400	460	78	24	19
28	42	--------	12	118	345	460	94	24	23
29	39	--------	12	70	300	430	105	19	19
30	38	--------	14	66	255	406	98	27	19
31	38	--------	14	--------	235	--------	90	20	--------

Monthly discharge of Lake Fork at Lake City, Colo., for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	96	27	64.7	3,980
November 1-15	44	32	36.7	1,090
March 19-31	17	10	11.8	304
April	174	12	70.5	4,200
May	530	64	319	19,600
June	1,150	215	573	34,100
July	394	78	179	11,000
August	90	19	45.5	2,800
September	23	15	18.7	1,110

LEROUX CREEK NEAR LAZEAR, COLO.

LOCATION.—In sec. 33, T. 13 S., R. 93 W., at highway bridge 8 miles north of Lazear, Delta County. No important tributary within several miles.

DRAINAGE AREA.—52 square miles (measured on map in Forest Service atlas).

RECORDS AVAILABLE.—May 15, 1917, to September 30, 1924.

GAGE.—Stevens water-stage recorder installed during 1923 to replace Lallie water-stage recorder installed April 23, 1918, and referred to vertical staff fastened to face on left bridge abutment; inspected by G. H. Henderson.

DISCHARGE MEASUREMENTS.—Made from single-span bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of gravel and boulders; very rough. Control 50 feet downstream; shifts during high water.

EXTREMES OF DISCHARGE.—Maximum stage during year from water-stage recorder, 2.80 feet at 7 p. m. May 13 (discharge, 770 second-feet); minimum stage recorded, −0.83 foot on August 22 (discharge, 0.6 second-foot).

1917–1924: Maximum stage during period, 4.0 feet at 5 p. m. May 29, 1921 (discharge, 1,420 second-feet); minimum stage, creek practically dry during winter.

ICE.—No data. Flow very small as most of it is stored in reservoirs.

DIVERSIONS.—Water diverted for irrigation of 8,000 acres above station.

REGULATION.—Diurnal fluctuation during spring caused by alternate melting and freezing of mountain snow. Flow in nonirrigating season stored in reservoirs on headwaters. Decrees for such storage amount to 606 acre-feet.

COOPERATION.—Complete records furnished by State engineer.

Daily discharge, in second-feet, of Leroux Creek near Lazear, Colo., for the year ending September 30, 1924

Day	Oct.	Nov.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	22	5	4	5	234	214	16	10	3
2	17	5	4	4	477	341	17	9	3
3	17	5	4	5	439	306	24	9	3
4	16	4	4	6	500	282	20	8	3
5	16	4	4	6	504	231	18	9	1
6	16	4	4	10	485	188	22	8	1
7	12	4	4	13	466	136	26	7	1
8	12	4	2	15	489	86	24	6	2
9	12	4	6	16	532	83	19	6	4
10	12	4	8	20	540	83	15	6	16
11	12	6	4	21	544	74	16	6	18
12	12	7	4	16	520	75	15	6	8
13	12	8	7	25	520	77	14	7	5
14	12	7	6	24	432	70	14	9	3
15	12	6	6	24	367	66	13	9	5
16	12	6	6	24	424	59	13	7	4
17	12	6	5	24	409	55	12	5	3
18	11	8	5	24	371	46	12	4	2
19	11	9	5	24	292	39	10	2	2
20	11	11	5	30	221	36	10	1	2
21	6	13	5	36	198	35	10	1	2
22	4	18	5	36	160	32	10	1	4
23	5	13	5	36	141	31	11	2	2
24	4	10	5	36	141	29	11	4	2
25	4	8	5	36	138	27	13	6	1
26	5	5	5	36	174	22	14	6	1
27	5	4	5	41	208	21	18	6	2
28	3	5	5	39	168	21	22	4	2
29	4	4	6	52	121	18	18	6	3
30	5	4	5	102	121	16	13	6	4
31	6	-------	6	-------	119	-------	10	4	-------

Monthly discharge of Leroux Creek near Lazear, Colo., for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	22	3	10.3	633
November	18	4	6.70	399
March	8	2	4.97	306
April	102	4	26.2	1,560
May	544	119	337	20,600
June	341	16	93.3	5,550
July	26	10	15.5	953
August	10	1	5.81	357
September	18	1	3.73	222

SURFACE CREEK AT CEDAREDGE, COLO.

LOCATION.—About sec. 29, T. 13 S., R. 94 W., at Cedaredge, Delta County. Nearest tributary, Mill Creek, enters 4 miles above.

DRAINAGE AREA.—43 square miles (measured on map in Forest Service atlas).

RECORDS AVAILABLE.—May 16, 1917, to September 30, 1924.

GAGE.—Stevens water-stage recorder referred to vertical staff fastened to concrete abutment of footbridge 400 feet upstream from highway bridge in Cedaredge; inspected by J. A. Bacon.

DISCHARGE MEASUREMENTS.—Made from footbridge at gage section.

CHANNEL AND CONTROL.—Bed of small boulders filled in behind control, which is concrete weir filled up flush with boulders and gravel, located 12 feet downstream. At high stages water flows through overflow channel.

EXTREMES OF DISCHARGE.—Maximum stage during year from water-stage recorder, 2.42 feet at 7.30 p. m. May 3 (discharge, 640 second-feet); minimum discharge 6 second-feet on several days during March.

1917–1924: Maximum discharge, 715 second-feet at 7 a. m. May 24, 1920; minimum discharge during winter is practically zero.

ICE.—No data. Flow very small, as most of it is stored during winter.

DIVERSIONS.—Water diverted for irrigation of 18,000 acres above station.

REGULATION.—Alternate melting and freezing of snow in mountains caused diurnal fluctuation during spring of year. Adjudicated decrees for storage of 8,140 acre-feet on headwaters of Surface Creek. The release of this flow during irrigation season changes the natural flow.

OOPERATION.—Complete records furnished by State engineer.

Daily discharge, in second-feet, of Surface Creek at Cedaredge, Colo., for the year ending September 30, 1924

Day	Oct.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	12	6.4	6.4	43	48	36	17	9.6
2	12	6	6.4	63	63	51	16	19
3	13	6	6.2	118	52	46	9.2	21
4	13	6.2	6.2	123	48	40	12	14
5	13	6.2	6.2	109	87	40	16	9.2
6	14	6.6	7.0	104	51	68	20	9.6
7	14	6.4	9.6	96	29	58	15	10
8	11	6.2	13	96	23	44	17	8
9	12	6.2	14	102	24	40	14	7.6
10	14	6	17	104	33	48	14	11
11	12	6	15	111	42	51	14	13
12	11	6	17	96	67	38	12	10
13	11	6	24	92	68	36	13	9.6
14	11	6.2	28	67	63	22	19	8.8
15	11	6	28	70	60	24	19	9.2
16	10	6	28	96	58	32	17	8.8
17	10	6	21	87	52	29	20	9.6
18	8.8	6	15	65	51	23	17	9.6
19	8.4	6	12	67	36	22	17	9.6
20	7.8	6	29	63	33	21	23	8.8
21	9.6	6.2	44	48	30	18	17	8.8
22	7.6	6.4	87	38	33	20	17	8.8
23	7.6	6.4	98	74	31	18	17	9.2
24	7.6	6.4	83	70	34	20	15	9.2
25	7.4	6.6	67	81	36	20	13	9.2
26	7	6.8	31	85	42	11	16	9.2
27	7	7.0	23	111	36	11	16	9.6
28	7	7.2	20	74	29	17	17	9.6
29	7	6.4	16	43	29	20	24	9.6
30	7	6.6	28	44	32	22	10	9.6
31	7	6.6	--------	36	--------	22	9.6	--------

Monthly discharge of Surface Creek at Cedaredge, Colo., for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	14	7	10.0	615
November	----------	----------	7	417
December	----------	----------	7	430
January	----------	----------	7	430
February	----------	----------	7.6	437
March	7.2	6.0	6.30	387
April	98	6.2	26.9	1,600
May	123	36	79.9	4,910
June	87	23	44.0	2,620
July	68	11	31.2	1,920
August	24	9.2	15.9	978
September	21	7.6	10.3	613
The year	123	----------	21.2	15,400

UNCOMPAHGRE RIVER AT OURAY, COLO.

LOCATION.—River: In sec. 31, T. 44 N., R. 7 W., in a box canyon a short distance upstream from highway bridge half a mile south of Ouray, Ouray County. Nearest tributary, Canyon Creek, enters 150 feet below.

Power-house flume: In tailrace of power-house flume in Ouray 100 feet upstream from entrance to river. Water diverted from Uncompahgre River above river station.

DRAINAGE AREA.—44 square miles (measured on topographic map).

RECORDS AVAILABLE.—January 25, 1911, to September 30, 1924, for river station, and February 25, 1916, to September 30, 1924, for power-house flume. Beginning October 1, 1917, only combined daily flow for river and flume is given. From January 7 to March 17, 1908, records were kept at dam of Ouray Electric Light & Power Co., 1 mile south of present station.

GAGE.—River: Stevens water-stage recorder installed April 22, 1919, and referred to vertical staff attached to rock cliff at left side of stream 150 feet above mouth of Canyon Creek used since 1911; inspected by W. R. Clay.

Power-house flume: Vertical staff fastened to side of wooden flume just below power house.

DISCHARGE MEASUREMENTS.—River: Made from footbridge at gage or by wading. Flume: Made from footbridge just below gage.

CHANNEL AND CONTROL.—River: Bed composed of small boulders. Control short distance downstream, shifting at long intervals; station is in a box canyon with high vertical walls.

Flume: Control is plank nailed across bottom of flume at lower end.

EXTREMES OF DISCHARGE.—Combined flow: Maximum stage during year from water-stage recorder, 4.0 feet at 10 p. m. June 13 (discharge, 864 second-feet); minimum discharge, 15 second-feet on September 28.

1911–1924: Maximum stage recorded, 6.0 feet at 8 a. m. October 5, 1911 (discharge, 1,980 second-feet); minimum discharge, 6 second-feet December 31, 1920, and January 19, 1921.

ICE.—Stage-discharge relation not affected by ice, as warm springs keep streams open.

DIVERSIONS.—No diversion above station other than pipe line, the flow through which is included in these records.

REGULATION.—Diurnal fluctuation during spring from alternate melting and freezing of mountain snow.

ACCURACY.—Uncompahgre River: Stage-discharge relation not permanent; not affected by ice. Rating curve fairly well defined. Operation of water-stage recorder satisfactory except during winter period. Daily discharge ascertained by shifting-control method except April 6 to June 5, and August 31 to September 30, when mean daily gage height was applied directly to rating table. Records fair.

Power-house flume: Stage-discharge relation not permanent. Rating curve not well defined. Gage read to tenths once daily. Daily discharge ascertained by applying daily gage height to rating table and taking hours of diversion as apparent from recorder graph on river. Records fair

Combined flow: Daily combined discharge ascertained by adding daily discharge of the river and flume except period October 16 to April 5, when discharge was based on three discharge measurements, temperature record, and comparison with flow for other years. Records fair.

Discharge measurements of Uncompahgre River at Ouray, Colo., during the year ending September 30, 1924

Date	River		Power-house flume	
	Gage height	Discharge	Gage height	Discharge
	Feet	*Sec.-ft.*	*Feet*	*Sec.-ft.*
Oct. 11	0.98	23.3	0.55	16.7
Nov. 13	.08	.8	.55	20.0
Dec. 20	.07	.8		
Jan. 5			.50	16.8
Feb. 13	.35	1.8		
Apr. 14	1.02	27.6		
May 19	1.90	224		0
June 18	2.18	336		0
Aug. 15	.72	15.9	.90	24.7
Sept. 20	.45	4.6	.70	17.3

Combined daily discharge, in second-feet, of Uncompahgre River and power-house flume at Ouray, Colo., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	62	35	22	19	19	19	23	86	164	211	43	16
2	60	38	22	19	19	19	25	130	224	188	42	17
3	55	33	24	19	18	19	26	195	333	170	41	17
4	50	31	19	20	18	19	28	200	438	152	42	17
5	48	30	20	20	18	19	31	175	501	164	38	17
6	47	29	21	19	18	18	35	168	540	175	28	18
7	44	29	24	19	18	18	38	193	498	150	29	19
8	46	30	24	19	18	18	38	209	376	154	27	15
9	62	31	23	19	18	18	36	235	333	137	29	19
10	45	34	22	19	21	18	33	288	381	157	31	19
11	44	37	22	18	21	18	31	263	477	152	31	22
12	43	32	22	18	19	18	33	253	531	137	33	21
13	41	30	23	18	16	18	43	310	633	123	43	19
14	40	29	23	18	18	18	72	335	591	105	50	17
15	39	28	22	18	20	18	58	335	504	89	41	16
16	38	27	22	18	20	18	36	327	429	111	32	21
17	38	27	22	18	20	18	35	350	384	98	31	21
18	36	26	21	18	20	18	36	339	341	85	29	16
19	37	26	21	18	20	18	34	297	258	66	28	15
20	37	26	17	18	21	19	45	308	221	53	27	18
21	34	25	18	18	20	19	67	333	308	48	29	19
22	36	25	18	18	20	19	101	347	327	42	28	18
23	41	26	17	18	20	19	113	361	311	48	28	18
24	36	26	21	18	19	19	110	333	311	42	23	17
25	35	26	21	18	19	19	93	302	311	43	24	17
26	35	25	21	18	19	20	55	250	294	40	23	16
27	34	24	21	18	19	20	54	211	266	44	24	16
28	33	24	21	18	19	20	46	164	261	75	23	15
29	36	23	18	18	19	20	45	128	255	51	21	16
30	36	23	18	18	-------	19	55	124	237	47	20	16
31	34	-------	18	19	-------	22	-------	124	-------	46	18	-------

NOTE.—Gage-height record for river in error Oct. 16 to Apr. 5; combined discharge based on temperature record and three discharge measurements and study of relative discharge for other years. Flume discharge computed by taking hours of diversion as apparent from recorder graph.

Combined monthly discharge of Uncompahgre River and power-house flume at Ouray, Colo., for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	62	33	42.0	2,580
November	38	23	28.5	1,700
December	24	17	20.9	1,290
January	20	18	18.4	1,130
February	21	18	19.1	1,100
March	22	18	18.8	1,160
April	113	23	49.2	2,930
May	361	86	248	15,200
June	633	164	368	21,900
July	211	40	103	6,330
August	50	18	30.8	1,890
September	22	15	17.6	1,050
The year	633	15	80.3	58,300

UNCOMPAHGRE RIVER BELOW OURAY, COLO.

LOCATION.—In sec. 30, T. 44 N., R. 7 W., near lowest bridge in Ouray, Ouray County, a third of a mile below railroad station. Below all tributaries in Ouray.

DRAINAGE AREA.—76 square miles (measured on topographic map).

RECORDS AVAILABLE.—May 12, 1913, to September 30, 1924.

GAGE.—Gurley water-stage recorder installed March 28, 1917, referred to vertical staff, attached to rock cliff 500 feet above bridge; inspected by W. R. Clay.

DISCHARGE MEASUREMENTS.—Made from single-span bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of coarse gravel and small boulders. Control is broken rock ledge 50 feet downstream on which mill tailings are alternately deposited and scoured out. Banks not subject to overflow except at extreme high water stage of 6.5 feet.

EXTREMES OF DISCHARGE.—Maximum stage during year from water-stage recorder, 5.1 feet at 4 a. m. June 15 (discharge, 1,450 second-feet); minimum stage not known, as recorder was not operating properly during part of winter.

1913–1924: Maximum discharge recorded, 2,530 second-feet at 1 a. m. June 14, 1918; minimum discharge, 10 second-feet on February 5 and 6, 1915, March 18, 1922, and January 21, 1923.

ICE.—Stage-discharge relation not affected by ice; warm springs keep river open.

DIVERSIONS.—Practically all diversions returned to river above station.

REGULATION.—Diurnal fluctuation during spring caused by alternate melting and freezing of mountain snow. Intermittent operation of power pipe line above station causes sudden decrease and increase in discharge for short periods.

ACCURACY.—Stage-discharge relation practically permanent; not affected by ice. Rating curve well defined. Operation of water-stage recorder satisfactory except for periods as explained in footnote to table of daily discharge. Daily discharge ascertained by applying to rating table mean daily gage height obtained by inspection of recorder graph. Records excellent except for periods when recorder was in error and periods of missing gage heights, for which they are fair.

Discharge measurements of Uncompahgre River below Ouray, Colo., during the year ending September 30, 1924

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 11	1.64	75	Feb. 13	0.75	17.0	Aug. 15	1.85	115
Nov. 13	1.25	39.3	Apr. 14	1.96	137	Sept. 20	1.35	46.8
Dec. 23	1.04	27.1	May 19	3.20	408			
Jan. 15	1.00	27.9	June 18	3.65	604			

Daily discharge, in second-feet, of Uncompahgre River below Ouray, Colo., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	100	49	31	27	28	26	28	149	222	413	160	48
2	98	59	30	27	28	26	28	197	276	382	129	44
3	93	48	30	27	28	26	32	262	413	359	126	43
4	88	43	30	27	27	26	36	258	590	345	124	42
5	85	43	30	27	27	26	42	229	670	324	119	40
6	82	41	31	27	26	26	78	227	710	350	115	41
7	74	40	32	27	26	25	95	255	720	330	105	41
8	80	39	32	27	26	25	85	288	600	332	90	40
9	100	40	31	27	26	25	82	321	520	315	79	47
10	85	44	30	27	26	25	64	394	605	330	78	57
11	78	57	29	26	26	25	59	397	770	305	76	70
12	80	49	30	26	26	26	70	382	878	285	76	49
13	73	44	31	26	26	26	117	446	890	249	98	48
14	72	41	31	26	26	26	169	500	825	214	119	45
15	69	44	31	26	26	26	135	500	1,030	199	117	44
16	65	41	31	26	26	26	80	532	896	197	100	63
17	63	40	31	26	26	26	63	548	800	203	91	64
18	54	38	30	26	26	26	65	512	745	177	80	53
19	56	38	30	26	26	26	88	439	640	169	70	48
20	59	37	31	27	27	26	120	456	528	162	64	46
21	51	35	30	27	27	26	154	500	524	153	59	48
22	53	35	30	27	27	26	191	484	610	144	58	44
23	66	34	30	27	27	26	201	496	585	135	54	43
24	56	34	30	27	26	27	197	488	585	131	59	42
25	52	35	30	26	25	28	162	472	585	124	57	41
26	52	32	31	26	25	28	112	385	575	120	54	40
27	51	32	31	26	25	28	100	329	550	136	52	39
28	52	31	31	27	26	27	91	262	524	231	49	41
29	52	31	31	27	26	27	88	218	484	187	48	38
30	48	31	30	27	-------	25	105	201	446	168	48	37
31	48	-------	28	27	-------	27	-------	185	-------	158	48	-------

NOTE.—Recorder in error Nov. 29, 30, Dec. 2–21, 25–31, Jan. 1–10, 20–31, Feb. 1, 2, 14–29, Mar. 1–14 and 18–28; discharge based on temperature record, four discharge measurements, study of relative discharge of other years in comparison with flow of upper station. No gage-height record May 23–27, July 6–11, Aug. 7 and 8; discharge based on comparison with flow of Uncompahgre River at Ouray.

Monthly discharge of Uncompahgre River below Ouray, Colo., for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	100	48	68.9	4,240
November	59	31	40.2	2,390
December	32	28	30.5	1,880
January	27	26	26.6	1,640
February	28	25	26.3	1,510
March	28	25	26.1	1,600
April	201	28	97.9	5,830
May	548	149	365	22,400
June	1,030	222	627	37,300
July	413	120	236	14,500
August	160	48	83.9	5,160
September	70	37	46.2	2,750
The year	1,030	25	139	101,000

UNCOMPAHGRE RIVER NEAR COLONA, COLO.

LOCATION.—In sec. 5, T. 46 N., R. 8 W., just below highway bridge 4 miles south of Colona, Ouray County. Nearest tributary, Billy Creek, enters 1½ miles downstream.

DRAINAGE AREA.—403 square miles (measured on topographic map).

RECORDS AVAILABLE.—April 6, 1917, to September 30, 1924.

GAGE.—Friez water-stage recorder located a short distance below highway bridge; installed June, 1921. Original gage was vertical staff located half a mile east of Colona and used until station was washed out June 11, 1921.

DISCHARGE MEASUREMENTS.—Made from highway bridge.

CHANNEL AND CONTROL.—Shifting during high water.

EXTREMES OF DISCHARGE.—Maximum discharge during year from water-stage recorder, 1,840 second-feet at 1 a. m. June 15; minimum discharge occurred during winter.

ICE.—Station discontinued during winter.

DIVERSIONS.—Only a few small diversions above station.

COOPERATION.—Records of daily discharge furnished by United States Bureau of Reclamation.

Daily discharge, in second-feet, of Uncompahgre River near Colona, Colo., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Apr.	May	June	July	Aug.	Sept.
1	203	135	107	118	501	550	566	230	100
2	203	140	102	105	650	582	515	220	99
3	195	137	103	105	843	722	485	203	93
4	191	128	94	132	910	940	463	196	93
5	186	125	91	154	837	1,110	486	203	97
6	194	121	96	270	705	1,280	465	182	97
7	177	123	104	395	705	1,420	455	150	99
8	173	121	--------	506	715	1,140	475	135	98
9	195	119	--------	423	740	970	435	123	100
10	185	121	--------	423	825	965	442	123	124
11	173	156	--------	300	895	1,100	550	122	148
12	175	135	--------	297	805	1,250	457	128	133
13	173	128	--------	437	837	1,550	419	145	125
14	160	121	--------	602	935	1,620	375	205	125
15	159	123	--------	628	870	1,600	350	243	126
16	156	119	--------	325	895	1,370	347	191	135
17	150	120	--------	234	895	1,230	357	173	188
18	136	112	--------	210	873	1,120	316	161	148
19	145	112	--------	270	787	993	278	147	140
20	136	112	--------	397	787	885	255	147	135
21	135	110	--------	541	805	867	230	148	146
22	133	112	--------	685	770	843	203	144	144
23	156	110	--------	742	740	825	182	133	133
24	150	112	--------	755	757	815	165	137	125
25	140	112	--------	565	737	792	155	132	122
26	136	108	--------	398	722	765	136	138	115
27	133	108	--------	320	740	725	121	123	113
28	136	104	--------	303	818	688	261	115	116
29	136	107	--------	300	600	660	287	114	113
30	125	110	--------	373	618	622	230	106	112
31	129	--------	--------	--------	555	--------	230	101	--------

Monthly discharge of Uncompahgre River near Colona, Colo., for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	203	125	160	9,840
November	156	104	120	7,140
December 1-7	107	91	99.6	1,380
April	755	105	377	22,400
May	935	501	770	47,300
June	1,620	550	1,000	59,500
July	566	121	345	21,200
August	243	101	155	9,530
September	188	93	121	7,200

UNCOMPAHGRE RIVER AT DELTA, COLO.

LOCATION.—In NW. ¼ sec. 24, T. 15 S., R. 96 W., at railroad bridge half a mile west of Delta, Delta County. No tributaries between station and mouth, 1½ miles downstream.

DRAINAGE AREA.—1,110 square miles (measured on base map of Colorado; scale, 1 : 500,000).

RECORDS AVAILABLE.—April 26 to September 30, 1924. From April 29, 1903, to October 31, 1923, station maintained 3½ miles upstream. Records comparable except for return seepage water that enters river between.

GAGE.—Bristol float-type water-stage recorder at right abutment; inspected by employee of United States Bureau of Reclamation.

DISCHARGE MEASUREMENTS.—Made from bridge.

CHANNEL AND CONTROL.—Bed composed of silt and gravel. Control shifts during high water. Banks are not subject to overflow.

EXTREMES OF DISCHARGE.—Maximum stage during year from water-stage recorder, 4.3 feet from 3 to 5 a. m. May 29 (discharge, 1,670 second-feet); minimum stage, 0.88 foot on August 27 (discharge, 77 second-feet).

1903–1924: Maximum discharge recorded, 2,490 second-feet at 7.30 p. m. June 12, 1921; minimum discharge recorded since diversion through Gunnison tunnel began in 1910, 7 second-feet on several days during July, 1910.

ICE.—No data, as records are discontinued during winter.

DIVERSIONS.—Ditches above station divert normal flow during irrigation season; records represent chiefly return seepage water.

REGULATION.—(See diversions.)

ACCURACY.—Stage-discharge relation slightly shifting during high water. Rating curve used April 26 to June 7 and curve used June 13 to September 30 are both well defined. Operation of water-stage recorder satisfactory except for short periods, as explained in footnote to table of daily discharge. Daily discharge ascertained by applying to rating table mean daily gage-height obtained by inspection of recorder graph. Records good.

COOPERATION.—Field data furnished by United States Bureau of Reclamation.

Discharge measurements of Uncompahgre River at Delta, Colo., during the year ending September 30, 1924

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Apr. 30	1.53	165	June 6	3.33	1,090	Aug. 7	1.09	111
May 16	2.00	340	June 20	1.53	203	Sept. 4	.93	84
June 2	2.50	606	July 24	1.11	123			

Daily discharge, in second-feet, of Uncompahgre River at Delta, Colo., for the year ending September 30, 1924

Day	Oct.	Apr.	May	June	July	Aug.	Sept.
1	665	--------	126	721	156	107	84
2	680	--------	215	571	128	109	84
3	715	--------	498	515	123	105	83
4	690	--------	510	750	109	102	83
5	665	--------	455	1,010	105	107	82
6	640	--------	330	989	117	116	80
7	615	--------	335	1,040	126	110	83
8	595	--------	340	890	130	102	83
9	570	--------	360	720	126	102	79
10	550	--------	398	720	117	94	82
11	550	--------	493	750	277	94	89
12	550	--------	504	800	195	94	89
13	498	--------	286	1,020	163	97	102
14	524	--------	403	914	158	123	112
15	524	--------	295	1,000	132	110	100
16	498	--------	256	842	112	102	95
17	498	--------	331	541	119	121	97
18	535	--------	374	325	110	128	109
19	524	--------	269	325	112	100	102
20	498	--------	190	195	109	98	107
21	490	--------	252	220	110	109	121
22	509	--------	318	281	107	107	132
23	656	--------	318	252	107	88	138
24	487	--------	295	212	105	82	178
25	598	--------	322	352	110	82	212
26	579	261	374	288	110	79	209
27	540	167	913	193	125	77	201
28	523	120	1,430	185	119	80	209
29	520	119	1,310	255	119	83	266
30	523	138	1,190	171	121	86	270
31	509	--------	930	--------	116	86	--------

NOTE.—Records for October were collected at the old station 3½ miles upstream from the new site. No gage-height record May 4–9 and June 8–12; discharge based on comparison with flow of Uncompahgre River at Colona.

Monthly discharge of Uncompahgre River at Delta, Colo., for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	715	487	565	34,700
April 26–30	261	119	161	1,600
May	1,430	126	472	29,000
June	1,040	171	568	33,800
July	277	105	128	7,870
August	128	77	99.4	6,110
September	27	79	125	7,440

SAN MIGUEL RIVER AT NATURITA, COLO.

LOCATION.—In T. 46 N., on line between Rs. 15 and 16 W., at highway bridge, in Naturita, Montrose County. Nearest tributary, Basin Creek, enters half a mile downstream.

DRAINAGE AREA.—1,080 square miles (measured on base map of Colorado; scale, 1 : 500,000).

RECORDS AVAILABLE.—April 26, 1918, to September 30, 1924.

GAGE.—Chain gage fastened to upstream side of bridge; read by Mrs. A. R. Payson.

DISCHARGE MEASUREMENTS.—Made from single-span bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of coarse gravel and small boulders, and is rough. Control at rapids 300 feet downstream; practically permanent.

EXTREMES OF DISCHARGE.—Maximum stage during year on night of April 23, from high-water mark, 5.9 feet (discharge, 4,120 second-feet); minimum stage recorded, 0.10 foot at 6 p. m. September 8 (discharge, 40 second-feet).

1918–1924: Maximum stage, 7.5 feet from high-water mark during night of May 4, 1921 (discharge, 6,000 second-feet); minimum stage recorded, 0.05 foot on August 31, 1918 (discharge, 38 second-feet).

ICE.—Stage-discharge relation affected by ice.

DIVERSIONS.—Water diverted for irrigation of 8,100 acres by San Miguel River, the greater part of which is above station. Also, 15,000 acres irrigated by tributaries above station.

REGULATION.—Diurnal fluctuation during spring from alternate melting and freezing of mountain snow.

COOPERATION.—Complete records furnished by State engineer.

Daily discharge, in second-feet, of San Miguel River at Naturita, Colo., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	127	86	100	64	80	80	116	1,020	636	442	136	49
2	124	96	86	93	80	89	97	1,180	613	420	136	49
3	132	96	86	74	80	100	76	1,620	653	400	124	49
4	132	89	82	58	75	93	97	1,620	874	372	136	45
5	124	89	76	60	75	86	116	1,690	976	372	132	43
6	124	89	89	60	80	74	174	1,470	1,120	335	116	43
7	124	86	89	60	80	86	292	1,420	1,180	315	97	42
8	116	86	76	75	85	64	596	1,470	1,070	308	76	41
9	119	82	60	80	90	62	541	1,510	874	282	72	45
10	116	86	60	70	90	80	596	1,540	874	261	64	62
11	116	86	69	70	91	80	1,580	1,470	928	412	60	62
12	116	89	80	70	90	72	1,280	1,580	1,070	302	50	58
13	116	89	64	65	100	76	1,440	1,620	1,280	282	119	56
14	108	100	76	65	150	76	2,040	1,580	1,380	232	154	53
15	111	93	80	60	180	74	2,080	1,560	1,380	166	218	51
16	116	80	71	70	250	76	776	1,440	908	181	132	55
17	116	86	74	65	246	72	541	1,470	1,280	174	103	69
18	116	96	74	75	276	89	400	1,540	942	170	84	62
19	108	103	69	75	160	84	636	1,490	928	129	76	58
20	96	96	82	70	108	80	1,140	1,300	808	124	69	58
21	96	96	82	65	93	84	1,510	1,320	713	108	64	58
22	93	89	69	70	119	84	2,160	1,260	713	103	62	58
23	96	93	60	70	84	80	2,260	1,200	682	89	58	62
24	103	108	76	75	74	69	2,540	1,180	653	80	62	62
25	111	111	80	75	86	86	1,220	1,140	682	80	56	60
26	111	108	93	75	76	86	888	1,080	653	74	55	60
27	108	103	74	75	93	93	694	1,100	636	97	56	60
28	96	89	82	75	86	150	874	1,100	557	192	50	58
29	96	93	93	75	80	103	808	928	514	302	51	58
30	93	100	100	75	-------	93	874	821	489	192	51	58
31	96	-------	80	75	-------	76	-------	744	-------	160	50	-------

NOTE.—Stage-discharge relation affected by ice Jan. 5 to Feb. 16; discharge based on temperature and gage-height records and discharge measurements.

Monthly discharge of San Miguel River at Naturita, Colo., for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	132	93	111	6,820
November	111	82	93.1	5,540
December	100	64	78.5	4,830
January	93	60	70.5	4,330
February	276	74	112	6,440
March	150	72	83.8	5,150
April	2,540	76	948	56,400
May	1,690	744	1,340	82,400
June	1,380	489	869	51,700
July	442	74	231	14,200
August	218	50	89.3	5,490
September	62	41	54.8	3,260
The year	2,540	41	339	247,000

GREEN RIVER BASIN

GREEN RIVER NEAR DANIEL, WYO.

LOCATION.—Near line between Tps. 32 and 33 N., R. 110 W., at highway bridge 6 miles southeast of Daniel, Sublette County. No large tributary within several miles.

DRAINAGE AREA.—932 square miles (measured on base map of Wyoming; scale, 1 : 500,000).

RECORDS AVAILABLE.—April 1, 1915, to September 30, 1924. State engineer maintained station at this point during 1913 and 1914.

GAGE.—Chain on downstream side of bridge; read by Ellis Price.

DISCHARGE MEASUREMENTS.—Made from two-span bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of coarse gravel and small boulders; control 100 feet downstream at small rapids which shift at long intervals. Banks are high and not subject to overflow.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 3.82 feet at 6 p. m. May 18 (discharge, 1,790 second-feet); minimum discharge occurred during winter.

1913–1924: Maximum stage recorded, 7.0 feet at 10 a. m. on June 16, 1918 (discharge, 8,750 second-feet); minimum discharge occurred during winter.

ICE.—Stage-discharge relation seriously affected by ice; observations discontinued during winter.

DIVERSIONS.—Adjudicated diversions for irrigation of 18,000 acres from Green River above Daniel station.

REGULATION.—None, except natural regulation of Green River lakes.

ACCURACY.—Stage-discharge relation slightly shifting. Rating curve fairly well defined. Gage read to hundredths twice daily. Daily discharge ascertained by applying mean daily gage-height to rating table, using shifting-control method July 8 to September 30. Records good.

The following discharge measurements were made:

October 12, 1923: Gage height, 2.44 feet; discharge, 379 second-feet.

June 24, 1924: Gage height, 2.96 feet; discharge, 760 second-feet.

August 23, 1924: Gage height, 2.26 feet; discharge, 324 second-feet.

Daily discharge, in second-feet, of Green River near Daniel, Wyo., for the year ending September 30, 1924

Day	Oct.	Nov.	Apr.	May	June	July	Aug.	Sept.
1	365	264	--------	1,030	920	1,140	520	260
2	345	304	--------	1,140	820	1,080	482	260
3	345	304	--------	1,380	772	1,140	482	260
4	365	300	--------	1,380	820	1,140	520	260
5	365	270	--------	1,380	920	1,140	520	260
6	345	285	--------	1,200	1,030	1,140	449	260
7	345	293	--------	920	1,080	1,340	416	278
8	360	293	--------	820	1,080	1,530	388	297
9	382	278	--------	1,080	1,030	1,660	388	317
10	404	274	--------	1,140	772	1,400	388	326
11	382	267	--------	1,030	680	1,110	360	340
12	371	264	--------	1,140	635	997	360	340
13	360	257	--------	1,260	635	997	336	317
14	345	248	1,440	1,380	725	890	360	297
15	340	238	725	1,440	920	840	360	278
16	331	--------	442	1,440	1,260	810	360	278
17	317	--------	442	1,560	1,440	716	340	278
18	313	--------	442	1,760	1,500	716	340	278
19	308	--------	475	1,700	1,500	671	340	260
20	300	--------	512	1,560	1,260	626	340	260
21	300	--------	475	1,560	1,030	542	340	260
22	300	--------	635	1,560	820	542	340	244
23	293	--------	1,080	1,560	725	436	340	216
24	293	--------	1,080	1,440	772	404	297	203
25	285	--------	870	1,440	920	404	278	203
26	278	--------	680	1,380	975	376	260	203
27	274	--------	592	1,320	975	376	244	205
28	264	--------	680	1,200	1,140	376	260	210
29	251	--------	772	1,200	1,260	436	260	213
30	232	--------	870	1,140	1,200	468	260	213
31	257	--------	--------	1,030	--------	505	260	--------

Monthly discharge of Green River near Daniel, Wyo., for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	404	232	323	19,900
November 1-15	304	238	276	8,210
April 14-30	1,440	442	718	24,200
May	1,760	820	1,310	80,600
June	1,500	635	987	58,700
July	1,660	376	837	51,500
August	520	244	361	22,200
September	340	203	262	15,600

GREEN RIVER AT GREEN RIVER, WYO.

LOCATION.—In sec. 22, T. 18 N., R. 107 W., at Union Pacific Railroad pumping station 100 feet below railroad bridge at Green River, Sweetwater County. No tributary within several miles.

DRAINAGE AREA.—7,670 square miles (measured on base map of Wyoming; scale, 1 : 500,000).

RECORDS AVAILABLE.—May 2, 1895, to October 31, 1906; March 1, 1915, to September 30, 1924.

GAGE.—Chain gage on left bank at pumping station; read by E. H. Craver.

DISCHARGE MEASUREMENTS.—Made from two-span highway bridge.

CHANNEL AND CONTROL.—Bed composed of small boulders. Control of well-compacted small boulders 400 feet downstream; shifting at low stages.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 4.85 feet at 8 a. m. and 5 p. m. April 9 (discharge, 8,320 second-feet); minimum discharge occurred during winter.

1895–1906; 1915–1924: Maximum stage recorded, 12.3 feet at 5 p. m. June 19, 1918 (discharge, 22,200 second-feet); minimum discharge recorded, 160 second-feet, November 17, 1898.

ICE.—Stage-discharge relation seriously affected by ice.

DIVERSIONS.—Adjudicated diversions for irrigation of 16,000 acres from Green River between station near Daniel and Green River station.

REGULATION.—None.

ACCURACY.—Stage-discharge relation shifts at low stages. Rating curve well defined. Gage read to hundredths twice daily. Daily discharge ascertained by shifting-control method for greater part of the year. Records good.

The following discharge measurements were made:

October 8, 1923: Gage height, 2.38 feet; discharge, 1,520 second-feet.

May 20, 1924: Gage height, 4.40 feet; discharge, 6,880 second-feet.

Daily discharge, in second-feet, of Green River at Green River, Wyo., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,260	956	826	1,860	670	1,740	3,820	2,600	805	640
2	1,230	956	670	1,770	751	1,910	3,400	2,480	805	640
3	1,280	944	--------	1,540	796	2,140	3,010	2,260	826	608
4	1,300	990	--------	1,320	1,070	2,350	2,750	2,260	826	640
5	1,340	1,120	--------	1,260	1,260	2,720	2,750	2,160	847	640
6	1,380	979	--------	1,200	3,080	3,010	2,980	2,160	796	608
7	1,460	990	--------	1,010	4,060	2,930	3,510	2,370	858	608
8	1,570	968	--------	1,130	6,540	2,370	3,650	2,600	805	608
9	1,570	944	--------	900	8,120	2,100	3,940	2,850	805	640
10	1,450	944	--------	796	7,320	2,100	3,790	2,720	805	640
11	1,340	990	--------	1,260	5,770	2,100	3,480	2,600	805	678
12	1,280	990	--------	900	4,060	2,160	2,820	2,370	805	678
13	1,260	1,070	--------	900	3,760	2,260	2,350	2,080	805	678
14	1,220	1,080	--------	847	4,370	2,670	2,240	1,890	805	678
15	1,110	979	--------	847	4,370	3,140	2,350	1,820	760	640
16	1,210	944	--------	847	3,350	4,090	2,900	1,740	760	640
17	1,120	900	--------	796	2,140	4,730	3,850	1,670	805	640
18	1,110	889	--------	796	1,770	5,810	4,470	1,540	715	608
19	1,110	878	--------	751	1,540	6,580	4,770	1,390	715	640
20	1,080	868	--------	751	1,390	6,970	4,430	1,320	715	640
21	1,080	858	--------	847	1,390	6,970	4,090	1,260	715	640
22	1,080	889	--------	900	1,460	6,580	3,510	1,180	715	640
23	1,080	979	--------	847	1,860	6,580	2,850	1,120	715	640
24	1,110	944	--------	670	2,140	6,190	2,480	1,120	715	640
25	1,220	933	--------	670	2,620	5,440	2,370	1,060	678	640
26	1,170	922	--------	670	2,280	4,730	2,260	933	678	640
27	1,100	933	--------	601	1,930	4,430	2,370	878	678	640
28	1,080	733	--------	601	1,600	4,760	2,370	868	678	640
29	1,050	805	--------	601	1,550	4,500	2,370	796	640	614
30	1,050	847	--------	601	1,630	4,180	2,480	826	640	627
31	1,040	--------	--------	670	--------	4,240	--------	826	640	--------

NOTE.—No gage-height record Sept. 21–27; discharge interpolated.

Monthly discharge of Green River at Green River, Wyo., for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	1,570	1,040	1,220	75,000
November	1,120	733	941	56,000
March	1,860	601	941	57,900
April	8,120	670	2,820	168,000
May	6,970	1,740	3,950	243,000
June	4,770	2,240	3,150	187,000
July	2,850	796	1,730	106,000
August	858	640	754	46,400
September	678	608	638	38,000

GREEN RIVER AT GREEN RIVER,[5] UTAH

LOCATION.—In NW. ¼ SW. ¼ sec. 15, T. 21 S., R. 16 E., at highway bridge 1 mile southeast of Green River, Emery County. San Rafael River enters from right 22 miles downstream.

DRAINAGE AREA.—40,600 square miles (measured on base maps).

RECORDS AVAILABLE.—October 21, 1894, to October 15, 1899; February 16, 1905, to December 31, 1911; June 21, 1924, to September 30, 1924. Records obtained at Little Valley, 7 miles downstream, December 18, 1910, to June 20, 1924, give practically the same flow.

GAGE.—Stevens continuous water-stage recorder on left bank 1 mile above old ferry, used December 16, 1917, to June 20, 1924; inspected by A. I. Anderson. Chain gage on highway bridge used June 21 to September 18, 1924. Stevens continuous water-stage recorder on bridge pier near right bank, installed September 19, 1924; inspected by H. T. Howland.

DISCHARGE MEASUREMENTS.—Made from cable at old ferry site, 7 miles below gage.

CHANNEL AND CONTROL.—Bed composed of gravel and sand. One channel at all stages. Left bank high and not subject to overflow; right bank lower and may be overflowed at extreme stages. However, water is confined by highway and Denver & Rio Grande Western Railroad bridges. There is a well-defined riffle about three-quarters of a mile below gage.

EXTREMES OF DISCHARGE.—Maximum stage during year, 8.00 feet at 3 a. m. May 22 (discharge, 24,700 second-feet); minimum stage not recorded.

1894–1899; 1905–1924: Maximum discharge recorded, 68,800 second-feet, May 29, 1897. Minimum stage recorded, −0.95 foot December 1, 1919 (discharge, 510 second-feet).

ICE.—Stage-discharge relation affected by ice nearly every winter.

DIVERSIONS.—Below practically all diversions.

REGULATION.—Slight regulation by diversion from tributaries.

ACCURACY.—Stage-discharge relation changed several times during the year; affected by ice during January and first part of February. Standard rating curves well defined. Operation of water-stage recorder satisfactory October 1 to June 20, and September 19–30, except as stated in footnote to daily-discharge table. Chain gage read twice daily June 21 to September 18. Daily discharge ascertained by applying to rating table mean daily gage height as determined from recorder graph, staff gage, or chain gage readings making parallel shifts to all measurements. Shifting-control method used October 4, 5, April 8–11, May 23–27, June 8–10, and September 11. Discharge estimated for periods of no gage heights by comparison with Green River-Ouray station; temperature records and observer's notes; or by comparing combined flow of Green River, and Colorado River near Cisco with Colorado River at Lees Ferry. Records good; estimated periods fair.

[5] Described in earlier reports as near Blake or Elgin.

COOPERATION.—Since December 16, 1917, station has been maintained in cooperation with Utah Power & Light Co., which has made most of the discharge measurements.

Discharge measurements of Green River at Green River, Utah, during the year ending September 30, 1924

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 31	3.06	3,590	May 10	6.02	14,100	Aug. 20	5.20	1,530
Jan. 10	[a] 2.15	1,470	May 30	7.16	18,500	Sept. 20	5.36	1,240
Feb. 19	2.64	2,760	June 20	6.15	13,500			
Mar. 20	2.59	2,640	Aug. 11	5.10	1,310			

[a] Stage-discharge relation affected by ice.

NOTE.—Station moved 7 miles upstream to different datum June 21.

Daily discharge, in second-feet, of Green River at Green River, Utah, for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3,760	3,610	2,900			5,200	3,030	8,680	16,800	5,730	1,790	1,190
2	3,590	3,530	2,850			4,800	3,050	7,770	15,900	5,370	1,710	1,160
3	3,650	3,500		1,500			2,880	7,670	15,300	5,080	1,630	1,140
4	3,880	3,500					2,780	7,830	15,100	4,840	1,580	1,140
5	4,480	3,500					2,940	8,190	14,200	4,630	1,660	1,130
6	4,410	3,480	2,360	1,000	1,600	4,150	3,500	9,540	13,800	4,460	1,580	1,110
7	4,010	3,400		1,000			6,280	12,300	13,400	4,320	1,490	1,090
8	4,110	3,300		1,100			12,100	13,900	13,900	4,260	1,470	1,090
9	4,200	3,300		1,200		3,500	16,000	14,500	14,500	4,010	1,450	1,090
10	4,430	3,760		1,470			18,800	14,100	15,300	3,930	1,390	6,140
11		3,790	1,870	1,500			21,000	13,400	15,900	4,230	1,370	3,480
12		3,460					21,600	12,800	14,600	4,180	1,380	1,450
13			1,870				20,000	12,100	12,800	4,150	1,360	1,610
14		3,640			2,000	3,050	17,500	12,700	12,600	4,260	1,490	1,850
15			1,870				15,700	14,500	13,000	4,460	1,710	1,490
16	4,000	3,460					15,000	16,700	13,700	4,340	1,790	1,320
17			1,850		2,350		15,300	17,900	14,300	4,070	1,790	1,280
18					2,480		17,400	19,200	14,600	3,650	1,940	1,200
19					2,760		15,800	20,500	14,400	3,270	1,660	1,210
20			1,900		2,960	2,600	12,500	22,100	13,400	3,110	1,480	1,220
21				1,500	3,420	2,630	10,400	23,400	12,400	2,950	1,390	1,240
22	3,570		1,930		4,360	2,800	9,030	24,300	12,000	2,740	1,320	1,260
23	3,570	3,250			4,900	2,870	8,260	23,200	11,300	2,590	1,300	1,270
24	3,720				5,400	2,970	7,860	21,500	9,830	2,490	1,280	1,300
25	3,630				5,500	2,900	8,330	20,800	9,190	2,370	1,260	1,290
			1,850									
26	3,650					2,850	9,210	19,800	8,540	2,190	1,260	1,260
27	3,610				5,310	2,830	10,300	19,600	7,640	2,130	1,240	1,250
28	3,550					2,730	11,600	18,500	6,940	2,100	1,240	1,220
29	3,550		1,870		5,120	2,680	11,400	18,300	6,390	2,600	1,260	1,240
30	3,550		1,980		-------	2,780	9,790	18,500	5,970	2,030	1,220	1,260
31	3,590	-------	1,950		-------	2,940	-------	18,000	-------	1,910	1,180	-------

NOTE.—No gage heights; discharge estimated Oct. 11–21, Nov. 12–15, 17–30, Dec. 1, 3–10, 12–14, 16–21, 23–28, 31, Jan. 1 to Feb. 16, Feb. 25–28, Mar. 3–8, and 10–19. Intake clogged Apr. 16 to May 4, and June 14–18; gage heights estimated. Braced figures show estimated mean discharge for periods indicated.

Monthly discharge of Green River at Green River, Utah, for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October		3,550	3,890	239,000
November	3,790		3,380	201,000
December	2,900		2,070	127,000
January			1,440	88,500
February			2,870	165,000
March	5,200		3,310	204,000
April	21,600	2,780	11,300	672,000
May	24,300	7,670	15,900	978,000
June	16,800	5,970	12,600	750,000
July	5,730	1,910	3,630	223,000
August	1,940	1,180	1,470	90,400
September	6,140	1,090	1,500	89,300
The year	24,300		5,270	3,830,000

EAST FORK AT NEWFORK, WYO.

LOCATION.—About sec. 33, T. 32 N., R. 108 W., at highway bridge a quarter, of a mile south of Newfork, Sublette County. No tributary between station and mouth 1 mile below.

DRAINAGE AREA.—348 square miles (measured on base map of Wyoming; scale, 1:500,000).

RECORDS AVAILABLE.—April 1, 1905, to October 31, 1906; May 11, 1915, to November 1, 1924, when station was discontinued.

GAGE.—Vertical staff on downstream side of left abutment. On August 24, 1924, gage was moved to downstream side of right abutment of the new bridge built 15 feet downstream from the old one. No change was made in datum of gage but readings at the two sites are not the same. Gage read by J. W. Glaze.

DISCHARGE MEASUREMENTS.—Made from two-span highway bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of sand and gravel. Control 100 feet downstream at gravel bar which is practically permanent. Banks subject to overflow at stage of 6 feet.

EXTREMES OF DISCHARGE.—Maximum stage recorded, 4.85 feet at 7 a. m. May 17 and 18 (discharge, 1,460 second-feet); minimum stage, 0.95 foot at 6 p. m. March 31 (discharge, 29 second-feet).

1915–1924: Maximum discharge recorded, 2,940 second-feet at 6.30 a. m. June 9, 1917 (gage height, 6.7 feet); minimum discharge, 25 second-feet at 6 p. m. April 4, 1920.

ICE.—Stage-discharge relation seriously affected by ice; observations discontinued.

DIVERSIONS.—Adjudicated diversions for irrigation of 10,700 acres from East Fork above station.

REGULATION.—Flow of East Fork regulated to small extent by many small lakes at headwaters.

ACCURACY.—Stage-discharge relation practically permanent. Rating curve used October 1 to August 23 and curve used August 24 to September 30 are both well defined. Gage read to quarter-tenths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table. Records good.

The following discharge measurements were made:

October 12, 1923: Gage height, 1.30 feet; discharge, 65 second-feet.

June 23, 1924: Gage height, 2.03 feet; discharge, 207 second-feet.

August 24, 1924: Gage height, 1.02 feet; discharge, 44.7 second-feet.

Daily discharge, in second-feet, of East Fork at Newfork, Wyo., for the period October 1, 1923, to November 1, 1924

Day	Oct.	Nov.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.
1	61	56	-------	38	67	220	155	47	39	44	51
2	58	56	-------	70	76	309	146	45	39	44	-------
3	60	56	-------	47	87	475	138	45	39	46	-------
4	62	58	-------	42	111	700	130	44	40	46	-------
5	65	58	-------	63	140	875	126	43	40	49	-------
6	68	58	-------	72	126	740	134	43	42	49	-------
7	68	60	-------	248	130	660	142	41	42	49	-------
8	68	61	-------	388	153	492	132	41	42	46	-------
9	68	62	-------	356	192	372	118	41	44	46	-------
10	66	63	-------	234	207	278	97	41	46	46	-------
11	66	67	-------	146	254	248	92	41	49	49	-------
12	63	74	-------	126	475	294	88	41	46	49	-------
13	63	72	-------	116	660	422	82	41	46	49	-------
14	61	71	-------	98	930	580	78	41	44	49	-------
15	61	68	-------	82	1,160	740	74	41	42	46	-------
16	58	-------	-------	68	1,230	700	68	41	42	46	-------
17	58	-------	-------	62	1,420	580	65	41	40	48	-------
18	58	-------	-------	56	1,420	510	62	41	40	70	-------
19	58	-------	-------	56	1,160	405	60	40	40	69	-------
20	58	-------	-------	56	1,040	278	57	39	39	65	-------
21	56	-------	-------	62	875	207	56	39	39	62	-------
22	56	-------	-------	67	740	194	55	39	39	57	-------
23	56	-------	-------	75	620	234	55	39	39	53	-------
24	57	-------	-------	81	475	263	52	40	39	51	-------
25	58	-------	-------	71	475	248	52	40	40	51	-------
26	58	-------	-------	67	580	207	51	40	40	51	-------
27	58	-------	-------	65	510	263	49	40	40	49	-------
28	58	-------	-------	68	405	220	49	39	42	49	-------
29	58	-------	-------	60	324	182	49	39	42	51	-------
30	58	-------	65	65	263	158	49	39	42	52	-------
31	57	-------	34	-------	220	-------	47	39	-------	53	-------

Monthly discharge of East Fork at Newfork, Wyo., for the period October 1, 1923, to October 31, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
1923				
October	68	56	60.6	3,730
November 1-15	74	56	62.7	1,870
1924				
April	388	38	104	6,190
May	1,420	67	533	32,800
June	875	158	402	23,900
July	155	47	84.1	5,170
August	47	39	41.0	2,520
September	49	39	41.4	2,460
October	70	44	51.1	3,140

NEW FORK NEAR BOULDER, WYO.

LOCATION.—About sec. 8, T. 32 N., R. 108 W., at highway bridge 1 mile west of Boulder, Sublette County. Nearest tributary, Boulder Creek, enters an eighth of a mile below.

DRAINAGE AREA.—578 square miles (measured on base map of Wyoming; scale, 1:500,000).

RECORDS AVAILABLE.—May 11, 1915, to September 30, 1924.

GAGE.—Vertical staff on downstream side of left abutment; read by Martin T. Brandt.

DISCHARGE MEASUREMENTS.—Made from two-span bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of sand and gravel underlain by slate; shifting at long intervals. No well-defined control. At high water there are two overflow channels, one around right end of bridge, and the other from New Fork to Boulder Creek.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 4.48 feet at 7 a. m. May 22 (discharge, 1,560 second-feet); minimum discharge probably occurred during winter.

1915–1924: Maximum stage recorded, 8.7 feet at 6 a. m. June 17, 1918 (discharge, 12,300 second-feet); minimum discharge, 42 second-feet December 15–17, 1915.

ICE.—Stage-discharge relation affected by ice; observations discontinued.

DIVERSIONS.—Adjudicated diversions for irrigation of 13,400 acres from New Fork above station.

REGULATION.—None.

ACCURACY.—Stage-discharge relation practically permanent. Rating curve well defined. Gage read to hundredths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table. Records good.

Discharge measurements of New Fork near Boulder, Wyo., during the year ending September 30 1924

Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 12	2.30	170	June 23	3.66	888
Oct. 13	2.30	182	Aug. 23	2.24	150

Daily discharge, in second-feet, of New Fork near Boulder, Wyo., for the year ending September 30, 1924

Day	Oct.	Nov.	Apr.	May	June	July	Aug.	Sept.
1	156	96	200	100	840	840	205	104
2	165	120	300	104	705	805	188	102
3	130	130	400	109	672	770	191	94
4	145	117	700	106	640	805	185	91
5	165	104	1,000	113	705	805	171	85
6	174	102	1,480	137	840	840	168	85
7	174	98	1,480	117	910	840	174	92
8	174	102	1,480	137	980	840	165	89
9	174	102	1,390	132	910	805	165	85
10	181	98	1,390	154	840	738	159	83
11	174	115	1,300	165	738	738	159	85
12	165	120	580	191	672	672	145	87
13	165	130	395	224	672	672	137	80
14	168	130	304	304	738	640	130	76
15	168	130	282	445	910	580	148	75
16	168	124	224	640	1,130	525	154	75
17	162	--------	188	875	1,300	705	130	75
18	162	--------	132	1,210	1,300	445	132	75
19	156	--------	134	1,300	1,300	420	145	75
20	151	--------	156	1,390	1,210	395	156	75
21	156	--------	134	1,480	1,060	370	162	78
22	156	--------	132	1,480	980	370	156	75
23	151	--------	159	1,300	910	348	148	75
24	151	--------	151	1,300	840	325	142	78
25	151	--------	132	1,130	840	282	137	80
26	151	--------	113	1,130	840	262	132	83
27	151	--------	104	1,130	840	242	120	85
28	130	--------	94	1,130	840	242	113	82
29	124	--------	102	1,130	840	224	113	85
30	106	--------	111	1,060	840	242	111	82
31	106	--------	--------	910	--------	242	109	--------

NOTE.—No gage-height record Apr. 1-5; discharge based on comparison with records for East Fork.

Monthly discharge of New Fork near Boulder, Wyo., for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	181	106	155	9,530
November 1-16	130	96	114	3,620
April	1,480	94	492	29,300
May	1,480	100	682	41,900
June	1,300	640	895	53,300
July	840	224	549	33,800
August	205	109	150	9,220
September	104	75	83.0	4,940

PINE CREEK AT PINEDALE, WYO.

LOCATION.—In sec. 4, T. 33 N., R. 109 W., at highway bridge at Pinedale, Sublette County. No large tributary between station and mouth, 3 miles below.

DRAINAGE AREA.—128 square miles (measured on base map of Wyoming; scale, 1:500,000).

RECORDS AVAILABLE.—May 8, 1915, to September 30, 1924.

GAGE.—Vertical staff on downstream side of bridge pier; read by Thurston Doyle.

DISCHARGE MEASUREMENTS.—Made from two-span bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of gravel. Control at rapids just below gage; somewhat shifting at long intervals. Banks subject to overflow at extreme high water.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 2.7 feet June 16–21 (discharge, 475 second-feet); minimum discharge occurred during winter.

1915–1924: Maximum stage recorded, 5.0 feet at 8 a. m. and 5 p. m. June 17, 1918 (discharge, 2,310 second-feet); minimum discharge recorded, 4 second-feet November 14–17, 1921.

ICE.—Stage-discharge relation somewhat affected by ice; observations discontinued during winter.

DIVERSIONS.—Adjudicated diversions for irrigation of 5,100 acres from Pine Creek above Pinedale and 280 acres below.

REGULATION.—Flow naturally regulated by Fremont Lake, which has an area of approximately 8 square miles and drains 110 square miles.

ACCURACY.—Stage-discharge relation practically permanent. Rating curve fairly well defined. Gage read to tenths twice daily. Daily discharge ascertained by applying mean daily gage-height to rating table. Records fair.

The following discharge measurements were made:

October 10, 1923: Gage height, 1.26 feet; discharge, 38.3 second-feet.

June 22, 1924: Gage height, 2.60 feet; discharge, 402 second-feet.

August 23, 1924: Gage height, 1.42 feet; discharge, 59 second-feet.

Daily discharge, in second-feet, of Pine Creek at Pinedale, Wyo., for the year ending September 30, 1924

Day	Oct.	Apr.	May	June	July	Aug.	Sept.
1	35	18	20	345	380	32	33
2	35	20	20	300	360	32	33
3	35	30	20	252	345	32	32
4	35	40	20	252	345	32	32
5	35	50	19	252	345	32	32
6	35	60	19	295	345	32	32
7	35	60	18	345	345	32	30
8	36	50	18	320	345	32	29
9	37	40	17	300	320	32	27
10	38	30	16	295	295	32	26
11	37	20	14	261	295	32	24
12	38	18	14	252	252	32	24
13	38	18	18	261	230	40	24
14	38	18	29	295	215	32	24
15	37	18	48	375	209	32	23
16	37	19	74	475	209	32	23
17	37	20	140	475	209	32	23
18	37	20	230	475	152	32	23
19	37	20	295	475	128	32	21
20	37	20	357	475	107	38	21
21	37	20	405	475	90	43	21
22	37	20	405	405	74	48	21
23	35	20	405	393	61	54	20
24	35	20	405	405	40	52	20
25	35	20	405	405	40	52	20
26	35	20	405	405	40	52	20
27	35	20	405	405	40	42	19
28	35	20	405	405	32	42	20
29	35	20	405	405	32	47	20
30	30	20	375	405	32	39	20
31	30	--------	345	--------	32	33	--------

NOTE.—No gage-height record Oct. 8, 9, 31, Apr. 1–12, July 1, 2, and Aug. 20–22; discharge based on comparison with flow of New Fork and Boulder Creek near Boulder.

Monthly discharge of Pine Creek at Pinedale, Wyo., for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	38	30	35.7	2,200
April	60	18	26.3	1,560
May	405	14	186	11,400
June	475	252	363	21,600
July	380	32	192	11,800
August	54	32	37.4	2,300
September	33	19	24.6	1,460

BOULDER CREEK NEAR BOULDER, WYO.

LOCATION.—In sec. 4, T. 32 N., R. 108 W., at Sandlin ranch, 2 miles northwest of Boulder, Sublette County. No tributary between station and mouth, 2 miles below.

DRAINAGE AREA.—112 square miles (measured on base map of Wyoming, scale, 1 : 500,000).

RECORDS AVAILABLE.—April 23, 1904, to October 31, 1906; May 10, 1915, to October 31, 1924, when station was discontinued.

GAGE.—Chain gage installed May 19, 1920, 50 feet upstream from vertical staff used prior to that date and referred to same datum; read by Mrs. M. M. Sandlin.

DISCHARGE MEASUREMENTS.—Made by wading or from bridge 1¾ miles downstream during high water.

CHANNEL AND CONTROL.—Bed composed of gravel; deep pool at gage. Control 150 feet downstream at rapids which shift slightly at intervals. Banks are high and not subject to overflow.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 4.55 feet at 8 a. m. May 18 (discharge, 1,480 second-feet); minimum stage, 0.50 foot from September 17–30 (discharge, 5 second-feet).

1904–1906, 1915–1924: Maximum stage recorded, 6.8 feet at 7 a. m. June 14, 1918 (discharge, 3,240 second-feet); minimum discharge, 0.9 second-foot at 7 a. m. and 7 p. m. August 31, 1915.

ICE.—Stage-discharge relation seriously affected by ice.

DIVERSIONS.—Adjudicated diversions for irrigation of 6,000 acres from Boulder Creek, all above station.

REGULATION.—Natural regulation by Boulder Lake. Low-water discharge affected by irrigation above station.

ACCURACY.—Stage-discharge relation slightly shifting. Rating curve used October 1 to November 15 and curve used May 1 to September 30 are both well defined. Gage read to hundredths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table. Records good.

The following discharge measurements were made:

October 11, 1923: Gage height, 1.07 feet; discharge, 27.1 second-feet.

June 23, 1924: Gage height, 2.88 feet; discharge, 514 second-feet.

August 24, 1924: Gage height, 0.57 foot ; discharge, 6.3 second-feet.

Daily discharge, in second-feet, of Boulder Creek near Boulder, Wyo., for the period October 1, 1923, to October 31, 1924

Day	Oct.	Nov.	May	June	July	Aug.	Sept.	Oct.
1	16	61	8	304	420	21	6	7
2	16	62	8	322	380	19	6	7
3	17	60	9	380	380	17	6	7
4	21	59	11	565	341	16	6	7
5	25	58	16	745	322	13	6	7
6	25	58	23	845	286	13	6	6
7	25	58	32	845	286	12	6	6
8	25	56	37	655	269	11	6	5
9	28	55	56	542	236	11	6	5
10	28	55	67	460	236	10	6	5
11	28	55	76	400	172	10	6	5
12	28	50	106	420	150	10	6	5
13	26	46	195	542	140	10	6	5
14	25	44	460	845	132	10	6	5
15	24	44	745	1,150	103	10	6	5
16	21	--------	960	1,290	92	10	6	5
17	19	--------	1,220	1,220	84	10	5	5
18	18	--------	1,440	1,080	72	10	5	10
19	18	--------	1,440	845	72	10	5	9
20	18	--------	1,360	700	58	8	5	8
21	18	--------	1,290	520	45	8	5	7
22	18	--------	1,080	500	40	7	5	7
23	17	--------	900	500	39	7	5	8
24	16	--------	745	542	38	7	5	8
25	15	--------	745	565	33	7	5	8
26	15	--------	745	520	31	7	5	8
27	15	--------	745	520	27	7	5	8
28	58	--------	655	520	25	6	5	8
29	58	--------	565	500	25	6	5	8
30	55	--------	480	440	24	6	5	8
31	56	--------	360	--------	22	6	--------	8

Monthly discharge of Boulder Creek near Boulder, Wyo., for the period October 1, 1923, to October 31, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	58	15	25.5	1,570
November 1-15	62	44	54.7	1,630
May	1,440	8	535	32,900
June	1,290	304	643	38,300
July	420	22	148	9,100
August	21	6	10.2	627
September	6	5	5.5	327
October	10	5	6.8	418

BIG SANDY CREEK NEAR FARSON, WYO.

LOCATION.—In sec. 18, T. 27 N., R. 106 W., three-quarters of a mile below Ten Trees and 18 miles north of Farson, Sweetwater County. No tributary within several miles.

DRAINAGE AREA.—322 square miles (measured on base map of Wyoming; scale, 1:500,000).

RECORDS AVAILABLE.—May 10, 1915, to September 30, 1917; April 28, 1921, to October 31, 1924, when station was discontinued.

GAGE.—Stevens 8-day water-stage recorder at left bank, half a mile above head gate of Eden Canal; installed May 1, 1921, and referred to datum of staff gage used from 1915 to 1917. Inspected by employee of Eden Land & Irrigation Co.

DISCHARGE MEASUREMENTS.—Made from cable 100 feet upstream from gage; low-water measurements made by wading.

CHANNEL AND CONTROL.—Bed composed of well-compacted sand; control 150 feet downstream, slightly shifting at long intervals. Banks are overflowed at stage of 3.7 feet.

EXTREMES OF DISCHARGE.—Maximum stage during year from water-stage recorder, 3.78 feet at 2 a. m. May 18 (discharge, 495 second-feet); minimum stage, 1.31 feet at 2 a. m. September 1 (discharge, 4 second-feet).

1915–1917; 1921–1924; Maximum discharge recorded, 1,160 second-feet on June 26, 1917; minimum discharge, that of September 1, 1924.

ICE.—Stage-discharge seriously affected by ice.

DIVERSIONS.—Adjudicated diversions for irrigation of 3,000 acres from Big Sandy Creek above station.

REGULATION.—None.

ACCURACY.—Stage-discharge relation slightly shifting. Rating curve fairly well defined. Operation of water-stage recorder satisfactory except for short periods as explained in footnote to table of daily discharge. Daily discharge ascertained by applying to rating table mean daily gage height obtained by inspection of recorder graph; shifting-control method used June 14 to July 31. Records good.

The following discharge measurements were made:

October 13, 1923: Gage height, 2.02 feet; discharge, 59 second-feet.

June 24, 1924: Gage height, 3.03 feet; discharge, 258 second-feet.

August 24, 1924: Gage height, 1.38 feet; discharge, 6.8 second-feet.

Daily discharge, in second-feet, of Big Sandy Creek near Farson, Wyo., for the period October 1, 1923, to October 31, 1924

Day	Oct.	Nov.	May	June	July	Aug.	Sept.	Oct.
1	71	44	75	218	208	16	5	12
2	64	50	85	232	205	16	6	12
3	68	58	95	245	193	16	5	12
4	68	36	120	306	184	15	5	12
5	86	24	138	392	169	14	5	13
6	106	23	139	419	191	14	6	14
7	88	20	138	410	240	13	5	16
8	82	18	138	370	245	13	5	17
9	92	18	148	320	218	12	7	19
10	86	25	167	260	188	11	8	21
11	75	41	172	240	167	10	10	20
12	68	39	208	220	145	10	10	20
13	59	--------	288	230	129	10	10	21
14	52	--------	338	275	115	9	9	22
15	47	--------	387	368	101	8	9	24
16	48	--------	406	430	97	9	8	25
17	48	--------	432	424	86	9	8	80
18	47	--------	473	378	79	8	8	131
19	47	--------	460	346	73	8	9	104
20	46	--------	432	293	63	7	9	115
21	41	--------	432	248	50	8	8	94
22	39	--------	392	220	44	7	9	84
23	41	--------	378	212	39	6	10	77
24	40	--------	365	240	36	6	10	70
25	36	--------	308	275	28	6	10	61
26	30	--------	303	258	25	7	10	62
27	36	--------	324	258	21	7	10	61
28	47	--------	303	255	18	8	11	60
29	45	--------	280	248	17	7	12	61
30	42	--------	260	218	17	5	12	62
31	38	--------	232	--------	16	5	--------	62

NOTE.—Stage-discharge relation affected by ice Oct. 29 to Nov. 1; discharge interpolated. No gage height record May 1–6 and June 7–12; discharge based on comparison with records of flow of East Fork at Newfork.

Monthly discharge of Big Sandy Creek near Farson, Wyo., for the period October 1, 1923, to October 31, 1924.

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
1923				
October	106	30	57.5	3,540
November 1–12	58	18	33.0	786
1924				
May	473	75	271	16,700
June	430	212	294	17,500
July	245	16	110	6,760
August	16	5	9.7	596
September	12	5	8.3	494
October	131	12	47.2	2,900

BLACKS FORK NEAR URIE, WYO.

LOCATION.—In sec. 23, T. 16 N., R. 115 W., at highway bridge 4 miles northwest of Urie, Uinta County. No tributary within 10 miles.

DRAINAGE AREA.—261 square miles (measured on base map of Wyoming; scale, 1: 500,000).

RECORDS AVAILABLE.—August 21, 1913, to September 30, 1924, when station was discontinued.

GAGE.—Vertical staff on downstream side of center pier; read by Miss Myrtle Anderson. Datum lowered 0.50 foot August 19, 1915.

DISCHARGE MEASUREMENTS.—Made from two-span bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of well-compacted gravel. Control is small rapids just below the bridge, which is practically permanent. Right bank is high and is not overflowed; left bank is overflowed at stage of about 3 feet.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 3.38 feet at 9 a. m. May 16, 17, and 19 (discharge, 1,220 second-feet); minimum stage recorded, 0.38 foot from August 26 to September 4 and September 18–20 (discharge, 0.3 second-foot).

1913–1924: Maximum stage recorded, 4.72 feet at 7 p. m. June 19, and 9 a. m. June 20, 1917 (discharge, 2,680 second-feet); minimum discharge, that of August and September, 1924.

ICE.—Stage-discharge relation seriously affected by ice.

DIVERSIONS.—Adjudicated diversions for irrigation of 4,500 acres from Blacks Fork above station; practically none below.

REGULATION.—None.

ACCURACY.—Stage-discharge relation practically permanent. Rating curve well defined. Gage read to hundredths twice daily. Daily discharge ascertained by applying mean daily gage-height to rating table. Records fair.

The following discharge measurements were made:

October 20, 1923: Gage height, 0.80 foot; discharge, 20.4 second-feet.

May 22, 1924: Gage height, 2.65 feet; discharge, 658 second-feet.

August 20, 1924: Gage height, 0.32 foot; discharge estimated, 0.3 second-foot.

Daily discharge, in second-feet, of Blacks Fork near Urie, Wyo., for the year ending September 30, 1924

Day	Oct.	Nov.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	28	66	--------	66	112	260	8	1	0.3
2	25	58	--------	140	135	225	10	1	.3
3	31	66	--------	280	225	280	7	1	.3
4	33	61	--------	260	360	260	8	1	.3
5	32	61	--------	142	540	360	6	1	.3
6	25	66	--------	135	455	242	14	1	.5
7	28	66	--------	142	380	242	19	1	.5
8	28	61	--------	208	480	175	10	1	.5
9	40	57	--------	208	510	148	6	.8	.5
10	31	66	--------	119	455	70	9	.8	.5
11	32	58	--------	104	660	72	7	.8	.5
12	25	60	--------	119	800	61	6	.8	.8
13	23	61	--------	190	880	52	8	.8	2
14	28	70	--------	225	1,060	43	6	.8	2
15	28	61	--------	280	880	33	6	1	2
16	33	--------	--------	190	670	24	5	2	1
17	31	--------	--------	130	1,150	27	5	2	1
18	28	--------	--------	86	1,060	27	6	2	.3
19	23	--------	--------	86	1,060	25	5	2	.3
20	23	--------	--------	91	840	23	5	1	.8
21	25	--------	--------	93	765	22	5	1	2
22	23	--------	--------	97	660	19	4	.3	2
23	33	--------	39	93	540	16	4	.3	2
24	40	--------	45	119	695	16	4	.3	2
25	51	--------	52	99	480	16	3	.3	2
26	56	--------	52	119	300	16	2	.3	2
27	58	--------	58	99	208	16	2	.3	2
28	61	--------	53	128	135	16	2	.3	1
29	72	--------	58	119	102	8	2	.3	1
30	61	--------	58	110	208	8	2	.3	.8
31	44	--------	58	--------	225	--------	1	.3	--------

Monthly discharge of Blacks Fork near Urie, Wyo., for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	72	23	35.5	2,180
November 1-15	70	57	62.5	1,860
March 23-31	58	39	52.6	939
April	280	66	143	8,510
May	1,150	102	559	34,400
June	360	8	93.4	5,560
July	19	1	6.0	369
August	2	.3	.86	53
September	2	.3	1.05	62

HAMS FORK AT DIAMONDVILLE, WYO.

LOCATION.—In SW. ¼ sec. 24, T. 21 N., R. 116 W., at highway bridge in Diamondville, Lincoln County. No important tributary within many miles.

DRAINAGE AREA.—386 square miles (measured on base map of Wyoming; scale 1 : 500,000).

RECORDS AVAILABLE.—May 1, 1918, to September 30, 1924.

GAGE.—Vertical staff attached to downstream side of bridge.

DISCHARGE MEASUREMENTS.—Made from two-span bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of well-compacted gravel. Control is at rapids about 100 feet below bridge, which shifts slightly at intervals. Banks fairly high and not subject to overflow.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 3.97 feet at 8 a. m. April 14 (discharge, 2,150 second-feet); minimum stage recorded, 1.12 feet at 7 p. m. August 31 (discharge, 9 second-feet).

1918–1924: Maximum stage recorded, 4.55 feet at 8 a. m. May 11, 1923 (discharge, 3,250 second-feet); river dry August 29–31, 1919.

ICE.—Stage-discharge relation seriously affected by ice.

DIVERSIONS.—Adjudicated diversions for irrigation of 7,619 acres from Hams Fork and tributaries above station, and 8,091 acres below.

REGULATION.—Diurnal fluctuation during spring caused by alternate melting and freezing of mountain snow. No artificial regulation.

ACCURACY.—Stage-discharge relation slightly shifting. Rating curve used October 1 to April 15 and curve used April 16 to September 30 are both well defined. Gage read to hundredths twice daily. Daily discharge ascertained by applying daily mean gage height to rating table; shifting-control method used April 12–15. Records good.

Discharge measurements of Hams Fork at Diamondville, Wyo., during the year ending September 30, 1924

Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 17	2.04	66	June 25	2.14	117
May 21	3.37	984	Aug. 20	1.36	15.0

Daily discharge, in second-feet, of Hams Fork at Diamondville, Wyo., for the year ending September 30, 1924

Day	Oct.	Nov.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	94	105	--------	30	984	560	69	25	13
2	77	94	--------	53	1,010	482	66	21	12
3	82	82	--------	54	1,150	432	62	20	12
4	140	75	--------	102	1,240	419	59	20	13
5	140	68	--------	119	1,260	400	57	20	13
6	155	64	--------	177	1,010	406	58	19	13
7	133	77	--------	290	867	386	57	20	13
8	112	72	--------	480	845	419	61	19	13
9	105	75	--------	600	845	406	53	18	14
10	105	75	--------	618	889	368	50	20	15
11	105	75	--------	530	912	320	48	19	17
12	105	72	--------	792	948	298	47	20	18
13	94	75	--------	1,140	984	276	41	19	17
14	91	75	--------	1,790	1,050	256	38	19	16
15	85	75	--------	1,200	1,030	251	32	22	15
16	77	--------	27	823	960	237	28	24	16
17	82	--------	25	576	984	233	25	18	16
18	82	--------	25	393	1,030	219	24	19	17
19	77	--------	27	552	1,020	219	17	18	16
20	72	--------	23	654	984	228	20	18	18
21	72	--------	28	1,010	936	202	21	18	20
22	72	--------	25	1,120	900	177	22	19	21
23	75	--------	24	1,480	972	162	21	20	22
24	88	--------	27	1,290	845	139	23	18	21
25	94	--------	28	823	812	125	27	17	20
26	94	--------	31	700	730	112	27	15	20
27	91	--------	31	609	690	85	29	14	21
28	91	--------	28	654	645	80	28	14	24
29	91	--------	27	740	654	80	25	13	24
30	94	--------	24	867	700	73	27	12	25
31	99	--------	24	--------	720	--------	24	11	--------

Monthly discharge of Hams Fork at Diamondville, Wyo., for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	155	72	95.9	5,900
November 1-15	105	64	77.3	2,300
March 16-31	31	23	26.5	841
April	1,790	30	676	40,200
May	1,260	645	923	56,800
June	560	73	268	15,900
July	69	17	38.3	2,360
August	25	11	18.4	1,130
September	25	12	17.2	1,020

LITTLE SNAKE RIVER NEAR LILY, COLO.

LOCATION.—In sec. 20, T. 7 N., R. 98 W., at highway bridge near mouth of canyon, 6 miles above Lily, Moffat County. No tributary between station and mouth of river at Lily.

DRAINAGE AREA.—3,730 square miles (measured on base map of Colorado and Wyoming).

RECORDS AVAILABLE.—June 9 to August 14, 1904; May 1, 1922, to September 30, 1924.

GAGE.—Stevens water-stage recorder; inspected by L. J. Osborn.

DISCHARGE MEASUREMENTS.—Made from bridge or by wading.

CHANNEL AND CONTROL.—Fairly permanent.

EXTREMES OF DISCHARGE.—Maximum stage recorded, 5.35 feet at 2 p. m. May 20 (discharge, 3,790 second-feet); river dry August 7 to September 11.

1904; 1922–1924: Maximum stage recorded, 6.5 feet on May 28, 1922 (discharge, 5,650 second-feet); no flow August 7 to September 11, 1924.

DIVERSIONS.—Adjudicated diversions for irrigation of 28,700 acres from Little Snake and tributaries above station.

REGULATION.—None.

COOPERATION.—Complete records furnished by State engineer.

Daily discharge, in second-feet, of Little Snake River near Lily, Colo., for the year ending September 30, 1924

Day	Oct.	Apr.	May	June	July	Aug.	Sept.
1	194	600	1,750	2,940	186	0	0
2	186	900	1,850	2,760	186	0	0
3	183	950	1,800	2,590	172	0	0
4	178	1,000	2,940	2,640	186	0	0
5	178	1,100	3,580	2,320	172	0	0
6	178	1,150	3,380	2,200	158	0	0
7	200	1,200	3,190	2,050	158	0	0
8	283	1,400	2,880	1,950	144	0	0
9	232	1,800	2,760	1,600	130	0	0
10	226	2,000	2,590	1,280	116	0	0
11	232	2,600	2,370	1,200	116	0	0
12	219	3,000	2,540	1,100	130	0	116
13	226	3,200	2,700	1,140	116	0	0
14	206	3,000	2,480	1,170	103	0	0
15	200	3,000	2,760	1,200	103	0	0
16	216	2,820	2,880	1,200	90	0	0
17	200	1,900	3,060	1,100	79	0	0
18	192	1,260	3,120	999	79	0	0
19	186	1,070	3,260	933	79	0	0
20	178	933	2,820	644	79	0	0
21	169	748	2,760	668	57	0	4
22	161	806	2,820	532	57	0	12
23	186	1,070	2,940	430	46	0	8
24	186	1,400	3,060	336	46	0	14
25	189	1,440	3,120	266	35	0	12
26	194	1,480	3,190	232	24	0	8
27	206	1,480	3,260	200	4	0	16
28	194	1,480	3,520	200	2	0	24
29	200	1,560	3,060	186	2	0	24
30	200	1,700	2,940	186	-------	0	24
31	200	-------	2,940	-------	-------	0	-------

Monthly discharge of Little Snake River near Lily, Colo., for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	283	161	199	12,200
November	-------	-------	120	7,140
December	-------	-------	70	4,300
January	-------	-------	70	4,300
February	-------	-------	90	5,180
March	-------	-------	150	9,220
April	3,200	600	1,600	95,200
May	3,580	1,750	2,850	175,000
June	2,940	186	1,210	72,000
July	186	0	92.1	5,660
August	0	0	0	0
September	116	0	8.73	519
The year	3,580	0	539	391,000

ASHLEY CREEK NEAR VERNAL, UTAH

LOCATION.—In sec. 1, T. 3 S., R. 20 E., three-quarters of a mile above heading of power canal of Vernal Milling & Light Co., 4 miles above mouth of Dry Fork, and 12 miles northwest of Vernal, Uinta County.

DRAINAGE AREA.—101 square miles (measured on topographic map).

RECORDS AVAILABLE.—June 6, 1914, to September 30, 1924. From October 8, 1911, to June 5, 1914, fragmentary records were obtained at power plant, total flow of creek being determined by including discharge from tailrace. Records are also available for a point below mouth of Dry Fork from March 15, 1900, to December 31, 1904.

GAGE.—Stevens continuous water-stage recorder on left bank three-quarters of a mile above heading of power canal, installed June 14, 1919. Inspected by C. A. Johnston.

DISCHARGE MEASUREMENTS.—Made from cable or by wading.

CHANNEL AND CONTROL.—Bed steep and rough, composed of gravel and cobbles, subject to change during high water. No well-defined control.

EXTREMES OF DISCHARGE.—Maximum stage during year, 7.91 feet at 9 p. m. May 17 (discharge, 736 second-feet); minimum discharge, 33 second-feet March 30 to April 1.

1911–1924: Maximum discharge, 2,050 second-feet at 9 p. m. May 29, 1921; minimum discharge, 26 second-feet on February 7, 1920.

ICE.—None.

DIVERSIONS.—None above station.

REGULATION.—None.

ACCURACY.—Stage-discharge relation permanent during year. Rating curve fairly well defined. Water-stage recorder operated satisfactorily except as stated in footnote to daily-discharge table. Daily discharge ascertained by applying to rating table mean daily gage height determined from recorder graph or weekly gage readings except as noted in footnote to daily-discharge table. Records fair.

The following discharge measurements were made:

May 12, 1924: Gage height, 7.33 feet; discharge, 423 second-feet.

September 20, 1924: Gage height, 5.94 feet; discharge, 41.5 second-feet.

Daily discharge, in second-feet, of Ashley Creek near Vernal, Utah, for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	58		44			35	33	50	248	92	59	39
2	58		45			35	34	50	264	91	58	
3	52		45			35	34		267	91	57	
4	52	54	44	38	36	35	34	75	283	90	56	
5	58		44			35	34		270	89	55	
6	60		44			35	36	100	245	88	54	41
7	60		44			35	39		238	87	53	
8	60	52	44	38	36	35	46	235	206	86	53	
9	60	52	44			35	49		186	85	51	
10		52	43			35	50		173	84	50	43
11		52	43			35	46	366	162	83	49	
12	64	52	43	37	36	35	42	418	158	82	48	
13		52	43			35	42	471	158	81	47	41
14		50	43			35	64	471	160	80	46	
15		50	43		36	34	60	466	152	79	46	

Daily discharge, in second-feet, of Ashley Creek near Vernal, Utah, for the year ending September 30, 1924—Continued

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
16	68	50	43	37	36	34	46	496	143	77	45	40
17	68	49	43		36	34	42	538	131	76	45	40
18	67	46	42		36	34		527	127	75	44	40
19	65	46	42		36	34		517	120	74	44	40
20	65	46	42	36	36	34	54	491	118	72	43	43
21	64	45	40		36	34		456	112	71	43	43
22	64	45	40		35	34		400	105	70	42	42
23	65	45	40		35	34	65	366	101	68	42	41
24	64		39	36	35	34		330	95	67	41	40
25	60		39		35	35		342	93	66	41	40
26	60	44	39		35	35		334	90	65	41	40
27	60		39	36	35	34	58	277	90	64	40	39
28	59		39		35	35		248	92	63	40	39
29	58		39		35	34		226	92	62	40	39
30	58	44	39		-------	33	50	220	92	61	39	39
31	56	-------	39	36	-------	33	-------	220	-------	60	39	-------

NOTE.—No gage-height record; discharge interpolated or estimated Oct. 10–15, Nov. 1–7, 24–29, Jan. 1–7, 9–15, 17–23, 25–30, Feb. 1–7, 9–14, Apr. 18–22, 24–29, May 1–10, Aug. 1–19, 21–30, Sept. 1–9, 11–16, 18, and 19. Braced figures show estimated mean discharge for periods indicated.

Monthly discharge of Ashley Creek near Vernal, Utah, for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	68	52	61.4	3,780
November	----------	44	49.0	2,920
December	45	39	41.9	2,580
January	----------	----------	36.8	2,260
February	----------	35	35.7	2,050
March	35	33	34.5	2,120
April	----------	33	48.8	2,900
May	538	50	308	18,900
June	283	90	159	9,460
July	92	60	76.7	4,720
August	59	39	46.8	2,880
September	----------	39	40.7	2,420
The year	538	33	78.5	57,000

VERNAL MILLING & LIGHT CO.'S TAILRACE NEAR VERNAL, UTAH

LOCATION.—In NW. ¼ sec. 18, T. 3 S., R. 21 E., at power plant of Vernal Milling & Light Co., 10 miles northwest of Vernal, Uinta County.

RECORDS AVAILABLE.—May 3 to September 30, 1917, and March 18, 1920, to September 30, 1924.

GAGE.—Indicating gage installed March 17, 1920, in office of power plant actuated by float in stilling well in tailrace beneath plant; read to hundredths by employees of power company.

DISCHARGE MEASUREMENTS.—Made by wading.

CHANNEL AND CONTROL.—Channel straight for 50 feet below gage. Banks high; one channel at all stages. Bed of gravel and cobbles.

ICE.—None.

ACCURACY.—Stage-discharge relation permanent throughout year. Rating curve well defined. Float gage read to hundredths hourly throughout year. Daily discharge ascertained by applying mean daily gage height to rating table. Records good.

COOPERATION.—Gage-height furnished by Vernal Milling & Light Co.

The following discharge measurements were made:

May 12, 1924: Gage height, 4.50 feet; discharge, 22.7 second-feet.

September 21, 1924: Gage height, 4.50 feet; discharge, 22.8 second-feet.

Daily discharge, in second-feet, of Vernal Milling & Light Co.'s tailrace near Vernal, Utah, for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	28	30	28	27	29	27	24	25	22	25	23	23
2	27	28	26	27	29	24	24	24	26	27	24	25
3	27	30	30	28	25	27	24	24	24	25	22	26
4	28	26	30	28	29	27	23	21	26	24	26	26
5	28	30	30	27	29	27	23	23	25	24	25	25
6	27	30	30	26	29	26	22	23	25	22	25	26
7	24	30	29	28	27	27	24	23	24	26	25	22
8	27	31	30	28	29	26	25	23	22	25	24	25
9	27	30	26	28	27	25	25	23	24	23	15	25
10	27	30	29	28	27	27	26	23	24	23	22	26
11	27	26	31	27	27	26	25	21	24	24	24	24
12	27	30	30	26	28	26	23	24	24	24	24	24
13	27	30	30	26	27	26	22	23	24	21	25	25
14	27	31	28	27	26	27	24	22	24	23	25	22
15	27	30	30	27	26	27	24	22	22	23	24	23
16	28	30	26	28	26	25	24	23	23	23	25	25
17	28	31	28	27	25	26	25	25	24	24	22	24
18	29	24	29	27	25	27	24	17	24	24	25	25
19	29	31	30	27	26	27	24	25	24	24	25	25
20	30	31	29	26	26	27	22	24	24	22	26	24
21	25	30	29	27	26	27	25	23	24	23	25	22
22	26	30	31	27	26	27	23	23	22	24	24	26
23	30	29	26	27	26	25	24	24	25	24	25	27
24	30	29	31	27	24	28	24	23	24	23	23	25
25	23	26	27	28	26	28	23	22	23	23	26	26
26	28	31	30	28	26	27	23	23	23	24	24	25
27	28	30	30	26	26	26	22	24	24	22	25	26
28	26	30	30	27	26	26	24	24	23	24	24	23
29	28	28	30	28	26	27	24	24	23	23	24	24
30	31	29	26	28	-------	16	24	24	23	24	25	24
31	31	-------	29	29	-------	25	-------	24	-------	24	23	-------

Monthly discharge of Vernal Milling & Light Co.'s tailrace near Vernal, Utah, for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	31	23	27.6	1,700
November	31	24	29.4	1,750
December	31	26	29.0	1,780
January	29	26	27.3	1,680
February	29	24	26.7	1,540
March	28	16	26.1	1,600
April	26	22	23.8	1,420
May	25	17	23.1	1,420
June	26	22	23.8	1,420
July	27	21	23.7	1,460
August	26	15	24.0	1,480
September	27	22	24.6	1,460
The year	31	15	25.7	18,700

DUCHESNE RIVER NEAR TABIONA, UTAH

LOCATION.—In SW. ¼ sec. 17, T. 2 S., R. 6 W., Uinta special base and meridian, at highway bridge 5½ miles above Rock Creek and 8 miles southeast of Tabiona, Duchesne County.

DRAINAGE AREA.—352 square miles.

RECORDS AVAILABLE.—January 16, 1919, to September 30, 1924.

GAGE.—Stevens steel-tape gage on downstream side of bridge, installed March 8, 1920; read by Leonard Brown.

DISCHARGE MEASUREMENTS.—Made by wading or from bridge.

CHANNEL AND CONTROL.—Channel composed of gravel and sand. Left bank high and not subject to overflow. Right bank overflowed at extreme high stage, allowing water to pass around bridge. Gravel riffle 50 feet below gage. Zero flow at gage height, 7.5 feet, determined September 13, 1922.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 12.08 feet May 19 (discharge, 900 second-feet); minimum stage, 9.14 feet August 28 (discharge, 49 second-feet).

1919–1924: Maximum discharge, about 2,500 second-feet June 13, 1921; uncertain because gage readings for that time are doubtful and river was over right bank. Minimum discharge, that of August 28, 1924.

ICE.—River freezes over each winter.

DIVERSIONS.—Some small diversions for irrigation above station.

REGULATION.—None.

ACCURACY.—Stage-discharge relation permanent throughout year. Rating curve well defined. Gage read to hundredths once daily throughout year. Daily discharge ascertained by applying daily gage height to rating table, except for periods of ice effect, for which discharge was estimated from observer's notes, temperature records, and by comparison with flow at other stations on Duchesne River. Records good.

The following discharge measurements were made:

May 9, 1924: Gage height, 11.03 feet; discharge, 433 second-feet.
June 25, 1924: Gage height, 9.68 feet; discharge, 120 second-feet.
August 17, 1924: Gage height, 9.20 feet; discharge, 56.1 second-feet.

Daily discharge, in second-feet, of Duchesne River near Tabiona, Utah, for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	175	170	140		109	101	92	192	359	88	81	54
2	181	166	143		110	102	103	212	356	99	73	50
3	179	159	150		109	106	115	233	350	87	71	56
4	183	142	127		116	109	137	275	350	89	69	55
5	183	140	126		124	108	142	332	365	85	71	54
6	184	142			116	103	150	329	368	114	67	55
7	186	137			121	106	155	332	350	110	66	55
8	183	155			122	102	173	338	320	92	66	56
9	183	142			95	103	155	430	317	87	67	71
10	186	145			103	101	150	490	290	106	71	58
11	192	150			106	95	147	524	259	130	71	54
12	181	142			101	96	155	564	235	130	66	53
13	181	138			109	103	164	628	255	129	64	55
14	184	135			108	99	173	715	231	130	66	66
15	186	142			110	98	171	730	206	127	64	71
16	184	126		110	109	99	155	805	194	121	66	82
17	175	129			109	95	150	820	190	114	61	96
18	171	132			109	92	137	850	179	112	61	95
19	173	137	125		110	95	134	900	177	115	58	99
20	166	135			115	103	138	890	168	118	58	98
21	164	140			112	101	155	830	155	110	58	98
22	168	135			114	102	168	805	145	108	60	96
23	166	138			116	101	173	790	138	103	58	99
24	164	142			114	103	183	760	127	114	56	96
25	161	145			95	105	175	740	118	118	55	96
26	162	126			98	103	161	665	127	110	55	99
27	164	118			99	102	155	596	112	103	50	101
28	170	122			98	102	171	532	98	95	49	100
29	166	124			98	105	168	462	99	96	50	99
30	170	126			-------	91	171	423	88	95	55	99
31	155	-------			-------	78	-------	389	-------	87	50	-------

NOTE.—Braced figures show estimated mean discharge for periods indicated.

Monthly discharge of Duchesne River near Tabiona, Utah, for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	192	155	175	10,800
November	176	118	139	8,270
December			127	7,810
January			[a] 110	6,760
February	124	95	109	6,270
March	109	78	106	6,150
April	183	92	153	9,100
May	900	192	567	34,900
June	368	88	224	13,300
July	130	85	107	6,580
August	81	49	62.4	3,840
September	101	50	77.2	4,590
The year	900	49	163	118,000

[a] Estimated.

DUCHESNE RIVER AT DUCHESNE, UTAH

LOCATION.—In NE. ¼ NW. ¼ sec. 1, T. 4 S., R. 5 W., Uinta special base and meridian, at Seventh Street Bridge in Duchesne, Duchesne County, a quarter of a mile above mouth of Strawberry River.

DRAINAGE AREA.—660 square miles.

RECORDS AVAILABLE.—December 3, 1917, to September 30, 1924.

GAGE.—Chain gage on downstream handrail of bridge near right bank, used until April 3, 1924; vertical staff gage installed to new datum on left bridge abutment May 10, 1924; read by E. S. Winslow.

DISCHARGE MEASUREMENTS.—Made from bridge or by wading.

CHANNEL AND CONTROL.—Channel straight for several hundred feet below gage. Bed composed of gravel and cobbles. The head of a long heavy gravel riffle is a short distance below gage. Banks are low but not subject to overflow.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 2.65 feet May 17, 19, and 20 (discharge, 2,180 second-feet); minimum stage, 0.6 foot August 4, 5, 7–14, 27–31, and September 1–4 (discharge, 50 second-feet).

1918–1924: Maximum stage recorded, 8.65 feet (chain gage) at noon June 10, 1922 (discharge, 4,420 second-feet); minimum stage, that of August and September, 1924.

ICE.—Stream freezes every winter.

DIVERSIONS.—Below all diversions above mouth of Strawberry River. Numerous diversions above and below station. Rock Creek enters between this station and the station near Tabiona.

REGULATION.—None except by diversion.

ACCURACY.—Stage-discharge relation changed during rise in stage during first week in May; affected by ice December 10 to February 24. Rating curves well defined. Gage read to half-tenths once daily except as noted in footnote to daily-discharge table. Daily discharge ascertained by applying daily gage height to rating table. Discharge interpolated for days of no gage heights and estimated for ice-affected period. Records fair.

Discharge measurements of Duchesne River at Duchesne, Utah, during the year ending September 30, 1924

Date	Gage height in feet		Discharge	Date	Gage height in feet		Discharge
	Staff gage	Chain gage			Staff gage	Chain gage	
			Sec.-ft.				*Sec.-ft.*
May 9		6.09	541	Aug. 18	0.73	4.90	75.4
May 16	2.45	7.39	1,810	Sept. 24	.91	5.17	124
June 26	1.01	5.35	172				

Daily discharge, in second-feet, of Duchesne River at Duchesne, Utah, for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	355	305	260			160	158	280	710	124	68	50
2	355	330	260			155	165	280	710	108	68	50
3	355	305	260			150	188	340	770	108	59	50
4	355	305	260			150	210	400	890	108	50	50
5	410	305	260			150		470	950	108	50	59
6	355	305	260			165		470	950	124	59	59
7	355	305	280			180		470	890	251	50	59
8	380	280	260			180		500	650	219	50	59
9	470	260	260			180		540	541	219	50	59
10	410	260				180		760	492	219	50	80
11	355	330				172		980	492	192	50	108
12	355	280				165		1,220	444	192	50	92
13	380	280			210	165		1,360	444	168	50	68
14	355	260				165		1,680	444	145	50	59
15	355	260				180	250	1,680	444	145	92	92
16	355	260		200		195		1,890	401	145	59	92
17	305	260				185		2,180	358	124	68	108
18	355	260				175		2,180	320	108	73	108
19	355	280				165		2,180	320	92	68	108
20	330	280	225			172		2,180	283	92	68	124
21	330	260				180		1,920	283	92	59	108
22	330	260				175		1,760	250	80	59	124
23	330	240				170		1,600	219	68	59	124
24	330	240				165		1,290	192	68	59	124
25	330	240			210	172		1,140	192	59	59	124
26	380	240			202	180	260	1,140	166	59	59	124
27	330	240			195	172	250	1,010	166	59	50	124
28	330	240			180	165	240	950	166	68	50	145
29	330	280			165	160	260	770	166	59	50	145
30	330	260			-------	155	280	770	166	68	50	145
31	305	-------			-------	150	-------	710	-------	68	50	-------

NOTE.—Gage not read; discharge estimated by comparison with flow at other station on Duchesne River and its tributaries Apr. 4–25; interpolated Feb. 26, 28, Mar. 1, 2, 4, 6, 8, 9, 11, 13, 15, 17, 18, 20, 22, 23, 25, 27, 29, 30, Apr. 1, 3, 27, 29, May 1, 3, 4, 6, 8, 10, 11, 18, June 1, 22, and July 13. Ice effect Dec. 10 to Feb. 24; discharge estimated. Braced figures show estimated mean discharge for periods indicated.

Monthly discharge of Duchesne River at Duchesne, Utah, for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	470	305	353	21,700
November	330	240	274	16,300
December			* 236	14,500
January			* 200	12,300
February			* 207	11,900
March	195	150	169	10,400
April	280	158	242	14,400
May	2,180	280	1,130	69,500
June	950	166	449	26,700
July	251	59	121	7,440
August	73	50	57.6	3,540
September	145	50	94.0	5,590
The year	2,180	50	295	214,000

* Estimated.

DUCHESNE RIVER AT MYTON, UTAH

LOCATION.—In NW. ¼ sec. 25, T. 3 S., R. 2 W., Uinta special base and meridan, at highway bridge at Myton, Duchesne County, 3 miles below mouth of Lake Fork.

DRAINAGE AREA.—2,750 square miles (measured on topographic map).

RECORDS AVAILABLE.—October 26, 1899, to November 30, 1910, and July 26, 1911, to September 30, 1924.

GAGE.—Chain gage on upstream rail near left end of steel highway bridge, installed August 6, 1910; read by C. J. Preece.

DISCHARGE MEASUREMENTS.—Made from highway bridge or by wading.

CHANNEL AND CONTROL.—Bed of coarse gravel; banks comparatively low, but not likely to be overflowed, although they are subject to erosion during high water. Gravel riffle at ford 100 or 200 feet below gage; shifts occasionally.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 4.92 feet May 19 (discharge, 3,030 second-feet); minimum stage, 1.07 feet September 4–9 (discharge, 6 second-feet).

1899–1924: Maximum stage recorded, 7.94 feet at 8 a. m. June 10, 1922 (discharge from extension of rating curve, 12,800 second-feet); minimum discharge, 6 second-feet September 4–9, 1924.

ICE.—Stage-discharge relation seriously affected by ice every winter.

DIVERSIONS.—Much of low-water flow of river and its tributaries is diverted for irrigation above station.

REGULATION.—Annual run-off is affected by storage in the United States Bureau of Reclamation reservoir on Strawberry River, one of the main tributaries.

ACCURACY.—Stage-discharge relation permanent; affected by ice from December 10 to February 28. Rating curve well defined. Gage read to hundredths four or five times a week. Daily discharge ascertained by applying daily gage height to rating table for days when gage was read and interpolated for others. Discharge estimated for period of ice effect from observer's notes, recorded gage heights, weather records, and hydrographic comparison with other stations on Duchesne River. Records fair.

Discharge measurements of Duchesne River at Myton, Utah, during the year ending September 30, 1924

Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*
May 15	4.17	2,020	Aug. 2	1.20	14.1
June 26	1.61	107	Sept. 18	1.60	91.5

Daily discharge, in second-feet, of Duchsene River at Myton, Utah, for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	520	520	494			587	374	374	777	34	13	11
2	507	567	505			530	362	405	772	30	13	8
3	513	553	513			475	391	432	767	27	12	7
4	513	540	463			438	482	550	762	24	10	6
5	699	533	488			438	463	664	896	21	9	6
6	629	526	500			435	580	664	830	80	9	6
7	605	513	507			430	699	615	760	135	8	6
8	580	500	488			426	755	640	680	193	10	6
9	783	500				430	720	664	610	179	9	6
10	730	500				438	650	780	540	150	8	20
11	678	550				435	630	895	475	127	8	47
12	643	601				432	615	1,010	420	148	9	78
13	615	553				430	595	1,790	415	120	8	78
14	600	513			475	428	573	1,790	400	91	10	75
15	580	500				426	565	2,170	385	75	161	72
16	573	494		400		438	560	2,350	368	60	82	75
17	608	488				435	526	2,650	340	49	65	78
18	608	475				432	432	2,850	310	23	47	97
19	610	450				429	432	3,030	280	20	44	82
20	615	460	425			426	490	2,650	248	16	49	92
21	570	475				426	546	2,280	213	12	40	102
22	520	482				444	540	2,000	185	8	32	112
23	533	469				430	533	1,780	161	8	30	127
24	587	469				415	533	1,580	144	8	27	124
25	550	460				403	482	1,380	125	8	25	127
26	510	450				385	500	1,180	105	9	23	130
27	469	460				391	520	1,100	94	9	22	134
28	490	469				426	546	1,020	56	9	21	152
29	507	490			615	420	362	940	49	49	18	170
30	507	507			-------	390	370	860	42	30	18	170
31	494	-------			-------	362	-------	783	-------	10	15	-------

NOTE.—Braced figures show estimated mean discharge for periods indicated.

Monthly discharge of Duchesne River at Myton, Utah, for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	783	469	579	35,600
November	601	450	502	29,900
December	-------	-------	[a] 443	27,200
January	-------	-------	[a] 400	24,600
February	-------	-------	[a] 480	27,600
March	587	362	433	26,600
April	755	362	528	31,400
May	3,030	374	1,350	83,000
June	896	42	407	24,200
July	193	8	56.8	3,490
August	161	8	27.6	1,700
September	170	6	73.5	4,370
The year	3,030	6	440	320,000

[a] Estimated.

STRAWBERRY RIVER AT DUCHESNE, UTAH

LOCATION.—In SW. ¼ NE. ¼ sec. 2, T. 4 S., R. 5 W., Uinta special base and meridian, at Winslow ranch, three-quarters of a mile west of post office at Duchesne, Duchesne County, three-quarters of a mile above mouth of Indian Canyon Creek, a small tributary entering from south, and 1½ miles above confluence of Strawberry River and Duchesne River.

DRAINAGE AREA.—1,040 square miles (measured on topographic map).

RECORDS AVAILABLE.—June 10, 1908, to November 30, 1910, and March 16, 1914, to September 30, 1924.

GAGE.—Enameled vertical staff installed June 13, 1922, on downstream side of right abutment of bridge; read by E. S. Winslow.

DISCHARGE MEASUREMENTS.—Made from cable just below bridge or by wading.

CHANNEL AND CONTROL.—Channel straight for several hundred feet above and below gage. Bed of sand and fine gravel. Natural channel about 50 feet wide is constricted at bridge to 36 feet. Banks comparatively low; covered with underbrush; left bank subject to overflow at very high stages. Gravel riffle 200 feet below gage; fairly permanent.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 7.9 feet at 5 p. m. August 14 (discharge, 1,310 second-feet); minimum stage, 4.05 feet August 8–13 and August 28 to September 4 (discharge, 37 second-feet).

1908–1924: Maximum stage recorded, 7.7 feet (old datum) on May 27, 1922 (discharge, 3,230 second-feet); minimum discharge, 30 second-feet November 20, 1914. Records obtained prior to 1914 incomplete.

ICE.—Stage-discharge relation affected by ice every winter.

DIVERSIONS.—Water stored in Strawberry Valley Reservoir (capacity, 250,000 acre-feet) about 40 miles above station, is diverted by tunnel to Spanish Fork drainage basin. Some water is also diverted from upper end of Strawberry Valley to basin of Provo River.

REGULATION.—Since 1912 flow of river has been affected by operation of Strawberry Valley Reservoir.

ACCURACY.—Stage-discharge relation permanent during year; affected by ice December 7 to March 5. Rating curve well defined. Gage read to half-tenths once or twice daily. Daily discharge ascertained by applying mean daily gage height to rating table except October 9 and August 14, when floods occurred for short periods, discharge estimated. Discharge for ice-affected periods was estimated from temperature records, observer's notes, and hydrographic comparison with all stations on Duchesne River. Records good.

Discharge measurements of Strawberry River at Duchesne, Utah, during the year ending September 30, 1924

Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*
May 10	5.19	254	Aug. 18	4.12	41.6
June 26	4.22	55.8	Sept. 24	4.14	50.2

Daily discharge, in second-feet, of Strawberry River at Duchesne, Utah, for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	137	118	131				86	224	127	48	54	37
2	137	123	127				101	214	127	48	44	37
3	137	127	127			110	106	241	123	48	42	37
4	137	127	118				137	252	113	48	42	37
5	151	123	109				151	268	109	48	37	44
6	143	118	109			109	158	260	109	82	40	48
7	127	118				118	158	224	93	93	42	44
8	127	118				127	193	219	93	66	37	42
9	200	118				127	214	241	93	64	37	44
10	169	118				127	214	260	93	56	37	54
11	151	151				137	198	268	90	76	37	48
12	143	127				93	206	274	82	79	37	42
13	137	137				93	219	260	79	66	37	44
14	147	131				109	219	260	79	60	125	44
15	147	127			110	127	224	241	79	60	54	42
16	147	127		100		137	219	224	76	60	48	42
17	143	127				109	198	214	72	54	48	42
18	137	118				127	198	193	69	52	44	42
19	137	118	100			93	193	193	66	48	42	42
20	137	113				93	193	193	66	48	42	42
21	137	118				118	214	193	66	44	42	42
22	137	131				137	232	181	64	42	42	44
23	151	137				147	252	169	60	42	42	48
24	169	137				93	241	158	60	42	42	48
25	147	137				93	206	147	56	37	42	48
26	131	137				93	165	137	54	37	42	48
27	127	137				118	174	137	54	37	40	48
28	127	137				93	193	137	54	72	37	48
29	127	137				93	193	137	54	64	37	48
30	127	137			-------	93	219	137	52	56	37	48
31	123	-------			-------	79	-------	137	-------	54	37	-------

NOTE.—Gage heights affected by ice Dec. 7 to Mar. 5; braced figures show estimated mean discharge for periods indicated.

Monthly discharge of Strawberry River at Duchesne, Utah, for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	200	123	142	8,730
November	151	113	128	7,620
December	----------	----------	[a] 104	6,400
January	----------	----------	[a] 100	6,150
February	----------	----------	[a] 110	6,330
March	147	79	111	6,820
April	252	86	189	11,250
May	274	137	206	12,700
June	127	52	80.4	4,780
July	93	37	55.8	3,430
August	125	37	44.1	2,710
September	54	37	44.1	2,620
The year	274	37	109	79,500

[a] Estimated.

WEST FORK OF LAKE FORK NEAR MOUNTAIN HOME, UTAH

LOCATION.—In SE. ¼ sec. 18, T. 2 N., R. 5 W., Uinta special base and meridian, a quarter of a mile below Moon Lake and 13 miles northwest of Mountain Home, Duchesne County.

DRAINAGE AREA.—108 square miles (measured on topographic map).

RECORDS AVAILABLE.—From September 18, 1921, to September 30, 1924; not operated during winter.

GAGE.—Stevens continuous water-stage recorder on right bank; attended by engineers of United States Office of Indian Affairs and Geological Survey.

DISCHARGE MEASUREMENTS.—Made from cable or by wading.

CHANNEL AND CONTROL.—Channel steep and rough. Bed composed of boulders and gravel. Right bank high; left bank low. One channel at all stages. Rock riffle control 25 feet below gage; practically permanent.

EXTREMES OF DISCHARGE.—Maximum stage during year, 2.56 feet at 11 p. m. May 17 to 2 a. m. May 18 (discharge, 974 second-feet); minimum stage not recorded.

1921–1924; Maximum stage 3.50 feet at 1 p. m. June 13, 1923 (discharge, 1,940 second-feet); minimum stage not determined.

DIVERSIONS.—None above station.

REGULATION.—Flow affected by storage and release of water from Brown Duck Lake Reservoir.

ACCURACY.—Stage-discharge relation permanent. Standard rating curve fairly well defined. Water-stage recorder operated satisfactorily, October 1–17 and May 14 to September 30 except June 19–28 and September 12–21. Daily discharge ascertained by applying to rating table mean daily gage height determined from recorder graph, except June 19–28 and September 12–21, for which discharge was estimated. Records fair.

Discharge measurement of West Fork of Lake Fork near Mountain Home, Utah, during the year ending September 30, 1924

Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*
May 14	2.12	612	Aug. 5	0.54	74.1
June 29	.88	123	Sept. 22	.29	42.1

Daily discharge, in second-feet, of West Fork of Lake Fork near Mountain Home, Utah, for the year ending September 30, 1924

Day	Oct.	May	June	July	Aug.	Sept.	Day	Oct.	May	June	July	Aug.	Sept.
1	42	------	214	124	54	44	16	43	760	246	84	52	43
2	44	------	260	124	51	44	17	43	880	224	76	50	43
3	56	------	335	124	47	44	18	------	880	205	70	47	43
4	96	------	395	124	48	44	19	------	848	190	64	46	43
5	124	------	428	124	67	44	20	------	746	180	61	47	42
6	124	------	382	127	70	44	21	------	690	170	59	47	42
7	122	------	360	134	63	44	22	------	620	160	58	46	42
8	118	------	289	141	56	43	23	------	521	155	55	46	43
9	116	------	240	129	53	44	24	------	457	150	47	45	43
10	113	------	224	122	52	44	25	------	462	145	48	45	41
11	109	------	240	120	51	44	26	------	414	140	47	45	41
12	76	------	260	120	51	44	27	------	323	135	48	45	40
13	46	------	285	111	51	44	28	------	270	130	62	45	40
14	43	634	300	100	51	43	29	------	233	127	64	45	41
15	43	669	281	91	52	43	30	------	227	124	61	45	41
							31	------	211	------	59	45	------

Monthly discharge of West Fork of Lake Fork near Mountain Home, Utah, for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October 1-17	124	42	79.9	2,690
May 14-31	880	211	547	19,500
June	428	124	232	13,800
July	141	47	89.6	5,510
August	70	45	50.3	3,090
September	44	40	42.8	2,550

LAKE FORK NEAR MYTON, UTAH

LOCATION.—In sec. 21, T. 3 S., R. 2 W., Uinta special base and meridian, 100 yards below highway bridge, half a mile above confluence with Duchesne River, and 3½ miles northwest of Myton, Duchesne County.

DRAINAGE AREA.—468 square miles (measured on topographic map).

RECORDS AVAILABLE.—July 3, 1900, to December 31, 1903; June 13, 1907, to November 30, 1910; July 26, 1911, to September 30, 1924.

GAGE.—Stevens continuous water-stage recorder installed October 4, 1921; inspected by C. J. Preece and Anton Verholc.

DISCHARGE MEASUREMENTS.—Made from cable or by wading.

CHANNEL AND CONTROL.—Channel fairly straight for several hundred feet above and below gage. Banks high and not subject to overflow. Bed composed of silt and gravel. Gravel riffle about 300 feet below gage; fairly permanent.

EXTREMES OF DISCHARGE.—Maximum stage during year, 4.03 feet at 8 a. m. May 18 (discharge, 875 second-feet); minimum discharge less than 4 second-feet during parts of July, August, and September.

1900–1903, 1907–1924: Maximum stage, 9.4 feet, June 22 and 23, 1917 (discharge, 4,350 second-feet); minimum discharge July 24, 1916, probably zero.

ICE.—Stage-discharge relation seriously affected by ice every winter.

DIVERSIONS.—No diversions below station; several canals of the United States Office of Indian Affairs and some privately owned canals divert water above for irrigation. Some return water from irrigation enters a short distance above station.

REGULATION.—Flow affected by irrigation diversions above.

ACCURACY.—Stage-discharge relation permanent; affected by ice during winter. Rating curve well defined. Water-stage recorder operated satisfactorily except as stated in footnote to daily-discharge table. Daily discharge ascertained by applying mean daily gage height to rating table. Discharge, for periods of missing gage height and periods of ice effect, estimated by comparison with all Duchesne River stations or interpolated. Records fair.

Discharge measurements of Lake Fork near Myton, Utah, during the year ending September 30, 1924

Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*
May 10	1.73	72.4	June 28	0.89	6.5
May 15	3.04	421	Sept. 19	.98	9.4

Daily discharge, in second-feet, of Lake Fork near Myton, Utah, for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	105	146					74	13		7	7	4
2	107	146					84	13	75	6	6	4
3	103	146					89	9		6	5	4
4	101	137					128	10		8	5	4
5	137	133					144	15	99	8	5	4
6	141	131					162	17	67	8	5	5
7	139	133					172	12		10	5	4
8	135	128					192	13		9	4	4
9	192	122					170	13		9	4	6
10	182	131					133	43	30	9	4	18
11	174	172						29		11	4	15
12	167	153						59		12	4	10
13	160	126						274	41	12	4	10
14	155	118						428	92	11	7	9
15	157	112			100		90	408	47	8	12	9
16	164	110	80	75		90		435		7	11	10
17	197	108						611		6	10	9
18	205	107					47	720		5	10	9
19	197	96					35	715		5	10	10
20	203	103					36	566		4	10	10
21		101					29	488	10	4	9	13
22		103					36	488		4	8	13
23		103					53	271		4	8	14
24	175	103					35	139		5	7	12
25		99					20	118		5	6	12
26		87					18	108	8	5	6	13
27	94						18		8	6	6	14
28	139						18		7	6	4	12
29	144	85					17	75	6	12	4	10
30	144				-------		15		5	15	6	10
31	137	-------			-------	66	-------		-------	8	4	-------

NOTE.—No gage heights and discharge estimated Oct. 21–26, Nov. 27 to Mar. 30, Apr. 11–17, 24, May 27 to June 4, June 7–12, 16–25, July 16–18, 21–25, Aug. 6–8, 21, and 22. Braced figures show estimated mean discharge for periods indicated.

Monthly discharge of Lake Fork near Myton, Utah, for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	205	101	156	9,590
November	172	----------	116	6,900
December	----------	----------	* 80	4,920
January	----------	----------	* 75	4,610
February	----------	----------	* 100	5,750
March	----------	----------	89.2	5,480
April	192	15	78.5	4,670
May	720	9	206	12,700
June	----------	5	32.0	1,900
July	15	4	7.6	467
August	12	4	6.5	400
September	18	4	9.4	559
The year	720	4	79.8	57,900

* Estimated.

UINTA RIVER NEAR NEOLA, UTAH

LOCATION.—In SE. ¼ sec. 26, T. 2 N., R. 2 W., Uinta special base and meridian, 800 feet above tailrace of Uinta Power & Light Co.'s plant (Pole Creek unit), 1½ miles above mouth of Pole Creek, and 9 miles north of Neola, Duchesne County.

DRAINAGE AREA.—181 square miles.

RECORDS AVAILABLE.—July 30, 1921, to September 30, 1924; fragmentary.

GAGE.—Vertical staff on left bank installed July 8, 1923; washed away during high water in 1924; new staff gage to new datum installed July 1, 1924, at same location; read by L. V. Crapo.

DISCHARGE MEASUREMENTS.—Made by wading or from log bridge 1,000 feet below gage.

CHANNEL AND CONTROL.—Channel steep and rough. Bed composed of boulders and gravel. Banks fairly high and probably not subject to overflow, unless channel changes, which may readily occur during high water.

ICE.—River freezes over every winter.

DIVERSIONS.—None above station.

REGULATION.—None.

ACCURACY.—Stage-discharge relation changed during high water; affected by ice November 25–30. Rating curves fairly well defined. Gage read to hundredths once or twice daily, except as stated in footnote to daily-discharge table. Daily discharge ascertained by applying daily gage height or mean daily gage height to rating table. Records fair.

The following discharge measurements were made:

July 1, 1924: Gage height, 0.65 foot; discharge, 172 second feet.[6]

August 13, 1924: Gage height, 0.35 foot; discharge, 127 second-feet.[6]

September 23, 1924: Gage height, 0.18 foot; discharge, 97.2 second-feet.[6]

Daily discharge, in second-feet, of Uinta River near Neola, Utah, for the year ending September 30, 1924

Day	Oct.	Nov.	July	Aug.	Sept.	Day	Oct.	Nov.	July	Aug.	Sept.
1		156	172	133	102	16		148	148	106	96
2		155	------	133	102	17	180	148	146	99	99
3		155	------	126	99	18		147	142	96	96
4		156	------	120	106	19	181	147	137	92	99
5		156	------	116	109	20	184	147	133	108	99
6		155	------	126	116	21	177	148	133	99	99
7		154	------	120	116	22	172	148	126	99	98
8	180	153	------	120	113	23	167	148	126	102	98
9		153	------	113	120	24	163		126	106	
10		152	------	109	126	25	163		126	99	
11		152	------	113	113	26	163	145	126	96	95
12		151	------	108	106	27	163		126	92	
13		151	------	116	99	28	163		172	92	
14		150	------	106	99	29	162		151	96	
15		149	------	113	99	30	160		142	96	
						31	158	------	137	106	------

NOTE.—Discharge includes flow of Uinta Power & Light Co.'s tailrace. No gage-height record Oct. 1–18, 28, 30, 31, Nov. 1, 3, 4, 6–8, 10–13, 15–17, 19–22, 24, 26–29, July 23–26, Sept. 20–22, and 24–30. Braced figures show estimated mean discharge for periods indicated.

[6] Includes flow of Uinta Power & Light Co.'s tailrace.

Monthly discharge of Uinta River near Neola, Utah, for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October		158	175	10.800
November	156		150	8,930
July 16–31	172	126	137	4,350
August	133	92	108	6,640
September	126		102	6,070

WHITEROCKS CREEK NEAR WHITEROCKS, UTAH

LOCATION.—In sec. 18, T. 2 N., R. 1 E., Uinta special base and meridian, 8 miles north of Whiterocks, Uinta County. United States Whiterocks Canal diverts from left side and Farm Creek Canal from right side 2 miles below station.

DRAINAGE AREA.—118 square miles.

RECORDS AVAILABLE.—August 1, 1921, to September 30, 1924, at present site; fragmentary. November 8, 1917, to June 2, 1921, at a point about 2 miles downstream below diversion of United States Whiterocks Canal and above Farm Creek Canal. 1899 to 1904 and 1907 to 1910 somewhere in vicinity of present site. Records are comparable.

GAGE.—Stevens continuous water-stage recorder on left bank, installed August 4, 1921; inspected by C. J. Preece.

DISCHARGE MEASUREMENTS.—Made by wading or from cable a quarter of a mile above gage.

CHANNEL AND CONTROL.—Narrow box canyon. Stream bed is steep and rough; composed of boulders and gravel. Channel is subject to change by erosion during high water.

EXTREMES OF DISCHARGE.—Maximum stage during year, 3.13 feet at 10 p. m. May 16 (discharge, 653 second-feet); minimum stage occurred during winter.

1918–1924: Maximum stage recorded, 5.40 feet at 9 p. m. June 20 and 7 p. m. June 21, 1922 (discharge, 2,750 second-feet); minimum discharge less than 14 second-feet in the winter 1920–21.

ICE.—Stream freezes over every winter.

DIVERSIONS.—After August 1, 1921, above all diversions.

REGULATION.—None.

ACCURACY.—Stage-discharge relation changed during winter when no records were obtained. Rating curves well defined. Operation of water-stage recorder satisfactory, except November 25–30 and June 21–26. Daily discharge ascertained by applying to rating table mean daily gage height determined from recorder graph. Daily discharge November 25–30 and June 21–26, estimated or interpolated. Records good.

Discharge measurements of Whiterocks Creek near Whiterocks, Utah, during the year ending September 30, 1924

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec. ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 15	2.10	73.1	June 27	2.09	84.3	Aug. 23	1.98	51.4
May 13	2.61	310	July 28	2.05	74.4	Sept. 19	1.96	43.8

Daily discharge, in second-feet, of Whiterocks Creek near Whiterocks, Utah, for the year ending September 30, 1924

Day	Oct.	Nov.	May	June	July	Aug.	Sept.
1	91	67	--------	140	79	76	50
2	86	67	--------	144	76	70	44
3	86	63	--------	147	73	63	44
4	91	63	--------	159	70	63	44
5	120	63	--------	163	70	63	50
6	115	63	--------	151	76	63	53
7	105	59	--------	151	86	63	50
8	100	59	--------	144	96	60	47
9	100	59	--------	132	79	57	63
10	100	63	--------	124	83	57	73
11	96	67	--------	120	106	57	73
12	91	67	--------	120	100	57	60
13	86	59	377	128	83	57	53
14	81	59	407	140	76	57	47
15	81	59	383	140	70	57	44
16	81	55	419	132	70	57	47
17	81	55	452	124	67	53	57
18	76	55	413	120	63	50	50
19	81	55	377	117	60	47	44
20	76	55	332	110	57	53	50
21	76	55	299	107	60	57	53
22	76	55	263	104	60	53	53
23	81	52	239	101	57	50	50
24	76	52	206	98	57	50	47
25	76		197	95	60	50	42
26	76		197	92	63	47	44
27	71	50	176	89	63	50	42
28	67		155	86	73	57	44
29	67		151	83	79	57	42
30	59		147	79	79	60	42
31	63	--------	144	--------	70	57	--------

NOTE.—Braced figure shows estimated mean discharge for period indicated.

Monthly discharge of Whiterocks Creek near Whiterocks, Utah, for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	120	59	84.3	5,180
November	67	----------	57.5	3,420
May 13-31	452	144	281	10,600
June	163	79	121	7,200
July	106	57	72.9	4,480
August	76	47	57.0	3,500
September	73	42	50.1	2,980

PRICE RIVER NEAR HELPER, UTAH

LOCATION.—In SE. ¼ sec. 36, T. 13 S., R. 9 E., at highway bridge three-quarters of a mile above diversion dam of Price River Irrigation Co., 2 miles south of Helper, Carbon County, and 3 miles below Spring Creek.

DRAINAGE AREA.—530 square miles (measured on topographic map).

RECORDS AVAILABLE.—February 21, 1904, to September 30, 1924.

GAGE.—Chain gage on highway bridge, installed May 29, 1922; inspected by D. S. Rowley.

DISCHARGE MEASUREMENTS.—Made from highway bridge or by wading.

CHANNEL AND CONTROL.—Bed of stream composed of gravel and sand. One channel at all stages. Control is a riffle of gravel and cobbles.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 10.40 feet at 5.30 p. m. August 13 (discharge, 2,680 second-feet); minimum stage, 6.42 feet August 30 and 31 (discharge, 7 second-feet).

1904–1924: Summer floods occur nearly every year and often greatly exceed any recorded stage. Maximum stage recorded for which discharge was determined, 8.43 feet at 9 p. m. June 25, 1917, determined by leveling from hub set at high-water mark (discharge determined from extension of rating curve, 8,500 second-feet). Minimum discharge, 4 second-feet during December, 1905, and January, 1906.

ICE.—Stage-discharge relation affected by ice nearly every winter.

DIVERSIONS.—Main diversions from Price River are below station.

REGULATION.—Practically none.

ACCURACY.—Stage-discharge relation permanent throughout year; affected by ice as noted in footnote to daily-discharge table. Rating curve well defined below 200 second-feet and extended above. Gage read to hundredths once daily with occasional omissions and twice daily during periods of rapidly changing stage. Daily discharge ascertained by applying daily gage height to rating table. Discharge for period of ice effect estimated from temperature records and observer's notes. Discharge interpolated or estimated for days when no gage heights were obtained and for small floods July 11–13, August 13–15, and September 5–7, from observer's notes. Records good.

Discharge measurements of Price River near Helper, Utah, during the year ending September 30, 1924

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 30	6.94	46.8	May 16	7.41	159	Sept. 18	6.60	14.1
Feb. 15	7.08	66.8	Aug. 19	6.47	8.9			

Daily discharge, in second-feet, of Price River near Helper, Utah, for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	58	54	43			34	40	144	122	19	14	8
2	56	61	43			47	46	196	108	16	12	8
3	54	58	44			47	259	179	98	16	11	8
4	54	54	26		40	47	259	189	90	16	15	9
5	52	54	20			47	415	199	81	18	15	300
6	54	52	15			47	500	234	70	21	12	50
7	54	43			42	47	500	219	66	21	10	100
8	71	48			39	47	564	226	62	19	12	100
9	88	48			39	40	534	226	59	19	11	108
10	79	54			39	39	396	212	56	18	11	192
11	72	61			44	42	274	219	50	50	12	44
12	64	64			50	39	252	212	44	30	11	30
13	64	56			72	37	216	212	42	15	500	15
14	64	48	20		85	37	202	205	39	13	100	14
15	64	43			81	36	183	186	38	13	300	12
16	64	33		30	70	46	164	164	32	14	21	13
17	64	40			75	46	136	161	24	14	12	13
18	64	38			81	46	149	155	27	12	12	15
19	61	40			50	46	167	155	30	11	10	13
20	59	36			56	46	176	144	30	10	11	13
21	58	31	37		53	46	186	130	30	11	9	15
22	61	38			50	39	205	117	30	11	10	16
23	61	38			47	39	212	112	26	12	11	18
24	58	38			40	39	212	108	24	11	11	18
25	58	38			34	39	186	115	24	10	11	15
26	54	29			40	46	144	122	24	12	10	15
27	54	36	30		37	54	136	149	20	12	9	16
28	52	37			34	52	127	155	16	32	9	16
29	52	40			32	52	127	117	21	44	8	16
30	50	43			-------	42	127	136	19	16	7	16
31	52	-------			-------	31	-------	136	-------	14	7	-------

NOTE.—Stage-discharge relation affected by ice; discharge estimated Dec. 5–20, 22–31, and Jan. 1 to Feb. 6. Braced figures show estimated mean discharge for periods indicated.

Monthly discharge of Price River near Helper, Utah, for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	88	50	60.3	3,710
November	64	29	45.1	2,680
December	44		26.1	1,600
January			[a] 30	1,840
February	85		49.3	2,840
March	54	31	43.3	2,660
April	564	40	236	14,000
May	234	108	169	10,400
June	122	16	46.7	2,780
July	50	10	17.7	1,090
August	500	7	39.2	2,410
September	300	8	40.9	2,430
The year	564	7	66.8	48,400

[a] Estimated.

HUNTINGTON CREEK NEAR HUNTINGTON, UTAH

LOCATION.—In SE. ¼ sec. 6, T. 17 S., R. 8 E., at Cunha ranch, 7 miles northwest of Huntington, Emery County. Below all main tributaries, except Fish Creek, which enters 1 mile downstream.

DRAINAGE AREA.—188 square miles (measured on United States Forest Service map, 1920).

RECORDS AVAILABLE.—May 3, 1909, to September 30, 1924; fragmentary.

GAGE.—Stevens continuous water-stage recorder on right bank installed September 11, 1917; inspected by Joseph Cunha.

DISCHARGE MEASUREMENTS.—Made by wading or from bridge at gage.

CHANNEL AND CONTROL.—Bed composed of gravel and sand. Control of coarse gravel; fairly permanent. Point of zero flow at gage height, 1.1 or 1.2 feet; determined September 17, 1924.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 3.34 feet at 11 p. m. May 3 (discharge, 308 second-feet). A higher stage may have been reached during the rise September 8–10 when recorder was not working. Minimum stage not recorded.

1909–1924: Maximum discharge, 1,340 second-feet at 9.30 p. m. May 25, 1920, and at 11 p. m. May 25, 1922. Discharge may have been greater in 1921. Minimum discharge recorded, 12 second-feet March 20–23, 1912.

ICE.—Stage-discharge relation seriously affected by ice.

DIVERSIONS.—Several small ditches from tributaries above the station.

REGULATION.—A small storage reservoir on Huntington Creek above the station controls distribution of flow to a slight extent.

ACCURACY.—Stage-discharge relation permanent during year; affected by ice December to March. Rating curve well defined between 30 and 700 second-feet. Operation of water-stage recorder satisfactory, except as noted in footnote to daily-discharge table. Daily discharge ascertained by applying to rating table mean daily gage height determined from recorder graph. Records good, except estimates, which are probably fair.

Discharge measurements of Huntington Creek near Huntington, Utah, during the year ending September 30, 1924

Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Feb. 23	1.90	30.1	Aug. 22	1.92	30.2
May 17	2.95	193	Sept. 17	1.92	31.0

Daily discharge, in second-feet, of Huntington Creek near Huntington, Utah, for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	49	42						114	116	83	45	26
2	49	42						145	124	83	44	26
3	50	42						200	138	74	43	25
4	49	41					50	230	145	83	43	25
5	46	41						211	140	85	43	58
6	46	42						178	134	88	42	54
7	45	42						183	116	86	42	30
8	47	43					72	200	124	82	40	30
9	48	43					72	224	107	83	40	100
10	50	45					68	247	107	86	39	100
11	52	45					59	247	107	82	37	76
12	50	44					62	250	107	77	34	68
13	48	43					80	238	107	74	35	55
14	47	42					93	230	114	70	30	37
15	46	41			30		72	219	111	63	39	32
16	45	40	40	35		30	45	235	107	62	32	33
17	45	40					55	230	102	59	39	32
18	43	40					83	227	105	58	34	31
19	47	41					83	224	97	52	33	30
20	46	42					93	200	89	46	32	31
21	47	40					134	176	81	46	34	31
22	48	41					130	158	74	45	31	31
23	50	41					136	160	67	43	31	30
24	50	41					85	162	60	43	31	30
25	51	42					56	165	53	43	30	29
26	50	42					65	196	55	43	29	29
27	45	42					75	167	60	44	29	33
28	45	43					85	138	63	58	28	33
29	45	44					95	130	65	51	27	33
30	40	43			-------		105	134	74	48	27	32
31	42	-------			-------		-------	140	-------	45	27	-------

NOTE.—No gage-height record; discharge estimated or interpolated Oct. 9–17, 27–31, Nov. 1–3, 12–21, 23–28, Apr. 1–7, 26–30, May 23, 24, June 19–24, Sept. 8–10, 26, and 27. Ice effect Dec. 2 to Mar. 31; discharge estimated. Braced figures show estimated mean discharge for periods indicated.

Monthly discharge of Huntington Creek near Huntington, Utah, for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	52	40	47.1	2,900
November	45	40	42.0	2,500
December	----------	----------	[a] 40	2,460
January	----------	----------	[a] 35	2,150
February	----------	----------	[a] 30	1,730
March	----------	----------	[a] 30	1,840
April	136	----------	75.1	4,470
May	250	114	192	11,800
June	145	53	98.6	5,870
July	88	43	64.0	3,940
August	45	27	35.2	2,160
September	100	25	40.3	2,400
The year	250	----------	60.9	44,200

[a] Estimated.

COTTONWOOD CREEK NEAR ORANGEVILLE, UTAH

LOCATION.—In SW. ¼ sec. 10, T. 18 S., R. 7 E., at Sitterud ranch, 5 miles northwest of Orangeville, Emery County.

DRAINAGE AREA.—200 square miles (measured on United States Forest Service map, 1920).

RECORDS AVAILABLE.—May 1, 1909, to September 30, 1924; fragmentary.

GAGE.—Stevens continuous water-stage recorder installed August 11, 1921, on left bank near ranch house; inspected by George Sitterud.

DISCHARGE MEASUREMENTS.—Made from cable 500 feet downstream or by wading.

CHANNEL AND CONTROL.—Bed rough; shifting. Banks fairly high, but have been overflowed by sudden floods, to which the stream is subject. Control of gravel and sand.

EXTREMES OF DISCHARGE.—Maximum stage during year, 5.08 feet at 8.30 p. m. May 17 (discharge, 653 second-feet); minimum discharge not determined.

1909–1924: Maximum stage recorded, 9.1 feet about 10 p. m. August 22 1922 (discharge estimated by extension of rating curve, 2,500 second-feet); minimum discharge recorded, 5 second-feet, September 21, 1910.

ICE.—Stage-discharge relation affected by ice every winter.

DIVERSIONS.—Two or three small ditches divert water above station, but all the main ditches take out below.

REGULATION.—None.

ACCURACY.—Stage-discharge relation changed slightly about April 27 to May 5. Rating curves well defined below 600 second-feet and extended above. Water-stage recorder operated fairly successfully, except as stated in footnote to daily-discharge table. Daily discharge ascertained by applying mean daily gage height to rating table. Records fair, except those for October, November, and July to September, which are good.

Discharge measurements of Cottonwood Creek near Orangeville, Utah, during the year ending September 30, 1924

Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Feb. 23	[a] 2.36	15.7	Aug. 22	2.50	19.6
May 17	4.80	542	Sept. 17	2.48	18.5

[a] Stage-discharge relation affected by ice.

Daily discharge, in second-feet, of Cottonwood Creek near Orangeville, Utah, for the year ending September 30, 1924

Day	Oct.	Nov.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	37	34		29	114	250	65	34	16
2	37	30		31	131	260	65	29	16
3	37	32		38	147	300	64	24	16
4	37	30	15	34	164	326	61	25	15
5	36	30		51	180	317	64	26	24
6	36	31		68	199	297	143	24	22
7	37	31		85	218	247	82	24	18
8	44	34	20	78	237	260	59	24	17
9	40	35	20	70	256	220	52	25	85
10	42	37	23	62	275	180	62	24	94
11	44	35	23	54	294	140	61	24	45
12	42	34	23	46	338	140	55	26	27
13	41	31	23	51	401	150	47	28	21
14	34	32	24	55	368	200	46	40	20
15	33	32	24	55	384	170	44	30	19
16	34	32	24	55	467	140	43	22	20
17	37	31	25	56	504	136	42	18	19
18	34	31	28	56	504	136	40	19	16
19	36	34	28	56	478	128	40	19	15
20	35	37	28	75	460	120	35	20	15
21	36	32	28	91	441	118	35	21	16
22	37	36	27	90	391	108	31	20	17
23	37	35	27	88	368	98	30	20	16
24	36	36	27	90	344	89	26	21	17
25	37	34	27	86	347	85	26	19	16
26	34	31	23	83	359	81	25	19	16
27	32	32	24	80	288	77	28	19	18
28	32	31	25	77	247	73	60	18	18
29	32	32	26	84	265	69	42	18	18
30	28	32	27	98	285	66	42	17	19
31	31	-------	28	-------	300	-------	39	17	-------

NOTE.—No gage-height record; discharge interpolated or estimated Nov. 28, 29, Mar. 1–7, 11–16, 19–24, 28–31, Apr. 1, 5–7, 9–11, 15–18, 22–27, May 1–4, 6–10, 29–31, June 1, 8–15, 19, 22, 23, and 25–29. No record Dec. 1 to Feb. 29; estimates not attempted for lack of sufficient basis.

Monthly discharge of Cottonwood Creek near Orangeville, Utah, for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	44	28	36.3	2,230
November	37	30	32.8	1,950
March	28	----------	22.8	1,400
April	98	29	65.7	3,910
May	504	114	315	19,400
June	326	66	166	9,880
July	143	25	50.1	3,080
August	40	17	23.0	1,410
September	94	15	23.7	1,410

PARIA RIVER BASIN

PARIA RIVER AT LEES FERRY, ARIZ.

LOCATION.—On unsurveyed land, a mile above mouth and a mile northwest of Lees Ferry, Coconino County. Paria River enters Colorado River at Lees Ferry.

DRAINAGE AREA.—1,520 square miles (measured on topographic maps).

RECORDS AVAILABLE.—November 22, 1923, to September 30, 1924.

GAGE.—Slope gage on right bank; read by J. E. Klohr.

DISCHARGE MEASUREMENTS.—Made by wading near gage.

CHANNEL AND CONTROL.—Channel straight for 100 feet above and below gage. Right bank of rock, high and not subject to overflow. Left bank of sand and gravel, low and subject to overflow during floods. Bed composed of sand and gravel. Gravel riffle 200 feet downstream from gage.

EXTREMES OF DISCHARGE.—Maximum stage recorded during period of record 6.0 feet at 9 a. m. September 10 (discharge, 4,330 second-feet); minimum discharge probably zero on several nights in December and January when river froze solid.

ICE.—Some ice is apt to occur each winter at this station.

DIVERSIONS.—About 1,000 acres irrigated from Paria River. Station is below all diversions.

REGULATION.—None.

ACCURACY.—Stage-discharge relation not permanent. Standard rating curve fairly well defined up to 3,000 second-feet, extended above. Thirty-five discharge measurements made during year. Gage read to hundredths four times a week. Daily discharge ascertained by applying daily gage height to rating table, except for period December 15 to January 31, for which period discharge was estimated on account of ice. Shifting-control method used for entire year. Discharge interpolated for days when gage was not read. Records good.

Discharge measurements of Paria River at Lees Ferry, Ariz., during the year ending September 30, 1924

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Nov. 22	0.82	28.7	Mar. 28	0.85	39.4	July 10	0.59	16.0
Dec. 8	.78	27.5	Apr. 7	.78	29.5	July 18	.28	4.0
Dec. 17	.90	39.5	Apr. 18	.60	19.4	July 22	.21	2.5
Dec. 22	.87	40.3	Apr. 29	.37	6.2	July 29	1.45	270
Jan. 2	[a] .29	1.8	May 8	.31	4.0	Aug. 9	.20	3.1
Jan. 22	[a] .79	29.7	May 19	.29	3.2	Aug. 22	.18	6.0
Jan. 30	.88	35.9	May 26	.30	3.4	Aug. 31	.13	3.6
Feb. 8	.91	49.7	May 30	.42	8.5	Sept. 10	5.0	[b] 3,260
Feb. 12	.74	32.6	June 9	.30	3.2	Sept. 11	1.80	432
Feb. 26	.62	20.1	June 14	.31	3.2	Sept. 21	.71	7.4
Mar. 7	.62	19.6	June 24	.28	3.0	Sept. 26	.78	8.7
Mar. 12	.72	29.4	July 1	.32	4.0			

[a] Stage-discharge relation affected by ice.
[b] Velocities for greater part of measurement determined by use of floats.

Daily discharge, in second-feet, of Paria River at Lees Ferry, Ariz., for the year ending September 30, 1924

Day	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	-------	30		22	21	37	7	7	4	17	4
2	-------	30		25	22	34	6	7	4	10	4
3	-------	30		28	22	32	5	6	4	5	4
4	-------	30		31	22	31	5	5	4	3	4
5	-------	30		38	21	30	5	4	4	3	10
6	-------	29		46	20	30	5	4	5	3	17
7	-------	28		47	20	29	5	3	12	3	103
8	-------	28		48	20	29	4	3	17	3	103
9	-------	24		38	19	28	4	3	16	3	177
10	-------	21		28	19	28	5	3	16	3	1,540
11	-------	14		30	20	28	4	3	26	3	774
12	-------	8		32	21	29	4	3	18	3	35
13	-------	5		34	21	30	4	3	14	4	19
14	-------	4		36	22	30	4	3	11	5	21
15	-------	4		39	23	31	4	3	16	12	23
16	-------		15	35	23	32	4	3	10	11	26
17	-------			31	24	26	4	3	4	10	28
18	-------			27	25	19	4	3	4	9	31
19	-------			28	29	18	3	3	4	8	20
20	-------			30	28	17	3	3	4	7	10
21	-------			31	27	16	3	3	5	6	8
22	29			24	26	13	3	3	5	6	7
23	29	20		18	25	10	3	3	5	6	6
24	29			18	24	12	3	3	5	6	6
25	29			19	24	13	4	3	6	6	6
26	29			20	23	12	4	3	6	6	8
27	29			19	31	12	10	3	26	6	9
28	30			18	39	8	15	3	428	5	10
29	30			20	38	6	12	3	336	4	10
30	30			-------	36	6	8	3	41	4	10
31	-------			-------	36	-------	8	-------	29	4	-------

Monthly discharge of Paria River at Lees Ferry, Ariz., for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
November 22-30	30	29	29.3	523
December	30	4	20.5	1,260
January			15.0	922
February	48	18	29.7	1,710
March	39	19	24.9	1,530
April	37	6	22.5	1,340
May	15	3	5.2	320
June	7	3	3.5	208
July	428	4	35.1	2,160
August	17	3	5.9	363
September	1,540	4	101	6,010
The period				16,300

LITTLE COLORADO RIVER BASIN

ZUNI RIVER AT BLACKROCK, N. MEX.

LOCATION.—At reservoir on Zuni Indian Reservation at Blackrock, McKinley County. Rio de los Nutrias, nearest large tributary, enters from north about 4 miles above.

DRAINAGE AREA.—About 660 square miles.

RECORDS AVAILABLE.—Yearly discharge July 1, 1903, to June 30, 1905; July 1, 1908, to June 30, 1910. Monthly discharge October 1, 1910, to September 30, 1924. Record since July 1, 1908, shows inflow into reservoir.

METHOD OF COLLECTING DATA.—From July 1, 1903, to June 30, 1905, records were obtained by the ordinary stream-gaging methods. Reservoir completed in 1908. Record beginning July 1, 1908, obtained by means of gage in reservoir and capacity curve for reservoir, quantity of water released from the reservoir during the periods of inflow being taken into consideration.

EXTREMES OF DISCHARGE.—Channel dry greater part of the year below point where it leaves mountains, but stream is subject to sudden floods of considerable volume and usually of short duration.

DIVERSIONS.—Reservoir at Ramah, about 18 miles above station, capacity of which is given as 4,240 acre-feet, is used to irrigate about 1,150 acres in T. 11 N., R. 16 W. There are other small ponds or reservoirs in drainage area.

COOPERATION.—Record furnished by the United States Office of Indian Affairs through H. F. Robinson, supervising engineer, Albuquerque, N. Mex.

Monthly run-off of Zuni River at Blackrock, N. Mex., for the year ending September 30, 1924

Month	Run-off in acre-feet	Month	Run-off in acre-feet	Month	Run-off in acre-feet
October	7	March	172	August	1,200
November	681	April	5,890	September	210
December	2,390	May	457		
January	0	June	0	The year	11,900
February	689	July	200		

BRIGHT ANGEL CREEK BASIN

BRIGHT ANGEL CREEK NEAR GRAND CANYON, ARIZ.

LOCATION.—In the Grand Canyon of Arizona, on Kaibab trail to north rim, a quarter of a mile above point where creek enters Colorado River and 11 miles by trail from Grand Canyon, Coconino County.

DRAINAGE AREA.—102 square miles (measured on topographic maps).

RECORDS AVAILABLE.—October 1, 1923, to September 30, 1924.

GAGE.—Vertical staff on left bank; read by G. G. Sykes, B. S. Barnes, and R. G. Kasel.

DISCHARGE MEASUREMENTS.—Made by wading near gage.

CHANNEL AND CONTROL.—Channel steep and rough. Left bank not subject to overflow. Right bank subject to overflow by occasional short floods. Bed composed of gravel and boulders. Boulder riffle just below gage. Control generally changed by each flood.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 4.7 feet at 11 a. m. September 10 (discharge estimated by extension of rating curve, 530 second-feet); minimum stage, 0.39 foot, August 24 and 26 (discharge, 22 second-feet).

ICE.—None.

DIVERSIONS.—Water for irrigating a few acres at Phantom ranch is diverted about three-quarters of a mile above gage.

REGULATION.—None.

ACCURACY.—Stage-discharge relation not permanent. Rating curve well defined from 20 to 100 second-feet, extended above. Gage read to hundredths once a day. Daily discharge ascertained by applying daily gage height to rating table, using shifting-control method. Discharge interpolated October 21–23, November 9, December 7, 21, February 5, and June 24. Discharge estimated October 1–19. Records fair.

Discharge measurements of Bright Angel Creek near Grand Canyon, Ariz., during the period February 19, 1923, to September 30, 1924

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
1923	*Feet*	*Sec.-ft.*	1924	*Feet*	*Sec.-ft.*	1924	*Feet*	*Sec.-ft.*
Feb. 19		30.0	Mar. 28	0.59	28.8	June 7	0.60	27.7
Sept. 12		33.5	Apr. 4	.58	27.6	June 19	.51	29.2
Oct. 20	0.58	28.4	Apr. 9	.94	43.6	July 10	.51	24.5
Nov. 17	.6	35.0	Apr. 12	1.06	49.4	July 17	.49	25.5
Dec. 15	.57	30.9	Apr. 16	1.28	64	July 30	.50	25.9
			Apr. 24	1.45	81	Aug. 9	.49	25.4
1924			May 8	1.29	63	Sept. 9	1.28	67
Jan. 23	.57	31.6	May 14	1.20	59	Sept. 20	.60	24.6
Feb. 23	.55	30.0	May 17	1.03	47.1	Sept. 30	.58	21.4
Mar. 17	.58	30.7						

Daily discharge, in second-feet, of Bright Angel Creek near Grand Canyon, Ariz., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		33	34	33	31	30	29	64	30	29	24	24
2		33	33	32	33	30	29	64	29	29	23	23
3		33	33	32	31	31	29	63	28	59	24	26
4		33	33	32	31	31	28	64	27	28	24	26
5		33	33	32	31	31	28	63	27	40	24	25
6		32	33	31	31	30	31	62	28	29	23	25
7		32	33	31	31	30	34	64	28	27	23	26
8		33	33	32	31	30	41	63	28	26	24	26
9		33	32	32	31	29	43	63	29	24	26	40
10	28	34	32	32	31	29	46	64	29	24	23	108
11		35	32	32	31	29	52	64	28	24	24	28
12		34	33	32	31	29	52	64	27	24	23	26
13		34	32	32	31	30	52	60	27	24	25	25
14		34	31	32	33	30	59	58	28	24	23	25
15		34	31	33	32	33	69	52	28	24	23	25
16		33	31	32	30	33	64	50	28	24	23	24
17		34	31	33	30	31	58	47	28	26	22	25
18		34	32	32	30	31	48	46	29	26	22	24
19		35	31	32	31	30	50	45	29	26	22	25
20	28	35	31	32	30	30	60	43	29	26	22	25
21	28	34	32	32	30	34	66	41	29	26	24	25
22	28	34	32	32	30	31	73	40	29	26	24	24
23	29	34	32	32	30	29	77	40	28	26	23	
24	29	34	31	31	30	29	80	38	28	26	24	24
25	29	33	31	31	30	29	75	37	27	26	24	23
26	29	33	32	31	30	29	66	36	27	26	24	23
27	30	34	41	31	30	27	67	35	27	26	24	23
28	30	34	36	31	30	29	66	34	27	30	25	23
29	30	33	32	31	31	29	65	33	27	29	24	23
30	31	33	33	31	-------	28	64	32	28	26	23	22
31	31	-------	32	31	-------	28	-------	32	-------	26	24	-------

Monthly discharge of Bright Angel Creek near Grand Canyon, Ariz., for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	31	-------	28.5	1,750
November	35	32	33.6	2,000
December	41	31	32.5	2,000
January	33	31	31.8	1,960
February	33	30	30.8	1,770
March	34	27	30.0	1,840
April	80	28	53.4	3,180
May	64	32	50.4	3,100
June	30	27	28.0	1,670
July	59	24	27.6	1,700
August	26	22	23.5	1,440
September	108	22	27.8	1,650
The year	108	22	33.1	24,100

VIRGIN RIVER BASIN

VIRGIN RIVER AT VIRGIN, UTAH

LOCATION.—In NW. ¼ sec. 27 or NE. ¼ sec. 28, T. 41 S., R. 12 W., a few hundred feet above point where river enters a steep, narrow gorge and three-quarters of a mile west of Virgin, Washington County. Station replaces one maintained prior to February, 1915, half a mile above Virgin and gives practically the same record of flow.

DRAINAGE AREA.—1,010 square miles (measured on topographic map).

RECORDS AVAILABLE.—April 18, 1909, to September 30, 1924; fragmentary.

GAGE.—Chain gage on right bank near lower end of sandstone bluff. Installed February 1, 1915; read by Lawrence Earl.

DISCHARGE MEASUREMENTS.—Made by wading or from highway bridge 7 miles below gage.

CHANNEL AND CONTROL.—Bed consists of sand and gravel. Right bank high; left bank low and is overflowed. One channel at all stages. Principal control is a gravel bar a short distance below gage; shifting

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 6.00 feet at 6.15 a. m. September 10 (discharge, about 3,100 second-feet); minimum stage recorded, 2.48 feet June 28–30 (discharge, 51 second-feet).

1909–1924: Maximum stage recorded, 11.6 feet at upper station October 27, 1912 (discharge estimated, 12,000 second-feet). The flood of August 31, 1909, probably equalled or exceeded this flow. Minimum discharge, 24 second-feet, July 1, 2, 4, and 5, 1909.

ICE.—Stage-discharge relation not affected by ice.

DIVERSIONS.—Above all important diversions.

REGULATION.—None.

ACCURACY.—Stage-discharge relation variable. Rating curves poorly defined. Gage read to hundredths four or five times a week. Daily discharge ascertained by applying gage height to rating table and interpolating or estimating discharge for days when gage was not read. Records poor.

The following discharge measurements were made:

December 11, 1923: Gage height, 2.91 feet; discharge, 142 second-feet.

June 5, 1924: Gage height, 2.65 feet; discharge, 92.0 second-feet.

Daily discharge, in second-feet, of Virgin River at Virgin, Utah, for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	123	156	157	196	109	83	68	200	109	56	70	81
2	134	160	148	165	95	87	77	312	94	61	70	70
3	145	165	139	162	112	90	86	312	79	67	75	60
4	156	153	130	159	130	84	95	336	84	73	80	62
5	116	141	134	156	125	84	102	361	90	102	90	64
6	146	130	139	156	120	84	143	215	95	236	82	243
7	176	156	120	156	115	84	184	270	93	543	73	422
8	206	183	102	156	109	92	225	205	92	225	70	601
9	236	209	112	156	95	100	236	270	90	109	68	700
10	95	236	123	156	95	109	215	215	88	120	68	2,000
11	104	281	130	165	95	100	194	215	86	130	68	174
12	114	218	132	156	106	90	236	215	84	132	60	159
13	123	156	135	165	116	82	283	156	84	134	58	143
14	131	152	137	175	113	73	330	165	81	135	57	127
15	139	148	139	184	111	74	355	139	77	137	55	111
16	130	144	134	194	109	76	156	156	74	139	63	95
17	110	139	130	194	103	77	148	165	71	116	71	82
18	90	144	148	194	96	78	156	156	68	102	79	68
19	84	148	165	165	90	79	205	148	64	97	84	70
20	79	144	156	165	96	79	215	165	60	92	85	73
21	79	139	148	165	102	87	225	109	60	88	87	73
22	79	136	139	184	99	95	281	106	60	84	89	73
23	74	133	130	194	96	106	293	104	60	85	90	76
24	68	130	139	205	93	116	215	102	64	85	84	79
25	99	157	148	215	90	103	165	120	61	80	79	77
26	130	184	156	208	92	90	130	138	58	80	84	75
27	128	191	165	201	95	110	225	156	55	80	84	73
28	125	198	152	194	87	130	165	142	51	75	84	70
29	123	205	139	171	79	115	174	129	51	75	93	68
30	123	165	259	147	-------	100	259	116	51	75	102	68
31	123	-------	227	123	-------	85	-------	109	-------	70	92	-------

NOTE.—Discharge Sept. 9 and 10 ascertained from a graph estimated from one daily gage reading Sept. 8–11.

Monthly discharge of Virgin River at Virgin, Utah, for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	236	68	122	7,500
November	281	130	167	9,940
December	259	102	146	8,980
January	215	123	174	10,700
February	130	79	103	5,920
March	130	73	91.7	5,640
April	355	68	195	11,600
May	361	102	184	11,300
June	109	51	74.5	4,430
July	543	56	119	7,320
August	102	55	77.2	4,750
September	2,000	60	205	12,200
The year	2,000	51	138	100,000

SANTA CLARA CREEK NEAR CENTRAL, UTAH

LOCATION.—In sec. 11, T. 39 S., R. 16 W., just above bridge at R. H. Hunt's ranch, 1 mile southeast of Central, Washington County, on road to Pine Valley. Hunt Spring, which has fairly constant discharge of about 3 second-feet, enters 40 feet below gage.

DRAINAGE AREA.—84 square miles (measured on topographic map).

RECORDS AVAILABLE.—April 21, 1909, to September 30, 1924.

GAGE.—Vertical enamel staff nailed to cottonwood tree on left bank about 50 feet above bridge; read by Mrs. R. H. Hunt.

DISCHARGE MEASUREMENTS.—Made by wading or from footbridge at gage.

CHANNEL AND CONTROL.—Stream bed consists of gravel and sand. Banks fairly high but may be overflowed at extreme stage; one channel at all stages. A riffle formed by small boulders 40 feet below gage is fairly permanent. Point of zero flow at gage height, 0.7 foot ±0.1 foot, determined June 9, 1923.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 1.32 feet at noon May 4 (discharge, 22 second-feet); minimum stage recorded, 0.94 foot July 22 (discharge, 5 second-feet).

1909–1924: Maximum stage recorded, 5.00 feet at 11 a. m. October 6, 1916 (discharge, 1,450 second-feet); minimum stage recorded, 0.82 foot January 8, 1920 (discharge, 4 second-feet).

ICE.—Stage-discharge relation seldom affected by ice.

DIVERSIONS.—The New Castle Reclamation Co. has a reservoir on Grass Valley Creek. It is reported that as much as 5,000 acre-feet has been put in this reservoir in a season. Water is diverted into reservoir from Santa Clara Creek above town of Pine Valley and exchanged for direct flow taken through rim of the Great Basin for irrigation of lands outside the Colorado River basin. Central Canal diverts water about 2 miles above station for irrigation of lands near Central. This canal has been measured when it was carrying 16 second-feet.

REGULATION.—Flow affected by the diversions and storage above.

ACCURACY.—Stage-discharge relation permanent during year. Rating curve well defined. Gage read to hundredths once daily three or four days a week. Daily discharge ascertained by applying daily gage height to rating table and interpolating discharge for days when gage was not read. Records fair.

The following measurements were made:

December 12, 1923: Gage height, 1.20 feet; discharge, 13.8 second-feet.

June 6, 1924: Gage height, 1.08 feet; discharge, 8.9 second-feet.

Daily discharge, in second-feet, of Santa Clara Creek near Central, Utah, for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	18	18	14	12	12	10	10	18	10	6	6	6
2	16	18	14	13	13	10	10	15	10	6	6	6
3	16	18	14	13	13	10	11	16	10	6	6	6
4	16	18	14	13	13	10	11	22	10	6	6	6
5	16	18	14	13	13	10	11	18	10	6	6	6
6	16	18	14	13	13	11	12	16	9	13	6	6
7	16	18	13	13	13	11	12	16	9	7	6	6
8	16	18	13	13	13	11	12	13	9	7	6	6
9	16	18	13	12	13	11	14	14	9	7	6	7
10	16	18	13	12	13	11	15	14	9	7	6	8
11	16	18	13	12	12	11	18	15	9	7	6	8
12	16	18	13	12	12	11	13	14	10	7	6	8
13	18	18	13	11	12	11	14	14	9	7	6	8
14	18	18	13	11	11	10	18	14	8	7	6	9
15	18	18	13	10	11	10	17	14	8	7	6	10
16	18	18	12	10	11	10	15	12	8	7	6	11
17	18	17	12	10	11	10	13	19	8	7	6	13
18	18	16	12	10	11	9	11	20	7	7	6	14
19	18	16	12	10	11	9	12	20	7	6	6	14
20	18	16	12	10	11	9	13	19	7	6	6	14
21	18	16	11	10	11	10	13	18	7	5	6	14
22	18	16	11	10	11	10	16	17	7	5	6	14
23	18	16	11	10	11	10	16	15	7	5	6	12
24	18	16	11	10	11	10	15	14	7	6	6	10
25	18	15	11	10	10	10	13	13	7	6	6	9
26	18	15	11	10	10	10	11	13	7	6	6	8
27	18	15	11	10	10	10	10	13	7	7	6	8
28	18	15	11	11	10	10	10	13	7	7	6	8
29	18	14	11	11	10	10	10	13	7	7	6	8
30	18	14	12	11	-------	10	10	12	7	6	6	8
31	18	-------	12	12	-------	10	-------	11	-------	6	6	-------

Monthly discharge of Santa Clara Creek near Central, Utah, for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	18	16	17.3	1,060
November	18	14	16.8	1,000
December	14	11	12.4	762
January	13	10	11.2	689
February	13	10	11.6	667
March	11	9	10.2	627
April	18	10	12.9	768
May	22	11	15.3	941
June	10	7	8.2	488
July	13	5	6.6	406
August	6	6	6.0	369
September	14	6	9.0	536
The year	22	5	11.5	8,310

GILA RIVER BASIN

GILA RIVER NEAR DUNCAN, ARIZ.

LOCATION.—In SE. ¼ sec. 18, T. 19 S., R. 20 W. New Mexico principal meridian, in New Mexico, 1¾ miles below intake of Sunset Canal, 9 miles east of Arizona-New Mexico boundary, and 14 miles east of Duncan, Greenlee County, Ariz.

DRAINAGE AREA.—3,280 square miles (measured on topographic map).

RECORDS AVAILABLE.—Discharge measurements only, January 10, 1923, to September 30, 1924. Miscellaneous measurements were made near this point from April 24 to November 21, 1922. Recording gage station, 2 miles upstream, maintained May 1, 1914, to September 30, 1915.

GAGE.—None.

DISCHARGE MEASUREMENTS.—Made by wading near road crossing from old town of San Antonio.

CHANNEL AND CONTROL.—Bed composed of sand and silt. Banks not well defined; subject to overflow. No well-defined control.

DIVERSIONS.—Station is above diversions for irrigation in Duncan Valley, except Sunset Canal, which diverts water 1¾ miles above station for irrigating 1,800 acres. About 3,500 acres are irrigated from Gila River above Duncan Valley.

REGULATION.—None except by diversions for irrigation.

ACCURACY.—No gage-height record obtained during the year. Discharge measurements show inflow to Duncan Valley, except for water diverted by Sunset Canal.

Discharge measurements of Gila River near Duncan, Ariz., during the year ending September 30, 1924

Date	Discharge	Date	Discharge	Date	Discharge
	Sec.-ft.		*Sec.-ft.*		*Sec.-ft.*
Oct. 2	127	Feb. 29	186	Aug. 1	92
Oct. 31	94	Mar. 17	119	Sept. 1	67
Dec. 3	146	June 3	119		
Feb. 2	159	June 28	3.4		

GILA RIVER AT YORK, ARIZ.

LOCATION.—In SE. ¼ sec. 19, T. 6 S., R. 31 E., below all canal headings in Duncan Valley, at York, Greenlee County.

DRAINAGE AREA.—3,920 square miles (measured on topographic maps).

RECORDS AVAILABLE.—May 15, 1923, to September 30, 1924 (discharge measurements only). Miscellaneous measurements made near this point April 26 and July 19, 1922.

GAGE.—None.

DISCHARGE MEASUREMENTS.—Made by wading near road crossing.

CHANNEL AND CONTROL.—Bed composed of sand and gravel. Banks well defined, not subject to overflow. No well-defined control.

DIVERSIONS.—About 11,500 acres are irrigated from Gila River above this station. Water for about 8,000 acres diverted by Duncan Valley Canals.

REGULATION.—None except by diversions for irrigation.

ACCURACY.—No gage heights obtained. Discharge measurements only. Records show outflow from Duncan Valley, below all diversions.

Discharge measurements of Gila River at York, Ariz., during the years ending September 30, 1923 and 1924

Date	Discharge	Date	Discharge	Date	Discharge
1923	*Sec.-ft.*	1924	*Sec.-ft.*	1924	*Sec.-ft.*
May 15	11.4	Feb. 5	142	June 30	19.2
July 21	235	Mar. 1	180	Aug. 2	76
Aug. 1	108	Mar. 17	136	Sept. 2	132
Oct. 3	108	June 5	52		
Nov. 1	91				
Dec. 5	164				

GILA RIVER NEAR SOLOMONVILLE ARIZ.

LOCATION.—In NE. ¼ sec. 31, T. 6 S., R. 28 E., 1 mile below intake of Brown Canal and 10 miles east of Solomonville, Graham County. San Francisco River enters from right 10 miles upstream.

DRAINAGE AREA.—7,910 square miles (measured on topographic maps).

RECORDS AVAILABLE.—April 21, 1914, to September 30, 1924.

GAGE.—Continuous water-stage recorder on left bank, directly opposite J. W. Earven's ranch; inspected by J. W. Earven.

DISCHARGE MEASUREMENTS.—Made from cable at gage or by wading.

CHANNEL AND CONTROL.—Bed composed of gravel, sand, and silt. Banks well defined. Gravel riffle 500 feet below gage.

EXTREMES OF DISCHARGE.—Maximum stage during year from water-stage recorder, 6.5 feet at 3 a. m. December 28 (discharge, 12,600 second-feet); minimum discharge, 56 second-feet September 11 and 12.

1914–1924: Maximum stage, determined from floodmarks on gage, 14.0 feet January 19, 1916 (discharge, about 100,000 second-feet from extension of rating curve); minimum discharge, 26 second-feet July 4, 1923.

DIVERSIONS.—Station is above diversions for irrigation in Safford Valley, except Brown Canal, which diverts water 1 mile above station for irrigating 820 acres. Brown Canal wasteway returns some water to river below this station. About 14,000 acres are irrigated from Gila River and tributaries above Safford Valley.

REGULATION.—None except by diversions for irrigation.

ACCURACY.—Stage-discharge relation continually changing. Standard rating curve well defined to 8,000 second-feet, poorly defined above. Operation of water-stage recorded satisfactory. Daily discharge ascertained by applying mean daily gage height to rating table. Shifting-control method used for entire year. Records good.

Discharge measurements of Gila River near Solomonville, Ariz., during the year ending September 30, 1924

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 2	1.70	295	Jan. 15	2.13	570	June 21	1.12	89
Oct. 14	1.61	215	Mar. 21	1.70	294	July 1	1.30	116
Nov. 1	1.97	365	Apr. 13	3.13	2,080	July 14	1.42	167
Nov. 16	2.38	728	May 12	2.18	576	Aug. 1	1.78	320
Dec. 2	1.90	315	May 21	1.89	386	Aug. 15	1.54	189
Dec. 15	1.94	338	June 4	1.52	205	Sept. 1	1.30	92
Dec. 92	4.85	5,840	June 12	1.24	105	Sept. 15	1.15	64
Jan. 2	3.22	2,480						

Daily discharge, in second-feet, of Gila River near Solomonville, Ariz., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	340	320	314	3,280	334	327	1,350	620	221	108	334	110
2	294	307	307	2,590	327	314	1,660	631	208	96	294	102
3	274	294	469	1,990	320	314	2,160	653	200	133	1,170	96
4	255	274	451	1,480	320	307	2,050	664	196	213	601	105
5	217	248	411	1,230	334	300	1,780	686	184	180	418	100
6	221	230	360	1,140	327	300	2,120	675	170	173	294	86
7	221	221	347	972	307	307	2,190	675	150	156	230	78
8	208	226	314	888	307	307	2,570	620	141	268	173	68
9	200	221	320	808	300	288	3,010	620	133	180	160	66
10	196	248	360	730	288	294	2,690	601	127	160	153	58

Daily discharge, in second-feet, of Gila River near Solomonville, Ariz., for the year ending September 30, 1924—Continued

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
11	187	2,790	360	697	288	288	2,340	582	116	150	173	56
12	187	2,100	347	675	307	268	2,120	592	108	156	153	56
13	187	1,630	333	601	334	255	2,080	572	102	180	156	58
14	200	1,120	320	562	334	242	1,960	543	92	160	368	64
15	213	756	327	562	334	230	1,840	515	90	150	192	66
16	221	708	354	543	375	226	1,820	488	86	196	170	68
17	217	582	375	515	396	230	1,660	469	88	314	176	217
18	208	553	360	497	411	242	1,500	460	88	300	136	133
19	200	497	360	469	389	307	1,420	442	86	248	127	105
20	196	451	469	451	382	320	1,260	442	88	354	116	98
21	176	433	631	418	375	294	1,120	375	88	255	116	94
22	170	411	524	404	382	288	1,040	340	88	204	112	94
23	159	396	382	418	382	281	986	334	86	167	112	90
24	150	382	340	404	375	274	944	314	84	133	112	86
25	150	368	389	375	382	255	944	307	82	153	124	86
26	144	347	834	368	382	242	1,000	288	80	368	122	84
27	144	334	6,740	360	375	255	958	274	76	334	105	80
28	141	334	9,940	354	354	928	834	262	76	433	100	78
29	141	327	6,290	340	334	1,170	730	255	76	469	98	78
30	147	320	4,280	334	-------	1,240	664	236	84	411	102	76
31	150	-------	3,760	327	-------	1,300	-------	230	-------	360	98	-------

Monthly discharge of Gila River near Solomonville, Ariz., for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	340	141	197	12,100
November	2,790	221	581	34,600
December	9,940	314	1,330	81,800
January	3,280	327	799	49,100
February	411	288	347	20,000
March	1,300	226	393	24,200
April	3,010	664	1,630	97,000
May	686	230	477	29,300
June	221	76	116	6,900
July	469	96	231	14,200
August	1,170	98	219	13,500
September	217	56	87.8	5,220
The year	9,940	56	534	388,000

GILA RIVER NEAR ASHURST, ARIZ.

LOCATION.—In sec. 30, T. 5 S., R. 24 E., below all canal headings in Safford Valley and 1½ miles southeast of Ashurst, Graham County.

DRAINAGE AREA.—10,900 square miles (measured on topographic maps).

RECORDS AVAILABLE.—December 24, 1920, to September 30, 1924. Discharge measurements only.

GAGE.—Vertical staff installed March 17, 1923. Physical conditions at this point have made the use of gage-height records impracticable.

DISCHARGE MEASUREMENTS.—Made by wading near road crossing.

CHANNEL AND CONTROL.—Bed composed of sand and silt. Banks not well defined; subject to overflow. No well-defined control.

DIVERSIONS.—About 38,000 acres are irrigated from Gila River and tributaries above this station. Water for about 24,000 acres diverted by canals of Safford Valley.

REGULATION.—Flow varies considerably with amount of water diverted by canals of Safford Valley.

ACCURACY.—Stage-discharge relation continually changing. No gage-height record obtained. Discharge measurements only. Records show outflow from Safford Valley, below all diversions.

Discharge measurements of Gila River near Ashurst, Ariz., during the year ending September 30, 1924

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 3	9.85	45.3	May 7	11.40	414	July 1	10.05	4.7
Nov. 2	10.20	197	May 20	10.60	70	Aug. 8	10.45	30.4
Dec. 5	10.45	406	June 2	10.18	7.9	Sept. 2	10.07	2.2
Mar. 22		83						

GILA RIVER NEAR SAN CARLOS, ARIZ.

LOCATION.—In T. 3 S., R. 18 E., unsurveyed, half a mile above San Carlos dam site on San Carlos Indian Reservation and 6½ miles west of San Carlos, Gila County. San Carlos River enters from right 8 miles upstream.

DRAINAGE AREA.—12,900 square miles (measured on topographic maps).

RECORDS AVAILABLE.—April 29, 1914, to September 30, 1924. July 11, 1899, to November 27, 1905, at point half a mile south of San Carlos and below San Carlos River. August 17, 1910, to February 5, 1911, at point just below Arizona Eastern Railroad bridge and half a mile above San Carlos River.

GAGE.—Water-stage recorder on left bank until July 3, 1924, on which date a new stilling well and shelter, with Au 60-day water-stage recorder, was installed on right bank about 500 feet downstream.

DISCHARGE MEASUREMENTS.—Made from cable 1 mile above gage, from crossing cable near gage, or by wading.

CHANNEL AND CONTROL.—Bed composed of sand, gravel, and boulders. Banks not subject to overflow. Boulder riffle just below gage used prior to July 3, 1924. At low stages gravel bar formed on left bank around point of rock at gage, necessitating the maintenance of a ditch from channel to gage well. After July 3, 1924, low-water channel well defined, always open to gage well. Riffle 800 feet below station. High-water control formed by narrowing of walls and sharp bend at dam site.

EXTREMES OF DISCHARGE.—Maximum stage during year from water-stage recorder, 10.75 feet at 1 p. m. December 28 (discharge, 13,300 second-feet); minimum discharge, 0.3 second-foot June 24 to July 2, 1924.

1914–1924: Maximum stage, 25.5 feet January 20, 1916 (discharge, from extension of rating curve, about 130,000 second-feet). River dry June 28 to July 1, 1919.

DIVERSIONS.—About 38,000 acres are irrigated from Gila River and tributaries above this station.

REGULATION.—None except by diversions for irrigation.

ACCURACY.—Stage-discharge relation not permanent. Rating curves fairly well defined. Operation of water-stage recorder satisfactory, except for periods October 1, 2, 4–5, 7–13, November 14–21, December 30, 31, January 1–7, 27–30, February 11–13, 24–29, March 1, 2, 8–13, 16–22, 27–31, April 1–19, 21–25, 29, May 1–6, 14–31, June 1–9, 15–19, July 21–27, 30, 31, August 1–4, and September 15–21. Staff readings used October 3, 6, November 15, 17, 21, January 2, February 26, March 8, 12, 22, 29, April 2, 5, 12, 15, 22, 30, May 3, 6, 17, 21, 24, 31, and June 4. Daily discharge ascertained by applying mean daily gage height to rating tables. Shifting-control method used October 1 to July 2. Discharge estimated October 1, 2, 4, 5, 7–13, November 14, 16, 18–20, December 30, 31, January 1, 3, 6, 7, 27–29, February 24, 25, 27–29, March 16–21, 27–28, 30, 31, April 1, 3, 4, 6–8, 10, 11, 13, 14, 16, 21, 23–25, 29, May 1, 2, 4, 5, 14–20, July 21–27, 30, 31, and August 1–4. Discharge interpolated February 11–13, March 9–11, 13, May 22, 23, 25–30, June 1–3, 5–10, 15–19, and September 15–21. Records fair.

Discharge measurements of Gila River near San Carlos, Ariz., during the year ending September 30, 1924

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 6	1.63	82	Feb. 14	2.50	255	June 27	0.10	0.3
Oct. 15	1.08	48.9	Mar. 14	1.50	80	July 1	.10	.3
Nov. 15	4.00	1,200	Mar. 23	2.50	326	July 3	1.60	1.1
Dec. 14	2.88	464	Apr. 17	4.75	1,710	July 15	1.14	.7
Dec. 21	3.30	700	June 10	.50	7.4	Aug. 10	1.95	40.8
Jan. 4	5.48	2,020	June 20	.28	.9	Aug. 31	1.45	7.8
Jan. 23	3.59	506	June 24	.10	.3	Sept. 22	.94	.5

Daily discharge, in second-feet, of Gila River near San Carlos, Ariz., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	200	73	394	3,400	370	192	1,200	400	26	0.3	24	1
2		77	394	3,260	361	263	1,690	300	22	.3	50	1
3	175	188	409	2,400	324	263	1,200	194	18	1	400	1
4	136	272	698	2,030	327	263		200	14	1	200	1
5	101	297	580	2,060	333	266	2,050		10	1	56	1
6	66	288	490	1,710	339	253		345	7	1	40	1
7		306	444	1,350	354	228	1,700	448	7	5	40	1
8		315	440	998	345	135		444	7	12	40	1
9		291	420	991	348	132	2,880	440	7	18	40	1
10	50	361	456	984	354	128	1,800	380	7	18	40	1
11		782	633	977	330	125		413	7	120	47	1
12		3,000	517	788	305	122	2,340	391	7	18	19	1
13		2,470	473	757	280	100	1,400	387	7	6	10	1
14	42	1,800	464	739	256	80			7	3	6	1
15	49	1,210	456	693	256	75	1,840		6	1	3	1
16	44	1,050	456	649	230	75	1,770	200	4	1	2	1
17	37	912	464	610	256	75	1,710		2	1	1	1
18	27	800	468	513	230	90	1,660		2	12	1	1
19	32	700	482	536	209	90	1,620		1	3	1	1
20	32	600	541	560	209	110	1,480		1	2	1	1
21	34	555	699	527	188	160	1,000	75	1	3	1	1
22	34	527	931	504	198	173	937	65	.6	3	1	1
23	33	504	886	512	188	327		55	.6	3	1	1
24	40	504	872	499	190	327	600	44	.3	3	1	1
25	42	460	853	490	190	312		40	.3	3	1	1
26	40	444	1,480	473	261	280	733	38	.3	3	1	1
27	39	436	1,510	452		400	795	36	.3	3	1	1
28	39	452	11,800	431	180	600	795	34	.3	9	1	1
29	40	424	11,000	410		898	600	32	.3	24	1	1
30	40	405	8,600	388	-------	900	527	30	.3	24	2	1
31	43	-------	5,000	367	-------	900	-------	28	-------	24	3	-------

Monthly discharge of Gila River near San Carlos, Ariz., for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	----------	32	61.8	3,800
November	3,000	73	683	40,600
December	11,800	394	1,720	106,000
January	3,400	367	1,000	61,500
February	370	180	268	15,400
March	900	75	269	16,500
April	2,880	527	1,380	82,100
May	448	28	207	12,700
June	26	.3	5.78	344
July	120	.3	10.5	646
August	400	1	33.4	2,050
September	1	1	1.0	60
The year	11,800	.3	471	342,000

GILA RIVER AT KELVIN, ARIZ.

LOCATION.—In sec. 12, T. 4 S., R. 13 E., 1,000 feet below Mineral Creek, a quarter of a mile below concrete highway bridge, 1 mile west of Kelvin, Pinal County, 15 miles below mouth of San Pedro River, and 15 miles above Ashurst-Hayden Dam.

DRAINAGE AREA.—18,100 square miles (measured on topographic maps and Greenidge map of Sonora).

RECORDS AVAILABLE.—January 26, 1911, to September 30, 1924.

GAGE.—Stevens continuous water-stage recorder on left bank, installed June 15, 1914; new stilling well and shelter installed June 17, 1924. A temporary staff gage was used May 23 to June 7 and the permanent staff gage June 8–17, during construction of new installation. No change in datum of gage.

DISCHARGE MEASUREMENTS.—Made from highway bridge a quarter of a mile above gage or by wading.

CHANNEL AND CONTROL.—Bed composed of sand, gravel, and silt, which scours and fills. Banks not subject to overflow. Gravel riffle 300 feet below gage.

EXTREMES OF DISCHARGE.—Maximum stage during year from water-stage recorder, 6.9 feet at 4 a. m. December 29 (discharge, 11,700 second-feet); minimum discharge, 1.0 second-foot June 27–30.

1911–1924: Maximum stage recorded, 19.5 feet about noon, January 20, 1916, determined from floodmarks (discharge, from extension of rating curve, about 132,000 second-feet); no flow on June 29 to July 11, 1913.

DIVERSIONS.—Station is above diversions for Florence-Casa Grande Valley. About 38,000 acres are irrigated from Gila River above this station. Acreage irrigated from San Pedro River not known.

REGULATION.—None except by diversions for irrigation.

ACCURACY.—Stage-discharge relation for low stages continually changing. Standard rating curve, well defined below 12,000 second-feet and poorly defined above that point, used October 1 to April 30. Rating curve well defined below 1,000 second-feet, used May 1–23 and June 7 to September 30. Rating curve for temporary staff gage was used May 23 to June 7, during new construction at station. Operation of water-stage recorder satisfactory, except for periods May 23 to June 7, when temporary staff-gage readings were used, and June 8–17, August 12, 18, 24, 27, when permanent staff-gage readings were used. Daily discharge ascertained by applying daily mean gage height to rating tables. Shifting-control method used October 1 to May 23 and June 7 to September 30. Discharge interpolated August 13–17, 19–23, and 25, 26. Records good.

Discharge measurements of Gila River at Kelvin, Ariz., during the year ending September 30, 1924

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 5	2.34	155	Jan. 21	2.79	617	June 6	1.72	27.7
Oct. 16	2.17	58	Feb. 13	2.59	311	June 21	1.46	2.4
Nov. 16	3.17	934	Mar. 12	2.37	168	July 16	1.54	7.6
Dec. 13	2.86	579	Mar. 24	2.78	456	Aug. 11	2.28	195
Dec. 23	3.30	1,090	Apr. 16	3.42	1,600	Aug. 30	1.38	3.2
Dec. 29	6.70	10,900	Apr. 24	2.89	644	Sept. 1	1.37	3.1
Jan. 5	3.60	2,020	May 21	2.30	176	Sept. 21	1.42	2.6

Daily discharge, in second-feet, of Gila River at Kelvin, Ariz., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	330	150	500	5,470	411	179	1,290	420	60	5	51	9
2	330	197	480	3,920	402	204	1,260	352	40	51	46	61
3	260	179	510	3,160	393	225	1,340	302	45	23	763	21
4	295	225	642	2,400	384	204	1,700	302	35	15	570	15
5	161	281	708	2,020	375	232	1,770	302	28	8	570	12
6	144	323	620	1,580	366	211	1,700	328	28	7	328	7
7	116	323	570	1,370	357	204	1,680	344	20	5	232	5
8	102	348	550	1,300	339	162	1,680	369	18	50	206	4
9	85	339	540	1,070	323	156	2,220	403	11	44	136	4
10	72	500	520	924	323	144	2,600	378	9	26	100	4
11	66	852	540	852	309	144	2,480	403	7	19	188	7
12	69	1,710	580	900	309	162	2,100	420	5	74	126	7
13	56	2,140	570	807	309	133	1,890	386	4	51	116	4
14	50	1,610	520	763	302	106	1,800	403	4	28	106	4
15	50	1,200	520	752	302	92	1,700	309	3	17	96	3
16	59	974	520	741	309	102	1,590	270	3	8	86	3
17	56	852	520	686	316	97	1,450	259	3	7	76	3
18	45	796	520	675	302	115	1,320	220	3	7	66	3
19	42	741	560	719	295	197	1,160	188	2	22	62	3
20	42	708	642	664	288	184	1,030	166	2	44	59	3
21	34	675	948	653	288	211	864	162	2	41	55	3
22	48	642	1,020	590	295	420	763	147	2	39	51	3
23	48	600	948	560	281	440	675	136	2	32	48	3
24	50	600	840	530	211	520	620	138	2	21	44	3
25	56	570	763	510	173	590	580	118	2	50	31	3
26	59	570	1,910	530	190	490	600	109	2	113	17	3
27	42	560	4,800	510	218	339	570	82	1	70	4	3
28	66	530	7,800	490	184	470	590	50	1	53	4	3
29	69	520	10,700	470	167	675	550	55	1	51	3	3
30	72	520	8,520	450	-------	1,290	470	67	1	66	3	3
31	82	-------	8,830	430	-------	1,430	-------	65	-------	57	3	-------

Monthly discharge of Gila River at Kelvin, Ariz., for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	330	34	98.6	6,060
November	2,140	150	674	40,100
December	10,700	480	1,880	116,000
January	5,470	430	1,180	72,600
February	411	167	301	17,300
March	1,430	92	327	20,100
April	2,600	470	1,330	79,100
May	420	50	247	15,200
June	60	1	11.5	684
July	113	5	35.6	2,190
August	763	3	137	8,420
September	61	3	7.1	422
The year	10,700	1	520	378,000

GILA RIVER AT ASHURST-HAYDEN DAM, NEAR FLORENCE, ARIZ.

LOCATION.—In sec. 8, T. 4 S., R. 11 E., at Ashurst-Hayden Dam, 10 miles northeast of Florence, Pinal County. San Pedro River enters from left 30 miles upstream.

DRAINAGE AREA.—18,400 square miles (measured on topographic maps and Greenidge map of Sonora).

RECORDS AVAILABLE.—July 1, 1923, to September 30, 1924.

GAGE.—Chain gage on upstream wing wall at left end of Ashurst-Hayden Dam. Zero of gage is 10.00 feet below crest of dam. Records given show height of water on crest of dam.

DISCHARGE MEASUREMENT.—Made by wading.

CHANNEL AND CONTROL.—Bed composed of sand and silt filled in about flush with crest of dam except on left bank, where bed is below crest of dam due to sluicing. Dam is 120 feet downstream from gage. There are four sluice gates in the dam with top of opening 6½ feet below crest of dam. One or more of these are open a large part of the time.

EXTREMES OF DISCHARGE.—Maximum stage recorded, 2.84 feet on December 29. Minimum stage, crest of dam dry on various days.

1923–1924: Maximum stage recorded, 2.84 feet July 14 and December 29, 1923; minimum stage, crest dry on various days each year.

DIVERSIONS.—Water diverted from Gila River below gage by Ashurst-Hayden Dam. First canal gate opening is 22 feet below gage. About 38,000 acres are irrigated from Gila River above this dam. Acreage irrigated from San Pedro River not known.

REGULATION.—None except by irrigation diversions and by sluice gates of dam.

ACCURACY.—Stage-discharge relation not determined. No discharge measurements made. Only height of water on crest of dam determined. Gage read to hundredths twice a day. No determination of amount of water by-passed through sluice gates of dam.

COOPERATION.—Gage-height record furnished by United States Office of Indian Affairs.

Daily height, in feet, of Gila River at Ashurst-Hayden Dam, near Florence, Ariz., for the year ending September 30, 1924

Day	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Aug.
1	[a] 0.60		1.93	0.15		0.65	0.21	
2			1.37	.15		.67	.13	
3			.98	.14		.71	.11	1.11
4		[a] 0.10	.98	[a] .14		.80		.33
5			1.03	.11		.83		.40
6			.65	.12		.77	[a] .16	[a] .18
7			.27	.11		.86	.12	
8			.15	.13		.68	.11	
9			.26	[a] .18		.96	.14	
10	[a] .04		.19	.11		1.15	[a] .20	
11	.32		.17	[a] .12		1.11	[a] .16	
12	.60	[a] .08	.27			1.03	[a] .20	
13	1.09	[a] .08	.26			.79	[a] .14	
14	.52		.30			.79	.11	
15	.41		.27			.88	[a] .12	
16	.35		.26			.78	[a] .18	
17	.26		.24			.87		
18	.22		.26			.77		
19	.25		.28			.65		
20	.18	[a] .04	.24			.52		
21	.22	.40	.13			.51		
22	.22	.28	[a] .12		[a] 0.10	.55		
23	.20	.29	[a] .04		[a] .34	.45		
24	.14	.26	[a] .14		.28	.42		
25	.14	.31	.18		.18	.40		
26	.11	.65	.17		.24	.35		
27	.13	1.80	.16		.19	.36		
28		2.70	.15		.25	.34		
29		2.81	.14		.33	.36		
30		2.33	.15		.55	.29		
31		2.50	.15		.70			

[a] Flow for part of day only.

NOTE.—Gage heights in the above table show head on crest of dam. No water over crest of dam during periods for which no records are given.

GILA RIVER AT GILLESPIE DAM, ARIZ.

LOCATION.—In SE. ¼ NE. ¼ sec. 28, T. 2 S., R. 5 W., at Gillespie Dam, Maricopa County, about 150 miles above junction with Colorado River. Hassayampa River enters from right 8 miles upstream. There are no tributaries of ordinarily appreciable size between Gillespie Dam and mouth of Gila River.

DRAINAGE AREA.—48,100 square miles (measured on topographic maps and Greenidge map of Sonora, Mexico).

RECORDS AVAILABLE.—August 4, 1921, to September 30, 1924.

GAGE.—Water-stage recorder on left wing wall 10 feet upstream from crest of Gillespie Dam, installed July 28, 1924. Zero of gage at mean elevation of crest of dam, 753.8 feet above mean sea level. Prior to installation of recorder, records were obtained by Gila Water Co. by measuring height of water on crest, at left end of dam.

DISCHARGE MEASUREMENTS.—Made by wading on apron below dam, or in river channel half a mile downstream.

CHANNEL AND CONTROL.—Bed composed of silt filled in above dam about level with crest, except along face of dam and near left bank, where bed is kept below crest by sluicing. Bed above dam probably scours during floods. There are two sluice gates at left end of dam, and behind the long wing wall, on the river side of which the gage is attached. The gates of the Gila Water Co.'s canal are also situated against the left bank behind this wing wall. Gage height is affected by sluicing for a short period each day at various times during the year.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year ending September 30, 1924, 6.0 feet on December 28 (discharge, 70,000 second-feet); crest of dam dry October 1–31 and May 21 to September 30.

1921–1924: Maximum stage recorded, 6.0 feet on December 28, 1923 (discharge, 70,000 second-feet); no flow over dam for various periods each year.

DIVERSIONS.—Water diverted from Gila River by Gillespie Dam. When water is below crest of dam, a gate is kept open which turns a small quantity of water downstream to satisfy prior rights. About 275,000 acres is irrigated from Gila River and tributaries above this dam.

REGULATION.—None except by irrigation diversions and by gates of dam.

ACCURACY.—Stage-discharge relation assumed permanent during period of record except for the change which occurred December 28, 1923. The entire storage capacity of the channel behind the dam is filled with silt except for two or three channels of approach. Prior to December 28, 1923, the principal channel was against the right bank. During the flood on that date the principal channel changed to the center, and a well-defined secondary channel was formed against the left bank. The channel against the right bank remained as a secondary channel.

Principal rating curve is based on 15 discharge measurements made during 1925 and 1926 and is well defined between 100 and 10,000 second-feet. The curve has been extended from 10,000 to 150,000 second-feet by using the formula for broad-crested weirs, $Q=2.64LH^{3/2}$, and assumed velocities of approach based on observed conditions. Below 100 second-feet, the rating varies somewhat on account of accumulation of moss or trash on crest. For this principal rating, which is applicable only after November 10, 1924, gage heights at recorder station are used. Zero of gage is at mean elevation of crest, and gage is 10 feet back from crest.

Rating for the period August 4, 1921, to December 28, 1923, is based on one discharge measurement made August 15, 1923, and on extension of principal rating curve discussed above. It is not well defined. Rating for

the period December 29, 1923, to November 10, 1924, is based on one discharge measurement made April 25, 1924, and on extension of principal rating. It is not well defined. All gage heights prior to November 11, 1924, including those for discharge measurements, were obtained by direct measurement of depth of water on crest at left end of dam and are affected by drawdown at crest.

Depth of water on crest read once each day to nearest quarter inch by Gila Water Co., August 4, 1921, to November 10, 1924. Water-stage recorder installed by United States Geological Survey on July 28, 1924, was not operated properly prior to November 11, 1924. Daily discharge ascertained by applying to rating tables the daily readings of depth of water on crest of dam.

Records of discharge prior to December 28, 1923, are subject to considerable uncertainty. Records for the remainder of the year ending September 30, 1924, are considered of better accuracy but are also somewhat uncertain.

Records of discharge as published in the following tables show the discharge over the crest of the dam and include water passed through by periodic sluicing. They do not include leakage through gates, nor water regularly by-passed on account of certain small uses below.

COOPERATION.—Records of depth of water on crest of dam furnished by Gila Water Co.

The following discharge measurements were made:
August 15, 1923: Gage height, 1.09 feet; discharge, 5,800 second-feet.
April 25, 1924: Gage height, 0.14 foot; discharge, 351 second-feet.

Daily discharge, in second-feet, of Gila River at Gillespie Dam, Ariz., for the years ending September 30, 1921–1924

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1921			1921			1921		
1		2,000	11	4,590	780	21	16,400	215
2		2,000	12	4,590	620	22	26,800	215
3		1,780	13	3,480	475	23	17,300	215
4	4,590	2,000	14	2,000	475	24	14,800	215
5	4,590	2,000	15	1,560	475	25	8,200	215
6	4,590	1,780	16	2,000	315	26	5,150	125
7	4,590	1,780	17	1,560	315	27	5,710	125
8	4,000	1,140	18	2,440	315	28	4,590	125
9	2,970	955	19	1,780	315	29	4,000	125
10	2,970	955	20	4,590	215	30	3,480	125
						31	2,970	

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1921-22												
1	2,000	475	620	1,360	4,590	1,140	2,000	125	260	315	405	125
2	5,150	475	620	1,360	4,000	955	1,360	125	170	260	475	125
3	2,000	475	545	9,440	2,670	780	1,360	215	125	260	620	11,600
4	780	475	545	32,700	1,560	780	1,360	215	125	260	620	2,220
5	780	475	475	10,200	1,140	780	1,140	215	125	315	315	780
6	780	315	475	7,520	780	780	865	170	125	260	315	315
7	780	315	475	5,150	780	780	955	170	125	215	215	315
8	780	315	475	4,000	780	780	955	170	125	215	215	475
9	780	315	475	2,970	780	620	1,040	170	125	215	215	260
10	780	475	475	2,440	1,140	620	780	125	80	260	215	260
11	475	475	475	2,000	5,150	475	780	170	315	215	215	260
12	475	475	475	2,000	10,900	475	780	215	315	215	215	260
13	475	475	475	2,000	7,900	475	620	170	315	260	215	260
14	475	475	475	1,140	5,150	475	475	170	315	215	215	260
15	475	475	475	1,140	3,480	475	405	315	315	80	215	315
16	475	475	475	1,140	2,440	620	215	315	315	0	215	315
17	475	475	405	780	1,560	21,800	215	215	315	0	215	215
18	405	475	405	780	1,140	9,770	215	170	315	0	215	125
19	315	475	405	780	1,140	9,440	215	125	315	475	215	80
20	215	475	475	700	780	9,440	170	125	315	315	215	80

Daily discharge, in second-feet, of Gila River at Gillespie Dam, Ariz., for the years ending September 30, 1921–1924—Continued

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1921–22												
21	215	475	475	700	1,560	6,340	170	125	315	620	215	80
22	315	475	475	620	2,440	5,150	170	170	315	475	215	315
23	315	475	620	620	4,000	4,590	170	125	315	315	215	315
24	315	475	955	620	3,480	4,590	170	125	315	215	215	315
25	215	475	955	620	2,440	4,000	170	125	315	170	215	315
26	215	545	780	545	2,000	4,590	170	125	315	260	215	315
27	405	545	1,140	545	1,780	5,150	125	125	315	315	215	315
28	405	545	9,770	545	1,560	4,590	125	125	315	315	215	260
29	475	545	13,900	475	-------	4,590	125	100	315	315	215	260
30	475	620	6,340	475	-------	2,970	125	405	315	215	215	260
31	475	-------	3,220	780	-------	2,000	-------	260	-------	315	215	-------
1922–23												
1	315	125	545	260	260	475	0	0	0	0	215	1,140
2	260	125	780	260	260	475	170	0	0	0	125	5,150
3	260	125	1,140	260	260	315	215	0	0	0	215	1,560
4	260	125	1,140	260	260	315	125	0	0	0	315	1,780
5	260	170	1,140	260	475	2,220	170	0	0	0	80	1,360
6	260	215	700	260	620	3,480	125	0	0	0	80	955
7	260	260	1,140	260	620	955	80	0	0	0	780	475
8	260	260	0	215	545	1,040	0	0	0	0	11,600	215
9	260	170	955	215	260	955	0	0	0	0	125	215
10	260	215	780	215	315	865	0	0	0	0	865	2,000
11	260	260	620	215	315	865	0	0	0	0	1,140	1,140
12	315	315	620	215	315	1,560	0	0	0	0	4,590	1,140
13	260	405	620	215	545	1,450	0	0	0	0	5,430	780
14	260	315	780	215	545	1,140	0	0	0	0	5,150	2,330
15	315	315	1,140	215	475	1,040	0	0	0	0	5,710	1,560
16	260	315	6,920	215	405	865	0	0	0	1,220	5,710	475
17	260	215	2,970	215	405	780	0	0	0	2,000	4,320	215
18	260	215	2,440	215	405	700	0	0	0	780	5,990	215
19	260	260	2,000	215	405	620	0	0	0	215	5,430	12,400
20	260	260	1,140	215	620	475	0	0	0	80	4,320	13,100
21	260	260	1,140	215	620	315	0	0	0	0	3,740	5,710
22	260	215	1,040	215	405	315	0	0	0	0	3,480	2,440
23	260	215	1,040	215	315	315	0	0	0	158	2,970	1,560
24	260	215	780	215	315	315	0	0	0	955	2,000	955
25	260	215	700	215	315	260	0	0	0	3,480	1,780	865
26	260	215	620	215	475	215	0	0	0	1,560	1,780	865
27	260	215	620	260	545	170	0	0	0	1,140	1,780	475
28	260	260	545	260	545	80	0	0	0	475	1,780	620
29	315	260	405	215	-------	80	0	0	0	315	2,000	475
30	315	405	315	215	-------	80	0	0	0	170	2,000	475
31	315	-------	260	215	-------	0	-------	0	-------	260	1,140	-------
1923–24												
1	215	260	1,040	23,600	575	440	190	50	0	0	0	0
2	170	315	1,040	15,500	575	440	190	50	0	0	0	0
3	0	315	1,040	10,500	575	440	290	50	0	0	0	0
4	0	620	1,040	9,060	505	440	575	50	0	0	0	0
5	0	780	1,040	4,350	505	190	860	50	0	0	0	0
6	0	545	1,040	4,350	440	50	785	50	0	0	0	0
7	0	780	1,040	3,870	440	50	785	50	0	0	0	0
8	0	545	1,140	3,260	440	50	1,100	50	0	0	0	0
9	0	780	1,040	2,550	440	50	1,020	50	0	0	0	0
10	0	620	1,040	2,450	440	50	2,750	50	0	0	0	0
11	0	6,920	1,040	1,930	440	50	2,300	50	0	0	0	0
12	0	13,100	1,360	1,750	440	50	2,020	50	0	0	0	0
13	0	4,870	1,140	1,570	440	50	2,110	50	0	0	0	0
14	0	4,320	1,140	1,570	505	50	2,110	50	0	0	0	0
15	0	5,150	1,140	1,390	380	50	1,930	50	0	0	0	0
16	0	2,670	1,140	1,570	380	50	1,570	50	0	0	0	0
17	0	2,330	1,140	1,300	380	50	1,300	50	0	0	0	0
18	0	2,000	1,140	1,100	380	50	1,390	50	0	0	0	0
19	0	2,000	1,140	1,100	380	50	1,220	50	0	0	0	0
20	0	1,780	1,040	1,020	290	50	1,020	50	0	0	0	0
21	0	1,670	1,140	1,020	290	50	1,020	0	0	0	0	0
22	0	1,560	1,670	1,020	290	50	940	0	0	0	0	0
23	0	1,450	1,780	1,020	290	50	860	0	0	0	0	0
24	0	1,360	1,670	1,020	190	50	645	0	0	0	0	0
25	0	1,140	1,780	940	190	50	575	0	0	0	0	0
26	0	1,040	1,780	940	190	50	505	0	0	0	0	0
27	0	1,140	13,100	715	190	50	190	0	0	0	0	0
28	0	1,040	70,000	715	190	50	140	0	0	0	0	0
29	0	1,040	23,600	715	50	95	95	0	0	0	0	0
30	0	955	23,600	645	-------	190	50	0	0	0	0	0
31	0	-------	19,400	645	-------	190	-------	0	-------	0	0	-------

Monthly discharge of Gila River at Gillespie Dam, Ariz., for the years ending September 30, 1921–1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
1921				
August 4–31	26,800	1,560	5,940	330,000
September	2,000	125	746	44,400
The period				374,000
1921–22				
October	5,150	215	732	45,000
November	620	315	468	27,800
December	13,900	405	1,560	95,900
January	32,700	475	3,100	191,000
February	10,900	780	2,750	153,000
March	21,800	475	3,550	218,000
April	2,000	125	581	34,600
May	405	100	177	10,900
June	315	80	256	15,200
July	620	0	254	15,600
August	620	215	262	16,100
September	11,600	80	713	42,400
The year	32,700	0	1,200	866,000
1922–23				
October	315	260	271	16,700
November	405	125	238	14,200
December	6,920	0	1,130	69,500
January	260	215	228	14,000
February	620	260	423	23,500
March	3,480	0	733	45,100
April	215	0	29.5	1,760
May	0	0	0	0
June	0	0	0	0
July	3,480	0	413	25,400
August	11,600	80	2,790	172,000
September	13,100	215	2,090	124,000
The year	13,100	0	699	506,000
1923–24				
October	215	0	12.4	762
November	13,100	260	2,100	125,000
December	70,000	1,040	5,850	360,000
January	23,600	645	3,330	205,000
February	575	50	373	21,500
March	440	50	115	7,070
April	2,750	50	1,020	60,700
May	50	0	32.3	1,990
June	0	0	0	0
July	0	0	0	0
August	0	0	0	0
September	0	0	0	0
The year	70,000	0	1,080	782,000

SUNSET CANAL NEAR DUNCAN, ARIZ.

LOCATION.—In NW. ¼ sec. 17, T. 19 S., R. 20 W. New Mexico principal meridian, in New Mexico, 3 miles below intake, 9 miles east of Arizona-New Mexico boundary, and 14 miles east of Duncan, Greenlee County, Ariz.

RECORDS AVAILABLE.—October 1, 1914, to September 30, 1915; July 15, 1922, to September 30, 1924.

GAGE.—Vertical staff on right bank at Brook ranch; read by G. S. Hayes and M. H. Brooks.

DISCHARGE MEASUREMENTS.—Made from footbridge at gage.

CHANNEL AND CONTROL.—Bed composed of silt. Banks vertical. No well-defined control.

DIVERSIONS.—About 35 acres irrigated above station.

REGULATION.—By head gates. Flow in canal varies considerably with flow in Gila River.

ACCURACY.—Stage-discharge relation continually changing. Standard rating curve well defined. Gage read to nearest two-hundredths twice a day. Daily discharge ascertained by applying mean daily gage height to rating table, using shifting-control method for entire year. Records good.

Canal diverts water from right side of Gila River in NW. ¼ sec. 20, T. 19 S., R. 20 W. of New Mexico principal meridian, for irrigating 1,800 acres near Virden.

Discharge measurements of Sunset Canal near Duncan, Ariz., during the year ending September 30, 1924

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 2	2.08	33.8	Feb. 2	1.27	11.6	June 18	2.23	37.1
Oct. 15	1.64	28.1	Feb. 21	1.99	24.9	June 28	1.55	24.6
Oct. 31	1.41	20.6	Feb. 29	2.04	27.5	July 15	1.96	34.4
Dec. 3	1.60	22.1	Mar. 16	1.98	29.1	Aug. 1	1.84	34.8
Dec. 14	1.78	24.2	Mar. 17	1.98	30.7	Aug. 16	1.48	24.8
Dec. 18	1.61	19.7	Apr. 2	1.44	20.7	Sept. 1	1.43	26.2
Dec. 29	1.46	14.9	Apr. 15	1.68	30.3	Sept. 15	1.00	13.3
Jan. 16	.89	3.6	June 3	1.80	34.1			

Daily discharge, in second-feet, of Sunset Canal near Duncan, Ariz., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	34	24	22	0	10	28	17	26	38	19	35	28
2	34	25	22	0	8.8	28	20	28	38	17	36	33
3	34	32	22	1.9	9.5	26	8.3	35	37	17	14	32
4	35	30	23	7.7	10	26	17	40	37	36	3.4	32
5	35	29	24	12	11	16	34	39	39	36	0	33
6	32	26	25	10	11	32	37	39	40	38	0	34
7	28	25	24	4.9	9.5	34	34	37	38	38	0	30
8	30	24	24	5.0	9.5	34	34	36	39	36	34	30
9	30	24	24	3.4	9.7	33	31	34	38	37	28	26
10	30	27	24	1.3	8.9	31	26	33	34	36	23	23
11	31	35	23	.2	9.7	31	25	33	36	37	22	17
12	32	33	24	0	11	31	28	34	32	34	25	16
13	31	35	24	0	9.3	31	34	36	35	35	27	15
14	30	24	24	0	27	32	36	31	33	37	27	16
15	29	0	20	0	19	32	31	30	36	35	27	13
16	27	0	20	1.7	23	30	30	36	29	34	26	13
17	26	0	20	3.8	24	34	23	0	33	34	23	31
18	26	0	21	7.4	25	33	19	2.4	34	34	22	29
19	25	0	21	0	25	17	12	2.9	32	35	20	33
20	21	0	22	9.1	27	0	4.8	37	29	35	16	35
21	19	0	23	11	26	0	0	35	30	36	15	34
22	19	0	23	10	25	0	27	37	30	35	13	29
23	19	4.8	24	10	25	0	36	39	29	36	11	27
24	19	6.6	24	11	27	0	36	40	31	34	11	29
25	19	13	25	11	27	0	38	37	32	35	15	23
26	19	17	25	12	27	0	36	34	25	35	14	23
27	20	18	26	12	28	0	34	41	25	36	14	27
28	20	19	16	11	27	16	16	40	26	37	11	26
29	21	20	14	9.5	28	30	34	40	20	35	33	30
30	21	21	8.9	11	-------	23	37	40	19	36	34	33
31	21	-------	0	10	-------	20	-------	40	-------	36	31	-------

Monthly discharge of Sunset Canal near Duncan, Ariz., for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	35	19	26.4	1,620
November	35	0	17.1	1,020
December	26	0	21.4	1,320
January	12	0	6.03	371
February	28	8.8	18.5	1,060
March	34	0	20.9	1,290
April	38	0	26.5	1,580
May	41	0	32.7	2,010
June	40	19	32.5	1,930
July	38	17	33.9	2,080
August	36	0	19.7	1,210
September	35	13	26.7	1,590
The year	41	0	23.6	17,100

COSPER-WINDHAM CANAL NEAR DUNCAN, ARIZ.

LOCATION.—In NW. ¼ sec. 11, T. 19 S., R. 21 W. New Mexico principal meridian in New Mexico, three-quarters of a mile below intake, 4 miles east of Arizona-New Mexico boundary and 9 miles east of Duncan, Greenlee County, Ariz.

RECORDS AVAILABLE.—October 1, 1914, to September 30, 1915; July 18, 1922, to September 30, 1924.

GAGE.—Vertical staff on left bank at Foster ranch; read by W. F. Foster.

DISCHARGE MEASUREMENTS.—Made from footbridge at gage.

CHANNEL AND CONTROL.—Bed composed of silt. Banks vertical. No well defined control.

DIVERSIONS.—About 60 acres are irrigated above gage.

REGULATION.—By head gates. Stage in canal varies considerably with stage in Gila River.

ACCURACY.—Stage-discharge relation continually changing within limits which permit of a fairly well defined standard rating curve. Gage read twice a day to nearest two-hundredths. Daily discharge ascertained by applying mean daily gage height to rating table, using shifting-control method for entire year. Records good.

Canal diverts water from right side of Gila River in SW. ¼ sec. 11, T. 19 S., R. 21 W. New Mexico principal meridian, for irrigating 800 acres near Virden.

Discharge measurements of Cosper-Windham Canal near Duncan, Ariz., during the year ending September 30, 1924

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 2	1.60	11.6	Feb. 21	1.96	14.2	June 18	1.88	12.3
Oct. 15	1.58	10.4	Mar. 16	1.77	9.7	June 28	1.26	4.6
Oct. 31	1.54	9.0	Mar. 17	1.84	10.2	July 15	1.92	15.8
Dec. 4	1.34	5.8	Apr. 2	1.86	17.2	Aug. 1	1.78	14.0
Dec 14	1.28	5.9	Apr. 15	2.04	16.2	Aug. 16	1.20	4.6
Dec. 29	1.15	3.1	May 19	1.98	21.7	Sept. 1	1.96	17.0
Feb. 2	1.41	7.1	June3	1.88	13.5	Sept. 15	.90	1.6

Daily discharge, in second-feet, of Cosper-Windham Canal near Duncan, Ariz., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5.8	9.8	5.8	0	7.0	0	17	21	16	2.7	15	15
2	9.1	11	5.2	0	6.9	2.4	17	20	15	2.0	16	20
3	9.4	4.4	5.2	0	7.0	4.7	15	18	14	8.2	0.5	15
4	7.4	4.1	5.4	0	6.9	6.2	13	18	15	11	0	8.8
5	4.4	3.6	5.5	0	6.7	7.0	12	18	17	9.0	2.6	4.6
6	3.2	3.8	5.6	0	7.0	11	12	17	16	2.1	10	2.5
7	2.4	4.2	5.6	0	6.9	14	11	18	16	7.9	16	3.1
8	7.3	3.3	5.5	0	8.0	12	13	19	15	17	15	2.1
9	12	6.5	5.6	0	11	13	15	22	16	17	13	2.2
10	9.9	5.5	5.8	0	9.9	13	14	21	15	19	12	2.0
11	11	4.2	5.9	0	9.1	12	11	20	16	17	10	2.2
12	10	2.6	6.0	0	9.0	11	9.8	19	15	17	6.2	2.6
13	10	2.2	6.0	0	10	11	12	20	16	17	4.1	2.3
14	10	1.1	6.0	0	14	13	11	20	12	15	5.8	2.1
15	10	0	5.9	0	12	11	12	20	11	13	5.5	1.6
16	10	6.6	5.8	3.2	13	8.8	13	20	9.3	15	5.4	1.9
17	10	6.7	5.6	7.3	12	8.8	12	21	9.1	17	1.5	6.7
18	10	6.7	5.6	8.0	11	9.8	7.8	22	10	19	1.9	7.2
19	7.9	6.7	5.5	8.2	11	10	2.9	20	11	19	4.0	5.9
20	5.5	6.7	5.5	8.2	14	10	1.0	18	14	17	2.8	5.0
21	5.4	6.7	5.6	8.4	16	12	4.1	20	11	17	2.2	5.5
22	9.9	6.7	6.6	7.6	14	12	13	20	8.2	17	0.3	6.5
23	12	6.6	6.3	6.6	13	6.0	17	19	6.7	16	3.3	6.5
24	12	6.2	5.8	6.2	1.7	0	20	15	5.9	11	2.2	4.4
25	11	6.0	5.8	5.9	0	0	19	17	5.0	11	2.0	5.4
26	9.3	5.8	6.0	5.6	0	0	17	16	4.1	18	1.8	4.7
27	9.4	5.8	6.7	7.8	0	0	16	18	4.1	15	1.4	3.6
28	10	5.8	5.5	9.6	0	0	15	18	3.4	17	1.4	5.1
29	11	5.8	6.9	9.1	0	8.8	18	16	1.2	17	13	5.6
30	9.9	5.8	2.0	8.4	-------	17	18	18	1.9	15	15	5.5
31	9.3	-------	1.4	7.0	-------	17	-------	18	-------	14	17	-------

Monthly discharge of Cosper-Windham Canal near Duncan, Ariz., for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	12	2.4	8.85	544
November	11	0	5.36	319
December	6.9	1.4	5.54	341
January	9.6	0	3.78	232
February	16	0	8.18	471
March	17	0	8.44	519
April	20	1.0	13.0	774
May	22	15	18.9	1,160
June	17	1.2	11.0	655
July	19	2.0	13.9	855
August	17	0	6.67	410
September	20	1.6	5.52	328
The year	22	0	9.10	6,610

MODDLE CANAL NEAR DUNCAN, ARIZ.

LOCATION.—In NW. ¼ sec. 10, T. 19 S., R. 21 W. New Mexico principal meridian, in New Mexico, half a mile below intake, 4 miles east of Arizona-New Mexico boundary, and 9 miles east of Duncan, Greenlee County, Ariz.

RECORDS AVAILABLE.—October 1, 1914, to September 30, 1915; July 17, 1922, to September 30, 1924.

GAGE.—Vertical staff on left bank; read by J. L. and F. E. Foster.

DISCHARGE MEASUREMENTS.—Made from footbridge at gage.

CHANNEL AND CONTROL.—Bed composed of silt. Banks not subject to overflow. No well-defined control.

DIVERSIONS.—None.

REGULATION.—By head gate. Stage in canal varies considerably with stage in Gila River.

ACCURACY.—Stage-discharge relation continually changing. Standard rating curve well defined. Gage read to half-tenths twice a day. Daily discharge ascertained by applying mean daily gage height to rating table, using shifting-control method for entire year. Records good.

Canal diverts water from left side of Gila River in NW. ¼ sec. 11, T. 19 S., R. 21 W. New Mexico principal meridian, for irrigating 2,200 acres near Franklin.

Discharge measurements of Moddle Canal near Duncan, Ariz., during the year ending September 30, 1924

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 2	2.22	24.1	Jan. 13	1.26	1.5	May 19	2.27	40.5
Oct. 16	2.30	33.4	Feb. 3	2.50	28.6	June 3	2.66	62
Nov. 1	2.41	27.6	Feb. 22	2.68	41.9	June 28	.90	5.2
Nov. 15	1.70	8.6	Feb. 29	2.82	38.6	July 15	2.35	38.6
Dec. 4	2.43	22.9	Mar. 15	2.28	42.8	Aug. 1	1.98	26.7
Dec. 14	1.96	13.4	Mar. 16	2.40	41.8	Aug. 16	1.31	5.9
Dec. 18	1.94	12.7	Apr. 1	1.94	33.8			
Dec. 30	1.36	1.7	Apr. 16	.98	5.6			

Daily discharge, in second-feet, of Moddle Canal near Duncan, Ariz., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept
1	27	27	9.9	0	31	33	34	54	58	4.4	32	0
2	24	27	27	0	32	0	57	61	57	3.0	19	10
3	25	27	29	0	29	0	48	61	57	15	0	4.7
4	26	26	25	0	29	0	39	46	50	23	0	2.9
5	26	16	21	0	33	0	38	58	41	27	0	1.2
6	30	12	19	0	44	0	38	57	32	33	0	.6
7	36	9.7	17	0	35	0	38	46	29	42	46	.4
8	32	7.7	18	0	34	0	49	41	29	32	42	.4
9	32	11	17	0	34	0	34	42	31	24	41	.5
10	32	20	18	4.3	35	0	25	49	38	30	34	.5
11	31	36	16	6.8	37	0	24	45	32	37	34	.6
12	34	14	16	3.8	41	0	27	46	32	40	18	.5
13	35	14	14	1.4	39	20	30	46	24	25	15	.5
14	36	14	12	.8	43	40	37	43	17	35	17	.5
15	37	9.7	12	.3	44	40	38	45	17	42	14	.5
16	37	8.8	12	.1	48	40	21	52	13	39	11	.5
17	37	4.4	13	0	24	42	48	51	12	50	5.4	1.8
18	38	2.9	13	0	19	44	0	49	10	51	3.1	2.8
19	36	1.0	13	0	45	51	14	42	4.4	51	1.2	1.1
20	35	3.2	14	0	46	52	54	46	0	53	1.0	2.7
21	34	19	16	0	46	52	39	46	0	48	1.0	1.8
22	33	28	20	0	50	47	24	44	0	43	0.8	1.8
23	33	15	18	0	45	42	34	43	0	34	.3	3.6
24	32	19	15	0	42	44	0	44	0	32	0	3.3
25	31	15	14	0	44	46	0	44	5.3	39	0	2.7
26	31	14	14	0	44	44	10	46	5.3	50	0	2.5
27	30	11	33	0	43	37	54	48	5.3	41	0	1.8
28	29	9.4	26	21	40	27	50	46	5.1	47	0	3.1
29	29	7.3	14	39	42	21	56	45	4.3	0	25	3.7
30	28	7.1	1.7	36	-------	22	52	48	5.1	11	22	3.2
31	28	-------	0	34	-------	24	-------	54	-------	31	22	-------

Monthly discharge of Moddle Canal near Duncan, Ariz., for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	38	24	31.7	1,950
November	36	1.0	14.5	863
December	33	0	16.4	1,010
January	39	0	4.76	293
February	50	19	38.6	2,220
March	52	0	24.8	1,520
April	57	0	33.7	2,010
May	61	41	48.0	2,950
June	58	0	20.5	1,220
July	53	0	33.3	2,050
August	46	0	13.1	806
September	10	0	2.01	120
The year	61	0	23.4	17,000

VALLEY CANAL NEAR DUNCAN, ARIZ.

LOCATION.—In SW. ¼ sec. 32, T. 18 S., R. 21 W. New Mexico principal meridian, in New Mexico, half a mile below intake, a mile east of Arizona-New Mexico boundary, and 6 miles east of Duncan, Greenlee County, Ariz.

RECORDS AVAILABLE.—October 1, 1914, to September 30, 1915; July 17, 1923, to September 30, 1924.

GAGE.—Vertical staff on left bank; read by G. L. Hatch.

DISCHARGE MEASUREMENTS.—Made from footbridge at gage.

CHANNEL AND CONTROL.—Bed composed of silt. Banks vertical. No well-defined control.

DIVERSIONS.—No diversions above gage.

REGULATION.—By head gates. Flow in canal varies considerably with flow in Gila River.

ACCURACY.—Stage-discharge relation continually changing. Standard rating curve fairly well defined. Gage read to nearest two-hundredths twice a day. Daily discharge ascertained by applying daily mean gage height to rating table using shifting-control method for entire year. Records good.

Canal diverts water from right side of Gila River in NW. ¼ sec. 4, T. 19 S., R. 21 W. New Mexico principal meridian, in New Mexico, for irrigating 1,500 acres near Duncan.

Discharge measurements of Valley Canal near Duncan, Ariz., during the year ending September 30, 1924

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 2	1.54	12.8	Feb. 2	2.26	26.8	June 3	1.90	29.6
Oct. 16	1.70	13.7	Feb. 21	2.08	27.5	June 18	1.34	11.8
Oct. 31	1.66	12.2	Feb. 29	1.84	22.3	June 28	1.02	5.9
Nov. 16	1.97	20.1	Mar. 16	1.90	27.1	July 15	1.68	21.7
Dec. 4	1.80	10.2	Mar. 16	1.90	26.4	Aug. 1	1.78	27.5
Dec. 14	1.78	10.4	Apr. 2	2.06	34.1	Aug. 16	1.02	3.7
Dec. 18	1.78	11.4	Apr. 15	1.63	21.1	Sept. 1	1.73	22.8
Dec. 29	1.59	4.6	May 19	2.16	33.3	Sept. 15	.80	1.7
Jan. 16	1.54	4.0						

Daily discharge, in second-feet, of Valley Canal near Duncan, Ariz., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	8.8	14	11	0	23	0	7.7	39	31	6.3	29	21
2	14	14	10	5.4	28	11	14	37	29	17	29	17
3	14	15	10	9.0	27	11	32	37	35	36	0	8.7
4	14	16	11	6.6	30	11	30	34	15	28	16	5.0
5	13	16	11	5.8	30	12	30	34	10	22	30	4.0
6	13	16	10	4.2	31	12	12	31	12	24	27	3.6
7	13	16	11	3.0	32	12	7.7	27	25	25	16	3.3
8	12	17	11	2.2	32	12	7.7	31	21	17	26	3.0
9	12	16	11	1.7	31	9.4	9.2	33	18	18	23	2.8
10	12	16	11	1.7	28	8.7	33	36	19	20	19	2.4
11	13	22	11	1.5	28	4.2	16	12	19	27	15	2.0
12	12	22	11	3.6	29	8.6	24	40	21	20	14	2.0
13	13	17	11	6.8	30	13	25	39	19	26	12	2.0
14	13	17	11	5.8	31	14	28	40	20	23	7.6	2.0
15	13	16	12	5.0	30	27	27	39	18	21	6.8	1.8
16	14	17	12	4.6	23	26	30	37	17	20	4.9	1.8
17	13	16	12	3.4	24	25	30	38	16	22	4.2	1.8
18	12	16	12	3.4	29	27	30	36	13	24	6.8	3.9
19	13	16	12	3.4	28	27	30	35	13	24	7.4	3.8
20	12	15	12	3.3	28	33	30	30	12	33	3.8	3.8
21	12	15	11	3.3	28	32	32	32	12	25	3.8	3.8
22	10	15	11	3.6	18	32	36	33	11	22	3.3	3.9
23	11	15	12	3.4	15	33	35	35	9.8	16	3.1	7.9
24	12	14	10	3.5	29	33	36	36	8.5	29	2.7	3.9
25	11	14	9.6	3.8	29	34	36	37	8.2	29	2.5	3.9
26	11	14	13	3.6	29	35	36	35	8.2	28	2.6	3.7
27	12	14	15	3.8	25	35	36	35	8.2	14	3.1	3.7
28	11	14	11	6.4	25	37	37	38	7.3	38	38	3.2
29	9.4	13	4.5	12	23	32	36	36	7.4	26	28	2.8
30	10	12	1.0	20	-------	22	38	25	6.7	26	29	2.8
31	12	-------	.9	20	-------	13	-------	25	-------	34	27	-------

Monthly discharge of Valley Canal near Duncan, Ariz., for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	14	8.8	12.1	744
November	22	12	15.7	934
December	15	.9	10.4	640
January	20	0	5.28	325
February	32	15	27.3	1,570
March	37	0	20.7	1,270
April	38	7.7	27.0	1,610
May	40	12	33.9	2,080
June	35	6.7	15.7	934
July	38	6.3	23.9	1,470
August	38	0	14.2	873
September	21	1.8	4.51	268
The year	40	0	17.5	12,700

DUNCAN CANAL NEAR DUNCAN, ARIZ.

LOCATION.—In NE. ¼ sec. 29, T. 8 S., R. 32 E., 1 mile below intake and 2 miles east of Duncan, Greenlee County.

RECORDS AVAILABLE.—July 17, 1923, to September 30, 1924.

GAGE.—Vertical staff on left bank; read by Mrs. W. D. O'Neal.

DISCHARGE MEASUREMENTS.—Made by wading at gage.

CHANNEL AND CONTROL.—Bed composed of silt. Banks not subject to overflow. No defined control.

DIVERSIONS.—No diversions above gage.

REGULATION.—By headgates. Flow in canal varies considerably with flow in Gila River.

ACCURACY.—Stage-discharge relation continually changing. Rating curve fairly well defined. Gage read to nearest two-hundredths twice a day. Daily discharge ascertained by applying mean daily gage height to rating table, using shifting-control method for entire year. Records fair.

Canal diverts water from left side of Gila River in SW. ¼ sec. 28, T. 8 S., R. 32 E., for irrigating 250 acres near Duncan.

Discharge measurements of Duncan Canal near Duncan, Ariz., during the year ending September 30, 1924

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 2	1.58	1.3	Apr. 16	0.98	4.4	June 28	2.00	3.2
Oct. 16	1.58	2.0	May 19		2.6	July 15	1.10	.6
Oct. 31	1.42	1.8	June 3	1.98	5.6	Sept. 15	1.50	3.4
Dec. 30	1.28	.7	June 18	1.72	2.2			

Daily discharge, in second-feet, of Duncan Canal near Duncan, Ariz., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Apr.	May	June	July	Aug.	Sept.
1	0.4	1.6			2.8	3.4	2.6		
2	1.4	2.2		2.3	2.8	5.3	2.8		
3	.9	3.0		5.4	3.2	5.6	2.7		
4	.4	3.0		4.8	4.0	4.8	2.5		1.5
5	.3	2.2		4.8	3.4	4.6	2.2		2.7
6	.3	1.6		4.8	2.8	4.0	1.0	2.2	2.1
7		1.6		5.3	2.6	2.2		3.2	2.1
8		1.6		6.8	3.6	3.8		2.4	3.2
9		1.7		5.4	3.9	4.1		2.1	3.2
10		2.2		4.5	3.5	3.7		2.4	3.2
11		1.7		4.3	2.8	4.2		2.4	3.4
12	1.1	7.6		5.0	2.6	4.0		2.0	4.0
13	1.6			4.5	2.4	3.2	1.2	.8	3.0
14	1.1			4.5	2.2	.6	.9		3.2
15	1.1			3.5	2.4	2.7	.6		2.8
16	.9			4.2	2.1	2.6	.5		2.8
17	1.1			4.2	2.2	2.8	.3		2.8
18	1.1			5.8	2.2	2.4			2.8
19	.7			4.7	2.7	2.1			3.0
20	.7			3.8	3.0	1.6			3.0
21	.7			3.3	3.5	3.4			2.8
22	.7			3.0	3.4	3.6		1.2	2.8
23	1.1			3.0	3.4	3.6		2.4	2.7
24	1.1			3.8	3.2	3.6		2.4	2.7
25	1.1			3.8	3.1	3.6		2.2	2.5
26	1.1			3.9	2.7	3.4		2.0	2.3
27	1.1		5.0	3.0	2.4	3.2		1.8	2.5
28	1.1		3.8	3.3	3.8	2.8		1.5	2.8
29	1.1		.9	3.4	3.7	2.6		1.4	2.9
30	1.1		.6	2.8	3.2	2.4			3.2
31	1.4				3.2			1.5	

NOTE.—No flow on days for which no discharge is given.

Monthly discharge of Duncan Canal near Duncan, Ariz., for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	1.6	0	0.80	49.2
November	7.6	0	1.00	59.5
December	5.0	0	.33	20.3
January	0	0	0	0
February	0	0	0	0
March	0	0	0	0
April	6.8	0	4.06	242
May	4.0	2.1	2.99	184
June	5.6	.6	3.33	198
July	2.8	0	.54	33.2
August	3.2	0	1.09	67.0
September	4.0	0	2.53	151
The year	7.6	0	1.38	1,000

BLACK-McCLESKY CANAL AT DUNCAN, ARIZ.

LOCATION.—In SE. ¼ sec. 19, T. 8 S., R. 32 E., a quarter of a mile below intake, at Duncan, Greenlee County.

RECORDS AVAILABLE.—April 16 to September 30, 1915; July 17, 1923, to September 30, 1924.

GAGE.—Vertical staff on right bank; read by F. M. Craig.

DISCHARGE MEASUREMENTS.—Made from footbridge at gage.

CHANNEL AND CONTROL.—Bed composed of silt. Banks vertical, subject to overflow. No well-defined control.

DIVERSIONS.—No diversions above gage.

REGULATION.—By head gates. Flow in canal varies considerably with flow in Gila River.

ACCURACY.—Stage-discharge relation continually changing. Standard rating curve fairly well defined. Gage read to nearest two-hundredths twice a day. Daily discharge ascertained by applying mean daily gage height to rating table, using shifting-control method. Discharge interpolated November 19–21. Discharge estimated December 23–29. Records fair.

Canal diverts water from left side of Gila River in SE. ¼ sec. 19, T. 8 S., R. 32 E., for irrigating 400 acres near Duncan.

Discharge measurements of Black-McClesky Canal at Duncan, Ariz., during the year ending September 30, 1924

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 2	1.95	3.1	Mar. 16	0.88	4.6	June 28	1.42	6.2
Oct. 16	1.66	3.4	Mar. 16	.84	4.5	July 15	2.16	12.8
Oct. 31	2.00	2.6	Apr. 2	2.16	17.9	Aug. 1	2.07	14.6
Nov. 15	2.14	5.9	Apr. 16	1.93	14.3	Aug. 16	2.20	7.9
Dec. 4	1.28	.1	May 19	2.06	15.7	Sept. 1	2.07	8.1
Dec. 30	1.21	.5	June 3	2.02	10.5	Sept. 15	1.54	4.2
Feb. 29	1.16	9.9	June 18	1.37	7.1			

Daily discharge, in second-feet, of Black-McClesky Canal at Duncan, Ariz., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.8	0.9	0.3	------	9.9	15	6.2	17	4.5	15	11
2	4.2	.9	.4	------	10	17	6.9	17	4.8	12	12
3	3.6	2.4	.3	------	10	23	7.5	15	7.8	18	13
4	3.0	2.4	.1	------	9.4	21	9.2	10	13	12	7.5
5	2.5	2.2	.1	------	9.4	20	11	4.4	18	9.5	4.5
6	2.3	1.8	------	------	9.3	17	11	3.5	18	5.5	3.9
7	2.6	1.8	------	------	8.6	19	5.5	3.6	19	2.2	4.9
8	2.6	2.2	------	------	7.8	22	7.0	2.4	17	2.1	3.9
9	2.4	1.8	------	------	7.7	21	7.0	3.0	17	4.2	2.6
10	2.6	1.8	------	------	6.6	15	7.6	4.9	15	5.5	2.7
11	3.0	10	------	------	7.2	12	7.8	2.8	20	8.2	2.8
12	3.0	19	.1	------	6.3	12	7.7	1.6	20	11	2.9
13	3.2	12	------	------	5.7	12	7.0	1.7	21	15	2.3
14	4.2	7.8	------	------	4.6	12	5.0	2.6	20	0	3.5
15	4.1	5.0	------	------	3.8	12	4.9	4.3	16	8.2	4.6
16	3.8	5.4	------	------	4.1	14	7.0	5.8	14	9.0	3.5
17	3.4	6.5	.9	------	4.5	12	13	8.4	11	8.8	2.4
18	2.9	3.4	1.9	------	6.3	23	22	7.8	11	9.2	3.2
19	2.5	3.0	2.0	------	7.4	20	17	8.7	5.7	8.2	5.2
20	2.4	2.5	1.9	------	8.4	16	12	9.0	2.4	7.7	6.2
21	2.2	2.0	2.6	------	9.2	15	16	11	8.1	7.7	3.1
22	1.8	1.6	3.3	------	8.8	15	15	10	9.6	6.4	2.5
23	1.6	1.0		------	9.5	12	14	7.0	5.4	5.0	2.8
24	1.6	.8		------	9.5	13	14	6.0	6.0	3.1	3.1
25	1.4	.8		4.9	8.8	13	12	6.0	7.1	2.4	2.9
26	1.2	.8	2	10	8.1	14	15	4.8	18	2.2	3.0
27	1.3	.4		9.6	8.7	11	6.6	5.5	21	2.1	2.7
28	1.0	.4		10	20	10	.1	7.7	18	2.5	2.6
29	.8	.4		9.6	21	7.8	8.2	5.5	19	15	3.0
30	.7	.4	.5	------	15	6.9	21	5.7	21	9.3	2.3
31	1.4	------	------	------	13	------	20	------	17	18	------

NOTE.—No flow on days for which no discharge is given

Monthly discharge of Black-McClesky Canal at Duncan, Ariz., for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	4.2	0.7	2.49	153
November	19	.4	3.38	201
December	----------	0	.92	56.6
January	0	0	0	0
February	10	0	1.52	87.4
March	21	3.8	8.99	553
April	23	6.9	15.1	898
May	22	.1	10.5	646
June	17	1.6	6.76	402
July	21	2.4	13.7	842
August	18	0	7.90	486
September	13	2.3	4.35	259
The year	23	0	6.31	4,580

COLMONERO CANAL NEAR DUNCAN, ARIZ.

LOCATION.—In SE. ¼ sec. 33, T. 7 S., R. 31 E., 3 miles below intake and 6 miles northwest of Duncan, Greenlee County.

RECORDS AVAILABLE.—September 19, 1914, to September 30, 1915; July 20, 1923, to September 30, 1924.

GAGE.—Vertical staff gage on left bank; read by C. G. Elliott. Gage moved half a mile downstream March 23, 1924; read by Mrs. J. B. Fullerton.

DISCHARGE MEASUREMENTS.—Made from footbridge at gage.

CHANNEL AND CONTROL.—Bed composed of silt. Banks vertical. No well-defined control.

DIVERSIONS.—About 12 acres irrigated above gage after March 23.

REGULATION.—By head gates. Flow in canal varies considerably with flow in Gila River.

ACCURACY.—Stage-discharge relation continually changing. Rating curve to March 22 poorly defined. Rating curve March 23 to September 30 fairly well defined. Gage read to nearest hundredth twice a day. Daily discharge ascertained by applying mean daily gage height to rating tables, using shifting-control method for entire year. Discharge estimated January 7, 8, February 11–13, and March 23. Records fair.

Canal diverts water from right side of Gila River in SE. ¼ sec. 11, T. 8 S., R. 31 E., for irrigating 460 acres near Sheldon.

Discharge measurements of Colmonero Canal near Duncan, Ariz., during the year ending September 30, 1924

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 2	1.40	3.6	Feb. 3	1.49	4.0	June 30	0.30	1.3
Oct. 16	1.62	7.2	Apr. 2	[a] 1.06	5.2	July 18	1.32	10.3
Nov. 1	1.36	4.4	May 19	.92	8.1	Sept. 2	1.04	6.4
Nov. 16	1.44	4.8	June 5	.88	5.4	Sept. 15	.60	2.3
Dec. 15	1.31	3.1	June 19	1.20	8.5			

[a] New gage established Mar. 23, 1924.

Daily discharge, in second-feet, of Colmonero Canal near Duncan, Ariz., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.7	5.2	3.4	0	0	0	4.8	11	7.3	0	3.6	3.8
2	3.7	4.3	3.4	0	0	2.4	5.2	9.5	6.8	0	2.4	5.3
3	3.6	4.6	0	0	4.0	0	2.5	9.7	6.3	4.0	2.8	7.2
4	3.5	4.5	0	0	0	0	1.9	11	6.0	3.4	0	6.8
5	3.3	4.4	0	0	0	0	1.9	11	5.6	6.8	0	3.4
6	3.2	4.3	0	.6	0	0	0	8.1	5.9	7.5	1.4	4.9
7	3.9	4.3	.8	.6	0	0	0	7.8	5.8	6.6	5.5	3.5
8	4.8	4.4	2.6	.6	0	0	0	7.1	6.0	8.5	4.2	3.2
9	4.8	4.2	2.8	0	0	0	0	7.9	7.5	8.0	4.8	3.1
10	5.0	4.2	3.0	0	2.2	0	0	7.0	4.8	6.3	4.1	3.1
11	5.1	0	3.1	0	2.2	0	0	6.6	1.8	8.9	3.2	2.3
12	5.4	0	3.2	0	2.2	0	0	6.9	2.5	8.8	3.4	2.3
13	5.7	0	3.1	0	2.2	0	0	8.0	7.3	6.9	1.3	2.3
14	5.9	0	3.2	0	0	0	0	11	5.8	8.5	0	1.3
15	6.2	2.4	3.2	0	0	0	0	11	3.7	8.4	0	1.8
16	6.2	4.8	3.2	0	0	0	0	11	5.4	9.7	0	2.2
17	6.1	4.2	3.4	0	0	0	0	11	3.7	9.9	4.7	1.8
18	6.0	3.8	3.4	0	0	0	2.5	11	6.0	9.9	5.4	1.5
19	6.1	3.6	3.4	0	0	0	5.4	9.9	7.9	7.5	2.8	1.8
20	6.0	3.6	3.4	0	0	0	4.8	10	7.5	0	6.9	1.7
21	6.0	3.5	3.6	0	0	0	5.6	10	6.1	0	6.9	1.8
22	6.0	3.4	3.8	0	0	5.8	4.7	6.9	4.8	1.6	7.4	2.5
23	5.9	3.3	3.8	0	0	2.7	7.3	10	0	3.2	5.1	2.6
24	5.8	3.4	3.8	0	0	2.2	7.0	10	5.0	3.4	3.4	2.2
25	5.9	3.4	3.8	0	0	2.0	11	9.0	2.6	3.3	3.4	2.0
26	5.9	3.4	3.8	0	0	2.4	10	11	2.2	0	3.8	1.5
27	5.9	3.4	1.9	0	0	2.9	9.5	9.9	1.4	0	2.9	2.3
28	6.0	3.4	0	0	0	4.0	8.9	7.7	0	0	3.6	1.8
29	6.0	3.4	0	0	0	2.7	8.3	8.4	1.1	0	4.5	2.0
30	6.0	3.4	0	0	-------	0	8.0	9.3	.6	1.6	3.6	1.8
31	5.9	-------	0	0	-------	0	-------	7.5	-------	0	1.6	-------

Monthly discharge of Colmonero Canal near Duncan, Ariz., for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	6.2	3.2	5.27	324
November	5.2	0	3.36	200
December	3.8	0	2.36	145
January	.6	0	.06	3.7
February	4.0	0	.44	25.3
March	5.8	0	.87	53.5
April	11	0	3.64	217
May	11	6.6	9.23	568
June	7.9	0	4.58	273
July	9.9	0	4.60	283
August	7.4	0	3.31	204
September	7.2	1.5	2.79	166
The year	11	0	3.40	2,460

YORK CANAL AT YORK, ARIZ.

LOCATION.—In SE. ¼ sec. 19, T. 6 S., R. 31 E., half a mile below intake, opposite suspension bridge at York, and 16 miles north of Duncan, Greenlee County.

RECORDS AVAILABLE.—September 19, 1914, to September 30, 1915; May 15, 1923, to September 30, 1924, discharge measurements only.

GAGE.—None.

DISCHARGE MEASUREMENTS.—Made by wading near road crossing.

CHANNEL AND CONTROL.—Bed composed of silt. Banks vertical. No well-defined control.

DIVERSIONS.—None above measuring station.

REGULATION.—By head gate. Flow in canal varies with flow in Gila River.

Canal diverts water from right side of Gila River in SW. ¼ sec. 29, T. 6 S., R. 31 E., for irrigating 286 acres near York.

Discharge measurements of York Canal at York, Ariz., during the years ending September 30, 1923 and 1924

Date	Discharge	Date	Discharge	Date	Discharge
1923	*Sec.-ft.*	1924	*Sec.-ft.*	1924	*Sec.-ft.*
May 15	5.6	Mar. 1	1.1	June 30	1.1
July 21	9.2	Mar. 17	3.5	Aug. 2	2.5
		June 5	4.5	Sept. 2	5.5
1924					
Feb. 5	2.0				

BROWN CANAL NEAR SOLOMONVILLE, ARIZ.

LOCATION.—In SE. ¼ SE. ¼ sec. 30, T. 6 S., R. 28 E., near Earven ranch, a quarter of a mile below intake and 10 miles east of Solomonville, Graham, County.

RECORDS AVAILABLE.—June 1, 1914, to September 30, 1915; December 20, 1920, to September 30, 1924.

GAGE.—Vertical enamel staff on right bank 10 feet below head gate; read by J. W. Earven.

DISCHARGE MEASUREMENTS.—Made by wading.

CHANNEL AND CONTROL.—Bed composed of silt. Banks not subject to overflow.

DIVERSIONS.—No diversions above gage.

REGULATION.—By head gates. Flow in canal varies considerably with flow in Gila River.

ACCURACY.—Stage-discharge relation permanent April 5 to September 30; changing continually during other periods. Rating curve well defined. Gage read to half-tenths twice a day. Daily discharge ascertained by applying mean daily gage height to rating table, using shifting-control method October 1 to April 4. Records good.

Canal diverts water from right side of Gila River in the SE. ¼ sec. 30, T. 6 S., R. 28 E., for irrigating about 820 acres east of Solomonville.

Discharge measurements of Brown Canal near Solomonville, Ariz., during the year ending September 30, 1924

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 2	4.80	6.0	Apr. 13	5.60	29.5	July 1	4.28	2.8
Nov. 1	5.10	13.0	May 12	5.15	18.6	Aug. 1	4.68	8.1
Nov. 16	4.53	1.4	June 4	4.78	10.2	Aug. 15	4.70	8.4
Mar. 21	5.26	19.8	June 12	4.30	2.9	Sept. 1	4.30	3.2

Daily discharge, in second-feet, of Brown Canal near Solomonville, Ariz., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	9.7	11	0.7	18	0	18	23	16	17	2.0	9.1	2.7
2	6.1	11	.7	8.5	0	18	21	16	17	2.0	8.7	2.7
3	6.9	11	1.0	0	0	18	16	15	17	2.0	8.7	2.7
4	8.7	11	2.3	0	0	18	14	17	14	5.9	5.3	2.7
5	6.1	11	1.4	0	0	18	5.3	17	10	11	5.3	2.7
6	6.1	11	.7	0	0	18	15	17	10	7.8	5.3	2.7
7	3.3	13	.7	0	0	18	22	19	10	2.7	8.7	2.7
8	2.7	18	.7	0	0	18	30	15	10	2.7	13	2.7
9	1.7	18	.7	0	0	18	15	15	10	3.3	12	2.7
10	1.3	18	1.4	0	0	18	30	15	10	2.7	11	2.7
11	1.7	5.8	2.3	0	0	18	30	17	10	2.2	11	[5]2.7
12	2.2	.8	2.3	0	0	18	30	17	6.6	2.7	11	2.7
13	4.6	2.9	2.3	0	0	18	30	15	3.3	2.9	11	2.7
14	7.8	1.0	1.4	0	0	18	28	16	3.3	2.7	11	2.7
15	7.8	.8	1.0	0	0	18	27	17	3.3	5.3	9.1	2.2
16	1.3	1.1	.7	0	0	18	24	15	3.3	5.3	8.7	1.7
17	1.3	.3	.7	0	0	18	24	15	3.3	6.1	8.7	1.7
18	4.6	1.1	.7	0	9.2	18	15	17	3.3	6.9	8.7	2.2
19	18	.6	.7	0	18	18	15	15	3.3	6.1	8.7	2.7
20	18	.6	.7	0	18	18	15	16	3.3	4.6	8.7	2.7
21	18	.6	.7	0	18	21	15	17	2.6	3.9	5.3	3.3
22	9.7	.6	.7	0	18	21	15	15	2.1	2.7	2.7	2.9
23	18	.1	.7	0	18	18	19	16	2.1	3.9	2.7	3.3
24	18	.6	.7	0	18	21	24	16	2.0	3.3	2.7	3.3
25	14	.6	1.4	0	18	23	24	15	2.0	3.5	2.9	3.3
26	9.7	.6	5.5	0	18	21	24	15	1.9	4.6	2.7	3.3
27	9.7	.6	18	0	18	21	24	16	2.0	6.9	2.7	2.7
28	9.9	.7	9.2	0	18	21	19	15	2.0	5.3	2.7	2.7
29	8.9	.7	16	0	18	26	15	15	2.0	9.7	2.7	2.7
30	8.9	.7	16	0	-------	26	15	16	2.0	12	2.7	2.7
31	8.9	-------	18	0	-------	26	-------	17	-------	11	2.9	-------

Monthly discharge of Brown Canal near Solomonville, Ariz., for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	18	1.3	8.18	503
November	18	.1	5.13	305
December	18	.7	3.55	218
January	18	0	.85	52.3
February	18	0	7.14	411
March	26	18	19.5	1,200
April	30	5.3	20.8	1,240
May	19	15	16.0	984
June	17	1.9	6.29	374
July	12	2.0	4.96	305
August	13	2.7	6.98	429
September	3.3	1.7	2.71	161
The year	30	0	10.7	6,180

BROWN CANAL WASTEWAY NEAR SOLOMONVILLE, ARIZ.

LOCATION.—In SE. ¼ NE. ¼ sec. 31, T. 6 S., R. 28 E., near Earven ranch, 10 miles east of Solomonville, Graham County.

RECORDS AVAILABLE.—December 20, 1920, to September 30, 1924.

GAGE.—Vertical enamel staff on right bank 200 feet below waste gate; read by J. W. Earven.

DISCHARGE MEASUREMENTS.—Made by wading.

CHANNEL AND CONTROL.—Bed composed of silt. Channel straight. Banks not subject to overflow.

DIVERSIONS.—None.

REGULATION.—Complete regulation by waste gate of Brown Canal.

ACCURACY.—Stage-discharge relation not permanent. Standard rating curve fairly well defined. Gage read to half-tenths twice a day. Daily discharge ascertained by applying daily mean gage height to rating table; shifting-control method used February 18 to August 21. Records good.

Wasteway returns water from Brown Canal to Gila River half a mile below station on Gila River near Solomonville.

Discharge measurements of Brown Canal wasteway near Solomonville, Ariz., during the year ending September 30, 1924

Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Mar. 21	5.45	18.8	May 12	4.68	1.6
Apr. 13	5.63	16.9	Aug. 1	4.50	.4

Daily discharge, in second-feet, of Brown Canal wasteway near Solomonville, Ariz., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.
1				1.0		16	20	3.3	1.2		0.2
2				1.5		16	16	2.1	1.2		
3						16	15	1.2	4.0		
4						16	13	.7	.4		.2
5						16	4	.7	.4		.6
6						17	10	.6	.4		
7		0.1				17	5.2	.2	.4		
8		.2				17	1.9	.1	.4		
9		.1				18	11	.1	.2		
10		1.5				16	3.4	.1	.4		
11						16	2.2	.1	.4		.3
12						17	16	1.7	.2		.3
13	1.5					18	16	.4			.2
14	.3					18	12	.2			.8
15	.3					18	7.3				
16	.3					18	6.6	.1			
17	.1					18	5.9	.1			
18					7	18	3.4				
19					18	18	5.7	.4			
20					15	18	12	.3			.2
21	3.2				15	19	12	.8			.2
22	1.5				15	18	8.8	.2			
23	5.5				12	18	9.2	2			
24			0.5		10	17	6.0	.8			
25	1.2				10	17	5.4				
26	1.0		1.8		10	17	5.8				
27	1.0		7.8		15	18	5.6	.2		4.9	
28	.1		3.3		18	18	5.0	1.0		.2	
29			1.5		16	24	4.4	1.2			
30			1.5			16	4.2	1.2			
31			1.0			14		1.2			

NOTE.—No flow on days for which no discharge is given.

Monthly discharge of Brown Canal wasteway near Solomonville, Ariz., for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	5.5	0	0.52	32.0
November	1.5	0	.06	3.57
December	7.8	0	.56	34.4
January	1.5	0	.08	4.92
February	18	0	5.6	322
March	24	14	17.3	1,060
April	20	1.9	8.43	502
May	3.3	0	.62	38.1
June	4.0	0	.32	19.0
July	4.9	0	.16	9.84
August	.8	0	.10	6.15
September	0	0	0	0
The year	24	0	2.80	2,040

MICHELANA CANAL NEAR SOLOMONVILLE, ARIZ.

LOCATION.—In NE. ¼ SW. ¼ sec. 3, T. 7 S., R. 27 E., at Moody ranch, a quarter of a mile below head gate, and 6 miles northeast of Solomonville, Graham County.

RECORDS AVAILABLE.—October 1, 1914, to September 30, 1915; December 21, 1920, to September 30, 1924.

GAGE.—Vertical staff on right bank 30 feet below wagon bridge; read by Edwin Moody.

DISCHARGE MEASUREMENTS.—Made by wading.

CHANNEL AND CONTROL.—Bed composed of silt. Banks vertical. No well-defined control.

DIVERSIONS.—None above gage.

REGULATION.—By head gate. Flow in canal varies considerably with flow in Gila River.

ACCURACY.—Stage-discharge relation not permanent. Standard rating curve fairly well defined. Gage read to half-tenths twice a day. Daily discharge ascertained by applying mean daily gage height to rating table using shifting-control method for entire year. Records fair.

Canal diverts water from right side of Gila River in the SW. ¼ sec. 31, T. 7 S., R. 28 E., for irrigating about 450 acres near Solomonville.

Discharge measurements of Michelana Canal near Solomonville, Ariz., during the year ending September 30, 1924

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 2	4.47	3.8	June 4	4.15	5.0	Aug. 21	4.12	5.3
Nov. 1	4.00	.3	July 1	4.06	4.2	Sept. 1	4.00	3.9
May 19	4.20	6.9	Aug. 1	4.43	6.7	Sept. 15	3.87	1.9

Daily discharge, in second-feet, of Michelana Canal near Solomonville, Ariz., for the year ending September 30, 1924

Day	Oct.	Nov.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.1	0.3	--------	9.2	5.8	8.6	5.8	3.6	4.4	3.3
2	3.1	.3	--------	6.9	5.8	8.6	5.7	3.6	3.4	3.0
3	3.1	.7	--------	6.9	5.8	8.6	5.6	3.6	3.5	2.9
4	3.1	.5	--------	6.9	5.8	8.6	5.5	3.6	3.1	2.9
5	3.1	.5	--------	6.9	5.8	8.6	5.5	3.5	2.8	2.8
6	2.7	.2	--------	6.9	4.8	9.2	4.5	4.4	2.9	2.7
7	2.2	--------	--------	6.9	3.8	9.2	4.5	5.4	2.6	2.6
8	2.2	--------	--------	6.9	3.8	9.2	4.5	5.3	2.2	2.6
9	1.8	--------	--------	6.9	3.8	9.0	4.5	4.3	2.3	2.6
10	.9	--------	--------	6.9	3.8	8.6	4.5	4.2	3.2	2.5
11	.6	--------	--------	8.1	4.3	8.6	4.5	4.2	3.2	2.4
12	.6	--------	--------	8.1	4.8	8.6	4.5	4.1	3.3	2.4
13	.4	--------	--------	8.1	4.8	7.8	4.0	4.1	3.0	2.3
14	.4	--------	--------	8.1	4.8	6.9	3.6	5.1	2.6	2.2
15	.4	--------	--------	8.1	4.8	6.9	3.6	6.0	2.7	2.2
16	.3	--------	--------	7.5	5.8	6.9	3.6	5.5	2.8	2.2
19	.2	--------	--------	6.9	8.6	6.9	3.6	4.9	2.9	2.2
18	.2	--------	--------	6.9	12	6.9	3.6	4.4	3.0	2.2
19	.2	--------	--------	6.9	11	6.9	3.6	3.8	3.0	2.2
20	.2	--------	--------	6.9	11	6.9	2.8	3.8	3.1	2.2
21	.2	--------	--------	6.9	9.2	6.8	2.8	3.8	3.8	2.3
22	.2	--------	--------	6.9	9.2	6.7	2.8	3.7	3.2	2.3
23	.1	--------	--------	6.9	9.2	6.6	2.8	4.7	3.2	1.9
24	.1	--------	--------	6.9	9.2	6.5	2.8	4.6	3.2	2.0
25	.1	--------	6.9	6.9	9.0	6.3	2.8	4.1	3.1	2.0
26	.1	--------	6.9	6.9	8.6	6.3	2.8	3.6	3.1	2.0
27	.1	--------	8.1	6.9	8.6	6.2	3.2	3.6	3.1	2.1
28	.1	--------	9.2	6.0	8.6	6.1	2.8	3.6	3.1	2.1
29	.1	--------	9.2	5.0	8.6	6.0	2.8	3.5	3.0	2.1
30	.1	--------	--------	4.8	8.6	5.9	2.8	3.5	3.0	2.2
31	.1	--------	--------	4.8	--------	5.9	--------	3.4	3.0	--------

NOTE.—No flow Nov. 7 to Feb. 24.

Monthly discharge of Michelana Canal near Solomonville, Ariz., for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	3.1	0.1	0.97	59.6
November	.7	0	.08	4.76
December	0	0	0	0
January	0	0	0	0
February	9.2	0	1.39	80.0
March	9.2	4.8	6.96	428
April	12	3.8	6.99	416
May	9.2	5.9	7.45	458
June	5.8	2.8	3.88	231
July	6.0	3.4	4.18	257
August	4.4	2.2	3.06	188
September	3.3	1.9	2.38	142
The year	12	0	3.12	2,260

FOURNESS CANAL NEAR SOLOMONVILLE, ARIZ.

LOCATION.—In SE. ¼ SE. ¼ sec. 35, T. 6 S., R. 27 E., three-quarters of a mile below intake and 8 miles east of Solomonville, Graham County.

RECORDS AVAILABLE.—October 1, 1914, to September 30, 1915; December 20, 1920, to September 30, 1924.

GAGE.—Vertical staff on right bank 300 feet below waste gate; read by David Jurado.

DISCHARGE MEASUREMENTS.—Made by wading at gage.

CHANNEL AND CONTROL.—Bed composed of silt. Channel small and uniform in cross section. No well-defined control.

DIVERSIONS.—No diversions above gage.

REGULATION.—By head gate. Flow in canal varies considerably with flow in Gila River.

ACCURACY.—Stage-discharge relation not permanent. Standard rating curve fairly well defined. Gage read to half-tenths twice a day. Daily discharge ascertained by applying mean daily gage height to rating table using shifting-control method for entire year. Records fair.

Canal diverts water from left side of Gila River in NE. ¼ sec. 1, T. 7 S., R. 27 E., for irrigating about 260 acres near Solomonville.

Discharge measurements of Fourness Canal near Solomonville, Ariz., during the year ending September 30, 1924

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 9	4.65	3.3	May 3	5.05	4.7	Aug. 1	4.95	3.1
Oct. 19	4.55	1.9	June 4	5.10	4.4	Sept. 1	5.20	4.2
Nov. 1	4.60	1.7	June 21	4.90	2.6	Sept. 15	4.56	.1
Mar. 21	4.86	6.3	July 1	4.78	1.2			
Apr. 11	4.73	2.6	July 14	5.10	3.8			

Daily discharge, in second-feet, of Fourness Canal near Solomonville, Ariz., for the year ending September 30, 1924

Day	Oct.	Nov.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	1.2	--------	9.0	7.3	3.4	4.5	1.4	3.4	1.4
2	.5	1.1	--------	7.3	6.2	4.0	4.5	1.2	4.0	1.4
3	1.4	1.1	--------	7.3	5.4	3.4	4.5	1.9	4.0	1.2
4	2.2	1.1	--------	7.3	5.8	3.0	4.0	2.2	4.0	1.4
5	2.5	1.1	--------	7.0	5.8	3.0	3.4	3.4	3.0	1.2
6	3.0	1.1	--------	6.6	5.4	2.2	3.0	3.4	3.0	1.1
7	3.0	1.1	--------	6.6	5.2	2.2	2.5	2.5	3.4	1.1
8	3.1	1.0	--------	6.6	4.5	2.2	2.5	2.5	3.4	1.0
9	3.4	1.0	--------	6.6	4.0	2.2	2.2	1.9	3.4	1.0
10	3.0	1.0	--------	6.1	3.0	4.0	1.9	2.2	3.4	.8
11	2.8	--------	--------	5.8	2.5	4.0	1.9	2.5	4.5	.6
12	2.7	--------	--------	5.8	3.0	1.6	1.8	2.5	4.5	.4
13	2.6	--------	--------	5.8	3.4	1.6	1.6	2.5	5.8	.4
14	3.0	--------	--------	5.8	4.0	3.0	1.6	2.2	5.2	.4
15	2.6	--------	--------	5.8	4.0	3.4	2.5	1.4	4.5	.2
16	2.1	--------	--------	5.8	4.5	4.0	2.2	1.4	3.4	1.4
17	1.8	--------	--------	5.8	4.5	1.6	1.9	1.4	1.9	1.4
18	1.7	--------	--------	5.8	4.8	1.6	1.9	0	1.9	1.4
19	1.6	--------	--------	5.8	5.2	2.2	1.9	0	2.5	1.6
20	1.6	--------	2.5	5.2	5.5	2.2	1.8	0	3.4	.8
21	1.6	--------	5.2	5.5	5.8	2.2	1.6	0	4.0	.2
22	1.6	--------	9.0	5.8	5.2	2.2	1.6	0	4.0	.2
23	1.5	--------	9.0	5.8	4.5	3.0	1.4	0	4.0	.2
24	1.4	--------	9.0	5.8	4.0	4.5	1.4	2.0	4.0	.2
25	1.3	--------	9.3	5.8	3.4	7.3	1.6	2.3	4.0	.2
26	1.2	--------	9.8	5.2	3.4	5.8	1.6	0	4.5	.2
27	1.2	--------	11	5.2	3.4	5.8	1.6	0	4.5	.2
28	1.2	--------	11	5.2	3.0	4.5	1.6	0	4.5	.2
29	1.3	--------	9.8	1.9	3.0	4.5	1.6	1.5	4.5	.2
30	1.3	--------	--------	5.8	3.4	4.5	1.6	3.0	4.5	.2
31	1.3	--------	--------	5.8	--------	4.5	--------	3.4	4.5	--------

NOTE.—No flow Nov. 11 to Feb. 19.

Monthly discharge of Fourness Canal near Solomonville, Ariz., for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	3.4	0	1.92	118
November	1.2	0	.36	21.4
December	0	0	0	0
January	0	0	0	0
February	11	0	2.95	170
March	9.0	1.9	5.99	368
April	7.3	2.5	4.44	264
May	7.3	1.6	3.34	205
June	4.5	1.4	2.26	134
July	3.4	0	1.57	96.5
August	5.8	1.9	3.86	237
September	1.6	.2	.74	44.0
The year	11	0	2.29	1,660

SAN JOSE CANAL NEAR SOLOMONVILLE, ARIZ.

LOCATION.—In NW. ¼ NE. ¼ sec. 10, T. 7 S., R. 27 E., near Curtis ranch, 2 miles below intake and 4 miles east of Solomonville, Graham County.

RECORDS AVAILABLE.—April 1, 1914, to September 30, 1915; December 21, 1920, to September 30, 1924.

GAGE.—Water-stage recorder installed April 13, 1922, 17 feet above concrete drop, 200 feet below waste gate, and 2 miles below heading; inspected by H. D. Empie.

DISCHARGE MEASUREMENTS.—Made by wading or from footbridge near gage.

CHANNEL AND CONTROL.—Wide, uniform section. Well-defined banks. Principal control is formed by concrete drop 17 feet below gage.

DIVERSIONS.—One diversion above gage, irrigating 90 acres.

REGULATION.—By head gates. Flow in canal varies considerably with flow in Gila River.

ACCURACY.—Stage-discharge relation permanent, except for period October 1–8 and April 20 to May 22. Standard rating curve well defined. Operation of water-stage recorder satisfactory. Daily discharge ascertained by applying mean daily gage height to rating table; shifting-control method used October 1–8 and April 20 to May 22. Records good.

Canal diverts water from left side of Gila River in the SW. ¼ sec. 36, T. 6 S., R. 27 E., for irrigating 3,000 acres near Solomonville and Safford.

Discharge measurements of San Jose Canal near Solomonville, Ariz., during the year ending September 30, 1924

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 1	0.88	84	Dec. 17	0.48	28.2	May 3	1.065	112
Oct. 19	.68	50	Jan. 1	.20	5.9	May 19	.99	100
Nov. 1	.51	32.3	Jan. 10	.36	18.7	June 1	.66	48.6
Nov. 16	.30	13.2	Feb. 19	.94	85	July 1	.44	26.3
Dec. 1	.44	26.3	Mar. 21	.90	80	Aug. 1	.92	80
Dec. 15	.42	23.2	Apr. 1	.90	76	Sept. 1	.51	32.5

Daily discharge, in second-feet, of San Jose Canal near Solomonville, Ariz., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	81	37	23	6	48	55	79	126	43	28	70	28
2	84	43	24	2	40	97	94	123	32	28	61	28
3	90	39	26	13	43	84	90	111	31	46	70	27
4	93	40	18	24	32	82	91	111	42	38	65	28
5	91	37	15	23	5	107	87	111	38	50	77	28
6	93	33	28	26	19	104	85	105	38	50	82	28
7	91	38	37	18	20	97	85	100	37	36	74	28
8	91	46	36	20	20	96	90	99	32	31	71	28
9	57	46	36	21	12	96	88	102	28	25	50	27
10	43	44	13	20	1	85	88	100	28	31	29	27
11	34	51	0	22	0	79	78	99	30	30	28	23
12	33	31	0	18	0	75	90	99	28	31	35	27
13	44	19	0	14	0	84	97	111	26	36	45	28
14	46	20	0	10	0	88	100	115	26	32	72	28
15	44	17	11	6	40	87	105	111	25	29	55	23
16	50	13	28	5	75	84	110	111	22	32	40	21
17	48	6	29	3	72	85	120	110	27	40	31	42
18	48	13	29	2	74	88	111	107	27	44	28	33
19	47	28	23	0	82	91	90	96	28	47	24	28
20	45	32	11	0	91	84	133	100	27	57	20	27
21	44	29	7	2	94	79	124	108	24	47	24	26
22	44	29	3	9	94	78	126	104	24	46	22	26
23	42	28	11	26	94	77	124	87	24	45	22	25
24	43	25	17	36	94	79	120	75	24	33	23	27
25	44	24	18	36	97	78	126	70	24	27	28	26
26	44	26	21	34	102	90	118	67	22	31	29	26
27	46	28	24	43	104	97	123	67	16	46	28	26
28	48	28	0	46	76	91	120	63	22	50	28	25
29	52	27	9	46	4	70	121	57	22	52	28	24
30	43	26	7	47	------	75	123	52	22	68	30	26
31	43	------	9	50	------	79	------	48	------	79	28	------

Monthly discharge of San Jose Canal near Solomonville, Ariz., for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	93	33	56.3	3,460
November	51	6	30.1	1,790
December	37	0	16.5	1,010
January	50	0	20.3	1,250
February	104	0	49.4	2,840
March	107	55	85.2	5,240
April	133	78	105	6,250
May	126	48	95.0	5,840
June	43	16	28.0	1,670
July	79	25	40.8	2,510
August	82	20	42.5	2,610
September	42	21	27.1	1,610
The year	133	0	49.7	36,100

MONTEZUMA CANAL NEAR SOLOMONVILLE, ARIZ.

LOCATION.—In SE. ¼ NW. ¼ sec. 17, T. 7 S., R. 27 E., 1 mile below intake and 2 miles east of Solomonville, Graham County.

RECORDS AVAILABLE.—April 1, 1914, to September 30, 1915; December 29, 1920, to September 30, 1924.

GAGE.—Water-stage recorder installed June 26, 1922, on left bank 200 feet below waste gate; inspected by H. D. Empie.

DISCHARGE MEASUREMENTS.—Made by wading or from footbridge at gage.

CHANNEL AND CONTROL.—Bed composed of silt. Banks vertical. No well defined control.

DIVERSIONS.—None above gage.

REGULATION.—By head gates and waste gate. Flow in canal varies considerably with flow in Gila River.

ACCURACY.—Stage-discharge relation continually changing. Standard rating curve well defined. Operation of water-stage recorder satisfactory. Daily discharge ascertained by applying mean daily gage height to rating table, using shifting-control method for entire year. Records good.

Canal diverts water from left side of Gila River in NE. ¼ sec. 17, T. 7 S., R. 27 E., for irrigating 3,750 acres near Solomonville and Safford.

Discharge measurements of Montezuma Canal near Solomonville, Ariz., during the year ending September 30, 1924

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 1	10.16	73	Mar. 26	9.98	79	June 30	8.76	23.2
Oct. 22	9.45	53	Apr. 4	10.10	87	July 14	9.20	38.7
Nov. 1	9.85	68	May 1	10.68	88	Aug. 2	10.08	67
Nov. 20	9.36	36.9	May 17	10.33	72	Aug. 10	9.23	39.1
Dec. 1	9.37	26.3	June 1	10.02	62	Sept. 3	8.80	31.9
Dec. 12	9.36	23.1	June 6	9.80	58	Sept. 8	8.67	29.8
Dec. 17	9.46	20.5	June 8	9.45	44.4	Sept. 11	8.62	27.8
Dec. 24	9.40	14.4	June 11	9.12	34.4	Sept. 23	8.64	27.8
Jan. 1	9.78	30.6	June 16	8.92	29.3			
Feb. 11	10.05	71	June 20	8.78	24.8			

Daily discharge, in second-feet, of Montezuma Canal mear Solomonville, Ariz., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	66	60	26	27	35	74	63	87	60	24	74	33
2	68	58	26	30	51	72	78	89	59	22	74	34
3	61	57	29	28	66	72	79	85	59	39	76	32
4	54	55	30	22	70	73	86	77	56	33	62	31
5	48	54	28	19	78	76	86	75	56	41	49	31
6	45	52	27	15	74	69	84	78	50	44	54	31
7	43	49	25	12	72	80	85	73	44	41	66	30
8	52	43	25	4	72	82	84	62	39	44	46	25
9	57	40	24	13	73	81	80	69	35	40	42	28
10	50	39	26	14	73	81	82	72	47	38	40	27
11	47	32	26	15	72	81	81	72	27	37	32	25
12	46	20	23	15	71	81	81	78	27	38	36	25
13	53	19	23	14	72	81	88	79	26	40	31	27
14	56	31	22	0	72	80	86	75	28	38	58	27
15	50	42	20	0	68	80	89	69	29	38	51	27
16	55	41	20	0	72	80	94	67	28	45	50	27
17	54	40	20	0	77	80	94	68	25	51	39	52
18	54	40	20	0	78	80	103	69	25	53	32	41
19	54	39	19	0	77	80	102	73	25	50	27	38
20	53	37	17	0	76	80	94	80	25	57	29	32
21	52	36	15	0	72	80	100	81	26	58	30	30
22	52	35	15	0	75	80	98	79	26	50	29	30
23	53	34	14	13	75	80	95	74	26	52	28	28
24	54	40	14	32	73	80	96	74	25	42	29	25
25	54	40	15	32	72	80	99	72	25	39	36	28
26	54	40	16	32	73	79	93	74	27	48	32	28
27	53	30	18	33	73	92	91	75	26	60	29	25
28	51	27	22	35	74	96	88	72	27	59	30	20
29	52	28	29	35	77	54	82	68	26	57	30	24
30	51	27	30	35	-------	41	75	67	24	58	31	28
31	52	-------	30	35	-------	51	-------	64	-------	62	31	-------

Monthly discharge of Montezuma Canal near Solomonville, Ariz., for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	68	43	53.0	3,260
November	60	19	39.5	2,350
December	30	14	22.4	1,380
January	35	0	16.5	1,010
February	78	35	71.1	4,090
March	96	41	76.3	4,690
April	103	63	87.9	5,230
May	89	62	74.1	4,560
June	60	24	34.3	2,040
July	62	22	45.1	2,770
August	76	27	42.0	2,580
September	52	20	29.6	1,760
The year	103	0	49.2	35,700

UNION CANAL NEAR SOLOMONVILLE, ARIZ.

LOCATION.—In SE. ¼ NE. ¼ sec. 14, T. 7 S., R. 26 E., 1¾ miles below intake, and 1½ miles northwest of Solomonville, Graham County.

RECORDS AVAILABLE.—April 1, 1914, to September 30, 1915; January 1, 1921, to September 30, 1924.

GAGE.—Stevens continuous water-stage recorder installed June 11, 1922, on left bank; inspected by H. D. Empie.

DISCHARGE MEASUREMENTS.—Made by wading or from footbridge at gage.

CHANNEL AND CONTROL.—Bed composed of silt and sand. Banks vertical. No well-defined control.

DIVERSIONS.—None.

REGULATION.—By head gates. Flow in canal varies considerably with flow in Gila River.

ACCURACY.—Stage-discharge relation not permanent. Rating curve for periods October 1 to November 8 and September 13–30, well defined; rating curve for period November 9 to September 12, fairly well defined. Operation of water-stage recorder satisfactory. Daily discharge ascertained by applying mean daily gage height to rating table, using shifting-control method for entire year. Records good.

Canal diverts water from left side of Gila River in the NW. ¼ sec. 18, T. 7 S., R. 27 E., for irrigating 5,975 acres near Safford and Thatcher.

Discharge measurements of Union Canal near Solomonville, Ariz., during the year ending September 30, 1924

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 1	2.12	58	Jan. 18	0.74	6.7	July 16	1.90	57
Oct. 12	2.32	70	Feb. 15	2.12	67	Aug. 2	2.52	77
Nov. 3	2.76	102	Mar. 20	3.06	129	Aug. 10	1.91	53
Nov. 9	2.20	79	Apr. 1	3.23	129	Aug. 20	1.18	23.7
Dec. 1	1.70	53	May 2	3.52	150	Aug. 25	.98	20.1
Dec. 17	1.22	31.1	June 1	2.52	88	Sept. 3	1.50	40.6
Dec. 26	.70	10.9	June 18	1.15	26.5	Sept. 13	.80	13.1
Jan. 1	.72	9.6	June 27	.82	12.7	Sept. 23	1.10	22.4
Jan. 8	.86	9.4	July 3	1.79	50			

Daily discharge, in second-feet, of Union Canal near Solomonsville, Ariz., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	70	105	58	15	33	116	131	137	88	22	106	40
2	75	82	71	14	82	122	112	146	76	27	102	48
3	68	106	76	13	78	120	122	139	65	30	82	38
4	60	99	61	17	80	112	121	124	75	50	82	46
5	57	78	50	21	84	108	102	128	73	75	70	49
6	53	71	59	19	90	132	99	123	66	63	52	34
7	53	76	68	15	95	130	128	120	63	77	63	23
8	42	85	65	9.8	103	135	164	117	56	81	60	19
9	53	77	63	15	120	135	164	115	63	87	45	15
10	70	87	60	20	98	139	165	112	57	76	53	12
11	73	77	54	21	86	129	171	122	48	72	49	12
12	70	53	47	21	102	124	164	126	44	74	62	14
13	63	55	30	17	99	124	160	135	40	83	29	13
14	70	58	30	14	96	120	152	137	34	74	95	13
15	87	79	30	13	81	106	156	142	32	70	93	14
16	83	87	30	11	101	120	158	143	26	61	57	16
17	79	55	31	9.4	93	109	162	145	27	80	45	68
18	79	64	31	7.2	95	116	158	143	24	86	45	56
19	80	56	30	3.7	95	114	162	151	21	72	43	40
20	78	53	32	2.8	84	117	160	165	20	97	23	34
21	77	52	36	2.8	97	116	151	160	25	86	20	26
22	76	50	34	2.8	110	134	144	154	24	76	23	24
23	76	50	20	2.8	120	139	151	137	21	47	22	22
24	83	40	16	2.8	133	131	143	123	18	38	19	22
25	82	15	17	2.7	132	118	164	111	17	42	26	22
26	82	0	21	2.7	128	119	163	121	11	96	37	21
27	82	0	39	2.7	131	107	147	119	11	129	35	21
28	81	0	19	2.7	132	137	144	119	7	135	23	21
29	84	31	19	2.7	130	104	144	95	7	127	19	18
30	82	64	18	2.7	-------	103	135	85	9	114	29	15
31	86	-------	17	2.6	-------	113	-------	81	-------	110	34	-------

Monthly discharge of Union Canal near Solomonsville, Ariz., for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	87	42	72.7	4,470
November	106	0	60.2	3,580
December	76	16	39.7	2,440
January	21	2.6	9.97	613
February	133	33	100	5,750
March	139	103	121	7,440
April	171	99	147	8,750
May	165	81	128	7,870
June	88	7	38.3	2,280
July	135	22	76.0	4,670
August	106	19	49.8	3,060
September	68	12	27.2	1,620
The year	171	0	72.4	52,500

SAN SIMON CREEK NEAR RODEO, N. MEX.

LOCATION.—In SE. ¼ sec. 6, T. 27 S., R. 21 W. New Mexico principal meridian, 10 miles north of Rodeo, Hidalgo County, N. Mex.

DRAINAGE AREA.—454 square miles (measured on topographic maps).

RECORDS AVAILABLE.—March 25, 1920, to September 30, 1924.

GAGE.—Vertical staff in midstream; read by A. J. Love.

DISCHARGE MEASUREMENTS.—Made by wading near gage.

CHANNEL AND CONTROL.—Uniform channel 300 feet wide, covered with saccaton and small mesquite.

EXTREMES OF DISCHARGE.—1920–1924: Maximum mean daily discharge, 1,340 second-feet July 25, 1921. Stream dry during greater part of each year.

DIVERSIONS.—None.

REGULATION.—None.

ACCURACY.—Stream dry during year, except on July 26, when the mean discharge for the day was 55 second-feet, or a run-off of 109 acre-feet for the year.

COOPERATION.—Records furnished by University of Arizona, Prof. G. E. P. Smith, irrigation engineer.

SAN SIMON CREEK NEAR SAN SIMON, ARIZ.

LOCATION.—In SW. ¼ sec. 29, T. 13 S., R. 31 E., 1 mile east of San Simon, Cochise County.

DRAINAGE AREA.—938 square miles (measured on topographic maps).

RECORDS AVAILABLE.—August 1, 1919, to September 30, 1924.

GAGE.—Vertical enamel staff fastened to bridge, low-water section on right pier, high-water section on left pier; read by Ed Gentner.

DISCHARGE MEASUREMENTS.—Made from bridge or by wading near gage.

CHANNEL AND CONTROL.—Bed composed of gravel, scouring to heavy clay at high water. Low-water control is a gravel bar 50 feet below gage. High-water control formed by right angle turn to right 400 feet below station.

EXTREMES OF DISCHARGE.—Maximum stage during year 6.1 feet at 9 p. m. August 5 (discharge, 500 second-feet); zero flow greater part of year.

1919–1924: Maximum stage, 14.0 feet at 10.30 p. m. July 21, 1923 (discharge, 5,350 second-feet); zero flow greater part of each year.

DIVERSIONS.—None.

REGULATION.—None.

ACCURACY.—Stage-discharge relation fairly permanent. Standard rating curve fairly well defined. Gage read to tenths once a day and oftener during floods. Daily discharge ascertained from discharge hydrographs prepared from discharge determined by applying each gage reading to rating table. Records fair.

COOPERATION.—Records furnished by University of Arizona, Prof. G. E. P. Smith, irrigation engineer.

The following discharge measurement was made:

December 12, 1923: Gage height, 4.00 feet; discharge, 2.0 seond-feet.

Daily discharge, in second-feet, of San Simon Creek near San Simon, Ariz., for the year ending September 30, 1924

Day	Nov.	Dec.	July	Aug.	Day	Nov.	Dec.	July	Aug.
1					16			15	
2			2	40	17				
3		50	23	50	18				
4			12	7	19			30	
5				60	20			5	
6				30	21				
7					22				
8					23				
9					24				
10					25			25	
11	30				26			50	
12	3				27			40	
13	1				28		3	4	
14					29				
15			1		30				
					31				

NOTE.—No discharge on days for which none is given.

Monthly discharge of San Simon Creek near San Simon, Ariz., for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	0	0	0	0
November	30	0	1.1	65
December	50	0	1.7	104
January	0	0	0	0
February	0	0	0	0
March	0	0	0	0
April	0	0	0	0
May	0	0	0	0
June	0	0	0	0
July	50	0	6.7	412
August	60	0	6.0	369
September	0	0	0	0
The year	60	0	1.31	950

CAVE CREEK NEAR PARADISE, ARIZ.

LOCATION.—In SW. ¼ SE. ¼ sec. 34, T. 17 S., R. 31 E., at Portal ranger station, 8 miles by road southeast of Paradise, Cochise County.

DRAINAGE AREA.—39 square miles (measured on topographic map).

RECORDS AVAILABLE.—August 5, 1919, to September 30, 1924.

GAGE.—Vertical enamel staff on right bank 100 feet from ranger station; read by Mrs. Alice H. Scholefield.

DISCHARGE MEASUREMENTS.—Made by wading near gage.

CHANNEL AND CONTROL.—Channel composed of gravel and boulders. Channel fairly straight and fairly uniform in cross section.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 2.70 feet on December 27 (discharge, 395 second-feet); creek dry June 24–30, July 1–9, 12–17, and August 13 to September 30.

1919–1924: Maximum stage recorded, 5.30 feet August 7, 1921 (discharge, 3,360 second-feet); creek dry during a part of each year.

DIVERSIONS.—Cave Creek Canal diverts water from left side 700 feet above station. Records of this canal are published in this report. One other canal diverts water above this station to irrigate about 7½ acres.

REGULATION.—None.

ACCURACY.—Stage-discharge relation fairly permanent. Rating curve fairly well defined. Gage read to two-hundredths once a day and oftener during floods. Daily discharge ascertained by applying mean daily gage height to rating table. Discharge hydrographs used during periods of flood. Records fair.

COOPERATION.—Records furnished by University of Arizona, Prof. G. E. P. Smith, irrigation engineer.

The following discharge measurements were made:

October 4, 1923: Gage height, 0.98 foot; discharge, 1.7 second-feet.

February 23, 1924: Gage height, 1.20 feet; discharge, 2.0 second-feet.

June 5, 1924: Gage height, 1.08 feet; discharge, 0.4 second-foot.

Daily discharge, in second-feet, of Cave Creek near Paradise, Ariz., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.
1	8	1	6	21	2	4	43	21	0.5	-------	0.5
2	8	1	20	21	2	4	43	21	.5	-------	.5
3	8	1	25	21	2	4	31	21	.5	-------	.5
4	8	1	25	17	2	4	31	21	.5	-------	.5
5	8	1	25	17	2	4	31	21	.5	-------	.5
6	4	1	20	17	2	4	31	21	.5	-------	.5
7	8	1	20	13	2	4	31	21	.5	-------	.5
8	4	1	20	10	2	4	31	21	.5	-------	.5
9	4	1	20	10	2	4	31	21	.5	-------	.5
10	4	1	20	10	2	4	31	21	.5	43	.5
11	1	6	20	7	2	4	31	7	.5	21	.5
12	1	10	20	7	2	4	37	4	.5	-------	.5
13	1	10	20	7	2	4	37	4	.5	-------	-------
14	1	10	20	7	2	4	43	4	.5	-------	-------
15	1	10	20	7	2	4	43	4	.5	-------	-------
16	1	10	20	7	2	4	43	4	.5	-------	-------
17	1	30	20	7	2	4	43	4	.5	-------	-------
18	1	20	16	7	2	4	43	4	.5	.5	-------
19	1	20	16	7	2	4	43	4	.5	.5	-------
20	1	20	16	21	7	2	43	4	.5	.5	-------
21	1	20	16	31	7	4	43	4	.5	.5	-------
22	1	20	16	31	7	4	43	4	.5	.5	-------
23	1	20	18	31	2	4	43	2	.5	.5	-------
24	1	20	18	31	2	4	43	2	-------	.5	-------
25	1	20	79	31	4	4	43	4	-------	.5	-------
26	1	6	240	31	4	4	43	4	-------	.5	-------
27	1	6	395	13	4	4	43	2	-------	.5	-------
28	1	6	140	13	4	31	43	2	-------	.5	-------
29	1	6	106	7	4	43	21	2	-------	.5	-------
30	1	6	73	7	-------	43	21	.5	-------	.5	-------
31	1	-------	43	2	-------	43	-------	.5	-------	.5	-------

NOTE.—No discharge on days for which none is given.

Monthly discharge of Cave Creek near Paradise, Ariz., for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	8	1	2.74	168
November	30	1	9.53	567
December	395	6	49.4	3,040
January	31	2	15.1	928
February	7	2	2.86	165
March	43	2	8.58	528
April	43	21	37.5	2,230
May	21	.5	9.03	555
June	.5	0	.38	23
July	43	0	2.29	141
August	.5	0	.20	12
September	0	0	0	0
The year	395	0	11.5	8,360

CAVE CREEK CANAL NEAR PARADISE, ARIZ.

LOCATION.—In SW. ¼ SE. ¼ sec. 34, T. 17 S., R. 31 E., at Portal ranger station of United States Forest Service, 750 feet below head of canal and 8 miles by road southeast of Paradise, Cochise County.

RECORDS AVAILABLE.—October 14, 1919, to September 30, 1924.

GAGE.—Vertical staff on left bank; read by Mrs. Alice Scholefield.

DISCHARGE MEASUREMENTS.—Made by wading near gage.

CHANNEL AND CONTROL.—Earth section. Bed composed of small gravel.

DIVERSIONS.—Above all diversions from canal.

REGULATION.—By head gate. Flow in canal varies considerably with flow in Cave Creek.

ACCURACY.—Stage-discharge relation continually changing. Rating curve fairly well defined. Gage read to half-tenths once a day. Daily discharge ascertained by applying daily gage height to rating table. Records fair.

COOPERATION.—Records furnished by University of Arizona, Prof. G. E. P. Smith, irrigation engineer.

Canal diverts water from left bank of Cave Creek in SE. ¼ SW. ¼ sec. 34, T. 17 S., R. 31 E., for irrigating 113 acres near Portal ranger station. When sufficient water is available, 176 additional acres are irrigated. A part of the water for this additional acreage is diverted from Cave Creek, below the gaging station on Cave Creek, to Cave Creek Canal through a secondary carrier known as Portal-Reay ditch. Water carried by Portal-Reay ditch does not pass the gaging station on Cave Creek Canal.

The following discharge measurements were made:

October 4, 1923: Gage height, 7.61 feet; discharge, 2.5 second-feet.

February 23, 1924: Gage height, 7.60 feet; discharge, 2.6 second-feet.

June 25, 1924: Gage height, 7.35 feet; discharge, 1.8 second-feet.

Daily discharge, in second-feet, of Cave Creek Canal near Paradise, Ariz., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
1	4	1	5.5		4			3.5	2.5	
2	4	1	5.5		4			3.5	2.5	
3	4	1	5.5		4			3.5	2.5	
4	3	1	5.5		4			3.5	1.5	
5	4	1	5.5		4.5			3.5	1.5	
6	2.5	1	5.5		4.5			3.5	1.5	
7	2.5	1	5.5		4.5			3.5	1.5	
8	2.5	1	5.5		4.5		0.5	3.5		
9	2.5	1	5.5		5.5		.5	3.5		
10	2.5	1	5.5		5.5		.5	3.5		6.5
11	2.5	5.5	5.5		5.5		.5	3.5		6.5
12	2.5	2.5	5.5		5.5		.5	3.5		1.5
13	2.5	2.5	5.5		5.5		.5	3.5		1.5
14	2.5	2.5	4.5		5.5		.5	3.5		1.5
15	2.5	2.5	4.5		5.5		.5	3.5		1.5
16	2.5	2.5	4		5.5		2.5	3		1.5
17	2.5	2.5	3		5.5		2.5	3		1.5
18	2.5	2.5	3		4.5	1	2.5	2.5		2.5
19	2.5	2.5	3	2.5	4.5	1	2.5	2.5		2.5
20	2.5	2.5	3	2.5		1	2.5	2.5		2.5
21	2.5	2.5	3	4			2.5	2.5		2.5
22	2.5	2.5	3	4		.5	2.5	2.5		2.5
23	2.5	2.5	3	4	3.5	.5	2.5	2.5		2.5
24	2.5	2.5	3	4	4	.5	2.5	2.5		2.5
25	2.5	2.5	3	4		1	2.5	2.5		2.5
26	2.5	5.5		4		1	2.5	2.5		2.5
27	2.5	6		4		1.5	2.5	2.5		2.5
28	2.5	6		4		2	2.5	2.5		2.5
29	1.5	5.5		4		2	3.5	2.5		2.5
30	1.5	5.5		4			3.5	2.5		
31	1.5			4				2.5		

NOTE.—Trace of water only Mar. 2-17. Canal dry on other days for which no discharge is given.

Monthly discharge of Cave Creek Canal near Paradise, Ariz., for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	4	1.5	2.61	160
November	6	1	2.63	156
December	5.5	0	3.60	221
January	4	0	1.58	97
February	5.5	0	3.45	198
March	2	0	.39	24
April	3.5	0	1.45	86
May	3.5	2.5	3.01	185
June	2.5	0	.45	27
July	6.5	0	1.68	103
August	0	0	0	0
September	0	0	0	0
The year	6.5	0	1.89	1,260

EAST TURKEY CREEK AT PARADISE, ARIZ.

LOCATION.—In SW. ¼ sec. 19, T. 17 S., R. 31 E., at Paradise, Cochise County.

DRAINAGE AREA.—8 square miles (measured on topographic map).

RECORDS AVAILABLE.—August 4, 1919, to September 30, 1924.

GAGE.—Vertical enamel staff on right bank 300 feet downstream form post office; read by John Hancock.

DISCHARGE MEASUREMENTS.—Made by wading near gage.

CHANNEL AND CONTROL.—Bed composed of boulders and gravel. Principal control formed by concrete wall extending at an angle across the channel with 2-foot drop. Channel fairly uniform in cross section.

EXTREMES OF DISCHARGE.—Maximum mean daily discharge for year, 55 second-feet December 27. Creek dry during greater part of year.

1919–1924: Maximum mean daily discharge, 170 second-feet August 18, 1921. Minimum discharge, zero for periods of each year.

DIVERSIONS.—Several small diversions above station, most of the water returning to the creek above station.

ACCURACY.—Stage-discharge relation fairly permanent. Rating curve poorly defined. Gage read to nearest two-hundredths twice a week and oftener during floods. Daily discharge ascertained by applying gage height to rating table and interpolating for days when gage was not read. Records fair.

COOPERATION.—Records furnished by University of Arizona, Prof. G. E. P. Smith, irrigation engineer.

The following discharge measurements were made:

October 4, 1923: Gage height, 0.50 foot; discharge, 0.2 second-foot.

February 23, 1924: Gage height, 0.51 foot; discharge, 1.1 second-feet.

June 5, 1924: Gage height, 0.44 foot; discharge, 0.4 second-foot.

Daily discharge, in second-feet, of East Turkey Creek at Paradise, Ariz., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.
1			0.5	1	1	1	1	2	0.5		
2			1	1	1	1	1	2	.5		
3			1	1	1	1	1	1	.5		3
4	0.5		1	1	1	1	1	1	.5		1
5	.5		1	1	1	1	1	1	.5		
6	.5		2	1	1	1	2	1	.5	2	
7			2	1	1	1	3	1	.5	4	
8			2	1	1	1	3	1	.5	6	
9			3	1	1	1	3	1	.5		
10			3	1	1	1	3	1	.5	.5	
11			5	1	1	1	3	1	.5	.5	
12	.5	0.5	6	1	1	1	3	1	.5		
13	.5	.5	8	1	1	1	3	1	.5		
14	.5	.5	5	1	1	1	2	1	.5		
15		.5	3	1	1	1	2	.5	.5		
16		.5	3	1	1	1	2	.5			
17		.5	3	1	1	1	2	.5			
18		.5	3	1	1	1	2	.5			
19		.5	3	1	1	1	2	.5			
20		.5	5	1	1	1	2	.5			
21		.5	4	1	1	1	2	.5			
22		.5	3	1	1	1	2	.5			
23		.5	2	1	1	1	2	.5			
24		.5	2	1	1	1	2	.5			
25		.5	4	1	1	1	2	.5			
26		.5	5	1	1	1	2	.5			
27		.5	55	1	1	1	2	.5			
28		.5	3	1	1	2	2	.5			
29		.5	4	1	1	1	2	.5			
30		.5	2	1		1	2	.5			
31			1	1		1		.5			

NOTE.—No flow Sept. 10-30. Only trace of water during other periods for which no record is given.

Monthly discharge of East Turkey Creek at Paradise, Ariz., for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	0.5	(a)	0.1	6
November	.5	(a)	.32	19
December	55	0.5	4.7	289
January	1	1	1	61
February	1	1	1	58
March	2	1	1.0	61
April	3	1	2.1	125
May	2	.5	.79	49
June	.5	(a)	.25	15
July	6	(a)	.42	26
August	3	(a)	.1	8
September	(a)	0	0	0
The year	55	0	.99	717

[a] Trace of water only.

GRAHAM CANAL NEAR SAFFORD, ARIZ.

LOCATION.—In NE. ¼ SW. ¼ sec. 5, T. 7 S., R. 26 E., near Hatfield ranch, 1 mile below intake and 2 miles north of Safford, Graham County.

RECORDS AVAILABLE.—October 1, 1914, to September 30, 1915; December 30, 1920, to September 30, 1924.

GAGE.—Vertical staff on left bank 600 feet below waste gate; read by J. M. Hatfield.

DISCHARGE MEASUREMENTS.—Made by wading or from footbridge at gage.

CHANNEL AND CONTROL.—Bed composed of silt; frequently covered by deposits of sand; no well-defined control.

DIVERSIONS.—One diversion just above gage, irrigating 52 acres.

REGULATION.—By head gate; flow in canal varies considerably with flow in Gila River.

ACCURACY.—Stage-discharge relation not permanent. Standard rating curve well defined. Gage read twice a day to hundredths. Daily discharge ascertained by applying mean daily gage height to rating table, using shifting-control method for entire year. Records good.

Canal diverts water from right side of Gila River in the NW. ¼ sec. 9, T. 7 S., R. 26 E., for irrigating 2,577 acres near Safford.

Discharge measurements of Graham Canal near Safford, Ariz., during the year ending September 30, 1924

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 1	5.27	24.6	May 15	5.45	76	July 23	4.17	21.7
Oct. 10	5.22	25.0	May 23	4.37	30.5	Aug. 9	4.18	22.8
Nov. 3	5.65	46.0	June 3	4.25	24.9	Aug. 28	3.78	8.4
Nov. 30	5.30	16.7	June 17	4.00	15.6	Sept. 4	3.75	7.2
Dec. 14	5.30	13.1	July 1	3.89	11.7	Sept. 14	3.63	3.9
Jan. 20	5.85	61	July 12	3.80	7.5			

Daily discharge, in second-feet, of Graham Canal near Safford, Ariz., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	23	40	16	4.9	49	84	102	96	33	12	46	10
2	18	48	14	0	44	60	103	93	31	12	64	11
3	25	46	21	0	41	62	105	96	29	14	50	8.5
4	31	44	17	0	46	60	103	99	33	18	28	7.1
5	26	46	17	0	25	58	49	98	26	18	48	7.5
6	23	40	17	0	0	54	46	98	23	13	33	5.5
7	25	38	14	0	30	49	98	98	22	17	28	4.2
8	25	43	13	0	57	47	97	98	20	43	29	3.3
9	24	45	13	0	62	53	100	97	20	43	21	3.0
10	23	46	13	0	64	57	100	101	20	16	14	3.0
11	23	48	13	0	66	46	92	97	20	15	11	2.8
12	22	39	13	0	65	50	86	93	18	12	23	2.4
13	21	34	13	0	69	47	78	93	18	12	15	3.1
14	22	0	13	0	68	48	78	80	17	18	27	1.9
15	27	0	13	0	78	48	83	82	16	13	19	3.0
16	37	0	14	24	82	51	79	83	16	37	15	3.1
17	41	0	14	27	84	46	50	74	15	32	13	14
18	41	0	14	41	85	49	39	72	15	51	12	11
19	39	0	13	60	84	61	36	63	15	34	12	10
20	37	8	15	58	80	78	34	54	15	77	11	11
21	38	18	11	55	75	74	44	45	14	28	11	11
22	35	18	6.8	58	67	89	92	35	15	24	11	11
23	34	18	3.0	64	68	87	98	28	14	19	9.8	8.8
24	28	18	17	62	68	94	105	31	12	13	9.0	7.8
25	21	18	33	62	69	72	109	33	12	11	9.0	6.2
26	20	17	35	62	63	58	55	32	12	33	9.0	2.8
27	21	18	37	61	58	52	53	26	12	43	8.2	0
28	23	17	24	61	60	54	104	24	12	21	8.0	5.1
29	24	16	12	61	82	77	99	29	12	50	7.5	5.1
30	24	16	9.5	58	-------	94	97	34	12	66	7.5	4.9
31	26	-------	7.1	61	-------	91	-------	32	-------	64	8.2	-------

Monthly discharge of Graham Canal near Safford, Ariz., for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	41	18	27.3	1,680
November	48	0	24.6	1,460
December	37	3.0	15.7	965
January	64	0	28.4	1,750
February	85	0	61.7	3,550
March	94	46	62.9	3,870
April	109	34	80.5	4,790
May	101	24	68.2	4,190
June	33	12	18.3	1,090
July	66	11	28.5	1,750
August	64	7.5	19.9	1,220
September	14	0	6.27	373
The year	109	0	36.8	26,700

SMITHVILLE CANAL NEAR THATCHER, ARIZ.

LOCATION.—In NW. ¼ sec. 35, T. 6 S., R. 25 E., three-quarters of a mile below intake and 1½ miles north of Thatcher, Graham County.

RECORDS AVAILABLE.—October 1, 1914, to September 30, 1915; December 23, 1920, to September 30, 1924.

GAGE.—Vertical enamel section on left bank 300 feet below waste gate; read by Patricia Vasquez.

DISCHARGE MEASUREMENTS.—Made from footbridge at gage.

CHANNEL AND CONTROL.—Uniform section. Banks vertical. No well-defined control.

DIVERSIONS.—None above gage.

REGULATION.—By head gate. Flow in canal varies considerably with flow in Gila River.

ACCURACY.—Stage-discharge relation not permanent. Standard rating curve well defined. Gage read to hundredths twice a day. Daily discharge ascertained by applying mean daily gage height to rating table, using shifting-control method for entire year. Records good.

Canal diverts water from left side of Gila River in the NE. ¼ sec. 35, T. 6 S., R. 25 E., for irrigating 1,760 acres near Pima.

Discharge measurements of Smithville Canal near Thatcher, Ariz., during the year ending September 30, 1924

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 5	6.10	12.8	Mar. 20	7.07	44.5	July 11	6.35	20.9
Oct. 18	6.84	31.4	Apr. 1	7.27	46.1	Aug. 3	6.92	44.8
Nov. 2	6.46	21.2	May 1	7.40	52	Aug. 18	5.87	11.6
Nov. 27	6.19	4.5	May 23	6.97	38.8	Sept. 4	5.72	6.8
Dec. 5	6.45	6.4	June 2	6.47	26.4	Sept. 7	5.87	10.6
Dec. 26	6.57	3.3	June 17	6.01	15.1			
Feb. 14	7.48	43.3	July 2	5.90	11.1			

Daily discharge, in second-feet, of Smithville Canal near Thatcher, Ariz., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	30	41	6.5	-------	37	47	54	24	7.2	2.5	5.5
2	22	30	8.2	-------	37	49	56	22	8.5	32	5.5
3	16	30	16	-------	33	47	60	24	4.4	28	6.2
4	13	25	6.4	-------	37	46	49	26	38	20	6.2
5	12	16	5.8	-------	35	47	36	26	24	22	5.8
6	8.5	14	5.8	-------	36	47	39	22	17	14	7.2
7	8.0	15	5.6	23	36	47	48	21	15	16	7.7
8	7.2	31	5.7	18	36	49	50	20	47	15	6.8
9	19	33	6.8	15	38	49	48	19	26	21	7.7
10	22	30	9.2	28	32	48	25	19	23	20	7.7
11	18	23	9.7	25	34	40	28	19	18	24	7.2
12	16	41	9.0	30	32	32	30	20	20	23	7.2
13	14	41	4.2	41	30	29	33	22	14	15	7.2
14	22	15	3.6	45	32	34	40	19	14	32	8.8
15	27	11	3.2	43	40	28	36	19	12	25	8.0
16	34	-------	2.8	46	40	30	38	18	22	21	6.8
17	39	-------	3.5	46	39	33	35	18	35	3.1	13
18	36	-------	2.8	44	41	37	37	15	26	11	16
19	34	-------	2.3	49	42	32	39	14	26	10	12
20	34	-------	4.3	52	47	24	33	15	28	9.0	12
21	37	-------	8.0	37	43	20	39	14	22	7.7	6.6
22	32	-------	7.4	33	48	15	38	14	23	9.2	5.7
23	29	-------	5.1	35	47	41	36	13	20	8.7	5.7
24	30	-------	3.4	36	48	48	43	14	6.0	8.8	5.3
25	30	-------	3.6	37	44	50	39	13	13	7.7	6.1
26	28	9.2	3.6	35	40	53	31	4.8	43	8.0	7.1
27	26	9.5	17	36	38	45	24	1.5	35	6.8	7.1
28	23	4.6	11	36	40	44	31	3.9	28	7.7	7.1
29	16	6.1	8.2	40	48	45	30	9.2	34	6.5	6.4
30	33	7.4	1.8	-------	48	45	26	8.7	40	5.6	7.1
31	30	-------	-------	-------	47	-------	22	-------	6.0	5.8	-------

NOTE.—No flow Nov. 16–25 and Dec. 31 to Feb. 6.

Monthly discharge of Smithville Canal near Thatcher, Ariz., for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	39	7.2	24.1	1,480
November	41	0	14.4	857
December	17	0	6.15	378
January	0	0	0	0
February	52	0	28.6	1,650
March	48	30	39.5	2,430
April	53	15	40.0	2,380
May	60	22	37.8	2,320
June	26	1.5	16.6	988
July	47	4.4	22.4	1,380
August	32	2.5	14.4	885
September	16	5.3	7.62	453
The year	60	0	20.9	15,200

DODGE-NEVADA CANAL NEAR PIMA, ARIZ.

LOCATION.—In NW. ¼ SE. ¼ sec. 18, T. 6 S., R. 25 E., 1 mile below intake and 1½ miles north of Pima, Graham County.

RECORDS AVAILABLE.—December 31, 1920, to September 30, 1924.

GAGE.—Vertical staff on right bank, half a mile below waste gate, and 200 feet upstream from siphon at county highway crossing; read by Hubert and Millicent Crockett.

DISCHARGE MEASUREMENTS.—Made by wading at gage.

CHANNEL AND CONTROL.—Bed composed of silt. Banks vertical. Control affected by siphon 200 feet below gage.

DIVERSIONS.—One diversion above gage, irrigating 14½ acres.

REGULATION.—By head gate. Flow in canal varies considerably with flow in Gila River.

ACCURACY.—Stage-discharge relation not permanent. Standard rating curve well defined. Gage read to nearest two-hundredths twice a day. Daily discharge ascertained by applying mean daily gage height to rating table, using shifting-control method for entire year. Records good.

Canal diverts water from left side of Gila River in the NW. ¼ sec. 20, T. 6 S., R. 25 E., for irrigating 1,250 acres near Pima.

Discharge measurements of Dodge-Nevada Canal near Pima, Ariz., during the year ending September 30, 1924

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 11	1.18	11.1	Mar. 22	0.70	1.1	July 15	1.00	4.6
Oct. 20	1.70	28.4	Apr. 7	1.58	27.8	July 25	1.20	9.3
Nov. 2	2.08	34.6	May 7	1.49	23.1	Aug. 8	1.10	5.8
Nov. 22	1.82	28.7	May 27	1.68	29.5	Aug. 26	1.10	6.1
Dec. 3	1.69	25.6	June 2	1.29	15.1	Sept. 4	1.07	5.6
Jan. 3	.92	2.8	June 13	1.18	10.3	Sept. 22	1.04	4.1
Feb. 16	1.66	23.4	July 2	1.08	7.0			

Daily discharge, in second-feet, of Dodge-Nevada Canal near Pima, Ariz., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	28	21	0	25	0.6	38	23	16	6.5	27	6.2
2	0	35	24	0	26	2.1	36	28	14	3.6	28	6.2
3	0	30	26	2.8	26	2.0	46	22	15	6.2	28	7.7
4	0	31	23	2.8	20	1.2	43	29	17	16	21	4.8
5	0	29	23	2.8	24	2.4	43	27	16	20	17	4.8
6	0	26	22	2.8	30	2.4	35	25	15	9.3	17	5.0
7	5.9	26	22	2.3	30	2.4	31	27	13	5.6	7.1	4.3
8	8.0	24	19	1.8	31	1.8	33	34	14	7.1	6.5	5.3
9	9.9	23	22	1.0	31	1.2	30	27	12	8.3	8.3	4.3
10	12	22	25	.9	31	1.6	25	24	13	9.9	7.1	4.3
11	12	24	27	.9	29	.9	24	19	11	7.1	7.1	4.0
12	12	26	26	.9	22	1.0	18	29	11	10	9.6	3.8
13	11	27	22	1.2	14	.2	18	21	9.3	8.0	8.6	4.0
14	12	25	16	1.5	17	.3	12	19	8.6	4.5	7.4	3.6
15	15	23	14	2.1	21	.2	11	17	8.0	4.5	18	3.8
16	15	23	14	2.1	23	.8	16	15	8.6	17	12	3.6
17	18	24	13	2.1	20	1.2	17	20	8.3	27	9.0	3.3
18	19	25	13	3.8	18	1.3	20	19	9.3	23	9.6	4.8
19	24	27	16	4.3	17	1.0	20	13	8.6	18	9.0	3.6
20	28	27	19	4.3	18	1.2	21	15	10	11	10	4.0
21	28	29	20	3.8	15	1.2	23	15	11	8.0	7.7	3.8
22	27	31	23	9.3	11	1.8	24	23	9.6	8.3	7.4	3.8
23	23	31	23	14	11	11	23	30	9.9	7.1	6.8	3.8
24	17	32	22	16	11	12	23	29	10	8.6	5.9	4.3
25	15	32	16	17	7.1	8.0	28	31	8.0	6.5	6.2	4.5
26	12	27	11	18	.1	7.4	31	29	7.1	24	5.9	4.3
27	12	25	27	18	0	20	31	24	7.7	25	5.9	3.8
28	13	24	35	20	0	50	25	20	9.9	21	8.3	3.1
29	13	23	0	22	0	39	23	20	7.4	28	5.3	1.7
30	13	21	0	24	------	43	24	20	7.1	32	4.5	2.6
31	12	------	0	25	------	40	------	17	------	32	6.2	------

Monthly discharge of Dodge-Nevada Canal near Pima, Ariz., for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	28	0	12.5	769
November	35	21	26.7	1,590
December	35	0	18.8	1,160
January	25	0	7.34	451
February	31	0	18.2	1,050
March	50	.2	8.36	514
April	46	11	26.4	1,570
May	34	13	22.9	1,410
June	17	7.1	10.8	643
July	32	3.6	13.6	836
August	28	4.5	10.9	670
September	7.7	1.7	4.24	252
The year	50	0	15.0	10,900

CURTIS-KEMPTON CANAL NEAR EDEN, ARIZ.

LOCATION.—In SE. ¼ NE. ¼ sec. 4, T. 6 S., R. 24 E., on Christensen ranch, 2 miles below intake and 1½ miles southeast of Eden, Graham County.

RECORDS AVAILABLE.—December 26, 1920, to September 30, 1924.

GAGE.—Vertical staff on left bank at ranch house 600 feet below waste gate; read by Rozella and Buelah Hancock.

DISCHARGE MEASUREMENTS.—Made from footbridge at gage or by wading.

CHANNEL AND CONTROL.—Bed composed of silt. Banks vertical. Control affected by two checks just below gage.

DIVERSIONS.—Three diversions above gage, irrigating 87 acres.

REGULATION.—By head gate. Flow in canal varies considerably with flow in Gila River.

ACCURACY.—Stage-discharge relation not permanent. Standard rating curve well defined. Gage read to half-tenths twice a day. Daily discharge ascertained by applying mean daily gage height to rating table, using shifting-control method for entire year. Records good.

Canal diverts water from right side of Gila River in the NW. ¼ sec. 12, T. 6 S., R. 24 E., for irrigating 1,650 acres near Eden.

Discharge measurements of Curtis-Kempton Canal near Eden, Ariz., during the year ending September 30, 1924

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 7	5.05	20.0	Mar. 22	5.51	34.7	July 2	4.43	9.8
Oct. 17	5.40	25.0	Apr. 10	5.72	39.0	July 13	4.58	12.1
Nov. 2	5.06	13.7	May 15	5.12	26.5	Aug. 12	4.77	19.6
Nov. 25	5.35	12.6	May 29	4.60	13.6	Aug. 16	4.54	12 4
Dec. 5	4.91	12.6	June 2	4.90	20.5	Sept. 4	4.31	7.8
Jan. 3	5.13	8.5	June 19	4.60	12.8	Sept. 12	4.20	5.7

Daily discharge, in second-feet, of Curtis-Kempton Canal near Eden, Ariz., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	25	3.0	6.6	0	36	42	22	17	8.5	31	6.7
2	0	18	2.9	6.0	2.8	36	39	43	18	8.1	36	6.7
3	25	14	19	8.6	3.6	34	34	42	14	15	45	7.0
4	27	16	16	7.2	3.6	37	39	43	11	30	23	17
5	25	4.4	13	8.8	3.6	39	42	0	14	36	3.5	30
6	21	1.0	9.4	8.3	0	38	39	0	16	0	8.5	5.6
7	16	4.0	5.5	7.0	0	36	39	14	17	0	3.1	6.3
8	16	6.4	4.6	5.2	0	36	39	40	17	7.8	0	5.5
9	32	6.7	6.6	4.1	13	37	39	16	17	15	0	6.2
10	28	6.4	10	4.1	30	38	40	16	17	18	7.6	5.8
11	12	5.2	6.2	4.0	30	33	40	42	9.6	14	9.4	5.8
12	11	3.8	5.3	3.7	31	34	39	36	10	13	15	5.1
13	8.3	15	4.9	3.2	31	33	39	28	10	12	15	4.7
14	9.0	12	4.6	2.4	32	32	38	17	9.0	5.7	16	4.7
15	15	8.6	5.2	1.9	33	28	42	33	9.0	20	15	5.3
16	22	4.3	6.9	1.2	34	33	46	37	8.1	5.7	13	4.9
17	23	2.8	7.4	2.1	33	34	36	41	8.1	0	16	8.6
18	28	2.4	8.3	.8	34	35	42	40	8.1	0	13	5.5
19	23	6.2	8.5	0	35	36	38	46	8.1	0	8.5	5.4
20	31	10	8.6	0	41	39	31	40	9.0	0	9.4	5.3
21	30	9.6	12	0	35	41	27	40	9.0	0	9.4	5.3
22	28	6.6	5.2	0	34	34	32	18	8.1	0	9.4	5.0
23	17	5.7	5.8	0	33	34	37	14	8.1	0	17	4.7
24	20	9.6	2.6	0	36	34	40	28	8.1	9.4	1.8	4.9
25	28	9.4	0	0	36	34	40	30	8.6	9.0	7.0	4.9
26	32	11	0	0	35	36	39	23	8.1	37	7.9	4.9
27	29	21	2.4	0	35	35	40	16	8.3	50	7.6	4.9
28	27	24	6.3	0	35	36	39	14	8.1	32	7.6	5.5
29	27	3.3	7.0	0	34	40	27	29	8.8	43	6.3	6.3
30	25	4.6	6.3	0	-------	36	9.6	28	7.6	42	6.7	5.2
31	25	-------	6.3	0	-------	35	-------	24	-------	26	6.3	-------

Monthly discharge of Curtis-Kempton Canal near Eden, Ariz., for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	32	0	21.3	1,310
November	25	1.0	9.23	549
December	19	0	6.77	416
January	8.8	0	2.75	169
February	41	0	24.3	1,400
March	41	32	35.4	2,180
April	46	9.6	37.1	2,210
May	46	0	27.7	1,700
June	18	7.6	11.0	655
July	50	0	14.7	904
August	45	0	12.1	744
September	30	4.7	6.79	404
The year	50	0	17.4	12,600

FORT THOMAS CONSOLIDATED CANAL AT ASHURST, ARIZ.

LOCATION.—In NE. ¼ SE. ¼ sec. 30, T. 5 S., R. 24 E., 2 miles below intake, half a mile east of State highway, and 1 mile southeast of Ashurst, Graham County.

RECORDS AVAILABLE.—December 26, 1920, to September 30, 1924.

GAGE.—Vertical staff on right bank half a mile below waste gate; read by Tom Hundley and Mrs. L. Zufelt.

DISCHARGE MEASUREMENTS.—Made from footbridge at gage.

CHANNEL AND CONTROL.—Bed consists of silt and is frequently covered by moss. No well-defined control.

DIVERSIONS.—None above gage.

REGULATION.—By head gate. Flow in canal varies considerably with flow in Gila River.

ACCURACY.—Stage-discharge relation not permanent. Standard rating curve well defined. Gage read to half-tenths twice a day. Daily discharge ascertained by applying mean daily gage height to rating table; shifting-control method used October 1–16, November 1–30, and March 25 to April 6. Records good.

Canal diverts water from left side of Gila River in the NW. ¼ sec. 4, T. 6 S., R. 24 E., for irrigating 2,236 acres near Fort Thomas.

Discharge measurements of Fort Thomas Consolidated Canal at Ashurst, Ariz., during the year ending September 30, 1924

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 3	8.12	11.1	May 7	9.53	57	July 22	8.80	24.8
Oct. 17	8.70	23.9	May 20	9.15	45.0	July 28	9.60	46.9
Nov. 2	9.38	46.1	May 28	8.55	24.3	Aug. 5	9.65	55
Nov. 22	8.56	20.8	June 2	8.40	20.7	Aug. 16	7.80	5.3
Dec. 3	9.62	55	June 19	7.99	10.1	Sept. 2	7.35	.8
Mar. 22	9.57	60	July 2	8.10	7.0	Sept. 22	7.53	1.9
Apr. 7	9.70	61						

Daily discharge, in second-feet, of Fort Thomas Consolidated Canal at Ashurst, Ariz., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.4	31	3.5	------	69	66	53	21	4.6	20	1.6
2	7.2	35	14	------	68	68	47	20	3.9	27	.8
3	12	27	40	------	65	69	40	18	3.6	59	1.2
4	8.4	------	32	------	69	61	49	18	4.1	65	.7
5	23	15	27	28	67	58	54	15	36	59	.8
6	23	15	24	61	69	60	58	13	41	57	.8
7	23	------	25	62	67	60	52	14	31	51	.8
8	17	------	24	------	62	54	60	15	34	42	.8
9	14	------	23	------	66	52	64	14	27	42	1.0
10	16	------	31	------	64	57	64	14	12	23	.7
11	16	------	32	------	71	69	65	14	6.2	20	.8
12	11	------	28	------	50	67	0	13	1.7	15	1.0
13	11	------	25	------	47	63	32	12	2.9	11	1.6
14	10	------	24	------	50	44	61	12	5.0	9.1	.8
15	10	------	16	------	50	47	62	13	44	19	.8
16	16	------	18	------	54	65	58	13	30	4.9	1.0
17	25	------	11	------	65	42	54	13	43	3.5	1.0
18	23	22	------	------	57	40	56	13	48	3.1	3.1
19	24	25	------	------	61	36	50	7.2	32	2.6	1.6
20	27	25	------	------	62	22	41	11	17	2.1	1.2
21	16	24	------	------	59	17	38	7.2	26	2.4	2.1
22	28	21	------	30	55	14	32	6.2	23	2.1	1.5
23	16	18	------	59	69	18	30	5.2	16	1.8	1.2
24	25	17	------	65	69	18	18	5.7	3.2	3.5	1.8
25	23	18	------	71	71	40	16	4.6	2.7	1.8	2.1
26	25	17	------	71	69	52	31	4.3	49	1.6	1.6
27	25	17	------	68	60	64	20	4.0	53	1.6	1.6
28	20	14	------	68	62	66	25	4.4	33	1.6	1.5
29	26	12	5.4	69	72	36	18	1.9	46	2.1	1.5
30	26	8.7	8.7	------	65	57	23	3.9	51	1.6	1.6
31	30	------	------	------	62	------	18	------	51	1.6	------

NOTE.—No flow on days for which no discharge is given.

Monthly discharge of Fort Thomas Consolidated Canal at Ashurst, Ariz., for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	30	3.4	18.7	1,150
November	35	0	12.1	720
December	40	0	13.3	818
January	0	0	0	0
February	69	0	22.5	1,290
March	72	47	62.8	3,860
April	69	14	49.4	2,940
May	65	0	41.6	2,560
June	21	1.9	11.0	655
July	53	1.7	25.2	1,550
August	65	1.6	18.0	1,110
September	3.1	.7	1.29	76.8
The year	72	0	23.0	16,700

SAN PEDRO RIVER NEAR FAIRBANK, ARIZ.

LOCATION.—In T. 20 S., R. 21 E., unsurveyed, on old Spanish grant at ranch house of Boquillas Land & Cattle Co., 1½ miles south of Fairbank, Cochise County, and 4 miles below Charleston dam site.

DRAINAGE AREA.—1,300 square miles (measured on topographic maps and Greenidge map of Sonora).

RECORDS AVAILABLE.—September 28, 1912, to September 30, 1924.

GAGE.—Vertical and inclined staff on right bank just upstream from ford leading to ranch house; read by Mrs. Fred Miller and Mrs. R. N. Fourr.

DISCHARGE MEASUREMENTS.—Made from cable 600 feet downstream from gage or by wading near gage.

CHANNEL AND CONTROL.—Bed composed of sand and gravel. Banks high and steep. Channel fairly straight with considerable fall. At low stages channel bears away from gage, and a ditch has to be maintained from gage to river. No well-defined control.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 12.2 feet at 6.45 a. m. July 26 (discharge, 1,900 second-feet); minimum discharge, 1 second-foot during periods in October, June, and September.

1912–1924: Maximum stage recorded, 16.0 feet (26.0 feet, present datum) at 5 p. m. December 22, 1915 (discharge not determined). Maximum discharge determined, 25,000 second-feet at noon, August 6, 1919, gage height, 20.3 feet, present datum. Minimum discharge, 0.5 second-foot, January 27, 1923.

DIVERSIONS.—Boquillas Land & Cattle Co. diverts water at a dam 1 mile above station for irrigation. No information on other diversions from San Pedro River above this station.

REGULATION.—None.

ACCURACY.—Stage-discharge relation fairly permanent December 4 to May 30, changed continually during other periods. Standard rating curve well defined to 2,000 second-feet, poorly defined above. Gage read to hundredths once a day and oftener during periods of flood, except as shown in footnote to daily-discharge table. Daily discharge ascertained by applying mean daily gage height to rating tables, except as shown in footnote to daily-discharge table; shifting-control method used for entire year. Records good.

Discharge measurements of San Pedro River near Fairbank, Ariz., during the year ending September 30, 1924

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 6	9.34	13.0	Apr. 14	8.76	5.1	Aug. 5	9.78	86
Nov. 1	9.20	9.4	May 12	8.60	2.8	Aug. 25	9.68	44.0
Dec. 27	9.34	76	June 8	8.72	2.2	Sept. 14	9.30	1.5
Jan. 31	8.98	22.1	July 17	10.82	671			

Daily discharge, in second-feet, of San Pedro River near Fairbank, Ariz., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	14	10	10	45	21	7	30	4	4	5	40	50
2	21	4	13	40	20	7	25	3	3	6	115	5
3	19	42	562	182	21	8	20	3	3	6	40	7
4	16	17	320	155	8	11	15	3	2	42	48	5
5	14	4	182	87	8	7	10	3	1	132	58	59
6	11	4	150	182	9	5	5	3	2	42	60	28
7	5	133	132	68	13	4	5	3	2	35	228	28
8	4	10	104	68	12	3	5	3	2	44	50	28
9	4	11	89	108	12	4	5	3	2	148	50	28
10	4	14	89	130	10	5	5	3	2	46	210	17
11	3	17	60	51	9	7	5	3	2	7	50	17
12	3	26	72	68	12	6	5	3	2	5	425	16
13	2	21	70	63	14	5	5	4	2	3	48	11
14	2	17	51	58	15	6	5	4	2	2	67	1
15	2	11	60	53	17	6	5	4	2	4	145	1
16	2	12	68	48	15	5	5	4	2	95	27	2
17	1	42	70	43	17	3	5	4	2	410	32	1
18	1	102	68	38	14	3	5	4	2	95	32	1
19	1	61	70	33	15	4	5	4	2	194	32	1
20	1	50	66	28	14	5	5	4	2	65	27	1
21	2	42	182	23	11	9	5	4	2	42	21	1
22	1	38	87	23	11	9	5	4	2	35	17	1
23	1	38	74	23	12	11	5	4	2	21	21	1
24	1	34	60	23	12	13	4	4	2	524	54	1
25	1	28	48	23	12	13	4	4	2	166	29	1
26	4	27	51	23	11	13	4	4	2	145	13	1
27	3	17	81	23	12	14	4	4	2	50	58	1
28	4	13	95	23	8	230	4	4	2	40	7	1
29	130	11	83	68	9	130	4	4	45	40	7	1
30	27	9	68	42	-------	98	4	3	3	40	18	1
31	5	-------	54	22	-------	36	-------	4	-------	40	133	-------

NOTE.—Discharge interpolated Oct. 19, Nov. 10, Jan. 13–27, 30, Mar. 16, 23, and Sept. 30, when gage was not read. Discharge estimated from known limiting conditions Apr. 1–13, 15–30, May 1–11, July 27–31, Aug. 1, 3, 6, 8, 9, and 16, when gage was not read.

Monthly discharge of San Pedro River near Fairbank, Ariz., for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	130	1	10.0	615
November	133	4	28.8	1,710
December	562	10	103	6,330
January	182	22	60.1	3,700
February	21	8	12.9	742
March	230	3	22.2	1,360
April	----------	4	7.3	434
May	4	3	3.6	221
June	45	1	3.6	214
July	524	2	81.6	5,020
August	425	7	69.7	4,290
September	59	1	10.6	631
The year	562	1	34.8	25,300

SANTA CRUZ RIVER AT TUCSON, ARIZ.

LOCATION.—In sec. 14, T. 14 S., R. 13 E., at Congress Street Bridge at Tucson, Pima County, 7 miles above Rillito Creek.

DRAINAGE AREA.—2,260 square miles (measured on topographic maps and Greenidge map of Sonora).

RECORDS AVAILABLE.—October 15, 1905, to September 30, 1924.

GAGE.—Staff gages painted on downstream side of each bridge abutment; read by J. O. Kenny.

DISCHARGE MEASUREMENTS.—Made from bridge or by wading at gage.

CHANNEL AND CONTROL.—Bed composed of sand. Channels wide and shallow. Control shifts badly at all stages.

EXTREMES OF DISCHARGE.—Maximum stage during year, 6.0 feet during night of July 3 (discharge, 1,400 second-feet). River dry most of the time.

1905–1924: Maximum stage recorded, 9.8 feet, December 24, 1914 (discharge, about 9,000 second-feet). River dry most of each year at this point.

DIVERSIONS.—Diversions above the station for irrigation, amounts unknown.

REGULATION.—None.

ACCURACY.—Stage-discharge relation continually changing. Rating curves poorly defined. Gage read to tenths several times a day during periods of flow. Daily discharge ascertained from discharge hydrographs prepared from discharge determined by applying each gage reading to rating table. Records fair.

COOPERATION.—Records furnished by University of Arizona, Prof. G. E. P. Smith, irrigation engineer.

Discharge measurements of Santa Cruz River at Tucson, Ariz., during the year ending September 30, 1924

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Nov. 17	5.78	1,360	Dec. 13	4.20	5.6	Dec. 31	4.40	11.4
Nov. 18	4.76	172	Dec. 20	4.20	9.0	Mar. 31	4.20	45.3

Daily discharge, in second-feet, of Santa Cruz River at Tucson, Ariz., for the year ending September 30, 1924

Day	Nov.	Dec.	Jan.	Mar.	Apr.	July	Day	Nov.	Dec.	Jan.	Mar.	Apr.	July
1	------	6	11	------	25	------	16	8	8	1	------	------	------
2	------	5	11	------	8	------	17	830	8	------	------	------	------
3	------	5	11	------	------	135	18	175	9	------	------	------	------
4	------	5	11	------	------	------	19	------	9	------	------	------	------
5	------	5	11	------	4	------	20	------	9	------	------	------	------
6	------	5	11	------	5	------	21	------	10	------	------	------	------
7	------	5	11	------	5	------	22	------	15	------	------	------	------
8	------	6	11	------	5	------	23	------	14	------	------	------	------
9	------	6	11	------	------	10	24	------	11	------	------	------	------
10	------	6	11	------	------	------	25	8	11	------	------	------	------
11	8	6	11	------	------	------	26	8	11	------	------	------	------
12	8	6	1	------	------	------	27	8	11	------	------	------	------
13	8	6	------	------	------	------	28	8	20	------	5	------	------
14	8	6	1	------	------	------	29	8	18	------	45	------	------
15	8	7	1	------	------	------	30	7	15	------	75	------	------
							31	------	11	------	45	------	------

NOTE.—Stream dry on days for which no discharge is given.

Monthly discharge of Santa Cruz River at Tucson, Ariz., for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	0	0	0	0
November	830	0	36.7	2,180
December	20	5	8.9	546
January	11	0	4.0	248
February	0	0	0	0
March	75	0	5.5	337
April	25	0	1.7	103
May	0	0	0	0
June	0	0	0	0
July	135	0	4.6	286
August	0	0	0	0
September	0	0	0	0
The year	830	0	5.1	3,700

RILLITO CREEK NEAR TUCSON, ARIZ.

LOCATION.—In sec. 23, T. 13 S., R. 13 E., at highway bridge on Oracle Road 4 miles above confluence with Santa Cruz River and 4 miles north of Tucson, Pima County.

DRAINAGE AREA.—897 square miles (measured on topographic maps).

RECORDS AVAILABLE.—January 12, 1911, to September 30, 1924.

GAGE.—Staff gages painted on downstream side of several bridge piers, set to same datum; read by Morgan Mason.

DISCHARGE MEASUREMENTS.—Made from bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of sand which is constantly shifting. Control not well defined.

EXTREMES OF DISCHARGE.—Maximum stage during year, 6.3 feet during night of December 26 (discharge, 1,975 second-feet). Stream dry greater part of year.

1911–1924: Maximum stage occurred December 23, 1914 (discharge, greater than 16,000 second-feet). Stream dry greater part of each year.

DIVERSIONS.—Flood water is diverted for irrigation above station, amount unknown.

REGULATION.—None.

ACCURACY.—Stage-discharge relation continually changing. Rating curves poorly defined. Gage read to tenths several times a day during periods of flow. Daily discharge ascertained from discharge hydrograph prepared from discharge determined by applying each gage reading to rating table. Records fair.

COOPERATION.—Records furnished by University of Arizona, Prof. G. E. P Smith, irrigation engineer.

Discharge measurements of Rillito Creek near Tucson, Ariz., during the year ending September 30, 1924

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Nov. 17	4.28	249	Dec. 22	3.81	87	Dec. 28	5.00	430
Dec. 20	4.35	235	Dec. 26	5.18	782	Dec. 31	4.20	39.3
Dec. 21	3.79	81						

Daily discharge, in second-feet, of Rillito Creek near Tucson, Ariz., for the year ending September 30, 1924

Day	Nov.	Dec.	Jan.	Mar.	Apr.	Day	Nov.	Dec.	Jan.	Mar.	Apr.
1			18		4	16		30			
2			11			17	125	8			
3			10			18	15	2			
4			5		15	19					
					10	20		160			
6					5	21		105			
7					23	22		80			
8					25	23		35			
9					5	24		17			
10	6					25		105			
11	23				2	26		830			
12						27		790			
13						28		170			
14						29		145			
15		22				30		60			
						31		40		1	

NOTE.—Stream dry on days for which no discharge is given.

Monthly discharge of Rillito Creek near Tucson, Ariz., for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	0	0	0	0
November	125	0	5.6	335
December	830	0	83.8	5,150
January	18	0	1.4	85
February	0	0	0	0
March	1	0	.3	2
April	25	0	3.0	177
May	0	0	0	0
June	0	0	0	0
July	0	0	0	0
August	0	0	0	0
September	0	0	0	0
The year	830	0	8.0	5,750

SALT RIVER NEAR ROOSEVELT, ARIZ.

LOCATION.—At site of former diversion dam for power canal, 10 miles above upper end of Roosevelt Reservoir and 20 miles east of Roosevelt, Gila County.

DRAINAGE AREA.—4,222 square miles (measured by United States Bureau of Reclamation).

RECORDS AVAILABLE.—October 1, 1913, to September 30, 1924.

GAGE.—Principal gage is vertical staff on left bank, bolted to concrete wall at head of canal. Temporary gages are used from time to time on account of channel shifting away from main gage.

DISCHARGE MEASUREMENTS.—Made from cable at dam site or by wading near dam site.

CHANNEL AND CONTROL.—Shifting sand and gravel.

EXTREMES OF DISCHARGE.—Maximum stage reported during year, 13.24 feet. December 28 (discharge, 43,000 second-feet); minimum stage, 2.83 feet, September 28–30 (discharge, 155 second-feet).

1913–1924: Maximum mean daily discharge, 79,200 second-feet, January 15, 1916; minimum discharge, 145 second-feet, July 5, 1923.

DIVERSIONS.—None of importance.

REGULATION.—None.

COOPERATION.—Daily-discharge records furnished by Salt River Valley Water Users' Association.

Daily discharge, in second-feet, of Salt River near Roosevelt, Ariz., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	638	354	490	6,820	447	550	4,480	1,540	615	194	265	335
2	585	420	472	4,390	447	555	4,080	1,620	660	188	265	230
3	538	450	490	2,860	447	564	2,980	1,590	510	283	310	209
4	500	435	510	2,000	458	550	3,000	1,610	475	215	788	205
5	455	485	510	1,780	470	605	2,590	1,610	478	220	478	222
6	418	450	495	1,300	461	650	2,760	1,590	475	226	405	218
7	392	418	480	1,300	447	615	3,260	1,580	475	248	338	210
8	380	405	428	1,380	447	562	4,560	1,550	465	272	285	205
9	408	350	420	1,110	461	552	5,780	1,500	456	311	265	200
10	412	330	402	1,020	476	530	5,350	1,400	450	312	250	195
11	386	2,450	435	1,020	461	507	4,990	1,350	415	252	238	200
12	372	3,850	420	940	476	518	4,380	1,280	442	252	235	195
13	370	3,380	390	862	476	518	4,700	1,200	430	218	245	218
14	369	2,500	358	840	476	552	4,690	1,160	410	208	240	208
15	370	1,980	305	720	476	538	3,510	1,140	380	212	228	198
16	390	1,410	290	700	491	530	3,860	1,060	370	210	225	190
17	440	1,170	374	680	551	530	3,330	980	360	206	218	190
18	440	948	388	660	542	546	2,470	1,010	350	215	215	189
19	420	1,010	372	600	572	580	1,800	980	342	252	212	188
20	410	885	398	600	572	620	1,600	850	330	220	210	200
21	405	820	405	570	582	598	1,800	800	320	218	204	188
22	390	760	395	542	634	655	2,240	780	315	212	202	182
23	370	722	412	488	634	675	2,500	725	310	242	202	182
24	360	670	482	507	578	688	2,380	705	300	242	202	182
25	345	652	358	542	662	1,320	2,380	640	237	230	200	182
26	340	630	330	542	572	2,000	2,360	620	237	236	200	158
27	340	600	19,000	488	670	1,050	2,170	580	237	272	200	159
28	340	600	32,200	470	624	1,090	1,775	642	230	280	200	155
29	340	550	15,200	460	644	2,800	1,550	630	225	305	200	155
30	330	502	7,100	465	-------	3,650	1,520	618	219	326	212	155
31	332	-------	16,900	465	-------	4,250	-------	615	-------	308	230	-------

Monthly discharge of Salt River near Roosevelt, Ariz., for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	638	330	406	25,000
November	3,850	330	1,010	60,100
December	32,200	290	3,260	200,000
January	6,820	460	1,200	73,800
February	670	447	526	30,300
March	4,250	507	966	59,400
April	5,780	1,520	3,160	188,000
May	1,620	615	1,100	67,600
June	660	219	3,840	22,800
July	326	188	245	15,100
August	788	200	263	16,200
September	335	155	197	11,700
The year	32,200	155	1,060	770,000

TONTO CREEK NEAR ROOSEVELT, ARIZ.

LOCATION.—In sec. 14, T. 6 N., R. 10 E., 6 miles above upper end of Roosevelt Reservoir and 15 miles northwest of Roosevelt, Gila County.

DRAINAGE AREA.—1,004 square miles (measured by United States Bureau of Reclamation).

RECORDS AVAILABLE.—October 1, 1913, to September 30, 1924.

GAGE.—Vertical staff on right bank. Location of gage is changed from time to time owing to shifting of control.

DISCHARGE MEASUREMENTS.—Made by wading at low stages and by slope method at high stages.

CHANNEL AND CONTROL.—Bed composed of boulders and gravel. Control shifts at high stages. Banks well defined.

EXTREMES OF DISCHARGE.—Maximum mean daily discharge during year, 20,000 second-feet, December 28; no flow September 4–10.

1913–1924: Maximum mean daily discharge, 20,000 second-feet, December 28, 1923; no flow September 4–10, 1924.

DIVERSIONS.—None of importance. The entire flow is discharged into Roosevelt Reservoir.

REGULATION.—None.

COOPERATION.—Records of daily discharge furnished by Salt River Valley Water Users' Association.

Daily discharge, in second-feet, of Tonto Creek near Roosevelt, Ariz., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	18	3	38	2,500	60	42	132	82	12	4	5	2
2	8	18	43	2,000	60	42	132	70	12	4	5	2
3	6	18	38	1,300	60	42	350	56	12	4	5	2
4	8	28	38	1,200	56	34	350	56	9	4	18	0
5	6	22	38	800	56	34	302	56	9	4	12	0
6	6	15	38	700	56	34	220	56	9	4	5	0
7	6	15	38	600	55	34	302	56	9	4	5	0
8	4	13	38	500	55	34	400	35	9	4	5	0
9	4	15	38	300	55	34	350	56	9	34	5	0
10	4	13	30	275	55	34	302	56	9	26	5	0
11	2	1,510	25	180	55	34	350	56	9	5	4	80
12	2	1,140	25	160	55	30	220	56	9	5	4	30
13	2	300	20	145	55	30	375	56	9	5	4	25
14	2	200	20	115	55	30	204	56	7	5	4	19
15	2	120	20	102	55	30	182	56	7	5	4	16
16	2	67	20	85	47	30	154	56	5	5	4	16
17	2	67	20	112	47	30	200	56	5	5	4	12
18	2	67	25	90	47	30	200	48	5	5	4	5
19	2	67	25	80	47	38	100	48	5	5	4	5
20	2	60	30	70	47	100	200	48	5	5	4	5
21	2	60	45	60	47	78	200	22	5	5	4	5
22	2	60	38	79	47	100	112	22	5	5	4	5
23	2	55	38	79	47	300	100	22	5	5	4	5
24	2	38	30	74	47	232	90	22	5	4	4	5
25	2	43	30	68	47	232	90	22	5	4	4	5
26	2	43	30	68	47	205	90	22	5	145	4	5
27	2	43	8,000	68	45	200	90	15	5	19	4	5
28	2	43	20,000	68	45	154	90	15	5	16	4	5
29	2	43	1,400	60	42	500	94	12	5	12	3	5
30	2	40	1,100	60	-------	500	90	12	5	12	3	5
31	3	-------	6,500	60	-------	305	-------	12	-------	5	3	-------

Monthly discharge of Tonto Creek near Roosevelt, Ariz., for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	18	2	3.6	221
November	1,510	3	141	8,390
December	20,000	20	1,220	75,000
January	2,500	60	389	23,900
February	60	42	51.4	2,960
March	500	30	115	7,070
April	400	90	202	12,000
May	82	12	42.4	2,610
June	12	5	7.2	428
July	145	4	12.1	744
August	18	3	4.9	301
September	80	0	9.0	536
The year	20,000	0	185	134,000

VERDE RIVER NEAR McDOWELL, ARIZ.

LOCATION.—At dam site on Salt River Indian Reservation, three-quarters of a mile above junction with Salt River and 5½ miles below McDowell, Maricopa County.

DRAINAGE AREA.—6,000 square miles (measured by United States Bureau of Reclamation).

RECORDS AVAILABLE.—August 14 to September 30, 1889; April 20, 1897, to November 11, 1899; January 1, 1901, to April 19, 1902; July 23–26, 1902; January 1, 1903, to September 30, 1924.

GAGE.—Painted on granite rocks on right bank.

DISCHARGE MEASUREMENTS.—Made from cable at gage or by wading. Since November, 1913, measurements have been made regularly three or four times a week by a resident hydrographer.

CHANNEL AND CONTROL.—Bed composed of sand. No well-defined control.

EXTREMES OF DISCHARGE.—Maximum mean daily discharge during year, 51,000 second-feet, December 28; minimum discharge, 70 second-feet, July 2.

1897–1924: Maximum mean daily discharge, 61,500 second-feet, November 27, 1905; minimum mean daily discharge, 32 second-feet, July 19 and 20, 1904.

DIVERSIONS.—Water is diverted 5 miles above station for use on Indian reservation.

REGULATION.—None.

COOPERATION.—Daily-discharge record furnished by Salt River Valley Water Users' Association.

Daily discharge, in second-feet, of Verde River near McDowell, Ariz., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	348	288	342	6,000	358	332	2,610	265	132	76	106	77
2	375	310	313	3,250	355	334	2,570	255	132	72	102	128
3	337	310	320	2,200	350	318	2,780	238	126	76	110	168
4	317	350	311	2,070	352	308	2,820	230	119	128	150	160
5	358	352	315	1,410	350	309	2,180	220	121	232	120	172
6	313	288	316	1,220	340	324	2,560	212	120	178	97	168
7	308	275	316	1,070	395	328	2,560	195	122	241	95	135
8	308	288	315	838	376	319	3,010	195	119	345	96	125
9	278	290	316	732	375	322	4,710	202	115	290	90	140
10	256	310	316	708	342	314	3,000	192	111	394	92	160
11	265	6,500	315	692	330	309	2,220	182	109	410	90	178
12	268	6,820	318	665	340	285	2,480	178	104	350	118	232
13	270	3,080	316	632	359	295	1,870	170	105	310	116	352
14	265	1,650	318	620	362	282	2,610	161	106	290	112	342
15	260	1,150	316	600	365	273	2,340	157	99	250	154	320
16	265	885	314	580	360	276	1,560	153	92	218	156	300
17	234	720	316	575	350	278	1,180	155	93	201	148	290
18	232	640	314	565	355	282	1,010	152	92	178	135	280
19	230	580	310	550	372	305	860	149	91	170	122	262
20	230	540	322	542	375	311	710	148	90	165	108	244
21	230	360	362	532	382	338	560	142	88	160	100	235
22	230	330	379	540	372	358	450	144	80	126	97	225
23	230	345	391	530	365	390	430	149	76	118	90	202
24	228	343	380	530	352	416	390	148	78	106	88	187
25	235	338	350	530	358	702	368	143	78	101	85	182
26	239	338	376	520	356	980	336	140	74	100	84	167
27	245	332	25,100	482	351	949	322	136	75	98	80	161
28	255	340	40,800	458	348	818	310	130	80	99	78	158
29	244	335	13,500	460	345	1,410	284	126	75	106	76	156
30	247	338	7,120	328	-------	1,920	275	132	74	103	77	158
31	260	-------	13,400	380	-------	1,820	-------	130	-------	100	76	-------

Monthly discharge of Verde River near McDowell, Ariz., for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	375	228	270	16,600
November	6,820	288	968	57,600
December	40,800	310	3,500	215,000
January	6,000	328	994	61,100
February	395	330	358	20,600
March	1,920	273	523	32,200
April	4,710	275	1,650	98,200
May	265	126	172	10,600
June	132	74	99.2	5,900
July	410	72	187	11,500
August	156	76	105	6,460
September	352	77	202	12,000
The year	40,800	72	754	548,000

AGUA FRIA RIVER NEAR GLENDALE, ARIZ.

LOCATION.—In sec. 28, T. 6 N., R. 1 E., at uncompleted masonry diversion dam of Beardsley irrigation project at Camp Dyer, 4 miles below mouth of Castle Creek and 22 miles northwest of Glendale, Maricopa County.

DRAINAGE AREA.—1,420 square miles (measured on topographic map).

RECORDS AVAILABLE.—November 10, 1910, to September 30, 1924. Daily discharge for years ending September 30, 1915–1919; daily gage heights for years when discharge was not determined.

GAGE.—Staff gage fastened to damaged stilling well at same datum on right bank at upstream face of dam; read by J. F. Tannehill.

DISCHARGE MEASUREMENTS.—Made from cable about one-third of a mile below gage or by wading near gage.

CHANNEL AND CONTROL.—Channel composed of gravel and shifting sand. Principal control is formed by the unfinished part of the masonry diversion dam and ledge on which it is built. This dam has a large gap or opening near the right bank through which the low and medium flow pass, a scour gate opening 4 feet by 7½ feet, in the base near the left bank through which flow from the left channel passes at higher stages, and another gap or opening near the left bank that carries flow at still higher stages. At extreme high stages the stream flows over the entire broad crest of the dam, which is at elevation 28.2 feet on the gage. Sand fills in and scours out of the crevices in the right gap of the dam continually with each rise in the river. The stage-discharge relation, therefore, is not permanent.

EXTREMES OF DISCHARGE.—Maximum stage recorded during the year, 17.0 feet at 8.45 a. m. December 27; minimum stage, 1.54 feet October 22, 24, and 26.

1910–1924: Maximum stage, 33 feet November 27, 1919, determined from floodmarks (discharge, about 105,000 second-feet); minimum discharge 0.6 second-foot September 24–26, 1919. No record of discharge since September 30, 1919.

DIVERSIONS.—Water is diverted above gage for irrigating two or three small ranches; amount not known.

REGULATION.—None.

ACCURACY.—Stage-discharge relation variable. No discharge measurements made. Gage read twice a day to nearest two-hundredths. Daily discharge not determined.

COOPERATION.—Gage-height record furnished by Robert O. Beardsley.

Daily gage height, in feet, of Agua Fria River near Glendale, Ariz., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.68	3.05	2.25	5.50	3.10	2.90	4.15	2.77	2.39	2.79	2.38	3.25
2	1.65	2.04	2.20	5.00	3.10	2.90	3.95	2.79	2.38	2.37	2.38	2.52
3	1.66	1.86	2.29	4.75	3.10	2.90	3.85	2.78	2.39	2.37	2.38	2.36
4	1.65	1.77	2.33	4.50	3.10	2.90	3.75	2.73	2.38	2.38	2.38	2.31
5	1.65	1.72	2.31	4.50	3.10	2.90	3.65	2.69	2.37	2.68	2.38	2.29
6	1.64	1.68	2.29	4.50	3.10	2.90	3.6	2.74	2.36	2.57	2.37	2.29
7	1.64	1.67	2.27	4.15	3.10	2.90	3.55	2.67	2.36	2.51	2.38	2.26
8	1.64	1.67	2.25	4.15	3.10	2.90	3.7	2.64	2.36	2.43	2.38	2.28
9	1.64	1.67	2.22	4.15	3.10	2.90	3.6	2.62	2.38	2.50	2.38	2.28
10	1.64	5.60	2.19	4.00	3.10	2.85	3.55	2.60	2.39	2.39	2.96	2.27
11	1.62	6.25	2.20	3.90	3.10	2.85	3.5	2.57	2.39	2.39	2.85	4.1
12	1.62	3.90	2.19	3.85	3.10	2.85	3.45	2.57	2.39	2.38	2.50	3.3
13	1.58	3.38	2.20	3.75	3.05	2.85	3.4	2.56	2.39	2.36	2.39	2.75
14	1.61	2.93	2.20	3.70	3.10	2.80	3.35	2.53	2.38	2.38	2.37	2.35
15	1.56	2.60	2.19	3.65	3.05	2.80	3.25	2.51	2.38	2.36	2.33	2.37
16	1.57	2.60	2.16	3.60	3.05	2.85	3.2	2.49	2.37	2.34	2.30	2.29
17	1.56	2.49	2.15	3.60	3.00	2.90	3.15	2.51	2.37	2.35	2.31	2.29
18	1.57	2.41	2.16	-------	3.00	2.95	3.1	2.49	2.37	2.34	2.31	2.30
19	1.56	2.39	2.18	3.40	3.00	3.00	3.05	2.47	2.37	2.35	2.30	2.28
20	1.56	2.84	2.39	3.40	3.00	3.10	3.05	2.47	2.38	2.33	2.29	2.30
21	1.55	2.29	2.40	3.35	3.00	3.00	3.0	2.45	2.36	2.36	2.30	2.28
22	1.54	2.27	2.37	3.30	3.00	3.00	3.0	2.46	2.36	2.35	2.30	2.30
23	1.55	2.25	2.27	3.30	3.00	3.00	2.95	2.43	3.44	2.37	2.29	2.30
24	1.54	2.22	2.21	3.30	2.95	2.95	2.95	2.42	2.39	2.37	2.29	2.28
25	1.55	2.20	2.21	3.25	2.95	2.95	2.95	2.44	2.38	2.38	2.29	2.27
26	1.54	2.18	7.75	3.25	-------	3.00	3.1	3.39	2.38	2.37	-------	2.28
27	1.55	-------	14.50	3.20	3.00	3.00	2.95	2.40	2.37	2.37	2.28	2.26
28	1.55	-------	7.50	3.20	2.95	-------	2.93	2.39	2.38	2.38	2.30	2.26
29	1.55	1.16	5.50	3.20	3.00	4.30	2.88	2.39	2.39	2.37	2.29	2.27
30	-------	1.16	8.00	3.10	-------	3.95	2.80	2.39	2.39	2.37	2.30	2.27
31	-------	-------	6.50	3.15	-------	4.30	-------	2.39	-------	2.40	3.65	-------

NOTE.—Gage not read Oct. 30, 31, Nov. 27, 28, Jan. 18, Feb. 26, Mar. 28, and Aug. 26.

BARREN FLAT BASIN

WEST TURKEY CREEK NEAR LIGHT, ARIZ.

LOCATION.—In SW. ¼ sec. 17, T. 18 S., R. 29 E., at Sanders ranch, 2½ miles south and 9½ miles east from Light, Cochise County.

DRAINAGE AREA.—19 square miles (measured on topographic map).

RECORDS AVAILABLE.—July 30, 1919, to September 30, 1924.

GAGE.—Vertical enamel staff on right bank directly north of Sanders ranch; read by Bennie Sanders.

DISCHARGE MEASUREMENTS.—Measurements made by wading near gage.

CHANNEL AND CONTROL.—Low-water control 20 feet below gage; high-water control 100 feet below gage. Banks high; not subject to overflow.

EXTREMES OF DISCHARGE.—Maximum stage reported, 2.6 feet December 28 (discharge, 170 second-feet); creek dry September 21–30.

1919–1924: Maximum mean daily discharge, 990 second-feet on July 31, 1921; creek dry during periods of each year.

DIVERSIONS.—Minor diversions above and below station.

REGULATION.—None.

ACCURACY.—Stage-discharge relation fairly permanent. Rating curve fairly well defined below 30 second-feet. Gage read once a day to nearest two-hundredths and oftener during periods of flood. Daily discharge ascertained by applying daily gage height to rating table and by hydrograph for flood periods. Records fair.

COOPERATION.—Records furnished by University of Arizona, Prof. G. E. P. Smith, irrigation engineer.

The following discharge measurements were made:
October 5, 1923: Gage height, 1.04 feet; discharge, 1.5 second-feet.
February 24, 1924: Gage height, 1.10 feet; discharge, 1.9 second-feet.
June 6, 1924: Gage height, 0.76 foot; discharge, 0.1 second-foot.

Daily discharge, in second-feet, of West Turkey Creek near Light, Ariz., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3	1	3	21	3	2	38	15	0.5	0.5	0.5	1
2	2	1	5	21	3	1	38	15	.5	.5	.5	1
3	2	1	10	16	3	1	29	15	.5	.5	.5	1
4	2	1	8	11	3	8	2	15	.5	.5	1	.5
5	1	1	8	11	3	9	2	15	.5	-------	1	.5
6	1	1	5	11	2	8	29	11	.5	-------	1	.5
7	1	1	8	9	2	2	29	11	.5	-------	.5	.5
8	1	1	11	9	2	2	38	11	.5	-------	.5	-------
9	1	1	6	9	2	46	62	11	.5	-------	.5	-------
10	1	1	8	8	2	46	29	11	.5	-------	1	-------
11	1	3	16	8	2	46	29	11	.5	-------	1	-------
12	1	3	16	8	2	1	38	11	.5	-------	.5	-------
13	1	2	8	7	3	1	38	11	.5	-------	.5	-------
14	1	2	6	6	3	1	38	11	.5	-------	.5	-------
15	1	2	6	5	2	1	38	11	.5	-------	.5	-------
16	1	1	6	11	2	1	29	11	.5	-------	.5	-------
17	.5	1	6	11	9	1	29	11	.5	-------	.5	-------
18	1	1	8	11	9	2	21	11	.5	-------	.5	-------
19	1	1	8	11	9	2	21	10	-------	-------	1	-------
20	1	2	15	8	9	2	16	8	-------	-------	1	-------
21	.5	2	11	8	8	2	16	4	-------	-------	.5	0
22	.5	3	15	4	8	2	16	3	.5	-------	.5	0
23	.5	3	15	3	8	2	16	2	.5	-------	.5	0
24	.5	2	15	3	2	2	18	2	.5	-------	.5	0
25	.5	2	120	3	2	2	16	.5	.5	-------	.5	0
26	.5	2	145	3	2	2	16	.5	.5	-------	-------	0
27	.5	2	145	3	2	8	16	.5	-------	-------	-------	0
28	2	2	170	3	2	62	16	.5	-------	-------	.5	0
29	2	1	145	3	2	38	16	.5	-------	-------	.5	0
30	2	1	16	3	-------	38	15	.5	-------	.5	.5	0
31	2	-------	25	3	-------	38	-------	.5	-------	.5	1	-------

NOTE.—Trace of water only on days for which no record is given.

Monthly discharge of West Turkey Creek near Light, Ariz., for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	3	0.5	1.16	71
November	3	1	1.6	95
December	170	3	31.9	1,960
January	21	3	8.1	498
February	9	2	3.8	219
March	62	1	12.2	750
April	62	2	25.1	1,490
May	15	.5	8.08	497
June	.5	(a)	.38	23
July	.5	(a)	.1	6
August	1	.5	.60	37
September	1	0	.17	10
The year	170	0	7.80	5,660

[a] Trace of water only.

WHITEWATER DRAW BASIN

WHITEWATER DRAW NEAR RUCKER, ARIZ.

LOCATION.—In sec. 29, T. 19 S., R. 29 E., at Heyne ranch, 6 miles east of Rucker, Cochise County.

DRAINAGE AREA.—40 square miles (measured on topographic map).

RECORDS AVAILABLE.—August 7, 1919, to September 30, 1924.

GAGE.—Vertical enamel staff fastened to tree on left bank; read by F. W. Heyne.

DISCHARGE MEASUREMENTS.—Made from cable 100 feet below gage, or by wading near gage.

CHANNEL AND CONTROL.—Channel composed of boulders, gravel, and bedrock, with pronounced drop 300 feet below gage. Channel fairly straight and fairly uniform in cross section.

EXTREMES OF DISCHARGE.—Maximum stage during year, 3.1 feet at 5 p. m. December 27 (discharge, 480 second-feet). Dry July 9–16 and July 20 to September 19.

1919–1924: Maximum mean daily discharge, 1,240 second-feet November 23, 1919. No flow during periods in 1920, 1922, 1923, and 1924.

DIVERSIONS.—Minor diversions above and below station.

REGULATION.—None.

ACCURACY.—Stage-discharge relation fairly permanent. Rating curve fairly well defined below 200 second-feet. Gage read once a day to nearest two-hundredths. Daily discharge ascertained by applying daily gage height to rating table. Records fair.

COOPERATION.—Records furnished by University of Arizona, Prof. G. E. P. Smith, irrigation engineer.

The following discharge measurements were made:

October 5, 1923: Gage height 0.87 foot; discharge, 2.8 second-feet

February 24, 1924: Gage height, 0.90 foot; discharge, 2.2 second-feet.

June 6, 1924: Gage height, 0.88 foot; discharge, 1.4 second-feet.

Daily discharge, in second-feet, of Whitewater Draw near Rucker, Ariz., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan	Feb.	Mar.	Apr.	May	June	July	Sept.
1	4	2	2	50	4	2	41	8	2	0.5	-------
2	4	2	3	40	4	2	55	8	2	.5	-------
3	4	2	4	32	4	2	49	8	2	.5	-------
4	3	2	16	28	4	2	47	8	2	.5	-------
5	3	2	13	25	4	2	48	8	2	.5	-------
6	3	1	12	22	3	2	47	7	2	.5	-------
7	2	1	12	20	3	2	80	7	2	.5	-------
8	2	1	6	18	3	2	75	6	2	.5	-------
9	2	1	6	16	3	2	55	6	2	-------	-------
10	2	1	6	15	3	2	42	5	2	-------	-------
11	2	1	6	14	3	2	39	5	1	-------	-------
12	2	1	6	12	3	2	37	4	1	-------	-------
13	2	1	7	11	3	2	35	4	1	-------	-------
14	2	1	8	10	2	2	32	4	1	-------	-------
15	2	1	10	11	2	2	30	4	1	-------	-------
16	2	1	15	10	2	2	28	4	1	-------	-------
17	2	2	15	8	2	2	25	4	1	.5	-------
18	2	5	12	8	2	2	22	4	1	.5	-------
19	2	4	13	7	2	2	19	4	1	.5	-------
20	2	4	18	7	2	2	17	4	1	-------	0.5
21	2	4	19	6	2	2	16	4	.5	-------	.5
22	2	4	16	6	2	2	15	4	.5	-------	.5
23	2	4	16	6	2	2	15	4	.5	-------	.5
24	2	4	14	6	2	2	14	4	.5	-------	.5
25	2	4	40	6	2	2	13	3	.5	-------	.5
26	2	3	305	5	2	2	12	3	.5	-------	.5
27	2	3	400	5	2	2	11	2	.5	-------	.5
28	2	3	225	5	2	29	10	2	.5	-------	.5
29	2	3	140	5	2	25	9	2	.5	-------	.5
30	2	3	95	4	-------	25	9	2	.5	-------	.5
31	2	-------	65	4	-------	27	-------	2	-------	-------	-------

NOTE.—No flow on days for which no record is given.

Monthly discharge of Whitewater Draw near Rucker, Ariz., for the year ending September 30, 1924

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	4	2	2.3	142
November	5	1	2.4	143
December	400	2	49.2	3,030
January	50	4	13.6	836
February	4	2	2.6	150
March	29	2	5.2	320
April	80	9	31.6	1,880
May	8	2	4.6	283
June	2	.5	1.17	70
July	.5	0	.18	11
August	0	0	0	0
September	.5	0	.18	11
The year	400	0	9.46	6,880

MISCELLANEOUS DISCHARGE MEASUREMENTS

In addition to the records of stream flow obtained at gaging stations and reported in the preceding pages, measurements of flow were made at a number of other points, as shown by the following table:

Miscellaneous discharge measurements in Colorado River basin during the year ending September 30, 1924

Date	Stream	Tributary to—	Locality	Gage height	Discharge
				Feet	*Sec.-ft.*
June 25	North Fork of Duchesne River.	Duchesne River	NW. ¼ NE. ¼ sec. 35, T. 2 N., R. 9 W., at former gaging station near Hanna, Utah.	1.17	78.0
Aug. 17	do	do	do	.63	22.3
June 25	do	do	Sec. 19, T. 1 N., R. 8 W., at confluence with West Fork of Duchesne River, 4 miles northwest of Hanna, Utah.		104
Aug. 17	do	do	do		30.9
June 24	West Fork of Duchesne River.	do	Sec. 27, T. 1 N., R. 9 W., at former gaging station near Hanna, Utah.	.77	32.8
Aug. 16	do	do	do	.48	11.2
July 1	Spring Branch	Uinta River	Sec. 5, T. 2 N., R. 2 W., half a mile above confluence with Uinta River, 15 miles northwest of Neola, Utah.		10.2
Aug. 23	Ferron Creek	San Rafael River	Near line between secs. 1 and 2, T. 20 S., R. 6 E., at former gaging station near Ferron, Utah.		15.3
23	Muddy Creek	Fremont River	Sec. 21, T. 21 S, R. 6 E., at former gaging station near Emery, Utah.		16.3
Dec. 10	Pine Creek Canal	Mukuntuweap River.	Sec. 15, T. 41 S., R. 10 W., at highway bridge half a mile north of south entrance to Zion National Park, Utah.		.8
12	Hunts Spring	Santa Clara Creek	Sec. 11, T. 39 S., R. 16 W., 40 feet below gaging station on Santa Clara Creek, near Central, Utah.		2.5
June 27	Gila River	Colorado River	Below mouth of Hot Springs, near Fort Thomas, Ariz.		4.9
July 1	do	do	do		8.2
June 27	do	do	Near Bylas, Ariz		4.9
July 1	do	do	do		6.7
June 27	do	do	Below mouth of San Carlos River, near San Carlos, Ariz.		.3
July 1	do	do	do		.3
Oct. 3	Billingsley Canal	Gila River	Near Sheldon, Ariz		1.3
Oct. 12	San Francisco River.	do	Clifton, Ariz		66
Dec. 19	do	do	do		155
Mar. 18	do	do	do		139
23	San Carlos River	do	San Carlos, Ariz		107
25	Dripping Springs Wash.	do	Near Christmas, Ariz		4.6
24	Mineral Creek	do	Near Kelvin, Ariz		21.2

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