DEPARTMENT OF THE INTERIOR
ALBERT B. FALL, Secretary

UNITED STATES GEOLOGICAL SURVEY
GEORGE OTIS SMITH, Director

WATER-SUPPLY PAPER 480

SURFACE WATER SUPPLY OF THE UNITED STATES

1918

PART X. THE GREAT BASIN

NATHAN C. GROVER, Chief Hydraulic Engineer
C. C. JACOB, A. B. PURTON, H. D. McGLASHAN, F. F. HENSHAW, G. C. BALDWIN, and ROBERT FOLLANSBEE, District Engineers

Prepared in cooperation with the States of
UTAH, NEVADA, CALIFORNIA, OREGON, AND WYOMING

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SURFACE WATER SUPPLY OF THE GREAT BASIN, 1918.

AUTHORIZATION AND SCOPE OF WORK.

This volume is one of a series of 14 reports presenting records or measurements of flow made on streams in the United States during the year ending September 30, 1918.

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 sundry civil bills passed by Congress have carried the following item and appropriations:

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, 1895–1919.

1895	$12,500.00
1896	20,000.00
1897 to 1900, inclusive	50,000.00
1901 to 1902, inclusive	100,000.00
1903 to 1906, inclusive	200,000.00
1907	150,000.00
1908 to 1910, inclusive	100,000.00
1911 to 1917, inclusive	150,000.00
1918	175,000.00
1919	148,244.10

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 5.

Measurements of stream flow have been made at about 4,510 points in the United States and also at many points in Alaska and the Hawaiian Islands. In July, 1918, 1,180 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 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 depth 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.

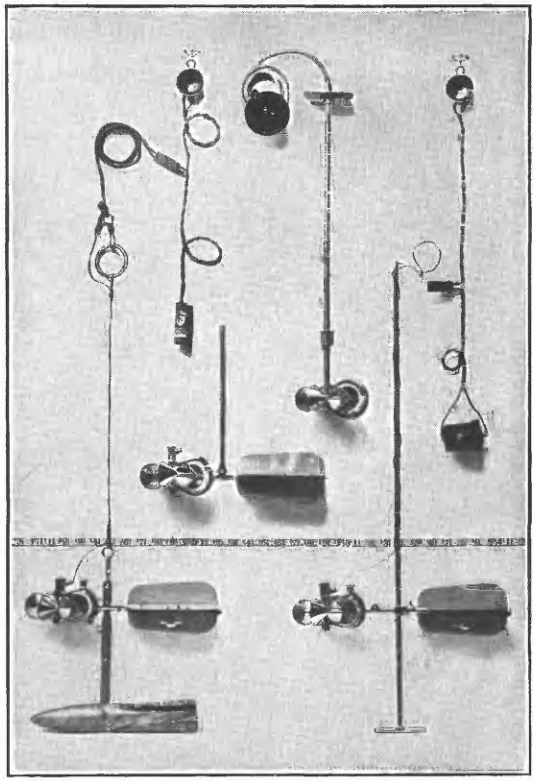
An "acre-foot," equivalent to 43,560 cubic feet, is the quantity required to cover an acre to the depth of 1 foot. The term is commonly used in connection with storage for irrigation.

The following terms not in common use are here defined:

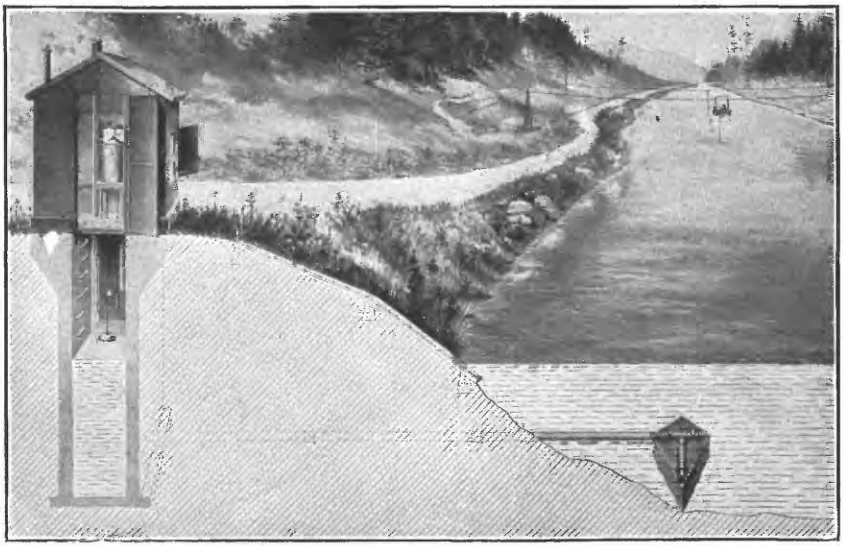
"Stage-discharge relation," an abbreviation for the expression "relation of gage height to discharge."

"Control," a term used to designate the natural section or stretch of the channel or artificial structure below the gage which determines the stage-discharge relation at the gage. It should be noted that the control may not be the same at all stages.

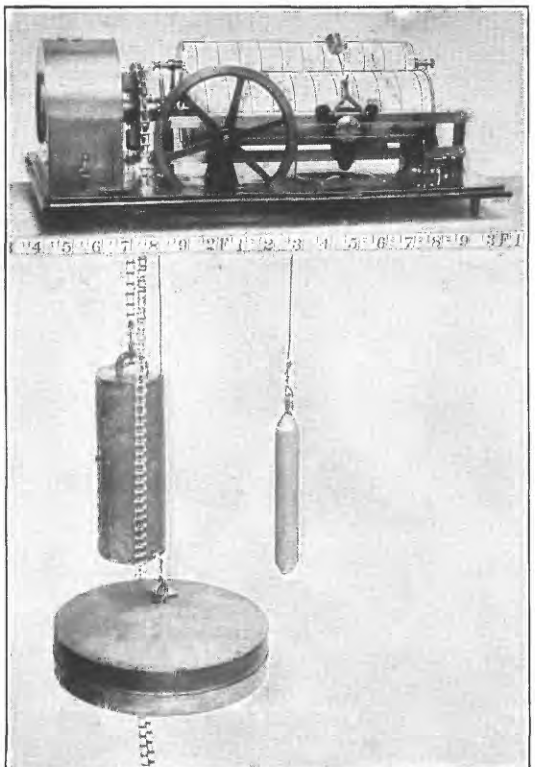
The "point of zero flow" for a gaging station is that point on the gage—the gage height—to which the surface of the stream falls when the discharge is reduced to zero.



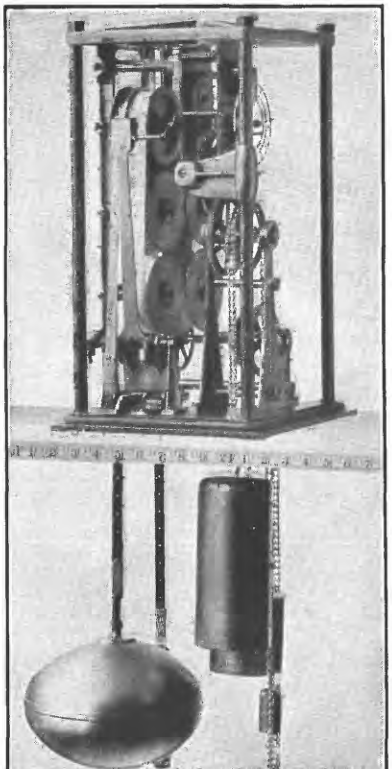
A. PRICE CURRENT METERS.



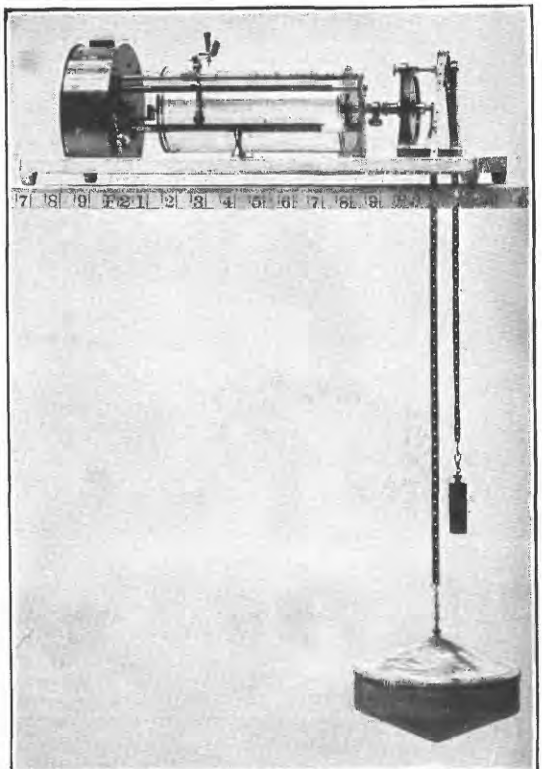
B. TYPICAL GAGING STATION.



A. STEVENS CONTINUOUS.



B. GURLEY PRINTING.



C. FRIEZ.

WATER-STAGE RECORDERS.

EXPLANATION OF DATA.

The data presented in this report cover the year beginning October 1, 1917, and ending September 30, 1918. 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 a year beginning October 1 is practically all derived from precipitation within that year.

The base data collected at gaging stations (Pl. I, *B*) 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 or chain gage or from a water-stage recorder (Pl. II) that gives a continuous record of the fluctuations. Measurements of discharge are made with a current meter (Pl. I, *A*). The general methods are outlined in standard textbooks on the measurement of river discharge.

From the discharge measurements, rating tables are prepared that give the discharge for any stage, and these rating tables, when applied to the daily gage height, give the daily discharge from which the monthly and yearly means of discharge are 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 height 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 conditions that may affect the permanence of the stage-discharge relation, covering such subjects as the occurrence of ice, the use of the stream for log driving, shifting of channel, 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 true mean daily discharge may be obtained by computing the mean daily gage height and applying it to the rating table, by averaging quantities of discharge for regular intervals during the day, or by means of a 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 per second during the month. On this average flow computations for 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, measurement of flow, and interpretation of records.

A paragraph in the description of the station 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 height to the rating table to obtain the daily discharge.[1]

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 depth of 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

[1] For a more detailed discussion of the accuracy of stream-flow data see Grover, N. C., and Hoyt, J. C., Accuracy of stream-flow data: U. S. Geol. Survey Water-Supply Paper 400, pp. 53-59, 1916.

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 sources of error not known to the Survey.

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.

COOPERATION.

During the year ending September 30, 1918, the work in Utah, Nevada, California, Oregon, and Wyoming has been done under cooperative agreements between the United States Geological Survey and the respective States.

Cooperation with the States is effected under contracts which are made between the Director of the Federal Survey and the State engineers or other officials and are authorized by legislative acts appropriating moneys. The State contracts are essentially of the same order, the principal provisions being substantially as follows:

1. The United States Geological Survey retains direct supervision of the field work and the preparation of the data for publication.

2. The Federal Survey retains possession of field notes, maps, and other material collected, but this material is open at all times to inspection by the State officials, and if not satisfactory the agreements can be terminated at any time.

3. The salaries of gage observers and engineers and the traveling and field expenses of the engineers are divided between the two parties in some manner agreed upon, the accounts being rendered monthly in accordance with the regulations of the Federal Survey.

4. The streams and localities in which investigations shall be made are determined by conference between the State officials and the representatives of the United States Geological Survey.

5. The cost of publication is borne entirely by the Federal Survey.

Special acknowledgments are due to G. F. McGonagle, State engineer of Utah; J. G. Scrugham, State engineer of Nevada; W. F. McClure, State engineer of California; the State Water Commission of California, A. E. Chandler, president; John H. Lewis, State engineer of Oregon; and James B. True, State engineer of Wyoming, for

the very efficient manner in which they have represented their States in the cooperative investigations.

Acknowledgments are also due to the officials and employees of the United States Reclamation Service, the United States Forest Service, the United States Weather Bureau, Department of Public Service, Los Angeles, Calif., and the Southern Pacific Co., for free use of data collected by them.

Financial assistance has been rendered by the Chewacan Land & Cattle Co.; Harney Basin Development Co.; Eastern Oregon Live Stock Co. (successor to the Wm. Hanley Co.); and various canal and reservoir companies operating in the Sevier River basin.

DIVISION OF WORK.

Data for stations in Utah and Nevada were collected and prepared for publication under the direction of C. C. Jacob and A. B. Purton, district engineers, assisted by L. W. Jordan, J. J. Sanford, W. E. Dickinson, C. W. Bennett, and Miss Ruby Christensen.

For stations in California the data were collected and prepared for publication under the direction of H. D. McGlashan, district engineer, assisted by William Kessler, Charles Leidl, J. F. Kunesh, J. E. Jones, and A. M. Machin.

For stations in Oregon the data were collected and prepared for publication under the direction of F. F. Henshaw, district engineer, assisted by R. C. Briggs and J. J. Dirzulaitis.

For stations in Idaho the data were collected and prepared for publication under the direction of G. C. Baldwin, district engineer, assisted by T. R. Newell, C. F. Elford, R. B. Kilgore, and Miss E. H. Haugse.

For the station in Wyoming the data were collected and prepared for publication under the direction of Robert Follansbee, district engineer, assisted by S. B. Soulé, J. B. Spiegel, and B. T. Chase.

The records were reviewed and the manuscript assembled by W. E. Dickinson and B. L. Bigwood.

GAGING-STATION RECORDS.

GREAT SALT LAKE BASIN.

GAGES ON GREAT SALT LAKE.

LOCATION.—At Saltair, on southeast shore of the lake 15 miles west of Salt Lake City, and at Midlake, on Lucin cut-off of Southern Pacific Railroad, about 30 miles west of Ogden, Weber County, Utah.

RECORDS AVAILABLE.—September 14, 1875, to December 15, 1899; March to July, 1904; October 1, 1912, to September 30, 1918. Records have appeared in publications of United States Geological Survey, as follows: Gage heights September 14, 1875, to January 4, 1890, in Monograph 1, "Lake Bonneville," by G. K. Gilbert; September, 1875, to December, 1891, in the Thirteenth Annual Report of the Director, Part III; September 14, 1875, to December 15, 1899, in Water-Supply

Paper 38; March 9 to July 21, 1904, in Water-Supply Paper 133; since October 1, 1912, published in water-supply papers. Chart showing variation in level of Great Salt Lake and monthly and annual precipitation in Great Salt Lake basin from 1850 to 1913 compiled from chart in office of chief engineer of Oregon Short Line Railroad, Salt Lake City, Utah, published by United States Geological Survey in Water-Supply Paper 330.

GAGES.—Midlake gage read August 15, 1902, to September 30, 1918; Saltair gage July 1, 1903, to September 30, 1918. The first gage was installed at Blackrock in September, 1875, and was used until October, 1877. A gage at Farmington was used from November, 1877, to November, 1879, and one at Lake Shore from November, 1879, to September, 1881. Gages at Garfield Landing were used April, 1881, to December, 1899. In 1916, E. C. LaRue, hydraulic engineer, United States Geological Survey, installed a gage at Lake Point and by means of comparative readings for one month determined the relation between this gage and the gages at Saltair and Midlake. The elevation of the zero of the gage at Lake Point was determined from United States Geological Survey bench marks, the elevations of which had been adjusted in 1912 by the United States Coast and Geodetic Survey from precise leveling. From the Lake Point gage and the table of elevations given by G. K. Gilbert in Monograph 1, Mr. LaRue determined the elevations above mean sea level of the zeros of the various gages to be as follows:

	Feet.
Blackrock	4,208.30
Farmington	4,206.80
Lake Shore	4,203.00
Garfield Landing (U. S. Geological Survey)	4,198.40
Garfield (Marcus E. Jones)	4,198.40
Midlake	4,198.01
Saltair	4,196.77

EXTREMES OF STAGE.—Maximum stage recorded during year, 6.6 feet (Saltair datum) April 1 to May 1, 5.5 feet (Midlake datum) April 15; minimum stage, 5.3 feet (Saltair datum), 4.0 feet (Midlake datum) September 15.

1850–1918: Maximum stage recorded, 13.3 feet (Midlake datum) July 12, 1877; estimated maximum stage, 14.5 feet (Midlake datum) occurred in 1868 (data furnished by Marcus E. Jones, Salt Lake City); minimum stage, —2.3 feet (Midlake datum) in 1902.

COOPERATION.—Readings on the Midlake gage are furnished by the Southern Pacific Co.; readings on the Saltair gage by the United States Weather Bureau.

Gage height, in feet, of Great Salt Lake, Utah, for the year ending Sept. 30, 1918.

Day.	October.		November.		December.		January.		February.		March.	
	Saltair.	Midlake.	Saltair.	Midlake.	Saltair.	Midlake.	Saltair.	Midlake.	Saltair.	Midlake.	Saltair.	Midlake.
1	5.6	4.4	5.4	4.2	5.6	4.3	5.7	4.5	6.0	4.7	6.2	5.0
15	5.6	4.3	5.5	4.3	5.7	4.5	5.9	4.6	6.1	4.8	6.5	5.2

Day.	April.		May.		June.		July.		August.		September.	
	Saltair.	Midlake.	Saltair.	Midlake.	Saltair.	Midlake.	Saltair.	Midlake.	Saltair.	Midlake.	Saltair.	Midlake.
1	6.6	5.4	6.6	5.4	6.5	5.3	6.2	5.2	6.0	4.7	5.5	4.2
15	6.6	5.5	6.5	5.3	6.4	5.3	6.2	5.0	5.7	4.5	5.3	4.0

BEAR RIVER BASIN.

BEAR RIVER NEAR EVANSTON, WYO.

LOCATION.—In sec. 1, T. 15 N., R. 121 W., 300 feet above highway bridge and 3½ miles northwest of Evanston, Uinta County, Wyo. Nearest tributary, small stream entering from southwest half a mile above.

DRAINAGE AREA.—645 square miles (measured on U. S. Geological Survey map; scale, 1:500,000).

RECORDS AVAILABLE.—October 26, 1913, to September 30, 1918.

GAGE.—Chain gage on left bank, 300 feet above bridge; read by Mrs. Marion McClure and Mrs. Alex Morrow.

DISCHARGE MEASUREMENTS.—Made from cable just below gage or by wading.

CHANNEL AND CONTROL.—Bed composed of coarse gravel. Control at riffle a short distance below gage; slightly shifting. Left bank is overflowed at stage of about 5 feet, the amount of overflow increasing with the stage; right bank is overflowed above 5 feet, but to a much less extent than left bank.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 5.5 feet at 7 p. m. June 16 (discharge, 2,090 second-feet); minimum stage, 0.72 foot September 2, 3, 6, and 7 (discharge, 2 second-feet).

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

DIVERSIONS.—Prior to December 31, 1916, there were adjudicated diversions of 249 second-feet from Bear River above station and 516 second-feet below.

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

ACCURACY.—Stage-discharge relation practically permanent. Rating curve well-defined between 10 and 1,800 second-feet. Gage read to hundredths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table. Records excellent.

Discharge measurements of Bear River near Evanston, Wyo., during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*
June 13	S. B. Soulé	5.16	1,830
Aug. 19	Robert Follansbee	.99	17.5

Daily discharge, in second-feet, of Bear River near Evanston, Wyo., for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	77	60	.....	330	251	525	175	44	2
2	82	58	.....	208	314	525	208	42	2
3	89	67	.....	130	365	570	194	40	2
4	84	61	.....	130	548	810	144	38	2
5	70	58	.....	167	570	1,020	154	36	2
6	60	64	.....	152	760	1,140	167	34	2
7	54	54	.....	180	810	1,260	154	32	2
8	55	61	.....	222	810	1,320	167	30	2
9	55	70	.....	282	810	1,520	180	28	2
10	60	62	.....	298	710	1,520	236	26	2
11	61	67	.....	382	615	1,650	660	24	2
12	64	64	.....	348	400	1,790	330	23	4
13	54	66	.....	266	400	1,790	208	22	6
14	56	62	.....	282	440	1,860	298	21	5
15	62	61	.....	266	480	1,940	167	20	4
16	58	60	.....	208	710	1,860	126	19	5
17	58	64	.....	180	710	1,790	88	18	5
18	62	62	208	130	615	1,940	88	17	5
19	64	58	222	147	525	1,650	92	16	6
20	58	61	266	180	548	1,020	117	17	5
21	64	69	266	180	570	860	92	15	6
22	69	69	298	180	570	1,140	90	13	8
23	61	61	314	180	525	1,320	67	13	15
24	67	74	570	208	502	1,650	54	14	36
25	69	74	570	208	710	660	54	11	40
26	70	79	570	208	710	548	48	8	36
27	74	77	480	208	615	548	54	6	28
28	76	76	440	180	570	615	52	6	26
29	70	79	440	194	502	400	50	5	25
30	64	77	810	222	502	208	48	4	24
31	54	.....	382	.....	502	.....	46	3	.....

NOTE.—Discharge interpolated because of no gage heights July 28 to Aug. 4, Aug. 7–18.

Monthly discharge of Bear River near Evanston, Wyo., for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	89	54	65.2	4,010
November	79	54	65.8	3,920
March 18–31	810	208	417	11,600
April	382	130	215	12,800
May	810	251	570	35,000
June	1,940	208	1,180	70,200
July	660	46	149	9,160
August	44	3	20.8	1,280
September	40	2	10.4	619

BEAR RIVER NEAR COLLINSTON, UTAH.

LOCATION.—In W. ½ sec. 34, T. 13 N., R. 2 W., a quarter of a mile below power plant of Utah Power & Light Co., at railroad siding called Wheelon, 4 miles north of Collinston, Box Elder County. Little Malad River enters 20 miles below station.

DRAINAGE AREA.—6,000 square miles.

RECORDS AVAILABLE.—July 1, 1889, to September 30, 1918.

GAGE.—Gurley 8-day water-stage recorder on left bank, used February 26, 1914, to September 30, 1918; inspected by H. G. Stone. Original gage installed July 1, 1889, and used until February 9, 1905, was vertical iron bar driven into bed of stream on right bank directly opposite present gage; gage used February 10, 1905, to November 7, 1913, was inclined staff on right bank. Friez water-stage recorder installed November 8, 1913, and used until February 25, 1914, at present site. Datum raised 0.05 foot November 8, 1913, and 0.05 foot August 21, 1918.

DISCHARGE MEASUREMENTS.—Made from cable at gage or by wading.

CHANNEL AND CONTROL.—Bed composed of gravel and sand; slightly shifting. No well-defined control. Right bank subject to overflow at extreme high water.

EXTREMES OF DISCHARGE.—Maximum stage during year, from water-stage recorder, 4.54 feet at midnight March 13 (discharge, 4,650 second-feet); minimum stage, 0.98 foot from 6 p. m. August 5 to 3 p. m. August 7 (discharge, 223 second-feet).

1889–1918: Maximum stage recorded, 7.7 feet June 7–10, 1909 (discharge, 11,600 second-feet); minimum stage, −0.55 foot August 4–12, 1905 (discharge, 10 second-feet).

ICE.—Stage-discharge relation not affected by ice during year.

DIVERSIONS.—West Side and Hammond canals divert water on both sides of Bear River about 2 miles above station; water can be used from either or both of these canals to supply Wheelon power plant; water passing the Wheelon penstocks is used for irrigation or can be returned to river. There are several large power plants farther upstream and considerable water is diverted for irrigation.

REGULATION.—Flow at station is affected to some extent by operation of power plants and storage and release of water from Bear Lake reservoir.

ACCURACY.—Stage-discharge relation permanent during year; not affected by ice. Rating curve well defined above 400 second-feet. Operation of water-stage recorder satisfactory except for short periods as indicated in footnote to daily-discharge table. Staff gage read to hundredths once daily. Daily discharge ascertained by applying to rating table mean daily gage height taken from recorder graph by inspection. Records good.

COOPERATION.—Gage-height record furnished by Utah Power & Light Co.

Discharge measurements of Bear River near Collinston, Utah, during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
May 10	L. W. Jordan	3.15	2,600	July 30	E. O. Larson	1.58	649
June 21	E. O. Larson [a]	2.31	1,300	Aug. 21	Maughan and Larson	1.59	626
July 3	.....do	1.96	1,050	Sept. 13	E. O. Larson	1.77	839

[a] Private engineer.

Daily discharge, in second-feet, of Bear River near Collinston, Utah, for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	1,810	1,950	2,240	1,810	1,680	1,520	3,300	2,320	1,880	1,040	550	658
2	1,880	2,020	2,240	1,810	1,550	1,420	3,390	2,240	1,880	1,070	408	444
3	1,880	2,020	2,240	1,950	1,810	1,360	3,300	2,170	1,620	971	260	235
4	1,880	2,020	2,090	1,880	2,090	1,300	3,140	2,090	1,650	632	266	325
5	1,880	2,160	1,810	2,020	2,080	1,360	3,050	2,240	1,680	365	248	590
6	1,680	2,090	1,810	1,950	2,060	1,740	3,630	2,240	1,810	248	223	632
7	1,680	2,020	2,020	1,880	2,040	1,740	3,050	2,390	1,620	365	298	616
8	1,740	2,000	2,090	1,880	2,020	1,480	2,630	2,470	1,620	352	451	550
9	1,740	1,970	2,090	1,950	1,420	1,680	2,550	2,470	1,740	511	436	641
10	1,810	1,950	1,880	1,880	1,500	2,160	2,470	2,550	1,680	794	266	784
11	1,740	1,950	2,090	1,680	1,590	2,550	2,240	2,630	1,810	474	298	765
12	1,810	1,810	2,090	2,020	1,680	3,630	2,240	2,320	1,480	574	365	880
13	1,950	1,880	1,950	2,240	2,090	4,470	2,390	1,620	1,480	511	574	841
14	1,740	1,810	2,020	1,770	2,160	4,470	2,470	1,420	1,620	726	590	784
15	1,740	1,810	2,160	1,300	1,740	3,840	2,320	1,620	1,620	940	607	765
16	1,950	1,950	2,240	1,950	1,950	3,300	2,390	1,740	1,300	940	632	910
17	1,950	1,950	2,090	2,090	1,950	3,140	2,550	1,550	1,240	841	658	910
18	1,950	1,810	2,020	2,020	1,680	2,550	2,470	1,680	960	750	675	841
19	1,950	1,810	1,880	1,950	1,550	2,390	2,390	1,640	860	658	632	812
20	1,680	1,880	1,950	2,090	1,680	2,630	2,470	1,600	982	632	590	860
21	1,680	1,950	1,950	1,980	1,740	2,470	2,390	1,550	1,120	684	650	1,120
22	1,880	1,880	2,090	1,880	1,880	2,470	1,880	1,550	1,070	527	693	1,180
23	1,880	1,880	1,810	2,090	1,810	2,630	1,880	1,430	1,060	488	747	1,180
24	1,950	1,810	1,420	2,020	1,880	2,320	2,240	1,300	1,240	422	750	1,000
25	1,950	1,900	1,360	1,880	1,880	2,710	2,390	1,180	1,360	702	752	900
26	1,950	1,990	1,620	2,020	1,790	3,050	2,550	1,480	1,070	765	754	860
27	2,020	2,090	1,840	2,020	1,700	3,220	2,630	1,780	900	982	756	1,070
28	2,040	2,390	2,090	1,880	1,610	3,390	2,550	2,080	982	527	758	1,360
29	2,060	2,240	1,950	1,620	.....	3,390	2,480	2,390	841	248	760	1,360
30	2,070	2,240	1,880	1,810	.....	2,880	2,400	2,320	960	429	762	1,030
31	2,090	.....	1,950	1,880	.....	2,960	.....	2,090	.....	650	765	.....

NOTE.—Discharge estimated from observer's notes Jan. 19 and 20, and interpolated because of no gage-height record Oct. 28–30, Nov. 8–9, 25–26, Jan. 14, 18, 21, Feb. 5–7, 10–11, Feb. 26 to Mar. 1, Apr. 9, Apr. 28 to May 3, May 19–20, 23–24, 26–28, June 4, July 14, 18, Aug. 16, 24–30.

Monthly discharge of Bear River near Collinston, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	2,090	1,680	1,870	115,000
November	2,390	1,810	1,970	117,000
December	2,240	1,360	1,960	121,000
January	2,240	1,300	1,910	117,000
February	2,160	1,420	1,810	101,000
March	4,470	1,300	2,590	159,000
April	3,630	1,880	2,590	154,000
May	2,630	1,180	1,940	119,000
June	1,880	841	1,370	81,500
July	1,070	248	639	39,300
August	765	223	554	34,100
September	1,360	235	830	49,400
The year	4,470	223	1,670	1,210,000

SODA CREEK NEAR SODA SPRINGS, IDAHO.

LOCATION.—In sec. 24, T. 8 S., R. 41 E., at George Schmidt's ranch, one-eighth mile below confluence of two branches of creek and 5 miles north of Soda Springs, Bannock County.

DRAINAGE AREA.—Not measured.

RECORDS AVAILABLE.—March 5, 1913, to September 30, 1918.

GAGE.—Vertical staff on left bank, about a quarter of a mile south of ranch house; installed July 31, 1913; read by George Schmidt. Gage used March 5 to July 31, 1913, was vertical staff 30 feet upstream on left bank with same control. Datum of old gage between 0.1 and 0.2 foot above that of present gage.

DISCHARGE MEASUREMENTS.—Made by wading.

CHANNEL AND CONTROL.—Bed composed of lava rock. Control is reef about 15 feet below gage. Stage-discharge relation affected by aquatic growth during summer. June 23–24, 1918, stage-discharge relation affected by further extension of wing dam at head of small ditch which diverts water from right bank at control.

ICE.—Stage-discharge relation not affected by ice.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 4.65 feet March 29 and 31 (discharge, 150 second-feet); minimum discharge, September 9–30, 49 second-feet (gage height, 4.15 feet).

1913–1918: Maximum stage recorded, 5.3 feet April 6, 1913 (discharge, 324 second-feet); minimum discharge of 38 second-feet occurred March 4–9, 1916, at gage height 4.0 feet.

DIVERSIONS.—Practically no water diverted above station; a small ditch takes water just below gage.

ACCURACY.—Stage-discharge relation not permanent. Standard rating curve fairly well defined. Gage read to quarter-tenths once daily. Shifting-control method used during year. Records good.

Discharge measurements of Soda Creek near Soda Springs, Idaho, during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Oct. 22	T. R. Newell	4.12	56.7	June 3	R. B. Kilgore	4.18	61.3
Mar. 10	C. F. Elford	4.10	53.3	Aug. 6	G. C. Baldwin	4.17	51.2
Apr. 25	do	4.18	64.5				

Daily discharge, in second-feet, of Soda Creek near Soda Springs, Idaho, for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	57	57	54	57	52	54	140	65	63	69	55	53
2	57	57	54	57	52	54	119	65	63	69	55	53
3	57	57	54	57	52	54	103	65	62	66	55	53
4	58	57	54	57	52	54	67	65	62	62	53	53
5	58	57	54	57	52	54	67	65	62	62	53	53
6	58	57	54	57	52	54	67	60	62	62	52	53
7	58	57	54	57	52	54	67	60	62	58	53	53
8	58	57	54	57	52	54	67	60	62	55	53	53
9	58	57	54	57	52	54	67	57	62	55	53	49
10	58	57	54	57	54	54	65	57	62	66	53	49
11	59	57	54	57	54	54	65	57	62	69	53	49
12	59	57	54	57	54	54	65	57	62	69	53	49
13	59	57	54	57	54	54	65	57	62	69	53	49
14	59	57	54	57	54	54	65	57	62	66	53	49
15	59	57	54	54	54	54	65	57	62	62	53	49
16	59	57	54	54	54	54	65	57	62	62	53	49
17	57	57	54	54	54	54	65	57	62	58	53	49
18	57	57	54	54	54	57	65	65	62	58	53	49
19	57	54	54	54	54	57	65	65	62	58	53	49
20	57	54	54	54	54	57	65	60	62	55	53	49
21	57	54	54	54	54	57	65	60	62	55	53	49
22	57	54	54	54	54	54	65	60	65	55	53	49
23	57	54	54	54	54	54	65	65	72	55	53	49
24	57	54	54	54	54	60	65	65	69	55	53	49
25	57	54	54	54	54	67	65	65	66	55	53	49
26	57	54	54	54	54	83	65	65	66	55	53	49
27	57	54	60	54	54	119	65	65	62	55	53	49
28	57	54	60	52	54	140	65	65	62	55	53	49
29	57	54	60	52	.....	150	65	65	58	55	53	49
30	57	54	60	52	.....	140	65	63	62	55	53	49
31	57	.....	60	52	.....	150	.....	63	.....	55	53	.....

Monthly discharge of Soda Creek near Soda Springs, Idaho, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	59	57	57.6	3,540
November	57	54	55.8	3,320
December	60	54	55.0	3,380
January	57	52	55.1	3,390
February	54	52	53.4	2,970
March	150	54	69.8	4,290
April	140	65	71.0	4,220
May	65	57	61.6	3,790
June	72	58	62.9	3,740
July	69	55	59.8	3,680
August	55	52	53.2	3,270
September	53	49	50.1	2,980
The year	150	49	58.8	42,600

LOGAN RIVER ABOVE STATE DAM, NEAR LOGAN, UTAH.

LOCATION.—In sec. 36, T. 12 N., R. 1 E., at Logan plant of Utah Power & Light Co., 125 feet above confluence of tailrace with river, 2,300 feet above State dam, and 2½ miles above Logan, Cache County.

DRAINAGE AREA.—218 square miles.

RECORDS AVAILABLE.—May 7, 1913, to September 30, 1918; at old station a quarter of a mile downstream, June 1, 1896, to July 17, 1903, and April 14, 1904, to December 31, 1912. Flow at present station plus that of tailrace comparable to that at old station.

GAGE.—Stevens continuous water-stage recorder on right bank about 100 feet west of power house; inspected by employee of Utah Power & Light Co.

DISCHARGE MEASUREMENTS.—Made by wading at gage; high-water measurements made from cable 400 feet downstream and flow in tailrace deducted.

CHANNEL AND CONTROL.—Bed composed of boulders and gravel; shifting. Control is concrete cut-off wall about 6 feet below the gage. Banks not subject to overflow. Stage of zero flow, 0.45 foot.

EXTREMES OF DISCHARGE.—Maximum stage during year, from water-stage recorder, 3.62 feet at 7 p. m. June 8 (discharge, 795 second-feet); minimum stage from water-stage recorder, 0.94 foot at 3 a. m. November 29 (discharge, 23 second-feet).

1913–1918: Maximum stage recorded, 5.6 feet at 9.30 a. m. March 21, 1916 (discharge estimated, 2,000 second-feet); minimum discharge, 8 second-feet, December 11, 1915.

ICE.—Stage-discharge relation not affected by ice.

BACKWATER.—Stage-discharge relation affected at times by backwater from State dam.

DIVERSIONS.—Utah Power & Light Co. diverts water above station for power and Logan, Hyde Park & Smithfield canal diverts for irrigation. City of Logan has municipal power plant about 2 miles above station, but water is returned to river above two diversions noted. City of Logan is entitled to divert for municipal supply, from 4 to 10 second-feet of water, from springs in sec. 22, T. 12 N., R. 2 E., the quantity depending on flow in river.

REGULATION.—Some diurnal fluctuation is caused at times by the operation of the two power plants.

ACCURACY.—Stage-discharge relation permanent except as affected by backwater from State dam during part of each day, March 3–26. Rating curve well defined between 20 and 800 second-feet. Operation of water-stage recorder satisfactory until June 9, after which date outside staff gage was read to hundredths twice daily. Daily discharge ascertained by applying to rating table mean daily gage height taken from recorder graph by inspection, or by applying mean of two daily staff gage readings when water-stage recorder was not in operation, except for March 3–26 for which discharge was estimated because of backwater from State dam. Records good.

COOPERATION.—Gage-height record and some discharge measurements furnished by Utah Power & Light Co. Three discharge measurements also furnished by E. O. Larson.

Discharge measurements of Logan River above State dam, near Logan, Utah, during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Nov. 5	Jacob and Purton	1.17	43.1	July 25	E. O. Larson	1.07	42.4
26	Utah Power & Light Co.	1.36	52	Aug. 12	....do	1.37	63
Feb. 8	L. W. Jordan	1.54	84	16	Utah Power & Light Co.	1.30	73
May 10	....do	3.06	515	22	W. B. Maughan	1.21	52
June 13	W. B. Maughan	3.29	618	Sept. 10	E. O. Larson	1.19	44.0

Daily discharge, in second-feet, of Logan River above State dam, near Logan, Utah, for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	83	49	35	47	47	49	182	218	486	178	65	42
2	82	48	36	44	47	52	171	263	517	165	74	48
3	79	47	37	44	56	58	133	315	508	154	75	50
4	78	44	47	54	60	55	115	389	606	146	71	49
5	74	45	51	52	54	70	104	535	714	133	69	47
6	73	44	50	48	51	58	96	549	741	137	68	43
7	74	43	49	48	54	58	94	572	741	117	69	44
8	75	44	48	46	58	60	97	641	730	110	70	133
9	74	42	48	44	47	58	119	558	741	109	70	62
10	73	34	48	42	52	52	173	508	709	124	68	42
11	66	38	48	41	54	64	220	457	730	114	62	41
12	66	40	48	47	54	83	241	432	725	91	62	41
13	64	41	48	52	55	83	261	465	677	89	56	40
14	64	43	49	50	49	58	244	539	667	110	59	40
15	63	42	48	45	47	58	205	568	709	109	57	38
16	63	43	45	45	49	52	215	577	657	100	56	40
17	64	36	45	44	50	64	241	535	616	80	54	76
18	57	35	42	45	52	58	176	530	587	63	48	38
19	58	34	43	45	47	64	163	465	558	59	48	39
20	60	33	41	41	45	58	152	452	512	54	47	44
21	55	33	40	43	50	64	154	486	495	54	47	44
22	55	34	38	41	52	70	169	452	428	55	46	33
23	58	34	45	43	63	83	189	512	420	55	49	36
24	63	34	49	42	66	97	196	563	400	55	54	38
25	58	35	46	43	57	108	213	577	338	54	56	33
26	59	35	46	42	54	124	218	539	321	57	55	31
27	58	32	48	44	52	140	176	490	290	62	52	30
28	56	32	52	45	49	140	152	469	255	63	47	29
29	47	34	52	52	.....	142	154	436	225	64	47	28
30	47	39	52	49	.....	150	198	436	201	62	45	33
31	47	.....	50	47	.....	167	.....	465	.....	68	42	.....

Monthly discharge of Logan River above State dam, near Logan, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	83	47	64.3	3,950
November	49	32	38.9	2,310
December	52	35	45.9	2,820
January	54	41	45.6	2,800
February	66	45	52.5	2,920
March	167	49	80.5	4,950
April	261	94	174	10,400
May	641	218	484	29,800
June	741	201	543	32,300
July	178	54	93.2	5,730
August	75	42	57.7	3,550
September	133	28	44.4	2,640
The year	741	28	144	104,000

UTAH POWER & LIGHT CO'S. TAILRACE NEAR LOGAN, UTAH.

LOCATION.—In NE. ¼ sec. 36, T. 12 N., R. 1 E., 100 feet below power house of Utah Power & Light Co. and 2½ miles above Logan, Cache County.

RECORDS AVAILABLE.—May 7, 1913, to September 30, 1918.

GAGE.—Friez water-stage recorder on right bank just above weir; inspected by employee of Utah Power & Light Co.

DISCHARGE MEASUREMENTS.—Made from footbridge just above gage.

CHANNEL AND CONTROL.—Rectangular wooden weir, with metal crest, just below gage acts as control. Capacity of channel above weir not sufficient to eliminate all velocity of approach. Stage of zero flow, zero on gage.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 1.45 feet July 26 and 27 (discharge, 118 second-feet); no flow at times during repairs to flume or machinery.

1913–1918: Maximum stage recorded, 1.77 feet May 8, 1914 (discharge, 162 second-feet); no flow at times.

ICE.—Stage-discharge relation not affected by ice.

REGULATION.—Flow at station affected by operation of power plant.

ACCURACY.—Stage-discharge relation permanent; not affected by ice. Rating curve well defined. Operation of water-stage recorder not satisfactory; record from recorder not used. Staff gage read to hundredths twice daily throughout year. Daily discharge, January 5 to September 30, ascertained by applying mean daily gage height to rating table. Records obtained by use of rating table, good; others fair.

Canal diverts water from right bank of Logan River in sec. 29, T. 12 N., R. 2 E. Water is returned to river 125 feet below gaging station at plant of Utah Power & Light Co., in NE. ¼ sec. 36, T. 12 N., R. 1 E. Water is used for the development of power.

Discharge measurements of Utah Power & Light Co.'s tailrace near Logan, Utah, during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Feb. 8	L. W. Jordan	1.15	82	June 13	W. B. Maughan	1.42	116
May 10	do	.48	21.6	Aug. 22	do	1.41	116

Daily discharge, in second-feet, of Utah Power & Light Co.'s tailrace near Logan, Utah, for the year ending Sept. 30, 1918.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	.....	56	72	113	95	18	112	115	111
2	.....	75	76	115	104	14	112	113	111
3	.....	70	78	116	107	51	113	113	109
4	.....	68	81	115	105	13	115	113	109
5	93	77	80	113	0	12	109	112	113
6	84	76	76	112	0	13	115	113	109
7	84	82	77	109	0	14	113	112	108
8	92	80	85	108	0	14	115	111	35
9	92	68	83	113	16	14	115	109	100
10	69	68	84	117	20	14	89	111	105
11	79	72	97	117	20	14	100	115	107
12	85	72	100	117	20	14	112	115	107
13	79	75	104	107	20	54	112	112	106
14	82	72	102	117	20	54	115	116	106
15	85	72	97	117	20	14	113	117	106
16	87	62	97	40	20	14	112	117	106
17	86	66	100	56	20	14	113	117	58
18	89	68	102	76	20	14	115	117	107
19	85	68	100	92	20	35	115	115	108
20	82	62	100	81	17	112	116	112	105
21	77	69	102	85	14	112	117	112	103
22	82	68	102	88	51	111	117	113	116
23	83	80	103	89	47	111	117	113	117
24	83	81	102	87	23	111	117	113	115
25	83	81	102	78	18	109	117	112	117
26	83	77	103	94	14	105	118	112	116
27	80	79	107	102	14	109	117	111	113
28	77	68	108	102	14	113	117	112	114
29	75	.....	108	99	14	111	117	112	115
30	80	.....	112	93	14	112	117	112	111
31	76	.....	112	.....	14	.....	113	112	.....

Monthly discharge of Utah Power & Light Co.'s tailrace near Logan, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	.....	.....	118	7,260
November	.....	.....	115	6,840
December	.....	.....	110	6,760
January	.....	69	84.3	5,180
February	82	56	71.9	3,990
March	112	72	95.2	5,850
April	117	40	98.9	5,880
May	107	0	28.4	1,750
June	113	12	54.0	3,210
July	118	89	113	6,950
August	117	109	113	6,950
September	117	35	105	6,250
The year	.....	0	92.5	66,900

NOTE.—Mean discharge for October, November, and December estimated from records of electric output of power plant, as intake to well was clogged. Discharge estimated as 95 second-feet Jan. 1–4.

LOGAN, HYDE PARK & SMITHFIELD CANAL NEAR LOGAN, UTAH.

LOCATION.—In NW. ¼ NE.¼ sec. 31, T. 12 N., R. 2 E., at concrete rating flume half a mile below head of canal, 1 mile below city power plant, 1 mile above plant of Utah Power & Light Co., and 3½ miles from Logan, Cache County.

RECORDS AVAILABLE.—Fragmentary 1904–1912. Fairly continuous records April 22, 1912, to September 30, 1918.

GAGE.—Stevens continuous water-stage recorder on right bank near lower end of rating flume; installed June 6, 1913; inspected by Robert McCulloch. Records from April 22, 1912, to March 31, 1913, obtained from vertical staff gage at point about 1½ miles below present gage; two wasteways between the two points. Prior to April 22, 1912, gages were maintained at various points.

DISCHARGE MEASUREMENTS.—Made from footplank at flume or by wading.

CHANNEL AND CONTROL.—Rectangular concrete rating flume. Stage of zero flow, after control board was installed in April, 1915, 0.35 foot.

EXTREMES OF DISCHARGE.—Maximum stage during year, from water-stage recorder, 2.45 feet at 10.30 a. m. July 21 (discharge, 115 second-feet). Practically no flow from October 1 to April 20.

1912–1918: Maximum stage recorded, 2.50 feet at 10 a. m. July 28, 1917 (discharge, 119 second-feet). Canal dry part of each year while being cleaned.

ICE.—Recording gage usually removed during winter; small flow of water maintained for domestic use.

DIVERSIONS.—None above gage.

REGULATION.—Flow regulated by headgates at diversion works.

ACCURACY.—Stage-discharge relation changed by material washed into canal by break in power canal on hill above on September 8. Rating curves well defined. Operation of water-stage recorder satisfactory. Daily discharge ascertained by applying to rating table mean daily gage height determined from recorder graph by inspection except that for September 8–12, which was estimated because canal was being repaired. Records good.

COOPERATION.—Three discharge measurements furnished by E. O. Larson.

Canal diverts water from Logan River in NE. ¼ NE. ¼ sec. 31, T. 12 N., R. 2 E., for irrigation and domestic use in territory north of Logan.

Discharge measurements of Logan, Hyde Park & Smithfield canal near Logan, Utah, during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
June 13	W. B. Maughan	2.39	111	Aug. 22	W. B. Maughan	1.53	52
July 25	E. O. Larson	2.40	107	Sept. 10	E. O. Larson	1.32	37.5
Aug. 9	do	1.52	57				

Daily discharge, in second-feet, of Logan, Hyde Park & Smithfield canal near Logan, Utah, for the year ending Sept. 30, 1918.

Day.	Apr.	May.	June.	July.	Aug.	Sept.	Day.	Apr.	May.	June.	July.	Aug.	Sept.
1		87	69	109	60	44	16		49	109	22	49	31
2		90	63	112	60	41	17		48	109	58	50	28
3		91	64	112	60	39	18		48	108	99	52	27
4		86	66	112	59	39	19		48	106	101	52	27
5		90	67	111	59	38	20		48	105	106	52	25
6		90	67	109	59	38	21	1.5	51	105	109	52	25
7		46	66	110	55	38	22	10	66	104	113	52	25
8		3.3	66	110	53	0	23	30	68	104	113	45	26
9		2.6	79	109	53	11	24	39	72	101	113	40	26
10		1.9	94	110	53	38	25	56	80	99	112	40	25
11		1.5	104	109	52	36	26	67	82	97	103	40	25
12		1.3	109	107	50	34	27	64	80	95	94	39	25
13		7.5	109	98	49	32	28	62	79	103	89	39	25
14		22	109	89	49	32	29	64	78	110	82	39	25
15		40	109	80	49	32	30	78	77	110	82	42	25
							31		78		69	44	

NOTE.—Canal practically dry Oct. 1 to Apr. 20.

Monthly discharge of Logan, Hyde Park & Smithfield canal near Logan, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
April 21–30	78	1.5	47.2	936
May	91	1.3	55.2	3,390
June	110	63	93.5	5,560
July	113	22	98.5	6,060
August	60	39	49.9	3,070
September	44	0	29.4	1,750
The period				20,800

BLACKSMITH FORK ABOVE UTAH POWER & LIGHT CO.'S DAM, NEAR HYRUM, UTAH.

LOCATION.—In NE. ¼ sec. 8, T. 10 N., R. 2 E., 1 mile above diversion dam and 3½ miles above power plant of Utah Power & Light Co. and 6 miles east of Hyrum, Cache County.

DRAINAGE AREA.—About 260 square miles (measured on topographic maps and map of Cache National Forest).

RECORDS AVAILABLE.—July 19, 1900, to December 31, 1902; November 28, 1913, to September 30, 1918.

GAGE.—Stevens continuous water-stage recorder on left bank 500 feet above wagon bridge and nearly a mile above dam; installed November 28, 1913; inspected by employee of Utah Power & Light Co. Gage at old tollgate in mouth of canyon about 3½ miles downstream used July 19, 1900, to December 31, 1902. Flow comparable at two points.

DISCHARGE MEASUREMENTS.—Made by wading about three-eighths of a mile above gage, or from cable a quarter of a mile above gage.

CHANNEL AND CONTROL.—Bed composed of boulders, rough; fairly permanent. No well-defined control. One channel at all stages.

EXTREMES OF DISCHARGE.—Maximum stage during year not determined. Minimum stage from water-stage recorder, 1.51 feet February 1 (discharge, 87 second-feet).

1913–1918: Maximum stage determined by levels from high-water mark in well, 6.5 feet May 15, 1917 (discharge from extension of rating curve, 1,620 second-feet); minimum stage, 0.85 foot at 6 a. m. February 6, 1916 (discharge from extension of rating curve, 22 second-feet).

ICE.—Stage-discharge relation not affected by ice.

DIVERSIONS.—Above all important diversions.

REGULATION.—None.

ACCURACY.—Stage-discharge relation permanent. Rating curve well defined between 50 and 700 second-feet. Operation of water-stage recorder satisfactory except February 26 to August 22 when inlet pipe was clogged. Daily discharge ascertained by applying to rating table mean daily gage height determined from recorder graph by inspection. Records good except period estimated, for which they are fair.

Discharge measurements of Blacksmith Fork above Utah Power & Light Co.'s dam, near Hyrum, Utah, during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Nov. 6	A. B. Purton	1.79	134	June 12	W. B. Maughan	1.95	168
Feb. 9	L. W. Jordan	1.58	90	13	do	1.92	152
May 9	do	2.39	267	Aug. 23	do	1.69	106

Daily discharge, in second-feet, of Blacksmith Fork above Utah Power & Light Co.'s dam, near Hyrum, Utah, for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Aug.	Sept.
1	142	131	119	109	87		107
2	141	131	119	107	105		109
3	141	131	117	107	105		110
4	141	131	113	107	105		109
5	139	131	115	109	105		109
6	139	131	115	107	105		109
7	137	129	115	109	119		107
8	135	129	115	107	115		109
9	135	129	115	107	102		109
10	137	128	115	99	102		109
11	140	126	115	99	105	130	107
12	142	126	115	105	110		105
13	142	126	115	104	115		105
14	141	126	115	104	115		105
15	141	126	115	104	112		104
16	139	126	113	104	87		105
17	137	124	113	102	102		104
18	137	124	115	104	102		102
19	138	124	115	102	102		101
20	139	124	115	101	99		102
21	141	124	113	98	102		105
22	142	122	113	99	102		107
23	141	122	112	99	102	113	105
24	139	122	112	99	102	105	105
25	139	122	112	99	96	105	102
26	137	122	112	99	99	105	104
27	135	120	112	95		109	102
28	135	119	112	98		107	101
29	133	120	112	99	.....	105	101
30	135	122	112	98	.....	107	99
31	133	.....	110	96	.....	105	.....

NOTE.—Discharge interpolated because of no gage-height record Oct. 10-11 and 19-21. Braced figures show estimated mean discharge for periods indicated.

Monthly discharge of Blacksmith Fork above Utah Power & Light Co.'s dam, near Hyrum, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	142	133	138	8,480
November	131	119	126	7,500
December	119	110	114	7,010
January	109	95	102	6,270
February	119	87	104	5,780
March	.....	.....	160	9,840
April	.....	.....	215	12,800
May	.....	.....	265	16,300
June	.....	.....	150	8,930
July	.....	.....	135	8,300
August	.....	.....	123	7,560
September	110	99	105	6,250
The year	.....	87	145	105,000

NOTE.—Mean monthly discharge March to July estimated from fragmentary records.

WEST SIDE CANAL NEAR COLLINSTON, UTAH.

LOCATION.—In NW. ¼ sec. 34, T. 13 N., R. 2 W., at Wheelon siding on Oregon Short Line Railroad, 600 feet below penstock of Utah Power & Light Co.'s Wheelon plant, 1,000 feet northwest of gaging station on Bear River, and 4 miles north of Collinston, Box Elder County.

RECORDS AVAILABLE.—June 1, 1912, to September 30, 1918.

GAGE.—Friez water-stage recorder on left bank; installed May 22, 1914, at same site and datum as inclined gage used prior to that time.

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

CHANNEL AND CONTROL.—Bed composed of earth and gravel. Control not well defined: stage-discharge relation is affected probably by vegetal growth and slight silt deposit.

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

DIVERSIONS.—Water is taken from canal about 600 feet above gage for power plant and, if necessary, water can also be siphoned across river to Hammond canal.

REGULATION.—Flow can be regulated at headgates and also at forebay of power plant.

COOPERATION.—Records furnished by Utah Power & Light Co.

Canal diverts water from west side of Bear River in SW. ¼ sec. 23, T. 13 N., R. 2 W., by means of low diversion dam. Part of water is used through Wheelon plant of Utah Power & Light Co. about 1½ miles below; the remainder which passes gaging station is used for irrigation on west side of river. When cleaning or repairing the Hammond canal in the canyon, water can be siphoned across the river at the power plant from West Side canal.

Discharge measurements of West Side canal near Collinston, Utah, during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Oct. 23	L. C. Monson [a]	4.29	165	May 24	L. C. Monson	7.00	474
Dec. 5	do	2.85	69	Aug. 13	do	7.10	484
Feb. 8	do	[b] 2.40	51	24	W. B. Maughan	6.85	444
May 10	L. W. Jordan	6.00	346				

[a] Engineer for Utah Power & Light Co. [b] Stage-discharge relation affected by ice.

Daily discharge, in second-feet, of West Side canal near Collinston, Utah, for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	216	140				50	.....	74	382	539	503	473
2	267	140				48	.....	90	384	539	506	465
3	269	141	100			49	.....	211	388	539	506	442
4	226	144				51	.....	176	406	532	510	459
5	221	151	70			54	.....	208	424	526	503	466
6	236	140	68			54	.....	236	454	493	488	453
7	256	141	68			54	.....	265	490	536	512	450
8	265	147	63			54	.....	330	519	526	512	451
9	231	145	62			20	.....	332	525	536	510	449
10	214	149	58			13	.....	347	529	536	484	435
11	222	147	59			14	.....	394	496	532	484	436
12	226	144	60			14	.....	388	506	536	488	436
13	184	144	58			12	.....	394	522	503	478	432
14	170	182	54			25	.....	426	522	400	476	432
15	173	158	50		50	26	.....	440	536	396	472	431
16	177	137	45	50		24	.....	452	536	466	472	432
17	171	123	45			24	.....	450	529	496	454	429
18	170	128	47			25	.....	450	532	510	446	429
19	173	143	48			31	.....	436	532	506	446	430
20	158	128	50			25	7	448	536	512	448	432
21	168	121	50			30	20	450	500	516	448	434
22	173	134	48			28	3	444	484	512	448	420
23	169	133	49			30	.....	454	488	512	448	374
24	176	136	48			28	.....	454	493	503	448	370
25	173	130	45			3	.....	474	493	499	446	365
26	171	131	48			.....	.....	466	490	252	58	371
27	168	133	48			.....	.....	362	493	132	436	382
28	164	119	48			.....	.....	364	493	503	460	380
29	168	121	48		.....	.....	.....	388	529	510	464	369
30	168	126	50		.....	.....	21	388	539	506	472	366
31	148	.....	50		.....	.....	.....	384	.....	499	474	.....

NOTE.—Braced figures show mean discharge for periods indicated. No flow Mar. 26–31, Apr. 1–19, and 23–29.

Monthly discharge of West Side canal near Collinston, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	269	148	196	12,100
November	182	119	139	8,270
December	.....	45	59.3	3,650
January	.....	.....	50	3,070
February	.....	.....	50	2,780
March	54	0	25.4	1,560
April	21	0	1.70	101
May	474	74	360	22,100
June	539	382	492	29,300
July	539	132	487	29,900
August	512	58	461	28,300
September	473	365	423	25,200
The year	539	0	230	166,000

NOTE.—Monthly discharge computed by U. S. Geol. Survey.

HAMMOND (EAST SIDE) CANAL NEAR COLLINSTON, UTAH.

LOCATION.—In NW. ¼ sec. 34, T. 13 N., R. 2 W., at Wheelon siding on Oregon Short Line Railroad, 400 feet below penstock of Utah Power & Light Co. and 4 miles north of Collinston, Box Elder County.

RECORDS AVAILABLE.—June 1, 1912, to September 30, 1918.

GAGE.—Friez water-stage recorder on right bank; installed May 22, 1914, at same site and datum as inclined staff used until that date.

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

CHANNEL AND CONTROL.—Bed composed of earth and gravel. Control not well defined.

DIVERSIONS.—Water is taken from canal about 400 feet above gage for power plant.

REGULATION.—Flow can be regulated at headgates and by means of a wasteway at the power plant forebay; also affected by operation of plant.

COOPERATION.—Records of daily discharge and four discharge measurements furnished by Utah Power & Light Co.

Canal diverts water on east side of Bear River in SW. ¼ sec. 23, T. 13 N., R. 2 W., at same diversion dam as West Side canal. Part of water is used by Wheelon plant of Utah Power & Light Co. and remainder is either wasted into river or passes gaging station for irrigation use.

Discharge measurements of Hammond (East Side) canal near Collinston, Utah, during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Oct. 23	L. C. Monson [a]	1.80	10.6	May 24	L. C. Monson	3.50	66
Dec. 5	....do	1.50	0	Aug. 13	....do	4.69	114
May 10	L. W. Jordan	3.08	49.5	24	W. B. Maughan	4.65	122

[a] Engineer for Utah Power & Light Co.

Daily discharge, in second-feet, of Hammond (East Side) canal near Collinston, Utah, for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	May.	June.	July.	Aug.	Sept.
1	10	9	7	12	55	102	108	112
2	10	9	6	14	54	100	108	111
3	10	10	.....	23	54	100	108	106
4	8	10	.....	32	58	100	109	114
5	11	10	.....	36	74	99	115	107
6	11	10	.....	35	77	96	111	82
7	11	11	.....	43	77	99	111	58
8	12	10	.....	51	78	99	108	76
9	11	11	.....	52	78	100	109	88
10	11	9	.....	51	79	99	108	88
11	12	9	.....	62	85	100	113	87
12	10	9	.....	71	87	100	117	84
13	12	8	.....	80	87	98	117	70
14	12	8	.....	77	90	100	115	76
15	12	8	.....	82	90	96	114	76
16	11	9	.....	82	90	99	117	78
17	11	8	.....	75	90	98	114	78
18	11	8	.....	30	94	96	108	94
19	11	9	.....	19	96	96	113	92
20	12	9	.....	19	96	100	114	94
21	12	8	.....	19	96	105	115	94
22	12	8	.....	40	98	104	115	91
23	12	8	.....	56	98	111	120	91
24	11	8	.....	64	99	108	114	91
25	11	8	.....	76	98	106	113	90
26	11	8	.....	78	99	105	112	92
27	10	8	.....	74	99	104	117	30
28	10	8	.....	59	99	100	117	65
29	10	8	.....	56	100	95	120	80
30	10	8	.....	55	100	108	120	80
31	9	.....	.....	55	.....	108	114	.....

NOTE.—No water in canal Dec. 3 to Apr. 30.

Monthly discharge of Hammond (East Side) canal near Collinston, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	12	8	10.9	670
November	11	8	8.80	524
December	7	0	.42	26
May	82	12	50.9	3,130
June	100	54	85.8	5,110
July	111	95	101	6,210
August	120	108	113	6,950
September	114	30	85.8	5,110
The year	120	0	38.3	**27,700**

NOTE.—Monthly discharge computed by U. S. Geol. Survey. See footnote to daily-discharge table.

BOX ELDER CREEK NEAR BRIGHAM, UTAH.

LOCATION.—In SE. ¼ sec. 20, T. 9 N., R. 1 W., at highway bridge 0.3 mile below Brigham municipal power plant and 1.6 miles above Brigham, Box Elder County.

DRAINAGE AREA.—Not measured.

RECORDS AVAILABLE.—August 5 to September 30, 1918. Records were obtained May 20, 1909, to December 31, 1912, at Third West Street bridge in Brigham.

GAGE.—Gurley 7-day graphic water-stage recorder at highway bridge; installed August 5, 1918; inspected by W. Wight.

DISCHARGE MEASUREMENTS.—Made by wading near gage.

CHANNEL AND CONTROL.—Bed composed of boulders and gravel. Cut-off wall at lower side of concrete bridge, and paved channel under bridge form permanent control. Stage of zero flow at gage height 3.4 feet, as determined August 5, 1918.

EXTREMES OF DISCHARGE.—Data too few.

ICE.—Stage-discharge relation not affected by ice.

DIVERSIONS.—Above diversions for irrigation near Brigham but below diversions for irrigation on upper tributaries. Water diverted for Brigham municipal power plant is returned to Creek above station.

REGULATION.—Slight regulation of flow caused by operation of power plant immediately above.

ACCURACY.—Stage-discharge relation permanent during year. Rating curve well defined. Operation of water-stage recorder satisfactory except as noted in footnote to daily-discharge table. Daily discharge ascertained by applying to rating table daily mean gage height determined from recorder graph by inspection. Records good.

Discharge of Brigham municipal power plant tailrace which enters Box Elder Creek a short distance above station may be determined by subtracting from flow at station, flow of Box Elder Creek above tailrace. Discharge measurements on Box Elder Creek above tailrace appear in the list of miscellaneous discharge measurements.

Discharge measurements of Box Elder Creek near Brigham, Utah, during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*
Aug. 5	L. W. Jordan	4.10	25.1
24	W. B. Maughan	4.10	25.8

Daily discharge, in second-feet, of Box Elder Creek near Brigham, Utah, for the year ending Sept. 30, 1918.

Day.	Aug.	Sept.	Day.	Aug.	Sept.	Day.	Aug.	Sept.
1			11	26		21		25
2			12	27		22	26	26
3			13			23		27
4			14		25	24		27
5	26	25	15			25	25	26
6	27		16	26		26	24	27
7	26		17			27	25	27
8	26		18		24	28	24	27
9	26		19		25	29	24	26
10	26		20		25	30	25	26
						31	26	

NOTE.—Braced figures show mean discharge for periods indicated, determined by interpolation.

Monthly discharge of Box Elder Creek near Brigham, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet (mean).	Run-off in acre-feet.
August 5–31	25.7	1,380
September	25.4	1,510

WEBER RIVER BASIN.

WEBER RIVER NEAR OAKLEY, UTAH.

LOCATION.—In NE. ¼ sec. 15, T. 1 S., R. 6 E., near mouth of canyon, 3 miles above Oakley, Summit County. South Fork of Weber River enters 2 miles above station, and Beaver or Kamas Creek 6 miles below.

DRAINAGE AREA.—163 square miles.

RECORDS AVAILABLE.—October 22, 1904, to September 30, 1918.

GAGE.—Inclined staff on left bank about a quarter of a mile above upper ditch diverting from Weber River; read by John Franson.

DISCHARGE MEASUREMENTS.—Made from cable at gage or by wading.

CHANNEL AND CONTROL.—Bed composed of gravel and boulders; apparently permanent. No well-defined control. One channel at all stages.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 7.6 feet June 14 (discharge, 2,110 second-feet); minimum discharge probably occurred during February but was not determined.

1904–1918: Maximum stage recorded, 8.5 feet July 6, 1907, and June 5–7, 1909 (discharge, 4,010 second-feet); minimum stage recorded, 4.0 feet for periods during February and March, 1908 (discharge, 46 second-feet).

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

DIVERSIONS.—Above all important diversions.

REGULATION.—None.

ACCURACY.—Stage-discharge relation permanent during year; affected by ice November 27 to March 13. Rating curve well defined between 75 and 2,000 second-feet. Gage read to half-tenths once a day except during January, February, and March, when it was read weekly. Daily discharge determined by applying daily gage height to rating table except for period during which stage-discharge relation was affected by ice. Records good, except for winter period, for which they are fair.

Discharge measurements of Weber River near Oakley, Utah, during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Feb. 10	L. W. Jordan	[a] 4.58	62	June 2	W. B. Maughan	5.65	620
May 1	A. B. Purton	4.95	288	14	do	6.80	1,420

[a] Heavy shore ice. 10-foot channel open at gage. Small ice gorge 60 feet below gage.

Daily discharge, in second-feet, of Weber River near Oakley, Utah, for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	a 84	72		a 66			110	260	596	241	92	a 60
2	85	78		a 66			110	158	652	222	92	60
3	85	78		66			110	222	899	222	85	60
4	85	a 78					92	346	1,040	205	85	60
5	78	78			62		92	542	1,260	188	85	60
6	78	78					92	652	1,340	173	85	60
7	78	78				70	a 92	596	1,420	173	85	60
8	78	78					92	596	1,500	158	78	60
9	78	78					101	a 569	1,580	158	78	a 60
10	78	78			62		110	542	1,750	158	78	a 60
11	78	78					121	490	1,930	158	78	60
12	78	78					132	a 465	1,930	158	78	60
13	a 78	78	66				145	440	2,020	158	78	60
14	78	78				78	a 152	440	2,110	158	78	60
15	78	78				a 77	158	542	1,930	158	78	66
16	78	78				a 76	132	542	1,580	145	78	66
17	78	78		66		a 75	132	542	1,340	132	72	66
18	78	72				a 74	110	542	a 1,220	132	a 72	60
19	78	72				a 73	110	490	1,110	132	72	60
20	78	72			62	a 72	110	490	1,110	132	72	60
21	78	72				72	a 110	490	899	121	72	60
22	78	a 72				a 77	110	542	770	121	a 72	a 61
23	78	72				a 82	132	542	652	121	72	a 63
24	78	72				a 87	158	710	596	110	72	a 64
25	78	72				92	188	710	542	110	66	a 65
26	78	72	66			101	188	a 681	490	110	66	a 67
27	78		a 66			110	188	652	392	110	66	a 68
28	a 72	70	a 66			101	188	596	a 347	101	60	a 69
29	66		66		.....	92	222	596	302	101	60	a 71
30	66		a 66		.....	92	241	652	260	92	60	72
31	66	.....	66		.....	a 101	.....	652	.....	92	60	.....

a Interpolated.

NOTE.—Braced figures show mean discharge for periods indicated; estimated because of ice, from one discharge measurement, weather records, and observer's notes.

Monthly discharge of Weber River near Oakley, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	85	66	77.5	4,70
November	78	.....	74.9	4,470
December	.....	.....	66.0	4,060
January	.....	.....	66.0	4,060
February	.....	.....	62.0	3,460
March	110	.....	78.8	4,840
April	241	92	134	7,950
May	710	158	525	32,370
June	2,110	260	1,120	66,600
July	241	92	147	9,000
August	92	60	75.0	4,640
September	72	60	62.6	3,710
The year	2,110	.....	207	150.020

WEBER RIVER AT DEVILS SLIDE, UTAH.

LOCATION.—In SW. ¼ sec. 19, T. 4 N., R. 4 E., 300 feet north of hotel and 500 feet downstream from highway bridge at Devils Slide, Morgan County. Lost Creek enters from right a quarter of a mile above station.

DRAINAGE AREA.—1,090 square miles.

RECORDS AVAILABLE.—February 1, 1905, to September 30, 1918.

GAGE.—Vertical staff on left bank; installed September 21, 1915, at same site and datum as inclined staff used March 9, 1912, to September 20, 1915; read by A. E. Lucas. Original gage, used February 1, 1905, to March 8, 1912, was an inclined staff at same datum but on opposite bank of river.

DISCHARGE MEASUREMENTS.—Made from cable or by wading.

CHANNEL AND CONTROL.—Bed composed of gravel and sand; shifts at intervals. No well-defined control.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 5.2 feet at noon June 15 (discharge, 2,280 second-feet); minimum stage recorded, 2.16 feet August 31 to September 2 (discharge, 69 second-feet).

1905–1918: Maximum stage recorded, 7.0 feet May 28 and June 4–8, 1909 (discharge, 5,120 second-feet); minimum discharge, 48 second-feet September 7 and 8, 1915.

ICE.—Stage-discharge relation not affected by ice.

DIVERSIONS.—A number of canals divert water above station for irrigation and domestic use.

REGULATION.—None, other than that caused by diversions.

ACCURACY.—Stage-discharge relation permanent during year. Rating curve well defined between 30 and 5,000 second-feet. Gage read to hundredths once a day. Daily discharge ascertained by applying daily gage height to rating table. Records good.

Discharge measurements of Weber River at Devils Slide, Utah, during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Oct. 2	Purton and Dickinson	2.68	236	May 2	A. B. Purton	3.69	825
Feb. 11	L. W. Jordan	2.54	164	June 2	W. B. Maughan	3.63	714

Daily discharge, in second-feet, of Weber River at Devils Slide, Utah, for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	231	231	251	212	133	176	528	760	797	263	113	69
2	224	239	231	216	180	224	499	797	836	212	102	69
3	224	231	239	212	194	239	415	918	918	187	99	71
4	224	231	212	231	173	263	415	1,050	1,140	173	90	74
5	212	231	212	231	231	275	415	1,140	1,380	159	90	78
6	212	231	201	212	212	255	415	1,190	1,480	153	90	76
7	201	224	176	201	224	239	470	1,190	1,480	133	90	78
8	201	231	231	201	224	363	415	1,050	1,630	133	88	76
9	194	224	263	212	127	389	415	1,190	1,740	143	90	76
10	194	224	251	153	153	415	499	1,000	1,840	159	88	76
11	194	224	187	133	173	470	622	875	1,840	224	83	74
12	194	224	239	187	216	760	654	760	1,940	216	81	74
13	194	231	251	224	224	836	654	688	1,840	251	88	76
14	194	239	251	201	224	442	723	654	2,060	353	90	76
15	194	247	251	212	198	363	622	723	2,280	280	92	99
16	194	239	239	212	127	415	558	797	1,940	251	90	94
17	194	231	231	209	159	363	499	836	1,840	263	88	88
18	194	224	247	231	201	415	470	760	1,530	239	90	88
19	201	212	247	212	209	415	442	723	1,530	231	90	94
20	212	212	251	212	133	415	415	688	1,480	263	90	94
21	201	224	224	133	176	499	415	654	1,430	251	85	94
22	201	224	224	187	201	470	442	688	1,240	243	85	113
23	198	227	224	224	239	442	499	688	1,050	224	81	159
24	201	231	231	201	251	415	622	760	918	201	76	176
25	212	239	231	247	271	470	654	760	723	187	76	159
26	212	271	251	212	280	499	688	797	622	194	76	153
27	212	251	239	133	263	499	654	760	499	159	71	143
28	212	212	251	194	176	470	622	723	415	143	72	140
29	194	231	251	201	.....	442	622	688	363	121	72	133
30	201	263	231	212	.....	470	688	875	280	113	72	143
31	231	.....	216	190	.....	499	.....	836	.....	116	69	.....

Monthly discharge of Weber River at Devils Slide. Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	231	194	205	12,600
November	271	212	232	13,800
December	263	176	233	14,300
January	247	133	202	12,400
February	280	127	199	11,100
March	836	176	416	25,600
April	723	415	535	31,800
May	1,190	654	839	51,600
June	2,280	280	1,300	77,400
July	353	113	201	12,400
August	113	69	85.7	5,270
September	176	69	100	5,950
The year	2,280	69	379	274,000

WEBER RIVER NEAR PLAIN CITY, UTAH.

LOCATION.—In SE. ¼ sec. 5, T. 6 N., R. 2 W., at county highway bridge on road to Ogden, 1 mile south of Plain City, Weber County, and 1 mile below mouth of Four-mile Creek, the nearest tributary.

DRAINAGE AREA.—2,060 square miles.

RECORDS AVAILABLE.—May 14, 1905, to September 30, 1918. Records were obtained at this point in 1904 by State of Utah under direction of State engineer.

GAGE.—Chain gage on upstream side of highway bridge; installed November 12, 1914, at same datum as old gage; read by W. E. Davies. Gage used prior to November 11, 1914, was painted on upstream side of middle pier of bridge.

DISCHARGE MEASUREMENTS.—Made from bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of sand and mud; shifting. No well-defined control.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 10.9 feet March 13 (discharge, 2,370 second-feet); minimum stage, below 1.7 feet July 27 to September 24 (discharge estimated, 0.5 second-foot).

1904–1918: Maximum stage recorded, 19.1 feet June 6, 1909 (discharge, 7,580 second-feet); water standing in pools July 14 and 15, 1915, and July 30 to August 4, 1916; stage below 2.0 feet.

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

DIVERSIONS.—During summer practically entire flow of Weber River above station diverted for irrigation.

REGULATION.—Flow affected by diversions.

ACCURACY.—Stage-discharge relation changed by high water March 13; slightly affected by ice February 1 and 2. Rating curves well defined. Gage read to tenths once daily except from July 27 to September 24, during which period a temporary dam above the gage checked all flow except a small amount of seepage through the dam. Daily discharge ascertained by applying daily gage height to rating table except for the period July 27 to September 24, for which it was ascertained as indicated in footnote to daily-discharge table, and except for period of ice effect, for which it was estimated. Records good except those for August and September, which are fair.

Discharge measurements of Weber River near Plain City, Utah, during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Oct. 3	Purton and Dickinson	5.19	658	June 1	W. B. Maughan	6.40	922
Feb. 12	L. W. Jordan	4.36	459	Aug. 25	do	.....	[a] .5
May 2	A. B. Purton	9.10	1,770				

[a] Estimated.

Daily discharge, in second-feet, of Weber River near Plain City, Utah, for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	710	367	456	433	411	550	1,830	1,720	924	17		
2	660	389	479	433	411	526	1,730	1,730	840	17		
3	634	411	479	411	433	574	1,600	1,730	812	17		
4	598	411	456	433	367	598	1,440	1,830	784	24		
5	550	411	411	456	411	647	1,320	1,960	840	24		
6	502	411	411	456	433	479	1,280	1,960	924	24		
7	479	411	389	456	502	574	1,250	1,990	1,010	17		
8	433	411	411	456	502	598	1,220	1,830	952	17		
9	411	389	433	456	479	903	1,190	1,730	981	17		
10	389	389	433	433	433	903	1,410	1,670	1,070	17		
11	367	411	411	411	456	877	2,030	1,510	1,140	17		
12	367	411	411	433	456	2,030	2,030	1,410	1,280	17		
13	367	433	433	433	479	2,370	2,030	1,320	1,250	17	0.5	0.5
14	389	433	456	456	456	1,800	2,030	1,250	1,220	121		
15	389	433	456	456	433	1,220	1,730	1,220	1,380	121		
16	389	433	479	456	367	1,100	1,630	1,070	1,570	73		
17	389	433	456	433	389	981	1,410	1,100	1,350	51		
18	367	433	456	456	453	981	1,410	1,160	1,100	41		
19	367	411	433	479	433	1,100	1,350	1,100	924	32		
20	389	411	433	433	456	1,410	1,250	1,040	703	24		
21	389	411	456	367	411	1,600	1,190	868	812	17		
22	389	389	456	346	433	1,510	1,410	852	730	17		
23	367	389	433	389	526	1,540	1,540	840	545	10		
24	367	411	433	433	622	1,670	1,670	545	470	10		
25	367	411	433	433	647	1,670	1,730	784	400	10	.5	84
26	367	433	433	433	627	1,730	1,800	812	336	10		121
27	389	479	456	411	598	1,860	1,760	952	260			148
28	389	456	456	389	574	1,990	1,600	952	148			134
29	389	456	456	433	.....	1,730	1,630	924	84	.5	.5	148
30	389	456	433	433	.....	1,730	1,700	924	24			177
31	367	.....	411	389	.....	1,730	.....	896	.....			.....

NOTE.—Braced figures show mean discharge for periods indicated; estimated from one discharge measurement and observer's notes.

Monthly discharge of Weber River near Plain City, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	710	367	430	26,400
November	479	367	418	24,900
December	479	389	440	27,100
January	479	346	430	26,400
February	647	367	472	26,200
March	2,370	479	1,260	77,500
April	2,030	1,190	1,570	93,400
May	1,990	545	1,280	78,700
June	1,570	24	829	49,300
July	121	.....	25.2	1,550
August	.....	.....	.5	31
September	177	.....	27.5	1,640
The year	2,370	.....	599	433,000

JORDAN RIVER BASIN.

JORDAN RIVER NEAR LEHI, UTAH.

LOCATION.—In sec. 25, T. 5 S., R. 1 W., 800 feet below pump house at outlet of Utah Lake and 4 miles southwest of Lehi, Utah County.

DRAINAGE AREA.—2,570 square miles.

RECORDS AVAILABLE.—May 30 to December 31, 1904; July 22, 1913, to September 30, 1918.

GAGE.—Vertical staff in stilling well on right bank about 25 feet above bridge since January 6, 1914; read by W. A. Knight. Vertical staff fastened to upstream side of right bridge abutment at same datum used previously.

DISCHARGE MEASUREMENTS.—Made from cable about 400 feet above gage or by wading.

CHANNEL AND CONTROL.—Bed composed of clay and hardpan; practically permanent. Banks not subject to overflow. Slope is very flat and stage-discharge relation may be slightly affected when flashboards are placed in old impounding dam in Jordan Narrows about 6 miles north of the station (about 12 miles by river).

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 5.72 feet April 22 (discharge, 753 second-feet). Minimum stage recorded, 2.71 feet September 29 and 30 (discharge, 196 second-feet).

1913–1918: Maximum stage recorded, 6.30 feet June 25, 1917 (discharge, 922 second-feet). Minimum stage occurred at 6 p. m. December 15, 1915, when river was dry owing to a strong north wind which blew water in lake away from outlet gates.

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

DIVERSIONS.—None from Jordan River above station. In the narrows about 6 miles north a number of large canals divert for irrigation in Salt Lake Valley and for use by smelters, etc., in vicinity of Garfield.

REGULATION.—During irrigation season when natural flow from Utah Lake is inadequate for demands below, water is pumped from lake into Jordan River. A pumping plant with capacity of about 800 cubic feet a second is at outlet of lake, 800 feet above gage, and is owned and operated by various canal companies interested in stream.

ACCURACY.—Stage-discharge relation permanent during the year. Rating curve well defined. Gage read to hundredths once a day except as indicated in footnote to daily-discharge table. Daily discharge ascertained by applying daily gage height to rating table. Records good.

Discharge measurements of Jordan River near Lehi, Utah, during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec-ft.*
Oct. 6	W. E. Dickinson	4.18	448
Dec. 18	C. C. Jacob	4.55	514
July 5	W. B. Maughan	5.30	659

Daily discharge, in second-feet, of Jordan River near Lehi, Utah, for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	484	465	484	534	604	663	720	699	692	644	652	622
2	484	465	504	536	606	650	715	696	692	664	650	609
3	484	465	504	536	608	657	720	696	692	665	642	596
4	484	465	484	538	608	661	659	694	688	665	648	592
5	524	465	484	496	608	665	632	694	688	661	654	616
6	465	465	446	538	610	668	604	686	688	659	646	618
7	465	446	504	526	614	670	728	682	688	654	644	618
8	484	465	504	540	614	673	722	678	688	663	644	584
9	484	465	504	542	616	673	722	673	688	663	644	582
10	484	465	504	526	616	707	730	669	688	688	644	542
11	484	465	504	546	614	676	730	665	688	696	644	548
12	524	465	504	556	622	678	731	661	692	694	644	548
13	564	465	504	562	622	680	732	657	688	699	644	548
14	514	484	504	570	618	683	732	652	684	707	642	473
15	465	484	504	578	624	686	728	648	688	705	644	471
16	465	465	504	574	624	686	722	644	667	705	644	473
17	465	484	504	574	626	690	713	640	654	699	644	471
18	465	465	524	578	622	693	732	636	604	694	644	469
19	465	484	524	580	628	696	749	630	604	688	640	469
20	465	484	524	584	630	694	696	624	606	686	638	469
21	465	484	524	586	634	709	722	618	622	686	636	469
22	465	465	524	588	640	690	753	612	634	686	634	378
23	465	465	524	590	638	699	713	606	634	686	634	322
24	465	465	524	592	646	702	713	600	636	686	634	276
25	465	484	524	592	648	705	713	596	634	686	634	203
26	408	484	524	594	652	707	713	594	646	680	632	199
27	484	484	524	600	624	711	686	665	644	686	628	199
28	446	484	524	606	661	711	711	694	644	680	626	196
29	465	484	524	606	.....	604	706	694	644	650	626	196
30	465	484	524	604	.....	713	701	694	642	652	626	199
31	465	.....	524	570	.....	751	.....	692	.....	652	624	.....

NOTE.—Gage not read, and discharge interpolated Oct. 9, 12, 14, 16, 18, 19, Dec. 20, Jan. 21–23, Mar. 4, 6, 7, 13, 14, 17, 18, 24, Apr. 5, 11, 12, 24, 25, 29, and Sept. 2.

Monthly discharge of Jordan River near Lehi, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	564	408	477	29,300
November	484	446	472	28,100
December	524	446	509	31,300
January	606	496	566	34,800
February	661	604	624	34,700
March	751	604	686	42,200
April	753	604	712	42,400
May	699	594	658	40,500
June	692	604	662	39,400
July	707	644	678	41,700
August	654	624	640	39,400
September	622	196	452	26,900
The year	753	196	594	431,000

SPANISH FORK AT THISTLE, UTAH.

LOCATION.—In SW. ¼ SW. ¼ sec. 28, T. 9 S., R. 4 E., in Thistle, Utah County, 800 feet below point at which Soldier Fork and Thistle Creek unite to form Spanish Fork and 3 miles above confluence with Diamond Fork.

DRAINAGE AREA.—490 square miles.

RECORDS AVAILABLE.—December 3, 1907, to September 30, 1918.

GAGE.—Inclined staff on right bank 10 feet below cable; installed May 4, 1915, to replace vertical staff at same site and datum used since November 21, 1912; read by Mrs. Effie Gordon. Vertical staff on left bank about a mile downstream, used from December 3, 1907, to November 20, 1912.

DISCHARGE MEASUREMENTS.—Made from cable at gage or by wading.

CHANNEL AND CONTROL.—Bed composed of gravel and sand. Control is gravel bar about 30 feet below gage; shifting. Left bank low and subject to overflow.

EXTREMES OF DISCHARGE.—Maximum mean daily discharge during year, 283 second-feet May 19–26. Minimum mean daily discharge, 38 second-feet several days during August and September.

1907–1918: Maximum discharge recorded, 920 second-feet, May 10, 1914; minimum discharge recorded, 18.5 second-feet, December 20, 1913.

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

DIVERSIONS.—No important diversions above the station.

REGULATION.—None.

COOPERATION.—Complete records furnished by United States Reclamation Service since January 1, 1911.

Daily discharge, in second-feet, of Spanish Fork at Thistle, Utah, for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	64	61	68	80	95	80	123	192	155	52	40	38
2	61	59	67	80	80	80	155	192	155	65	40	40
3	61	59	61	80	80	95	123	192	155	65	40	38
4	61	59	59	80	80	95	95	235	155	65	40	40
5	61	59	68	80	80	95	95	235	123	65	38	40
6	59	59	59	80	65	95	95	235	123	65	38	40
7	59	59	67	80	65	95	95	235	123	65	38	40
8	59	59	59	65	65	123	95	235	123	52	38	40
9	59	59	73	65	65	123	95	235	123	65	38	40
10	59	59	73	52	65	123	155	235	123	65	38	40
11	59	72	71	65	65	123	235	235	95	65	38	40
12	59	72	73	65	65	192	192	235	95	65	40	40
13	59	72	73	65	80	192	192	192	95	65	38	38
14	59	68	73	65	80	123	192	192	123	65	38	38
15	59	68	73	65	52	95	155	192	95	52	40	38
16	59	68	73	65	52	95	155	235	95	52	40	38
17	58	68	73	65	80	95	155	235	95	52	38	38
18	57	61	73	65	80	95	123	235	95	52	40	38
19	57	56	71	65	80	123	123	283	95	52	38	38
20	57	56	68	65	80	95	123	283	95	52	38	38
21	57	61	61	52	80	95	123	283	123	52	38	38
22	57	65	59	65	80	95	123	283	95	52	38	40
23	58	73	61	65	80	95	155	283	80	52	40	40
24	58	75	67	65	80	123	155	283	95	40	40	40
25	58	75	67	80	80	123	192	283	80	52	38	40
26	58	73	73	80	80	123	155	283	65	52	38	40
27	58	71	67	65	95	123	192	235	65	52	38	40
28	56	71	67	80	80	123	155	192	65	52	38	40
29	55	68	61	80	.....	123	155	192	65	52	38	40
30	57	68	59	65	.....	123	155	192	65	52	38	40
31	58	.....	58	65	.....	123	.....	155	.....	52	38	.....

Monthly discharge of Spanish Fork at Thistle, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	64	55	58.6	3,600
November	75	56	65.1	3,870
December	73	58	66.9	4,110
January	80	52	69.5	4,270
February	95	52	75.3	4,180
March	192	80	113	6,950
April	235	95	144	8,570
May	283	155	232	14,300
June	155	65	104	6,190
July	65	40	56.6	3,480
August	40	38	38.6	2,370
September	40	38	39.3	2,340
The year	283	38	88.8	64,200

NOTE.—Monthly discharge computed by United States Geological Survey.

SPANISH FORK AT LAKE SHORE, UTAH.

LOCATION.—In NE. ¼ sec. 15, T. 8 S., R. 2 E., a mile east of Lake Shore, Utah County, 3 miles above mouth, and 3 miles northwest of Spanish Fork; below all tributaries and diversions.

DRAINAGE AREA.—700 square miles.

RECORDS AVAILABLE.—December 10, 1903, to July 10, 1907; March 10, 1909, to September 30, 1918.

GAGE.—Inclined staff on right bank about half a mile below highway bridge; installed March 10, 1909; read by G. J. Hansen. Original gage, vertical staff on left bank immediately below bridge, used from December 10, 1903, to May 25, 1904. Gage at old cable 800 feet above bridge used from May 26, 1904, to July 10, 1907.

DISCHARGE MEASUREMENTS.—Made from cable at gage or by wading.

CHANNEL AND CONTROL.—Bed composed of soft material; fairly permanent.

EXTREMES OF DISCHARGE.—Maximum mean daily discharge during year, 543 second-feet March 25. River dry most of the time from May 15 to September 30.

1903–1918: Maximum stage recorded, 16.0 feet May 11, 1909 (discharge, 1,430 second-feet). River dry at several different times when entire flow was being diverted for irrigation.

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

DIVERSIONS.—Entire flow is diverted above station during later part of irrigation season; only waste and return waters pass gage at that time.

REGULATION.—Natural flow affected by irrigation diversions.

COOPERATION.—Since January 1, 1911, records have been furnished by the United States Reclamation Service.

Daily discharge, in second-feet, of Spanish Fork at Lake Shore, Utah, for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	51	41	92	92	125	79	201	132	0	0	0	0
2	65	43	92	99	125	92	179	46	0	0	0	0
3	79	46	92	105	118	101	172	72	0	0	0	0
4	92	49	95	112	118	112	165	72	0	0	0	0
5	105	51	99	112	125	115	165	41	0	0	0	0
6	114	62	95	105	125	118	158	41	0	0	0	0
7	124	72	92	105	145	132	165	36	0	0	0	0
8	145	64	95	112	158	145	152	3	0	0	0	0
9	158	56	98	112	145	152	179	2	0	0	0	0
10	172	51	102	105	139	158	165	15	0	0	0	0
11	186	46	104	105	135	165	269	8	0	139	0	0
12	199	41	105	105	118	249	217	15	0	0	0	0
13	181	46	105	105	115	339	217	19	0	0	0	0
14	163	51	105	105	112	237	209	23	0	0	0	0
15	145	65	105	105	108	145	265	0	0	0	0	0
16	143	79	105	112	105	156	201	0	0	2	0	0
17	139	79	105	112	108	167	175	0	0	15	0	0
18	122	79	105	112	112	179	165	0	0	15	0	0
19	105	79	105	112	129	343	172	0	361	15	0	0
20	103	86	107	112	145	347	165	0	361	0	0	0
21	101	92	109	112	145	425	165	139	0	0	0	0
22	99	98	148	112	141	441	172	29	0	0	0	0
23	98	105	107	105	132	477	165	0	0	0	0	3
24	96	105	105	105	122	527	179	0	0	0	0	2
25	97	105	108	112	112	543	197	0	0	0	0	1
26	99	105	112	112	102	473	209	0	0	0	0	0
27	97	110	108	118	92	201	201	0	0	0	0	0
28	95	115	105	118	88	193	209	0	0	0	0	1
29	92	104	105	118	.....	165	201	0	0	0	0	2
30	82	92	105	112	.....	179	193	0	0	0	0	3
31	72	.....	105	118	.....	193	.....	0	.....	0	0	.....

Monthly discharge of Spanish Fork at Lake Shore, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	199	51	117	7,190
November	115	41	73.9	4,400
December	148	92	104	6,400
January	118	92	109	6,700
February	158	88	123	6,830
March	543	79	237	14,600
April	269	152	188	11,200
May	139	0	22.4	1,380
June	361	0	24.1	1,430
July	139	0	6.00	369
August	0	0	0	0
September	3	0	.400	24
The year	543	0	83.5	60,500

NOTE.—Monthly discharge computed by United States Geological Survey.

PROVO RIVER AT FORKS, UTAH.

LOCATION.—In NW. ¼ sec. 25, T. 5 S., R. 3 E., half a mile above Vivian Park summer resort at Forks, Utah County, 2,000 feet below mouth of North Fork of Provo River, 3,000 feet above South Fork, and 1½ miles above Utah Power & Light Co.'s diversion dam.

DRAINAGE AREA.—600 square miles.

RECORDS AVAILABLE.—November 17, 1911, to September 30, 1918. Records have been obtained at various points below mouth of South Fork since 1890.

GAGE.—Vertical staff on right bank; installed October 5, 1915; read by J. F. Carter. From November 17, 1911, to October 4, 1915, records were obtained from inclined staff 2,500 feet downstream.

DISCHARGE MEASUREMENTS.—Made from cable at site of inclined gage or by wading.

CHANNEL AND CONTROL.—Bed composed of gravel and boulders; fairly permanent. Control is well-defined riffle about 80 feet below gage; fairly permanent. Banks not subject to overflow.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 3.12 feet at 4 p. m. June 11 (discharge, 1,310 second-feet); minimum stage recorded, 0.25 foot August 26 (discharge, 149 second-feet).

1911–1918: Maximum stage recorded, 4.8 feet June 19, 1917 (discharge, 2,450 second-feet); minimum stage occurred in 1918.

ICE.—None.

DIVERSIONS.—Station is below diversions for irrigation in Heber Valley and above those near Provo.

REGULATION.—A number of small lakes at the headwaters have been utilized as storage reservoirs and flow is regulated to slight extent.

ACCURACY.—Stage-discharge relation assumed permanent throughout year; not affected by ice. Rating curve well defined from 400 to 1,800 second-feet, and fairly well defined from 150 to 400 second-feet. Gage read to hundredths once daily except January 15-19. Daily discharge ascertained by applying daily gage height to rating table except for period January 15–19, for which it was estimated because gage was not read. Records only fair, as at high stages there was considerable diurnal fluctuation and rating curve is somewhat uncertain at low stages.

Discharge measurements of Provo River at Forks, Utah, during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Nov. 22	C. C. Jacob	0.76	326	June 11	A. B. Purton	3.10	1,260
Dec. 18	....do	.84	320	July 5	W. B. Maughan	.54	272
May 23	W. B. Maughan	1.50	605	Aug. 11	A. B. Purton	.40	176

Daily discharge, in second-feet, of Provo River at Forks, Utah, for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	349	253	316	316	253	316	416	284	639	210	186	169
2	332	253	316	316	268	349	416	300	600	216	186	163
3	332	253	332	316	284	366	416	300	639	222	192	155
4	332	253	316	316	284	382	382	284	847	222	186	183
5	323	253	316	332	316	416	382	349	890	238	183	178
6	316	253	300	316	316	382	382	416	1,020	238	213	169
7	316	253	300	316	316	382	382	434	1,020	222	192	172
8	316	253	300	300	316	720	366	416	1,020	222	192	172
9	300	253	316	316	268	487	366	487	1,180	222	189	172
10	300	253	332	253	253	416	382	487	1,120	253	189	172
11	300	253	316	253	316	524	451	434	1,240	323	192	163
12	300	253	332	253	316	639	451	434	1,180	284	192	166
13	300	268	332	284	316	679	469	349	1,020	284	183	169
14	284	268	332	316	300	469	524	316	1,020	300	178	169
15	284	268	332		316	416	487	300	1,020	300	180	192
16	284	268	332		253	399	434	316	1,020	268	175	198
17	284	268	332	308	268	399	416	416	934	268	169	180
18	284	268	332		300	416	382	562	804	253	163	180
19	284	284	332		284	399	382	487	762	253	163	180
20	268	284	332	300	284	382	366	434	679	268	166	175
21	268	300	332	253	284	416	349	434	639	284	166	175
22	268	300	332	253	284	399	349	506	600	253	163	180
23	253	316	332	316	382	382	349	506	524	253	163	284
24	253	316	332	332	487	382	382	562	487	238	163	253
25	253	332	332	300	506	399	382	679	416	222	157	253
26	253	332	332	332	416	399	416	720	316	210	149	216
27	253	316	332	284	416	416	366	679	253	210	157	216
28	253	300	332	300	316	434	300	600	253	192	157	216
29	238	300	332	316	.....	382	284	543	216	198	155	210
30	238	316	316	284	.....	382	284	600	210	198	155	210
31	253	.....	316	300	.....	382	.....	600	.....	186	155	.....

Monthly discharge of Provo River at Forks, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	349	238	286	17,600
November	332	253	278	16,500
December	332	300	325	20,000
January	332	253	300	18,400
February	506	253	318	17,700
March	720	316	429	26,400
April	524	284	390	23,200
May	720	284	459	28,200
June	1,240	210	749	44,600
July	332	186	243	14,900
August	213	149	174	10,700
September	284	155	190	11,300
The year	1,240	149	345	250,000

SOUTH FORK OF PROVO RIVER AT FORKS, UTAH.

LOCATION.—In SE. ¼ sec. 26, T. 5 S., R. 3 E., at Vivian Park summer resort at Forks, Utah County, a quarter of a mile above confluence with Provo River and 12 miles up Provo Canyon on highway and railroad from Provo to Heber.

DRAINAGE AREA.—30 square miles.

RECORDS AVAILABLE.—November 17, 1911, to September 30, 1918.

GAGE.—Vertical staff fastened to cottonwood tree on right bank; used since June 15, 1913; read by J. F. Carter. Datum raised 2 feet on June 12, 1915. Original gage, vertical staff about 150 feet above mouth of stream, used November 17, 1911, to June 14, 1913.

DISCHARGE MEASUREMENTS.—Made from foot log near gage or by wading.

CHANNEL AND CONTROL.—Bed composed of gravel; slightly shifting. Banks not subject to overflow.

EXTREMES OF DISCHARGE.—Maximum stage uncertain. Maximum discharge, 45 second-feet on September 23. Minimum stage recorded, 0.40 foot on April 3, June 2 and 3, and August 19, 20, 26, and 27 (discharge, 22 second-feet).

1911–1918: Maximum discharge, 74 second-feet, June 10, 1912; minimum discharge, 20 second-feet, July 23, 1917.

ICE.—Stage-discharge relation not affected by ice.

DIVERSIONS.—Below all diversions except small ditch having a maximum capacity of about 1 second-foot.

REGULATION.—None.

ACCURACY.—Stage-discharge relation somewhat shifting. Rating curves used before and after October 23, fairly well defined between 20 and 50 second-feet. Gage read to hundredths once daily except as indicated in footnote to daily-discharge table. Daily discharge ascertained by applying daily gage height to rating table except as indicated in footnote to daily-discharge table. Records October 1 to December 17 are rather uncertain and June 1 to August 31 are likely to be in error at times because of uncertain stage-discharge relation; other records fair.

Discharge measurements of South Fork of Provo River at Forks, Utah, during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Nov. 22	C. C. Jacob	0.58	43.1	June 11	A. B. Purton	0.50	28.1
Dec. 18	do	.60	36.5	July 5	W. B. Maughan	.45	24.3
May 23	W. B. Maughan	.54	34.0	Aug. 11	A. B. Purton	.44	25.9
29	do	.48	26.8				

Daily discharge, in second-feet, of South Fork of Provo River at Forks, Utah, for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	34		38	38	33	31	31	29	29		28	23
2	34		38	38	33	31	33	30	22		28	23
3	34		39	38	33	31	33	22	22	27	31	28
4	34		38	38	33	31	33	23	23		31	28
5	36	39	38	38	34	33	33	23	23	26	31	28
6	36		38	38	34	33	31	23	29		38	29
7	38		38	38	33	33	31	28	28		31	31
8	36		38	38	33	34	31	29	28		29	28
9	42	40	38	38	33	33	31	31	26		31	29
10	40	40	38	36	33	33	33	31	26		29	29
										28		
11	40	40	38	36	31	36	33	29	28		26	28
12	41	38	38	36	31	38	33	29	29		29	28
13	41	38	38	36	31	38	33	29	29		26	29
14	38	38	39	36	31	38	33	29	29		26	29
15	38	38	39	33	31	34	33	29	29		28	29
16	38	38	38	33	31	34	33	28		31	26	29
17	40	38	38	34	31	33	31	29		31	31	29
18	38	38	37	34	31	33	31	29		31	29	29
19	38	38	36	34	31	33	31	29		33	22	29
20	38	38	38	34	31	33	31	29		36	22	29
21	34	38	38	33	31	33	31	29		36	23	29
22	34	36	38	34	31	34	31	29		34	23	28
23	34	38	38	34	33	34	31	33	28	34	23	45
24	31	38	38	34	33	34	31	33		34	23	58
25	33	42	38	33	31	34	31	33		33	23	36
26	38	41	38	33	31	34	31	33		33	22	34
27	38	38	38	31	31	34	31	31		33	22	34
28		38	38	33	31	34	29	31		28	26	34
29	38	38	38	33	.....	34	29	28		25	23	34
30		39	38	33	.....	34	29	28		28	23	34
31		.....	38	34	.....	34	.....	28	.....	28	23	.....

NOTE.—Discharge estimated, Oct. 28 to Nov. 8, because of doubtful gage-height record; June 16 to July 15 because gage was not read. Braced figures show estimated mean discharge for periods indicated.

Monthly discharge of South Fork of Provo River at Forks, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	42	31	37.0	2,280
November	42	36	38.7	2,300
December	39	36	38.0	2,340
January	38	31	35.1	2,160
February	34	31	31.9	1,770
March	38	31	33.7	2,070
April	33	29	31.5	1,870
May	33	22	28.8	1,770
June	.....	22	27.3	1,620
July	36	.....	29.7	1,830
August	38	22	26.6	1,640
September	45	23	30.3	1,800
The year	45	22	32.4	23,400

SEVIER LAKE BASIN.

MAMMOTH CREEK NEAR HATCH, UTAH.

LOCATION.—In sec. 1, T. 37 S., R. 6 W., a quarter of a mile above flow line of former Hatchtown reservoir, three-quarters of a mile east of east boundary of Sevier National Forest, and 3½ miles southwest of Hatch, Garfield County.

DRAINAGE AREA.—151 square miles (measured on topographic maps).

RECORDS AVAILABLE.—July 15 to September 20, 1912; May 17, 1913, to August 22, 1914; October 1, 1915, to September 30, 1918; also some miscellaneous measurements in 1911 and spring of 1912.

GAGE.—Stevens continuous water-stage recorder on left bank, May 2 to July 3, 1914, and September 23, 1915, to September 30, 1918; inspected by H. S. Barnhurst. Original gage, vertical staff on left bank, 1½ miles above present site, in sec. 2, T. 37 S., R. 6 W., July 15 to September 20, 1912, and May 25 to July 11, 1913; Stevens recorder at site and datum of original gage, July 12, 1913, to April 25, 1914.

DISCHARGE MEASUREMENTS.—Made from cable or by wading.

CHANNEL AND CONTROL.—One channel at all stages.

EXTREMES OF DISCHARGE.—Maximum stage during year, from water-stage recorder, 3.32 feet at 2 a. m. May 16 (discharge, 366 second-feet); minimum stage, 0.96 foot at 1 a. m. January 22 (discharge, 19 second-feet).

1912–1918: Maximum stage recorded, 4.32 feet at 4 a. m. June 10, 1917 (discharge, 795 second-feet); minimum stage, 0.98 foot July 31, 1913 (discharge, 10 second-feet).

ICE.—Stage-discharge relation not affected by ice.

DIVERSIONS.—Below all diversions.

REGULATION.—None.

ACCURACY.—Stage-discharge relation permanent October 26 to August 28. Well-defined rating curve used with shifts to parallel curves in October and September. Operation of water-stage recorder satisfactory. Daily discharge ascertained by applying to rating table the mean daily gage height determined from recorder graph. Records good.

Discharge measurements of Mammoth Creek near Hatch, Utah, during the year ending Sept. 30, 1918.

[Made by J. J. Sanford.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*		*Feet.*	*Sec.-ft.*		*Feet.*	*Sec.-ft.*
Oct. 9	1.30	32.6	Mar. 12	2.28	126	June 13	2.10	103
26	1.32	30.8	Apr. 10	1.19	27.0	July 9	1.43	36.0
Nov. 30	1.35	32.2	May 14	2.42	143	Aug. 7	1.26	27.5
Jan. 7	1.34	32.2	30	2.36	140	28	1.08	22.5

Daily discharge, in second-feet, of Mammoth Creek near Hatch, Utah, for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	39	30	28	25	22	24	25	113	142	51	30	24
2	37	30	28	25	23	24	26	128	148	42	29	24
3	37	30	28	26	22	24	26	155	141	40	24	24
4	38	29	26	25	23	24	25	214	138	44	24	28
5	39	29	25	25	24	24	24	282	136	39	24	26
6	39	29	26	25	22	25	24	321	134	38	24	26
7	37	32	26	25	24	25	25	304	131	37	30	25
8	37	30	26	25	22	40	25	310	119	38	28	25
9	35	30	26	24	22	25	25	238	119	37	34	25
10	30	30	28	21	22	24	26	197	112	52	34	25
11	25	29	27	24	24	32	27	162	106	63	39	25
12	25	29	25	28	24	58	30	149	105	59	39	25
13	25	29	25	25	24	40	32	144	103	71	39	26
14	24	28	28	21	22	28	30	144	99	74	49	26
15	24	28	26	24	25	26	28	166	93	70	42	26
16	25	28	27	22	22	25	27	207	92	62	38	25
17	26	29	26	26	24	25	26	255	90	52	30	26
18	29	28	27	24	24	26	26	276	88	47	28	26
19	29	28	27	23	22	26	26	287	86	44	26	26
20	30	27	27	21	25	27	26	298	87	47	25	26
21	30	28	26	20	25	26	27	263	82	45	24	27
22	31	28	25	20	25	26	29	273	81	43	23	37
23	31	28	24	21	26	26	33	271	81	40	22	47
24	31	28	25	23	25	26	43	273	76	38	22	32
25	30	28	24	23	24	25	50	250	74	36	22	26
26	30	28	24	24	24	25	64	225	69	33	22	25
27	30	27	24	22	24	25	69	203	56	30	22	24
28	30	27	25	23	23	24	71	180	54	25	22	24
29	29	26	25	22	.....	24	76	166	52	24	23	24
30	30	28	25	23	.....	24	90	149	52	25	23	24
31	30	.....	25	23	.....	25	.....	142	.....	29	24	.....

NOTE.—No gage-height record Oct. 10; discharge interpolated.

Monthly discharge of Mammoth Creek near Hatch, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	39	24	31.0	1,910
November	32	26	28.6	1,700
December	28	24	25.9	1,590
January	28	20	23.5	1,440
February	26	22	23.5	1,310
March	58	24	27.4	1,680
April	90	24	36.0	2,140
May	321	113	218	13,400
June	148	52	98.2	5,840
July	74	24	44.4	2,730
August	49	22	28.5	1,750
September	47	24	26.6	1,580
The year	321	20	51.2	37,100

SEVIER RIVER AT HATCH, UTAH.

LOCATION.—In SE. ¼ sec. 28, T. 36 S., R. 5 W., at county bridge a quarter of a mile east of J. C. Barnhurst's house at Hatch, Garfield County, and 1½ miles below dam site of former Hatchtown reservoir.

DRAINAGE AREA.—260 square miles (measured on topographic maps).

RECORDS AVAILABLE.—June 3 to November 4, 1911; December 10, 1911, to September 30, 1918.

GAGE.—Stevens continuous water-stage recorder 50 feet below bridge, August 23, 1914, to September 30, 1918; inspected by H. S. Barnhurst. Original gage, about one-eighth mile upstream, June 3 to November 4, 1911, and December 10, 1911, to May 7, 1912; vertical staff on middle pier of bridge May 8, 1912, to May 6, 1914; Stevens water-stage recorder 1½ miles above bridge May 7 to May 25, 1914, when Hatchtown reservoir dam failed, releasing 11,600 acre-feet of stored water. This gage was reinstalled at the old location below bridge August 23, 1914.

DISCHARGE MEASUREMENTS.—Made from bridge or by wading.

CHANNEL AND CONTROL.—One channel at all stages. Bed composed of sand and gravel.

EXTREMES OF DISCHARGE.—Maximum stage during year, from water-stage recorder, 2.40 feet at 2 a. m. May 6 (discharge, 550 second-feet); minimum stage recorded, 0.65 foot at noon March 1 (discharge, 70 second-feet).

1911–1918: Maximum stage occurred about 9 p. m. May 25, 1914, when Hatchtown reservoir dam failed (discharge not estimated). Maximum stage recorded, 5.8 feet June 5, 1912 (discharge, 1,210 second-feet); minimum flow recorded, 10 second-feet on days in January, March, and April, 1912, while water was being stored at Hatchtown reservoir.

ICE.—Stage-discharge relation affected by ice at times.

DIVERSIONS.—Above all diversions except Hatch Bench canal and Panguitch Lake ditch, which divert a small quantity of water from Mammoth Creek. Hillsdale ditch diverts about 4 miles downstream and several other canals about 7 miles below for irrigation in Panguitch Valley.

REGULATION.—Entire flow controlled by gates in Hatchtown reservoir dam before May 25, 1914.

ACCURACY.—Stage-discharge relation changed in October and May; affected by ice December 8, and January 10, 11, 14–16, 20–24, and 27. Rating curves well defined. Shifting-control method used October 10–25 and May 15–29. Operation of water-stage recorder satisfactory except January 28 to February 5, February 20–25, March 28, and 29. Daily discharge ascertained by applying to rating table the mean daily gage height determined from recorder graph except for periods of breaks in gage-height record or of ice effect. For these periods, discharge was interpolated or estimated. Records good.

Discharge measurements of Sevier River at Hatch, Utah, during the year ending Sept. 30, 1918.

[Made by J. J. Sanford.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*		*Feet.*	*Sec.-ft.*		*Feet.*	*Sec.-ft.*
Oct. 9	0.88	105	Apr. 10	0.96	135	July 9	0.94	117
26	.86	110	May 14	1.60	313	Aug. 7	.88	105
Nov. 30	.90	117	30	1.58	276	28	.80	91
Jan. 7	.76	85	June 13	1.32	217			

Daily discharge, in second-feet, of Sevier River at Hatch, Utah, for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	108	113	106	91		80	115	283	283	125	108	95
2	108	113	104	93		82	117	306	280	118	108	97
3	110	113	104	93	85	86	117	342	277	116	106	95
4	110	113	99	93		86	113	393	271	116	106	99
5	110	110	99	95		86	113	472	269	127	104	97
6	110	110	102	95	84	106	108	511	269	114	104	95
7	108	117	108	91	99	99	108	499	263	114	106	97
8	106	117	106	97	104	312	113	502	252	118	108	97
9	101	113	104	95	89	106	122	431	243	121	104	95
10	97	113	97	95	86	95	131	390	229	196	134	92
11	97	113	104	95	84	131	138	354	218	166	125	92
12	101	113	106	95	86	437	162	327	215	145	121	94
13	103	113	106	95	99	357	162	312	213	141	123	92
14	103	113	97	94	82	176	146	309	207	138	127	92
15	104	115	97	93	99	160	135	327	196	134	116	92
16	104	113	106	92	95	148	130	363	193	129	112	94
17	104	113	97	91	86	140	124	411	187	127	106	92
18	108	108	99	89	82	140	130	437	185	123	103	92
19	110	108	99	95	86	140	130	448	193	118	101	90
20	110	113	99	94	86	140	130	460	182	134	97	90
21	110	113	97	92	87	143	138	422	171	123	95	90
22	110	113	97	90	88	143	151	428	168	121	94	129
23	110	115	97	88	89	143	176	428	176	116	94	229
24	110	115	99	87	90	143	199	428	160	116	94	112
25	108	113	102	87	91	143	222	402	152	116	94	104
26	108	110	99	87	91	140	231	372	143	112	94	99
27	110	108	97		86	140	231	351	134	110	90	97
28	110	108	97		102	125	231	321	129	108	90	97
29	110	110	97	85	.....	113	237	306	127	108	92	95
30	113	110	95		.....	99	248	288	125	108	94	94
31	113	.....	95		.....	108	.....	285	.....	108	94	.....

NOTE.—Braced figures show mean discharge for period indicated.

Monthly discharge of Sevier River at Hatch, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	113	97	107	6,580
November	117	108	112	6,660
December	108	95	100	6,150
January	97	.....	91.2	5,610
February	104	82	89.1	4,950
March	437	80	147	9,040
April	248	108	154	9,160
May	511	283	384	23,600
June	283	125	204	12,100
July	196	108	125	7,690
August	134	90	105	6,460
September	229	90	101	6,010
The year	511	80	144	104,000

SEVIER RIVER NEAR CIRCLEVILLE, UTAH.

LOCATION.—About in sec. 29, T. 31 S., R. 4 W., 2½ miles above mouth of Pine Creek and 8 miles southwest of Circleville, Piute County.

DRAINAGE AREA.—950 square miles (measured on topographic maps).

RECORDS AVAILABLE.—May 10 to September 19, 1912; April 23, 1914, to September 30, 1918.

GAGE.—Stevens continuous water-stage recorder, with outside and inside staff gages, about a mile below old gage, April 23, 1914, to September 30, 1918; inspected by James Meeks. Vertical staff on bridge abutment during irrigation season of 1912. Flow practically the same at both places.

DISCHARGE MEASUREMENTS.—Made from cable or by wading.

CHANNEL AND CONTROL.—One channel at all stages. Bed composed of sand and rocks; shifting.

EXTREMES OF DISCHARGE.—Maximum stage during year, from water-stage recorder, 6.05 feet at noon March 13 (discharge, about 1,000 second-feet); minimum stage recorded, 2.23 feet August 6 (discharge, 61 second-feet).

1912–1918: Maximum stage occurred in 1914 during flood resulting from failure of Hatchtown dam; discharge not determined. Maximum stage recorded, 8.0 feet August 6, 1916 (discharge estimated, 1,600 second-feet); minimum stage recorded, 2.23 feet on August 6, 1918 (discharge, 61 second-feet).

ICE.—Stage-discharge relation affected by ice during some winters.

DIVERSIONS.—Above all diversions for Circle Valley; below several diversions for Hatchtown project and Panguitch Valley.

REGULATION.—Flow was affected somewhat by operation of Hatchtown reservoir until dam failed, May 25, 1914.

ACCURACY.—Stage-discharge relation not permanent; not affected by ice during the year. Standard rating curve well defined below 400 second-feet; used with shifts to parallel curves. Operation of water-stage recorder satisfactory except for January 11–17 when clock was stopped. Daily discharge ascertained by applying to rating table the mean daily gage height determined from recorder graph. Shifting-control method used for several periods. Discharge January 11–17 estimated. Records good.

Discharge measurements of Sevier River near Circleville, Utah, during the year ending Sept. 30, 1918.

[Made by J. J. Sanford.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*		*Feet.*	*Sec.-ft.*		*Feet.*	*Sec.-ft.*
Oct. 10	2.84	124	Apr. 9	3.06	180	July 8	2.75	109
27	2.78	119	May 13	3.66	321	23	2.96	154
Dec. 3	3.06	170	22	3.50	274	Aug. 8	2.23	60
Jan. 7	3.08	163	June 12	2.56	98	20	2.42	78
Mar. 11	3.10	193	July 1	2.34	72	Sept. 10	2.50	82
15	3.37	251						

Daily discharge, in second-feet, of Sevier River near Circleville, Utah, for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	189	140	182	174	137	172	161	262	189	71	78	95
2	187	142	187	174	148	180	167	284	178	78	76	87
3	174	139	178	176	142	189	172	290	169	87	72	83
4	163	137	182	174	152	184	174	310	167	78	70	89
5	148	137	182	172	172	184	174	358	153	109	67	93
6	148	146	182	169	167	214	172	428	142	102	61	90
7	144	150	180	161	180	219	169	444	142	101	70	93
8	144	157	167	169	167	280	172	425	140	106	68	90
9	137	157	172	172	148	452	174	425	127	123	72	86
10	132	148	187	142	153	216	194	366	116	238	67	90
11	122	161	187	145	165	189	210	356	104	196	130	96
12	124	161	182	148	172	272	216	322	93	252	128	105
13	119	159	182	157	172	800	233	310	94	245	106	110
14	119	159	191	154	150	369	233	312	97	252	107	114
15	120	157	182	157	159	260	226	300	94	238	114	120
16	120	176	176	160	148	228	210	304	92	221	87	120
17	127	178	169	164	152	210	198	330	89	203	84	112
18	119	180	182	169	165	200	196	297	90	178	78	116
19	125	180	184	165	165	194	198	327	88	178	78	119
20	132	167	189	150	142	194	196	327	102	178	79	118
21	139	176	182	142	172	182	196	300	107	174	80	119
22	134	182	182	137	196	172	205	282	95	174	80	125
23	130	187	176	142	219	167	228	267	97	155	81	247
24	128	182	187	152	242	163	264	307	122	142	78	233
25	125	182	176	152	194	172	290	294	97	132	78	180
26	128	191	187	167	178	174	287	260	87	122	83	161
27	122	178	184	142	196	174	282	264	81	114	82	135
28	125	174	178	150	159	172	272	233	77	107	82	134
29	127	176	178	153	.....	165	272	235	72	97	78	134
30	139	187	178	153	.....	161	262	198	70	88	82	132
31	142	.....	176	157	.....	161	.....	191	.....	82	89	.....

Monthly discharge of Sevier River near Circleville, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	189	119	136	8,360
November	191	137	165	9,820
December	191	169	181	11,100
January	176	137	158	9,720
February	242	137	168	9,330
March	800	161	228	14,000
April	290	161	213	12,700
May	444	191	310	19,100
June	189	70	112	6,660
July	252	71	149	9,160
August	130	61	83.4	5,130
September	247	83	121	7,200
The year	800	61	169	122,000

SEVIER RIVER NEAR KINGSTON, UTAH.

LOCATION.—In sec. 16, T. 30 S., R. 3 W., 2 miles above mouth of East Fork and 1 mile west of Kingston, Piute County. Prior to September 20, 1918, station was 1 mile downstream from present site.

DRAINAGE AREA.—1,110 square miles (measured on topographic maps).

RECORDS AVAILABLE.—June 12, 1914, to September 30, 1918; also several miscellaneous measurements in 1911 published in Water-Supply Paper 310 as "South Fork near Junction, Utah."

GAGE.—Stevens continuous water-stage recorder on left bank with outside and inside staff gages; installed September 20, 1918; inspected by W. S. Price. August 7, 1914, to September 19, 1918, same recorder was in use about a mile downstream. Temporary Stevens recorder in use June 12 to July 15, 1914.

DISCHARGE MEASUREMENTS.—Made from cable or by wading.

CHANNEL AND CONTROL.—Concrete control 10 feet below gage at new site. One channel at all stages. At former site, bed composed of shifting sand and gravel.

EXTREMES OF DISCHARGE.—Maximum stage during year, from water-stage recorder, 9.40 feet at 3 p. m. March 13 (discharge estimated, 1,000 second-feet); minimum stage, 1.81 feet at 8 p. m. August 10 (discharge, 19 second-feet).

1914–1918: Maximum and minimum stages occurred in 1918.

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

DIVERSIONS.—Below all diversions above mouth of East Fork.

REGULATION.—Flow affected by diversions for irrigation.

ACCURACY.—Stage-discharge relation continually changing owing to shifting channel and backwater from Piute reservoir, until station was moved a mile upstream on September 19; permanent thereafter. Frequent discharge measurements permit determination of daily discharge with a fair degree of accuracy except for a short period during the winter when station was icebound. A single standard rating curve used with shifts to parallel curves until September 19. Curve for remainder of year well defined. Operation of water-stage recorder satisfactory except for a few short periods. Daily discharge ascertained by applying to rating table the mean daily gage height determined from recorder graph; shifting-control method used until September 19. Computation of daily discharge facilitated by comparison with Sevier River near Junction and East Fork of Sevier River near Kingston. Records fair.

Discharge measurements of Sevier River near Kingston, Utah, during the year ending Sept. 30, 1918.

[Made by J. J. Sanford.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*		*Feet.*	*Sec.-ft.*		*Feet.*	*Sec.-ft.*
Oct. 27	2.78	92	Apr. 9	3.86	219	July 10	4.59	214
Nov. 1	3.11	120	22	4.06	209	23	3.40	134
27	3.58	204	May 9	4.98	306	Aug. 5	1.88	20.5
Dec. 11	3.55	222	15	3.80	170	19	1.94	23.5
Jan. 8	3.14	199	29	3.20	118	Sept. 3	2.04	31.0
Mar. 11	3.38	231	June 11	2.18	30.8	16	2.72	73
15	4.02	310	July 2	2.30	38.2			

Daily discharge, in second-feet, of Sevier River near Kingston, Utah, for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	136	124	208	208	.....	209	234	189	88	30	23	28
2	137	126	208	206	.....	211	235	191	79	35	22	29
3	118	129	212	218	.....	213	243	185	85	38	23	30
4	114	125	206	213	.....	214	232	189	66	35	23	41
5	102	128	197	210	.....	209	214	204	59	35	21	62
6	102	133	197	200	.....	251	210	258	54	42	21	68
7	103	156	198	192	.....	248	212	372	41	35	21	68
8	109	156	191	202	.....	270	209	342	43	49	20	66
9	92	157	199	200	.....	444	213	310	38	60	20	63
10	74	158	208	186	.....	248	231	264	33	227	20	59
11	66	159	220	.....	200	236	250	253	31	220	27	65
12	63	160	207	.....	204	360	249	226	31	257	32	71
13	59	164	217	.....	206	750	271	204	32	340	28	75
14	56	173	221	.....	201	500	280	198	31	374	26	74
15	53	187	208	.....	200	300	253	176	34	265	29	63
16	54	195	204	.....	198	268	228	160	36	265	28	70
17	55	196	201	.....	194	249	207	182	31	222	25	68
18	51	197	205	.....	209	235	198	176	31	182	24	64
19	54	190	214	.....	212	231	194	187	33	157	23	66
20	61	188	222	.....	212	248	194	204	42	136	23	70
21	65	184	217	.....	218	253	192	196	53	129	23	62
22	68	200	207	.....	236	235	198	165	49	147	22	81
23	86	205	206	.....	258	230	200	160	42	118	22	140
24	92	210	222	.....	308	228	214	176	53	74	23	192
25	90	205	229	.....	248	232	242	185	45	55	24	143
26	92	213	235	.....	220	238	251	155	39	40	24	129
27	92	206	234	.....	222	238	236	155	33	33	24	113
28	98	206	227	.....	202	230	226	135	29	28	25	109
29	102	207	223	.....	.....	220	220	125	27	26	26	98
30	111	207	224	.....	.....	227	201	110	28	23	26	94
31	114	.....	222	.....	.....	220	.....	102	.....	24	26	.....

NOTE.—Discharge estimated because of ice, Jan. 11–31, 185 second-feet, and Feb. 1–10, 200 second-feet Discharge interpolated, Nov. 9, 10, and Nov. 28 to Dec. 1; estimated Mar. 13 and 14.

Monthly discharge of Sevier River near Kingston, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	137	51	86.1	5,290
November	213	124	175	10,400
December	235	191	213	13,100
January	218	.....	191	11,700
February	308	.....	212	11,800
March	750	209	272	16,700
April	280	192	225	13,400
May	372	102	198	12,200
June	88	27	43.9	2,610
July	374	23	119	7,320
August	32	20	24.0	1,480
September	192	28	78.7	4,680
The year	750	20	153	111,000

PIUTE RESERVOIR NEAR MARYSVALE, UTAH.

LOCATION.—In NW. ¼ sec. 3, T. 29 S., R. 3 W., at Piute dam, 11 miles south of Marysvale, Piute County

RECORDS AVAILABLE.—March 22, 1914, to September 30, 1918.

GAGE.—Iron pins driven every foot into rock face at outlet gates; readings between foot marks are measured with a graduated scale.

COOPERATION.—Table of daily contents furnished by State engineer.

Daily contents, in acre-feet, of Piute reservoir near Marysvale, Utah, for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	7,000	800	9,000	23,300	34,800	45,400	56,600	52,300	37,500	21,800	12,600	200
2	6,600	900	9,200	23,700	35,200	45,800	56,100	51,600	37,000	21,400	12,000	80
3	6,400	1,200	9,800	24,300	35,500	46,000	56,300	51,400	36,400	20,600	11,500	0
4	6,000	1,300	10,400	24,700	35,800	46,400	56,300	50,800	36,000	20,400	11,100	0
5	5,600	1,600	10,800	25,200	36,100	46,800	56,600	50,200	35,500	19,800	10,600	0
6	5,200	1,700	11,400	25,600	36,700	47,200	56,600	50,000	35,000	19,500	10,000	0
7	4,900	1,900	12,000	26,000	37,000	47,800	56,300	49,600	34,300	19,100	9,700	15
8	4,650	2,100	12,200	26,400	37,400	48,200	56,100	49,400	34,000	18,800	9,200	20
9	4,400	2,400	13,100	26,800	37,800	48,600	56,100	49,200	33,000	18,500	8,700	0
10	4,000	2,500	13,400	27,300	38,000	49,200	56,100	49,000	32,000	18,400	8,500	10
11	3,650	2,800	13,600	27,900	38,500	49,800	56,000	48,600	31,500	18,400	7,800	0
12	3,200	3,100	14,000	28,100	38,900	50,200	56,000	48,400	31,300	18,500	7,400	15
13	2,800	3,200	14,400	28,300	39,200	51,400	56,100	47,500	31,000	18,800	7,000	20
14	2,200	3,500	14,900	28,800	39,500	52,300	56,300	47,200	30,500	19,000	6,600	30
15	2,000	3,800	15,300	29,100	40,000	53,200	56,600	46,800	30,000	19,000	6,400	10
16	1,600	4,200	15,800	29,400	40,800	53,700	56,700	46,000	29,000	19,200	6,000	10
17	1,300	4,400	16,200	29,600	40,800	54,000	56,800	45,600	28,500	19,300	5,800	0
18	700	4,800	16,600	30,000	41,000	54,300	55,100	45,000	28,000	19,200	5,500	0
19	500	4,800	16,900	30,500	41,300	54,700	55,700	44,700	27,700	19,000	4,800	0
20	300	5,200	17,400	30,800	41,800	55,000	55,500	43,800	27,300	18,900	4,500	0
21	100	5,500	17,800	31,200	42,200	55,300	55,400	43,000	26,500	18,600	4,000	0
22	0	5,700	18,200	31,400	42,500	55,400	55,000	42,700	26,300	18,300	3,600	0
23	0	6,200	18,700	31,900	42,600	55,600	54,900	42,400	26,000	18,000	3,200	40
24	0	6,500	19,200	32,200	43,200	55,800	54,800	42,000	25,500	17,500	2,800	75
25	100	6,800	19,800	32,500	43,800	56,000	54,700	41,500	25,000	17,300	2,500	45
26	200	7,300	20,400	32,880	44,300	56,100	54,400	40,800	24,700	16,800	2,000	50
27	400	7,400	20,800	33,200	44,600	56,200	54,400	40,400	24,000	16,000	1,800	30
28	500	7,600	21,200	33,700	45,100	56,300	54,000	39,500	23,500	15,000	1,400	10
29	600	8,000	21,800	33,900	.....	56,300	53,600	39,000	22,800	14,500	1,000	10
30	700	8,300	22,200	34,300	.....	56,400	53,000	38,600	22,500	14,000	600	0
31	800	.....	22,800	34,600	.....	56,600	.....	38,000	.....	13,000	400	.....

SEVIER RIVER BELOW PIUTE DAM, NEAR MARYSVALE, UTAH.

LOCATION.—In sec. 34, T. 28 S., R. 3 W., 700 yards below dam of Piute reservoir, 11 miles south of Marysvale, Piute County.

DRAINAGE AREA.—2,440 square miles (measured on topographic maps).

RECORDS AVAILABLE.—May 17 to August 31, 1911; May 1, 1912, to September 30, 1918.

GAGE.—Friez water-stage recorder about 500 feet below site of former gage, May 4, 1912, to September 30, 1918; inspected by M. C. Jensen. Slope gage on right bank, May 17 to August 31, 1911.

DISCHARGE MEASUREMENTS.—Made from cable or by wading.

CHANNEL AND CONTROL.—Bed composed of sand and loam. One channel at all stages. Control is a riffle of heavy gravel and rocks located at the gage; practically permanent, shifting only slightly during high stages.

EXTREMES OF DISCHARGE.—Maximum stage during year, from water-stage recorder, 2.04 feet from 8 a. m. April 27 to 6 a. m. April 30 (discharge, 608 second-feet). Minimum discharge estimated 1 second-foot January 11–31 when reservoir gates were closed and water-stage recorder was not in operation.

1911–1918: Maximum stage recorded, 3.00 feet from 4 a. m. to 4 p. m. May 27, 1914 (discharge, 1,380 second-feet). Minimum discharge, estimated 1 second-foot March 1–15, 1917, and January 11–31, 1918 (reservoir gates closed).

ICE.—Stage-discharge relation affected by ice during most winters.

DIVERSIONS.—No water diverted between this station and former station near Junction.

REGULATION.—Flow past station controlled by operation of gates in dam above.

ACCURACY.—Stage-discharge relation permanent during the year. Rating curve well defined. Operation of water-stage recorder satisfactory, except December 19 to February 1 when no record was obtained. Daily discharge ascertained by applying to rating table the mean daily gage height determined from recorder graph. Reservoir gates were closed December 19 to February 1; discharge for this period, which represents leakage through the gates, was estimated. Records excellent.

Discharge measurements of Sevier River below Piute dam, near Marysvale, Utah, during the year ending Sept. 30, 1918.

[Made by J. J. Sanford.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*		*Feet.*	*Sec.-ft.*		*Feet.*	*Sec.-ft.*
Oct. 8	1.62	333	Apr. 10	1.26	245	July 1	1.90	525
Nov. 1	.80	121	16	1.26	235	20	1.88	502
Dec. 11	.32	57	22	1.74	381	Aug. 19	1.87	496
Jan. 8	(a)	1.5	May 10	2.02	578	Sept. 4	1.20	220
Mar. 11	.34	56	29	1.95	541	16	1.27	230

a Gage well dry. Discharge estimated.

Daily discharge, in second-feet, of Sevier River below Piute dam, near Marysvale, Utah, for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Feb.	Mar.	Apr	May.	June.	July.	Aug.	Sept.
1	428	125	33	15	29	212	601	538	517	497	358
2	386	116	13	28	29	212	601	531	510	490	297
3	381	101	8	28	29	214	601	531	510	484	237
4	381	104	6	28	29	214	601	531	504	484	231
5	376	107	6	28	29	220	594	524	504	490	234
6	368	109	6	29	29	231	594	524	504	497	245
7	363	111	6	29	44	231	594	517	497	510	245
8	358	114	5	29	58	231	594	517	497	504	242
9	354	118	9	29	58	234	594	517	497	497	234
10	345	120	27	29	58	234	594	531	497	490	234
11	341	121	48	29	58	234	594	545	497	484	237
12	337	125	58	29	58	234	594	545	497	478	239
13	334	125	60	29	58	234	594	545	497	471	248
14	330	121	61	29	58	234	594	538	497	471	245
15	322	111	48	29	58	234	587	531	497	465	228
16	307	111	34	29	58	248	587	531	497	458	228
17	294	111	29	29	61	297	587	531	497	465	231
18	281	112	23	29	61	318	587	524	497	510	225
19	269	114	.....	29	75	358	580	524	497	490	220
20	248	116	.....	29	93	418	580	524	497	484	217
21	231	116	.....	29	91	418	580	517	497	478	209
22	196	118	.....	29	90	412	580	524	497	478	199
23	165	120	.....	29	88	412	573	538	497	490	237
24	169	121	.....	29	104	412	566	538	510	484	272
25	169	121	.....	29	141	418	559	531	524	478	278
26	154	123	.....	29	141	418	559	531	524	478	251
27	121	125	.....	29	152	538	552	531	517	458	234
28	104	125	.....	29	167	608	545	524	510	465	220
29	111	127	.....	.....	167	608	545	524	510	471	212
30	116	96	.....	.....	209	601	545	524	504	434	212
31	121	.....	.....	.....	212	.....	545	.....	497	396	.....

NOTE.—Discharge estimated because of no gage-height record, Dec. 19–31, 2 second-feet; Jan. 1–10, 2 second-feet; Jan. 11–31, 1 second-foot; and Feb. 1, 15 second-feet.

Monthly discharge of Sevier River below Piute dam, near Marysvale, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	428	104	273	16,800
November	127	96	116	6,900
December	61	.....	16.3	1,000
January	.....	.....	1.32	81
February	29	15	28.4	1,580
March	212	29	83.6	5,140
April	608	212	330	19,600
May	601	545	581	35,700
June	545	517	529	31,500
July	524	497	503	30,900
August	510	396	478	29,400
September	358	199	240	14,300
The year	608	.....	266	193,000

SEVIER RIVER AT SEVIER, UTAH.

LOCATION.—In E. ½ sec. 32, T. 25 S., R. 4 W., at Sevier, Sevier County, 100 yards above railroad bridge on Y spur and 50 yards west of main-line track of Denver & Rio Grande Western Railroad. Clear Creek enters Sevier River immediately above station. Prior to November 15, 1916, Clear Creek entered Sevier River 45 yards below station.

DRAINAGE AREA.—2,850 square miles including Clear Creek which was diverted into Sevier River above this station on November 15, 1916; 2,700 square miles exclusive of Clear Creek. Areas measured on topographic maps.

RECORDS AVAILABLE.—May 20, 1911, to September 30, 1918.

GAGE.—Friez 8-day water-stage recorder on right bank, May 16, 1912, to September 30, 1918; inspected by F. H. Levi. Original gage, vertical staff nailed to cottonwood tree, May 20, 1911, to January 7, 1912, when carried out by ice; temporary gage, January 8 to February 23, 1912; inclined staff at same site as Friez water-stage recorder, February 24 to May 15, 1912.

DISCHARGE MEASUREMENTS.—Made from cable or by wading.

CHANNEL AND CONTROL.—Permanent except at sudden high stages.

EXTREMES OF DISCHARGE.—Maximum stage during year, from water-stage recorder, 3.73 feet at 5 p. m. June 15 (discharge, 870 second-feet); minimum stage, 1.34 feet at 6 p. m. December 9 (discharge, 23 second-feet).

1911–1918: Maximum stage recorded, 4.75 feet at 6 p. m. June 3, 1914 (discharge, 1,600 second-feet); minimum stage, 1.29 feet at 8 a. m. October 26, 1913 (discharge, 15 second-feet).

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

DIVERSIONS.—A few small ditches divert between the station and Piute dam.

REGULATION.—Flow past the station practically controlled by operation of gates in Piute dam, about 27 miles above.

ACCURACY.—Stage-discharge relation changing January 9 to April 6; permanent thereafter. Rating curves well defined. Water-stage recorder operated satisfactorily except for a few days during the winter. Daily discharge ascertained by applying to rating table the mean daily gage height determined from recorder graph. Shifting-control method used January 10 to April 5. Records good.

Discharge measurements of Sevier River at Sevier, Utah, during the year ending Sept. 30, 1918.

[Made by J. J. Sanford.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*		*Feet.*	*Sec.-ft.*		*Feet.*	*Sec.-ft.*
Oct. 6	2.87	399	Jan. 9	1.46	37	May 10	3.30	625
19	2.59	298	Mar. 9	1.72	83	28	3.24	603
30	2.03	142	Apr. 6	2.40	260	July 6	3.12	543
Dec. 13	1.64	59	20	2.90	416	30	3.10	524
						Sept. 7	2.41	264

Daily discharge, in second-feet, of Sevier River at Sevier, Utah, for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	500	138	50	39	65	66	278	626	580	560	502	398
2	461	138	44	39	68	66	274	626	620	555	502	370
3	438	133	44	42	71	68	271	626	620	550	502	316
4	430	124	36	42	75	69	255	631	636	545	502	260
5	421	124	34	42	66	68	252	631	648	535	498	257
6	408	124	35	42	61	75	260	636	670	530	493	257
7	399	124	34	42	63	71	278	636	664	530	502	257
8	399	127	30	44	61	82	287	631	658	530	506	260
9	395	129	25	39	63	91	287	631	664	530	502	260
10	391	130	44	29	65	93	290	620	670	535	493	254
11	378	131	52	34	61	97	294	615	708	540	484	251
12	374	131	63	39	63	113	290	610	724	535	480	248
13	370	131	75	44	60	131	294	610	724	530	475	248
14	362	122	87	34	52	107	290	605	736	530	475	248
15	350	116	82	42	61	105	290	605	758	560	470	248
16	350	116	68	52	52	105	290	610	758	565	462	248
17	338	120	61	51	42	101	300	610	724	550	452	246
18	324	124	58	54	63	99	330	615	702	545	493	246
19	302	127	51	52	61	99	343	620	691	540	502	243
20	288	127	41	52	57	122	394	620	702	535	502	237
21	271	129	39	52	65	136	439	620	686	545	488	229
22	245	131	37	53	63	138	439	620	664	575	484	213
23	220	134	41	54	65	141	439	620	658	565	480	205
24	192	138	44	55	66	143	434	626	648	570	475	232
25	192	141	39	56	65	163	426	620	631	575	475	275
26	192	141	45	57	63	198	406	620	605	566	484	281
27	171	141	41	57	65	198	406	620	595	557	475	278
28	141	141	39	58	57	201	466	595	580	548	462	263
29	140	141	40	73	.....	206	620	585	570	539	462	243
30	138	141	40	65	.....	209	626	585	560	530	452	243
31	138	.....	40	60	.....	249	.....	580	.....	511	422	.....

NOTE.—Discharge interpolated because of no gage-height record, Oct. 22–23, 29, Nov. 10, 17–18, 23–24, Nov. 28 to Dec. 1, Jan. 11–12, 23–26, Feb. 1–2, 9, 16, and July 26–29.

Monthly discharge of Sevier River at Sevier, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	500	138	314	19,300
November	141	116	130	7,740
December	75	25	47.1	2,900
January	73	29	48.2	2,960
February	75	42	62.1	3,450
March	249	66	123	7,560
April	626	252	352	20,900
May	636	580	616	37,900
June	758	560	662	39,400
July	575	511	546	33,600
August	506	422	482	29,600
September	398	205	260	15,500
The year	758	25	305	221,000

SEVIER RIVER NEAR RICHFIELD, UTAH.

LOCATION.—In sec. 32, T. 23 S., R. 2 W., 150 feet below Vermilion canal dam and 2 miles east of Richfield, Sevier County.

DRAINAGE AREA.—Not measured.

RECORDS AVAILABLE.—July 22 to September 30, 1916; April 21 to September 30, 1918, when station was discontinued.

GAGE.—Stevens continuous water-stage recorder on left bank, with inside and outside staff gages. Datum raised 3.00 feet on May 12, 1917.

DISCHARGE MEASUREMENTS.—Made by wading near gage.

CHANNEL AND CONTROL.—Bed composed of sand and gravel; subject to change during high stages.

EXTREMES OF DISCHARGE.—Not determined.

ICE.—Records discontinued during winter.

DIVERSIONS.—Many irrigation canals divert from river above station.

REGULATION.—Flow controlled by reservoirs upstream.

ACCURACY.—Stage-discharge relation variable April to September. Fairly well defined standard rating curve used with shifts to parallel curves. Rating for the year based on 13 discharge measurements. Operation of water-stage recorder satisfactory. Daily discharge ascertained by applying to rating table the mean daily gage height determined from recorder graph. Records good.

Discharge measurements of Sevier River near Richfield, Utah, during the period Oct. 1, 1917, to Oct. 2, 1918.

[Made by J. J. Sanford.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
1917.	*Feet.*	*Sec.-ft.*	1918.	*Feet.*	*Sec.-ft.*	1918.	*Feet.*	*Sec.-ft.*
Oct. 5	2.22	151	Apr. 12	1.86	116	July 30	0.24	5.0
18	1.67	85	19	.48	9.8	Aug. 22	.26	4.1
25	1.41	60	June 4	.23	1.6	Oct. 2	.50	11.9
Nov. 26	1.82	97	19	1.50	71			
Dec. 15	1.66	84	July 15	1.15	46.5			

Daily discharge, in second-feet, of Sevier River near Richfield, Utah, for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Apr.	May.	June.	July.	Aug.	Sept.
1	176	42	96	.....	4	8	10	5	3
2	174	41	89	.....	4	8	13	5	3
3	163	41	84	.....	4	5	16	5	3
4	153	35	80	214	4	2	16	4	3
5	149	35	80	252	6	2	16	4	4
6	130	32	78	214	8	2	15	4	4
7	100	32	80	207	1	2	14	4	4
8	98	32	77	209	1	2	15	4	4
9	89	32	79	186	1	2	15	7	4
10	96	32	54	180	2	3	18	6	5
11	144	32	34	196	3	12	18	6	4
12	144	31	56	149	5	22	18	9	4
13	141	31	.....	73	6	14	24	5	4
14	117	31	.....	49	7	11	44	5	4
15	82	31	.....	47	7	25	44	4	4
16	77	31	.....	42	5	62	43	4	4
17	79	31	.....	43	4	75	42	4	4
18	84	32	.....	44	4	69	27	4	4
19	82	32	.....	10	3	60	24	3	4
20	81	32	.....	11	16	45	21	4	4
21	78	32	.....	9	48	43	20	4	4
22	60	32	.....	9	25	32	21	4	5
23	58	50	.....	8	12	32	17	4	5
24	67	65	.....	6	11	30	13	4	6
25	59	85	.....	6	10	30	11	4	7
26	54	100	.....	5	10	32	9	4	8
27	50	99	.....	4	10	27	8	4	8
28	46	96	.....	4	9	25	7	4	8
29	42	99	.....	4	8	15	6	4	10
30	42	103	.....	6	8	10	5	3	11
31	43	.....	.....	.....	8	.....	5	3	.....

NOTE.—No record Nov. 23–25; discharge estimated.

Monthly discharge of Sevier River near Richfield, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	176	42	95.5	5,870
November	100	31	47.6	2,830
December 1–12	.....	.....	73.9	1,760
April 4–30	252	4	81.1	4,340
May	48	1	8.21	505
June	75	2	23.5	1,400
July	44	5	18.5	1,140
August	9	3	4.32	266
September	11	3	5.04	300

SEVIER RIVER NEAR VERMILION, UTAH.

LOCATION.—In NE. ¼ sec. 19, T. 22 S., R. 1 W., at highway bridge, half a mile below Rockyford dam, 2 miles below Vermilion, Sevier County, and 4 miles above mouth of Lost Creek.

DRAINAGE AREA.—3,340 square miles (measured on topographic maps).

RECORDS AVAILABLE.—July 15 to September 23, 1912; July 31, 1914, to September 30, 1918.

GAGE.—Stevens continuous water-stage recorder on right bank, April 20, 1917, to September 30, 1918; inspected by Mrs. Will Barron. Vertical staff on right bank, July 31, 1914, to April 19, 1917; original gage used in 1912, a quarter of a mile below.

DISCHARGE MEASUREMENTS.—Made by wading or from highway bridge.

CHANNEL AND CONTROL.—Fairly permanent.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 5.31 feet at 5 p. m. March 31 (discharge, 515 second-feet); minimum stage recorded, 3.14 feet from noon May 19 to 6 p. m. May 21 (discharge, 3.8 second-feet).

1912; 1914–1918: Maximum stage recorded, 6 feet at 4 p. m. November 25, 1916 (discharge, 941 second-feet); minimum stage recorded, 3.10 feet July 9, 10, 28, 31, and August 1, 1915 (discharge, 2 second-feet).

ICE.—Stage-discharge relation not affected by ice.

DIVERSIONS.—Entire flow diverted above station during low-water season; flow past the station at such times represents seepage and return flow from canals.

REGULATION.—Flow past station regulated to a large extent by dams and reservoirs above.

ACCURACY.—Stage-discharge relation changes between fairly close limits. Changes occurred in December, July, and September. Two well-defined rating curves used. Operation of water-stage recorder satisfactory except December 4–13, January 11–14, 21 and 22, February 2–15, and April 6–30; during these periods staff gage was read once a week. Daily discharge ascertained by applying to rating tables the mean daily gage height determined from recorder graph, and interpolating for days of no gage-height record. Shifting-control method used November 27 to December 3, July 13–31, and September 7–20. Records good.

Discharge measurements of Sevier River near Vermilion, Utah, during the year ending Sept. 30, 1918.

[Made by J. J. Sanford.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*		*Feet.*	*Sec.-ft.*		*Feet.*	*Sec.-ft.*
Oct. 5	4.64	224	Mar. 8	4.36	162	July 12	3.28	6.7
31	4.30	126	Apr. 4	4.75	272	Aug. 1	3.32	6.7
Nov. 26	4.51	180	May 6	3.38	11.8	Sept. 6	3.43	12.0
Dec. 14	4.52	194	June 5	3.26	6.7	21	3.45	15.9
Jan. 9	4.40	164	19	4.75	272			

Daily discharge, in second-feet, of Sevier River near Vermilion, Utah, for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	270	126	208	145	145	165	379	5.0	18	29	6.6	7.2
2	238	126	200	145	145	168	346	7.5	14	16	6.0	6.6
3	223	126	194	143	145	165	314	10	12	15	6.0	7.2
4	223	130	194	143	146	162	280	7.2	6.5	16	5.5	8.8
5	229	149	194	145	147	160	276	5.5	6.5	13	5.2	12
6	220	151	194	145	148	165	266	9.7	13	7.0	5.2	12
7	205	149	195	145	149	172	258	18	15	7.0	5.0	12
8	186	154	195	158	150	162	250	9.7	15	7.0	5.0	12
9	180	162	195	170	151	160	242	6.8	15	7.0	5.0	13
10	167	164	195	170	152	158	235	7.2	15	7.0	5.0	10
11	177	167	195	165	153	136	225	11	15	7.0	5.0	8.3
12	191	167	195	160	154	130	210	15	16	7.0	4.8	14
13	194	167	195	155	155	152	195	14	16	7.2	4.8	15
14	194	167	195	150	156	190	180	10	17	12	4.8	15
15	180	167	185	145	157	178	165	6.8	31	27	11	16
16	164	164	180	145	158	162	151	6.5	112	110	20	16
17	175	162	180	160	162	152	137	6.2	185	130	17	16
18	188	159	178	165	178	134	123	6.0	334	123	16	16
19	191	162	175	170	175	125	116	4.6	249	91	12	16
20	194	144	178	170	175	125	110	3.8	180	51	9.9	16
21	194	147	170	161	178	112	104	4.0	136	16	7.7	16
22	197	170	168	153	180	16	97	7.0	130	15	5.5	18
23	164	170	165	145	185	71	90	13	83	15	5.2	19
24	149	172	165	145	180	127	83	16	83	14	5.2	19
25	142	180	162	148	168	158	72	25	83	14	5.2	22
26	135	202	165	148	165	168	60	23	108	13	5.2	30
27	130	197	160	150	162	180	49	18	178	13	5.2	31
28	121	180	145	150	162	249	38	17	204	13	5.5	31
29	115	194	141	152	.....	234	27	19	170	15	5.5	32
30	117	205	138	155	.....	240	16	19	92	18	6.0	69
31	130	.....	145	155	.....	318	.....	19	.....	11	6.6	.....

Monthly discharge of Sevier River near Vermilion, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	270	115	180	11,100
November	205	126	163	9,700
December	208	138	179	11,000
January	170	143	153	9,410
February	185	145	160	8,890
March	318	16	161	9,900
April	379	16	170	10,100
May	23	3.8	11.3	695
June	334	6.5	85.1	5,060
July	130	7.0	27.3	1,680
August	20	4.8	7.18	442
September	69	6.6	17.9	1,070
The year	379	3.8	109	79,000

SEVIER RIVER BELOW SAN PITCH RIVER, NEAR GUNNISON, UTAH.

LOCATION.—In NE. ¼ sec. 14, T. 19 S., R. 1 W., half a mile below former gaging station at bridge on county road from Gunnison to West View precinct, 3 miles west of Gunnison, Sanpete County. San Pitch River enters from east 1,000 feet above station.

DRAINAGE AREA.—4,880 square miles (measured on topographic maps).

RECORDS AVAILABLE.—October 1, 1917, to September 30, 1918. Records of Sevier River near Gunnison were obtained above the confluence of San Pitch River June 29, 1900, to September 30, 1917. Combined flow of Sevier River near Gunnison with flow of San Pitch River near Gunnison is comparable with flow at present station.

GAGE.—Stevens continuous water-stage recorder on left bank; installed October 4, 1917; inspected by Malcolm Orr, October to June, and by Annetta Kenney, July to September.

DISCHARGE MEASUREMENTS.—Made from cable about 250 feet above gage or by wading.

CHANNEL AND CONTROL.—One channel at all stages. Bed is composed of fine sand and gravel. Stage of zero flow about −0.5 foot gage height.

EXTREMES OF DISCHARGE.—Maximum stage during year, from water-stage recorder, 2.63 feet at 8 p. m. March 12 (discharge, 876 second-feet). Minimum stage, 0.27 foot at 7 p. m. July 28 (discharge, 63 second-feet).

1900–1917: (At station above mouth of San Pitch River). Maximum stage recorded, 6.34 feet May 28, 1906 (discharge, 2,240 second-feet); stream dry April 30, 1911.

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

DIVERSIONS.—During irrigation season greater part of flow is diverted above station.

REGULATION.—Flow at gage is affected by operation of reservoirs and numerous irrigation diversions above.

ACCURACY.—Stage-discharge relation permanent except as affected by ice February 1 and 2. Rating curve well defined between 60 and 900 second-feet. Operation of water-stage recorder satisfactory. Daily discharge ascertained by applying to rating table the mean daily gage height determined from recorder graph, except for February 1 and 2, for which it was estimated on account of ice. Records good.

Discharge measurements of Sevier River below San Pitch River, near Gunnison, Utah, during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec. ft.*			*Feet.*	*Sec.-ft.*
Oct. 6	E. A. Porter [a]	1.62	387	June 5	E. A. Porter	0.70	133
29	do	1.32	279	24	do	.95	206
Nov. 24	do	1.47	326	July 3	do	.49	92
Jan. 4	J. J. Sanford	1.40	302	18	do	1.20	246
Mar. 15	E. A. Porter	2.60	866	23	do	1.34	290
30	do	1.87	484	29	do	.31	68
Apr. 19	do	1.15	251	Aug. 19	do	.61	127
29	do	.59	111	Sept. 14	do	.79	166

[a] Water commissioner.

Daily discharge, in second-feet, of Sevier River below San Pitch River, near Gunnison, Utah, for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	400	296	357	310	322	407	537	122	146	165	91	107
2	400	302	357	308	320	407	555	119	149	129	84	109
3	375	305	360	314	321	411	546	113	154	92	80	105
4	357	302	343	308	314	447	537	136	152	86	78	111
5	367	308	330	314	324	451	502	149	149	81	83	234
6	374	314	324	311	337	396	489	152	154	77	81	183
7	364	311	305	308	350	407	485	160	163	71	94	141
8	347	305	305	305	367	480	468	141	146	78	95	136
9	337	314	302	321	350	608	443	127	134	117	94	124
10	334	314	302	318	340	751	443	124	129	117	94	129
11	339	316	305	290	347	851	480	119	117	124	105	124
12	345	318	302	290	357	851	472	117	109	111	127	134
13	350	321	314	308	357	870	423	117	94	206	124	154
14	347	323	334	311	337	857	423	136	92	262	115	163
15	350	325	354	305	324	827	400	173	97	222	117	144
16	340	327	343	308	318	733	339	160	220	234	115	141
17	318	330	343	311	321	684	278	173	232	284	115	127
18	334	327	343	324	343	497	252	170	245	265	115	119
19	340	311	354	327	350	389	241	170	334	270	122	113
20	340	314	350	330	347	367	243	180	324	250	119	105
21	347	314	354	324	350	337	228	190	265	237	109	95
22	347	327	354	311	374	316	228	183	226	204	105	94
23	350	330	343	296	389	296	230	183	213	241	105	139
24	327	334	340	299	396	385	234	206	198	152	101	176
25	318	343	327	296	392	443	213	211	190	99	94	157
26	311	354	321	302	392	423	173	211	157	78	91	173
27	305	360	319	305	374	411	129	193	157	71	95	183
28	296	367	317	311	378	497	111	183	197	66	99	170
29	287	360	315	318	.....	524	109	152	220	71	101	157
30	281	367	314	324	.....	485	107	144	204	77	99	168
31	287	.....	312	324	.....	476	.....	149	.....	91	105	.....

NOTE.—No record Oct. 1–3, 11, 12; Nov. 11–15, Dec. 27 to Jan. 1, Mar. 22, Apr. 16, and Sept. 4, 5; discharge estimated Oct. 1–3 and Sept. 4 and 5; interpolated for other periods.

Monthly discharge of Sevier River below San Pitch River, near Gunnison, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	400	281	339	20,800
November	367	296	325	19,300
December	360	302	330	20,300
January	330	290	311	19,100
February	396	314	350	19,400
March	870	296	525	32,300
April	555	107	344	20,500
May	211	113	157	9,650
June	334	92	179	10,700
July	284	66	149	9,160
August	127	78	102	6,270
September	234	94	140	8,330
The year	870	66	271	196,000

SEVIER BRIDGE RESERVOIR NEAR JUAB, UTAH.

LOCATION.—In NW. ¼ sec. 1, T. 17 S., R. 2 W., at dam of Consolidated Sevier Bridge Reservoir Co., 13 miles southwest of Juab, Juab County.

RECORDS AVAILABLE.—January 1, 1914, to September 30, 1918.

GAGE.—Inclined staff gage about 100 feet upstream from south end of dam, since April 26, 1914; January 1 to April 25, 1914, elevations of water surface ascertained by measuring depth of water with a rule at a series of bench marks; these readings were checked at intervals with a wye level.

COOPERATION.—Gage-height record furnished by Consolidated Sevier Bridge Reservoir Co.

Daily gage height, in feet, of Sevier Bridge reservoir near Juab, Utah, for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	55.9	58.45	62.75	66.3	69.35	71.9	75.45	76.1	69.4	63.9	53.6	42.5
2	56.0	58.55	62.9	66.4	69.4	72.0	75.5	75.9	69.2	63.8	53.2	41.9
3	56.2	58.7	63.05	66.5	69.45	72.1	75.5	75.7	69.0	63.4	53.0	41.3
4	56.3	58.8	63.25	66.6	69.5	72.2	75.65	75.3	68.8	63.0	52.7	40.7
5	56.4	58.9	63.4	66.7	69.6	72.3	76.03	75.1	68.6	62.6	52.3	40.7
6	56.5	59.0	63.55	66.8	69.7	72.4	76.13	75.0	68.4	62.2	51.9	39.8
7	56.5	59.1	63.7	66.9	69.8	72.5	76.22	74.7	68.2	61.8	51.6	39.4
8	56.6	59.25	63.8	67.0	69.9	72.6	76.35	74.4	67.9	61.4	51.1	39.0
9	56.6	59.4	63.9	67.1	70.0	72.7	76.4	74.0	67.5	61.0	50.9	38.8
10	56.6	59.55	64.0	67.2	70.1	72.8	76.5	73.7	67.5	60.6	50.5	38.5
11	56.7	59.7	64.15	67.3	70.2	72.9	76.6	73.5	67.3	60.1	50.2	38.2
12	56.7	59.85	64.25	67.4	70.3	73.1	76.7	73.2	67.0	59.7	49.9	37.8
13	56.7	60.0	64.35	67.5	70.4	73.4	76.8	73.1	66.8	59.3	49.7	37.4
14	56.6	60.2	64.45	67.6	70.5	73.7	76.8	73.0	66.6	59.0	49.6	37.0
15	56.5	60.4	64.6	67.7	70.6	73.9	76.8	72.9	66.4	58.7	49.6	36.6
16	56.5	60.6	64.7	67.8	70.65	74.1	77.0	72.7	66.2	58.4	49.5	36.2
17	56.6	60.75	64.8	67.9	70.75	74.3	77.1	72.5	66.0	58.1	49.0	35.8
18	56.6	60.85	64.95	68.0	70.85	74.4	77.15	72.3	65.8	57.8	48.5	35.5
19	56.6	60.95	65.05	68.1	70.9	74.5	77.1	72.0	65.6	57.5	48.0	35.1
20	56.7	61.05	65.15	68.2	71.0	74.55	77.05	71.7	65.5	57.5	47.7	34.8
21	56.8	61.2	65.25	68.3	71.1	74.65	77.0	71.5	65.3	57.3	47.3	34.4
22	57.0	61.3	65.4	68.4	71.2	74.75	77.0	71.5	65.0	57.1	46.9	33.9
23	57.1	61.45	65.5	68.5	71.3	74.8	76.9	71.3	64.8	56.9	46.5	33.5
24	57.3	61.6	65.6	68.6	71.4	74.9	76.8	71.0	64.5	56.6	46.1	33.0
25	57.4	61.75	65.75	68.7	71.5	75.0	76.8	70.7	64.3	56.2	45.6	32.5
26	57.6	61.95	65.85	68.8	71.6	75.05	76.7	70.5	64.3	55.8	45.1	32.1
27	57.7	62.1	65.95	68.9	71.7	75.15	76.5	70.3	64.3	55.4	44.6	31.9
28	57.9	62.25	66.05	69.0	71.8	75.2	76.4	70.0	64.2	55.0	44.0	31.8
29	58.0	62.45	66.05	69.1	.....	75.3	76.3	69.9	64.1	54.6	43.5	31.8
30	58.15	62.6	66.1	69.2	.....	75.35	76.2	69.7	64.0	54.2	43.1	31.9
31	58.3	.....	66.2	69.25	.....	75.45	.....	69.6	.....	54.0	42.8	.....

SEVIER RIVER NEAR JUAB, UTAH.

LOCATION.—In NE. ¼ sec. 2, T. 17 S., R. 2 W., 1,600 feet downstream from Sevier Bridge dam and 14 miles southwest of Juab, Juab County.

DRAINAGE AREA.—5,120 square miles (measured on topographic maps).

RECORDS AVAILABLE.—September 23, 1911, to September 30, 1918.

GAGE.—Stevens continuous water-stage recorder on left bank, 500 feet below old gage, since April 16, 1914; inspected by G. O. Whitehead and F. M. Fisher. Inclined staff about 1,000 feet below Sevier Bridge dam, on right bank, September 23, 1911, to April 15, 1914.

DISCHARGE MEASUREMENTS.—Made from cable 600 feet above gage or by wading.

CHANNEL AND CONTROL.—One channel at all stages. Bed composed of sand, clay, and fine gravel. Artificial control of rocks about 40 feet below gage; permanent except during very high stages.

EXTREMES OF DISCHARGE.—Maximum stage during year, from water-stage recorder, 6.36 feet at 1 p. m. May 7 (discharge, 1,450 second-feet); minimum stage, 1.14 feet March 7 (discharge, zero).

1911–1918: Maximum stage recorded, 7.8 feet May 28, 29, and June 4–12, 1914 (discharge, 2,030 second-feet); minimum stage, 1.14 feet March 7, 1918 (discharge, zero).

ICE.—Stage-discharge relation not affected by ice.

DIVERSIONS.—None between this station and that near Gunnison.

REGULATION.—Flow controlled by gates in dam just above station.

ACCURACY.—Stage-discharge relation changed October 18 and June 26 to July 10. Three well-defined rating curves used, applicable October 1–18, October 19 to June 25, and July 11 to September 30; shifting-control method used June 26 to July 10. Operation of water-stage recorder satisfactory. Daily discharge ascertained by applying to rating table the mean daily gage height determined from recorder graph. Records good.

Discharge measurements of Sevier River near Juab, Utah, during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Oct. 5	E. A. Porter[a]	2.94	298	June 6	E. A. Porter	4.64	834
23	do	2.00	116	25	do	3.99	637
Nov. 20	do	1.60	46.9	July 11	do	5.19	1,040
Jan. 3	J. J. Sanford	1.60	48.4	31	do	4.10	677
Mar. 23	E. A. Porter	1.25	4.8	Aug. 12	do	3.50	505
Apr. 22	do	2.98	351	Sept. 18	do	3.78	570
May 8	do	6.32	1,440	28	do	2.26	181
14	do	4.50	773				

[a] Water commissioner.

Daily discharge, in second-feet, of Sevier River near Juab, Utah, for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	326	78	5	48	3	4	4	770	817	472	685	749
2	326	78	4	48	2	4	5	921	821	571	635	749
3	329	78	4	48	4	4	5	1,020	827	948	563	743
4	329	78	2	48	2	2	6	1,110	821	976	602	736
5	308	78	2	30	2	1	6	1,140	821	897	641	739
6	297	78	2	4	2	1	7	1,320	824	890	638	720
7	297	78	2	4	2	0	7	1,430	837	894	637	626
8	297	75	2	4	2	4	7	1,420	834	980	632	578
9	295	75	2	4	1	3	7	1,290	808	976	611	537
10	295	73	2	4	2	4	7	1,260	773	1,040	555	503
11	295	72	2	4	2	2	7	1,170	718	1,040	506	495
12	359	72	2	4	2	2	7	934	657	1,040	484	563
13	481	70	2	4	3	3	5	773	646	999	372	575
14	498	67	22	4	4	4	6	783	660	797	467	578
15	495	49	48	4	4	4	6	791	727	794	428	584
16	318	35	48	4	4	4	6	783	847	739	517	593
17	313	42	48	4	2	4	78	802	860	679	675	587
18	308	51	48	4	2	4	214	847	880	679	733	587
19	112	49	48	4	2	5	251	897	847	679	698	584
20	98	48	48	4	3	4	343	945	814	675	666	581
21	116	48	48	4	4	2	249	964	779	675	644	620
22	116	48	48	4	4	3	265	1,010	742	672	714	669
23	106	32	48	4	3	5	441	1,090	712	672	743	666
24	68	18	48	5	4	5	492	1,080	669	669	739	659
25	67	15	48	5	4	5	524	1,060	524	666	752	629
26	68	14	48	4	5	4	589	914	362	662	762	551
27	68	15	48	3	4	5	622	867	447	662	743	442
28	73	10	48	2	4	5	619	844	515	695	739	226
29	78	9	48	3	.....	6	619	830	518	698	733	125
30	78	8	48	3	.....	5	663	817	498	685	736	107
31	78	.....	48	3	.....	5	.....	814	.....	685	749	.....

Monthly discharge of Sevier River near Juab, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	498	67	235	14,400
November	78	8	51.4	3,060
December	48	2	28.1	1,730
January	48	2	10.4	640
February	5	1	2.93	163
March	6	0	3.65	224
April	663	4	202	12,000
May	1,430	770	990	60,900
June	880	362	720	42,800
July	1,040	472	781	48,000
August	762	372	639	39,300
September	749	107	570	33,900
The year	1,430	0	355	257,000

SEVIER RIVER NEAR MILLS, UTAH.

LOCATION.—In SW. ¼ sec. 36, T. 14 S., R. 3 W., opposite milepost 682 on Los Angeles & Salt Lake Railroad (Lynndyl cut-off) and 7 miles below Mills post office, Juab County.

DRAINAGE AREA.—5,800 square miles (measured on topographic maps).

RECORDS AVAILABLE.—April 22, 1914, to January 10, 1918, when station was discontinued.

GAGE.—Stevens continuous water-stage recorder, with outside and inside staff gages, on left bank 500 feet above railroad bridge.

DISCHARGE MEASUREMENTS.—Made from cable 100 feet above gage or by wading.

CHANNEL AND CONTROL.—One channel at all stages. Bed is composed of heavy gravel and rock; permanent.

EXTREMES OF DISCHARGE.—1914-1917: Maximum stage recorded, 6.71 feet at 7 p. m. May 27, 1914 (discharge, 1,910 second-feet); minimum stage, 3.14 feet at 2 p. m. January 12, 1916 (discharge, 36 second-feet).

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

REGULATION.—Flow affected by operation of several storage reservoirs and irrigation diversions above.

ACCURACY.—Stage-discharge relation permanent. Rating curve fairly well defined. Gage-height record from water-stage recorder satisfactory. Daily discharge ascertained by applying to rating table the mean daily gage height determined from recorder graph. Records good.

Discharge measurements of Sevier River near Mills, Utah, during the period Oct. 1, 1917, to Jan. 10, 1918.

Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*
Oct. 19	E. A. Porter	4.62	330
Jan. 3	J. J. Sanford	3.76	96

Daily discharge, in second-feet, of Sevier River near Mills, Utah, for the period Oct. 1, 1917, to Jan. 10, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Day.	Oct.	Nov.	Dec.	Jan.	Day.	Oct.	Nov.	Dec.	Jan.
1	405	129	64	100	11	374	116	59	.....	21	167	100	97	.....
2	405	127	63	98	12	364	116	62	.....	22	179	100	98	.....
3	396	127	63	97	13	478	118	62	.....	23	175	101	98	.....
4	387	127	63	97	14	553	114	57	.....	24	158	93	100	.....
5	400	129	63	98	15	564	92	57	.....	25	131	75	100	.....
6	382	129	63	98	16	521	89	80	.....	26	120	74	100	.....
7	374	129	61	84	17	392	87	90	.....	27	114	71	101	.....
8	374	124	60	64	18	392	90	92	.....	28	114	71	101	.....
9	374	116	60	63	19	334	100	93	.....	29	127	71	101	.....
10	374	116	59	63	20	175	100	97	.....	30	129	66	100	.....
										31	129	.....		.....

Monthly discharge of Sevier River near Mills, Utah, for the period Oct. 1, 1917, to Jan. 10, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	564	114	308	18,900
November	129	66	103	6,130
December	101	57	79.5	4,890
January 1–10	100	63	86.2	1,710
The period				31,600

SEVIER RIVER NEAR LYNNDYL, UTAH.

LOCATION.—In SE. ¼ sec. 27, T. 15 S., R. 5 W., at homestead of P. J. Flahive, 3½ miles southwest of Lynndyl, Millard County.

DRAINAGE AREA.—6,270 square miles (measured on topographic maps).

RECORDS AVAILABLE.—April 25, 1914, to September 30, 1918.

GAGE.—Stevens continuous water-stage recorder on right bank, with inside and outside staff gages, 1½ miles below highway bridge; inspected by Rupert Morrill.

DISCHARGE MEASUREMENTS.—Made by wading or from cable a quarter of a mile above gage.

CHANNEL AND CONTROL.—One channel at all stages. Bed composed of fine gravel. Control permanent except for very high stages.

EXTREMES OF DISCHARGE.—Maximum stage during year, from water-stage recorder, 6.20 feet from 10 a. m. to 11 p. m. May 9 (discharge, 1,200 second-feet); minimum occurred during period when stage-discharge relation was affected by ice.

1914–1918: Maximum discharge recorded, June 9, 1914 (flow estimated 1,820 second-feet); minimum stage, 1.55 feet at 6 a. m. January 6, 1916 (discharge, 21 second-feet).

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

DIVERSIONS.—Numerous diversions above station.

REGULATION.—Flow affected by storage and irrigation diversions above station.

ACCURACY.—Stage-discharge relation changed slightly in May; affected by ice January 10–20. Two well-defined rating curves used, applicable October 1 to May 8, and May 11 to September 30; shifting-control method used May 9 and 10. Operation of water-stage recorder satisfactory, except November 16 to January 3, and January 21 to March 18. Daily discharge ascertained by applying to rating table the mean daily gage height determined from recorder graph. Discharge November 16 to March 18 estimated from discharge measurements, comparison with record of flow of Sevier River at Leamington, collected by the water commissioner for lower Sevier River, weather records, and a few recorded gage heights. Records good.

COOPERATION.—Gage-height record and discharge measurements furnished by Lower Sevier River Water Users.

Discharge measurements of Sevier River near Lynndyl, Utah, during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Oct. 10	E. A. Porter	2.62	163	Mar. 24	E. A. Porter	1.93	62
Jan. 4	J. J. Sanford	2.28	112	July 2	do	3.30	296
Mar. 17	W. L. Lackyard	2.44	134	Aug. 2	do	3.84	431

Daily discharge, in second-feet, of Sevier River near Lynndyl, Utah, for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	252	141					61	609	535	306	436	565
2	218	141		107			62	656	535	294	436	565
3	208	150	76			55	63	764	535	282	422	520
4	187	158		107			64	844	520	436	370	520
5	187	150		107			64	943	520	655	344	520
6	187	141		107			64	960	506	625	357	506
7	168	141		96			62	994	520	625	357	520
8	168	141		80			63	1,130	520	610	344	492
9	168	135		74			63	1,200	520	685	344	464
10	158	128	65			50	61	1,150	506	717	344	436
11	158	127					60	1,090	478	795	331	436
12	158	127					60	1,050	464	828	306	344
13	158	133	70				61	860	383	828	294	306
14	229	141	70	80	55	52	63	701	357	815	282	318
15	275	133					63	640	370	655	226	344
16	299						63	625	436	580	237	357
17	240					175	62	595	535	550	196	370
18	177					150	61	595	520	478	318	370
19	177	105	65	60		62	187	640	535	464	396	370
20	168					68	240	685	550	450	409	370
21	125			55		52	323	749	565	450	436	370
22	110					57	348	895	535	450	436	383
23	110					72	335	781	506	436	464	450
24	102					60	360	749	492	436	535	506
25	118	107	100	35		58	438	749	464	422	550	520
26	168		130			58	465	828	422	422	535	520
27	133		115	45		61	506	765	344	422	550	506
28	125			40		72	564	655	318	422	535	506
29	133	80	107	40	.....	72	579	580	318	436	535	410
30	141	80		45	.....	67	579	550	306	450	520	259
31	150	.....		35	.....	64	.....	535	.....	450	520	.....

Monthly discharge of Sevier River near Lynndyl, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	299	102	173	10,600
November	.....	.....	121	7,200
December	.....	.....	77.4	4,760
January	.....	.....	70.4	4,330
February	.....	.....	55	3,050
March	.....	.....	64.0	3,940
April	579	60	201	12,000
May	1,200	535	792	48,700
June	565	306	470	28,000
July	828	282	531	32,600
August	550	196	399	24,500
September	565	259	437	26,000
The year	1,200	.....	284	206,000

SEVIER RIVER NEAR DELTA, UTAH.

LOCATION.—In NW. ¼ sec. 27, T. 16 S., R. 6 W., 1½ miles below Delta spillway and 6½ miles northeast of Delta, Millard County.

DRAINAGE AREA.—7,380 square miles (measured on topographic maps).

RECORDS AVAILABLE.—May 16 to September 24, 1912; March 1, 1913, to September 30, 1918.

GAGE.—Stevens continuous water-stage recorder on left bank; installed March 24, 1918; inspected by W. L. Lackyard. Gurley water-stage recorder at same site, March 1, 1913, to January 15, 1918. Inclined staff gage used prior to March 1, 1913.

DISCHARGE MEASUREMENTS.—Made from cable about 100 feet below gage or by wading.

CHANNEL AND CONTROL.—One channel at all stages. Bed composed of firm clay and hardpan. Right bank may be overflowed at extremely high stages.

EXTREMES OF DISCHARGE.—Maximum stage during year, from water-stage recorder, 3.46 feet from 6 p. m. to midnight May 12 (discharge, 602 second-feet). Minimum stage, 0.50 foot from 5 p. m. August 9 to 12 p. m. August 10 (discharge, 31 second-feet).

1912–1918: Maximum stage recorded, 6.82 feet May 31, 1914 (discharge, 1,470 second-feet); minimum discharge, 15 second-feet July 26, 1914, and November 1, 1916.

ICE.—Stage-discharge relation affected by ice at times.

DIVERSIONS.—Canal A of the Delta project takes out water 1½ miles above station.

REGULATION.—Flow at station controlled by regulation of Delta spillway and Sevier Bridge reservoir.

ACCURACY.—Stage-discharge relation changed November 20; permanent thereafter. Rating curves well defined. Operation of water-stage recorder satisfactory except October 29–31, and January 16 to March 23, when no gage-height record was obtained. Daily discharge ascertained by applying to rating table the mean daily gage height determined from recorder graph. Discharge interpolated October 29–31. Discharge January 16 to March 23 estimated from water commissioner's notes, meter measurements, and comparison with flow of Sevier River at Oasis. Records good.

Discharge measurements of Sevier River near Delta, Utah, during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Oct. 11	E. A. Porter [a]	0.90	67	May 8	W. L. Lackyard	2.96	491
Nov. 22	do	1.56	182	26	do	1.92	252
Jan. 4	J. J. Sanford	1.10	104	29	E. A. Porter	1.98	274
Mar. 17	W. L. Lackyard [b]	.78	60	July 3	W. L. Lackyard	1.35	136
24	do	.84	68	14	do	1.36	146
Apr. 24	E. A. Porter	1.28	132	Aug. 1	E. A. Porter	1.34	137
28	W. L. Lackyard	1.58	200	Sept. 1	do	1.72	219

[a] Water commissioner. [b] Deputy water commissioner.

Daily discharge, in second-feet, of Sevier River near Delta, Utah, for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	120	67	73	104	.....	68	214	243	216	140	215
2	105	57	72	104	.....	67	208	239	185	122	215
3	81	59	66	104	.....	70	224	239	142	110	208
4	80	67	62	104	.....	68	322	235	137	112	206
5	77	67	63	104	.....	68	354	235	232	112	210
6	75	67	64	104	.....	67	387	232	387	124	140
7	74	67	64	98	.....	67	437	241	400	80	127
8	70	68	63	91	.....	67	474	239	400	68	145
9	70	68	63	77	.....	64	537	239	400	35	154
10	60	70	62	67	.....	62	512	230	412	31	180
11	66	73	61	62	.....	62	387	241	462	212	178
12	66	77	61	63	.....	61	537	230	387	237	176
13	64	64	63	70	.....	60	537	230	276	224	165
14	64	52	64	63	.....	63	299	204	187	200	138
15	60	47	66	63	.....	59	220	198	387	206	108
16	62	47	68	.....	.....	45	235	195	308	210	132
17	67	48	72	.....	60	72	226	222	296	178	114
18	66	52	97	.....	.....	72	214	254	270	204	79
19	73	75	110	.....	.....	67	220	157	222	198	76
20	66	94	107	.....	.....	70	230	83	157	198	79
21	64	142	100	.....	.....	70	243	77	110	204	138
22	66	189	96	.....	.....	84	254	124	124	202	132
23	66	56	94	.....	.....	125	250	122	124	204	147
24	66	58	93	.....	68	130	239	124	124	202	144
25	67	64	96	.....	67	138	250	110	132	216	181
26	67	80	101	.....	63	157	246	103	191	210	112
27	66	97	110	.....	68	180	292	130	198	210	116
28	70	89	112	.....	72	185	306	130	178	214	125
29	69	80	107	.....	72	193	268	132	165	202	159
30	68	75	107	.....	72	208	248	138	159	204	154
31	67	.....	106	.....	72	.....	237	.....	149	210	.....

NOTE.—Discharge estimated Jan. 16–31, 65 second-feet; Feb. 1–28, 62 second-feet; Mar. 1–16, 60 second-feet; and Mar. 18–23, 64 second-feet.

Monthly discharge of Sevier River near Delta, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	120	60	71.0	4,370
November	189	47	73.9	4,400
December	112	61	82.0	5,040
January	104	.....	74.8	4,600
February	.....	.....	62	3,440
March	.....	.....	63.2	3,890
April	208	45	92.3	5,490
May	537	208	310	19,100
June	254	77	186	11,100
July	462	110	242	14,900
August	237	31	170	10,500
September	212	76	148	8,810
The year	537	31	146	95,600

GUNNISON BEND RESERVOIR NEAR DELTA, UTAH.

LOCATION.—In sec. 15, T. 17 S., R. 7 W., at south end of reservoir, near head of Deseret canal and 2 miles west of Delta, Millard County.

RECORDS AVAILABLE.—Irrigation seasons 1914 to 1918.

GAGE.—Chain gage established June 19, 1914; readings represent depth of water on gate sill. Depths were measured directly with graduated pole prior to June 19, 1914.

Daily gage height, in feet, of Gunnison Bend reservoir near Delta, Utah, for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	12.42			9.90				11.65	11.75	10.10	11.30	11.15
2								11.55	11.62	9.80	11.00	11.20
3	12.32						12.00	11.30	11.60	9.40	10.70	11.28
4	12.16		9.60					11.02	11.60	8.92	10.36	11.32
5	12.02							10.86	11.65	8.55	10.00	11.40
6	11.90							10.90	11.60	8.55	9.75	11.50
7	11.80							10.92	11.55	9.05	9.40	11.45
8	11.65							11.00	11.45	9.50	9.00	11.42
9	11.50						11.55	11.10	11.40	9.90	8.72	11.46
10	11.35							11.45	11.40	10.15	8.30	11.52
11	11.18	10.80	9.55					11.60	11.35	10.52	7.90	11.65
12	10.98							12.02	11.37	11.00	8.32	11.78
13								12.61	11.38	11.25	8.75	11.85
14	10.43						11.85	12.58	11.45	11.30	9.00	11.92
15	10.20						11.90	12.30	11.42	11.38	9.28	11.92
16	9.92						11.90	12.10	11.38	11.98	9.47	11.90
17							11.92	11.90	11.38	12.20	9.72	11.90
18			9.45					11.70		12.52	9.90	11.82
19	9.60						11.95	11.50	11.70	12.65	10.00	11.70
20							11.95	11.45	11.95	12.68	10.10	11.48
21							11.97	11.35	12.05	12.55		11.30
22		11.20	9.70			10.55	11.98	11.48	12.22	12.31	10.30	
23							12.00	11.51	12.40	12.10	10.30	11.55
24	9.50				9.45		12.05	11.55	12.60	12.02	10.36	11.80
25						11.25	11.92		12.60	11.90	10.50	12.05
26		9.70				11.35	11.80	11.52		11.85	10.68	12.35
27							11.75		12.20	11.85	10.80	12.50
28							11.75	11.85	11.78	11.90	10.95	12.65
29	9.62					11.90	11.75	11.98	11.20	11.83	11.02	12.52
30						11.95	11.71	11.95	10.70	11.72	11.05	12.70
31			9.90			11.95		11.88		11.55	11.10	

SEVIER RIVER AT OASIS, UTAH.

LOCATION.—In E. ½ sec. 33, T. 17 S., R. 7 W., three-quarters of a mile northwest of Oasis, Millard County, and 1½ miles below county bridge, locally known as Hinckley Bridge.

DRAINAGE AREA.—8,080 square miles (measured on topographic maps).

RECORDS AVAILABLE.—April 13, 1912, to September 30, 1918.

GAGE.—Stevens continuous water-stage recorder on left bank since April 24, 1914; inspected by E. F. Sanders. Vertical staff on county bridge, in SW. ¼ sec. 22, T. 17 S., R. 7 W., April 13, 1913, to April 23, 1914; datum of vertical staff raised 0.15 foot December 19, 1913.

DISCHARGE MEASUREMENTS.—Made from county bridge or by wading.

CHANNEL AND CONTROL.—Two channels at extremely high water, one channel at low and medium stages. Bed composed of sand with slight vegetal growth. Control is usually permanent during irrigation season.

EXTREMES OF DISCHARGE.—Maximum stage during year, from water-stage recorder, 4.85 feet at 7 p. m. November 22 (discharge, 327 second-feet); minimum discharge, 13.3 second-feet by meter measurement on May 3.

1912–1918: Maximum stage recorded, 9.45 feet June 12, 1914 (discharge, 1,580 second-feet); minimum discharge, 0.5 second-foot, May 13–19, 1912.

ICE.—Stage-discharge relation at times affected by ice.

DIVERSIONS.—Numerous diversions above station take practically entire flow during irrigation season; water passing gage at such times is largely seepage or return water entering below Gunnison Bend reservoir.

REGULATION.—Flow controlled by storage reservoirs and diversion dams above station.

ACCURACY.—Stage-discharge relation for low stages changed April 4, April 29 to May 2, and May 14; permanent for stages above 35 second-feet. Rating curves well defined. Operation of water-stage recorder satisfactory except June 3–10 when no gage-height record was obtained. Discharge for this period estimated. Daily discharge ascertained by applying to rating table the mean daily gage height determined from recorder graph. Shifting-control method used April 29 to May 2. Records good.

Discharge measurements of Sevier River at Oasis, Utah, during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Nov. 1	W. L. Lackyard[a]	2.10	32.2	Apr. 28	W. L. Lackyard	1.66	19.3
Dec. 16	do	2.75	72.	May 3	E. A. Porter[b]	1.62	13.3
Jan. 4	J. J. Sanford	3.22	121.	June 2	W. L. Lackyard	1.86	25.2
Mar. 24	W. L. Lackyard	1.62	15.0	30	do	1.72	21.9

[a] Deputy water commissioner. [b] Water commissioner.

Daily discharge, in second-feet, of Sevier River at Oasis, Utah, for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	38	33	106	116	65	44	42	16	23	20	26	27
2	36	34	106	116	63	48	49	15	26	20	26	29
3	37	33	96	116	67	55	66	14	.....	20	26	30
4	38	36	93	116	67	55	106	15	.....	21	25	31
5	37	40	90	116	68	61	106	17	.....	23	25	33
6	27	43	79	116	67	65	86	19	.....	25	26	32
7	24	42	62	116	69	65	83	18	.....	24	24	33
8	30	36	64	116	73	64	76	20	.....	24	24	28
9	36	33	66	116	73	64	57	22	.....	24	24	29
10	36	32	69	106	71	62	34	23	.....	24	22	29
11	36	42	69	106	68	65	38	20	23	26	22	29
12	36	65	69	92	69	65	32	20	23	25	20	31
13	36	69	71	92	69	69	28	116	23	27	19	35
14	24	69	73	85	68	65	31	111	23	26	20	35
15	29	73	73	81	69	65	32	27	23	23	19	33
16	34	75	73	80	68	65	27	23	22	25	19	30
17	34	72	72	80	68	65	19	22	22	28	20	28
18	34	73	74	79	68	66	16	23	22	33	20	29
19	33	69	77	80	70	68	16	24	23	42	21	29
20	33	69	82	81	68	77	15	26	22	40	23	26
21	33	71	92	79	69	58	16	23	23	38	22	25
22	40	251	101	77	70	22	20	23	25	29	26	28
23	40	278	106	77	72	16	22	23	35	29	26	32
24	38	199	106	76	53	16	21	24	36	30	28	30
25	35	144	106	75	32	15	23	23	28	30	23	26
26	34	116	101	73	33	15	22	24	26	29	23	28
27	34	94	101	71	37	17	19	25	22	28	26	34
28	37	93	106	69	40	17	20	25	24	28	26	92
29	35	93	111	68	.....	17	18	25	22	27	28	144
30	33	101	116	67	.....	26	16	25	21	28	26	144
31	33	.....	116	68	.....	39	.....	24	.....	29	26	.....

NOTE.—No gage-height record June 3–10; discharge estimated 24 second-feet.

Monthly discharge of Sevier River at Oasis, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	40	24	34.2	2,100
November	278	32	82.6	4,920
December	116	62	87.9	5,400
January	116	67	90.5	5,560
February	73	32	63.4	3,520
March	77	15	48.7	2,990
April	106	15	38.5	2,290
May	116	14	27.6	1,700
June	36	21	24.3	1,450
July	42	20	27.3	1,680
August	28	19	23.6	1,450
September	144	25	39.6	2,360
The year	278	14	48.5	35,400

HATCH BENCH CANAL NEAR HATCH, UTAH.

LOCATION.—In NW. ¼ sec. 1, T. 37 S., R. 6 W., half a mile below head of canal and 3½ miles southwest of Hatch, Garfield County, on road to sawmill.

RECORDS AVAILABLE.—May 15, 1914, to September 30, 1918; irrigation seasons only.

GAGE.—Stevens continuous water-stage recorder, August 7, 1917, to September 30, 1918; inspected by H. S. Barnhurst. Original gage was vertical staff nailed to side of wooden flume just below waste gate. Water-stage recorder installed at same location and datum.

DISCHARGE MEASUREMENTS.—Made by wading about 100 feet below gage.

CHANNEL AND CONTROL.—Channel is rectangular flume section, 4 feet wide at gage. Permanent control is afforded by free fall at lower end of flume.

DIVERSIONS.—None; this is the only important diversion from Mammoth Creek above the gaging station, except the one at Panguitch Lake.

REGULATION.—Flow controlled by headgates.

ACCURACY.—Stage-discharge relation permanent after May 26. Rating curve well defined. Operation of water-stage recorder satisfactory. Daily discharge ascertained by applying to rating table the mean daily gage height determined from recorder graph; shifting-control method used May 23–26. Discharge interpolated May 15–22 and August 27. Records good.

Canal diverts water from Mammoth Creek, probably in sec. 3, T. 37 S., R. 6 W. Water is used for irrigation around Hatch.

Discharge measurements of Hatch Bench canal near Hatch, Utah, during the year ending Sept. 30, 1918.

[Made by J. J. Sanford.

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*		*Feet.*	*Sec.-ft.*
May 14	0.64	7.1	July 9	1.10	18.6
23	1.02	15.5	Aug. 7	1.02	17.3
30	.92	13.9	28	.88	13.3
June 13	1.10	18.7			

Daily discharge, in second-feet, of Hatch Bench canal near Hatch, Utah, for the year ending Sept. 30, 1918.

Day.	May.	June.	July.	Aug.	Sept.	Day.	May.	June.	July.	Aug.	Sept.
1	.....	16	11	9	12	16	9	20	6.8	19	6.6
2	.....	16	18	10	11	17	10	20	6.7	18	6.6
3	.....	18	19	15	10	18	11	18	6.6	17	6.6
4	.....	22	20	14	19	19	12	19	6.6	16	6.4
5	.....	22	21	13	11	20	13	19	8	16	6.4
6	.....	22	20	14	9	21	14	15	7.4	16	6.4
7	.....	22	20	16	8.2	22	15	15	7.2	16	6.2
8	.....	20	20	16	9	23	16	14	7	16	13
9	.....	18	19	17	7.8	24	18	10	7	15	12
10	.....	18	15	18	7.4	25	17	8.8	8	14	11
11	.....	18	7.8	20	7	26	16	11	9	14	10
12	.....	21	6.7	20	6.7	27	16	16	12	13	9.6
13	.....	19	6.7	20	6.7	28	18	14	17	12	9
14	7	19	6.6	20	6.6	29	18	12	18	12	8.8
15	8	21	6.7	19	6.6	30	18	11	13	12	8.8
						31	16	.....	9.2	11	.....

Monthly discharge of Hatch Bench canal near Hatch, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
May 14–31	18	.....	14.0	500
June	22	8.8	17.2	1,020
July	21	6.6	11.8	726
August	20	9.0	15.4	947
September	14	6.2	8.68	516
The period	.....	.....	.....	3,710

STATE CANAL NEAR PANGUITCH, UTAH.

LOCATION.—In NW. ¼ sec. 2, T. 35 S., R. 5 W., three-quarters of a mile below head of canal and 3½ miles southeast of Panguitch, Garfield County.

RECORDS AVAILABLE.—May 3, 1913, to September 30, 1918; irrigation seasons only.

GAGE.—Stevens continuous water-stage recorder on right bank at upper end of flume. Gage used May 3 to September 30, 1913, was a vertical staff nailed to right side of flume 15 feet from north or lower end. Zero of gage is grade of flume.

DISCHARGE MEASUREMENTS.—Made from plank across flume or by wading.

CHANNEL AND CONTROL.—Wooden flume section; canal bed above and below flume composed of clean gravel; grade of flume about 0.4 foot below that of canal. Concrete cut-off wall at head of flume serves as control.

DIVERSIONS.—None above station.

REGULATION.—Flow controlled by headgates.

ACCURACY.—Stage-discharge relation permanent after June 26; variable May 15 to June 25. Rating curve well defined for use June 26 to September 30; parallel curves through single measurements, and indirect method used May 15 to June 25. Operation of water-stage recorder satisfactory. Daily discharge ascertained by applying to rating table the mean daily gage height determined from recorder graph. Records good.

Records indicate amount of water diverted from Sevier River for the Hatchtown project of the Utah State Land Board. Canal diverts water from Sevier River in sec. 14, T. 35 S., R. 5 W. The water is used for irrigation northeast of Panguitch.

Discharge measurements of State canal near Panguitch, Utah, during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Oct. 9	J. J. Sanford	0.72	27.9	July 23	J. J. Sanford	0.65	24.0
May 30	do	1.12	54	Aug. 7	do	.64	24.9
June 12	do	1.16	59	20	do	.69	27.0
26	Purton and Sanford	1.09	59	Sept. 10	do	.67	26.1
July 8	J. J. Sanford	1.00	51				

Daily discharge, in second-feet, of State canal near Panguitch, Utah, for the year ending Sept. 30, 1918.

Day.	May.	June.	July.	Aug.	Sept.	Day.	May.	June.	July.	Aug.	Sept.
1	.....	58	32	27	27	16	8	58	16	28	26
2	.....	61	31	27	27	17	12	58	27	28	25
3	.....	61	30	26	27	18	13	59	26	28	25
4	.....	61	31	24	29	19	13	60	26	28	24
5	.....	62	32	24	27	20	13	61	26	27	24
6	.....	62	33	24	27	21	12	60	27	27	24
7	.....	62	48	24	27	22	12	59	27	27	25
8	.....	62	48	24	27	23	7	61	26	27	39
9	.....	61	21	24	27	24	5	58	26	26	32
10	.....	58	10	24	26	25	33	59	26	26	30
11	.....	56	8	24	26	26	46	58	26	26	29
12	.....	57	8	10	26	27	46	48	26	25	28
13	.....	60	7	9	26	28	59	31	26	25	27
14	.....	60	7	18	26	29	59	32	29	26	26
15	1	58	7	29	26	30	57	32	27	26	26
						31	55	.....	27	26	.....

Monthly discharge of State canal near Panguitch, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
May 15-31	59	1	26.5	895
June	62	31	56.4	3,360
July	48	7	24.7	1,520
August	29	9	24.6	1,510
September	39	24	27.0	1,610
The period				8,900

LONG CANAL NEAR PANGUITCH, UTAH.

LOCATION.—In W. ½ sec. 2, T. 35 S., R. 5 W., 1¼ miles below head of canal and 3½ miles southeast of Panguitch, Garfield County.

RECORDS AVAILABLE.—May 8, 1914, to September 30, 1918; irrigation seasons only.

GAGE.—Stevens continuous water-stage recorder with outside and inside staff gages.

DISCHARGE MEASUREMENTS.—Made by wading.

CHANNEL AND CONTROL.—Earth and gravel section. Wooden flume and diversion box just below gage.

DIVERSIONS.—East Bench canal diverts water a few feet below gage.

REGULATION.—Flow controlled by headgates.

ACCURACY.—Stage-discharge relation variably affected by backwater from headgates of East Bench canal. Rating curve well defined. Shifting-control methods used July 23 to September 30. Operation of water-stage recorder satisfactory. Daily discharge ascertained by applying to rating table the mean daily gage height determined from recorder graph. Records good.

Canal diverts water from Sevier River in sec. 11, T. 35, S., R. 5 W. The water is used for irrigation around Panguitch.

Discharge measurements of Long canal near Panguitch, Utah, during the year ending Sept. 30, 1918.

[Made by J. J. Sanford.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*		*Feet.*	*Sec.-ft.*		*Feet.*	*Sec.-ft.*
Oct. 9	1.24	51	June 26	1.24	54	Aug. 7	1.14	41.4
May 23	1.74	90	July 8	.94	34.8	20	.97	38.1
30	1.52	73	23	1.08	41.3	Sept. 10	1.08	40.9

Daily discharge, in second-feet, of Long canal near Panguitch, Utah, for the year ending Sept. 30, 1918.

Day.	Oct.	May.	June.	July.	Aug.	Sept.	Day.	Oct.	May.	June.	July.	Aug.	Sept.
1	25	43	77	56	47	41	16	.....	1	69	42	51	35
2	24	43	77	54	43	41	17	.....	54	64	44	47	33
3	38	45	78	53	36	43	18	.....	65	65	43	45	30
4	53	55	76	51	32	48	19	.....	84	68	42	42	29
5	53	64	77	55	32	45	20	.....	89	62	42	39	29
6	53	66	80	45	33	43	21	.....	91	58	48	38	29
7	53	73	80	32	38	43	22	.....	91	58	46	36	33
8	53	79	80	35	40	45	23	.....	90	59	44	38	60
9	53	77	82	46	37	41	24	.....	87	52	45	39	47
10	.....	76	79	69	45	40	25	.....	83	50	45	38	39
11	.....	75	76	73	56	40	26	.....	80	48	46	38	36
12	.....	70	74	70	57	39	27	.....	78	50	50	38	34
13	.....	34	78	74	59	36	28	.....	76	60	45	38	34
14	.....	0	76	59	57	34	29	.....	77	57	45	33	33
15	.....	9	70	45	53	34	30	.....	75	54	45	38	33
							31	.....	77	.....	45	38	.....

NOTE.—No record Oct. 6-8, discharge interpolated; estimated May 1.

Monthly discharge of Long canal near Panguitch, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October 1-9	53	24	45.0	800
May	91	0	64.7	3,980
June	82	48	67.8	4,030
July	74	32	49.5	3,040
August	59	32	42.0	2,580
September	60	29	38.2	2,270

EAST PANGUITCH CANAL NEAR PANGUITCH, UTAH.

LOCATION.—In NW. ¼ sec. 34, T. 34 S., R. 5 W., 200 yards below head of canal and 1½ miles southeast of Panguitch, Garfield County.

RECORDS AVAILABLE.—May 9, 1914, to September 30, 1918; irrigation seasons only.

GAGE.—Stevens continuous water-stage recorder on right bank, with inside and outside gages.

DISCHARGE MEASUREMENTS.—Made by wading near gage.
CHANNEL AND CONTROL.—Earth section. Concrete weir 15 feet below gage serves as control.
DIVERSIONS.—None above gage.
REGULATION.—Flow controlled by headgates.
ACCURACY.—Stage-discharge relation permanent. Rating curve well defined. Operation of water-stage recorder satisfactory. Daily discharge ascertained by applying to rating table the mean daily gage height determined from recorder graph. Records good.

Canal diverts water from Sevier River in sec. 34, T. 34 S., R. 5 W. The water is used for irrigation around Panguitch.

Discharge measurements of East Panguitch canal near Panguitch, Utah, during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
May 14	J. J. Sanford	1.10	38.1	July 23	J. J. Sanford	0.68	15.1
30	do	1.20	42.9	Aug. 7	do	.92	27.0
June 26	Purton and Sanford	1.13	37.6	20	do	.96	29.3
July 8	J. J. Sanford	.88	24.0	Sept. 10	do	.90	25.5

Daily discharge, in second-feet, of East Panguitch canal near Panguitch, Utah, for the year ending Sept. 30, 1918.

Day.	May.	June.	July.	Aug.	Sept.	Day.	May.	June.	July.	Aug.	Sept.
1	26	42	34	22	31	16	36	42	21	36	12
2	26	41	34	24	30	17	49	43	20	33	12
3	27	41	32	28	30	18	47	45	19	32	12
4	28	41	32	27	36	19	45	46	19	32	12
5	28	48	38	22	31	20	44	50	19	30	12
6	30	52	34	25	29	21	43	48	18	31	12
7	30	51	29	27	28	22	59	48	16	29	12
8	30	49	28	28	29	23	60	50	14	28	7
9	38	46	28	27	28	24	60	48	15	28	6
10	46	45	30	31	26	25	57	42	16	28	6
11	45	47	28	42	26	26	54	37	16	26	6
12	44	50	26	45	27	27	51	34	16	26	6
13	43	50	25	45	27	28	49	36	16	25	5
14	37	48	25	42	21	29	47	32	20	26	5
15	36	45	24	38	12	30	44	32	22	28	5
						31	42	.....	22	28	.....

NOTE.—Discharge interpolated June 25, July 21, 22; estimated May 1.

Monthly discharge of East Panguitch canal near Panguitch, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
May	60	26	42.0	2,580
June	52	32	44.3	2,640
July	38	14	23.7	1,460
August	45	22	30.3	1,860
September	36	5	18.0	1,070
The period	.....	.....	.....	9,610

PANGUITCH CREEK ABOVE CANALS, NEAR PANGUITCH, UTAH.

LOCATION.—In SW. ¼ sec. 36, T. 34 S., R. 6 W., above all diversions and 3 miles southwest of Panguitch, Garfield County.

DRAINAGE AREA.—Not measured.

RECORDS AVAILABLE.—October 20, 1915, to September 30, 1918.

GAGE.—Stevens continuous water-stage recorder on right bank with inside and outside staff gages; inspected by Omer Reid.

DISCHARGE MEASUREMENTS.—Made by wading near gage or from pole bridge 400 feet below gage.

CHANNEL AND CONTROL.—One channel at all stages. Control fairly permanent except during high stages.

EXTREMES OF DISCHARGE.—Maximum stage during year, from water-stage recorder, 2.47 feet at noon May 10 (discharge, 164 second-feet); minimum stage recorded, 0.40 foot July 20 and 21 (discharge, 2 second-feet).

1916–1918: Maximum stage from water-stage recorder, 3.75 feet at 10 a. m. June 17, 1917 (discharge, 300 second-feet). Minimum stage recorded, 0.40 foot July 20 and 21, 1918 (discharge, 2 second-feet).

ICE.—Stage-discharge relation affected by ice.

DIVERSIONS.—Above all diversions from Panguitch Creek. Water is diverted from Mammoth Creek to the headwaters of Panguitch Creek for storage in Panguitch Lake.

REGULATION.—Flow regulated by storage in Panguitch Lake.

ACCURACY.—Stage-discharge relation permanent until August 15 except as affected by ice January 10 to February 4; variable after August 15. Rating curve well defined. Shifting-control method used after August 15. Operation of water-stage recorder satisfactory except October 1–6, February 15 and 16, June 13–17, and during period of ice effect. Daily discharge ascertained by applying to rating table the mean daily gage height determined from recorder graph. Discharge interpolated for periods when recorder was not in operation, except for the period of ice effect. Records good.

Discharge measurements of Panguitch Creek above canals, near Panguitch, Utah, during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Oct. 10	J. J. Sanford	1.00	30.6	May 30	J. J. Sanford	1.80	90
27	do	1.08	33.1	June 25	Purton and Sanford	1.90	102
Dec. 1	do	.64	11.0	July 8	J. J. Sanford	1.66	72
Jan. 7	do	.60	9.0	24	do	1.14	38.8
Mar. 11	do	.70	14.3	Aug. 6	do	1.52	63
Apr. 9	do	.69	13.2	27	do	.82	21.5
May 13	do	2.20	128	Sept. 10	do	.76	20.6

Daily discharge, in second-feet, of Panguitch Creek above canals, near Panguitch, Utah, for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	30	35	12	12	.....	12	16	37	89	93	63	28
2	30	35	12	12	.....	10	16	36	88	94	63	22
3	30	35	12	12	.....	11	17	37	87	90	69	22
4	30	35	12	10	.....	11	12	48	86	94	69	24
5	30	35	15	10	12	10	13	48	87	92	68	24
6	30	28	16	10	11	11	14	54	92	84	65	23
7	30	28	14	12	11	12	15	50	92	80	64	22
8	30	27	14	12	10	20	14	49	91	75	63	22
9	30	26	13	11	10	12	16	48	89	75	59	22
10	30	26	12	.....	9	13	18	138	89	83	59	20
11	30	26	12	.....	11	14	19	145	100	88	66	19
12	31	26	14	.....	10	37	22	142	103	72	64	19
13	31	25	15	.....	10	24	22	137	105	62	61	19
14	31	33	12	.....	11	16	20	84	107	36	59	19
15	31	14	12	.....	11	16	19	81	110	16	55	20
16	46	12	14	.....	12	14	19	79	113	20	52	20
17	47	12	16	.....	12	14	18	82	116	16	48	20
18	47	12	13	.....	10	14	18	108	119	2	41	19
19	47	12	12	.....	10	13	19	112	121	2	25	19
20	44	12	12	.....	10	13	19	114	122	2	21	18
21	41	12	12	.....	11	13	21	114	119	2	21	18
22	37	12	14	.....	10	14	28	113	122	39	21	20
23	37	12	12	.....	11	14	35	113	113	38	21	27
24	36	12	12	.....	10	15	42	92	105	38	21	22
25	35	12	14	.....	10	16	48	91	101	36	21	22
26	35	12	12	.....	10	16	46	91	96	61	21	21
27	35	12	12	.....	10	15	40	89	96	61	21	20
28	34	12	12	.....	12	14	38	91	95	61	20	20
29	35	14	12	.....	.....	14	38	91	95	65	23	20
30	36	12	12	.....	.....	15	39	91	94	62	20	20
31	35	.....	11	.....	.....	16	.....	89	.....	60	22	.....

NOTE.—Discharge estimated because of ice, Jan. 10 to Feb. 4, 10 second-feet.

Monthly discharge of Panguitch Creek above canals, near Panguitch, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	47	30	34.9	2,150
November	35	12	20.5	1,220
December	16	11	12.9	793
January	12	.....	10.4	640
February	12	9	10.5	583
March	37	10	14.8	910
April	48	12	24.0	1,430
May	145	36	86.9	5,340
June	122	86	101	6,010
July	94	2	54.8	3,370
August	69	20	44.1	2,710
September	28	18	21.0	1,250
The year	145	2	36.5	26,400

PANGUITCH CREEK BELOW CANALS, AT PANGUITCH, UTAH.

LOCATION.—In SE. ¼ sec. 20, T. 34 S., R. 5 W., by fair-grounds fence at Panguitch, Garfield County, directly east of first house north of bridge at edge of town on road to Circleville.

RECORDS AVAILABLE.—May and June, 1915; May to September, 1917; and May to September, 1918. Station discontinued September 30, 1918.

GAGE.—Vertical staff nailed to fair-grounds fence post about 200 feet below bridge on road to Circleville; read by Omer Reid.

DISCHARGE MEASUREMENTS.—Made by wading.

CHANNEL AND CONTROL.—Stream bed gravel and sand; shifting.

DIVERSIONS.—Below all diversions.

REGULATION.—Flow regulated by operation of gates at Panguitch Lake reservoir and irrigation diversions.

ACCURACY.—Stage-discharge relation permanent during the year. Rating curve poorly defined. Gage read to hundredths once daily except as indicated in footnote to daily-discharge table. Daily discharge determined by applying daily gage height to rating table except for periods of no gage heights. Creek dry after July 26. Records fair.

This is an auxiliary station maintained only during summer. No record for 1916.

Discharge measurements of Panguitch Creek below canals, at Panguitch, Utah, during the year ending Sept. 30, 1918.

[Made by J. J. Sanford.]

Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*
May 2	0.16	[a]0.2
13	.42	3.9
July 24	.06	[a].1

[a] Discharge estimated.

Daily discharge, in second-feet, of Panguitch Creek below canals, at Panguitch, Utah, for the year ending Sept. 30, 1918.

Day.	May.	June.	July.	Day.	May.	June.	July.	Day.	May.	June.	July.
1	0.2	0.1	3.4	11	6.2	0.1	1.5	21	0.1	0.2	0.1
2	.2	.1	4.2	12	3.4	.1	3.0	22	.1	.4	.1
3	.2	.1	3.0	13	3.4	.1	1.8	23	.1	.6	.1
4	.1	.1	4.6	14	1.2	.1	.7	24	.1	1.0	.1
5	.1	.1	2.4	15	.7	.1	.2	25	.1	1.4	.1
6	.1	.1	2.1	16	.2	.1	.2	26	.1	1.8	.1
7	.1	.2	1.2	17	.2	.1	.2	27	.1	2.2	.....
8	.1	.1	1.8	18	.2	.1	.1	28	.1	2.6	.....
9	.1	.1	1.2	19	.1	.1	.1	29	.1	3.0	.....
10	6.2	.1	2.4	20	.1	.1	.1	30	.1	3.4	.....
								31	.1	.....	.....

NOTE.—Creek dry July 27 to Sept. 30. No record May 1, 26–31, June 1, 9–29, and July 21–23, 25, 26; discharge estimated or interpolated.

Monthly discharge of Panguitch Creek below canals, at Panguitch, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
May	6.2	0.1	0.78	48
June	3.4	.1	.62	37
July	4.6	0	1.12	69
The period				154

NOTE —See footnote to daily-discharge table.

BARTON AND LE FEVRE CANAL NEAR PANGUITCH, UTAH.

LOCATION.—In sec. 9, T. 34 S., R. 5 W., 400 feet below head of canal, just below mouth of Threemile Creek, and 3½ miles north of Panguitch, Garfield County.

RECORDS AVAILABLE.—May 16, 1915, to September 30, 1918; irrigation seasons only; miscellaneous measurements during 1914.

GAGE.—Vertical staff on left bank; read by Esta Orton.

DISCHARGE MEASUREMENTS.—Made by wading near gage.

CHANNEL AND CONTROL.—Earth section; shifting control.

ACCURACY.—Stage-discharge relation changed June 19. Rating curves well defined. Gage read to hundredths once a day. Daily discharge ascertained by applying daily gage height to rating table except as indicated in footnote to daily-discharge table. Records good.

This canal diverts from Sevier River on left side, in sec. 9, T. 34 S., R. 5 W. Water used for irrigation.

Discharge measurements of Barton and Le Fevre canal near Panguitch, Utah, during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Oct. 10	J. J. Sanford	0.38	[a]0.75	July 8	J. J. Sanford	0.87	7.1
May 13	do	.74	7.0	24	do	.90	7.1
22	do	.68	5.5	Aug. 6	do	.34	1.8
31	do	.54	2.6	Sept. 10	do	1.00	8.8
June 12	do	.64	5.0	23	do	.04	[a].1
25	Purton and Sanford	.81	6.4				

[a] Estimated.

Daily discharge, in second-feet, of Barton and Le Fevre canal near Panguitch, Utah, for the year ending Sept. 30, 1918.

Day.	May.	June.	July.	Aug.	Sept.	Day.	May.	June.	July.	Aug.	Sept.
1	0	3.6	6.3	7.5	0	16	12	2.0	10	0	5.9
2	0	3.3	5.8	6.1	0	17	10	4.1	8.8	0	5.0
3	0	2.3	5.7	6.3	0	18	9.4	8.8	8.5	0	4.2
4	2.7	2.0	6.3	10	7.5	19	14	9.0	7.5	0	3.4
5	5.4	4.8	6.3	9.8	8.0	20	10	8.8	7.3	0	2.6
6	5.4	4.8	6.3	8.3	7.8	21	11	6.5	8.8	0	1.7
7	.3	3.6	6.3	8.0	7.3	22	5.9	6.3	8.5	0	.9
8	.3	4.1	6.1	1.6	7.5	23	7.6	7.3	8.0	0	.1
9	4.5	3.6	7.5	0	8.0	24	12	7.0	8.3	0	0
10	4.1	3.6	8.8	9.8	7.3	25	7.9	6.3	7.8	0	0
11	4.1	4.5	8.5	6.3	7.8	26	10	6.3	7.5	0	0
12	5.6	3.6	8.8	7.5	7.0	27	4.1	6.5	7.0	0	0
13	7.1	5.2	10	0	8.3	28	3.4	6.8	9.0	0	0
14	8.8	2.8	10	0	7.5	29	3.6	6.3	8.8	0	0
15	5.9	2.3	11	0	6.7	30	5.4	6.1	8.3	0	0
						31	4.5	.....	7.8	0	.....

NOTE.—No record May 4, 12, July 5, 6, and September 15–22; discharge interpolated. Stage-discharge relation shifting June 19; discharge estimated.

Monthly discharge of Barton and Le Fevre canal near Panguitch, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
May	14	0	5.97	367
June	9.0	2.0	5.07	302
July	11	5.7	7.92	487
August	10	0	2.62	161
September	8.3	0	3.82	227
The period				1,540

McEWEN CANAL NEAR PANGUITCH, UTAH.

LOCATION.—Near line between secs. 4 and 9, T. 34 S., R. 5 W., 100 feet below head of canal, just below mouth of Threemile Creek, and 3½ miles north of Panguitch, Garfield County.

RECORDS AVAILABLE.—May 9, 1914, to September 30, 1918; irrigation seasons only.

GAGE.—Stevens continuous water-stage recorder, with outside and inside staff gages since May 19, 1915; inspected by Esta Orton. Stevens continuous water-stage recorder at same site May 9 to May 25, 1914, when it was washed out by flood from Hatchtown reservoir. Temporary vertical staff on left bank, 100 feet from head of canal used July 2, 1914, to May 19, 1915.

DISCHARGE MEASUREMENTS.—Made by wading.

CHANNEL AND CONTROL.—Bed composed of clay; fairly permanent.

DIVERSIONS.—None above gage.

REGULATION.—Flow controlled by headgates.

ACCURACY.—Stage-discharge relation permanent except as changed about June 1 by removal of flashboard from weir. Rating curves well defined. Operation of water-stage recorder satisfactory, except June 2–6. Daily discharge ascertained by applying to rating table the mean daily gage height determined from recorder graph. Discharge interpolated June 2–6. Records good.

Canal diverts water from Sevier River, in NW. ¼ sec. 9, T. 34 S., R. 5 W. Water is used for irrigation below Panguitch, on ranch of A. A. Church.

Discharge measurements of McEwen canal near Panguitch, Utah, during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Oct. 10	J. J. Sanford	1.24	16.7	July 24	J. J. Sanford	0.66	4.2
May 22	do	1.40	24.4	Aug. 6	do	1.10	18.7
31	do	1.26	20.0	20	do	1.16	19.4
June 12	do	1.20	20.6	Sept. 10	do	1.15	19.7
25	Purton and Sanford	1.28	24.4	23	do	1.32	25.4
July 8	J. J. Sanford	1.40	30.3				

Daily discharge, in second-feet, of McEwen canal near Panguitch, Utah, for the year ending Sept. 30, 1918.

Day.	May.	June.	July.	Aug.	Sept.	Day.	May.	June.	July.	Aug.	Sept.
1		18	24	0	21	16		20	4.6	20	20
2		19	26	12	20	17	0	24	4.6	20	20
3		19	25	26	21	18		23	4.6	20	20
4		20	31	26	21	19	10	25	4.6	20	21
5		20	35	27	20	20	15	27	4.4	20	21
6		20	33	18	20	21	24	25	4.4	20	22
7		21	31	18	20	22	24	24	4.2	20	23
8	0	20	29	19	20	23	27	25	4.2	20	25
9		19	31	19	20	24	30	25	4.2	20	24
10		20	36	19	20	25	26	24	4.4	20	23
11		22	35	22	19	26	24	24	4.4	20	22
12		22	17	22	19	27	22	24	4.2	19	22
13		20	4.6	20	19	28	20	24	.0	19	22
14		20	4.6	20	19	29	19	24	.0	19	22
15		19	4.6	20	20	30	19	24	.0	19	22
						31	19	.....	.0	20	.....

Monthly discharge of McEwen canal near Panguitch, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
May	30	0	9.00	553
June	27	18	22.0	1,310
July	36	0	13.5	830
August	27	0	19.5	1,200
September	25	19	20.9	1,240
The period	.....	.....	.....	5,130

OLD HOUSTON CANAL NEAR PANGUITCH, UTAH.

LOCATION.—In SW. ¼ sec. 4, T. 34 S., R. 5 W., at Church ranch, half a mile below mouth of Threemile Creek and 3½ miles north of Panguitch, Garfield County.

RECORDS AVAILABLE.—June 1, 1915, to September 30, 1918; irrigation seasons only; some miscellaneous measurements during 1914.

GAGE.—Vertical staff, read by Esta Orton.

DISCHARGE MEASUREMENTS.—Made by wading.

CHANNEL AND CONTROL.—Shifting gravel and clay.

ACCURACY.—Stage-discharge relation not permanent. Four well-defined rating curves used. Gage read to hundredths once a day. Daily discharge determined by applying daily gage height to rating table. Shifting-control method used July 25 to August 5 and August 21 to September 9. Discharge interpolated May 29, 30, June 3, 4, and estimated September 15–25 and 27–30. Records good.

Canal diverts water from Sevier River for irrigation.

Discharge measurements of Old Houston canal near Panguitch, Utah, during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
May 2	J. J. Sanford	1.35	[a] 1.0	July 8	J. J. Sanford	1.86	6.2
13	.....do	1.61	4.2	24	.....do	2.00	7.4
22	.....do	1.66	4.7	Aug. 6	.....do	1.96	1.8
31	.....do	1.34	.44	20	.....do	2.04	2.0
June 12	.....do	1.82	7.6	Sept. 10	.....do	1.72	3.7
25	Purton and Sanford	1.35	.68	23	.....do	2.32	8.4

[a] Discharge estimated.

Daily discharge, in second-feet, of Old Houston canal near Panguitch, Utah, for the year ending Sept. 30, 1918.

Day.	May.	June.	July.	Aug.	Sept.	Day.	May.	June.	July.	Aug.	Sept.
1	0	0	2	3	3	16	5	0	10	3	.....
2	1	1	3	2	4	17	5	4	10	2	.....
3	5	2	1	1	4	18	9	5	9	2	.....
4	5	4	3	2	3	19	10	7	10	2	.....
5	6	5	1	2	3	20	8	9	10	2	.....
6	6	3	2	2	3	21	8	8	8	2	.....
7	5	2	6	2	4	22	5	8	8	2	.....
8	5	1	6	2	4	23	8	2	10	2	.....
9	5	9	7	2	4	24	10	2	8	2	.....
10	5	8	7	3	4	25	9	1	7	2	.....
11	5	8	10	2	4	26	8	1	6	3	8
12	4	8	8	2	4	27	7	0	6	2	.....
13	4	5	9	2	4	28	1	1	5	2	.....
14	4	4	7	3	4	29	1	4	5	2	.....
15	4	4	9	2	.....	30	1	1	3	3	.....
						31	1	.....	3	2	.....

NOTE.—Sept. 15–25, discharge estimated 6 second-feet; Sept. 27–30, discharge estimated 8 second-feet.

Monthly discharge of Old Houston canal near Panguitch, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
May	10	0	5.16	317
June	9	0	3.90	232
July	10	1	6.42	395
August	3	1	2.16	133
September	.....	3	5.27	314
The period	.....	.....	.....	1,390

FOX CANAL NEAR CIRCLEVILLE, UTAH.

LOCATION.—In SE. ¼ sec. 3, T. 31 S., R. 4 W., 300 feet below head of canal and 3½ miles southwest of Fullmer store in Circleville, Piute County.

RECORDS AVAILABLE.—May 14, 1914, to September 30, 1918; irrigation seasons only.

GAGE.—Stevens continuous water-stage recorder on left bank, with inside and outside staff gages; inspected by J. P. Meeks.

DISCHARGE MEASUREMENTS.—Made by wading.

CHANNEL AND CONTROL.—Earth section. Wooden flume with removable crest board just below gage forms control.

DIVERSIONS.—None from canal above gage.

REGULATION.—Flow controlled by headgates.

ACCURACY.—Stage-discharge relation not permanent. Conditions were changing throughout most of the season. Standard rating curve fairly well defined. Operation of water-stage recorder excellent. Daily discharge for September ascertained by applying to rating table the mean daily gage height determined from recorder graph; shifting-control method used May to August. Records good.

Canal diverts water from right bank of Sevier River, in sec. 3, T. 31 S., R. 4 W. Water is used for irrigation around Circleville.

Discharge measurements of Fox canal near Circleville, Utah, during the year ending Sept. 30, 1918.

[Made by J. J. Sanford.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*		*Feet.*	*Sec.-ft.*		*Feet.*	*Sec.-ft.*
May 9	1.84	35.4	July 9	0.92	15.0	Sept. 3	0.72	8.7
22	1.78	37.5	23	1.34	26.1	17	.68	8.0
June 12	.90	12.2	Aug. 6	.46	3.8			
July 1	.54	4.6	20	.74	10.3			

Daily discharge, in second-feet, of Fox canal near Circleville, Utah, for the year ending Sept. 30, 1918.

Day.	May.	June.	July.	Aug.	Sept.	Day.	May.	June.	July.	Aug.	Sept.
1	29	36	4.6	25	10	16	37	10	20	11	9.0
2	29	36	5.4	26	9.5	17	39	9.5	18	11	8.5
3	29	9.0	10	25	9.0	18	38	9.5	17	10	8.2
4	29	18	9.5	25	9.8	19	39	9.8	17	10	8.2
5	30	22	12	22	10	20	40	10	23	10	15
6	32	18	12	3.7	9.8	21	38	11	27	10	20
7	33	18	12	3.8	9.8	22	38	9.8	27	10	23
8	33	23	13	3.7	9.5	23	38	9.8	26	10	35
9	34	15	18	4.0	9.0	24	40	12	23	9.0	32
10	33	16	27	3.8	9.0	25	40	9.2	24	9.0	30
11	33	14	19	10	9.5	26	39	9.0	25	9.0	32
12	35	12	20	14	10	27	42	8.2	23	9.0	33
13	39	10	21	12	10	28	41	7.5	20	9.0	36
14	37	10	20	12	10	29	40	7.2	18	8.8	36
15	35	10	20	13	9.2	30	37	8.2	12	9.5	34
						31	36	.....	10	10	.....

Monthly discharge of Fox canal near Circleville, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
May	42	29	35.9	2,210
June	36	7.2	13.6	809
July	27	4.6	17.9	1,100
August	26	3.7	11.6	713
September	36	8.2	16.8	1,000
The period	.....	.....	.....	5,830

CIRCLEVILLE CANAL NEAR CIRCLEVILLE, UTAH.

LOCATION.—In NE. ¼ sec. 3, T. 31 S., R. 4 W., three-quarters of a mile below head of canal and 3 miles southwest of Fullmer store in Circleville, Piute County.

RECORDS AVAILABLE.—May 14, 1914, to September 30, 1918; irrigation seasons only.

GAGE.—Stevens continuous water-stage recorder, with inside and outside vertical staff gages; inspected by J. P. Meeks.

DISCHARGE MEASUREMENTS.—Made by wading.

CHANNEL AND CONTROL.—Earth section. Wooden weir 3 feet below gage serves as control.

DIVERSIONS.—Above all diversions from the canal.

REGULATION.—Flow controlled by headgates.

ACCURACY.—Stage-discharge relation permanent during year. Rating curve well defined. Operation of water-stage recorder satisfactory. Daily discharge ascertained by applying to rating table the mean daily gage height determined from recorder graph. Records good.

Canal diverts water from left bank of Sevier River in sec. 3, T. 31 S., R. 4 W., a short distance below head of Fox canal. Water is used for irrigation around Circleville.

Discharge measurements of Circleville canal near Circleville, Utah, during the year ending Sept. 30, 1918.

[Made by J. J. Sanford.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*		*Feet.*	*Sec.-ft.*		*Feet.*	*Sec.-ft.*
Oct. 10	1.20	16.4	July 1	1.30	19.9	Aug. 20	1.54	28.0
May 9	1.88	42.2	9	1.76	36.0	Sept. 3	1.46	24.3
22	1.92	45.4	23	1.74	36.6	17	1.60	33.2
June 12	1.62	32.5	Aug. 8	1.40	24.2			

Daily discharge, in second-feet, of Circleville canal near Circleville, Utah, for the year ending Sept. 30, 1918.

Day.	May.	June.	July.	Aug.	Sept.	Day.	May.	June.	July.	Aug.	Sept.
1	38	52	21	22	27	16	53	27	21	31	33
2	38	50	22	22	27	17	54	27	20	29	31
3	45	51	23	25	26	18	51	29	19	28	31
4	46	46	23	24	28	19	48	29	19	27	31
5	48	42	25	22	33	20	50	31	26	29	31
6	52	40	25	23	33	21	50	31	38	29	31
7	44	39	23	25	32	22	46	27	40	29	32
8	42	40	25	25	32	23	47	28	37	29	38
9	43	39	30	26	30	24	49	33	37	29	26
10	42	37	31	23	29	25	47	30	38	28	27
11	42	33	26	35	30	26	44	28	37	28	25
12	39	31	21	42	33	27	46	28	33	28	22
13	36	32	25	39	35	28	44	28	31	27	21
14	45	31	24	38	36	29	49	26	32	24	22
15	51	30	22	37	36	30	52	23	29	25	23
						31	50	.....	24	27	.....

Monthly discharge of Circleville canal near Circleville, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
May	54	36	46.2	2,840
June	52	23	33.9	2,020
July	40	19	27.3	1,680
August	42	22	28.2	1,730
September	38	21	29.7	1,770
The period	.....	.....	.....	10,000

OLD KINGSTON CANAL NEAR CIRCLEVILLE, UTAH.

LOCATION.—In SW. ¼ sec. 35, T. 30 S., R. 4 W., 200 yards below head of canal and 2 miles southwest of Fullmer store in Circleville, Piute County.

RECORDS AVAILABLE.—May 14, 1914, to September 30, 1918; irrigation seasons only.

GAGE.—Stevens continuous water-stage recorder on left bank with inside and outside staff gages; inspected by J. P. Meeks.

DISCHARGE MEASUREMENTS.—Made by wading 50 feet above gage.

CHANNEL AND CONTROL.—Earth section. Crest of wooden weir just below gage serves as control.

DIVERSIONS.—Above all diversions.

REGULATION.—Flow controlled by headgates.

ACCURACY.—Stage-discharge relation permanent. Rating curve well defined. Operation of water-stage recorder satisfactory, except May 1 and 5–8. Daily discharge ascertained by applying to rating table the mean daily gage height determined from recorder graph. Discharge estimated May 1 and interpolated May 5–8. Records good.

Canal diverts water from right bank of Sevier River in SW. ¼ sec. 35, T. 30 S., R. 4 W. Water is used for irrigation around Circleville.

Discharge measurements of Old Kingston canal near Circleville, Utah, during the year ending Sept. 30, 1918.

[Made by J. J. Sanford.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*		*Feet.*	*Sec.-ft.*		*Feet.*	*Sec.-ft.*
Oct. 10	1.13	38.5	July 1	0.84	20.4	Aug. 20	0.95	29.5
May 9	1.52	65	9	1.02	32.3	Sept. 3	.95	28.3
22	1.18	45.4	23	.87	24.0	17	1.09	38.1
June 12	1.06	36.8	Aug. 6	.68	13.9			

Daily discharge, in second-feet, of Old Kingston canal near Circleville, Utah, for the year ending Sept. 30, 1918.

Day.	Oct.	May.	June.	July.	Aug.	Sept.	Day.	Oct.	May.	June.	July.	Aug.	Sept.
1	14	53	51	21	28	34	16	.....	50	36	26	41	41
2	16	53	66	23	28	32	17	.....	54	35	26	36	39
3	13	53	76	24	26	30	18	.....	50	36	25	32	39
4	9	53	71	23	23	33	19	.....	53	37	25	28	42
5	5	56	61	28	19	34	20	.....	53	42	27	28	39
6	19	59	54	30	14	34	21	.....	48	44	27	28	37
7	40	62	55	28	16	34	22	.....	46	39	26	28	39
8	40	64	53	29	18	34	23	.....	45	37	25	28	62
9	39	66	49	31	19	31	24	.....	47	47	23	26	72
10	38	62	44	50	18	31	25	.....	47	38	23	26	51
11	.....	60	40	46	33	32	26	.....	44	35	30	27	47
12	.....	55	35	48	42	34	27	.....	43	31	33	28	44
13	.....	51	34	54	39	36	28	.....	39	28	31	27	43
14	.....	51	36	37	42	37	29	.....	35	26	28	26	42
15	.....	51	36	33	47	39	30	.....	33	23	27	28	42
							31	.....	33	.....	28	31	.....

Monthly discharge of Old Kingston canal near Circleville, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October 1–10	40	5	23.3	460
May	66	33	50.6	3,110
June	76	23	43.2	2,570
July	54	21	30.2	1,860
August	47	14	28.4	1,750
September	72	30	39.5	2,350

DALTON CANAL AT CIRCLEVILLE, UTAH.

LOCATION.—In SW. ¼ sec. 25, T. 30 S., R. 4 W., 800 feet below canal heading and a quarter of a mile southeast of Fullmer store in Circleville, Piute County.

RECORDS AVAILABLE.—July 1, 1914, to September 30, 1918; irrigation seasons only.

GAGE.—Vertical staff on right bank 100 feet below spillway; read by J. P. Meeks.

DISCHARGE MEASUREMENTS.—Made by wading or from pole bridge.

CHANNEL AND CONTROL.—Earth section. Row of stakes driven into canal bed just below gage serves as control at low stages.

DIVERSIONS.—None above gage.

REGULATION.—Flow controlled by headgates.

ACCURACY.—Stage-discharge relation changed frequently. Standard rating curve fairly well defined. Gage read to hundredths once daily. Daily discharge determined by applying daily gage height to rating table. Shifting-control method used for a number of short periods. Records good.

Canal diverts water from left bank of Sevier River in sec. 35, T. 30 S., R. 4 W. Water is used for irrigation in and below Circleville.

Discharge measurements of Dalton canal at Circleville, Utah, during the year ending Sept. 30, 1918.

[Made by J. J. Sanford.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*		*Feet.*	*Sec.-ft.*		*Feet.*	*Sec.-ft.*
May 9	*a* 1.40	17.2	July 2	1.20	12.4	Aug. 20	0.53	3.1
22	1.20	11.0	23	.78	5.4	Sept. 3	.60	2.5
June 12	.66	4.4	Aug. 6	1.14	12.8	17	1.03	9.6

a Datum raised 3 feet.

Daily discharge, in second-feet, of Dalton canal at Circleville, Utah, for the year ending Sept. 30, 1918.

Day.	May.	June.	July.	Aug.	Sept.	Day.	May.	June.	July.	Aug.	Sept.
1	.....	0	9.9	9.0	4.2	16	31	9.9	4.7	4.5	14
2	.....	8.9	13	9.4	2.6	17	33	7.2	4.0	4.0	10
3	.....	17	12	5.9	2.8	18	19	14	3.8	2.6	11
4	.....	13	8.9	5.1	6.2	19	14	14	3.6	3.2	14
5	.....	4.3		3.5	4.2	20	15	10	17	3.1	10
6	.....	15		9.0	3.3	21	13	13	23	3.3	9.2
7	.....	16	9	12	4.2	22	11	12	3.8	2.9	9.9
8	.....	14		13	3.5	23	21	8.5	6.0	2.5	12
9	17	10		20	2.4	24	35	19	7.8	2.3	5.7
10	13	8.5	0	18	5.1	25	25	11	9.6	4.2	4.5
11	12	5.2	9.2	18	6.2	26	28	7.5	5.2	5.0	4.3
12	10	4.3	7.8	11	9.2	27	24	6.9	8.2	4.6	4.3
13	8.9	7.5	8.9	8.7	9.2	28	21	4.0	13	2.5	4.5
14	9.2	9.6	5.2	6.4	13	29	24	4.0	9.4	2.1	4.5
15	19	10	5.0	8.9	12	30	22	2.4	6.4	2.8	4.5
						31	21	.....	9.4	3.8	.....

NOTE.—Braced figure shows estimated mean discharge for period indicated.

Monthly discharge of Dalton canal at Circleville, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
May 9-31	35	8.9	19.4	885
June	19	0	9.56	569
July	23	0	8.38	515
August	20	2.1	6.82	419
September	14	2.4	7.02	418
The period				2,810

MITCHELL SLOUGH CANAL NEAR JUNCTION, UTAH.

LOCATION.—In NE. ¼ sec. 17, T. 30 S., R. 3 W., several miles below head of canal and 2½ miles south of Junction, Piute County.

RECORDS AVAILABLE.—May 15, 1914, to September 30, 1918; irrigation seasons only.

GAGE.—Stevens continuous water-stage recorder, with outside and inside staff gages.

DISCHARGE MEASUREMENTS.—Made by wading.

CHANNEL AND CONTROL.—Earth section. Concrete weir just below gage serves as control.

DIVERSIONS.—None above gage.

REGULATION.—Flow controlled by headgates.

ACCURACY.—Stage-discharge relation not permanent, because of accumulation of moss and silt at control. Standard rating curve well defined. Operation of water-stage recorder satisfactory. Daily discharge ascertained by applying to rating table the mean daily gage height determined from recorder graph; shifting-control method used for greater part of the time. Records good.

Canal diverts water from Mitchell Slough, probably in sec. 19, T. 30 S., R. 3 W. Water is used for irrigation above Junction.

Discharge measurements of Mitchell Slough canal near Junction, Utah, during the year ending Sept. 30, 1918.

[Made by J. J. Sanford.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge
	Feet.	*Sec.-ft.*		*Feet.*	*Sec.-ft.*		*Feet.*	*Sec.-ft.*
Oct. 11	0.70	11.6	July 1	0.52	6.2	Aug. 19	0.66	10.7
May 9	.72	14.0	9	.80	14.6	Sept. 3	.68	13.2
22	.72	15.9	Aug. 6	.49	4.6	19	.73	15.8
June 12	.64	12.5						

Daily discharge, in second-feet, of Mitchell Slough canal near Junction, Utah, for the year ending Sept. 30, 1918.

Day.	Oct.	May.	June.	July.	Aug.	Sept.	Day.	Oct.	May.	June.	July.	Aug.	Sept.
1	8	13	16	6.5	9.2	12	16	.....	13	14	20	10	18
2	7	13	15	6.5	8.9	13	17	.....	18	12	20	12	18
3	7	14	15	6.2	8.5	14	18	.....	19	11	19	10	15
4	6	13	14	5.8	7.2	15	19	.....	18	13	16	11	14
5	6	14	13	5.0	6.2	18	20	.....	15	14	16	9.2	12
6	5	13	12	6.5	4.6	18	21	.....	16	14	15	8.5	10
7	5	12	12	10	6.2	16	22	.....	16	14	13	9.6	10
8	4	11	12	13	7.8	16	23	.....	14	13	13	9.6	12
9	9	14	12	14	8.2	16	24	.....	14	12	9.6	9.2	13
10	13	14	12	17	8.2	16	25	.....	15	11	8.9	9.2	11
11	12	13	13	18	8.5	16	26	.....	14	10	8.9	8.9	11
12	.....	14	13	18	8.5	17	27	.....	15	9	8.5	9.2	11
13	.....	13	13	20	8.2	18	28	.....	15	8.5	8.9	9.6	11
14	.....	12	13	20	9.6	19	29	.....	15	7.5	8.5	10	11
15	.....	13	14	20	8.9	17	30	.....	15	6.8	8.5	11	11
							31	.....	16	.....	8.9	11	.....

Monthly discharge of Mitchell Slough canal near Junction, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October 1–11	13	4	7.45	162
May	19	11	14.3	879
June	16	6.8	12.3	732
July	20	5.0	12.6	775
August	12	4.6	8.93	549
September	19	11	14.3	851

JUNCTION MIDDLE CANAL NEAR JUNCTION, UTAH.

LOCATION.—In NW. ¼ sec. 16, T. 30 S., R. 3 W., 1,000 feet due east of Piute County cheese factory and 800 feet below head of canal that diverts from Sevier River 2¼ miles southeast of Junction, Piute County.

RECORDS AVAILABLE.—May 17, 1915, to September 30, 1918; irrigation seasons only; some miscellaneous measurements during 1914.

GAGE.—Vertical enamel gage nailed to upstream wing of old wooden flume; read by W. L. Johnson.

DISCHARGE MEASUREMENTS.—Made by wading near gage.

CHANNEL AND CONTROL.—Earth section. No permanent control. The Barnson spring flows into the canal about 150 feet below the gage and at times a diversion dam is placed across canal just below spring.

DIVERSIONS.—Above all diversions from canal.

ACCURACY.—Stage-discharge relation not permanent because of accumulation of silt and vegetation in channel below gage, and because of backwater from check for lateral a short distance below Rating curves fairly well defined. Gage read to tenths once daily, May 3 to June 1, and June 11–30. Daily discharge for these two periods determined by applying daily gage height to rating table; not determined for remainder of year. Monthly mean discharge determined from available daily discharge, meter measurements, and estimation for intervening periods. Records fair.

Discharge measurements of Junction middle canal near Junction, Utah, during the year ending Sept. 30, 1918.

[Made by J. J. Sanford.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*		*Feet.*	*Sec.-ft.*		*Feet.*	*Sec.-ft.*
May 22	3.70	3.6	July 9	4.76	8.5	Sept. 3	4.20	10.4
June 12	3.94	3.0	Aug. 6	4.06	7.0	19	4.46	16.4
July 1	4.34	4.7	19	4.10	9.6			

Daily discharge, in second-feet, of Junction middle canal near Junction, Utah, for the year ending Sept. 30, 1918.

Day.	May.	June.	Day.	May.	June.	Day.	May.	June.
1	0	5	11	0	3	21	4	6
2	0	.....	12	4	3	22	4	6
3	11	.....	13	6	4	23	4	5
4	12	.....	14	6	4	24	4	5
5	12	.....	15	5	4	25	4	5
6	13	.....	16	5	4	26	4	4
7	0	.....	17	4	4	27	5	4
8	0	.....	18	5	5	28	5	3
9	0	.....	19	5	5	29	6	4
10	0	.....	20	4	5	30	6	5
						31	6	.....

Monthly discharge of Junction middle canal near Junction, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
May	13	0	4.65	286
June	6	3	4.30	256
July	.....	.....	7.26	446
August	.....	.....	8.65	532
September	.....	.....	13.9	827
The period	.....	.....	.....	2,350

EAST FORK OF SEVIER RIVER AT COYOTO, UTAH.

LOCATION.—In NW. ¼ sec. 15, T. 31 S., R. 2 W., immediately below mouth of Coyoto Creek, half a mile below diversion to Otter Creek reservoir, and half a mile southeast of schoolhouse at Coyoto, Garfield County.

RECORDS AVAILABLE.—December 7, 1914, to August 15, 1915; August 1, 1916, to September 30, 1918. October 28, 1915, to August 31, 1916, a station was maintained about 4 miles below, but the flow is not comparable at these two points, owing to return flow between the stations.

GAGE.—Vertical staff fastened to post on right bank, July 15, 1917, to September 30, 1918; read by Ruby Haight. Vertical staff on right bank 150 feet above present gage March 12 to August 15, 1915, and July 30, 1916, to May 12, 1917. Original gage vertical staff on left bank fastened to old bridge abutment just above present gage; different datum.

DISCHARGE MEASUREMENTS.—Made by wading near gage.

CHANNEL AND CONTROL.—One channel at all stages. Bed composed of sand and gravel; shifting.

DIVERSIONS.—Canals divert for irrigation and storage above the station.

REGULATION.—None other than that caused by diversions mentioned above.

ACCURACY.—Stage-discharge relation not permanent. Rating curves well defined from 7 to 20 second-feet and based on previous curves from 20 to 90 second-feet. Staff gage read once daily to hundredths. Daily discharge determined by applying gage height to rating table except May 3–8 and July 15–19, for which shifting-control methods were used. Records fair.

Discharge measurements of East Fork of Sevier River at Coyoto, Utah, during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
May 3	J. J. Sanford	0.88	26.6	July 10	J. J. Sanford	0.93	15.6
15	do	.82	11.0	Aug. 6	do	.80	6.4
29	do	.88	12.4	Sept. 3	do	.85	8.1
June 11	do	.80	8.4	17	do	.92	12.4
26	Purton and Sanford	.94	18.0				

Daily discharge, in second-feet, of East Fork of Sevier River at Coyoto, Utah, for the year ending Sept. 30, 1918.

Day.	May.	June.	July.	Aug.	Sept.	Day.	May.	June.	July.	Aug.	Sept.
1	.....	14	14	8	9	16	14	10	46	6	12
2	.....	18	15	6	9	17	8	9	36	6	13
3	28	16	11	7	9	18	9	10	24	7	13
4	38	18	8	9	8	19	8	9	18	8	12
5	62	18	9	6	9	20	10	8	12	8	12
6	68	17	10	7	15	21	9	11	12	8	13
7	28	15	11	11	13	22	9	10	13	8	16
8	18	13	10	8	11	23	10	85	11	9	17
9	10	12	9	7	10	24	10	44	15	8	10
10	9	11	9	6	10	25	11	17	12	8	9
11	8	10	12	11	11	26	12	18	9	8	9
12	11	10	20	9	12	27	8	17	7	8	8
13	14	10	18	6	11	28	7	15	9	8	7
14	9	9	57	6	12	29	7	14	13	10	8
15	10	10	50	7	13	30	8	14	11	12	9
						31	12	.....	9	12	.....

Monthly discharge of East Fork of Sevier River at Coyoto, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
May 3–31	68	7	16.0	920
June	85	8	16.4	976
July	57	7	16.8	1,030
August	12	6	8.00	492
September	17	7	11.0	655
The period	.....	.....	.....	4,070

EAST FORK OF SEVIER RIVER NEAR KINGSTON, UTAH.

LOCATION.—In SW. ¼ sec. 13, T. 30 S., R. 3 W., 1 mile below highway bridge and 2 miles east of Kingston, Piute County.

DRAINAGE AREA.—1,260 square miles (measured on topographic maps).

RECORDS AVAILABLE.—April 29, 1914, to September 30, 1918. Records obtained about 1½ miles above Rockyford bridge, in SW. ¼ sec. 16, T. 30 S., R. 2½ W., March 27, 1913, to April 28, 1914; also at gage three-fourths of a mile north of Kingston, in NE. ¼ sec. 10, T. 30 S., R. 3 W., May 11 to September 20, 1912.

GAGE.—Stevens continuous water-stage recorder on right bank, 1 mile below highway bridge, April 29, 1914, to September 30, 1918; inspected by W. S. Price.

DISCHARGE MEASUREMENTS.—Made from cable 2 miles above gage, highway bridge 1 mile above, or by wading.

CHANNEL AND CONTROL.—One channel at all stages. Right bank is overflowed during high water. Bed composed of gravel. Concrete control built December 4–11, 1917, 20 feet below gage.

EXTREMES OF DISCHARGE.—Maximum stage during year, from water-stage recorder, 4.01 feet at 2.30 p. m. June 20 (discharge estimated by extending rating table, 385 second-feet). Minimum stage from water-stage recorder, 1.18 feet at 1.30 p. m. November 1 (discharge, 16 second-feet).

1913–1918: Maximum stage recorded, 4.46 feet at 3 p. m. May 18, 1917 (discharge, 946 second-feet); minimum stage recorded, 1.00 foot September 19, 20, and 21, 1913 (discharge, 8 second-feet).

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

DIVERSIONS.—Above all diversions in vicinity of Kingston.

REGULATION.—Flow affected by operation of gates at Otter Creek reservoir 8 miles above.

ACCURACY.—Stage-discharge relation changed after December 4 by construction of new artificial control; changed slightly on March 31 by removal of last of form boards; permanent for remainder of year except as effected by ice. Rating curves well defined. Operation of water-stage recorder satisfactory except October 1–11 when float was resting on mud, and July 11–17 and September 7–14 when clock was stopped. Daily discharge ascertained by applying to rating table the mean daily gage height determined from recorder graph except as indicated in footnote to daily discharge table. Records good.

Discharge measurements of East Fork of Sevier River near Kingston, Utah, during the year ending Sept. 30, 1918.

[Made by J. J. Sanford.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*		*Feet.*	*Sec.-ft.*		*Feet.*	*Sec.-ft.*
Oct. 12	1.54	40.6	Apr. 9	2.62	25.7	July 2	3.59	224
Nov. 1	1.18	15.1	22	3.32	144	23	3.53	205
Dec. 11	2.75	18.5	May 3	3.46	170	Aug. 5	3.54	215
Jan. 8	2.70	23.7	15	3.30	143	24	3.60	240
Mar. 13	3.40	130	31	3.48	192	Sept. 2	3.36	153
15	2.96	54	June 11	3.58	229	16	3.28	138

Daily discharge, in second-feet, of East Fork of Sevier River near Kingston, Utah, for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	90	16	31	26		31	28	181	200	226	152	222
2	80	18	31	29		31	28	184	200	229	163	175
3		18	32	30		31	30	172	200	229	206	144
4		22	31	30		41	30	222	206	229	213	139
5	66	20	31	30		41	30	229	200	239	213	141
6		19	31	29		41	31	226	184	232	216	141
7	52	19	32	25	20	43	31	181	184	242	222	146
8		19	32	23		45	32	161	184	242	222	152
9		19	32	25		46	26	149	188	242	226	150
10	46	20	33	20		40	26	147	203	242	226	148
11		29	33			45	30	144	232	240	226	146
12	41	30	33			53	33	141	242	237	226	144
13	39	30	39		26	100	41	141	246	234	226	142
14	33	36	39		26	76	41	141	246	232	226	141
15	34	36	32		26	49	38	141	252	226	226	141
16	34	33	30		25	35	35	136	252	220	226	136
17	34	31	32		30	30	35	139	256	215	226	136
18	34	33	31		30	29	33	141	256	210	226	129
19	32	32	31		29	29	39	141	259	210	232	117
20	30	33	31		30	30	152	144	270	210	232	117
21	28	32	31	20	30	31	152	144	239	222	232	113
22	23	34	29		30	31	149	144	239	219	232	106
23	24	34	30		31	30	149	144	239	213	232	113
24	25	33	31		31	29	155	141	239	194	232	113
25	25	33	28		31	29	163	141	239	172	232	111
26	25	38	33		31	28	169	141	239	166	232	111
27	25	31	33		31	28	166	141	239	163	232	102
28	25	29	33		28	28	163	141	239	161	235	100
29	22	30	32		.....	27	166	141	226	155	235	96
30	18	30	29		.....	27	178	155	226	152	235	96
31	16	.....	29		.....	27	.....	197	.....	152	235	.....

NOTE.—Discharge estimated Oct. 1–11, and interpolated, Dec. 5–10, July 11–13, 15–17, Sept. 7, 9–14, because of no gage-height record. Mean flow estimated Jan. 11 to Feb. 12 on account of ice. Braced figures show mean discharge for periods indicated.

Monthly discharge of East Fork of Sevier River near Kingston, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	90	16	39.9	2,450
November	38	16	27.9	1,660
December	39	29	31.8	1,960
January	30	.....	22.2	1,360
February	31	.....	25.2	1,400
March	100	27	38.1	2,340
April	178	28	79.3	4,720
May	229	136	158	9,720
June	270	184	227	13,500
July	242	152	211	13,000
August	235	152	222	13,600
September	222	96	132	7,860
The year	270	16	102	73,600

COYOTO CANAL NEAR COYOTO, UTAH.

LOCATION.—Half a mile west of Riddle ranch house, half a mile south of mouth of Antimony Creek, and 3 miles south of Coyoto, Garfield County.

RECORDS AVAILABLE.—July 30 to September 30, 1916; June 22 to August 17, 1917; May 1 to September 30, 1918.

GAGE.—Vertical staff on left bank; read by Utahna Riddle.

DISCHARGE MEASUREMENTS.—Made from footbridge.

CHANNEL AND CONTROL.—Earth channel; fairly permanent.

DIVERSIONS.—None above gage.

REGULATION.—Flow controlled by headgates.

ACCURACY.—Stage-discharge relation changed frequently. Standard rating curve fairly well defined. Parallel curves and shifting-control method used for most of the period of record; daily discharge for a few periods determined by applying daily gage height to rating table. Staff gage read to half-tenths once daily. Records fair.

Discharge measurements of Coyoto canal near Coyoto, Utah, during the year ending Sept. 30, 1918.

[Made by J. J. Sanford.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*		*Feet.*	*Sec.-ft.*		*Feet.*	*Sec.-ft.*
May 3	5.25	23.3	June 11	5.25	20.8	Aug. 5	5.15	16.4
15	5.45	26.2	26	5.05	16.9	Sept. 3	4.80	13.5
29	5.46	23.7	July 10	4.95	13.6	17	4.90	14.6

Daily discharge, in second-feet, of Coyoto canal near Coyoto, Utah, for the year ending Sept. 30, 1918.

Day.	May.	June.	July.	Aug.	Sept.	Day.	May.	June.	July.	Aug.	Sept.
1	24	21	18	16	14	16	27	23	16	16	14
2	24	21	14	16	14	17	27	20	14	17	14
3	24	21	14	16	14	18	24	20	14	17	14
4	6	22	0	16	14	19	27	21	14	17	14
5	22	21	0	16	14	20	24	21	12	14	9
6	21	21	0	22	14	21	22	21	12	14	9
7	24	22	0	22	14	22	20	21	13	13	14
8	26	23	13	23	14	23	19	12	13	13	14
9	26	23	12	23	14	24	29	12	13	13	13
10	23	22	13	23	14	25	28	18	14	13	13
11	22	21	13	27	14	26	26	18	15	13	12
12	20	23	14	33	14	27	25	20	16	12	12
13	20	22	16	30	14	28	25	20	16	12	12
14	24	23	16	20	14	29	25	20	16	12	12
15	27	23	16	16	14	30	22	18	16	11	14
						31	23	.....	16	11	.....

Monthly discharge of Coyoto canal near Coyoto, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
May	28	6	23.4	1,440
June	23	12	20.5	1,220
July	18	0	12.5	769
August	33	11	17.3	1,060
September	14	9	13.3	791
The period				5,280

OTTER CREEK ABOVE RESERVOIR, NEAR COYOTO, UTAH.

LOCATION.—In sec. 25, T. 29 S., R. 2 W., three-quarters of a mile above Otter Creek reservoir and 10 miles north of Coyoto, Garfield County.

DRAINAGE AREA.—Not measured.

RECORDS AVAILABLE.—January 17 to August 10, 1915; October 1, 1915, to September 30, 1918.

GAGE.—Vertical staff on right bank; read by Nelo Brindley.

DISCHARGE MEASUREMENTS.—Made by wading near gage.

CHANNEL AND CONTROL.—One channel at all stages. Bed composed of sand and gravel.

EXTREMES OF DISCHARGE.—Maximum stage recorded, 2.20 feet November 20 (discharge, 38 second-feet); stream practically dry May 21–31, and August 5–10.

1915–1918: Maximum stage recorded, 4.08 feet March 12, 1916 (discharge, 87 second-feet); steam practically dry for short periods during most years.

ICE.—Stage-discharge relation affected by ice.

DIVERSIONS.—Practically the entire low-water flow in the summer diverted above the station for irrigation.

REGULATION.—One reservoir storing water for irrigation upstream; capacity unknown.

ACCURACY.—Stage-discharge relation not permanent; affected by ice during parts of December, January, and February. Standard rating curve fairly well defined. Staff gage read to hundredths once daily, except during periods April to September, for which no daily discharge is given in table. Daily discharge determined by shifting-control method throughout nearly the whole year. Records fair.

Discharge measurements of Otter Creek above reservoir, near Coyoto, Utah, during the year ending Sept. 30, 1918.

[Made by J. J. Sanford.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*		*Feet.*	*Sec.-ft.*		*Feet.*	*Sec.-ft.*
Oct. 2	0.46	7.7	Jan. 9	1.90	28.3	Aug. 5	−0.42	[a] 0.05
Dec. 4	1.64	26.2	Apr. 9	1.96	29.8	Sept. 17	.20	2.6

[a] Discharge estimated.

Daily discharge, in second-feet, of Otter Creek above reservoir, near Coyoto, Utah, for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	June.	July.	Sept.
1	4.8	11	27	30	.....	32	24	.....	.....	.....
2	4.8	14	28	30	.....	32	24	.....	.....	.....
3	4.8	16	27	29	.....	32	24	.....	.....	.....
4	4.8	15	28	28	.....	31	24	.....	.....	.....
5	4.8	14	27	29	.....	32	24	.....	.....	.....
6	4.8	16	.....	30	.....	32	24	.....	.....	.....
7	5.2	13	.....	29	.....	33	24	.....	.....	.....
8	6.6	16	.....	29	.....	31	24	.....	.....	.....
9	7.9	16	.....	29	.....	32	26	.....	.....	.....
10	7.9	17	.....	29	.....	32	24	.....	.....	.....
11	7.0	30	.....	29	.....	32	22	.....	31	.....
12	7.4	35	.....	.....	.....	31	22	.....	14	.....
13	7.9	26	.....	.....	.....	32	21	.....	13	.....
14	7.9	33	.....	.....	.....	32	20	.....	31	.....
15	7.9	34	.....	.....	.....	32	20	.....	30	.....
16	7.9	38	25	.....	.....	32	19	.....	31	.....
17	7.9	37	18	.....	.....	32	16	.....	29	2.6
18	7.9	36	26	.....	.....	31	16	2.8	25	.....
19	7.9	37	21	.....	.....	33	15	4.7	31	.....
20	7.9	38	20	.....	.....	32	11	.....	30	.....
21	8.3	38	22	.....	.....	32	.....	.....	12	.....
22	8.3	36	25	.....	.....	32	.....	.....	12	4.7
23	8.6	32	.....	.....	.....	31	.....	.....	12	4.7
24	7.2	36	.....	.....	30	31	.....	.....	12	4.7
25	9.8	30	.....	.....	31	32	.....	.....	7	4.7
26	12	29	.....	.....	32	31	.....	.....	.....	4.7
27	14	28	.....	.....	32	31	.....	.....	.....	4.7
28	9.6	28	30	.....	32	29	.....	.....	.....	4.7
29	9.8	28	30	.....	.....	30	.....	.....	.....	4.7
30	11	28	29	.....	.....	31	.....	.....	.....	4.7
31	12	.....	29	.....	.....	30	.....	.....	.....	.....

NOTE.—Discharge estimated because of ice Dec. 6-15, 23-27, and Jan. 12-31, 25 second-feet; Feb. 1-23, 28 second-feet. April to September, daily discharge not determined for days not given in table. See footnote to monthly-discharge table.

Monthly discharge of Otter Creek above reservoir, near Coyoto, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	14	4.8	7.89	485
November	38	11	26.8	1,590
December	.....	18	25.4	1,560
January	.....	.....	26.5	1,630
February	.....	.....	28.6	1,590
March	33	29	31.5	1,940
April	26	.....	14.5	863
May	.....	.....	.65	40
June	4.7	.....	1.18	70
July	31	.....	10.8	664
August	.....	.....	.58	36
September	4.7	.....	2.93	174
The year	38	.....	14.7	10,600

NOTE.—Monthly discharge estimated April to September.

OTTER CREEK NEAR COYOTO, UTAH.

LOCATION.—In W. ½ sec. 28, T. 30 S., R. 2 W., in Piute County, just below outlet of Otter Creek reservoir, 5 miles northwest of Coyoto, Garfield County, and 12 miles east of Kingston.

DRAINAGE AREA.—Indeterminate; 400 square miles of Otter Creek basin are tributary to reservoir; the reservoir receives also water from East Fork of Sevier River.

RECORDS AVAILABLE.—June 21, 1913, to September 30, 1918; irrigation seasons only.

GAGE.—Stevens continuous water-stage recorder on left bank, with outside staff gage.

DISCHARGE MEASUREMENTS.—Made by wading just below gage.

CHANNEL AND CONTROL.—One channel at all stages. Bed composed of gravel. Broad-crested concrete weir just below gage serves as permanent control. Growth of moss on control and in channel causes backwater at times.

DIVERSIONS.—Some diversions for irrigation above reservoir.

REGULATION.—Flow past station controlled by operation of outlet gates of reservoir just above.

ACCURACY.—Stage-discharge relation permanent until July 22 when growth of moss started which continued until end of year. Well-defined rating curve applicable until July 22; shifting-control method July 23 to September 30. Operation of water-stage recorder satisfactory. Daily discharge ascertained by applying to rating table the mean daily gage height determined from recorder graph. Records good.

Discharge measurements of Otter Creek near Coyoto, Utah, during the year ending Sept. 30, 1918.

[Made by J. J. Sanford.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*		*Feet.*	*Sec.-ft.*		*Feet.*	*Sec.-ft.*
Apr. 22	1.42	117	July 10	2.00	218	Aug. 24	[a] 2.17	239
June 11	2.00	221	23	[a] 1.99	215	Sept. 2	[a] 1.58	134
July 2	2.00	218	Aug. 5	[a] 2.14	240	17	[a] 1.45	109

[a] Stage-discharge relation affected by moss on control.

Daily discharge, in second-feet, of Otter Creek near Coyoto, Utah, for the year ending Sept. 30, 1918.

Day.	Oct.	Apr.	May.	June.	July.	Aug.	Sept.
1	38	.....	117	178	220	154	175
2	30	.....	117	177	218	195	140
3	30	.....	117	177	216	231	122
4	30	.....	117	177	214	231	119
5	30	.....	119	171	213	240	116
6	30	.....	119	152	213	238	112
7	30	.....	120	159	218	236	117
8	30	.....	120	164	218	240	122
9	30	.....	122	164	218	240	120
10	30	.....	122	202	218	236	119
11	23	.....	122	218	218	238	117
12	17	.....	124	218	216	240	117
13	16	.....	124	216	214	236	119
14	14	.....	124	216	214	236	112
15	15	.....	124	218	220	234	114
16	15	.....	124	218	223	232	114
17	15	.....	122	218	223	232	109
18	15	.....	122	218	223	231	101
19	12	.....	122	218	222	234	95
20	12	.....	122	218	220	232	86
21	12	.....	122	218	218	229	80
22	11	117	122	218	216	234	76
23	11	116	120	218	214	236	78
24	11	114	120	218	182	238	78
25	11	114	120	218	157	236	78
26	11	116	119	218	157	236	74
27	11	116	117	218	156	236	71
28	10	116	117	216	156	234	69
29	7	116	117	214	156	231	67
30	5	117	150	218	154	229	65
31	5	.....	180	.....	154	223	.....

Monthly discharge of Otter Creek near Coyoto, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	38	5	18.3	1,130
April 22-30	117	114	116	2,060
May	180	117	123	7,560
June	218	152	202	12,000
July	223	154	203	12,500
August	240	154	231	14,200
September	175	65	103	6,130

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OTTER CREEK RESERVOIR FEEDER CANAL AT HEAD, NEAR COYOTO, UTAH.

LOCATION.—In NW. ¼ sec. 15, T. 31 S., R. 2 W., just below crossing of unnamed wash over canal and half a mile southwest of schoolhouse at Coyoto, Garfield County.

RECORDS AVAILABLE.—December 8, 1914, to November 11, 1915; August 1, 1916, to September 30, 1917; May 1 to September 30, 1918.

GAGE.—Vertical staff on right bank fastened to old bridge abutment August 1, 1916, to September 30, 1918; read by Ruby Haight. Original gage, vertical staff fastened to left abutment of same bridge.

DISCHARGE MEASUREMENTS.—Made by wading or from plank across flume.

CHANNEL AND CONTROL.—One channel at all stages. Control practically permanent; affected slightly by moss growth in summer.

ICE.—None.

DIVERSIONS.—None above station.

REGULATION.—Flow in canal regulated by headgates.

ACCURACY.—Stage-discharge relation permanent after June 11; affected by moss growth. Well-defined rating curve applicable June 11 to September 30; parallel curve May 1–15; shifting-control method May 16 to June 10. Gage read to hundredths once daily. Daily discharge determined by applying daily gage height to rating table. Records good.

Canal diverts water from East Fork of Sevier River in SW. ¼ sec. 15, T. 31 S., R. 2 W., for storage in Otter Creek reservoir.

Discharge measurements of Otter Creek reservoir feeder canal at head, near Coyoto, Utah, during the year ending Sept. 30, 1918.

[Made by J. J. Sanford.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*		*Feet.*	*Sec.-ft.*		*Feet.*	*Sec.-ft.*
May 3	3.08	159	June 11	1.80	25.1	Aug. 6	1.72	19.1
15	2.52	87	26	1.82	27.5	Sept. 3	1.77	24.3
29	1.88	28.2	July 10	1.88	33.5	17	1.88	31.2

Daily discharge, in second-feet, of Otter Creek reservoir feeder canal at head, near Coyoto, Utah, for the year ending Sept. 30, 1918.

Day.	May.	June.	July.	Aug.	Sept.	Day.	May.	June.	July.	Aug.	Sept.
1	156	26	28	31	26	16	95	29	39	18	34
2	156	26	29	29	26	17	68	28	32	18	36
3	156	23	36	28	26	18	77	29	26	18	34
4	159	27	34	26	28	19	68	29	28	20	36
5	154	25	55	29	26	20	62	29	29	20	34
6	156	27	52	28	31	21	58	28	80	18	36
7	140	31	37	31	31	22	47	28	28	18	50
8	137	34	36	29	31	23	36	109	29	21	52
9	114	33	34	29	29	24	24	45	26	20	50
10	99	32	40	26	28	25	22	39	26	20	50
11	97	29	42	26	29	26	31	29	28	21	50
12	107	28	48	29	26	27	29	26	29	21	48
13	114	28	47	21	26	28	28	26	28	21	45
14	97	26	71	20	31	29	22	28	40	23	48
15	90	28	42	20	36	30	30	26	34	26	50
						31	28	.....	32	26	.....

Monthly discharge of Otter Creek reservoir feeder canal at head, near Coyoto, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
May	159	22	85.7	5,270
June	109	23	31.7	1,890
July	80	26	37.6	2,310
August	31	18	23.6	1,450
September	52	26	36.1	2,150
The period				13,100

OTTER CREEK RESERVOIR FEEDER CANAL AT MOUTH, NEAR COYOTO, UTAH.

LOCATION.—In sec. 22, T. 30 S., R. 2 W., just above point where canal discharges into reservoir and 4 miles north of Coyoto, Garfield County.

RECORDS AVAILABLE.—July 29 to August 15, 1915, and November 12, 1915, to September 30, 1918.

GAGE.—Vertical staff fastened to right side of rating flume; read by Delbert Moore.

DISCHARGE MEASUREMENTS.—Made from plank across flume.

CHANNEL AND CONTROL.—Artificial earth channel; rating flume forms a permanent control.

ICE.—None.

DIVERSIONS.—Some water diverted from this canal in vicinity of Coyoto for irrigation.

REGULATION.—Flow in canal regulated by headgates.

ACCURACY.—Stage-discharge relation changed August 11 by removal of fish screen in flume. Rating curves well defined. Gage read to tenths once daily. Gage-height record June 7 to July 9 is somewhat doubtful. Daily discharge determined by applying daily gage height to rating table, except as estimated for period of doubtful gage-height record, and for period September 22–28 when gage was not read. Records fair.

This canal diverts water from East Fork of Sevier River in SW. ¼ sec. 15, T. 31 S., R. 2 W., near Coyoto, for storage in Otter Creek reservoir.

Discharge measurements of Otter Creek reservoir feeder canal at mouth, near Coyoto, Utah, during the year ending Sept. 30, 1918.

[Made by J. J. Sanford.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*		*Feet.*	*Sec.-ft.*		*Feet.*	*Sec.-ft.*
Oct. 13	1.46	42.6	May 15	1.75	76	July 10	1.37	38.6
Dec. 4	1.64	61	29	.88	7.8	Aug. 5	.88	7.3
Jan. 8	1.56	54	June 12	.76	2.9	Sept. 3	1.10	24.4
Mar. 13	2.30	138	July 2	.75	2.3	17	1.20	29.4
Apr. 9	2.06	112						

Daily discharge, in second-feet, of Otter Creek reservoir feeder canal at mouth, near Coyoto, Utah, for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar	Apr.	May.	June.	July.	Aug.	Sept.
1	58	68	68	58	58	58	103	136	8.5	3	28	23
2	58	68	68	58	58	58	97	136	6.2	2	28	23
3	58	68	74	58	58	58	91	142	4	10	18	23
4	58	68	68	58	0	63	91	142	4	10	13	26
5	58	68	68	63	0	63	91	129	4	28	13	26
6	58	68	68	58	53	66	103	129	4	28	13	26
7	53	68	68	53	53	68	103	129	3	36	13	26
8	48	68	68	53	53	68	103	103	3	36	13	30
9	48	68	63	58	53	68	116	103	3	36	13	30
10	48	68	63	58	53	74	116	91	3	38	13	34
11	44	63	63	58	53	74	136	79	3	48	14	38
12	44	63	63	53	53	74	142	68	3	32	14	38
13	44	63	58	53	58	129	136	79	3	58	14	38
14	44	63	58	48	58	136	129	79	3	58	14	38
15	48	63	58	44	58	136	129	74	3	48	14	38
16	48	63	58	44	58	129	116	68	3	48	14	38
17	48	63	58	44	58	142	116	58	3	48	14	30
18	48	58	58	44	58	142	116	48	3	48	14	30
19	48	58	58	40	53	122	116	40	3	48	17	30
20	48	58	58	40	53	110	103	40	3	103	17	30
21	53	58	53	42	53	91	103	40	6.2	155	17	30
22	53	53	48	44	53	91	116	36	8.5	103	17	40
23	53	53	58	44	53	91	129	36	48	103	17	45
24	56	63	58	44	58	91	129	32	28	103	20	45
25	58	63	58	48	58	91	142	32	15	79	20	45
26	58	68	58	53	58	91	142	32	5	79	20	46
27	63	68	58	58	58	91	129	24	3	48	23	46
28	63	68	58	63	58	91	129	18	3	40	23	46
29	66	68	58	58	.....	91	129	11	3	40	23	46
30	66	68	58	58	.....	103	129	13	3	40	23	46
31	66	.....	58	58	.....	103	.....	11	.....	28	23	.....

Monthly discharge of Otter Creek reservoir feeder canal at mouth, near Coyoto, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	66	44	53.7	3,300
November	68	53	64.2	3,820
December	74	48	60.9	3,740
January	63	40	52.0	3,200
February	58	0	51.7	2,870
March	142	58	92.4	5,680
April	141	91	118	7,020
May	142	11	69.6	4,280
June	48	3	6.51	387
July	155	2	51.1	3,140
August	28	13	17.3	1,060
September	46	23	35.0	2,080
The year	155	0	56.1	40,600

KINGSTON CANAL AT KINGSTON, UTAH.

LOCATION.—In NE. ¼ sec. 15, T. 30 S., R. 3 W., 300 feet below head of canal, at east edge of Kingston, Piute County, on road to Coyoto.

RECORDS AVAILABLE.—May 15, 1914, to September 30, 1918; irrigation seasons only.

GAGE.—Stevens continuous water-stage recorder, with inside and outside staff gages.

DISCHARGE MEASUREMENTS.—Made by wading 75 feet above gage.

CHANNEL AND CONTROL.—Bed composed of gravel. Crest of a combination concrete weir and dividing box in canal just below gage serves as permanent control.

DIVERSIONS.—Above all diversions from canal.

REGULATION.—Flow controlled by headgates.

ACCURACY.—Stage-discharge relation varied slightly June to September. Standard rating curve well defined. Shifting-control method with parallel curves used after June 11 except for period July 10 to August 5. Operation of water-stage recorder satisfactory. Daily discharge for periods April 22 to June 11 and July 10 to August 5, ascertained by applying to rating table the mean daily gage height determined from recorder graph. Records good.

Canal diverts water from left side of East Fork of Sevier River in NW. ¼ sec. 14, T 30 S., R. 3 W., for irrigation near Kingston.

Discharge measurements of Kingston canal at Kingston, Utah, during the year ending Sept. 30, 1918.

[Made by J. J. Sanford.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*		*Feet.*	*Sec.-ft.*		*Feet.*	*Sec.-ft.*
May 9	1.19	25.3	July 2	1.12	19.8	Sept. 3	0.98	13.3
29	1.20	26.5	10	.60	4.0	16	98	12.1
June 11	1.23	26.5.	Aug. 5	1.15	23.3			

Daily discharge, in second-feet, of Kingston canal at Kingston, Utah, for the year ending Sept. 30, 1918.

Day.	Apr.	May.	June.	July.	Aug.	Sept.	Day.	Apr.	May.	June.	July.	Aug.	Sept.
1	.....	22	18	20	22	6	16	.....	23	12	9.2	14	12
2	.....	26	18	20	24	7.4	17	.....	22	12	15	13	12
3	.....	28	18	20	24	13	18	.....	22	12	15	13	11
4	.....	30	18	20	24	12	19	.....	22	17	15	14	11
5	.....	31	18	17	24	12	20	.....	22	24	9.5	14	9.2
6	.....	32	17	11	18	12	21	.....	22	24	5.5	14	8.6
7	.....	29	28	11	14	12	22	12	22	24	12	14	8.9
8	.....	24	28	8.3	14	12	23	12	22	19	20	14	11
9	.....	26	28	4	14	12	24	11	22	12	21	18	11
10	.....	24	28	4	16	12	25	11	22	11	21	19	9.8
11	.....	24	28	4	22	11	26	13	24	12	22	19	9.5
12	.....	24	19	4	22	11	27	19	25	11	21	19	8.6
13	.....	24	13	4	21	12	28	20	26	11	19	14	8.6
14	.....	23	13	4	20	12	29	20	26	11	19	6	8.6
15	.....	24	12	5.5	14	12	30	21	28	15	21	6	8.6
							31	.....	30	.....	22	6	.....

NOTE.—No gage-height record, discharge interpolated Sept. 15, and estimated Sept. 28-30.

Monthly discharge of Kingston canal at Kingston, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
April 22-30	21	11	15.4	275
May	31	22	24.9	1,530
June	28	11	17.7	1,050
July	22	4	13.7	842
August	24	6	16.5	1,010
September	13	6	10.6	630
The period	.....	.....	.....	5,340

BULLION CREEK (UPPER STATION) NEAR MARYSVALE, UTAH.

LOCATION.—In sec. 35, T. 27 S., R. 4 W., half a mile above Cuff's ranch and 3 miles southwest of Marysvale, Piute County.

DRAINAGE AREA.—Not measured.

RECORDS AVAILABLE.—May 13 to September 30, 1918.

GAGE.—Vertical enamel staff on right bank 100 yards above Taylor canal heading; installed August 22, 1917; read by Mildred Cuff.

DISCHARGE MEASUREMENTS.—Made by wading near gage.

CHANNEL AND CONTROL.—Channel straight for 50 feet above and 150 feet below gage. Current swift. Banks low and subject to overflow. One channel at all stages. Stream bed composed of rocks and gravel.

EXTREMES OF DISCHARGE.—Maximum stage recorded during period of record, 1.60 feet June 13 (discharge, 92 second-feet); minimum stage recorded, 0.75 foot September 14, and 16–21 (discharge, 5.2 second-feet).

ICE.—No record during winter.

DIVERSIONS.—Above all diversions.

REGULATION.—None.

ACCURACY.—Stage-discharge relation permanent after June 17; changed slightly prior to that date. Rating curve well defined for use after June 17; shifting-control method used May 13 to June 16. Gage read to hundredths once a day. Daily discharge beginning June 17, ascertained by applying daily gage height to rating table. Records good.

Discharge measurements of Bullion Creek (upper station) near Marysvale, Utah, during the period Aug. 22, 1917, to Sept. 30, 1918.

[Made by J. J. Sanford.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
1917.	*Feet.*	*Sec.-ft.*	1918.	*Feet.*	*Sec.-ft.*	1918.	*Feet.*	*Sec.-ft.*
Aug. 22	0.92	6.6	May 16	1.22	22.1	July 20	1.00	12.0
Sept. 13	.95	6.8	June 17	1.50	66.3	Aug. 19	.76	5.2
			29	1.20	24.3			

Daily discharge, in second-feet, of Bullion Creek (upper station) near Marysvale, Utah, for the year ending Sept. 30, 1918.

Day.	May.	June.	July.	Aug.	Sept.	Day.	May.	June.	July.	Aug.	Sept.
1	.....	32	21	7.8	5.7	16	25	76	16	7.2	5.2
2	.....	58	18	7.5	5.7	17	27	82	16	6.6	5.2
3	.....	53	17	7.5	5.7	18	29	76	14	6.0	5.2
4	.....	71	17	7.2	5.7	19	30	71	17	5.7	5.2
5	.....	62	17	7.5	5.7	20	34	71	12	5.7	5.2
6	.....	69	16	8.1	5.7	21	30	66	12	5.7	5.2
7	.....	64	16	7.8	5.7	22	34	62	11	5.7	5.7
8	.....	60	17	7.5	5.7	23	39	62	11	5.7	14
9	.....	84	17	7.2	5.7	24	51	58	10	5.7	12
10	.....	89	16	6.6	5.7	25	47	58	10	5.7	9.6
11	.....	79	16	6.6	5.6	26	51	55	8.4	5.7	7.2
12	.....	84	21	6.9	5.6	27	43	51	8.4	5.7	6.0
13	16	92	28	7.8	5.4	28	37	34	8.1	5.7	5.7
14	20	82	17	8.4	5.2	29	33	24	7.8	5.7	6.0
15	22	82	17	7.8	5.4	30	31	23	7.5	5.7	5.8
						31	31	.....	7.8	5.7	.....

Monthly discharge of Bullion Creek (upper station) near Marysvale, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
May 13-31	51	16	33.2	1,250
June	92	23	64.3	3,830
July	28	7.5	14.5	892
August	8.4	5.7	6.65	409
September	14	5.2	6.25	372
The period				6,750

BULLION CREEK AT MARYSVALE, UTAH.

LOCATION.—In sec. 20, T. 27 S., R. 3 W., 300 feet above bridge over Bullion Creek at Marysvale, Piute County.

DRAINAGE AREA.—Not measured.

RECORDS AVAILABLE.—May 14 to September 30, 1918.

GAGE.—Vertical enamel staff gage on left bank; read by Fern Kelly.

DISCHARGE MEASUREMENTS.—Made by wading near gage.

CHANNEL AND CONTROL.—Channel straight for 100 feet above and 50 feet below gage. Current swift. Banks low and subject to overflow. One channel at all stages. Stream bed composed of rocks and gravel.

EXTREMES OF DISCHARGE.—Maximum stage recorded during the year, 1.40 feet at 9 a. m. June 15 (discharge, 46 second-feet). Creek dry a large part of the year.

ICE.—No record during winter.

DIVERSIONS.—Station is below all diversions from Bullion Creek and shows amount of water entering Sevier River.

REGULATION.—By diversions only.

ACCURACY.—Stage-discharge relation permanent during period of records. Rating carve fairly well defined. Staff gage read to tenths once daily. Daily discharge determined by applying daily gage height to rating table. Records fair.

Discharge measurements of Bullion Creek at Marysvale, Utah, during the year ending Sept. 30, 1918.

[Made by J. J. Sanford.]

Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*
June 17	1.15	29.2
29	.38	.7
July 20	.50	1.6

Daily discharge, in second-feet, of Bullion Creek at Marysvale, Utah, for the year ending Sept. 30, 1918.

Day.	May.	June.	July.	Day.	May.	June.	July.	Day.	May.	June.	July.
1		0.0	0.0	11		32	0.2	21	0.0	26	0.2
2		.0	.0	12		26	.8	22	.0	20	2.0
3		3.5	.0	13		39	3.5	23	.8	20	.2
4		10	.0	14		39	2.0	24	3.5	25	2.0
		10	.0	15	0.0	46	2.0	25	.1	20	.2
6		20	.0	16	.0	39	.8	26	.0	10	.1
7		20	.0	17	.0	32	2.0	27	.0	3.5	.0
8		20	.0	18	.1	39	.2	28	.0	2.0	.0
9		20	.0	19	.0	26	.8	29	.0	.8	.0
10		26	.8	20	.1	32	2.0	30	.0	.0	.0
								31	.0		.0

NOTE.—Creek dry during August and September.

Monthly discharge of Bullion Creek at Marysvale, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
May 14–31	3.5	0	0.256	9
June	46	0	20.2	1,200
July	3.5	0	.639	39
The period				1,250

CLEAR CREEK AT SEVIER, UTAH.

LOCATION.—In SE. ¼ sec. 32, T. 25 S., R. 4 W., at Sevier, Sevier County, 100 yards above confluence of stream with Sevier River. Dry Creek enters from right 2½ miles above and Mill Creek 8 miles above station.

DRAINAGE AREA.—150 square miles (measured on topographic maps).

RECORDS AVAILABLE.—February 23, 1912, to September 30, 1918.

GAGE.—Stevens 8-day water-stage recorder on right bank during 1918. Stevens continuous recorder April 4, 1914, to September 30, 1917; vertical staff at same site February 23, 1912, to April 3, 1914. All gages at same datum.

DISCHARGE MEASUREMENTS.—Made by wading or from log bridge just above gage.

CHANNEL AND CONTROL.—One channel at all stages. Bed composed of sand and gravel. Concrete cut-off wall, installed just below gage August 31, 1914, serves as control.

EXTREMES OF DISCHARGE.—Maximum stage during period April 6 to September 30, from water-stage recorder, 2.68 feet at midnight June 15 (discharge, 110 second-feet); minimum stage, 0.76 foot August 28 to September 4 (discharge, 2.6 second-feet).

1912–1918: Maximum stage recorded, 3.15 feet May 24, 1914 (discharge, 240 second-feet); stream dry August 26, 1913.

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

DIVERSIONS.—Cove canal diverts about three-fourths of a mile above the station.

REGULATION.—Flow affected slightly by the operation of a small reservoir on one of the tributaries.

ACCURACY.—Stage-discharge relation permanent after May 9; changed during April and May. Rating curve well defined. Operation of water-stage recorder satisfactory except for several short periods. Daily discharge ascertained by applying to rating table the mean daily gage height determined from recorder graph by inspection; shifting-control method used April 6 to May 9. Discharge interpolated June 26–27, August 5–6, and August 31 to September 1. Discharge July 12–16 estimated from recorded range in stage, the clock having stopped. No record October 1 to April 5. Records good.

Discharge measurements of Clear Creek at Sevier, Utah, during the year ending Sept. 30, 1918.

[Made by J. J. Sanford.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*		*Feet.*	*Sec.-ft.*		*Feet.*	*Sec.-ft.*
Apr. 6	1.30	18.4	May 28	1.74	46.2	July 6	0.96	5.4
20	1.23	12.7	June 17	2.09	65.8	30	1.09	8.6
May 10	1.54	31.2						

Daily discharge, in second-feet, of Clear Creek at Sevier, Utah, for the year ending Sept. 30, 1918.

Day.	Apr.	May.	June.	July.	Aug.	Sept.	Day.	Apr.	May.	June.	July.	Aug.	Sept.
1	.....	29	33	18	3.2	2.6	16	27	28	90	15	4.0	4.0
2	.....	25	30	14	3.1	2.6	17	24	28	78	15	4.6	4.0
3	.....	27	28	13	3.0	2.6	18	22	29	55	12	4.8	4.0
4	.....	31	31	7.5	3.2	2.6	19	14	29	55	10	3.8	3.9
5	.....	32	34	7.5	3.4	2.7	20	13	29	54	8.7	3.6	3.6
6	18	34	37	6.0	3.6	2.9	21	14	31	53	8.7	3.6	3.4
7	26	34	41	4.4	3.7	3.2	22	17	32	51	6.0	3.2	3.4
8	23	33	41	4.0	3.5	3.2	23	20	35	49	3.7	2.8	5.6
9	26	33	40	3.8	3.5	3.1	24	24	40	44	4.2	2.8	3.7
10	31	31	40	3.9	3.5	3.1	25	28	44	37	3.8	2.7	3.5
11	35	31	41	4.4	3.7	3.1	26	30	44	34	3.5	2.7	3.5
12	36	30	42	4.0	3.9	3.1	27	30	44	31	3.3	2.7	3.5
13	35	28	42	5.0	3.6	3.1	28	27	43	28	6.0	2.6	3.5
14	32	28	43	20	3.7	3.9	29	27	40	22	12	2.6	3.4
15	29	28	58	25	3.8	4.0	30	27	37	20	8.1	2.6	3.4
							31	.....	36	.....	3.2	2.6	.....

Monthly discharge of Clear Creek at Sevier, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
April 6–30	36	13	25.4	1,260
May	44	25	33.0	2,030
June	90	20	42.7	2,540
July	25	3.2	8.51	523
August	4.8	2.6	3.36	207
September	5.6	2.6	3.41	203
The period				6,760

COVE CANAL AT SEVIER, UTAH.

LOCATION.—In sec. 32, T. 25 S., R. 4 W., 90 feet below head of canal and three-quarters of a mile west of post office at Sevier, Sevier County.

RECORDS AVAILABLE.—May 29, 1914, to September 30, 1918; irrigation seasons only.

GAGE.—Stevens continuous water-stage recorder with outside and inside staff gages.

DISCHARGE MEASUREMENTS.—Made by wading at gage.

CHANNEL AND CONTROL.—Earth section. Wooden weir just below gage. New control installed before irrigation season of 1917.

DIVERSIONS.—Above all diversions from the canal.

REGULATION.—Flow controlled by headgates.

ACCURACY.—Stage-discharge relation changed by removal of crest board on weir on June 16; board replaced July 28. Rating curves well defined. Operation of water-stage recorder satisfactory. Daily discharge ascertained by applying to rating table the mean daily gage height determined from recorder graph. Records good.

Canal diverts water from left bank of Clear Creek in NW. ¼ sec. 32, T. 25 S., R. 4 W. Water used for irrigation between Sevier and Joseph.

Discharge measurements of Cove canal at Sevier, Utah, during the year ending Sept. 30, 1918.

[Made by J. J. Sanford.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*		*Feet.*	*Sec.-ft.*		*Feet.*	*Sec.-ft.*
Apr. 15	0.97	6.9	June 17	1.68	23.3	July 30	0.84	4.5
May 28	1.86	25.5	July 17	1.48	19.1	Aug. 23	1.10	8.5

Daily discharge, in second-feet, of Cove canal at Sevier, Utah, for the year ending Sept. 30, 1918.

Day.	Apr.	May.	June.	July.	Aug.	Sept.	Day.	Apr.	May.	June.	July.	Aug.	Sept.
1	.....	19	23	21	12	7.8	16	6.4	21	8	20	17	7.0
2	.....	20	23	20	12	7.3	17	6.1	24	16	18	16	7.0
3	.....	20	24	19	13	7.3	18	8.2	25	28	18	16	6.8
4	.....	26	26	21	12	7.9	19	14.	25	22	16	13	6.7
5	.....	29	26	21	13	9.1	20	14.	26	26	16	10	6.6
6	.....	29	26	18	16	9.1	21	14	26	25	15	10	4.3
7	.....	27	26	15	16	11	22	15	24	23	15	9.3	5.8
8	4.6	25	26	16	16	11	23	16	23	19	15	8.9	16
9	5.0	23	26	17	15	10	24	17	24	18	13	8.4	12
10	5.0	22	26	18	15	9.1	25	18	26	18	11	7.9	12
11	6.0	21	28	19	16	8.2	26	17	26	18	9.3	7.3	11
12	7.0	21	29	18	16	7.6	27	16	26	19	6.8	7.2	12
13	7.6	22	28	22	15	7.3	28	15	26	19	6.0	7.3	13
14	7.4	20	29	21	16	7.3	29	17	26	20	5.2	7.3	13
15	6.6	20	24	21	16	7.0	30	19	25	22	5.4	7.4	12
							31	.....	24	.....	11	7.8	.....

NOTE.—No record Apr. 9-12; discharge estimated.

Monthly discharge of Cove canal at Sevier, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
April 8-30	19	4.6	11.4	520
May	29	19	23.9	1,470
June	29	8.0	23.0	1,370
July	22	5.2	15.8	972
August	17	7.2	12.3	756
September	16	4.3	9.07	540
The period	.....	.....	.....	5,630

MONROE-SOUTH BEND CANAL NEAR JOSEPH, UTAH.

LOCATION.—In sec. 23, T. 25 S., R. 4 W., at highway bridge half a mile below head of canal and 2 miles south of Joseph, Sevier County.

RECORDS AVAILABLE.—April 18, 1914, to September 30, 1918; irrigation seasons only.

GAGE.—Stevens continuous water-stage recorder with inside and outside staff gages, on right bank immediately below bridge; installed April 8, 1918. Prior to that date gage was on left bank half a mile upstream.

DISCHARGE MEASUREMENTS.—Made from highway bridge at gage.

CHANNEL AND CONTROL.—Earth section. Bed composed of sandy loam.

DIVERSIONS.—Above all diversions from canal.

REGULATION.—Flow controlled by headgates.

ACCURACY.—Stage-discharge relation permanent at each location of gage. Rating curves well defined. Operation of water-stage recorder satisfactory. Daily discharge ascertained by applying to rating table the mean daily gage height determined from recorder graph. Discharge April 1–7, estimated. Records good.

Canal diverts water from right bank of Sevier River in NW. ¼ sec. 27, T. 25 S., R. 4 W. Water used for irrigation southeast of Joseph.

Discharge measurements of Monroe-South Bend canal near Joseph, Utah, during the year ending Sept. 30, 1918.

[Made by J. J. Sanford.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*		*Feet.*	*Sec.-ft.*		*Feet.*	*Sec.-ft.*
Oct. 30	0.90	27.6	June 18	6.01	81	Sept. 9	5.42	45.7
Apr. 13	5.66	62	July 6	5.90	70	30	5.36	39.4
May 7	5.75	66	30	5.78	63			
28	5.88	72	Aug. 13	5.75	65			

NOTE.—Gage moved half a mile downstream on April 8.

Daily discharge, in second-feet, of Monroe-South Bend canal near Joseph, Utah, for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Apr.	May.	June.	July.	Aug.	Sept.
1	57	28	5	56	74	76	65	63
2	55	28	5	55	74	76	65	59
3	53	25	5	55	74	75	65	50
4	52	25	5	55	75	75	65	45
5	57	25	5	55	77	75	63	45
6	62	25	5	57	78	74	63	45
7	62	26	5	63	78	73	64	45
8	62	26	29	65	77	73	64	45
9	62	26	59	65	78	73	64	45
10	61	27	60	64	58	74	64	44
11	60	27	60	64	4	74	64	44
12	60	28	60	64	23	73	64	44
13	60	28	59	63	80	77	64	44
14	60	28	58	63	81	77	64	45
15	59	27	58	62	82	75	64	45
16	58	25	58	62	82	75	63	44
17	56	25	57	62	82	75	63	44
18	55	25	54	62	83	75.	64	42
19	54	26	60	63	85	74	65	42
20	51	26	53	64	90	74	64	40
21	48	26	57	65	89	74	64	40
22	45	26	57	66	87	73	65	38
23	40	26	53	67	87	70	65	41
24	35	28	46	67	86	65	66	45
25	35	27	45	67	84	66	65	50
26	35	28	45	68	82	67	66	48
27	32	27	46	70	80	36	63	45
28	28	27	54	73	79	12	66	42
29	26	28	54	73	78	19	66	41
30	27	28	57	74	77	66	66	41
31	28	.....	.....	74	.....	65	65	.....

Monthly discharge of Monroe-South Bend canal near Joseph, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	62	26	49.5	3,040
November	28	25	26.6	1,580
April	60	5	42.5	2,530
May	74	55	64.0	3,940
June	90	4	75.5	4,490
July	77	12	67.9	4,180
August	66	63	64.5	3,970
September	63	38	45.0	2,680

SEVIER VALLEY CANAL NEAR JOSEPH, UTAH.

LOCATION.—Near line between secs. 22 and 27, T. 25 S., R. 4 W., at station 20 on canal, 1½ miles south of Joseph, Sevier County.

RECORDS AVAILABLE.—May 18, 1912, to September 30, 1918; irrigation seasons only.

GAGE.—Stevens continuous water-stage recorder on left bank since May 13, 1913. Original gage, used May 18, 1912, to May 12, 1913, was a vertical staff 10 feet above State weir, in SE. ¼ sec. 15, T. 25 S., R. 4 W.

DISCHARGE MEASUREMENTS.—Made from bridge 600 feet downstream or by wading.

CHANNEL AND CONTROL.—Earth section; concrete weir 20 feet below gage serves as permanent control.

DIVERSIONS.—Joseph canal diverts from right bank of Sevier Valley canal just above gage.

REGULATION.—Flow controlled by headgates.

ACCURACY.—Stage-discharge relation permanent except April 6–15 and September 16–30 when there were check boards in crest of weir. Rating curve well defined. Parallel curves used when boards were on weir crest. Operation of water-stage recorder satisfactory. Daily discharge ascertained by applying to rating table the mean daily gage height determined from recorder graph. Discharge April 5 estimated. No flow April 1–4. Records good.

Canal diverts from left bank of Sevier River about 1½ miles south of Joseph, in NW. ¼ sec. 27, T. 25 S., R. 4 W. Water used for irrigation in Sevier Valley as far north as Redmond.

Discharge measurements of Sevier Valley canal near Joseph, Utah, during the year ending Sept. 30, 1918.

[Made by J. J. Sanford.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*		*Feet.*	*Sec.-ft.*		*Feet.*	*Sec.-ft.*
Apr. 13	[a] 2.83	92	May 28	3.56	245	Aug. 13	3.50	241
17	1.93	113	June 18	3.84	270	Sept. 9	1.98	114
May 7	3.52	246	July 17	3.80	268	30	[b] 2.16	82
7	3.52	240						

[a] Backwater from crest board in weir, 1.15 feet.
[b] Backwater from crest board in weir, 0.65 foot.

Daily discharge, in second-feet, of Sevier Valley canal near Joseph, Utah, for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Apr.	May.	June.	July.	Aug.	Sept.
1	208	90	0	230	243	257	259	212
2	196	90	0	245	242	244	250	191
3	190	85	0	251	243	246	249	158
4	188	72	0	261	252	250	247	124
5	184	65	6	199	260	253	242	129
6	183	65	26	242	265	257	238	132
7	189	66	34	241	262	259	244	129
8	186	67	30	245	261	265	246	116
9	178	69	29	247	264	265	246	115
10	175	73	32	248	270	267	244	111
11	173	77	53	249	274	252	243	106
12	174	80	74	247	277	252	242	97
13	173	80	96	246	279	272	239	98
14	165	81	98	240	280	275	238	101
15	164	80	97	238	282	272	235	98
16	161	75	98	245	257	269	234	87
17	157	74	106	246	261	275	233	86
18	152	73	108	244	276	289	237	82
19	148	75	97	246	284	285	242	78
20	146	75	114	251	283	269	241	76
21	140	75	124	252	283	253	239	75
22	135	75	127	251	274	253	234	70
23	126	75	132	248	269	255	233	75
24	117	75	148	249	270	257	234	88
25	117	75	165	253	260	269	230	100
26	117	75	167	268	252	272	232	98
27	110	75	167	257	261	282	226	90
28	90	75	194	250	260	299	227	84
29	90	77	209	244	259	302	230	82
30	90	80	224	245	261	275	230	82
31	90	.....	.....	244	.....	263	223	.....

NOTE.—No record, discharge interpolated, Oct. 28, 29, 31, Nov. 1, 2, 24-26, Apr. 11 and 12.

Monthly discharge of Sevier Valley canal near Joseph, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	208	90	152	9,350
November	90	65	75.6	4,500
April	224	0	91.8	5,460
May	268	199	246	15,100
June	284	242	265	15,800
July	302	244	266	16,400
August	259	223	238	14,600
September	212	70	106	6,310

SEVIER VALLEY CANAL NEAR RICHFIELD, UTAH.

LOCATION.—In SW. ¼ sec. 8, T. 23 S., R. 2 W., at State weir, or head of State extension canal, 100 feet below bridge on county road from Richfield to Aurora, and 3½ miles northeast of Richfield, Sevier County.

RECORDS AVAILABLE.—May 21, 1912, to September 30, 1918; irrigation seasons only.

GAGE.—Stevens continuous water-stage recorder on left bank at the weir; installed May 5, 1917, to replace Friez water-stage recorder at same site.

DISCHARGE MEASUREMENTS.—Made from a footbridge about 200 feet below gage or by wading.

CHANNEL AND CONTROL.—Channel in gravel and sandy loam; wooden weir just below gage forms permanent control.

DIVERSIONS.—A number of laterals divert water above the station; water passing the gage is available for the State Piute project.

REGULATION.—Flow controlled by headgates and numerous diversions above.

ACCURACY.—Stage-discharge relation permanent. Rating curve well defined. Water-stage recorder operated satisfactorily. Daily discharge ascertained by applying to rating table the mean daily gage height determined from recorder graph. Canal dry April 1–9. Records excellent.

Discharge measurements of Sevier Valley canal near Richfield, Utah, during the year ending Sept. 30, 1918.

[Made by J. J. Sanford.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*		*Feet.*	*Sec.-ft.*		*Feet.*	*Sec.-ft.*
Oct. 31	1.98	75	June 24	2.74	174	Aug. 22	2.33	138
Apr. 13	.86	25	24	2.70	175	Sept. 5	1.05	36.8
May 6	2.48	151	July 7	2.42	152	20	1.02	34.4
June 5	2.56	160	16	2.73	172			

Daily discharge, in second-feet, of Sevier Valley canal near Richfield, Utah, for the year ending Sept. 30, 1918.

Day.	Apr.	May.	June.	July.	Aug.	Sept.	Day.	Apr.	May.	June.	July.	Aug.	Sept.
1	0	125	158	152	154	142	16	34	155	51	180	146	29
2	0	129	162	135	153	128	17	34	168	115	174	140	28
3	0	132	162	125	148	78	18	42	163	171	193	140	33
4	0	146	168	151	149	57	19	41	162	185	200	140	34
5	0	159	165	166	150	38	20	53	154	184	178	141	35
6	0	131	165	153	142	50	21	66	153	192	146	140	34
7	0	145	158	151	142	55	22	68	151	190	140	137	24
8	0	149	152	160	154	49	23	72	154	183	138	135	24
9	0	148	150	164	155	47	24	76	146	180	141	142	34
10	4	151	155	160	155	59	25	92	165	165	153	138	50
11	7	146	164	141	158	64	26	91	169	156	150	132	55
12	32	149	169	150	155	52	27	88	163	160	167	132	52
13	28	144	176	163	154	41	28	88	165	161	179	133	50
14	53	138	174	173	150	40	29	108	155	157	180	141	48
15	48	140	153	176	146	38	30	114	159	154	173	147	49
							31	.....	154	.....	163	141	.....

Monthly discharge of Sevier Valley canal near Richfield, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
April	114	0	41.3	2,460
May	169	125	151	9,290
June	192	51	161	9,580
July	200	125	160	9,840
August	158	132	145	8,920
September	142	24	50.6	3,010
The period				43,100

STATE CANAL NEAR REDMOND, UTAH.

LOCATION.—In W. ½ sec. 14, T. 20 S., R. 1 W., at station 1,304 of canal survey, 5 miles north of Redmond, Sevier County.

RECORDS AVAILABLE.—May 10, 1913, to September 30, 1918; irrigation seasons only.

GAGE.—Stevens continuous water-stage recorder on right bank August 6, 1915, to September 30, 1918; May 10, 1913, to August 5, 1915, vertical staff on right bank

DISCHARGE MEASUREMENTS.—Made from bridge 10 feet upstream from gage or by wading.

CHANNEL AND CONTROL.—Bed composed of gravel and hardpan; fairly permanent.

DIVERSIONS.—Numerous diversions above gage.

REGULATION.—Flow controlled by headgates and by diversions above.

ACCURACY.—Stage-discharge relation not permanent; changed several times during the season. Rating curves fairly well defined. Operation of water-stage recorder satisfactory. Daily discharge ascertained by applying to rating table the mean daily gage height determined by inspection of recorder graph except for days when considerable fluctuation occurred for which it was obtained by averaging quantities obtained by applying hourly gage height to rating table. Records good.

State canal is an extension of Sevier Valley canal. See Sevier Valley canal near Joseph for point of diversion from Sevier River.

Discharge measurements of State canal near Redmond, Utah, during the year ending Sept. 30, 1918.

[Made by J. J. Sanford.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*		*Feet.*	*Sec.-ft.*		*Feet.*	*Sec.-ft.*
Oct. 17	1.50	17.8	June 10	3.96	114	Sept. 6	1.12	2.8
Apr. 18	1.08	7.0	July 16	3.00	85	21	1.36	9.4
May 20	2.86	80	Aug. 12	2.20	25.6			

Daily discharge, in second-feet, of State canal near Redmond, Utah, for the year ending Sept. 30, 1918.

Day.	Apr.	May.	June.	July.	Aug.	Sept.	Day.	Apr.	May.	June.	July.	Aug.	Sept.
1	.....	52	0	69	0	72	16	5	0	0	69	64	10
2	.....	52	0	17	0	119	17	5	0	18	6	125	13
3	.....	56	0	17	0	59	18	5	22	1	20	119	13
4	.....	62	0	32	1	16	19	5.4	76	5	40	119	12
5	.....	65	5	40	1	9	20	3.0	76	2	46	126	10
6	.....	24	104	48	0	10	21	12	82	0	40	38	9
7	.....	22	54	72	0	15	22	21	91	0	59	0	10
8	.....	.2	117	0	6	0	23	16	90	0	136	0	7
9	.....	.1	121	0	110	0	24	6.6	82	0	140	0	8
10	.....	.8	117	0	54	0	25	14	89	0	145	0	7
11	.....	.2	60	0	23	0	26	22	100	20	128	0	9
12	5	0	14	0	28	0	27	1.7	98	151	61	0	5
13	5	0	12	0	23	0	28	1.5	21	133	0	0	8
14	5	0	13	0	16	0	29	1.5	0	36	0	9	10
15	5	0	5	16	16	0	30	1.5	0	145	0	130	16
							31	.....	0	.....	0	69	.....

Monthly discharge of State canal near Redmond, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
April 12-30	22	1.5	7.43	280
May	100	0	37.5	2,310
June	151	0	37.8	2,240
July	145	0	38.7	2,380
August	130	0	34.7	2,130
September	119	0	14.9	887
The period				10,200

JOSEPH CANAL NEAR JOSEPH, UTAH.

LOCATION.—In SE. ¼ sec. 22, T. 25 S., R. 4 W., 100 yards below head of canal and 1½ miles south of Joseph, Sevier County, on road to Marysvale.

RECORDS AVAILABLE.—April 6, 1914, to September 30, 1918; irrigation seasons only.

GAGE.—Stevens continuous water-stage recorder, with outside and inside staff gages.

DISCHARGE MEASUREMENTS.—Made by wading.

CHANNEL AND CONTROL.—Gravel section. Concrete weir 20 feet below gage.

DIVERSIONS.—Above all diversions.

REGULATION.—Flow controlled by headgates.

ACCURACY.—Stage-discharge relation permanent during 1917; variable April to September, 1918. Standard rating curves fairly well defined. Operation of water-stage recorder satisfactory. Daily discharge ascertained by applying to rating table the mean daily gage height determined from recorder graph. Shifting-control method used May 8 to August 12 and August 24 to September 30. Records good.

Canal diverts water from right bank of Sevier Valley canal in SE. ¼ sec. 22, T. 25 S., R. 4 W. Water used for irrigation in and around Joseph.

Discharge measurements of Joseph canal near Joseph, Utah, during the year ending Sept. 30, 1918.

[Made by J. J. Sanford.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*		*Feet.*	*Sec.-ft.*		*Feet.*	*Sec.-ft.*
Oct. 6	0.68	9.7	May 28	1.76	26.2	July 30	1.73	26.0
30	.42	4.3	June 18	2.27	39.5	Aug. 13	1.49	21.8
Apr. 13	1.12	10.7	July 6	2.12	20.7	23	1.50	23.8
17	1.36	18.9	6	2.02	21.5	Sept. 9	1.37	16.6
May 7	1.64	27.6	17	2.00	33.6	30	1.36	15.6

Daily discharge, in second-feet, of Joseph canal near Joseph, Utah, for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Apr.	May.	June.	July.	Aug.	Sept.
1	16	9	2	21	19	24	18	13
2	13	9	2	26	18	18	17	9
3	11	7	2	28	18	19	16	8
4	11	4	2	29	19	20	17	12
5	10	3	2	27	23	20	21	14
6	12	3	9	25	28	21	30	15
7	13	3	12	26	27	13	31	14
8	19	3	10	29	26	1	27	14
9	25	4	8	27	27	0	22	14
10	24	4	8	24	34	2	21	13
11	17	4	9	23	39	18	20	11
12	4	5	10	21	38	21	21	9
13	3	5	11	21	39	36	23	10
14	11	5	11	19	47	34	20	10
15	12	5	13	20	45	33	19	13
16	11	4	15	24	35	32	18	16
17	10	4	16	22	42	36	19	16
18	9	4	17	21	43	42	22	14
19	6	4	14	21	46	41	24	13
20	5	4	19	23	44	35	24	12
21	4	5	23	23	39	32	23	12
22	4	5	23	20	39	32	21	11
23	4	5	25	20	41	33	22	12
24	4	5	25	21	38	33	23	17
25	4	5	24	21	34	38	21	21
26	4	6	25	17	31	27	22	20
27	4	6	25	13	31	34	19	17
28	4	6	32	18	31	41	21	15
29	4	7	29	22	31	39	22	15
30	6	7	30	21	32	24	20	14
31	8	.....	.....	19	.....	17	17	.....

NOTE.—No record, discharge estimated, Nov. 21–23 and Apr. 1–3.

Monthly discharge of Joseph canal near Joseph, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	25	3	9.42	580
November	9	3	5.00	300
April	32	2	15.1	899
May	29	13	22.3	1,370
June	47	18	33.5	1,990
July	42	0	26.5	1,630
August	31	16	21.3	1,310
September	21	9	13.5	803

WELLS CANAL NEAR JOSEPH, UTAH.

LOCATION.—In SW. ¼ sec. 23, T. 25 S., R. 4 W., three-quarters of a mile below head of canal and 2 miles by wagon road south of Joseph, Sevier County.

RECORDS AVAILABLE.—April 7, 1914, to September 30, 1918; irrigation seasons only.

GAGE.—Stevens continuous water-stage recorder with inside and outside staff gages.

DISCHARGE MEASUREMENTS.—Made from bridge across flume 20 feet above gage.

CHANNEL AND CONTROL.—Wooden flume about 4½ feet wide. Control is a plank across flume 10 feet below gage.

DIVERSIONS.—None above station.

REGULATION.—Flow controlled by headgates.

ACCURACY.—Stage-discharge relation changed during summer by growth of moss in flume. Well-defined rating curve with shifts to parallel curves used for the season. Operation of water-stage recorder satisfactory except September 7–8 and 25–29. Daily discharge ascertained by applying to rating table the mean daily gage height determined from recorder graph. Discharge interpolated for September 7–8 and 25–29. Records good.

Canal diverts water from right side of Sevier River in NE. ¼ sec. 27, T. 25 S., R. 4 W., for irrigation near Joseph.

Discharge measurements of Wells canal near Joseph, Utah, during the year ending Sept. 30, 1918.

[Made by J. J. Sanford.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*		*Feet.*	*Sec.-ft.*		*Feet.*	*Sec.-ft.*
Apr. 20	1.70	21.0	June 18	1.27	10.9	Aug. 23	1.30	10.6
May 7	1.72	18.5	July 6	1.24	10.6	Sept. 30	1.14	10.0
28	1.41	14.5	30	1.41	14.3			

Daily discharge, in second-feet, of Wells canal near Joseph, Utah, for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Apr.	May.	June.	July.	Aug.	Sept.
1	18	1	.....	17	14	9.7	11	9.0
2	16	1	.....	17	13	9.4	11	7.2
3	15	0	.....	16	13	8.8	11	3.3
4	14	0	.....	16	13	7.9	8.6	1.5
5	14	0	.....	17	14	8.6	4.6	1.1
6	13	1	.....	18	15	11	13	.8
7	13	1	.....	18	15	10	13	.8
8	13	1	.....	18	15	10	12	.8
9	12	2	.....	19	15	10	11	.8
10	12	2	.....	19	15	11	12	1.8
11	12	2	.....	19	15	11	11	4.1
12	12	2	.....	19	13	11	12	7.8
13	10	1	.....	18	12	13	12	9.0
14	11	1	.....	16	12	13	11	9.7
15	11	0	.....	15	12	13	11	10
16	10	0	.....	16	13	13	11	10
17	10	0	.....	16	12	11	10	10
18	9	0	.....	16	11	7.9	11	9.4
19	9	0	.....	17	12	7.6	11	9.2
20	8	0	5	16	13	7.6	11	9.1
21	8	0	9	15	13	8.4	10	9.1
22	6	1	13	13	13	7.8	10	9.0
23	4	1	18	13	13	7.4	10	9.2
24	4	1	18	13	13	9.6	10	9.7
25	4	1	19	13	11	11	10	9.7
26	4	2	17	14	11	13	10	9.8
27	3	1	16	14	11	15	11	9.8
28	2	1	16	14	11	18	9.4	9.9
29	1	1	16	14	10	17	11	9.9
30	2	1	16	14	10	14	11	10
31	1	.....	.....	14	.....	12	10	.....

NOTE.—No water in canal Apr. 1–19.

Monthly discharge of Wells canal near Joseph, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	18	1	9.06	557
November	2	0	.33	51
April	19	0	5.43	323
May	19	13	15.9	978
June	15	10	12.8	762
July	18	7.4	10.9	670
August	13	4.6	10.7	658
September	10	.8	7.05	420

MONROE CANAL NEAR ELSINORE, UTAH.

LOCATION.—In SW. ¼ sec. 6, T. 25 S., R. 3 W., 1 mile below head of canal and 3½ miles southwest of Elsinore, Sevier County.

RECORDS AVAILABLE.—April 4, 1914, to September 30, 1918; irrigation seasons only.

GAGE.—Stevens continuous water-stage recorder on left bank, with inside and outside staff gages.

DISCHARGE MEASUREMENTS.—Made by wading.

CHANNEL AND CONTROL.—One channel at all stages. Bed composed of gravel. Concrete weir with 18-inch flashboards, 15 feet below gage, serves as permanent control.

DIVERSIONS.—Above all diversions.

REGULATION.—Flow controlled by headgates.

ACCURACY.—Stage-discharge relation permanent. Rating curve well defined. Operation of water-stage recorder satisfactory. Daily discharge ascertained by applying to rating table the mean daily gage height determined from recorder graph. Records excellent.

Canal diverts water from right bank of Sevier River in NW. ¼ sec. 12, T. 25 S., R. 4 W. Water used for irrigation in and around Monroe.

Discharge measurements of Monroe canal near Elsinore, Utah, during the year ending Sept. 30, 1918.

[Made by J. J. Sanford.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*		*Feet.*	*Sec.-ft.*		*Feet.*	*Sec.-ft.*
Oct. 30	0.82	25.6	June 18	1.48	69	Sept. 6	1.10	43.1
Apr. 17	1.00	36.9	July 31	1.28	53	30	1.08	40.6
May 21	1.36	60	Aug. 23	1.22	51			

Daily discharge, in second-feet, of Monroe canal near Elsinore, Utah, for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Apr.	May.	June.	July.	Aug.	Sept.
1	65	21	1	52	62	62	54	51
2	65	20	1	55	62	61	43	50
3	65	18	1	55	63	61	48	47
4	65	20	1	58	65	61	49	44
5	63	22	1	57	65	61	49	43
6	62	22	1	56	63	60	49	42
7	42	22	6	56	63	61	50	43
8	16	22	29	59	65	62	50	46
9	61	22	29	60	63	62	51	46
10	59	22	29	59	63	62	52	46
11	59	20	29	58	62	61	55	45
12	59	20	29	60	62	60	56	47
13	60	20	29	60	62	60	56	47
14	59	20	30	62	45	60	55	48
15	59	18	35	62	11	60	54	48
16	58	18	35	63	67	60	52	43
17	58	17	36	65	69	60	52	39
18	60	16	40	64	69	60	52	39
19	54	16	43	62	68	60	52	39
20	42	16	50	63	68	61	51	39
21	28	16	55	62	68	62	50	39
22	3	15	56	59	69	62	50	38
23	22	15	57	59	69	62	51	38
24	32	14	52	62	69	62	51	40
25	31	13	50	66	68	62	51	42
26	30	12	50	66	67	62	51	42
27	27	12	49	65	64	62	51	41
28	24	12	52	63	62	62	51	41
29	23	12	55	63	62	62	51	41
30	24	11	52	63	62	57	51	41
31	24	.....	.....	62	.....	55	51	.....

NOTE.—No record, discharge interpolated Nov. 24 and 25; estimated Apr. 1 and 2.

Monthly discharge of Monroe canal near Elsinore, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	65	3	45.1	2,770
November	22	11	17.5	1,040
April	57	1	32.8	1,950
May	66	52	60.5	3,720
June	69	52	62.6	3,720
July	62	55	60.8	3,740
August	56	43	51.3	3,150
September	51	38	43.2	2,570

ELSINORE CANAL NEAR ELSINORE, UTAH.

LOCATION.—In NW. ¼ sec. 6, T. 25 S., R. 3 W., 300 yards below head of canal and 2½ miles southwest of Elsinore, Sevier County.

RECORDS AVAILABLE.—April 11, 1914, to September 30, 1918; irrigation seasons only.

GAGE.—Stevens continuous water-stage recorder, with inside and outside staff gages.

DISCHARGE MEASUREMENTS.—Made by wading near gage.

CHANNEL AND CONTROL.—Bed composed of gravel. Concrete weir 10 feet below gage.

DIVERSIONS.—Above all diversions from canal.

REGULATION.—Flow controlled by headgates.

ACCURACY.—Stage-discharge relation changed during winter, also during the period July 7–30 because of accumulation of moss in the channel. Rating curves well defined. Operation of water-stage recorder satisfactory. Daily discharge ascertained by applying to rating table the mean daily gage height determined from recorder graph. Shifting-control method used for period July 7–30. Records good.

Canal diverts water from left bank of Sevier River just above the Denver & Rio Grande Western Railroad bridge over the river south of Elsinore, in NW. ¼ sec. 6, T. 25 S., R. 3 W. Water used for irrigation in and around Elsinore.

Discharge measurements of Elsinore canal near Elsinore, Utah, during the year ending Sept. 30, 1918.

[Made by J. J. Sanford.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*		*Feet.*	*Sec.-ft.*		*Feet.*	*Sec.-ft.*
Oct. 6	1.08	9.3	June 18	1.84	19.7	Aug. 23	1.82	17.0
Apr. 17	1.74	17.4	July 6	1.79	19.2	Sept. 6	1.70	12.8
20	2.01	28.7	31	1.77	15.6	30	1.68	11.8
May 21	2.08	33.2						

Daily discharge, in second-feet, of Elsinore canal near Elsinore, Utah, for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Apr.	May.	June.	July.	Aug.	Sept.
1	12	3	4	39	30	23	14	10
2	12	3	4	37	30	25	15	8
3	11	3	4	38	30	24	16	9
4	9	3	4	37	32	23	16	6
5	9	3	4	46	32	22	16	10
6	9	3	4	38	34	19	15	13
7	8	3	3	37	33	19	16	14
8	8	3	2	37	32	20	16	16
9	8	3	2	37	32	20	16	16
10	9	3	2	36	34	20	16	15
11	11	3	2	36	43	20	17	15
12	10	4	2	35	41	19	15	17
13	8	3	2	35	35	21	15	17
14	7	4	2	35	37	21	15	16
15	7	4	8	34	37	21	15	15
16	7	4	13	33	35	22	14	14
17	7	4	14	33	26	20	14	13
18	7	4	22	32	21	16	16	14
19	6	3	26	32	20	17	18	13
20	7	3	28	32	19	17	18	13
21	7	3	30	32	18	19	16	13
22	7	3	29	30	12	18	15	12
23	6	3	28	32	7	16	16	13
24	6	3	29	32	5	14	16	14
25	6	3	28	32	4	15	15	15
26	5	3	27	32	14	15	16	15
27	5	3	27	33	24	16	16	15
28	4	3	32	32	22	17	15	14
29	4	3	35	32	22	15	15	13
30	4	3	37	32	23	14	15	12
31	4	.....	.....	31	.....	15	13	.....

NOTE.—No gage-height record Apr. 1 and 2, discharge estimated.

Monthly discharge of Elsinore canal near Elsinore, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	12	4	7.42	456
November	4	3	3.20	190
April	37	2	15.1	898
May	46	30	34.5	2,120
June	43	4	26.1	1,550
July	25	14	18.8	1,160
August	18	13	15.5	953
September	17	6	13.3	791

BROOKLYN CANAL NEAR ELSINORE, UTAH.

LOCATION.—In sec. 6, T. 25 S., R. 3 W., a quarter of a mile below head of canal and 2½ miles southwest of Elsinore, Sevier County.

RECORDS AVAILABLE.—April 13, 1914, to September 30, 1918; irrigation seasons only.

GAGE.—Stevens continuous water-stage recorder on left bank, with outside and inside staff gages.

DISCHARGE MEASUREMENTS.—Made from bridge 75 feet above gage.

CHANNEL AND CONTROL.—Bed composed of gravel. Concrete weir with flashboard 200 feet below gage serves as permanent control.

DIVERSIONS.—Above all diversions from canal.

REGULATION.—Flow controlled by headgates.

ACCURACY.—Stage-discharge relation changed slightly during the winter; permanent after April 18. Crest board was out of weir April 1–18. Rating curves well defined. Operation of water-stage recorder satisfactory. Daily discharge ascertained by applying to rating table the mean daily gage height determined from recorder graph. Records good.

Canal diverts water from right bank of Sevier River near the Denver & Rio Grande Western Railroad bridge over the river south of Elsinore, in sec. 6, T. 25 S., R. 3 W. Water used for irrigation east of Elsinore.

Discharge measurements of Brooklyn canal near Elsinore, Utah, during the year ending Sept. 30, 1918.

[Made by J. J. Sanford.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*		*Feet.*	*Sec.-ft.*		*Feet.*	*Sec.-ft.*
Oct. 30	1.73	22.3	June 18	2.52	55.6	Aug. 23	1.70	21.6
Apr. 17	1.30	23.3	July 15	2.05	37.4	Sept. 6	1.56	18.3
19	1.75	24.4	31	1.76	24.0	30	1.63	21.4
May 21	2.26	45.7						

Daily discharge, in second-feet, of Brooklyn canal near Elsinore, Utah, for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Apr.	May.	June.	July.	Aug.	Sept.
1	32	21	22	44	44	39	24	21
2	31	21	22	46	44	36	23	20
3	30	19	22	48	43	35	23	20
4	29	15	22	48	42	35	23	20
5	28	17	22	76	42	36	23	19
6	26	20	21	54	42	35	23	18
7	26	20	20	45	43	35	23	18
8	34	21	20	48	43	35	23	19
9	37	21	19	51	42	35	23	19
10	37	20	18	51	40	35	23	19
11	37	23	18	47	52	36	23	19
12	37	25	26	46	56	35	23	19
13	37	25	30	46	45	36	22	19
14	36	26	30	48	45	36	22	19
15	36	25	30	47	48	36	22	19
16	35	24	28	46	48	36	22	19
17	34	24	24	46	46	35	22	19
18	33	24	24	45	52	34	22	20
19	34	25	25	45	54	34	22	19
20	35	42	28	45	58	34	23	19
21	35	33	36	45	60	35	22	19
22	38	31	35	45	59	34	22	19
23	32	30	48	45	58	34	22	20
24	28	29	48	45	59	33	22	22
25	27	28	35	45	52	33	22	22
26	25	26	32	45	46	33	22	22
27	24	26	32	45	44	33	22	22
28	22	26	37	46	44	34	22	22
29	22	26	42	46	42	33	22	21
30	22	26	44	46	41	27	22	20
31	22	.....	.....	45	.....	25	22	.....

NOTE.—Discharge estimated because of no gage-height record Oct. 1–5, Nov. 22–25, 27–30, and Apr. 1–3. No record December to March.

Monthly discharge of Brooklyn canal near Elsinore, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	38	22	31.0	1,910
November	42	15	24.6	1,460
April	48	18	28.7	1,710
May	76	44	47.4	2,910
June	60	40	47.8	2,840
July	39	25	34.3	2,110
August	24	22	22.5	1,380
September	22	18	19.8	1,180

RICHFIELD CANAL NEAR ELSINORE, UTAH.

LOCATION.—In NE. ¼ sec. 6, T. 25 S., R. 3 W., 200 feet below head of canal and 2 miles southwest of Elsinore, Sevier County.

RECORDS AVAILABLE.—April 11, 1914, to September 30, 1918; irrigation seasons only.

GAGE.—Stevens continuous water-stage recorder on right bank, with inside and outside staff gages.

DISCHARGE MEASUREMENTS.—Made by wading 75 feet above gage.

CHANNEL AND CONTROL.—Bed composed of gravel and sand. Concrete weir, with removable flashboards, 10 feet below gage, served as control until May 10, 1916, when permanent crest was installed.

DIVERSIONS.—Above all diversions from canal.

REGULATION.—Flow controlled by headgates.

ACCURACY.—Stage-discharge relation permanent. Rating curve well defined. Operation of water-stage recorder satisfactory. Daily discharge ascertained by applying to rating table the mean daily gage height determined from recorder graph. Records excellent.

Canal diverts water from left bank of Sevier River a short distance below the Denver & Rio Grande Western Railroad bridge south of Elsinore, in NW. ¼ sec. 6, T. 25 S., R. 3 W. Water used for irrigation in Sevier Valley west of the river, between Elsinore and Richfield.

Discharge measurements of Richfield canal near Elsinore, Utah, during the year ending Sept. 30, 1918.

[Made by J. J. Sanford.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*		*Feet.*	*Sec.-ft.*		*Feet.*	*Sec.-ft.*
Apr. 19	1.83	57	July 15	2.14	87	Sept. 6	1.49	24.1
Mar. 21	2.30	106	31	1.96	71	30	1.72	43.3
June 18	2.32	106	Aug. 23	2.01	73			

Daily discharge, in second-feet, of Richfield canal near Elsinore, Utah, for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Apr.	May.	June.	July.	Aug.	Sept.
1	5	13	23	38	122	97	73	69	59
2	4	14	14	38	116	96	78	73	53
3	4	14	15	38	114	100	77	73	44
4	4	16	18	36	109	103	76	73	39
5	4	22	18	7	116	105	77	74	32
6	11	29	20	48	112	106	73	71	25
7	37	26	23	47	114	108	71	74	28
8	42	26	21	43	107	107	78	75	31
9	32	26	26	39	105	108	82	75	32
10	31	25	26	38	114	109	83	75	31
11	34	25	27	38	115	123	82	75	30
12	39	22	28	38	115	122	79	73	37
13	37	22	29	47	114	124	82	72	38
14	35	22	.....	52	93	125	83	73	38
15	33	23	.....	43	92	134	84	72	37
16	30	21	.....	48	102	117	87	70	39
17	28	21	.....	45	107	100	83	69	49
18	26	21	.....	58	105	104	77	73	51
19	26	22	.....	63	105	113	78	78	50
20	30	23	.....	71	107	102	79	76	48
21	30	22	.....	75	105	91	84	72	50
22	38	22	.....	74	107	87	81	71	41
23	22	22	.....	73	107	87	77	73	49
24	16	22	.....	75	107	87	74	74	57
25	19	23	.....	75	105	86	74	73	68
26	18	24	.....	78	106	84	76	74	66
27	15	24	.....	79	107	81	76	74	63
28	12	24	.....	92	105	79	81	72	62
29	10	26	.....	102	102	76	73	71	55
30	11	26	.....	113	102	73	61	72	46
31	12	.....	.....	.....	100	.....	68	68	.....

NOTE.—No gage-height record, discharge interpolated Nov. 24, 25, Dec. 11, 12, and estimated Apr. 1 and 2.

Monthly discharge of Richfield canal near Elsinore, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	42	4	22.4	1,380
November	29	13	22.3	1,330
December 1–13	29	14	22.2	570
April	113	7	57.0	3,390
May	122	92	108	6,640
June	134	73	101	6,010
July	87	61	77.6	4,770
August	78	68	72.8	4,480
September	68	25	44.9	2,670

ANNABELLA CANAL AT ELSINORE, UTAH.

LOCATION.—In NW. ¼ sec. 33, T. 24 S., R. 3 W., 400 yards below head of canal and 1 mile southeast of Denver & Rio Grande Western Railroad station at Elsinore, Sevier County.

RECORDS AVAILABLE.—April 11, 1914, to September 30, 1918; irrigation seasons only.

GAGE.—Stevens continuous water-stage recorder, with outside and inside staff gages.

DISCHARGE MEASUREMENTS.—Made by wading 150 feet below gage.

CHANNEL AND CONTROL.—Bed composed of sand and gravel. Concrete weir 10 feet below gage serves as primary control.

DIVERSIONS.—Above all diversions from canal.

REGULATION.—Flow controlled by headgates.

ACCURACY.—Stage-discharge relation practically permanent during the year. Rating curve well defined. Operation of water-stage recorder satisfactory, except for periods indicated in footnote to daily-discharge table, when no record was obtained. Daily discharge ascertained by applying to rating table the mean daily gage height determined from recorder graph, and interpolating for days when gage-height record was not obtained. Discharge not determined December to March. Records good except for periods of no gage-height record, for which they are poor.

Canal diverts water from right bank of Sevier River in NW. ¼ sec. 33, T. 25 S. R. 3 W. Water used for irrigation in Sevier Valley east of river and below Elsinore.

Discharge measurements of Annabella canal at Elsinore, Utah, during the year ending Sept. 30, 1918.

[Made by J. J. Sanford.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*		*Feet.*	*Sec.-ft.*		*Feet.*	*Sec.-ft.*
Oct. 30	0.64	7.2	May 21	0.90	21.0	July 31	0.95	23.7
Apr. 19	1.09	29.1	June 18	.46	3.4	Aug. 23	.92	22.0
May 7	1.14	30.2	July 15	.80	14.9	Sept. 30	.67	8.0

Daily discharge, in second-feet, of Annabella canal at Elsinore, Utah, for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Apr.	May.	June.	July.	Aug.	Sept.
1	24	7	20	30	27	27	20	13
2	24	6	20	30	25	28	22	13
3	24	4	20	29	25	27	22	14
4	24	5	20	29	24	26	22	13
5	24	7	23	29	25	26	22	13
6	24	6	20	28	27	22	21	12
7	22	6	21	28	29	25	24	12
8	20	6	20	28	28	26	24	11
9	18	5	18	28	27	24	24	11
10	17	6	16	28	30	27	14	10
11	15	5	14	31	34	27	7	10
12	14	4	12	34	34	26	19	10
13	13	4	10	34	33	27	18	11
14	11	3	22	34	34	16	19	11
15	9	3	16	33	26	15	17	11
16	8	3	9	30	18	15	16	11
17	6	2	2	28	10	21	16	12
18	5	2	13	26	3	26	18	12
19	3	2	32	24	6	27	22	12
20	2	2	36	26	8	27	22	11
21	3	2	36	25	11	29	15	12
22	5	2	36	28	14	28	17	11
23	2	2	36	29	17	25	19	10
24	1	2	36	30	20	27	21	12
25	8	2	34	29	22	27	17	17
26	8	2	31	29	25	18	20	18
27	8	2	29	31	27	16	22	14
28	7	2	29	28	29	17	19	15
29	7	2	30	27	28	13	19	12
30	8	2	30	28	27	15	19	9
31	8	.....	.....	27	.....	22	14	.....

NOTE.—No gage-height record obtained Oct. 8–19, Nov. 18–25, Apr. 1–3, 8–12, 15, 16, 21, 22, 28–30, May 2–6, 16–18, June 15–17, and 19–27; discharge interpolated. Discharge not determined December to March.

Monthly discharge of Annabella canal at Elsinore, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	24	1	12.0	738
November	7	2	3.60	214
April	36	2	23.0	1,370
May	34	24	29.0	1,780
June	34	3	23.1	1,370
July	28	13	23.3	1,430
August	24	7	19.1	1,170
September	18	9	12.1	720

VERMILION CANAL NEAR RICHFIELD, UTAH.

LOCATION.—In NW. ¼ sec. 32, T. 23 S., R. 2 W., 500 feet below head of canal and 2½ miles east of Richfield, Sevier County.

RECORDS AVAILABLE.—April 10, 1914, to September 30, 1918; irrigation seasons only.

GAGE.—Stevens continuous water-stage recorder on right bank, with inside and outside staff gages.

DISCHARGE MEASUREMENTS.—Made by wading or from bridge a quarter of a mile below gage.

CHANNEL AND CONTROL.—Bed composed of sandy loam. Concrete weir 10 feet below gage serves as partial control, but owing to the slight grade of the canal, growth of moss and deposits of sand cause changes in the rating.

DIVERSIONS.—Above all diversions from canal.

REGULATION.—Flow controlled by headgates.

ACCURACY.—Stage-discharge relation not permanent; affected by growth of moss in canal. Three fairly well defined rating curves used direct during the periods April 4–15, April 19 to June 3, and June 19 to August 12; indirect method for shifting control used for all other periods during which a record was obtained. Operation of water-stage recorder satisfactory. Daily discharge ascertained by applying to rating table the mean daily gage height taken from recorder graph by inspection except for periods for which the shifting-control method was used, and except for periods October 14–17, November 25–30, and April 1–3, for which it was estimated on account of lack of gage-height record. Records good.

Canal diverts water from left bank of Sevier River in NW. ¼ sec. 32, T. 23 S., R. 4 W. Water used for irrigation in Sevier Valley west of the river and northeast of Richfield, toward Vermilion.

Discharge measurements of Vermilion canal near Richfield, Utah, during the year ending Sept. 30, 1918.

[Made by J. J. Sanford.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*		*Feet.*	*Sec.-ft.*		*Feet.*	*Sec.-ft.*
Oct. 5	1.94	60	Apr. 15	1.18	56	July 15	2.17	89
18	1.96	69	19	1.34	62	30	1.64	63
25	1.79	69	May 6	1.56	78	Aug. 12	1.90	78
31	1.66	67	18	1.39	68	22	1.54	64
Apr. 12	.65	32.5	June 3	1.64	77	Sept. 6	1.32	57
12	.65	31.8	19	2.28	98	21	1.34	62

Daily discharge, in second-feet, of Vermilion canal near Richfield, Utah, for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Apr.	May.	June.	July.	Aug.	Sept.
1	60	67	39	86	80	71	60	56
2	61	66	39	77	76	79	63	52
3	60	66	39	62	79	82	57	52
4	60	64	39	56	81	80	50	54
5	66	63	39	76	76	82	50	60
6	74	61	38	82	72	74	50	56
7	69	60	38	62	70	69	52	59
8	70	60	38	59	69	78	60	62
9	68	60	36	58	68	78	78	60
10	51	60	37	65	70	83	65	56
11	7	60	19	65	88	80	73	51
12	0	60	22	64	98	82	74	52
13	0	60	48	70	87	86	63	53
14	0	60	56	70	85	92	62	51
15	66	60	56	76	96	91	59	51
16	66	60	43	73	103	91	61	54
17	66	60	42	70	104	91	57	55
18	67	62	40	66	101	83	58	55
19	70	63	65	66	97	82	57	57
20	71	62	76	32	92	80	55	59
21	72	61	92	2	92	80	56	60
22	68	62	95	46	86	80	60	58
23	70	62	94	72	86	77	60	68
24	73	62	86	72	86	74	63	74
25	70	30	77	74	86	71	68	70
26	69	0	72	72	88	67	66	66
27	68	0	68	70	86	65	69	66
28	67	0	70	68	83	62	70	65
29	65	0	94	70	78	60	68	63
30	66	0	98	78	75	62	62	62
31	67	.....	.....	80	.....	60	54	.....

Monthly discharge of Vermilion canal near Richfield, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	74	0	58.3	3,580
November	67	0	50.4	3,000
April	98	19	56.5	3,360
May	86	2	65.8	4,050
June	104	68	84.6	5,030
July	92	60	77.2	4,750
August	78	50	61.3	3,770
September	74	51	58.6	3,490

ROCKYFORD CANAL NEAR VERMILION, UTAH.

LOCATION.—In sec. 19, T. 22 S., R. 1 W., 300 feet below head of canal and 2 miles northeast of Vermilion, Sevier County.

RECORDS AVAILABLE.—July 8, 1914, to September 30, 1918.

GAGE.—Stevens continuous water-stage recorder on left bank; installed October 18, 1917; inspected by Mrs. Will Barron. Previous gage was vertical staff nailed to right abutment of highway bridge 400 feet downstream.

DISCHARGE MEASUREMENTS.—Made from highway bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of gravel and clay; fairly permanent.

ICE.—Not affected by ice except during severe winters.

DIVERSIONS.—None above gage. Gage is a short distance below wasteway which returns surplus water to Sevier River.

REGULATION.—Flow controlled by headgates and wasteway.

ACCURACY.—Stage-discharge relation permanent; not affected by ice during the year. Rating curve well defined. Operation of water-stage recorder satisfactory; staff gage read twice daily to tenths prior to October 17, 1917. Daily discharge ascertained by applying to rating table the mean daily gage height determined from recorder graph. Records good.

Canal diverts water from Rockyford reservoir, a small reservoir on Sevier River, at Vermilion, in sec. 19, T. 22 S., R. 1 W. Flow dependent on water stored in reservoir and seepage and return water below Richfield. Water used for irrigation north of Vermilion.

Discharge measurements of Rockyford canal near Vermilion, Utah, during the year ending Sept. 30, 1918.

[Made by J. J. Sanford.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*		*Feet.*	*Sec.-ft.*		*Feet.*	*Sec.-ft.*
Oct. 5	1.90	61	Mar. 8	1.32	32.8	Aug. 1	2.38	87
25	1.80	57	Apr. 4	1.86	59	22	2.22	79
31	1.80	55	May 6	2.42	86	Sept. 6	2.35	82
Nov. 26	1.32	30.1	June 5	2.43	95	21	2.12	75
Dec. 14	1.36	32.0	19	1.12	22.6			
Jan. 9	1.32	30.9	July 12	2.38	88			

Daily discharge, in second-feet, of Rockyford canal near Vermilion, Utah, for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	50	56	24	30	30	30	62	89	81	107	88	85
2	50	55	24	31	30	30	61	89	82	108	87	85
3	56	55	24	30	30	30	60	89	85	108	88	87
4	56	54	24	30	30	30	59	89	91	108	88	87
5	56	54	24	30	30	30	58	89	90	100	88	87
6	56	54	24	30	30	30	58	90	82	87	88	86
7	56	54	24	30	30	31	58	90	80	89	89	85
8	58	43	24	30	30	31	58	89	80	89	88	82
9	61	31	25	30	30	30	60	89	80	88	87	82
10	58	32	25	30	30	30	63	90	80	87	86	82
11	56	32	25	30	30	29	57	90	79	87	86	82
12	56	31	24	30	30	29	52	90	79	88	85	77
13	56	32	24	30	30	31	50	87	79	88	82	73
14	56	32	32	30	30	32	48	88	80	83	82	73
15	56	32	30	30	30	33	45	87	54	80	82	73
16	56	32	30	30	30	32	44	88	11	80	82	73
17	56	31	30	30	30	32	44	89	11	79	82	73
18	58	30	30	30	30	31	44	89	22	78	82	73
19	58	30	30	30	30	31	46	81	25	77	80	73
20	58	30	30	30	30	31	42	76	42	76	80	74
21	58	30	30	30	30	30	48	77	70	76	79	73
22	58	30	29	30	30	22	59	78	67	77	79	74
23	57	29	29	30	30	21	60	83	40	78	80	75
24	56	29	29	30	30	22	58	90	14	77	79	76
25	56	28	29	30	30	24	63	88	14	77	79	73
26	56	28	29	30	30	24	82	88	24	77	79	64
27	56	25	29	30	30	29	80	87	15	77	79	65
28	56	25	29	30	30	46	82	85	15	77	80	65
29	55	25	29	30	.....	46	82	80	36	77	81	65
30	55	24	29	30	.....	46	85	81	89	76	82	63
31	56	.....	30	30	.....	50	.....	81	.....	78	83	.....

NOTE.—Discharge interpolated because of missing gage heights, Oct. 4, 8, 10, 13, 15, and Nov. 22–25.

Monthly discharge of Rockyford canal near Vermilion, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	61	50	56.2	3,460
November	56	24	35.8	2,130
December	32	24	27.4	1,680
January	31	30	30.0	1,840
February	30	30	30.0	1,670
March	50	21	31.4	1,930
April	85	42	58.9	3,500
May	90	76	86.3	5,310
June	91	11	56.6	3,370
July	108	76	85.0	5,230
August	89	79	83.2	5,120
September	87	63	76.2	4,530
The year	108	11	54.9	39,800

SALINA CREEK AT SALINA, UTAH.

LOCATION.—In NW. ¼ sec. 25, T. 21 S., R. 1 W., at bridge south of White House Hotel at Salina, Sevier County, 1 mile above mouth of creek.

DRAINAGE AREA.—298 square miles (measured on topographic maps).

RECORDS AVAILABLE.—April 25, 1914, to September 30, 1918. July 1 to December 31, 1900, at vertical staff gage about 5 miles southeast of Salina.

GAGE.—Stevens continuous water-stage recorder installed October 17, 1917; inspected by Denwall Dastrup. March 23, 1915, to September 30, 1917, vertical staff gage nailed to right bridge abutment a quarter of a mile south of hotel; April 25, 1914, to March 22, 1915, a vertical staff nailed to right abutment of bridge on depot road in SE. ¼ sec. 23.

DISCHARGE MEASUREMENTS.—Made from highway bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of gravel; shifts during extremely high water.

EXTREMES OF DISCHARGE.—Maximum stage recorded during the year, 6.50 feet at 8 p. m. July 22 (discharge estimated, 730 second-feet). Creek dry August 17–19, and September 3.

1914–1918: Maximum and minimum stages occurred in 1918.

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

DIVERSIONS.—Below all diversions.

REGULATION.—None.

ACCURACY.—Stage-discharge relation variable until May; permanent thereafter; affected by ice January 10 to February 23. Rating curve well defined below 100 second-feet; extended above. Operation of water-stage recorder satisfactory after October 17 except November 21–22, December 13, July 22–27, and September 27–28. No gage-height record October 1–16. Daily discharge ascertained by applying to rating table the mean daily gage height determined from recorder graph, except for periods of no gage-height record for which discharge was interpolated or estimated. Shifting-control method used October 17 to May 19. Rating table applied direct May 20 to September 30. Discharge for period of ice effect estimated from climatic records and observer's notes. Records fair October 1 to May 19; good May 20 to September 30.

Discharge measurements of Salina Creek at Salina, Utah, during the year ending Sept. 30, 1918.

[Made by J. J. Sanford.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*		*Feet.*	*Sec.-ft.*		*Feet.*	*Sec.-ft.*
Oct. 5	1.40	*a* 0.5	Apr. 12	2.16	73	Aug. 1	1.36	0.4
17	1.42	*a* .8	May 6	2.14	53	22	1.34	*a* .1
Dec. 14	1.96	20.9	20	2.38	78	Sept. 6	1.38	1.0
Jan. 9	1.64	6.5	June 5	2.02	34.5	21	1.26	*a* .1
Mar. 8	1.86	20.1	July 5	1.40	.6			

a Discharge estimated.

Daily discharge, in second-feet, of Salina Creek at Salina, Utah, for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	1.0	2.0	18	18	.....	20	15	51	39	1.0	0.9	0.8
2	1.0	2.2	18	13	.....	19	18	53	38	1.8	.8	.4
3	1.0	2.0	18	5.8	.....	19	25	62	36	1.4	.6	.0
4	1.0	2.5	18	4.2	.....	18	24	79	36	1.9	.9	1.6
5	1.0	3.2	18	4.8	.....	11	22	32	32	1.6	4.5	.8
6	1.0	3.5	18	3.5	.....	19	16	54	38	1.6	.5	.8
7	1.0	3.5	18	5.8	.....	26	12	54	34	6.2	.5	.5
8	1.0	3.5	17	9.0	.....	21	24	45	22	16	.5	.4
9	1.0	3.5	16	6.6	.....	18	31	26	13	5.8	.5	.2
10	1.0	3.5	15	.....	.....	15	41	22	5.8	3.5	.5	.5
11	1.1	3.0	26	.....	.....	16	71	11	4.2	3.5	.5	.4
12	1.1	3.0	23	.....	.....	23	60	2.4	3.2	3.5	1.0	.5
13	1.1	3.0	22	.....	.....	35	53	3.2	5.8	34	.5	.4
14	1.2	3.0	21	.....	.....	23	62	15	5.0	43	.4	.3
15	1.2	2.2	26	.....	.....	23	59	26	3.5	16	.3	.4
16	1.2	2.2	22	.....	.....	14	35	43	26	1.9	.5	.5
17	1.3	2.8	25	.....	.....	8.0	6.2	50	83	1.3	.0	.6
18	1.3	3.2	26	.....	.....	13	1.0	64	57	1.0	.0	.5
19	1.8	3.5	27	.....	.....	9.0	1.4	64	34	1.0	.0	.4
20	1.8	3.5	26	.....	.....	6.6	1.6	80	18	1.6	.4	.5
21	1.4	2.8	29	.....	.....	5.4	2.5	67	5.8	9.0	1.0	.3
22	1.4	2.2	28	.....	.....	7.8	2.8	67	1.6	130	.7	.8
23	1.2	1.6	31	.....	.....	16	33	70	2.2	32	.6	8.2
24	1.2	2.5	29	.....	24	16	38	80	2.2	16	.8	3.8
25	1.0	4.5	35	.....	22	25	24	67	1.4	5.0	.6	1.6
26	1.0	4.5	25	.....	16	24	12	54	1.3	1.0	.6	.7
27	1.0	4.5	14	.....	30	24	4.8	48	1.8	1.0	.5	.7
28	1.0	5.4	18	.....	26	21	1.3	58	2.2	1.0	.5	.7
29	1.2	18	19	.....	.....	18	14	46	1.0	1.0	.5	.7
30	1.4	18	17	.....	.....	16	34	43	1.0	1.0	.4	1.0
31	1.9	.....	12	.....	.....	15	.....	41	.....	.9	.2	.....

NOTE.—Discharge estimated because of ice: Jan. 10 to Feb. 15, 6 second-feet; Feb. 16–23, 15 second-feet.

Monthly discharge of Salina Creek at Salina, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	1.9	1.0	1.19	73.2
November	18	1.6	4.09	243
December	35	12	21.8	1,340
January	18	.....	6.54	402
February	30	.....	11.7	650
March	35	5.4	17.6	1,080
April	71	1.0	24.8	1,480
May	80	2.4	47.7	2,930
June	83	1.0	18.5	1,100
July	130	.9	11.1	682
August	4.5	0	.65	40.0
September	8.2	0	.97	57.7
The year	130	0	13.9	10,100

WEST VIEW CANAL AT REDMOND, UTAH.

LOCATION.—In NW. ¼ sec. 7, T. 21 S., R. 1 E., 100 yards above bridge where depot road crosses canal, at southeast corner of town of Redmond, Sevier County, three-quarters of a mile below head of canal.

RECORDS AVAILABLE.—April 22, 1914, to September 30, 1918; irrigation seasons only.

GAGE.—Stevens continuous water-stage recorder on right bank, with inside and outside staff gages; inspected by Terren Jensen.

DISCHARGE MEASUREMENTS.—Made by wading just below gage.

CHANNEL AND CONTROL.—Earth section; wooden submerged weir at head of wooden flume 30 feet below gage acts as nominal control, though filling in of sand behind the weir causes changes in stage-discharge relation.

DIVERSIONS.—Above diversions.

REGULATION.—Flow controlled by headgates.

ACCURACY.—Stage-discharge relation changed August 20 by construction of check in canal farther downstream. Rating curves fairly well defined. Operation of water-stage recorder satisfactory. Daily discharge ascertained by applying to rating table the mean daily gage height determined from recorder graph. Records good.

Canal diverts water from left bank of Sevier River in SW. ¼ sec. 7, T. 21 S., R. 1 E. Water used for irrigation west of river and below Redmond.

Discharge measurements of West View canal at Redmond, Utah, during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Oct. 20	E. A. Porter [a]	5.14	18.8	Aug. 10	Porter and Ormsby	4.86	13.2
Apr. 29	do	5.51	27.8	16	do	5.15	21.0
30	do	4.90	13.7	30	E. A. Porter	4.81	12.2
May 13	do	5.24	22.0	Sept. 27	do	5.43	24.5
July 10	do	5.55	27.1				

[a] Water commissioner.

Daily discharge, in second-feet, of West View canal at Redmond, Utah, for the year ending Sept. 30, 1918.

Day.	Oct.	Apr.	May.	June.	July.	Aug.	Sept.
1	31	.....	15	25	13	18	16
2	29	.....	16	19	19	20	16
3	27	.....	18	19	18	24	16
4	24	.....	17	19	20	23	18
5	26	.....	19	19	21	29	24
6	25	.....	17	19	19	18	15
7	24	.....	17	22	22	12	14
8	24	.....	14	20	29	14	19
9	22	.....	17	20	33	13	21
10	20	.....	20	19	28	13	21
11	18	.....	21	16	29	15	21
12	16	.....	19	18	26	17	24
13	17	.....	21	20	16	16	19
14	17	.....	19	19	0	15	19
15	16	.....	16	16	0	15	25
16	.....	.....	20	18	8	18	24
17	.....	.....	20	28	5	19	22
18	.....	.....	21	28	29	22	22
19	.....	.....	20	23	27	19	22
20	.....	17	21	19	24	19	21
21	.....	16	17	20	27	17	19
22	.....	16	18	25	30	17	21
23	.....	17	20	31	29	17	25
24	.....	17	24	24	17	16	19
25	.....	18	20	12	22	16	20
26	.....	19	17	25	28	17	20
27	.....	26	16	29	27	17	20
28	.....	25	17	32	28	16	24
29	.....	19	18	22	25	18	25
30	.....	16	19	10	15	14	27
31	.....	.....	16	.....	15	14	.....

Monthly discharge of West View canal at Redmond, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October 1–15	31	16	22.4	667
April 20–30	26	16	18.7	409
May	24	14	18.4	1,130
June	32	10	21.2	1,260
July	33	0	20.9	1,290
August	29	12	17.4	1,070
September	27	14	20.6	1,230

FAYETTE CANAL NEAR CENTERFIELD, UTAH.

LOCATION.—In SW. ¼ sec. 8, T. 20 S., R. 1 E., half a mile below head of canal, 2 miles northwest of Axtel depot, and 4 miles south of Centerfield, Sanpete County.

RECORDS AVAILABLE.—April 21, 1914, to September 30, 1918; irrigation seasons only.

GAGE.—Stevens continuous water-stage recorder on right bank, with inside and outside staff gages.

DISCHARGE MEASUREMENTS.—Made by wading.

CHANNEL AND CONTROL.—Earth section. Wooden flume with crest board at upper end, 50 feet below gage, serves as control.

DIVERSIONS.—Above all diversions from canal.

REGULATION.—Flow controlled by headgates.

ACCURACY.—Stage-discharge relation changed during winter, in June, and in September. Rating curves fairly well defined. Operation of water-stage recorder satisfactory. Daily discharge ascertained by applying to rating table the mean daily gage height determined from recorder graph; shifting-control method used June 1–15, and September 11–20. Records good.

Canal diverts water from right side of Sevier River in NE. ¼ sec. 18, T. 20 S., R. 1 E., for irrigation near Gunnison and Fayette.

Discharge measurements of Fayette canal near Centerfield, Utah, during the year ending Sept. 30, 1918.

[Made by E. A. Porter.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*		*Feet.*	*Sec.-ft.*		*Feet.*	*Sec.-ft.*
Oct. 8	2.04	11.4	May 24	2.75	48.4	Aug. 29	2.41	29.0
Apr. 30	2.62	38.3	June 24	2.38	30.0	Sept. 21	2.54	31.0
May 13	2.55	36.0	Aug. 7	2.37	28.1			

Daily discharge, in second-feet, of Fayette canal near Centerfield, Utah, for the year ending Sept. 30, 1918.

Day.	Oct.	Apr.	May.	June.	July.	Aug.	Sept.
1	19	.....	40	37	36	38	34
2	18	.....	42	38	32	38	34
3	18	.....	22	40	29	39	36
4	16	.....	11	39	27	41	35
5	16	.....	34	37	27	41	52
6	16	.....	35	36	30	41	40
7	13	.....	34	35	33	28	38
8	12	.....	34	34	36	29	38
9	14	.....	34	33	43	30	37
10	18	.....	35	32	42	30	37
11	18	.....	36	32	44	31	37
12	20	.....	36	33	44	32	37
13	20	.....	36	34	58	31	34
14	20	.....	38	35	48	29	33
15	18	.....	43	42	35	30	26
16	.....	.....	44	55	34	30	26
17	.....	.....	45	55	37	29	25
18	.....	.....	42	55	39	29	24
19	.....	.....	43	55	38	30	25
20	.....	.....	45	46	38	31	33
21	.....	.....	45	39	37	31	31
22	.....	.....	43	33	35	31	32
23	.....	.....	46	31	40	30	39
24	.....	.....	46	28	35	29	41
25	.....	22	45	28	36	29	40
26	.....	14	45	26	34	29	40
27	.....	18	45	32	35	29	41
28	.....	19	45	40	35	31	40
29	.....	30	41	41	34	31	40
30	.....	40	39	38	35	31	40
31	.....	.....	38	.....	35	31	.....

Monthly discharge of Fayette canal near Centerfield, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October 1–15	20	12	17.1	508
April 25–30	40	14	23.8	283
May	46	11	38.9	2,390
June	55	26	38.0	2,260
July	58	27	36.8	2,260
August	41	28	31.9	1,960
September	52	24	35.5	2,110

DOVER CANAL NEAR GUNNISON, UTAH.

LOCATION.—About on line between secs. 23 and 24, T. 19 S., R. 1 W., half a mile below head of canal and 3½ miles west of Gunnison, Sanpete County.

RECORDS AVAILABLE.—April 21, 1914, to September 30, 1918; irrigation seasons only.

GAGE.—Stevens continuous water-stage recorder on left bank, with inside and outside staff gages.

DISCHARGE MEASUREMENTS.—Made by wading.

CHANNEL AND CONTROL.—Earth section. Canal carries large quantities of silt and has very low grade. A submerged weir, 30 feet below gage, serves as control, but stage-discharge relation is at times affected by backwater from below the weir.

DIVERSIONS.—Above all diversions from canal.

REGULATION.—Flow controlled by headgates.

ACCURACY.—Stage-discharge relation changed several times owing to manipulation of the flashboards below gage and growth of moss. Rating curves fairly well defined. Operation of water-stage recorder satisfactory. Daily discharge ascertained by applying to rating table the mean daily gage height determined from recorder graph; shifting-control method used June 16–22 and September 6–30. Records fair.

Canal diverts water from left bank of Sevier River in SW. ¼ sec. 24, T. 19 S., R. 1 W., about 1½ miles above confluence of San Pitch and Sevier rivers. Water used for irrigation.

Discharge measurements of Dover canal near Gunnison, Utah, during the year ending Sept. 30, 1918.

[Made by E. A. Porter.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*		*Feet.*	*Sec.-ft.*		*Feet.*	*Sec.-ft.*
Oct. 8	5.45	18.2	June 26	1.86	35.5	Sept. 16	1.62	17.7
Apr. 30	[a] 1.18	21.1	July 29	1.89	35.7	30	1.42	15.5
May 6	[b] 1.64	30.2	Aug. 7	1.68	28.0			
June 1	1.47	24.0	22	1.60	23.6			

[a] Datum raised about 4.35 feet prior to Apr. 30.
[b] Weir crest raised 0.33 foot on May 1.

Daily discharge, in second-feet, of Dover canal near Gunnison, Utah, for the year ending Sept. 30, 1918.

Day.	Oct.	Apr.	May.	June.	July.	Aug.	Sept.
1	25	.....	17	27	35	38	31
2	26	.....	23	31	27	38	31
3	22	.....	15	31	35	36	30
4	21	.....	34	31	34	34	32
5	22	.....	32	30	34	37	31
6	22	.....	33	31	32	33	24
7	21	.....	33	35	27	33	25
8	18	.....	31	33	28	27	21
9	17	.....	29	31	41	26	19
10	16	.....	29	31	37	25	19
11	16	.....	29	28	37	29	16
12	16	.....	29	27	35	34	22
13	17	.....	29	29	36	35	22
14	17	.....	33	34	32	34	21
15	16	.....	36	37	29	33	20
16	.....	.....	35	36	39	31	19
17	.....	.....	36	24	42	29	19
18	.....	.....	35	30	30	29	19
19	.....	.....	36	42	0	29	17
20	.....	.....	37	37	0	28	15
21	.....	.....	33	31	0	25	12
22	.....	.....	28	31	0	24	17
23	.....	.....	29	40	8	24	25
24	.....	.....	29	39	25	22	27
25	.....	.....	31	39	34	23	20
26	.....	.....	31	35	36	23	11
27	.....	.....	30	36	36	25	12
28	.....	0	31	39	34	25	11
29	.....	3	27	41	33	26	12
30	.....	24	27	39	32	27	16
31	.....	.....	27	.....	37	30	.....

Monthly discharge of Dover canal near Gunnison, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October 1–15	26	16	19.5	580
April 28–30	24	0	9.0	54
May	37	15	30.1	1,850
June	42	24	33.5	1,990
July	42	0	28.5	1,750
August	38	22	29.4	1,810
September	32	11	20.5	1,220

SAN PITCH RIVER NEAR GUNNISON, UTAH.

LOCATION.—In NW. ¼ SW. ¼ sec. 13, T. 19. S., R. 1 W., one-fifth of a mile below a small diversion dam, half a mile above confluence with Sevier River, and 3 miles west of Gunnison, Sanpete County.

DRAINAGE AREA.—886 square miles (measured on topographic maps).

RECORDS AVAILABLE.—February 21, 1912, to May 15, 1918, when station was discontinued. June 30, 1900, to December 31, 1905, at a point about 4 miles northeast of Gunnison.

GAGE.—Stevens continuous water-stage recorder on right bank at new datum, May 18, 1914, to May 15, 1918; vertical staff on left bank about a fifth of a mile below the small diversion dam, February 21, 1912, to May 17, 1914.

DISCHARGE MEASUREMENTS.—Made from cable about 10 feet below gage, from bridge just below gage, or by wading.

CHANNEL AND CONTROL.—Bed composed of sand and gravel; shifting. Right bank is high; left is low and subject to overflow.

EXTREMES OF DISCHARGE.—Not determined for 1918.

1912–1917: Maximum stage recorded, 3.85 feet at 4 a. m. March 22, 1915 (discharge, 608 second-feet); stream dry September 19–24, 1917.

DIVERSIONS.—In years of normal flow practically all the water of this stream is used for irrigation in the Sanpete Valley and in the vicinity of Gunnison. Winter and spring run-off is stored in Gunnison reservoir, about 7 miles above Gunnison. At times part of water flowing past gage is waste from Kearns-Robbins (Fayette) canal (diverting from Sevier River), which crosses San Pitch River about half a mile above gage.

REGULATION.—Flow controlled by Gunnison reservoir. See "Diversions."

ACCURACY.—Stage-discharge relation changed during winter and during period April 22–30. Rating curves fairly well defined. Operation of water-stage recorder satisfactory only October 1–6, March 19 to April 21, and May 1–15. Daily discharge ascertained by applying to rating table the mean daily gage height determined from recorder graph. Discharge determined only for periods when water-stage recorder was in operation and for period April 22–30 for which it was estimated as 1 second-foot. River dry after May 9. Records fair.

Discharge measurements of San Pitch River near Gunnison, Utah, during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Jan. 2	J. J. Sanford	.....	[a] 4.3	Mar. 30	E. A. Porter	2.16	114
Mar. 22	E. A. Porter	1.45	23.4	May 1	.....do	1.16	18.0

[a] Estimated.

Daily discharge, in second-feet, of San Pitch River near Gunnison, Utah, for the year ending Sept. 30, 1918.

Day.	Oct.	Mar.	Apr.	May.	Day.	Oct.	Mar.	Apr.	May.	Day.	Oct.	Mar.	Apr.	May.
1	9	.....	93	28	11	.....	.....	65	.....	21	.....	29	1	.....
2	8	.....	84	21	12	.....	.....	63	.....	22	.....	24	.....	.....
3	8	.....	80	14	13	.....	.....	39	.....	23	.....	39	.....	.....
4	4	.....	86	8	14	.....	.....	33	.....	24	.....	112	.....	.....
5	4	.....	78	13	15	.....	.....	35	.....	25	.....	131	.....	.....
6	3	.....	68	11	16	.....	.....	17	.....	26	.....	91	.....	.....
7	.....	.....	64	6	17	.....	.....	8	.....	27	.....	76	.....	.....
8	.....	.....	57	3	18	.....	.....	4	.....	28	.....	125	.....	.....
9	.....	.....	51	1	19	.....	80	3	.....	29	.....	119	.....	.....
10	.....	.....	45	.....	20	.....	67	2	.....	30	.....	108	.....	.....
										31	.....	94	.....	.....

Monthly discharge of San Pitch River near Gunnison, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
March 19–31	131	24	84.2	2,170
April	93	.....	32.8	1,950
May 1–9	28	1	11.7	208

WELLINGTON CANAL NEAR MILLS, UTAH.

LOCATION.—In SE. ¼ sec. 3, T. 16 S., R. 2 W., 300 feet below wasteway, 2 miles below canal heading, and 4 miles north of Mills post office, Juab County.

RECORDS AVAILABLE.—June 1, 1914, to September 30, 1918; irrigation seasons only; miscellaneous measurements in 1913.

GAGE.—Stevens continuous water-stage recorder, with inside and outside staff gages.

DISCHARGE MEASUREMENTS.—Made by wading or from footbridge 250 feet above gage.

CHANNEL AND CONTROL.—Bed composed of fine gravel and sand; growth of moss and weeds causes backwater at gage during part of irrigation season.

DIVERSIONS.—Above all diversions from canal.

REGULATION.—Flow controlled by headgates.

ACCURACY.—Stage-discharge relation subject to frequent changes owing to backwater from moss growth below station and to flat gradient of canal. Standard rating curve poorly defined. Operation of water-stage recorder satisfactory. Daily discharge ascertained by applying to rating table the mean daily gage height determined from recorder graph. Shifting-control method used July to September. Records fair.

Canal diverts water from left bank of Sevier River in NE. ¼ sec. 15, T. 16 S., R. 2 W. Water used for irrigation west of Sevier River around Mills.

Discharge measurements of Wellington canal near Mills, Utah, during the year ending Sept. 30, 1918.

[Made by E. A. Porter.[a]]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*		*Feet.*	*Sec.-ft.*
May 11	1.87	18.9	Aug. 12	1.45	9.3
June 14	1.78	17.4	Sept. 9	1.32	8.1
July 22	1.49	9.3			

[a] Water commissioner.

Daily discharge, in second-feet, of Wellington canal near Mills, Utah, for the year ending Sept. 30, 1918.

Day.	May.	June.	July.	Aug.	Sept.	Day.	May.	June.	July.	Aug.	Sept.
1	0	20	0	11	9	16	19	20	11	8	10
2	0	20	0	11	9	17	19	20	11	9	10
3	0	20	0	10	9	18	20	20	11	10	9
4	0	20	0	10	8	19	20	20	11	10	9
5	0	20	14	11	8	20	20	19	11	9	9
6	13	19	20	11	8	21	20	17	10	9	9
7	25	20	20	11	7	22	20	16	10	10	10
8	22	20	20	11	8	23	21	16	9	11	11
9	22	19	20	11	8	24	21	16	9	11	11
10	21	19	18	10	8	25	21	16	10	11	11
11	21	19	19	9	8	26	21	12	11	11	9
12	20	20	16	9	9	27	20	13	10	10	8
13	19	18	13	8	9	28	20	12	10	10	4
14	19	18	12	5	9	29	26	0	11	9	1
15	19	19	12	7	10	30	20	0	10	9	0
						31	20	.....	11	9	.....

Monthly discharge of Wellington canal near Mills, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
May	25	0	16.9	1,040
June	20	0	16.9	1,010
July	20	0	11.3	695
August	11	5	9.71	597
September	11	0	8.27	492
The period	.....	.....	.....	3,830

SEVIER RIVER LAND & WATER CO.'S CANAL NEAR LEAMINGTON, UTAH.

LOCATION.—In sec. 28, T. 14 S., R. 3 W., 250 feet below head of canal, half a mile above old Parley siding on Los Angeles & Salt Lake Railroad, and 7 miles northeast of Leamington, Millard County.

RECORDS AVAILABLE.—April 21, 1914, to September 30, 1918; irrigation seasons only.

GAGE.—Stevens water-stage recorder on right bank, 50 feet above second tunnel, with inside and outside staff gages; inspected by Wells Nielson.

DISCHARGE MEASUREMENTS.—Made from footbridge 400 feet above gage or by wading.

CHANNEL AND CONTROL.—Bed composed of gravel and clay. Sill of tunnel serves as control.

ICE.—Canal freezes over during the winter when water is usually being diverted for storage in Fool Creek reservoir.

DIVERSIONS.—None above station from this canal.

REGULATION.—Flow controlled by headgates.

ACCURACY.—Stage-discharge relation changed during winter and on July 4. Rating curves well defined. Operation of water-stage recorder satisfactory. Daily discharge ascertained by applying to rating table the mean daily gage height determined from recorder graph. Records excellent. No record November to April.

Canal diverts water from left bank of Sevier River just below reservoir, in SE. ¼ sec. 28, T. 14 S., R. 3 W. Water used for irrigation and for storage in Fool Creek reservoir.

Discharge measurements of Sevier River Land & Water Co.'s canal near Leamington, Utah, during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
May 4	E. A. Porter [a]	3.44	93	June 17	E. A. Jacob [b]	6.29	317
28	do	4.73	191	17	do	6.51	341
30	do	5.61	255	Aug. 2	E. A. Porter	5.47	230
June 3	E. A. Jacob [b]	5.80	275	13	Porter and Ormsby	5.08	198
3	do	6.00	292	Sept. 9	E. A. Porter	4.31	139

[a] Water commissioner.
[b] Engineer for Sevier River Land & Water Co.

Daily discharge, in second-feet, of Sevier River Land & Water Co.'s canal near Leamington, Utah, for the year ending Sept. 30, 1918.

Day.	Oct.	May.	June.	July.	Aug.	Sept.	Day.	Oct.	May.	June.	July.	Aug.	Sept.
1	170	30	264	204	232	204	16	219	167	273	208	244	200
2	180	69	273	188	232	224	17	190	159	327	204	244	200
3	184	90	282	240	232	228	18	189	159	336	208	257	200
4	198	97	286	298	224	228	19	175	159	336	208	266	196
5	198	119	291	266	232	228	20	117	155	314	208	236	196
6	194	159	291	228	257	228	21	85	51	291	204	188	200
7	180	182	291	224	270	198	22	90	57	264	204	188	208
8	189	188	291	216	266	180	23	90	248	240	204	188	192
9	189	182	291	212	257	128	24	68	264	236	204	192	160
10	189	167	286	212	240	97	25	0	264	232	208	196	160
11	189	144	286	212	224	135	26	.....	122	133	208	200	128
12	189	159	278	216	212	220	27	.....	174	69	204	200	53
13	208	135	273	216	196	228	28	.....	220	116	204	204	0
14	220	93	268	212	99	220	29	.....	256	212	208	208	0
15	223	159	252	204	96	196	30	.....	256	216	204	208	0
							31	.....	256	.....	216	204	.....

Monthly discharge of Sevier River Land & Water Co.'s canal near Leamington, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October 1-25	223	0	165	8,180
May	264	30	159	9,780
June	336	69	260	15,500
July	298	188	215	13,200
August	270	96	216	13,300
September	228	0	168	10,000

McINTYRE CANAL NEAR LEAMINGTON, UTAH.

LOCATION.—Below spillway, 600 yards north of Neilson Hotel at Leamington, Millard County. During irrigation seasons of 1914 to 1916 station was in NW. ¼ sec. 32, T. 14 S., R. 3 W., 400 feet below canal intake.

RECORDS AVAILABLE.—May 5, 1914, to September 30, 1918; irrigation seasons only; miscellaneous measurements in 1913.

GAGE.—Stevens continuous water-stage recorder on left bank; installed April 26, 1918; inspected by Wells Neilson. Staff gage on left bank May 11 to September 30, 1917; Stevens recorder on right bank operated during irrigation seasons 1914, 1915, and 1916.

DISCHARGE MEASUREMENTS.—Made by wading near gage.

CHANNEL AND CONTROL.—Bed composed of gravel. Moss and weeds grow in canal during the irrigation season.

DIVERSIONS.—Above all diversions from canal.

REGULATION.—Flow controlled by headgates.

ACCURACY.—Stage-discharge relation changed by storm-washed mud on June 16. Rating curves well defined. Operation of water-stage recorder satisfactory except June 16, August 20–21, and September 28–30. Daily discharge ascertained by applying to rating table the mean daily gage height determined from recorder graph. Discharge interpolated August 20–21; estimated June 16, and September 28–30. Records good.

Canal diverts water from right bank of Sevier River in SE. ¼ sec. 29, T. 14 S., R. 3 W. Water used for irrigation west of river, around Leamington.

Discharge measurements of McIntyre canal near Leamington, Utah, during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Oct. 10	E. A. Porter [a]	2.61	9.4	July 31	E. A. Porter	1.88	17.0
Apr. 26	do	1.49	11.9	Aug. 12	Porter and Ormsby	1.94	18.5
May 14	do	1.80	21.6	Sept. 10	E. A. Porter	1.77	12.0

[a] Water commissioner.

Daily discharge, in second-feet, of McIntyre canal near Leamington, Utah, for the year ending Sept. 30, 1918.

Day.	Apr.	May.	June.	July.	Aug.	Sept.	Day.	Apr.	May.	June.	July.	Aug.	Sept.
1	.....	0	23	18	18	0	16	.....	24	35	14	17	11
2	.....	0	24	18	18	2	17	.....	24	12	18	23	11
3	.....	0	24	18	18	22	18	.....	25	14	18	28	11
4	.....	0	24	21	18	20	19	.....	25	10	18	27	11
5	.....	0	24	21	19	20	20	.....	26	0	18	23	8
6	.....	0	23	21	21	20	21	.....	27	0	18	19	1
7	.....	1	24	20	21	20	22	.....	27	14	14	15	2
8	.....	16	24	20	20	18	23	.....	22	23	13	11	4
9	.....	24	23	21	21	13	24	.....	24	23	13	4	1
10	.....	23	23	21	20	13	25	.....	24	23	14	0	1
11	.....	21	22	22	20	12	26	16	27	0	15	3	1
12	.....	22	21	21	20	12	27	21	26	0	16	21	1
13	.....	22	20	20	19	15	28	12	25	0	16	21	1
14	.....	22	20	16	17	15	29	7	24	0	16	22	1
15	.....	23	21	12	18	15	30	5	23	14	17	25	1
							31	.....	23	.....	17	16	.....

Monthly discharge of McIntyre canal near Leamington, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
April 26-30	21	5	12.2	121
May	27	0	18.4	1,130
June	35	0	16.9	1,010
July	22	12	17.6	1,080
August	28	0	18.2	1,120
September	22	0	9.47	564
The period				5,020

LEAMINGTON CANAL NEAR LEAMINGTON, UTAH.

LOCATION.—In SW. ¼ sec. 32, T. 14 S., R. 3 W., 200 feet below head of canal and 6 miles northeast of Leamington, Millard County.

RECORDS AVAILABLE.—April 20, 1914, to September 30, 1918; irrigation seasons only; miscellaneous measurements in 1913.

GAGE.—Stevens continuous water-stage recorder on right bank, with inside and outside staff gages; inspected by Wells Neilson.

DISCHARGE MEASUREMENTS.—Made by wading or from footbridge 150 feet below gage.

CHANNEL AND CONTROL.—Bed composed of gravel. Concrete wall, about 6 feet below gage serves as control but gravel fills in at times between gage and control, causing changes in stage-discharge relation. Growth of moss in canal below control causes backwater at times, except for low stages.

DIVERSIONS.—Above all diversions from canal.

REGULATION.—Flow controlled by headgates.

ACCURACY.—Stage-discharge relation changed June 16–20. Rating curves well defined. Operation of water-stage recorder satisfactory except September 27–29. Daily discharge ascertained by applying to rating table the mean daily gage height determined from recorder graph. Shifting-control method used June 16–20. Discharge interpolated September 27–29. Records good.

Canal diverts water from left bank of Sevier River, in SW. ¼ sec. 32, T. 14 S., R. 3 W. Water used for irrigation around Leamington, east of river.

Discharge measurements of Leamington canal near Leamington, Utah, during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet*	*Sec.-ft.*
Apr. 26	E. A. Porter [a]	1.84	21.9	July 1	E. A. Porter	1.65	15.7
May 4	do	2.18	41.6	Aug. 13	Porter and Ormsby	1.82	26.2
June 14	do	1.54	10.2				

[a] Water commissioner.

Daily discharge, in second-feet, of Leamington canal near Leamington, Utah, for the year ending Sept. 30, 1918.

Day.	Oct.	Apr.	May.	June.	July.	Aug.	Sept.
1	5	.....	39	14	17	24	20
2	6	.....	39	10	18	24	16
3	10	.....	40	10	25	27	18
4	10	.....	38	10	38	32	18
5	10	.....	30	11	36	32	18
6	10	.....	29	16	36	32	18
7	9	.....	30	9	36	32	19
8	9	.....	30	9	33	32	21
9	9	.....	27	9	32	32	18
10	9	.....	20	9	20	32	18
11	9	.....	20	5	5	31	13
12	9	.....	18	4	6	30	10
13	12	.....	16	7	18	16	27
14	18	.....	20	10	23	9	34
15	19	.....	18	13	18	11	35
16	.....	.....	18	15	18	12	32
17	.....	.....	19	18	16	27	36
18	.....	.....	22	19	16	35	31
19	.....	.....	24	20	18	38	32
20	.....	.....	24	20	25	40	31
21	.....	.....	27	18	25	26	30
22	.....	.....	25	17	25	22	29
23	.....	.....	24	16	23	22	30
24	.....	.....	26	16	23	22	26
25	.....	22	27	13	23	22	18
26	.....	22	31	11	23	22	16
27	.....	26	26	11	23	22	17
28	.....	28	23	10	25	22	18
29	.....	37	19	13	25	21	19
30	.....	39	19	18	25	20	20
31	.....	.....	19	.....	25	20	.....

Monthly discharge of Leamington canal near Leamington, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October 1–15	19	5	10.3	305
April 25–30	39	22	29.0	345
May	40	16	25.4	1,560
June	20	4	12.7	756
July	38	5	23.2	1,430
August	40	9	25.5	1,570
September	36	10	22.9	1,360

CANAL A NEAR DELTA, UTAH.

LOCATION.—In SE. ¼ sec. 26, T. 16 S., R. 6 W., a quarter of a mile below headgates and 8 miles northeast of Delta, Millard County.

RECORDS AVAILABLE.—April 14, 1912, to September 30, 1918; irrigation seasons only.

GAGE.—Stevens continuous water-stage recorder on right bank a quarter of a mile below headgates, since April 15, 1918, replacing Gurley printing register installed March 14, 1913; inclined staff gage at same site and datum, April 14, 1912, to March 14, 1913.

DISCHARGE MEASUREMENTS.—Made from cable about 80 feet below gage or by wading.

CHANNEL AND CONTROL.—Channel uniform earth section. No well-defined control. Silt, moss, and weeds cause backwater at times.

DIVERSIONS.—No diversions between headgates and gage.

REGULATION.—Flow regulated at headgates.

ACCURACY.—Stage-discharge relation affected during summer by moss. Rating curves well defined. Operation of water-stage recorder satisfactory, except for periods noted below. Daily discharge ascertained by applying to rating table, either directly or by shifting-control methods, the mean daily gage height determined by inspecting recorder graph, except for August 11–31, and September 18–30 when staff gage readings were used. Records good.

COOPERATION.—Gage heights and discharge measurements furnished by water commissioner for lower Sevier River.

Canal diverts water from Sevier River in SE. ¼ sec. 26, T. 16 S., R. 6 W., and is used jointly by Delta Land & Water Co. and Melville Irrigation Co. About 6 miles below gage the canal divides into canal B, which serves north side tract of the Delta Land & Water Co., and canal C, which serves Melville Irrigation Co. Canal C will later be enlarged to serve south tract of the Delta Land & Water Co. Waste waters only are returned to the river.

Discharge measurements of canal A near Delta, Utah, during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Oct. 11	E. A. Porter	2.57	122	June 16	W. L. Lackyard	3.25	221
Nov. 18	W. L. Lackyard	1.03	7.2	July 3	do	3.15	179
Jan. 4	J. J. Sanford	1.03	9.0	14	do	3.32	204
Apr. 24	E. A. Porter	3.60	259	Aug. 1	E. A. Porter	4.28	312
May 3	do	5.08	460	13	do	1.10	13.3
26	W. L. Lackyard	4.72	413	Sept. 10	do	3.30	208
29	E. A. Porter	4.32	346				

Daily discharge, in second-feet, of canal A near Delta, Utah, for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Apr.	May.	June.	July.	Aug.	Sept.
1	161	61	14	.....	394	316	182	316	289
2	130	74	14	.....	433	303	200	316	296
3	130	67	14	.....	454	303	182	322	303
4		54	14	.....	461	303	176	336	289
5		53	7	.....	474	322	188	362	268
6		53	8	.....	494	336	182	362	256
7	130	36	8	.....	513	336	182	381	226
8		23	9	.....	520	362	194	381	226
9		22	11	.....	526	368	200	374	202
10		21	11	.....	480	388	170	270	202
11	130	21	12	.....	426	388	258	13	232
12	130	19	11	.....	414	342	284	13	256
13	130	17	10	.....	420	284	264	13	262
14	133	15	10	.....	440	258	206	13	262
15	138	7	8	60	440	238	244	13	262
16	129	7	8	115	454	218	258	13	289
17	121	7	8	112	474	225	258	13	303
18	108	7	8	106	487	232	258	185	317
19	97	7	8	102	480	218	251	290	296
20	85	9	16	130	468	212	264	289	317
21	79	12	18	157	447	225	264	282	317
22	78	14	17	186	447	290	264	282	317
23	78	14	16	206	447	316	277	296	303
24	76	14	16	251	433	368	270	310	226
25	63	15	16	290	420	296	270	331	220
26	49	15	14	316	414	329	270	345	214
27	49	15	12	322	407	368	258	345	208
28	46	14	12	329	374	414	264	352	208
29	49	14	12	355	355	414	258	324	208
30	46	14	12	368	336	394	277	310	190
31	44	.....	11	.....	336	.....	303	296	.....

NOTE.—Braced figure shows mean discharge for period indicated; estimated because of no gage-height record.

Monthly discharge of canal A near Delta, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	161	44	103	6,330
November	74	7	24.0	1,430
December	18	7	11.8	726
April 15-30	368	60	213	6,750
May	526	336	441	27,100
June	414	212	312	18,600
July	303	170	238	14,600
August	381	13	250	15,400
September	317	190	259	15,400

BEAVER RIVER BASIN.

BEAVER RIVER NEAR BEAVER, UTAH.

LOCATION.—In SE. ¼ sec. 13, T. 29 S., R. 7 W., half a mile above city diversion dam at mouth of canyon, 3 miles above Beaver, Beaver County.

DRAINAGE AREA.—82 square miles.

RECORDS AVAILABLE.—June 15 to September 26, 1906; March 15, 1914, to September 30, 1918.

GAGE.—Stevens continuous water-stage recorder on right bank; installed November 14, 1914, to replace Lietz recorder used since March 30, 1914; inspected by G. W. Valantine. Datum of recording gages 0.03 foot lower than that of old vertical staff gage at same site, used prior to March 30, 1914.

DISCHARGE MEASUREMENTS.—Made from footbridge 70 feet above gage or by wading.

CHANNEL AND CONTROL.—Bed composed of boulders and coarse gravel; somewhat shifting. No well-defined control. Left bank subject to overflow at extremely high stages.

EXTREMES OF DISCHARGE.—Maximum stage during year, from water-stage recorder, 4.41 feet at 11 p. m. May 23 (discharge, 238 second-feet); minimum discharge probably occurred during winter and was less than 18 second-feet.

1914–1918: Maximum stage, 5.55 feet at 5 p. m. June 9, 1917 (discharge, 610 second-feet); maximum discharge, 650 second-feet May 21, 1914 (gage height, 5.48 feet). Minimum stage, 2.57 feet January 28, 1916 (discharge, 8 second-feet).

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

DIVERSIONS.—Above all irrigation diversions.

REGULATION.—Flow probably not affected by operation of Beaver River Power Co.'s plant, but is somewhat affected by the Cants Lake storage reservoir which stores water for power plant.

ACCURACY.—Stage-discharge relation not permanent; affected by ice November 7–28, December 1–16, January 11 to February 4, and February 19-21 and 23. Rating curves used from October 1–9, February 6 to June 25, and June 26 to September 30, well defined between 20 and 100 second-feet; fairly well defined above and below. Shifting-control method used from October 10 to February 5. Operation of water-stage recorder satisfactory except for short periods during winter. Daily discharge ascertained by applying to rating table mean daily gage height determined from recorder graph by inspection. Records good, except for period November to January, for which they are fair.

Discharge measurements of Beaver River near Beaver, Utah, during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec. ft.*
Oct. 9	W. E. Dickinson	2.99	23.3	Apr. 24	J. J. Sanford	3.62	88
Jan. 6	J. J. Sanford	2.79	17.7	Aug. 7	L. W. Jordan	3.15	40.5

Daily discharge, in second-feet, of Beaver River near Beaver, Utah, for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	32	24				20	37	93	112	59	37	27
2	30	23			21	20	37	98	109	58	35	27
3	27	24		21		21	38	124	118	58	35	26
4	29	23				22	31	146	120	56	33	27
5	24	25			21	22	31	165	120	54	34	27
6	27	24		21	22	15	30	161	118	52	35	26
7	26			22	22	25	30	158	107	52	35	26
8	22			21	22	25	32	152	102	58	33	24
9	23		20	19	21	22	36	129	104	60	31	24
10	27			18	18	18	48	112	110	73	34	23
11	29				18	21	51	98	110	61	37	20
12	22				16	25	62	91	109	57	41	21
13	23				17	29	55	93	105	88	36	18
14	21				16	24	46	102	107	72	43	20
15	24				18	25	41	125	110	62	34	21
16	27			20	18	25	39	141	107	58	32	21
17	24	20	21		20	22	39	154	101	56	30	21
18	21		21		18	23	41	163	96	52	29	24
19	21					21	41	169	102	50	28	24
20	24		21		19	22	46	177	129	49	28	20
21	24					22	54	161	99	51	27	22
22	24				20	22	72	165	92	48	26	25
23	22		21		20	22	85	177	88	45	26	42
24	24		21		20	22	88	189	84	42	26	28
25	26		21		22	25	86	169	72	40	25	27
26	22		21	21	20	25	75	152	66	37	24	26
27	25		22		18	25	71	141	69	37	25	25
28	24		22		18	25	78	125	70	37	26	27
29	23	21	22			25	88	115	66	37	26	25
30	24	22	21			29	96	101	63	36	29	26
31	24		21			37		101		36	26	

NOTE.—Braced figures show mean discharge for periods indicated; estimated from observer's notes and temperature records.

Monthly discharge of Beaver River near Beaver, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	32	21	24.7	1,520
November			20.9	1,240
December			20.6	1,270
January			20.5	1,260
February	22	16	19.5	1,080
March	37	15	23.4	1,440
April	96	30	53.5	3,180
May	189	91	137	8,420
June	129	63	98.8	5,880
July	88	36	52.6	3,230
August	43	24	31.2	1,920
September	42	18	24.7	1,470
The year	189		44.1	31,900

BEAVER RIVER AT ADAMSVILLE, UTAH.

LOCATION.—In S. ½ sec. 30, T. 29 S., R. 8 W., 100 yards below highway bridge on road from Milford to Beaver, a quarter of a mile above mouth of Indian Creek, and three-quarters of a mile south of Adamsville, Beaver County.

DRAINAGE AREA.—272 square miles.

RECORDS AVAILABLE.—December 16, 1913, to September 30, 1918.

GAGE.—Stevens continuous water-stage recorder on right bank; installed March 13, 1914, to replace Friez water-stage recorder used previously; inspected by W. A. Rees.

DISCHARGE MEASUREMENTS.—Made from cable at gage or by wading.

CHANNEL AND CONTROL.—Bed composed of fine gravel. Concrete control constructed July 11, 1916; not permanent. Stage of zero flow about 1.2 feet. Banks subject to overflow at extremely high stages.

EXTREMES OF DISCHARGE.—Maximum stage during year, from water-stage recorder, 2.35 feet at 4 a. m. April 25 (discharge, 104 second-feet); minimum stage recorded, 1.17 feet May 12 (discharge, 0.3 second-foot).

1914–1918: Maximum stage recorded, 4.26 feet at 5 a. m. June 3, 1914 (discharge, 544 second-feet); minimum stage occurred in 1918.

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

DIVERSIONS.—No diversions between station and storage reservoir of Beaver County Irrigation Co. Number of ditches above station supply Adamsville and Beaver districts.

REGULATION.—Low-water flow affected by irrigation diversions.

ACCURACY.—Stage-discharge relation changed October 25 to November 19 by scouring of concrete control; affected by ice most of the time from January 10 to February 26. Rating curves well defined below 150 second-feet. Operation of water-stage recorder satisfactory except for short periods. Daily discharge ascertained by applying to rating tables the mean daily gage height determined from recorder graph by inspection. Shifting-control method used from October 25 to November 19. For periods when recorder was not in operation semi-weekly readings of staff gage were used and discharge interpolated for intervening days. For periods of ice effect discharge was estimated from observer's notes and temperature records. Records good except for January, February, August, and September, for which they are fair.

Discharge measurements of Beaver River at Adamsville, Utah, during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Oct. 9	W. E. Dickinson	1.50	6.8	Apr. 24	J. J. Sanford	2.07	68
Jan. 5	J. J. Sanford	1.8	36.6	Aug. 7	L. W. Jordan	1.23	.9

Daily discharge, in second-feet, of Beaver River at Adamsville, Utah, for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	5	23	39	38		34	31	30	3.8	6.6	0.9	6.6
2	4	24	40	36	37	32	35	21	3.0	6.2	.7	7.1
3	4	24	42	36		36	38	17	4.2	6.2	.9	7.5
4	4	24	44	38		39	36	11	9.0	5.4	.9	8.0
5	3	24	42	38	40	43	34	14	9.5	6.2	.9	7.5
6	4	26	40	38	42	46	32	17	5.8	7.5	1.0	7.0
7	5	29	38	38		38	33	13	7.0	7.5	1.0	6.6
8	6	32	41	38		36	33	8.0	5.4	7.5	1.0	6.2
9	7	29	41	38		32	32	1.7	3.4	9.0	1.0	5.8
10	8	29	38		44	31	36	.9	3.8	13	1.0	5.4
11	8	30	38	39		30	40	.3	5.0	15	2.9	5.0
12	8	30	38			36	44	.3	4.6	15	4.8	3.8
13	8	33	40	40	45	46	47	.3	4.2	32	6.7	2.6
14	8	37	40		44	39	45	.3	6.6	32	8.5	1.4
15	8	35	38		44	34	43	.3	11	23	7.9	2.3
16	8	34	39			31	41	.3	13	21	7.3	3.2
17	8	35	37			31	39	.3	13	20	6.6	4.1
18	8	35	38			30	39	5.4	13	16	5.9	5.0
19	8	35	38			30	39	4.2	17	13	5.2	4.2
20	8	37	38	37	45	34	39	9.0	22	12	4.5	3.3
21	8	37	39			49	46	4.6	23	10	3.8	2.4
22	8	37	38			44	52	3.0	21	8.5	4.2	2.7
23	8	37	37		46	36	58	2.0	13	8.0	4.6	3.1
24	8	39	37			33	65	7.5	13	5.8	5.0	3.4
25	12	39	39		42	32	70	8.5	11	4.2	4.8	3.8
26	13	39	38	38		32	61	8.5	9.5	2.0	4.6	4.9
27	14	38	37		39	30	53	8.0	9.0	1.0	4.4	5.9
28	16	38	37		36	30	40	5.0	8.0	.9	4.2	7.0
29	18	39	37	37	.....	27	39	3.8	7.5	1.0	4.8	7.0
30	20	39	37		.....	27	39	3.4	6.6	.9	5.5	7.0
31	23	.....	37		.....	29	.....	3.0	.....	.7	6.2	.....

NOTE.—Braced figures show mean discharge for periods indicated; estimated from temperature records and observer's notes. Recorder not in operation, staff gage read semiweekly; Apr. 1–5, 11–23, Aug. 11 to Sept. 30.

Monthly discharge of Beaver River at Adamsville, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	23	3.0	8.97	552
November	39	23	32.9	1,960
December	44	37	38.8	2,390
January	.....	.....	37.5	2,310
February	.....	.....	42.5	2,360
March	49	27	34.7	2,130
April	70	31	42.6	2,530
May	30	.3	6.83	420
June	23	3.0	9.53	567
July	32	.7	10.2	627
August	8.5	.7	3.93	242
September	8	1.4	4.99	297
The year	70	.3	22.6	16,400

BEAVER RIVER AT ROCKYFORD DAM, NEAR MINERSVILLE, UTAH.

LOCATION.—In NW. ¼ sec. 11, T. 30 S., R. 9 W., half a mile below Rockyford dam and 4 miles above Minersville, Beaver County.

DRAINAGE AREA.—512 square miles (measured on topographic maps).

RECORDS AVAILABLE.—December 18, 1913, to September 30, 1918.

GAGE.—Friez water-stage recorder moved June 1, 1916, from original site 1,000 feet below dam; inspected by E. P. Works. Between these two sites there is some inflow from springs which has at times amounted to as much as 10 second-feet. This quantity probably varies with stage of water in reservoir.

DISCHARGE MEASUREMENTS.—Made by wading or from cable 1,000 feet below gage.

CHANNEL AND CONTROL.—Bed composed of gravel; some vegetal growth. Concrete control installed October 2-12, 1916. Slight growth of moss on control during summer. One channel at all stages. Banks not subject to overflow. Stage of zero flow, at gage height 0.60 foot according to measurements made October 9, 1917.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 1.91 feet May 10 and 11 (discharge, 126 second-feet); minimum stage recorded, 0.87 foot December 6 to January 2 (discharge, 5.1 second-feet).

1913–1918: Maximum stage recorded, 5.37 feet June 6, 1914 (discharge, 366 second-feet); minimum stage recorded, 1.68 feet March 19 and 20, 1914 (discharge estimated 0.3 second-foot).

ICE.—Stage-discharge relation not affected by ice.

DIVERSIONS.—None between dam and station.

REGULATION.—Flow controlled by operation of gates at Rockyford dam.

ACCURACY.—Stage-discharge relation permanent during year. Rating curve well[1] defined between 5 and 120 second-feet. Operation of water-stage recorder satisfactory except as indicated in footnote to table of daily discharge. Daily discharge ascertained by applying to rating table mean daily gage height determined from recorder graph by inspection. For days of considerable range in stage, mean discharge determined by averaging quantities of discharge for short intervals. Records good.

Discharge measurements of Beaver River at Rockyford dam, near Minersville, Utah, during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Oct. 9	W. E. Dickinson	0.93	5.9	Apr. 12	J. J. Sanford	0.99	11.2
10	do	1.15	22.3	Aug. 7	L. W. Jordan	1.25	31.4
Jan. 5	J. J. Sanford	.89	5.7				

Daily discharge, in second-feet, of Beaver River at Rockyford dam, near Minersville, Utah, for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	22	33	5.4	5.1	7.0	8.5	10	9.5	33	25	27	15
2	21	35	5.4	5.1	7.0	8.5	10	9.5	32	8.5	32	16
3	20	48	5.4	5.4	7.0	8.5	10	10	33	8.5	32	10
4	19		5.4	5.7	7.0	8.5	10	40	34	8.0	32	14
5	16		5.4	5.7	7.0	9.0	10	102	34	8.0	32	19
6	16	27	5.1	5.7	7.0	9.5	10	102	34	14	33	18
7	17		5.1	5.7	7.0	9.0	10	104	34	27	33	16
8	17		5.1	5.7	7.0	9.0	11	93	34	29	32	14
9	17	6.0	5.1	5.7	7.0	9.0	11	53	34	62	31	12
10	20	6.0	5.1	5.7	7.0	9.0	11	110	33	54	25	11
11	22	5.4	5.1	5.7	7.0	9.0	11	126	81	49	25	12
12	20	5.4	5.1	5.7	7.0	9.5	11	124	104	56	24	12
13		5.4	5.1	5.7	7.5	9.5	11	116	114	33	22	12
14		5.4	5.1	5.7	7.5	9.5	11	119	119	33	22	11
15		5.4	5.1	5.7	7.5	10	11	119	116	32	22	10
16		5.4	5.1	6.0	7.5	10	11	117	112	29	22	10
17		5.4	5.1	6.0	7.5	10	11	109	49	30	22	10
18		5.4	5.1	6.0	7.5	10	11	112	37	29	23	10
19		5.4	5.1	6.0	7.5	10	11	110	37	30	23	10
20	20	5.4	5.1	6.0	8.0	11	11	109	37	30	23	10
21		5.4	5.1	6.0	8.0	10	12	107	37	27	22	10
22		5.4	5.1	6.0	8.0	10	11	107	37	27	22	12
23		5.4	5.1	6.0	8.0	10	11	107	37	100	22	24
24		5.4	5.1	6.5	8.0	10	11	105	31	98	21	23
25		5.4	5.1	6.5	8.0	10	10	105	25	104	21	21
26		5.4	5.1	6.5	8.0	10	10	105	25	98	21	20
27		5.4	5.1	6.5	8.5	10	10	105	25	98	21	19
28	19	5.4	5.1	6.5	8.5	10	9.8	105	25	102	21	18
29	35	5.4	5.1	6.5	.....	10	9.5	86	25	104	20	16
30	20	5.4	5.1	7.0	.....	10	9.5	50	27	107	17	15
31	22	.....	5.1	7.0	.....	10	.....	31	.....	112	15	.....

NOTE.—Braced figures show estimated mean discharge for periods indicated. Discharge interpolated Oct. 7, Apr. 14, 28, and Sept. 6. Reservoir gates closed Nov. 9 to May 3; discharge represents leakage through gates and inflow between dam and station.

Monthly discharge of Beaver River at Rockyford dam, near Minersville, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	35	16	20.1	1,200
November	48	5.4	12.4	738
December	5.4	5.1	5.15	306
January	7.0	5.1	5.97	367
February	8.5	7.0	7.48	415
March	11	8.5	9.58	589
April	12	9.5	10.6	631
May	126	9.5	90.5	5,560
June	119	25	47.8	2,840
July	112	8.0	50.7	3,120
August	33	15	24.5	1,510
September	24	10	14.3	851
The year	126	5.1	25.1	18,100

82376—22—WSP 480——10

INDIAN CREEK AT ADAMSVILLE, UTAH.

LOCATION.—In sec. 30, T. 29 S., R. 8 W., at highway bridge just east of Adamsville, Beaver County, three-quarters of a mile above confluence with Beaver River.

DRAINAGE AREA.—180 square miles (measured on topographic map).

RECORDS AVAILABLE.—June 26 to August 31, 1906; March 16, 1914, to September 30, 1918.

GAGE.—Vertical staff fastened to left bridge abutment; read by W. A. Rees.

DISCHARGE MEASUREMENTS.—Made by wading.

CHANNEL AND CONTROL.—Bed composed of rocks, gravel, and sand. Rock control, shifting at intervals. One channel at all stages. Banks subject to overflow at extremely high water.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 5.0 feet at 5 p. m. August 10 and 6 p. m. September 22 (discharge not determined); minimum stage, 1.80 feet at 10.30 a. m. December 22 (discharge practically zero).

1914–1918: Maximum stage recorded, 6.5 feet during night of October 1, 1916 (discharge not determined); minimum stage, 1.70 feet March 24–28 and April 1 and 2, 1914 (no flow); practically no flow also December 22, 1917.

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

DIVERSIONS.—Below all diversions. At certain seasons a small amount of seepage (probably not more than 1 or 2 second-feet) enters between gage and mouth of creek.

REGULATION.—Flow affected by small storage reservoir and irrigation diversions above.

ACCURACY.—Stage-discharge relation for low stages not permanent; not determined for higher stages. Gage read twice a week. Discharge not determined as rating curves are not sufficiently defined. Sudden short floods may occur on days on which gage is not read.

Discharge measurements of Indian Creek at Adamsville, Utah, during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Oct. 9	W. E. Dickinson	2.11	0.6	Apr. 24	J. J. Sanford	2.10	[a] 15
Jan. 5	J. J. Sanford	2.00	[a] 0.5	Aug. 7	L. W. Jordan	2.10	[a] 25

[a] Estimated.

Daily gage height, in feet, of Indian Creek at Adamsville, Utah, for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	2.40	.....	2.14	.....	.....	.....	.....	2.08	2.12	.....	.....	.....
2	.....	.....	.....	2.04	2.02	2.00	.....	.....	.....	.....	.....	.....
3	2.30	2.26	.....	.....	.....	.....	2.30	.....	.....	2.10	2.10	.....
4	.....	.....	.....	.....	.....	.....	.....	2.08	.....	.....	.....	2.00
5	.....	.....	2.10	2.02	.....	.....	.....	.....	2.20	.....	.....	.....
6	2.28	.....	.....	.....	2.04	2.00	2.20	.....	.....	2.18	.....	.....
7	.....	2.10	.....	.....	.....	.....	.....	.....	.....	.....	2.10	2.00
8	.....	.....	2.04	.....	.....	.....	.....	2.30	2.20	.....	.....	.....
9	2.11	.....	.....	2.02	2.10	2.02	.....	.....	.....	.....	.....	.....
10	2.10	2.08	.....	.....	.....	.....	2.20	.....	.....	2.22	5.00	.....
11	.....	.....	.....	.....	.....	.....	.....	2.28	.....	.....	.....	1.96
12	.....	.....	2.02	2.10	.....	.....	.....	.....	2.18	.....	.....	.....
13	2.16	.....	.....	.....	2.10	2.10	2.20	.....	.....	2.24	.....	.....
14	.....	2.00	.....	.....	.....	.....	.....	.....	.....	.....	2.12	2.00
15	.....	.....	2.00	.....	.....	.....	.....	2.10	2.60	.....	.....	.....
16	.....	.....	.....	2.10	2.10	2.06	.....	.....	.....	.....	.....	.....
17	2.28	2.04	.....	.....	.....	.....	2.12	.....	.....	2.26	2.20	.....
18	.....	.....	.....	.....	.....	.....	.....	2.30	.....	.....	.....	2.04
19	.....	.....	2.10	2.10	.....	.....	.....	.....	2.12	.....	.....	.....
20	2.26	.....	.....	.....	2.08	2.04	2.30	.....	.....	2.24	.....	.....
21	.....	2.04	.....	.....	.....	.....	.....	.....	.....	.....	2.12	2.00
22	2.30	.....	1.80	.....	.....	.....	.....	2.20	2.10	.....	.....	5.00
23	.....	.....	.....	2.08	2.10	2.06	.....	.....	.....	.....	.....	2.50
24	2.28	2.06	.....	.....	.....	.....	2.10	.....	.....	2.20	2.10	.....
25	.....	.....	.....	.....	.....	.....	.....	2.18	.....	.....	.....	2.20
26	.....	.....	2.05	2.02	.....	.....	.....	.....	2.10	.....	.....	.....
27	2.34	.....	.....	.....	2.06	2.20	2.10	.....	.....	2.18	.....	.....
28	.....	2.20	.....	.....	.....	.....	.....	.....	.....	.....	2.08	2.18
29	.....	.....	2.06	.....	.....	.....	.....	2.20	2.10	.....	.....	.....
30	.....	.....	.....	.....	.....	2.22	.....	.....	.....	.....	.....	.....
31	2.36	.....	.....	2.02	.....	.....	.....	.....	.....	2.06	2.00	.....

COAL CREEK NEAR CEDAR CITY, UTAH.

LOCATION.—In E. ½ sec. 13, T. 36 S., R. 11 W., 500 feet above power plant of Cedar Electric Co. and 1¾ miles southeast of Cedar City, Iron County.

DRAINAGE AREA.—92.5 square miles (measured on topographic maps).

RECORDS AVAILABLE.—May 28, 1915, to September 30, 1918.

GAGE.—Vertical staff on right bank, installed August 24, 1916; washed out October 6, 1916, and August 11, 1918, and replaced at approximately same location and datum; read by J. T. Wilkinson. Datum of gage lowered 1.85 feet August 1, 1917. Original gage was vertical staff about 150 feet upstream; used from May 28 to July 24, 1915; moved to present site July 29, 1915. Relation of gages prior to October 10, 1916, not determined.

DISCHARGE MEASUREMENTS.—Made from highway bridge 1 mile below or by wading.

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

EXTREMES OF DISCHARGE.—Maximum stage during year, determined from high-water mark, 3.00 feet during night of August 11 (discharge, about 500 second-feet); minimum stage recorded, 0.30 foot at 5 p. m. January 10 (discharge, 3.0 second-feet).

ICE.—Stage-discharge relation not affected by ice during year.

DIVERSIONS.—Only important diversion above station is power canal which returns water to stream about 500 feet below gage. This diversion is fairly constant, varying from 6 to 8 second-feet, and should be added to obtain total flow above Cedar City.

REGULATION.—None.

ACCURACY.—Stage-discharge relation changed by high water of July 10. Rating curves fairly well defined between 8 and 100 second-feet. Gage read to hundredths once daily. Daily discharge ascertained by applying daily gage height to rating table. Records fair.

Discharge measurements of Coal Creek near Cedar City, Utah., during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*
Oct. 11	W. E. Dickinson	0.54	9.0
Apr. 25	J. J. Sanford	1.32	81
Aug. 8	L. W. Jordan	.49	11.9

Daily discharge, in second-feet, of Coal Creek near Cedar City, Utah, for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	11	12	8.9	6.5	15	7.5	51	145	64	15	12	9.0
2	11	8.9	8.2	6.5	5.0	7.5	39	208	71	15	12	7.5
3	11	8.2	7.5	6.5	7.5	8.2	51	231	86	17	12	9.0
4	11	11	7.5	6.5	15	11	51	222	86	15	10	9.0
5	8.9	8.9	8.9	6.5	14	11	39	231	86	15	10	9.0
6	8.9	7.5	11	8.2	8.9	11	26	186	78	15	16	7.5
7	8.9	11	5.0	7.5	7.5	11	27	208	78	17	12	7.5
8	8.9	8.9	11	7.5	6.5	21	35	145	75	21	24	6.6
9	8.9	11	8.2	7.5	6.5	21	51	126	72	15	12	6.6
10	8.9	8.9	7.5	3.0	8.2	12	70	109	75	145	.....	6.0
11	8.9	8.9	7.5	78	8.9	14	84	81	72	25	32	4.4
12	8.9	11	7.5	11	8.2	126	61	109	70	18	.....	4.4
13	8.9	7.5	7.5	11	7.5	49	61	112	67	87	.....	4.4
14	8.9	13	7.5	10	13	37	44	155	64	30	.....	4.0
15	8.9	11	7.5	12	7.5	27	37	165	64	19	.....	4.0
16	8.9	11	7.5	13	11	26	29	165	59	16	12	4.0
17	8.9	11	7.5	13	8.2	21	35	165	51	14	10	4.0
18	11	13	7.5	8.9	7.5	15	35	157	49	14	9.6	4.0
19	11	11	7.5	6.5	7.5	15	37	161	49	13	9.6	4.0
20	10	11	7.5	6.5	7.5	14	41	109	46	13	9.6	4.0
21	9.6	11	7.0	8.2	7.5	15	56	123	39	12	9.6	4.0
22	8.9	11	6.5	10	15	15	70	123	33	11	9.6	24
23	8.2	11	6.5	12	11	20	78	116	31	11	9.6	18
24	8.2	7.5	6.5	8.9	8.9	27	126	106	27	11	9.0	10
25	7.5	7.5	6.5	8.9	7.5	27	106	96	24	11	9.0	9.6
26	7.5	7.5	6.5	7.5	8.2	24	116	93	21	11	8.4	9.0
27	7.5	7.5	6.5	8.2	7.5	21	109	81	20	10	7.5	8.4
28	7.5	10	7.0	8.9	7.8	16	116	78	19	9.6	6.0	8.4
29	15	10	6.5	8.9	.....	21	126	72	17	9.6	6.0	6.6
30	14	9.6	6.5	8.9	.....	39	141	67	17	9.6	7.5	6.6
31	13	.....	6.5	7.0	.....	51	.....	78	.....	9.6	9.0	.....

NOTE.—Discharge not determined Aug. 10 and 12–15 because of uncertain flood conditions; Aug. 10, recorded height was 2.3 feet. On Aug. 11 maximum stage of flood was 3.0 feet; gage destroyed.

Monthly discharge of Coal Creek near Cedar City, Utah, for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	15	7.5	9.63	592
November	13	7.5	9.91	590
December	11	5.0	7.46	459
January	78	3.0	10.8	664
February	15	5.0	9.08	504
March	126	7.5	23.9	1,470
April	141	26	64.9	3,860
May	231	67	136	8,360
June	86	17	53.7	3,200
July	145	9.6	21.1	1,300
September	24	4.0	7.45	443

MINOR BASINS IN NEVADA.

OVERLAND CREEK NEAR RUBY VALLEY, NEV.

LOCATION.—In NE. ¼ NE. ¼ sec. 26, T. 30 N., R. 58 E., at old weir 500 feet above upper Wines ranch canal and 1 mile northeast of Ruby Valley post office, Elko County.

DRAINAGE AREA.—Not measured.

RECORDS AVAILABLE.—April 24, 1917, to September 16, 1918, when station was discontinued.

GAGE.—Stevens eight-day water-stage recorder on right bank 10 feet above old weir; inspected by S. L. Wines.

DISCHARGE MEASUREMENTS.—Made by wading 20 feet above gage.

CHANNEL AND CONTROL.—Bed composed of boulders and gravel. Control is a rectangular contracted weir with crest 10 feet long. Stage of zero flow at gage height 0.30 foot, determined April 25, 1917.

EXTREMES OF DISCHARGE.—Not determined for 1918. Maximum stage recorded during 1917, from water-stage recorder, 2.77 feet at 5 p. m. June 17 (discharge, 143 second-feet); minimum stage recorded, 0.42 foot at 8 p. m. September 18 (discharge, 0.9 second-foot).

ICE.—No information.

DIVERSIONS.—Above all diversions.

REGULATION.—Storage has been developed at small lake 6 or 8 miles above gage for use in emergency.

ACCURACY.—Stage-discharge relation permanent. Rating curve well defined below 80 second-feet. Operation of water-stage recorder satisfactory except for breaks in record as shown in daily discharge table. Daily discharge ascertained by applying to rating table mean daily gage height determined from recorder graph by inspection. Records good.

Discharge measurements of Overland Creek near Ruby Valley, Nev., during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*
Mar. 22	L. W. Jordan	0.56	3.4
June 7	J. W. Bones	1.46	47.2
Sept. 9	.....do	.34	.5

Daily discharge, in second-feet, of Overland Creek near Ruby Valley, Nev., for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Mar.	Apr.	May.	June.	Sept.
1	.....	1.7	.....	.....	15	.....	.....
2	.....	1.7	.....	.....	19	.....	.....
3	.....	1.6	.....	.....	24	.....	.....
4	.....	1.6	.....	.....	28	.....	.....
5	.....	1.6	.....	.....	31	.....	.....
6	.....	.....	.....	19	31	.....	.....
7	.....	.....	.....	19	.....	43	.....
8	1.8	.....	.....	18	.....	43	.....
9	1.8	.....	.....	18	24	43	0.5
10	1.8	.....	.....	18	20	43	.7
11	1.8	.....	.....	17	18	43	.4
12	1.8	.....	.....	17	17	45	.7
13	1.8	.....	.....	17	.....	48	.4
14	2.0	.....	.....	.....	24	44	.4
15	2.0	.....	.....	.....	22	.....	.6
16	.....	.....	.....	.....	22	.....	.6
17	.....	.....	.....	.....	22	.....	.....
18	.....	.....	.....	.....	22	.....	.....
19	.....	.....	.....	.....	22	.....	.....
20	.....	.....	.....	17	24	.....	.....
21	.....	.....	.....	15	23	.....	.....
22	1.7	.....	3.4	13	22	.....	.....
23	1.7	.....	3.8	13	24	.....	.....
24	1.7	.....	4.5	15	24	.....	.....
25	1.6	.....	4.8	16	25	.....	.....
26	1.6	.....	4.8	15	24	.....	.....
27	1.6	.....	4.3	16	22	.....	.....
28	1.6	.....	3.8	.....	.....	.....	.....
29	1.6	.....	4.3	.....	.....	.....	.....
30	1.7	.....	.....	14	.....	.....	.....
31	1.7	.....	.....	.....	.....	.....	.....

SALTON SINK BASIN.

SALTON SEA NEAR SALTON, CALIF.

LOCATION.—Near mouth of Salt Creek, 1 mile west of Durmid, 2½ miles east of Salton, Riverside County, and 7 miles east of Mecca.

RECORDS AVAILABLE.—November, 1904, to September 30, 1918.

GAGE.—Vertical staff in several sections fastened to piling. Gage is graduated to feet and inches and is inverted (reads down) with its zero at 6.1 feet above mean sea level, United States Geological Survey datum. To obtain depths subtract reading from 279.6 feet, because the lowest point in bottom of Salton Sea is at 273.5 feet below mean sea level, United States Geological Survey datum. Gage is read by an employee of Southern Pacific Co. Original gage, read November 1, 1904, to February 26, 1906, was established 3½ miles northwest of Salton by New Liverpool Salt Co. and read depths directly. First Survey gage, read March 2, to June 5, 1906, half a mile west of Salton, also read depths directly. First Southern Pacific Co.'s gage, read June 6, 1906, to July 5, 1909, was at present site with its zero at 6.8 feet above mean sea level, United States Geological Survey datum. Readings from its inverted scale, subtracted from 280.35 feet gave depths in Salton Sea. Second Survey gage, read July 6, 1909, to April 21, 1914, at same place, read elevations below mean sea level, United States Geological Survey datum. Readings subtracted from 273.5 feet gave depths. The present gage has been read since April 24, 1914.

EXTREMES OF DEPTH.—Maximum depth during year, 30.52 feet, October 5; minimum depth, 26.43 feet, September 20.

1904–1918: Maximum depth, 76.0 feet February 10 to March 29, 1907; minimum depth, no water at gage November 1 to 14, 1904.

COOPERATION.—The Southern Pacific Co. has furnished the record since June 30, 1914.

Area of sea was 443 square miles January 1, 1909.

Practically all water now received by Salton Sea enters through Alamo and New rivers, chiefly the former. These rivers run through Imperial Valley and are drainage channels for excess and waste waters from irrigation system and from power plants. The following table shows the depth of Salton Sea.

Depth, in feet, of Salton Sea near Salton, Calif., for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1							28.43					
2		30.18									27.02	
3								28.02				
4				29.43	29.10	28.77						
5	30.52									27.27		
6												26.60
7			29.77						27.60			
8							28.27					
9		30.10									26.93	
10								27.93				
11				29.35	29.02	28.93						
12	30.43									27.18		
13												26.52
14			29.68						27.52			
15							28.27					
16		30.02									26.85	
17								27.85				
18				29.27	28.93	29.02						
19	30.35									27.10		
20												26.43
21			29.60						27.43			
22							28.18					
23		29.93									26.77	
24								27.77				
25				29.18	28.85	29.10						
26	30.27									27.10		
27												26.45
28			29.52						27.35			
29							28.10					
30		29.85									26.68	
31								27.68				

OWENS LAKE BASIN.

OWENS RIVER NEAR ROUND VALLEY, CALIF.

LOCATION.—In SE. ¼ sec. 10, T. 6 S., R. 31 E., below Sheep Bridge, 700 feet above mouth of Rock Creek, and 2 miles north of Round Valley, Inyo County.

DRAINAGE AREA.—About 450 square miles.

RECORDS AVAILABLE.—August 4, 1903, to September 30, 1918.

GAGE.—Vertical staff on left bank 85 feet below bridge; read by W. D. Roberts and W. G. Allen. Datum differs from that of previous gage, which was 100 feet above present one prior to May 29, 1907.

DISCHARGE MEASUREMENTS.—Made from cable at gage.

CHANNEL AND CONTROL.—Bed composed of rock and boulders; fairly permanent. No well-defined control.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 3.3 feet at 12.10 p. m. June 21 (discharge, 683 second-feet); minimum stage recorded, 1.85 feet at 10.50 a. m. August 12 (discharge, 150 second-feet).

1903–1918: Maximum stage recorded, 4.0 feet June 30, 1907 (discharge, 1,190 second-feet); minimum discharge recorded, 120 second-feet, September 21, 1913.

ICE.—Shore ice exists at times, but ordinarily does not affect stage-discharge relation.

DIVERSIONS.—No water is diverted above station.

REGULATION.—None.

ACCURACY.—Stage-discharge relation slightly shifting; not affected by ice. Standard rating curve fairly well defined. Gage read to hundredths every other day. Daily discharge ascertained by shifting-control method for days when gage was read, and interpolated for days between. Records good.

COOPERATION.—Gage-heights and discharge measurements furnished by city of Los Angeles.

Discharge measurements of Owens River near Round Valley, Calif., during the year ending Sept. 30, 1918.

[Made by J. E. Jones.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*		*Feet.*	*Sec.-ft.*		*Feet.*	*Sec.-ft.*
Nov. 14	1.92	181	May 14	1.99	187	Aug. 12	1.85	151
Dec. 23	1.95	186	June 21	3.20	637	Sept. 17	1.91	175
Mar. 15	2.00	182						

Daily discharge, in second-feet, of Owens River near Round Valley, Calif., for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	208	199	197	178	172	161	318	190	202	388	175	180
2	214	204	197	183	177	160	352	194	209	274	172	178
3	214	209	197	178	172	160	288	199	216	360	170	175
4	214	216	197	172	166	160	224	204	232	335	166	173
5	208	224	197	172	172	160	243	209	248	310	162	170
6	202	230	197	172	177	160	262	209	290	302	162	168
7	202	237	197	178	177	160	248	209	332	294	162	166
8	202	237	197	183	177	160	234	206	370	297	160	166
9	202	237	197	178	172	166	291	202	409	300	158	166
10	202	237	197	172	166	172	279	199	450	280	156	168
11	196	237	197	176	167	176	267	199	490	259	153	170
12	190	230	191	179	168	181	250	199	512	259	150	173
13	189	224	185	181	171	174	234	194	534	259	161	177
14	188	224	180	183	174	166	219	188	569	246	172	181
15	188	224	174	182	173	181	204	189	604	234	168	178
16	188	224	174	181	172	178	205	189	604	224	164	175
17	194	224	174	170	174	174	206	190	604	214	163	172
18	199	224	174	176	170	170	188	190	619	214	162	173
19	199	224	174	181	174	174	170	190	634	214	162	174
20	199	224	174	174	177	177	179	197	658	212	163	171
21	205	224	174	168	186	180	188	204	683	211	164	168
22	211	224	174	168	194	183	192	205	644	200	165	174
23	205	224	174	168	188	178	197	206	585	188	166	181
24	199	218	186	174	183	172	192	208	555	184	167	183
25	199	211	197	179	178	170	188	209	525	181	168	185
26	199	205	191	179	172	168	188	210	496	176	169	185
27	199	199	185	179	167	165	188	212	467	170	170	185
28	199	199	180	174	162	162	186	213	438	174	174	266
29	199	199	174	168	.....	162	183	214	409	177	179	346
30	199	198	174	168	.....	162	186	216	402	177	181	367
31	199	.....	174	168	.....	240	.....	209	.....	177	183	.....

Monthly discharge of Owens River near Round Valley, Calif., for the year ending Sept. 30, 1918.

Month	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	214	188	200	12,300
November	237	198	220	13,100
December	197	174	185	11,400
January	183	168	176	10,800
February	194	162	174	9,660
March	240	160	171	10,500
April	352	170	225	13,400
May	216	188	202	12,400
June	683	202	466	27,700
July	388	170	245	15,100
August	183	150	166	10,200
September	367	166	190	11,300
The year	683	150	218	158,000

OWENS RIVER NEAR BIG PINE, CALIF.

LOCATION.—In sec. 2, T. 11 S., R. 34 E., at Charlies Butte, 11 miles southeast of Big Pine, Inyo County.

DRAINAGE AREA.—Not measured.

RECORDS AVAILABLE.—September 20, 1906, to September 30, 1918.

GAGE.—Vertical staff on left bank; read by J. I. Jones.

DISCHARGE MEASUREMENTS.—Made from cable at gage or by wading.

CHANNEL AND CONTROL.—Bed composed of sand and gravel; slightly shifting. Left bank subject to overflow during floods.

EXTREMES OF DISCHARGE.—Maximum stage during year, 6.25 feet at 2 p. m. June 23 (discharge, 1,250 second-feet); minimum stage recorded, 0.60 foot May 22–25, 28, 29, and June 4 (discharge, 58 second-feet).

1906–1918: Maximum stage recorded, 11.2 feet about 9 p. m. January 26, 1914 (discharge, from extension of rating curve, about 3,220 second-feet); minimum stage recorded, −0.05 foot June 13–16, 1908 (discharge, 36 second-feet).

ICE.—Stage-discharge relation not affected by ice.

DIVERSIONS.—On account of diversions above station, record does not indicate total run-off from drainage area.

REGULATION.—Flow is partly regulated by diversions.

ACCURACY.—Stage-discharge relation changed about February 25. Rating curves well defined. Gage read to hundredths once a day. Daily discharge ascertained by applying daily gage height to rating table except June 7–30, when shifting-control method was used. Records excellent.

COOPERATION.—Gage heights and discharge measurements furnished by city of Los Angeles.

Discharge measurements of Owens River near Big Pine, Calif., during the year ending Sept. 30, 1918.

[Made by J. E. Jones.]

Date	Gage height.	Discharge.	Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*		*Feet.*	*Sec.-ft.*		*Feet.*	*Sec.-ft.*
Oct. 2	1.10	151	Mar. 26	3.20	507	Aug. 7	0.80	78
Nov. 6	2.60	412	May 10	.72	72	17	.75	74
23	2.80	461	21	.62	65	Sept. 7	.68	67
Dec. 11	2.80	450	June 15	4.11	780			
Mar. 5	2.90	445	23	6.25	1,250			

Daily discharge, in second-feet, of Owens River near Big Pine, Calif., for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	132	375	463	463	440	465	507	69	64	551	88	69
2	139	375	486	463	418	486	529	75	67	551	88	69
3	132	375	463	463	418	486	573	81	64	551	81	69
4	139	375	463	463	440	465	507	81	58	507	81	69
5	162	396	463	463	463	444	465	81	64	507	84	69
6	162	418	463	463	463	444	465	75	60	465	82	64
7	162	463	463	463	463	465	424	75	66	465	81	67
8	162	463	440	463	463	551	424	75	121	424	81	69
9	169	509	440	463	463	529	424	75	160	365	79	68
10	202	486	463	418	440	551	404	71	235	327	79	68
11	211	486	463	396	440	596	424	74	352	308	79	68
12	211	486	463	418	463	596	365	75	450	262	75	68
13	220	463	463	463	463	619	327	77	598	253	75	68
14	229	463	463	463	440	596	271	79	710	235	69	61
15	238	463	463	440	375	551	226	79	782	235	69	61
16	247	463	486	440	375	551	201	69	800	201	75	61
17	294	463	486	463	354	507	168	66	848	184	75	62
18	284	463	486	463	375	507	152	66	886	168	75	62
19	294	463	486	463	375	507	152	66	895	160	75	62
20	294	440	486	440	396	529	144	64	997	152	75	62
21	313	463	486	418	463	573	144	60	1,080	152	75	69
22	313	463	486	418	533	596	108	58	1,200	130	75	75
23	333	463	486	418	630	551	97	58	1,250	122	75	74
24	333	486	463	440	630	507	88	58	1,200	108	75	74
25	333	486	486	463	655	507	81	58	1,090	94	75	75
26	333	463	463	463	573	507	81	60	910	94	69	115
27	354	463	509	418	551	507	79	64	788	88	69	137
28	333	463	509	396	486	551	75	58	722	88	69	144
29	333	463	509	418	.....	507	69	58	659	88	69	130
30	354	463	486	440	.....	507	69	64	596	88	69	201
31	354	.....	486	440	.....	507	.....	64	.....	88	69	.....

Monthly discharge of Owens River near Big Pine, Calif., for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	354	132	251	15,400
November	509	375	452	26,900
December	509	440	475	29,200
January	463	396	444	27,300
February	655	354	487	27,000
March	619	444	525	32,300
April	573	69	268	15,900
May	81	58	68.8	4,230
June	1,250	58	592	35,200
July	551	88	258	15,900
August	88	69	76.0	4,670
September	201	61	80.3	4,780
The year	1,250	58	330	239,000

OWENS RIVER NEAR LONE PINE, CALIF.

LOCATION.—In NW. ¼ sec. 23, T. 15 S., R. 36 E., at Mount Whitney highway bridge, 2½ miles northeast of Lone Pine, Inyo County.

DRAINAGE AREA.—Not measured.

RECORDS AVAILABLE.—January 1, 1909, to October 31, 1918, when station was discontinued.

GAGE.—Vertical staff fastened to pile in channel at downstream side of bridge; read by G. F. Marsh. The high water, January 27–29, 1914, raised pier to which gage was fastened, 1.83 feet. Gage has not been reset.

DISCHARGE MEASUREMENTS.—Made from cable 1,000 feet below bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of sand; fairly permanent. No well-defined control.

EXTREMES OF DISCHARGE.—Maximum stage recorded during period, 6.65 feet June 25 (discharge, 810 second-feet); minimum stage recorded, 1.2 feet September 21 to October 2, 1918 (discharge, 5 second-feet).

1909–1918: Maximum stage recorded, 10.6 feet July 7, 1909 (discharge, 2,050 second-feet); minimum stage recorded, 1.3 feet September 28 to 30, 1916 (discharge, 4 second-feet).

ICE.—Shore ice sometimes forms at station during very cold weather but probably does not affect stage-discharge relation.

DIVERSIONS.—Record does not show total run-off from drainage area on account of diversions above station. The Los Angeles aqueduct has its intake above station.

REGULATION.—Flow is partly regulated by diversions above.

ACCURACY.—Stage-discharge relation fairly permanent. Rating curve well defined between 14 and 1,000 second-feet. Gage read to half-tenths once a day. Daily discharge ascertained by applying daily gage height to rating table. Records good.

COOPERATION.—Gage heights and discharge measurements furnished by city of Los Angeles.

Discharge measurements of Owens River near Lone Pine, Calif., during the year ending Sept. 30, 1918.

[Made by J. E. Jones.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*		*Feet.*	*Sec.-ft.*		*Feet.*	*Sec.-ft.*
Oct. 1	1.70	14	Mar. 6	2.80	106	Sept. 9	1.28	6.0
Nov. 8	2.70	103	May 11	1.71	18			
Dec. 18	2.78	103	Aug. 8	1.30	6.4			

Daily discharge, in second-feet, of Owens River near Lone Pine, Calif., for the period Oct. 1, 1917, to Oct. 31, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.
1	10	12	77	106	50	237	285	24	9	386	7	6	5
2	12	12	77	106	50	222	285	21	9	351	7	6	5
3	12	12	77	100	50	94	285	18	9	334	6.5	6	6
4	12	12	82	100	50	94	285	18	9	317	6.5	6	124
5	12	12	82	100	50	88	317	18	9	285	6.5	6	170
6	12	14	82	94	50	112	177	16	9	253	6.5	6	124
7	12	16	88	88	50	137	192	16	8	253	6.5	6	100
8	12	34	88	82	50	222	150	14	8	222	6.5	6	67
9	12	106	94	82	50	253	144	14	8	207	6.5	6	137
10	12	112	94	82	50	269	137	16	8	34	6.5	6	163
11	12	112	94	77	54	269	137	14	8	34	6.5	6	170
12	12	112	94	77	50	285	222	12	10	34	6.5	6	184
13	12	106	94	77	46	317	285	12	67	30	6.5	6	124
14	12	106	94	77	46	351	253	12	200	27	6.5	6	124
15	12	100	94	77	46	368	222	12	222	24	6.5	6	118
16	12	100	94	72	46	351	137	11	137	21	6.5	6	106
17	12	100	100	67	46	285	112	11	124	18	6.5	6	106
18	12	100	106	58	42	269	94	11	163	14	6.5	6	118
19	12	94	112	54	42	269	82	11	207	11	6.5	6	118
20	12	94	112	46	42	269	77	11	285	11	6.5	6	112
21	12	94	106	42	58	285	58	10	440	10	6.5	5	106
22	12	88	106	42	77	422	42	10	500	10	6	5	100
23	12	88	106	38	106	301	38	10	670	10	6	5	100
24	12	88	106	38	137	285	34	10	810	9	6	5	94
25	12	88	106	38	222	285	30	10	810	9	6	5	94
26	12	88	106	50	253	285	27	10	810	9	6	5	94
27	12	82	106	50	253	285	27	9	560	8	6	5	88
28	12	82	144	50	253	285	27	9	500	8	6	5	88
29	12	82	137	50	.....	285	24	9	440	8	6	5	88
30	12	77	112	50	.....	285	24	9	404	7	6	5	88
31	12	.....	106	50	.....	285	.....	9	.....	7	6	.....	88

Monthly discharge of Owens River near Lone Pine, Calif., for the period Oct. 1, 1917, to Oct. 31, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
1917–18.				
October	12	10	11.9	732
November	112	12	74.1	4,410
December	144	77	99.2	6,100
January	106	38	68.4	4,210
February	253	42	82.8	4,600
March	422	88	260	16,000
April	317	24	140	8,330
May	24	9	12.8	787
June	810	8	248	14,800
July	386	7	95.5	5,870
August	7	6	6.37	392
September	6	5	5.67	337
The year	810	5	91.9	66,600
1918.				
October	184	5	104	6,390

OWENS LAKE NEAR LONE PINE, CALIF.

LOCATION.—On west shore of Owens Lake, 1 mile north of Brier siding on California & Nevada Railroad (Southern Pacific Co.) and 9 miles south of Lone Pine, Inyo County.

RECORDS AVAILABLE.—March 4, 1908, to September 30, 1918.

GAGE.—Vertical staff, installed November 1, 1911, at boulder point east of railroad culvert No. 507B; read occasionally by an employee of city of Los Angeles. Original gage, vertical staff near old Smith ranch, was submerged in July, 1911, and an upper section was installed. Gage datum before July 29, 1913, 3,564.90 feet above sea level, United States Geological Survey datum; after that date, 3,561.90 feet. January 12, 1915, gage was washed out but was replaced at same location and datum.

EXTREMES OF STAGE.—1911–1918: Maximum stage recorded, 8.75 feet March 16 and April 7, 1912; minimum stage recorded, 3.05 feet September 23, 1918.

COOPERATION.—Records furnished by city of Los Angeles.

Elevation, in feet, of Owens Lake near Lone Pine, Calif., for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1		6.2		6.0	5.8		6.0			4.95		
2	6.5									4.95		3.5
3											4.2	
4				6.0	5.8		6.0					
5	6.5	6.1							5.1	4.95		
6						5.85					4.1	3.45
7			5.95		5.8							
8	6.5			6.0								
9						5.9				4.85	4.0	
10		6.1					6.0	5.4	5.1			3.35
11						5.9						3.32
12	6.4				5.85							
13		6.1										
14								5.45	5.0		3.9	3.25
15	6.4		6.0	6.0	5.85	5.95						
16							5.95	5.4		4.7		
17		6.05							4.95		3.85	
18	6.4			6.0								
19			6.0		5.9	5.95	5.9					3.2
20		6.0										
21											3.7	
22			6.0		5.9	5.95	5.85		5.0	4.6		
23	6.25			5.9		6.05		5.35				3.05
24											3.65	
25					5.9							
26				5.9		6.0	5.75			4.4		
27	6.2	5.95	6.0					5.25				
28				5.8	5.85				4.95		3.6	
29			6.0			6.0						
30	6.2	5.9										
31								5.2		4.25		

NOTE.—Add 3,570 feet to reduce elevations to mean sea level (U. S. Geol. Survey datum).

ROCK CREEK NEAR ROUND VALLEY, CALIF.

LOCATION.—In NE. ¼ SE. ¼ sec. 9, T. 6 N., R. 31 E., below highway bridge a short distance above mouth of Pine Creek and 2 miles northwest of Round Valley, Inyo County.

DRAINAGE AREA.—About 46 square miles.

RECORDS AVAILABLE.—August 3, 1903, to September 30, 1918.

GAGE.—Vertical staff on left bank about 600 feet below bridge; read by W. D. Roberts and W. G. Allen; prior to July, 1906, gage was located at highway bridge.

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

CHANNEL AND CONTROL.—Bed composed of sand and cobblestones; somewhat shifting. No well-defined control.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 3.44 feet June 21 (discharge, 185 second-feet); minimum stage recorded, 0.90 foot August 25 (discharge, 19 second-feet).

1903–1918: Maximum stage recorded, 5.0 feet January 25, 1914 (discharge, 360 second-feet); minimum stage recorded, 1.0 foot April 20–23, 1905 (discharge, 14 second-feet).

ICE.—Shore ice forms, but probably does not affect stage-discharge relation.

DIVERSIONS.—Water for irrigation is diverted above station.

REGULATION.—Flow partly regulated by diversions.

ACCURACY.—Stage-discharge relation not permanent. Standard rating curve fairly well defined. Gage read to hundredths every other day. Daily discharge ascertained by shifting-control method and interpolating discharge for days when gage was not read. Records good.

COOPERATION.—Gage-height record and discharge measurements furnished by city of Los Angeles.

Discharge measurements of Rock Creek near Round Valley, Calif., during the year ending Sept. 30, 1918.

[Made by J. E. Jones.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*		*Feet.*	*Sec.-ft.*		*Feet.*	*Sec.-ft.*
Nov. 14	1.15	32	May 14	1.05	24	Aug. 12	0.98	22
Dec. 19	1.08	27	June 22	3.35	177	Sept. 19	1.08	29
Mar. 16	1.01	26						

Daily discharge, in second-feet, of Rock Creek near Round Valley, Calif., for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	27	30	28	28	32	30	32	25	24	78	24	25
2	30	28	28	28	32	30	32	24	27	77	25	25
3	31	27	28	28	31	30	28	24	30	76	26	25
4	32	30	28	28	30	30	25	32	30	69	26	26
5	31	32	28	28	30	29	26	41	29	62	27	26
6	30	33	28	28	30	28	28	36	34	62	25	26
7	30	34	28	28	30	29	26	31	40	61	23	26
8	30	33	28	28	31	30	25	28	50	60	22	26
9	28	32	28	28	30	30	28	25	61	59	22	26
10	27	32	28	28	30	30	28	22	78	50	21	26
11	27	32	28	28	30	32	28	24	94	42	22	26
12	27	31	27	28	30	33	26	25	124	33	22	26
13	28	30	26	28	30	32	24	24	154	24	24	27
14	30	32	26	28	30	32	24	24	156	24	25	28
15	30	30	26	28	31	29	25	25	158	24	25	29
16	30	30	26	29	32	26	24	26	142	29	25	29
17	30	30	26	29	32	26	23	27	126	34	25	30
18	30	30	26	29	30	27	23	24	140	34	25	28
19	30	29	27	29	31	28	23	21	154	34	24	25
20	30	30	28	28	32	28	23	22	170	34	23	25
21	30	30	28	27	34	28	23	24	185	34	22	25
22	30	30	28	28	35	28	24	24	172	30	22	25
23	30	29	28	28	35	28	26	25	141	25	21	25
24	30	29	28	28	35	28	25	25	122	26	20	25
25	30	29	28	29	34	28	24	26	103	28	19	25
26	30	29	28	29	32	29	24	26	84	26	21	25
27	30	29	28	29	31	30	23	27	65	25	23	25
28	30	29	28	32	30	30	23	27	74	25	24	30
29	30	29	27	34	.....	28	23	28	84	25	24	36
30	30	28	28	33	.....	27	24	28	79	24	24	127
31	30	.....	28	32	.....	30	.....	26	.....	23	25	.....

Monthly discharge of Rock Creek near Round Valley, Calif., for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	32	27	29.6	1,820
November	34	27	30.2	1,800
December	28	26	27.5	1,690
January	34	27	28.8	1,770
February	35	30	31.4	1,740
March	33	26	29.1	1,790
April	32	23	25.3	1,510
May	41	21	26.3	1,620
June	185	24	97.7	5,810
July	78	23	40.5	2,490
August	27	19	23.4	1,440
September	127	25	29.9	1,780
The year	185	19	34.9	25,300

PINE CREEK NEAR ROUND VALLEY, CALIF.

LOCATION.—In SE. ¼ SE. ¼ sec. 9, T. 6 S., R. 31 E., 300 feet above highway bridge 600 feet above junction with Rock Creek, and 2 miles northwest of Round Valley, Inyo County.

DRAINAGE AREA.—About 32 square miles above mouth of canyon.

RECORDS AVAILABLE.—August 3, 1903, to September 30, 1918.

GAGE.—Vertical staff on left bank 300 feet above bridge; read by W. D. Roberts and W. G. Allen. Prior to May 13, 1908, gage was 150 feet below highway bridge.

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

CHANNEL AND CONTROL.—Bed composed of lava rock and sand; somewhat shifting.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 6.0 feet June 21 and 22 (discharge, 220 second-feet); minimum stage recorded, 3.22 feet September 9 (discharge, 0.2 second-foot).

1903–1918: Maximum discharge recorded, 370 second-feet, June 22, 1911; minimum stage recorded, 3.2 feet June 15, 1913 (discharge, 0.2 second-foot). Same minimum discharge occurred in 1918.

ICE.—Ice occasionally forms at station but does not affect stage-discharge relation.

DIVERSIONS.—Water is diverted above station for irrigation.

REGULATION.—Diversions probably affect flow.

ACCURACY.—Stage-discharge relation not permanent. Gage read to hundredths every other day. Daily discharge ascertained by shifting-control method and interpolating discharge for days when gage was not read. Records good.

COOPERATION.—Gage-heights and discharge measurements furnished by city of Los Angeles.

Discharge measurements of Pine Creek near Round Valley, Calif., during the year ending Sept. 30, 1918.

[Made by J. E. Jones.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*		*Feet.*	*Sec.-ft.*		*Feet.*	*Sec.-ft.*
Nov. 14	3.63	5.3	May 14	3.31	0.4	Aug. 12	3.50	3.9
Dec. 19	3.60	4.6	June 22	6.00	219	Sept. 19	3.45	2.2
Mar. 16	3.50	3.2						

Daily discharge, in second-feet, of Pine Creek near Round Valley, Calif., for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	2.4	1.0	1.0	4.5	4.3	5	2.7	1.1	3.8	66	3.3	1.1
2	2.7	1.0	1.2	4.8	4.8	5.5	2.9	1.2	5	69	3.9	1.1
3	2.4	1.0	1.5	4.8	4.9	4.8	3.0	1.3	6.5	72	4.5	1.1
4	2.1	1.2	2.0	4.8	5	4.2	3.1	.8	13	71	4.0	1.0
5	1.9	1.5	2.5	4.8	5	4.6	3.2	.4	19	70	3.5	1.0
6	1.7	2.0	2.9	4.8	5	5	3.3	.4	44	66	3.8	1.0
7	1.8	2.5	3.3	4.8	5	5	2.7	.4	69	63	4.0	1.0
8	1.9	2.5	3.4	4.8	5	5	2.1	.4	78	62	2.9	.6
9	1.6	2.5	3.5	4.9	4.5	5	1.7	.4	86	61	1.9	.2
10	1.2	2.0	3.5	5	4.0	5.5	1.7	.4	128	46	.8	.3
11	1.2	1.5	3.5	5	4.5	6	1.7	.4	171	31	2.4	.4
12	1.2	1.2	3.8	5	5	7	1.7	.4	178	24	4.0	.4
13	.9	1.0	4.2	5	5	6	1.7	.4	185	18	4.2	.3
14	.6	5.5	4.5	5	5	5.5	1.7	.5	184	16	4.5	.3
15	.4	1.0	4.8	4.9	5	4.3	1.7	.5	183	14	4.0	1.5
16	.3	1.0	4.8	4.8	5	3.1	1.6	.6	170	9	3.5	2.7
17	.3	1.0	4.8	5	5	3.6	1.4	.6	157	4.5	2.4	4.0
18	.3	1.2	4.8	5	4.0	4.0	1.4	1.0	178	4.2	1.3	2.7
19	.2	1.5	4.8	5	5	4.1	1.4	1.3	198	4.0	1.2	1.5
20	.2	1.2	4.8	5	6	4.2	1.4	2.0	209	5	1.1	1.2
21	.6	1.0	4.8	5	7	4.2	1.4	2.7	220	6.5	1.0	1.0
22	1.1	1.0	4.8	5	8	4.2	1.2	2.8	220	5	1.0	.9
23	.8	1.0	4.8	5	8	4.8	1.1	2.9	163	4.0	.9	.8
24	.5	1.2	5.5	5	8	5.5	1.2	3.0	142	3.0	.8	1.0
25	.5	1.5	6	5	7	4.8	1.2	3.1	122	1.9	.7	1.3
26	.5	1.2	5.5	5	5.5	4.2	1.2	3.1	102	1.9	.7	1.4
27	.5	1.0	4.8	5	5	4.2	1.3	3.2	81	1.9	.7	1.5
28	.5	1.0	4.8	5	5	4.2	1.3	3.3	81	1.9	1.0	2.3
29	.6	1.0	4.8	5	.....	4.6	1.3	3.4	81	1.9	1.3	3.1
30	.8	1.0	4.5	4.4	.....	5	1.2	3.5	63	2.3	1.2	26
31	.9	.....	4.2	3.8	.....	3.8	.....	3.6	.....	2.7	1.1	.....

Monthly discharge of Pine Creek near Round Valley, Calif., for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	2.7	0.2	1.05	64.6
November	5.5	1.0	1.47	87.5
December	6	1.0	4.00	246
January	5	3.8	4.87	299
February	8	4.0	5.38	299
March	7	3.1	4.74	291
April	3.3	1.1	1.82	108
May	3.6	.4	1.58	97.2
June	220	3.8	118	7,020
July	72	1.9	26.1	1,600
August	4.5	.7	2.31	142
September	26	.2	2.09	124
The year	220	.2	14.3	10,400

MONO LAKE BASIN.

MONO LAKE NEAR MONO LAKE, CALIF.

LOCATION.—In lot 6, SE. ¼ NE. ¼ sec. 31, T. 2 N., R. 26 E., 2 miles south of Mono Lake post office, Mono County.

RECORDS AVAILABLE.—June 15, 1912, to September 30, 1918 (fragmentary).

GAGE.—Vertical staff on support of boat house, installed September 1916; read once daily by W. E. Green. Original gage was vertical staff fastened to willow tree about 400 feet from Hammon's store. Relation of datums of gages unknown.

EXTREMES OF STAGE.—1912–1918: Maximum stage recorded, 13.3 feet May 27, 1915; minimum stage recorded, 7.93 feet December 11, 1913.

COOPERATION.—Gage-heights furnished by United States Forest Service.

Daily gage height, in feet, of Mono Lake near Mono Lake, Calif., for the year ending Sept., 1918.

Day.	Oct.	Nov.	Dec.	Apr.	May.	June.	July.	Aug.	Sept.
1									
2									
3									
4			1.5						
5									
6									
7									
8							2.8		
9									
10					2.3				
11		1.65							
12									
13									
14									
15									
16						2.45			
17									
18	1.7								
19									
20								2.4	
21				2.33				2.24	
22		1.6							2.1
23									
24									
25									
26									
27									
28									
29									
30									
31									

WALKER LAKE BASIN.

EAST WALKER RIVER ABOVE MASON VALLEY, NEAR MASON, NEV.

LOCATION.—In sec. 9, T. 11 N., R. 26 E., half a mile above highway bridge, 1 mile above Strosnider's ranch, and 14 miles southeast of Mason, Lyon County.

DRAINAGE AREA.—Not measured.

RECORDS AVAILABLE.—August 27, 1916, to January 5, 1918, when station was discontinued.

GAGE.—Vertical staff on right bank about half a mile above highway bridge; read by D. M. Ricker.

DISCHARGE MEASUREMENTS.—Made from highway bridge about half a mile below gage or by wading.

CHANNEL AND CONTROL.—Bed composed of loose sand. Principal control is gravel bar; shifting. Right bank subject to overflow at extreme high water.

EXTREMES OF DISCHARGE.—Not determined.

ICE.—Stage-discharge relation affected by ice at times.

DIVERSIONS.—Station is above all diversions into Mason Valley. Strosnider's canal heads about a mile above gage.

REGULATION.—Flow only slightly affected by regulation of Strosnider canal heading.

ACCURACY.—Stage-discharge relation continually changing. Rating curve used as standard fairly well defined. Shifting-control method used throughout. Gage read to hundredths once a day. Records fair.

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Discharge measurements of East Walker River above Mason Valley, near Mason, Nev., during the period Oct. 1, 1917, to Dec. 19, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
1917.		*Feet.*	*Sec.-ft.*	1918.		*Feet.*	*Sec.-ft.*
Dec. 22	L. W. Jordan	2.40	89	June 20	J. W. Bones	4.90	802
				July 1	do	3.00	303
1918.				Sept. 16	do	2.05	86
Mar. 30	do	2.94	202	Dec. 19	do	2.40	85
May 31	Purton and Bones	3.90	218				

Daily discharge, in second-feet, of East Walker River above Mason Valley, near Mason, Nev., for the period Oct. 1, 1917, to Jan. 5, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Day.	Oct.	Nov.	Dec.	Jan.	Day.	Oct.	Nov.	Dec.	Jan.
1	91	105	104	104	11	81	127	86		21	93	105	83	
2	88	96	100	100	12	84	123	80		22	96	102	89	
3	91	100	96	100	13	84	117	77		23	96	102	86	
4	88	105	93	100	14	91	117	77		24	96	100	89	
5	89	96	96	96	15	91	107	77		25	100	98	96	
6	84	105	100		16	89	107	77		26	100	98	107	
7	81	115	93		17	86	105	80		27	96	95	115	
8	75	119	89		18	88	105	77		28	96	98	111	
9	75	129	86		19	89	104	80		29	96	95	111	
10	75	128	86		20	89	105	80		30	95	98	107	
										31	100		104	

Monthly discharge of East Walker River above Mason Valley, near Mason, Nev., for the period Oct. 1, 1917, to Jan. 5, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	100	75	89.5	5,500
November	129	95	107	6,370
December	115	77	91.4	5,620
January 1-5	104	96	100	992
The period				18,500

WALKER RIVER AT SCHURZ, NEV.

LOCATION.—In sec. 36, T. 13 N., R. 28 E., 50 feet below Southern Pacific Railroad bridge at Schurz, Mineral County, 3 miles above Walker Lake, and 6 miles below diversion dam of Walker River Indian Reservation.

DRAINAGE AREA.—2,850 square miles.

RECORDS AVAILABLE.—July 2, 1913, to September 30, 1918.

GAGE.—Inclined staff gage on right bank 50 feet below Southern Pacific Railroad bridge, installed November 14, 1916; read by J. G. Bradford. Original gage, vertical staff fastened to tree on right bank about a quarter of a mile above bridge, used to July 1, 1914, when it was washed out by flood; replaced on August 4, 1914, by vertical staff on downstream pile of left abutment of highway bridge, about 300 feet back of depot, a quarter of a mile below original gage, and 1,000 feet above present gage.

DISCHARGE MEASUREMENTS.—Made by wading or from flume half a mile below gage.

CHANNEL AND CONTROL.—Bed composed of loose sand; shifts occasionally. No well-defined control.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 7.00 feet at 8 p. m. June 18 (discharge, 2,100 second-feet); minimum stage, 0.30 foot May 25 (discharge, 0.1 second-foot).

1913–1918: Maximum stage recorded, 11.0 feet June 8 and 9, 1914 (discharge, 2,530 second-feet); minimum stage recorded, 1.60 feet August 17–30 and September 23 to October 18, 1913 (discharge, zero).

ICE.—Stage-discharge relation affected by ice during some winters.

DIVERSIONS.—Below all diversions.

REGULATION.—Flow affected by irrigation diversions above.

ACCURACY.—Stage-discharge relation changed June 10–23 during high water; not affected by ice during year. Rating curve used October 1 to June 10 well defined between 3 and 300 second-feet, and fairly well defined to 1,800 second-feet. Curve used June 24 to July 19 fairly well defined. Gage read to half-tenths twice daily. Daily discharge determined by applying mean daily gage height to rating tables; shifting-control method June 10–23. Records good.

Discharge measurements of Walker River at Schurz, Nev., during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Dec. 23	L. W. Jordan	2.20	172	July 1	J. W. Bones	3.32	455
Mar. 29	....do	2.63	242	Sept. 17	.....do	—.84	*a*.5
May 31	Purton and Bones	1.65	70				

a Estimated.

Daily discharge, in second-feet, of Walker River at Schurz, Nev., for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	2.0	41	160	151	151	160	220	277	72	475		
2	2.4	46	151	151	151	160	231	265	134	400		
3	3.0	58	151	151	151	160	238	265	151	318		
4	3.0	72	151	151	151	160	224	265	179	318		
5	3.0	79	151	151	151	170	220	254	224	295		
6	3.0	109	151	151	151	179	220	254	265	295		
7	2.0	109	142	151	170	199	220	254	277	222		
8	1.8	109	142	151	160	210	220	242	314	202		
9	1.5	117	142	151	160	210	220	220	367	151		0.5
10	1.0	117	142	151	160	203	220	220	541	136		
11	1.0	117	142	142	160	199	220	220	710	92		
12	1.0	120	142	142	160	199	216	210	990	82		
13	1.0	125	142	142	160	199	210	189	1,340	80		
14	1.0	128	142	151	160	195	210	146	1,280	47		
15	2.0	134	142	151	160	189	210	91	1,560	28		
16	2.0	134	142	151	160	199	216	62	1,660	18	1.0	
17	3.0	134	146	151	160	216	231	27	1,710	12		.5
18	3.0	134	160	151	160	242	254	5.8	2,040	9.5		
19	3.6	134	160	151	164	254	265	3.0	2,010	6.5		
20	4.0	139	160	151	164	277	270	1.5	1,820			
21	3.0	142	170	142	160	314	277	1.0	1,800			
22	4.0	142	160	142	160	340	277	.5	1,880			
23	4.0	142	160	142	160	340	289	.2	1,780			
24	5.8	142	160	142	170	354	289	.2	1,160			.5
25	7.5	142	151	142	170	362	289	.1	1,120	2.0		
26	7.5	142	151	146	170	367	302	4.0	1,080			
27	7.5	146	151	151	160	367	302	3.0	988			
28	12	156	151	151	160	327	289	3.0	875			
29	17	160	151	151	.....	254	289	4.0	830			
30	36	160	151	151	.....	242	284	9.8	612			
31	29	.....	151	151	.....	220	.....	68	.....			.....

NOTE.—Discharge, July 20 to Sept. 30, estimated because water surface was below bottom of gage. Braced figures show estimated mean discharge for periods indicated.

Monthly discharge of Walker River at Schurz, Nev., for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	36	1.0	5.7	350
November	160	41	121	7,200
December	170	142	151	9,280
January	151	142	149	9,160
February	170	151	160	8,890
March	367	160	241	14,800
April	302	210	247	14,700
May	277	.1	115	7,070
June	2,040	72	992	59,000
July	475	.....	104	6,400
August	.....	.....	1.0	61
September	.....	.....	.5	30
The year	2,040	.....	189	137,000

WEST WALKER RIVER NEAR COLEVILLE, CALIF.

LOCATION.—In NE. ¼ NW. ¼ sec. 28, T. 8 N., R. 23 E., at mouth of Rose Canyon, at head of Antelope Valley, 400 feet east of State highway, 1.2 miles above Terry ranch house, 5.5 miles above Coleville, Mono County, and 40 miles southeast of Gardnerville, Nev.

DRAINAGE AREA.—245 square miles (measured on topographic maps).

RECORDS AVAILABLE.—June 18, 1915, to September 30, 1918; October 5, 1902, to July 31, 1908, a station was maintained half a mile above present gage.

GAGE.—Water-stage recorder built by S. P. Ferguson, Reno, Nev., installed April 29, 1915, on left bank, 15 feet below large yellow pine tree, to which upper section of outside staff gage is fastened, and about 100 feet above Terry canal heading; inspected by T. F. Hardy.

DISCHARGE MEASUREMENTS.—Made from cable 15 feet above gage or by wading.

CHANNEL AND CONTROL.—Bed composed of large boulders. Control at fairly permanent riffle. Stage-discharge relation affected at times by temporary jetty built each year at Terry canal heading.

EXTREMES OF DISCHARGE.—Maximum stage during year, from water-stage recorder, 5.77 feet at 11 a. m. June 14 (discharge, 2,280 second-feet); minimum stage recorded, 2.08 feet at 11 a. m. February 10 (discharge, 28 second-feet).

1915–1918: Maximum discharge recorded, 2,400 second-feet at 4 a. m. June 17, 1917. Minimum discharge recorded, 14 second-feet at 10 p .m. March 2, 1916.

ICE.—Stage-discharge relation not seriously affected by ice.

DIVERSIONS.—Station is above all diversions in Antelope Valley.

REGULATION.—None.

ACCURACY.—Stage-discharge relation is fairly permanent during two conditions of flow—when the jetty at the Terry canal heading is in place, and when it has been destroyed by high water. The jetty was partly washed out June 21–24 and replaced August 5; it was again partly washed out September 29. Rating curves well defined. Operation of water-stage recorder satisfactory except as indicated in footnote to table of daily discharge. Daily discharge ascertained by applying to rating tables mean daily gage height determined from recorder graph by inspection except for June 21–24 and September 29, for which shifting-control method was used. Records good.

Discharge measurements of West Walker River near Coleville, Calif., during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Dec. 21	L. W. Jordan	2.22	49.6	June 17	J. W. Bones	4.80	1,290
Mar. 31	do	2.58	97	29	do	3.93	761
May 30	Bones and Purton	3.50	404	Sept. 19	do	2.82	80

Daily discharge, in second-feet, of West Walker River near Coleville, Calif., for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	82	71	62	47	56	64	125	455	722	743	154	116
2	82	68	58	48	60	66	151	546	855	729	137	112
3	79	70	55	48	60	68	127	638	939	736	137	102
4	76	66	51	49	60	66	120	729	1,120	644	130	92
5	76	71	47	49	60	68	116	820	1,200	578	128	84
6	74	74	43	50	76	63	116	778	1,270	566	127	82
7	74	79	40	50	68	74	120	764	1,380	500	122	79
8	73	74	36	51	60	71	135	650	1,420	450	118	84
9	71	76	32	51	45	71	240	538	1,470	430	114	84
10	73	81	34	52	30	74	328	470	1,600	396	110	79
11	73	74	35	52	31	81	336	415	1,690	364	114	76
12	73	76	37	53	33	80	344	415	1,790	344	114	78
13	73	68	39	53	34	79	316	521	1,890	324	120	100
14	73	65	41	65	36	78	256	638	2,110	316	120	166
15	73	66	42	66	37	78	260	590	1,890	310	114	160
16	73	65	44	68	39	77	288	527	1,670	305	114	110
17	73	66	44	70	40	76	324	560	1,520	300	112	98
18	71	66	44	72	42	89	356	527	1,410	295	106	87
19	73	65	43	74	44	87	356	549	1,290	290	106	82
20	73	65	43	76	46	87	405	644	1,430	284	102	76
21	71	65	43	69	48	81	490	680	1,440	278	100	73
22	71	65	43	61	50	84	584	736	1,270	272	98	79
23	71	74	44	54	52	81	602	764	1,200	248	94	79
24	70	73	44	47	53	84	590	736	1,060	236	92	76
25	70	68	44	39	56	94	572	736	953	236	92	81
26	68	60	45	32	58	97	560	668	939	219	86	82
27	68	60	45	36	60	92	532	566	897	208	86	81
28	68	71	46	40	62	92	500	500	848	202	84	110
29	66	65	46	44	.....	92	465	450	785	137	92	500
30	68	66	47	48	.....	92	435	425	771	132	100	301
31	68	.....	47	52	.....	110	.....	510	.....	145	102	.....

NOTE.—Discharge interpolated on account of lack of gage-height record Dec. 1–8, 10–15, 17–20, 22–31, Jan. 1–12, 15–19, 21–25, 27–31, Feb. 1, 2, 9, 11–16, 18–23, 25–28, Mar. 1, 2, 12–16, May 2–4, July 15–21, and Aug. 5.

Monthly discharge of West Walker River near Coleville, Calif., for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	82	66	72.5	4,460
November	81	60	69 1	4,110
December	62	32	44.0	2,710
January	76	32	53 7	3,300
February	76	30	49 9	2,770
March	110	63	80 5	4,950
April	602	116	338	20,100
May	820	415	598	36,800
June	2,110	722	1,290	76,800
July	743	132	362	22,300
August	154	84	110	6,760
September	500	73	114	6,780
The year	2,110	30	265	192,000

WEST WALKER RIVER NEAR WELLINGTON, NEV.

LOCATION.—In sec. 10, T. 10 N., R. 23 E., in canyon between Antelope and Smith valleys, in Douglas County three-quarters of a mile above Lyon County line, a quarter of a mile above Plymouth canal on right and Colony or Simpson canal on left 1 mile below head of Saroni canal, and 1 mile above Wellington, Nev.

DRAINAGE AREA.—521 square miles (measured on topographic map).

RECORDS AVAILABLE.—December 20, 1917, to September 30, 1918; records, April 26 to August 31, 1910, were collected in sec. 19, T. 10 N., R. 23 E., at highway bridge 3½ miles southwest of Wellington.

GAGE.—Stevens eight-day water-stage recorder on right bank; installed December 20, 1917; inspected by W. J. Sinclair.

DISCHARGE MEASUREMENTS.—Made by wading near gage, or from Hoyes Bridge about 2 miles upstream.

CHANNEL AND CONTROL.—One channel at all stages. Banks not subject to overflow. Stream bed composed of boulders and gravel; apparently permanent.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 5.18 feet at 2 a. m, June 15 (discharge, 1,900 second-feet); minimum stage recorded, 0.85 foot at 12 p. m. September 5 (discharge, 32 second-feet).

ICE.—None during current year.

DIVERSIONS.—Station is below all diversions and return water in Antelope Valley and above all diversions in Smith Valley except Saroni canal. No record of flow in Saroni canal has been obtained.

REGULATION.—None except by diversions.

ACCURACY.—Stage-discharge relation permanent. Rating curve well defined between 25 and 1,500 second-feet. Operation of water-stage recorder satisfactory except as indicated in footnote to daily-discharge table. Daily discharge ascertained by applying to rating table mean daily gage height determined from recorder graph by inspection. Records good.

Discharge measurements of West Walker River near Wellington, Nev., during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Dec. 21	L. W. Jordan	1.52	98.1	June 18	J. W. Bones	4.14	1,280
21	do	1.52	100	29	do	2.81	569
Mar. 31	do	1.57	113	Sept. 18	do	1.20	63.0
May 30	Purton and Bones	2.44	370				

Daily discharge, in second-feet, of West Walker River near Wellington, Nev., for the year ending Sept. 30, 1918.

Day.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	.....	88	71		111	424	475	460	53	39
2	.....	88	74		111	480	655	445	56	44
3	.....	88	79		122	505	840	455	57	37
4	.....	88	78		133	540	960	424	52	34
5	.....	90	81		124	630	1,020	380	49	33
6	.....	88	85	105	99	625	1,100	336	49	34
7	.....	88	117		83	620	1,160	306	48	36
8	.....	92	136		81	525	1,240	288	46	36
9	.....	85	115		89	440	1,310	285	45	36
10	.....	79	108		131	404	1,370	244	43	36
11	.....	71	104		196	372	1,430	229	42	39
12	.....	88	102	118	200	352	1,540	202	42	41
13	.....	96	102	125	200	380	1,680	171	41	45
14	.....	89	94	130	200	465	1,680	153	37	47
15	.....	93	90	128	220	485	1,810	143	36	57
16	.....	94	87	130	220	460	1,640	138	36	60
17	.....	96	92	146	223	416	1,450	124	38	60
18	.....	97	93	185	226	424	1,330	111	38	59
19	.....	92	96	344	238	412	1,250	106	37	55
20	99	84	94	336	241	445	1,220	110	38	52
21	99	80	96	310	278	540	1,320	104	38	51
22	94	79		241	356	535	1,260	99	38	52
23	94	79		208	428	575	1,130	94	38	50
24	97	87		168	485	610	972	87	39	51
25	97	88	105	156	450	620	795	79	38	53
26	102	80		153	436	590	730	70	38	50
27	106	74		156	424	525	675	64	38	48
28	97	83		129	392	475	580	62	35	49
29	92	83	.....	117	380	427	520	60	34	54
30	88	85	.....	111	396	380	465	58	34	150
31	88	81	.....	110	.....	388	.....	54	36	.....

NOTE.—Discharge, Feb. 22 to Mar. 16 and Apr. 12–16, when water-stage recorder did not operate, estimated from weather records and observer's notes. Braced figures show mean discharge for periods indicated.

Monthly discharge of West Walker River near Wellington, Nev., for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
December 20–31	106	88	96.1	2,290
January	97	71	86.2	5,300
February	136	71	97.5	5,410
March	344	.....	150	9,220
April	485	81	242	14,400
May	630	352	486	29,900
June	1,810	465	1,120	66,600
July	460	54	192	11,800
August	57	34	41.6	2,560
September	150	33	49.6	2,950
The period	.....	.....	.....	150,000

WEST WALKER RIVER AT HUDSON, NEV.

LOCATION.—About in sec. 11, T. 11 N., R. 24 E., at highway bridge at Hudson, Lyon County, 1 mile above canyon between Smith and Mason valleys.

DRAINAGE AREA.—953 square miles (measured on topographic maps).

RECORDS AVAILABLE.—August 3, 1914, to September 30, 1918.

GAGE.—Vertical staff fastened to downstream pile in middle bent of highway bridge; read by A. E. Purvine.

DISCHARGE MEASUREMENTS.—Made from bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of loose sand; shifting. Control at loose gravel riffle; shifting during high water. Gage height of zero flow about 1.5 feet.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 6.6 feet at 7 a. m. June 15 (discharge, 1,950 second-feet); minimum stage recorded, 2.10 feet August 24–29 (discharge, 16 second-feet).

1914–1918: Maximum stage recorded, 6.9 feet at 5 p. m. June 18 and 7 a. m. June 19, 1917 (discharge, 2,200 second-feet); minimum stage occurred in 1918.

ICE.—Stage-discharge relation affected by ice at times.

DIVERSIONS.—Below all diversions in Smith Valley and above those in Mason Valley.

REGULATION.—None.

ACCURACY.—Stage-discharge relation changed by high water June 16–29. Rating curves well defined between 30 and 1,500 second-feet. Gage read to half-tenths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table; shifting-control method used June 16–29. Records good.

Discharge measurements of West Walker River at Hudson, Nev., during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Dec. 22	L. W. Jordan	3.07	105	June 18	J. W. Bones	5.85	1,401
Mar. 30	do	3.10	125	30	do	4.00	421
May 31	Purton and Bones	3.66	243	Sept. 18	do	2.28	25.7

Daily discharge, in second-feet, of West Walker River at Hudson, Nev., for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	40	114	114	106	98	114	132	282	315	513	55	21
2	40	111	114	106	98	114	132	298	408	488	55	21
3	40	106	114	106	98	106	142	369	492	440	55	21
4	36	106	114	106	98	114	123	388	514	372	55	21
5	36	118	114	106	98	114	114	470	990	352	55	21
6	36	142	114	106	114	114	98	560	1,050	312	45	21
7	36	142	114	106	132	132	98	537	1,050	226	45	21
8	36	142	114	106	142	123	98	514	1,120	171	40	21
9	36	142	114	106	138	114	98	449	1,190	160	36	21
10	36	132	114	95	128	114	98	252	1,330	148	36	21
11	36	132	106	87	116	114	98	163	1,470	119	36	24
12	36	132	106	84	110	132	142	152	1,630	87	28	28
13	40	136	101	87	108	132	186	142	1,870	80	28	28
14	40	132	106	95	104	152	198	186	1,790	67	28	28
15	40	123	114	106	98	132	198	238	1,950	67	28	28
16	40	123	114	106	96	132	198	224	1,800	50	21	28
17	40	123	114	106	96	152	198	186	1,800	55	21	28
18	40	118	114	106	96	174	198	152	1,480	55	21	28
19	42	114	114	106	98	350	174	152	1,240	55	21	28
20	47	111	114	98	100	350	198	163	1,180	55	21	28
21	57	106	114	87	102	282	211	224	1,120	55	21	28
22	61	106	114	78	104	252	298	315	1,060	55	21	28
23	78	106	114	78	105	186	332	388	1,010	55	18	28
24	81	106	114	84	107	174	350	428	1,010	55	16	28
25	84	114	114	98	108	174	350	470	740	55	16	28
26	91	114	128	91	110	152	332	428	600	55	16	28
27	91	114	118	91	114	152	315	408	570	55	16	28
28	98	114	114	91	114	142	332	332	550	55	16	28
29	98	114	114	95	.....	132	282	332	500	55	16	45
30	98	114	111	98	.....	132	282	282	372	55	21	55
31	106	.....	101	98	.....	132	.....	252	.....	55	21	.....

NOTE.—Gage not read Feb. 8–28; discharge estimated by comparison with flow at other stations on West Walker River.

Monthly discharge of West Walker River at Hudson, Nev., for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	106	36	55.4	3,410
November	142	106	120	7,140
December	128	101	113	6,950
January	106	78	97.4	5,990
February	142	96	108	6,000
March	350	106	158	9,720
April	350	98	200	11,900
May	560	142	314	19,300
June	1,950	315	1,070	63,700
July	513	50	144	8,850
August	55	16	29.9	1,840
September	55	21	27.0	1,610
The year	1,950	16	203	146,000

HUMBOLDT-CARSON SINK DRAINAGE BASIN.

CARSON RIVER BASIN.

EAST FORK OF CARSON RIVER NEAR MARKLEEVILLE, CALIF.

LOCATION.—In NE. ¼ sec. 27, T. 10 N., R. 20 E., at Hangman's Bridge, 2 miles east of Markleeville, Alpine County. Indian Creek enters 100 feet above gage and Markleeville Creek 1¼ miles below.

DRAINAGE AREA.—Not measured.

RECORDS AVAILABLE.—November 13, 1910, to September 30, 1918 (fragmentary).

GAGE.—Vertical staff, 75 feet below bridge, bolted to rock ledge on right bank; read by W. J. Clark.

DISCHARGE MEASUREMENTS.—Made from cable 400 feet below gage or by wading.

CHANNEL AND CONTROL.—Bed composed of gravel and small boulders; apparently permanent. No well-defined control.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 5.92 feet June 8 (discharge, 1,200 second-feet); minimum stage recorded, 2.4 feet November 26 (discharge, 40 second-feet).

1910–1918: Maximum stage recorded, 7.7 feet June 7, 1911 (discharge not determined); minimum stage recorded, 1.45 feet September 20, 1913 (discharge, 6 second-feet).

ICE.—Stage-discharge relation affected by ice.

DIVERSIONS.—No information.

REGULATION.—Low-water flow augmented by storage developed on Silver Creek above station.

ACCURACY.—Stage-discharge relation permanent; not affected by ice during period of record. Rating curve fairly well defined above 40 second-feet. Gage read to half-tenths occasionally. Daily discharge ascertained by applying daily gage height to rating table. Records good. On account of fragmentary gage-height record, estimates of monthly discharge have not been made.

COOPERATION.—Gage-heights furnished by United States Forest Service.

The following discharge measurement was made by H. D. McGlashan:

August 20, 1918: Gage height, 2.52 feet; discharge, 48 second-feet.

Daily discharge, in second-feet, of East Fork of Carson River near Markleeville, Calif., for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Apr.	May.	June.	July.	Aug.	Sept.
1						248		
2					745	226		
3					794			
4					794			
5	60				846			
6	60					194		
7								
8	60				1,200			
9	60	60			1,070		72	
10					1,130			49
11							62	
12	60						61	
13					1,130			85
14				566				
15					1,130			
16		49						
17				526	846		62	
18			354					
19					745		60	
20				566			49	
21							49	
22				566			48	
23	61						49	
24				608			49	54
25				608				
26		40						
27		47						54
28		57		402			42	
29	54	60		370				
30								
31				435				

NOTE.—No gage-height record where discharge is not given.

CARSON RIVER NEAR EMPIRE, NEV.

LOCATION.—In sec. 12, T. 15 N., R. 20 E., just below tailrace of Brunswick mill one-quarter mile below highway bridge and 2 miles below Empire, Ormsby County.

DRAINAGE AREA.—988 square miles (measured on topographic map).

RECORDS AVAILABLE.—June 25 to December 31, 1895; October 21, 1900, to September 30, 1918.

GAGE.—Inclined staff on left bank used since February 24, 1911; vertical staff on left abutment of highway bridge, used from June 7, 1907, to February 23, 1911; prior to June 7, 1907, several gages at different points.

DISCHARGE MEASUREMENTS.—Made from cable a quarter of a mile above gage or by wading just above bridge. When made from cable the power canal is measured and this quantity added.

CHANNEL AND CONTROL.—Bed composed of gravel and boulders; fairly permanent. No well-defined control.

EXTREMES OF DISCHARGE.—Maximum mean daily stage during year, 5.6 feet March 19 (discharge, 1,440 second-feet); minimum mean daily stage, 2.1 feet August 9, 10, and 17 (discharge, 5 second-feet).

1895; 1900–1918: Maximum stage recorded, 8.0 feet January 23, 1914 (discharge, 5,160 second-feet); minimum stage, 0.7 foot August 31 and September 4, 5, and 14, 1905 (discharge, zero).

ICE.—Stage-discharge relation not affected by ice.

DIVERSIONS.—A large amount of water is diverted above station for irrigation in Carson Valley. Water diverted by the Brunswick mill power canal is returned to river above gage.

COOPERATION.—Records furnished by United States Reclamation Service.

Discharge measurements of Carson River near Empire, Nev., during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Mar. 15	R. E. Hartley	4.20	385	July 6	W. H. Blackmer	3.44	83
Apr. 17	do	4.40	541	Aug. 27	R. E. Hartley	2.50	9.0
May 23	W. H. Blackmer	4.70	705	Sept. 30	do	3.25	64
27	do	4.78	749				

Daily discharge, in second-feet, of Carson River near Empire, Nev., for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	27	93	155	200	125	240	500	770	565	125	7	9
2	27	93	194	200	160	285	500	845	565	125	7	9
3	27	93	194	200	200	285	630	920	770	125	7	8
4	27	93	194	200	160	335	565	920	920	100	7	8
5	27	93	194	200	160	385	500	1,080	920	100	6	8
6	27	93	194	200	125	500	385	1,080	1,000	100	7	8
7	27	93	194	160	285	385	500	1,170	1,080	81	6	8
8	21	93	194	160	385	385	500	1,260	1,080	65	6	8
9	21	93	194	160	285	285	630	1,080	1,170	65	5	8
10	27	93	194	160	240	285	630	1,000	1,170	52	5	8
11	27	93	194	160	240	500	630	1,000	1,170	52	6	8
12	27	93	194	160	240	565	700	845	1,260	40	10	8
13	27	93	194	160	240	565	845	770	1,260	40	9	12
14	36	122	194	160	200	500	700	630	1,350	40	6	30
15	36	122	194	160	200	440	565	770	1,350	30	6	30
16	36	155	194	200	200	385	500	700	1,170	16	6	22
17	36	155	194	160	200	385	500	630	920	16	5	12
18	36	155	194	160	200	500	565	565	770	9	10	30
19	36	155	194	160	200	1,440	565	565	770	8	8	30
20	50	155	194	160	200	1,260	500	565	565	7	8	22
21	69	155	236	125	200	920	565	630	630	12	8	22
22	69	155	236	160	200	770	770	630	565	12	8	30
23	69	155	236	160	200	770	845	700	440	12	7	30
24	69	155	236	200	200	565	920	700	385	9	6	30
25	69	155	236	200	240	565	920	770	335	9	7	30
26	69	155	236	200	240	630	845	770	285	9	8	30
27	69	155	236	160	240	770	845	770	240	8	8	30
28	69	155	236	160	240	565	770	630	240	9	8	40
29	69	155	236	160	.....	500	770	565	200	9	8	52
30	69	155	236	160	.....	440	845	565	160	8	8	65
31	69	.....	236	160	.....	440	.....	770	.....	8	9	.....

Monthly discharge of Carson River near Empire, Nev., for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	69	21	44.0	2,710
November	155	93	126	7,500
December	236	155	208	12,800
January	200	125	172	10,600
February	385	125	214	11,900
March	1,440	240	543	33,400
April	920	385	650	38,700
May	1,260	565	796	48,900
June	1,350	160	777	46,200
July	125	7	42.0	2,580
August	10	5	7.16	440
September	65	8	21.5	1,280
The year	1,440	5	300	217,000

NOTE.—Monthly discharge computed by U. S. Geol. Survey.

CARSON RIVER NEAR FORT CHURCHILL, NEV.

LOCATION.—In sec. 5, T. 16 N., R. 23 E., 1 mile west of Clifton station, on Mound House-Churchill branch of Southern Pacific Railroad, 9 miles west of Fort Churchill, Lyon County, and 10 miles below Dayton.

DRAINAGE AREA.—1,200 square miles (measured on topographic maps).

RECORDS AVAILABLE.—April 13, 1911, to September 30, 1918.

GAGE.—Inclined staff on right bank with vertical extension for high water.

DISCHARGE MEASUREMENTS.—Made from suspension bridge 500 feet above gage or by wading.

CHANNEL AND CONTROL.—Bed composed of sand and gravel; shifts occasionally.

EXTREMES OF DISCHARGE.—Maximum mean daily stage during year, 7.0 feet June 13 and 15 (discharge, 1,500 second-feet); minimum mean daily stage, 2.9 feet July 30 to August 13, and August 17 to September 16 (discharge, 4 second-feet).

1911–1918: Maximum stage, 11.5 feet January 26, 1914 (discharge, 6,150 second-feet); minimum discharge in 1918.

ICE.—No information.

DIVERSIONS.—Carson and Dayton valleys are irrigated above station.

REGULATION.—Flow affected by diversions.

COOPERATION.—Records furnished by United States Reclamation Service.

Discharge measurements of Carson River near Fort Churchill, Nev., during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Mar. 15	R. E. Hartley	5.05	521	June 12	W. H. Blackmer	6.78	1,336
Apr. 17	do	5.30	588	18	C. P. Wilson	6.15	1,030
May 1	W. H. Blackmer	5.92	871	July 1	R. E. Hartley	4.21	177
18	do	5.58	665	6	W. H. Blackmer	3.77	91.2
23	do	5.85	766	Aug. 27	R. E. Hartley	3.05	11.6
27	do	5.88	803	Sept. 30	do	3.20	24.3

Daily discharge, in second-feet, of Carson River near Fort Churchill, Nev., for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	27	70	192	136	136	177	590	840	545	177	4	4
2	27	70	223	136	136	177	590	895	685	156	4	4
3	27	70	223	156	136	177	685	1,060	785	136	4	4
4	27	84	223	156	136	156	545	1,120	895	117	4	4
5	27	84	223	156	136	177	545	1,120	1,005	83	4	4
6	27	84	223	136	136	225	500	1,240	1,060	69	4	4
7	27	101	223	136	225	225	500	1,120	1,120	83	4	4
8	27	101	223	136	310	225	500	1,120	1,120	69	4	4
9	30	101	223	156	310	250	590	1,120	1,240	56	4	4
10	30	84	192	156	310	250	685	950	1,300	44	4	4
11	30	101	192	156	280	280	785	785	1,300	33	4	4
12	30	120	192	136	225	380	895	685	1,360	33	4	4
13	30	141	192	136	177	685	895	635	1,500	24	4	4
14	30	141	192	136	177	635	785	735	1,430	24	9	4
15	30	141	192	136	136	460	685	735	1,500	9	9	4
16	30	141	192	136	136	420	590	735	1,240	9	9	4
17	30	165	192	136	136	310	545	685	1,180	9	4	9
18	30	141	192	136	136	545	590	685	1,120	9	4	9
19	30	141	192	136	156	1,120	590	635	785	9	4	9
20	30	141	192	136	156	1,300	590	685	785	9	4	9
21	30	141	192	136	177	1,060	635	735	785	9	4	9
22	30	141	192	136	177	895	735	735	785	9	4	9
23	30	141	192	136	177	785	895	735	635	9	4	9
24	34	141	192	136	177	685	1,060	735	545	9	4	9
25	48	165	192	136	177	685	1,060	735	420	9	4	16
26	58	165	192	136	177	685	1,060	785	380	9	4	16
27	58	165	192	136	177	785	1,005	895	380	9	4	24
28	70	165	192	136	177	685	1,005	735	250	9	4	24
29	70	165	192	136	.....	590	1,005	685	250	9	4	24
30	70	165	192	136	.....	545	895	590	225	4	4	24
31	70	.....	192	136	.....	590	.....	545	.....	4	4	.....

Monthly discharge of Carson River near Fort Churchill, Nev., for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	70	27	36.9	2,270
November	165	70	126	7,500
December	223	192	200	12,300
January	156	136	140	8,610
February	310	136	182	10,100
March	1,300	156	521	32,000
April	1,060	500	734	43,700
May	1,240	545	822	50,500
June	1,500	225	887	52,800
July	177	4	40.2	2,470
August	9	4	4.48	275
September	24	4	8.80	524
The year	1,500	4	308	223,000

NOTE.—Monthly discharge computed by U. S. Geol. Survey.

MARKLEEVILLE CREEK[1] ABOVE MARKLEEVILLE, CALIF.

LOCATION.—At highway bridge above mouth of Pleasant Valley Creek, three-quarters of a mile above Markleeville, Alpine County.

DRAINAGE AREA.—Not measured.

RECORDS AVAILABLE.—November 7, 1911, to September 30, 1918 (fragmentary).

GAGE.—Vertical staff in two sections on left abutment of bridge; read by W. J. Clark. Datum of gage was raised 5.71 feet August 18, 1914.

DISCHARGE MEASUREMENTS.—Made from bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of gravel and small boulders; fairly permanent.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 2.85 feet at 6.40 p. m. May 4 (discharge, 292 second-feet); minimum stage recorded, 0.8 foot August 6, 9, 31, and September 9 (discharge, 0.5 second-foot).

1911–1918: Maximum stage recorded, 3.65 feet at 4.30 p. m. June 15, 1917 (discharge, 602 second-feet); minimum stage recorded, 0.7 foot September 19, 1916 (discharge, 0.1 second-foot).

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

DIVERSIONS.—Town ditch, which heads above the gage, furnishes water for irrigation and domestic supply at Markleeville. A small ditch also diverts water for irrigation on Hot Springs ranch.

REGULATION.—No information.

ACCURACY.—Stage-discharge relation probably permanent except as affected by ice November 26. Rating curve well defined below 200 second-feet and extended above. Gage read to half-tenths occasionally. Daily discharge ascertained by applying daily gage height to rating table. Records good.

COOPERATION.—Gage-height record furnished by United States Forest Service.

The following discharge measurement was made by H. D. McGlashan:
August 20, 1918: Gage height, 0.86 foot; discharge, 0.6 second-foot.

[1] Locally known as Hot Springs Creek.

Daily discharge, in second-feet, of Markleeville Creek above Markleeville, Calif., for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Apr.	May.	June.	July.	Aug.	Sept.
1				127	135			
2				172	185	6		
3				200		19		
4				292	160			
5						16		
6	1.2			200	245		0.5	
7				172	160		.8	
8	1.2			160	160	1.5		
9	1.2	3.5		109	185		.5	0.5
10	1.2							
11	1.5							
12	1.5							
13	1.4				185			
14								
15	1.5			115				
16	1.5			103	105			
17	1.5			125	99			
18			65	115	80			
19	1.5			111	80			
20			73	135	68		.8	
21					76			
22	2.5	2.5	129	185	60			
23	2.5		95	148	60	1.0		
24			95			1.0		
25				180	38	.5		
26		3	109		31	.8		
27			105	105	47			
28				86			.8	3.5
29			119	80	19	.8		
30	4.5	4.5	125	76	16			
31				99			.5	

NOTE.—No gage-height record where discharge is not given.

MARKLEEVILLE CREEK AT MARKLEEVILLE, CALIF.

LOCATION.—In SE. ¼ sec. 21, T. 10 N., R. 20 E., at highway bridge at Markleeville, Alpine County, three-quarters of a mile below junction with Pleasant Valley Creek.

DRAINAGE AREA.—Not measured.

RECORDS AVAILABLE.—November 11, 1910, to September 30, 1918 (fragmentary).

GAGE.—Vertical staff on left abutment of highway bridge near downstream end; read by W. J. Clark.

DISCHARGE MEASUREMENTS.—Made from bridge or by wading.

CHANNEL AND CONTROL.—Gravel and boulders; somewhat shifting during high water. Banks are high and not subject to overflow.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 3.8 feet May 4 (discharge, 507 second-feet); minimum stage recorded, 0.7 foot August 22, 24, and September 10 (discharge, 2.5 second-feet).

1910–1918: Maximum stage recorded, 5.3 feet June 15, 1912 (discharge, 915 second-feet); minimum stage recorded in 1918, but may have been lower September 16, 1916. Flood of March, 1907, reached a stage about 9 feet.

ICE.—Stage-discharge relation affected by ice.

DIVERSIONS.—See Markleeville Creek above Markleeville. Water is also diverted from Pleasant Valley Creek for irrigation.

REGULATION.—Diversions partly regulate flow. Some storage has been developed on Pleasant Valley Creek.

ACCURACY.—Stage-discharge relation permanent. Rating curve fairly well defined below 500 second-feet; extended above. Gage read to half-tenths occasionally. Daily discharge ascertained by applying mean daily gage height to rating table.

COOPERATION.—Gage-height record furnished by United States Forest Service.

The following discharge measurement was made by H. D. McGlashan:

Aug. 20, 1918: Gage height, 0.72 foot; discharge, 2.9 second-feet.

Daily discharge, in second-feet, of Markleeville Creek at Markleeville, Calif., for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Apr.	May.	June.	July.	Aug.	Sept.
1				320	278	53		
2				320	352	43		
3				370	320			
4				507	370			
5	6				306			
6	5			387	406			
7				370	352		14	
8	5			320				
9		5		241	352		10	
10	5				320			2.5
11							3.5	
12							4.7	
13	7				320		6	2.8
14								
15	4.2			253	218			
16		6		320			3.0	
17				241	167		3.3	
18			133	241	197			
19				278	158		3.5	
20			150	241			2.7	
21							3.0	
22	5	12	253	253	110		2.5	
23	4.2		208	320			3.0	
24			218	292			2.5	6
25					78			
26		6	218		68			
27		6	218	197				
28		6						7
29		6	241	158	43			
30		6	253	158	39			
31				241				

NOTE.—No gage-height record where discharge is not given.

WEST FORK OF CARSON RIVER AT WOODFORDS, CALIF.

LOCATION.—In SE. ¼ sec. 34, T. 11 N., R. 19 E., at highway bridge at Woodfords, Alpine County.

DRAINAGE AREA.—70 square miles.

RECORDS AVAILABLE.—April, 1890, to March, 1892; October 18, 1900, to September 30, 1915; April 12, 1916, to September 30, 1918.

GAGE.—Vertical staff on right bank just above highway bridge; installed at independent datum August 21, 1914; read by Mrs. M. Merrill. Original gage, near present site, used April, 1890, to March, 1892. Vertical staff on left bank at cable half a mile above bridge read October 18, 1900, to May 18, 1907. Vertical staff on left bank just above highway bridge June 8, 1907, to November 10, 1913, except for certain periods in 1910 and 1911 when gage at cable was used. Vertical staff on right bank 20 feet above site of previous gage November 11, 1913, to August 20, 1914.

DISCHARGE MEASUREMENTS.—Made from cable half a mile above gage or by wading.

CHANNEL AND CONTROL.—Bed composed of fine gravel and boulders; rough but fairly permanent. No well-defined control.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 3.9 feet May 5 (discharge, 618 second-feet); minimum stage recorded, "Water below gage" July 22–28, August 5–12 and 19–25 (discharge estimated 1 second-foot).

1900–1918: Maximum stage recorded, 6.8 feet May 9 and 10, 1906 (discharge, 1,570 second-feet); minimum stage occurred in 1918.

ICE.—Stage-discharge relation affected by ice during some winters.

DIVERSIONS.—Three irrigation canals divert on right bank between cable and gage. Water is used mainly for irrigation in California. Their flow is not included in record.

REGULATION.—Flow partly regulated by diversions.

ACCURACY.—Stage-discharge relation changed slightly in June; not affected by ice. Rating curve used October 1 to June 16 well defined between 15 and 450 second-feet; curve used for remainder of year well defined between 4 and 100 second-feet. Gage read to half-tenths daily during April and May, and 3 to 5 times a week during remainder of year. Daily discharge ascertained by applying daily gage height to rating table. Shifting-control method used June 17–26. Discharge interpolated for days when gage was not read. Records good.

Discharge measurements of West Fork of Carson River at Woodfords, Calif., during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Dec. 17	L. W. Jordan	1.25	19.3	June 16	J. W. Bones	2.50	198
Apr. 1	do	1.55	40.6	28	do	1.70	65
May 29	Bones and Purton	2.30	147	Sept. 22	do	.75	5.1

Daily discharge, in second-feet, of West Fork of Carson River at Woodfords, Calif., for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	4	16		21	21	21	42	548	172	77	12	10
2	4	16		21	21	21	47	548	219	92	12	10
3	4	16		21	21	21	47	480	219	92	12	10
4	4	16		21	21	21	58	514	244	92	12	8
5	4	18		21	28	21	58	618	244	92		7
6	4	21		21	47	21	70	514	244	92		8
7	4	21		21	37	21	83	447	270	92		9
8	9	21		24	37	22	83	384	270	14		10
9	9	21	20	28	28	24	98	325	297	14	1	12
10	9	21		28	24	26	114	325	297	13		14
11	9	21		28	21	28	143	325	297	13		39
12	9	21		28	21	28	172	297	297	13		64
13	9	21		28	21	28	172	297	297	13	14	77
14	9	21		24	21	28	219	270	284	13	14	36
15	8	21		21	21	28	270	244	270	18	13	36
16	8	21		21	21	28	384	195	195	18	12	29
17	8	21	18	21	21	28	415	195	100	18	12	23
18	8	21	21	21	21	28	415	219	93	18	12	16
19	8	21	21	21	21	28	431	219	86	18		10
20	8	21	21	21	21	28	447	244	87	18		3
21	8	21	21	21	21	28	447	244	88	18		3
22	12	21	21	21	21	28	447	232	82		1	6
23	12	21	21	21	21	28	447	219	75			6
24	12	21	21	21	21	28	384	219	76			7
25	12	21	21	21	21	28	384	219	76	1		10
26	12		21	18	21	28	447	219	76		10	10
27	12		21	16	21	28	447	219	77		8	10
28	14	20	21	16	21	37	447	244	64		7	14
29	16		21	16	.....	37	480	151	70	12	7	14
30	16		21	21	.....	37	514	162	77	12	7	23
31	16	.....	21	21	.....	37	.....	172	.....	12	8	.....

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

Monthly discharge of West Fork of Carson River at Woodfords, Calif., for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	16	4	9.06	557
November	21	16	20.1	1,200
December	21	18	20.4	1,250
January	28	16	21.7	1,330
February	47	21	23.7	1,320
March	37	21	27.2	1,670
April	514	42	274	16,300
May	618	151	307	18,900
June	297	64	175	10,400
July	92	.....	28.7	1,760
August	14	.....	6.03	371
September	77	3	17.8	1,060
The year	618	.....	77.5	56,100

HUMBOLDT RIVER BASIN.

HUMBOLDT RIVER AT PALISADE, NEV.

LOCATION.—In sec. 36, T. 32 N., R. 51 E., at highway bridge at Palisade, Eureka County, 100 feet below Southern Pacific Railroad bridge and 1 mile above mouth of Pine Creek.

DRAINAGE AREA.—5,010 square miles.

RECORDS AVAILABLE.—November 27, 1902, to October 19, 1906; July 26, 1911, to September 30, 1918.

GAGE.—Chain gage at highway bridge used since December 1, 1911; read by Albina Siri. Inclined staff on left bank near Southern Pacific Railroad bridge, at same datum as present gage, read from July 26 to November 30, 1911. Original gage was vertical staff on right abutment of highway bridge which was destroyed by high water in 1910. No determined relation between original and present datum.

DISCHARGE MEASUREMENTS.—Made from cable about an eighth of a mile above gage or by wading.

CHANNEL AND CONTROL.—Bed composed of sand and gravel. Control at low stages is a gravel bar 50 to 75 feet below gage; at high stages a pile bent railroad bridge about 300 feet below gage and a rock riffle a few hundred feet farther downstream become effective; both fairly permanent. Point of zero flow, about gage height 0.4 foot.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 3.5 feet June 23 (discharge, 595 second-feet); minimum stage recorded, 0.94 foot September 2 (discharge, 13 second-feet).

1903–1906, 1911–1918: Maximum stage recorded, 7.4 feet at 2.40 p. m. May 30, 1917 (discharge, 3,170 second-feet); minimum stage recorded, 0.96 foot August 28 to September 1, 1915 (discharge, 12 second-feet).

ICE.—Stage-discharge relation affected by ice during most winters.

DIVERSIONS.—Some water diverted for irrigation in valley above canyon.

REGULATION.—Flow affected by irrigation diversions above.

ACCURACY.—Stage-discharge relation permanent except as affected by ice January 11–14. Rating curve well defined below 2,500 second-feet; extended above. Gage read to hundredths once a day. Daily discharge ascertained by applying daily gage height to rating table. Records good.

Discharge measurements of Humboldt River at Palisade, Nev., during the year ending Sept. 30, 1918.

[Made by L. W Jordan.

Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*
Dec. 11	1.82	85
Mar. 24	2.93	379

Daily discharge, in second-feet, of Humboldt River at Palisade, Nev., for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	37	75	119	148	92	148	374	140	26	198	29	14
2	37	75	119	140	95	161	374	140	22	161	76	13
3	37	77	123	138	98	308	374	140	20	121	46	14
4	37	77	116	136	101	275	358	140	15	104	35	15
5	37	80	116	132	104	242	358	140	15	95	29	15
6	35	82	112	129	129	258	341	130	15	79	26	15
7	35	82	106	140	132	275	341	114	15	69	25	16
8	35	85	96	157	144	292	341	111	15	62	25	17
9	35	85	90	161	104	308	341	104	16	57	23	17
10	37	88	90	161	69	324	341	89	45	51	23	18
11	37	88	92		69	324	358	76	64	46	22	20
12	37	90	104		121	341	358	76	121	42	22	21
13	37	94	118	140	148	341	358	69	140	42	21	22
14	38	96	121		136	358	358	62	161	46	21	26
15	40	100	129	89	98	390	358	57	173	48	20	69
16	43	102	129	89	89	374	358	53	173	44	20	89
17	45	102	132	98	153	390	341	49	212	44	20	185
18	45	102	136	121	161	390	341	46	258	41	20	161
19	45	102	140	144	140	374	324	51	258	39	20	121
20	47	100	144	140	104	374	308	38	242	38	18	53
21	50	100	144	136	114	374	275	35	242	36	18	29
22	52	100	144	118	121	374	258	32	553	35	17	28
23	54	96	148	104	140	390	242	29	595	33	17	32
24	56	96	148	114	157	390	227	28	553	33	17	30
25	58	96	148	153	140	390	212	25	513	35	17	30
26	63	106	153	89	161	374	185	23	475	35	17	32
27	65	109	153	89	148	374	185	23	440	33	16	32
28	65	112	157	89	144	374	173	25	341	33	15	32
29	70	116	157	89	.....	374	161	28	292	32	15	32
30	70	119	157	89	.....	374	150	38	242	30	15	32
31	72	.....	148	89	.....	374	.....	33	.....	29	14	.....

NOTE.—Stage-discharge relation affected by ice Jan. 11–14; discharge estimated from weather records and observer's notes. Gage not read Jan. 27–29, Feb. 1–4; discharge interpolated.

Monthly discharge of Humboldt River at Palisade, Nev., for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	72	35	46.8	2,880
November	119	75	94.4	5,620
December	157	90	129	7,930
January	161	89	124	7,620
February	161	69	122	6,780
March	390	148	336	20,700
April	374	150	302	18,000
May	140	23	69.2	4,250
June	595	15	208	12,400
July	198	29	57.8	3,550
August	76	14	23.2	1,430
September	185	13	41.0	2,440
The year	595	13	129	93,600

HUMBOLDT RIVER AT COMUS, NEV.

LOCATION.—In NW. ¼ sec. 14, T. 36 N., R. 41 E., at Comus, Humboldt County.

DRAINAGE AREA.—Not measured.

RECORDS AVAILABLE.—September 25, 1917, to September 30, 1918.

GAGE.—Inclined staff on left bank 160 feet above Southern Pacific section house; read by Patrick Evers.

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

CHANNEL AND CONTROL.—Bed composed of fine gravel and sand. Low-water control is gravel bar 150 feet downstream; apparently permanent.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 3.65 feet at 6 p. m. April 4 (discharge, 312 second-feet); minimum stage recorded, 1.4 feet a greater part of the time July to September (discharge, 1 second-foot).

ICE.—Stage-discharge relation not affected by ice.

DIVERSIONS.—Water is diverted all along river both above and below station. Practically all flow during irrigation season is seepage.

REGULATION.—None except by diversion.

ACCURACY.—Stage-discharge relation permanent. Rating curve well defined below 700 second-feet. Gage read to quarter-tenths once a day. Daily discharge ascertained by applying daily gage height to rating table. Records good.

Discharge measurements of Humboldt River at Comus, Nev., during the period Sept. 24, 1917, to Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
1917.		*Feet.*	*Sec.-ft.*	1918.		*Feet.*	*Sec.-ft.*
Sept. 24	L. W. Jordan	1.98	22.5	Mar. 23	L. W. Jordan	3.56	294
Dec. 13	do	2.62	98	June 14	J. W. Bones	1.54	1.8
				22	do	1.50	[a]1.8

[a] Estimated.

Daily discharge, in second-feet, of Humboldt River at Comus, Nev., for the period Sept. 24, 1917, to Sept. 30, 1918.

Day.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1		18	23	68	94	131	154	305	32	4.0	2.0	1.0	1.0
2		18	23	68	94	131	164	305	24	4.0	1.5	1.0	1.0
3		18	24	68	97	145	184	305	24	4.0	1.5	1.0	1.0
4		17	26	68	97	154	174	312	17	4.0	1.5	1.0	1.0
5		17	26	72	97	145	164	300	17	4.0	1.5	1.0	1.0
6		17	28	79	97	110	174	300	14	4.0	1.5	1.0	1.0
7		17	28	86	102	131	206	300	11	4.0	1.0	1.0	1.0
8		16	30	94	102	131	251	288	11	4.0	1.0	1.0	1.0
9		16	30	94	110	107	270	275	7.0	3.0	1.0	1.0	1.0
10		16	32	94	113	118	270	263	7.0	3.0	1.0	1.0	1.0
11		16	32	97	124	124	263	251	5.5	3.0	1.0	1.0	1.0
12		16	34	97	113	124	263	240	7.0	2.0	1.0	1.0	1.0
13		16	34	102	110	127	256	240	7.0	2.0	1.0	1.0	1.0
14		16	37	110	154	118	251	240	7.0	2.0	1.0	1.0	1.0
15		16	37	102	174	131	251	206	7.0	2.0	1.0	1.0	2.0
16		16	40	102	110	124	251	164	7.0	2.0	1.0	1.0	2.0
17		16	40	94	107	118	263	127	7.0	2.0	1.0	1.0	1.5
18		16	42	94	110	118	270	118	7.0	2.0	1.0	1.0	1.2
19		16	42	91	110	110	270	94	7.0	4.0	1.0	1.0	1.0
20		16	44	86	118	110	275	102	7.0	4.0	1.0	1.0	1.0
21		16	44	82	127	110	280	110	7.0	11	1.0	1.0	1.0
22		16	48	82	136	110	288	94	7.0	5.5	1.0	1.0	2.4
23		16	51	86	118	127	295	79	7.0	3.0	1.0	1.0	7.0
24		17	53	86	107	127	288	65	7.0	3.0	1.0	1.0	7.0
25	23	17	55	91	110	127	288	72	7.0	3.0	1.0	1.0	4.0
26	23	17	59	91	118	127	275	53	7.0	3.0	1.0	1.0	2.0
27	23	17	59	91	97	136	275	42	7.0	2.5	1.0	1.0	1.0
28	23	18	65	94	76	145	280	32	7.0	2.0	1.0	1.0	1.0
29	23	18	65	94	86		295	32	7.0	2.0	1.0	1.0	1.0
30	20	20	65	102	110		300	32	4.0	2.0	1.0	1.0	1.0
31		20		110	68		305		4.0		1.0	1.0	

NOTE.—Gage not read Jan. 27, May 26, 27, June 15, 16, 27, July 15, 16, 17, 30, Aug. 3, 15, 24, and Sept. 18; discharge interpolated.

Monthly discharge of Humboldt River at Comus, Nev., for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	20	16	16.8	1,030
November	65	23	40 5	2,410
December	110	68	89.5	5,500
January	174	68	109	6,700
February	154	110	126	7,000
March	305	154	251	15,400
April	312	32	178	10,600
May	32	4.0	9.79	602
June	11	2.0	3.33	198
July	2.0	1.0	1.11	68
August	1.0	1.0	1.00	61
September	7.0	1.0	1.67	99
The year	312	1.0	68.7	49,700

HUMBOLDT RIVER NEAR OREANA, NEV.

LOCATION.—In sec. 35, T. 29 N., R. 32 E., 2 miles above highway bridge near J. J. McCarthy's ranch and 2 miles southwest of Oreana, Pershing County (railroad station called Nenzel).

DRAINAGE AREA.—13,800 square miles (measured on map issued by General Land Office).

RECORDS AVAILABLE.—January 27, 1896, to December 31, 1909; September 7, 1910, to September 30, 1918.

GAGE.—Friez water-stage recorder on right bank used February 24 to August 22, 1914, and October 4, 1914, to September 30, 1918; inspected by C. E. Saunders. For description of previous gages see Water-Supply Paper 460.

DISCHARGE MEASUREMENTS.—Made from cable 20 feet below gage or by wading.

CHANNEL AND CONTROL.—Bed composed of sand. Principal control not well defined but is probably about half a mile below gage, where bed is composed of firm clay; fairly permanent. Low-water control is about 50 feet below gage. Right bank high and comparatively clean. Left bank not subject to overflow, but subject to caving.

EXTREMES OF DISCHARGE.—Maximum stage during year, from water-stage recorder, 3.56 feet at 10 a. m. June 21 (discharge, 551 second-feet); minimum discharge, no flow, September 3–14.

1896–1918: Maximum stage recorded, 12.0 feet May 12, 1897 (discharge, 3,050 second-feet); minimum discharge, no flow in June and July, 1905, in August and September, 1915, and in September, 1918.

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

DIVERSIONS.—Station is above all diversions for Lovelocks district, but considerable water is diverted above station for direct irrigation and storage.

REGULATION.—Flow is affected by water stored and released by Humboldt-Lovelocks Irrigation, Light & Power Co. at its reservoirs a few miles upstream, near Humboldt.

ACCURACY.—Stage-discharge relation for low stages changed during early part of September; for medium and high stages practically permanent; affected by ice December 30 to February 2. Rating curve used October 1 to September 5 well defined between 10 and 2,000 second-feet; curve used for later part of September fairly well defined. Operation of water-stage recorder satisfactory except for a few short breaks in record as shown in footnote to daily discharge table. Daily discharge ascertained by applying to rating tables the mean daily gage height determined by inspecting recorder graph, except for periods when stage-discharge relation was affected by ice and for periods of breaks in gage-height record. Records excellent except for periods estimated for which they are fair.

Discharge measurements of Humboldt River near Oreana, Nev., during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec. ft.*			*Feet.*	*Sec.-ft.*
Oct. 4	L. W. Jordan	1.10	53.	June 3	J. W. Bones	1.51	108
Dec. 14	do	.65	11.4	Sept. 26	do	.83	10.5
Mar. 27	do	2.33	256				

Daily discharge, in second-feet, of Humboldt River near Oreana, Nev., for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	54	46	14	16	23	142	189	265	100	16	145	2
2	53	45	14	16	118	145	168	254	106	14	145	1
3	52	41	16		194	147	147	250	106	17	85	.....
4	52	37	18		208	148	126	252	104	17	48	.....
5	52	35	15		250	153	123	252	102	15	34	.....
6	52	35	21		181	165	123	250	95	14	28	.....
7	51	36	19		165	174	131	248	92	31	23	.....
8	50	37	15		160	184	185	257	89	79	24	.....
9	48	37	12		157	194	226	252	86	85	23	.....
10	46	36	14		157	204	248	252	86	92	21	.....
11	45	35	17		157	208	248	230	94	112	19	.....
12	44	31	20		157	220	238	174	90	116	17	.....
13	44	23	21		160	218	289	171	88	118	15	.....
14	44	21	22		162	226	269	171	88	126	13	.....
15	44	20	21		150	238	267	176	84	145	11	2
16	45	17	20	18	157	239	291	180	89	129	10	4
17	45	15	32		189	240	289	165	110	114	10	4
18	46	23	21		193	242	278	160	102	110	10	5
19	48	23	17		172	244	265	158	108	110	9	4
20	48	17	17		172	246	250	152	121	110	8	4
21	48	17	15		158	250	254	140	276	112	8	5
22	49	17	14		157	250	269	139	153	118	8	19
23	49	19	15		156	254	230	137	128	120	8	24
24	51	19	14		155	257	164	136	120	138	8	14
25	50	17	15		144	230	172	109	114	140	8	10
26	51	15	17		140	234	191	100	104	138	8	9
27	50	14	17		139	246	204	102	30	140	7	8
28	50	15	17		139	252	220	100	16	145	6	8
29	49	14	16		.....	246	254	99	16	145	5	13
30	48	14	16		.....	226	261	96	16	145	3	35
31	47	.....	16		.....	210	.....	99	.....	145	2	.....

NOTE.—Discharge estimated because of ice or break in gage-height record Oct. 29–31, Nov. 1, 13–15, 18–22, Dec. 1, 7–8, 10–12, 15, 29–31, Jan. 1–2, Feb. 1–2, 8–9, 15–16, 23, 25–28, Mar. 1–2, 8–9, 16, 23, Apr. 1–3, May 11, June 11–14, 27–30, and July 21–31. Braced figure shows mean discharge for period indicated; estimated from weather records and observer's notes. No flow Sept. 3-14.

Monthly discharge of Humboldt River near Oreana, Nev., for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	54	44	48.5	2,980
November	46	14	25.8	1,540
December	32	12	17.4	1,070
January			17.9	1,100
February	250	23	160	8,890
March	257	142	214	13,200
April	291	123	219	13,000
May	265	96	178	10,900
June	276	16	97.1	5,780
July	145	14	98.6	6,060
August	145	2	24.8	1,520
September	35	0	5.7	339
The year	291	0	91.7	66,400

HUMBOLDT RIVER NEAR LOVELOCKS, NEV.

LOCATION.—In NW. ¼ sec. 11, T. 25 N., R. 31 E., 1,500 feet below dam and reservoir on Big 5 ranch, lowest diversion for irrigation on Humboldt River, and 9 miles south of Lovelocks, Pershing County.

DRAINAGE AREA.—14,200 square miles.

RECORDS AVAILABLE.—February 7, 1912, to September 30, 1918.

GAGE.—Lietz water-stage recorder on left bank; inspected by W. B. Gibson. Original inclined staff gage on right bank was read February 7 to June 17, 1912, when Lietz gage was installed a few feet below it. Lietz gage washed out June 18, 1914, and was replaced on left bank June 26, 1914.

DISCHARGE MEASUREMENTS.—Made from cable at gage or by wading.

CHANNEL AND CONTROL.—Bed is composed of firm clay. Control fairly permanent. One channel at all stages.

EXTREMES OF STAGE.—Maximum stage recorded during year, 1.74 feet at 10.30 a. m. February 24; minimum stage, stream dry a number of times during the year.

1912–1918: Maximum stage recorded, 5.15 feet May 4, 1914 (discharge, 1,450 second-feet); minimum stage, stream dry for periods in 1913, 1916, 1917, and 1918.

ICE.—Stage-discharge relation not affected by ice.

DIVERSIONS.—Below all irrigation diversions.

REGULATION.—Flow affected by irrigation diversions and storage.

ACCURACY.—Stage-discharge relation not determined as no discharge measurements have been made except at extremely high and low stages. Operation of water-stage recorder unsatisfactory October to January and May; staff gage read to hundredths once a week. Mean daily gage height determined from recorder graph by inspection. Discharge not determined. Gage-height records good.

Discharge measurements of Humboldt River near Lovelocks, Nev., during the year ending Sept. 30, 1918.

[Made by L. W. Jordan.]

Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*
Oct. 1	0.62	a 0.25
Mar. 27	.62	a .5

a Estimated.

Daily gage height, in feet, of Humboldt River near Lovelocks, Nev., for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.
1					1.30	1.65	0.60	0.60
2					1.38	1.64	.60	.60
3					1.46	1.60	.60	.60
4				0.96	1.49	1.57	.60	.62
5					1.51	1.52	.60	.64
6					1.58	1.50	.62	
7		1.02			1.65	1.48	.62	
8					1.64	1.51	.62	
9					1.64	1.50	.64	
10					1.66	1.50	.64	
11						1.45	.64	
12			0.70			1.46	.63	.64
13						1.45	.60	
14		1.02	.68			1.41	.60	
15						1.36	.60	
16						1.08	.60	
17					1.56	1.07	.60	
18				1.10	1.63	1.12	.62	
19					1.72	1.16	.64	.66
20	1.22				1.69	1.19	.66	
21		.82	.82		1.71	1.18	.68	
22				1.30	1.72	1.17	.66	
23					1.72	1.16	.67	
24	.74				1.74		.66	
25					1.72	.95	.66	
26					1.71	.65	.66	
27				1.26	1.70	.60	.64	
28		.66	.96	1.26	1.68	.56	.62	
29				1.27		.56	.62	
30				1.28		.58	.62	
31	.90			1.29		.60		

NOTE.—Practically no flow Oct. 2–19, Mar. 27 to Apr. 5, Apr. 13–17, May 1–3, and May 25 to Sept. 30.

MARYS RIVER NEAR DEETH, NEV.

LOCATION.—In NW. ¼ sec. 31, T. 40 N., R. 60 E., at bridge 300 feet east of Mala Vista ranch house of Nevada Land & Livestock Co., 20 miles north of Deeth, Elko County.

DRAINAGE AREA.—355 square miles (measured on map of Nevada issued by General Land Office, edition of 1908).

RECORDS AVAILABLE.—November 24, 1902, to July 14, 1903; January 17, 1912, to September 30, 1918.

GAGE.—Chain gage on upstream side of bridge; read by W. H. Woody. Original staff gage at same bridge, but at different datum, read November 24, 1902, to July 14, 1903.

DISCHARGE MEASUREMENTS.—Made from bridge at gage or by wading.

CHANNEL AND CONTROL.—Bed composed of gravel and loose sand. Control slightly shifting. One channel at all stages.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 4.0 feet May 6–9 (discharge, 130 second-feet); minimum stage recorded, 1.90 feet August 29 (discharge, 1.0 second-foot).

1902–3, 1912–1918: Maximum stage recorded, 6.3 feet May 19 and June 3–7, 1912 (discharge, 439 second-feet); minimum stage occurred in 1918.

ICE.—Stage-discharge relation affected by ice.

DIVERSIONS.—Station is below all diversions except one small ditch on Mala Vista ranch and Cross ranch diversions about 14 miles below.

REGULATION.—During low-water periods flow is affected by diversions above.

ACCURACY.—Stage-discharge relation permanent during the year except as affected by ice January 9 to February 25. Rating curve well defined from 4 to 400 second-feet. Gage read to hundredths once a day. Daily discharge ascertained by applying daily gage height to rating table. Records good, except during period estimated, for which they are fair.

Discharge measurements of Marys River near Deeth, Nev., during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Dec. 8	L. W. Jordan	2.44	13.2	June 8	J. W. Bones	3.50	86
Mar. 21	do	3.07	49.7	Sept. 7	do	1.93	.74
Apr. 21	do	3.44	77				

Daily discharge, in second-feet, of Marys River near Deeth, Nev., for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	6	10	16	14		36	92	75	67	22	7	1
2	6	11	16	15		25	110	83	64	20	7	1
3	5	11	15	20		29	101	92	65	18	6	1
4	5	11	16	16		29	92	101	65	18	5	2
5	5	12	17	17		30	83	120	75	16	5	2
					10							
6	5	12	16	12		38	75	130	75	15	5	2
7	5	13	18	17		44	75	130	83	21	4	1
8	6	13	14	19		36	75	130	83	20	4	3
9	5	13	15			38	75	130	92	21	4	2
10	5	13	14			41	101	120	92	22	4	2
11	5	13	18			32	110	101	92	21	2	2
12	5	13	15			37	110	92	83	20	2	2
13	4	13	15			38	120	83	75	18	2	2
14	5	14	16			38	120	83	75	20	2	2
15	5	14	15			31	120	83	69	21	2	2
16	6	14	15	14		37	110	83	67	19	2	2
17	7	14	15			41	101	83	64	19	2	2
18	7	14	16		18	44	92	83	59	16	2	2
19	7	12	16			44	83	75	56	15	2	2
20	7	12	16			47	83	69	51	12	2	2
21	8	12	16			50	78	67	47	12	2	2
22	10	12	18			53	83	69	62	11	2	2
23	10	13	15			59	92	69	57	11	2	2
24	10	14	16			65	101	67	54	9	2	2
25	10	14	16			69	101	67	44	9	1	2
26	10	14	16		22	83	101	65	37	9	1	2
27	10	14	16		25	92	83	65	31	9	1	2
28	10	14	16	10	31	83	83	67	30	7	1	2
29	10	15	17		.....	83	69	75	25	7	1	2
30	10	16	16		.....	83	69	69	24	7	1	2
31	10	.....	16		.....	92	.....	69	.....	7	1	.....

NOTE.—Braced figures show mean discharge for periods indicated when stage-discharge relation was affected by ice; estimated from weather records and observer's notes.

Monthly discharge of Marys River near Deeth, Nev., for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	10	4	7.1	437
November	16	10	13.0	774
December	18	14	15.9	978
January	20	.....	13.8	848
February	31	.....	16.0	889
March	92	25	49.9	3,070
April	120	69	92.9	5,530
May	130	65	86.9	5,340
June	92	24	62.1	3,700
July	22	7	15.2	935
August	7	1	2.8	172
September	3	1	1.9	113
The year	130	1	31.5	22,800

STARR CREEK NEAR DEETH, NEV.

LOCATION.—In NE. ¼ sec. 12, T. 36 N., R. 59 E., at highway bridge 2 miles above mouth and 3 miles southeast of Deeth, Elko County; below all large tributaries except Boulder Creek.

DRAINAGE AREA.—Not measured.

RECORDS AVAILABLE.—June 4, 1913, to September 30, 1918.

GAGE.—Vertical staff fastened to upstream pile of bridge bent near right bank; read by H. S. Burtenshaw. Datum of gage raised 1.0 foot August 23, 1916, and 1.14 feet on November 6, 1917.

DISCHARGE MEASUREMENTS.—Made by wading.

CHANNEL AND CONTROL.—Bed composed of small gravel. Control is gravel bar; shifts occasionally. One channel except at extremely high stages, when part of the flow passes under an auxiliary bridge.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 2.5 feet March 11 (discharge, 83 second-feet); minimum stage recorded, 0.94 foot August 24 (discharge, 1.4 second-feet).

1913–1918: Maximum stage recorded, 4.8 feet June 27, 1917 (discharge, 383 second-feet); minimum stage recorded, 1.42 feet August 23 to September 1 and September 6, 1916 (discharge, 1.3 second-feet).

ICE.—Stage-discharge relation not affected by ice during year.

DIVERSIONS.—Station is below practically all diversions from Starr Creek.

REGULATION.—Some variation in daily flow at times caused by diversions for irrigation.

ACCURACY.—Stage-discharge relation changed during erection of new bridge November 6–12. Rating curves well defined. Gage read to quarter-tenths three to five times a week. Daily discharge ascertained by applying daily gage height to rating table and interpolating or estimating for days when gage was not read. Records good.

Discharge measurements of Starr Creek near Deeth, Nev., during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Dec. 7	L. W. Jordan	1.30	7.2	June 24	J. W. Bones	1.66	20.5
Mar. 23	do	1.40	10.8	Sept. 8	do	1.10	3.4
June 8	J. W. Bones	2.01	37.1				

NOTE.—Gage height refers to datum established Nov. 6, 1917.

Daily discharge, in second-feet, of Starr Creek near Deeth, Nev., for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	6.5	8.8	9.5		8.0	10	9.5	6.7	31	4.5	3.2	1.8
2	6.5	8.8	9.5		8.0	10	10	8.0	24	4.5	3.2	1.8
3	6.5	8.8	9.5		9.5	11	11	9.0	24	4.0	3.2	2.1
4	6.5	8.8	9.5		9.5	12	11	10	23	3.5	3.2	2.5
5	6.5	8.8	9.5		9.5	12	11	11	22	3.5	3.2	2.8
6	6.5	8.8	8.8		9.5	12	9.5	6.7	22	3.5	3.0	2.8
7	6.5	8.8	8.0		9.5	12	9.5	6.7	30	3.5	2.9	2.8
8	6.5	8.8	8.8	9.0	9.5	13	9.5	6.7	39	3.5	2.8	3.5
9	6.5	8.8	9.5		9.5	13	9.5	6.7	22	3.5	2.6	3.5
10	6.5	8.8	9.5		9.5	48	9.5	6.4	22	3.5	2.3	3.5
11	6.8	8.8	9.5		9.5	83	9.5	6.1	29	3.5	2.3	3.5
12	7.0	8.8	9.8		9.5	47	9.5	5.8	37	3.5	2.3	3.5
13	7.0	8.9	10		9.5	11	9.5	5.5	44	3.5	2.3	3.5
14	7.0	9.5	9.8		9.5	13	9.5	5.5	40	3.2	1.5	3.5
15	7.0	9.5	9.5		9.5	16	10	5.5	36	2.9	1.5	3.5
16	7.0	9.5	9.5	9.5	9.5	18	10	5.5	32	2.5	1.5	3.5
17	7.0	9.5	9.5	11	8.0	16	10	5.5	28	2.2	1.5	3.5
18	7.0	7.2	9.5	11	8.2	13	11	15	24	1.8	1.5	3.5
19	7.0	7.2	9.5	11	8.4	11	11	24	25	1.5	1.5	3.5
20	7.0	7.2	9.5	8.0	8.6	11	7.1	29	26	1.5	1.5	3.5
21	7.7	8.0	9.5	8.0	8.6	11	3.2	33	26	1.5	1.5	3.5
22	7.7	8.0	9.5	9.5	8.6	11	3.1	38	27	1.5	1.5	3.5
23	8.8	8.8	9.5	11	8.6	12	3.0	40	35	1.5	1.5	3.9
24	8.8	9.5	9.5	10	8.0	12	2.8	42	20	1.5	1.4	3.8
25	8.8	9.5	9.5	9.5	8.8	12	2.8	43	17	1.5	1.8	3.6
26	8.8	9.5	9.5	9.5	9.5	13	2.8	44	14	1.6	1.8	3.5
27	8.8	9.5	9.5	8.0	9.5	13	11	44	11	1.8	1.8	3.9
28	8.8	9.5	9.5	8.0	9.5	13	11	44	7.6	1.8	1.8	4.2
29	8.8	9.5	9.5	8.0	.....	12	8.2	42	4.5	2.2	1.8	4.5
30	8.8	9.5	9.5	8.0	.....	12	5.5	40	4.5	2.7	1.8	4.5
31	7.0	.....	8.6	8.0	.....	11	.....	38	.....	3.2	1.8	.....

NOTE.—Braced figure shows estimated mean discharge for period indicated.

Monthly discharge of Starr Creek near Deeth, Nev., for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	8.8	6.5	7.34	451
November	9.5	7.2	8.85	527
December	10	8.0	9.41	579
January	11	8.0	9.13	561
February	9.5	8.0	9.05	503
March	83	10	16.9	1,040
April	11	2.8	8.35	497
May	44	5.5	20.4	1,250
June	44	4.5	24.9	1,480
July	4.5	1.5	2.72	167
August	3.2	1.4	2.11	130
September	4.5	1.8	3.37	201
The year	83	1.4	10.2	7,390

LAMOILLE CREEK NEAR LAMOILLE, NEV.

LOCATION.—In sec. 6, T. 32 N., R. 58 E., 50 feet below tailrace of Elko-Lamoille Power Co.'s plant, 50 feet above first irrigation diversion, 2 miles above Lamoille, and 22 miles southeast of Elko, Elko County.

DRAINAGE AREA.—14 square miles (measured on maps issued by United States Forest Service).

RECORDS AVAILABLE.—May 8, 1915, to September 30, 1918.

GAGE.—Vertical staff on right bank; installed July 4, 1917; read by E. Galloway. Original gage, vertical staff on left bank directly opposite and at same datum, washed out June 18, 1917.

DISCHARGE MEASUREMENTS.—Made from cable footbridge at gage or by wading.

CHANNEL AND CONTROL.—Bed composed of gravel and large boulders. Control shifts during high water. One channel at all stages.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 2.84 feet at 7 p. m. June 12 (discharge, 300 second-feet); minimum discharge recorded, 1.0 second-foot at 7 p. m. January 24, at gage height 0.82 foot.

1915–1918: Maximum stage probably occurred in June, 1917, when gage was washed out; minimum discharge recorded in 1918.

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

DIVERSIONS.—Above all irrigation diversions. Water is diverted for Elko-Lamoille Power Co.'s plant, but returned to stream about 50 feet above gage.

REGULATION.—Daily fluctuation occurs on days when power plant is not in continuous operation.

ACCURACY.—Stage-discharge relation changed in April, May, and June by high water; affected by ice for short periods in December, January, and February. Rating curves fairly well defined below 300 second-feet. Shifting-control method used October 1 to December 6, April 22 to May 8, and June 7–12. Gage read to hundredths twice daily. Daily discharge determined by applying mean daily gage height to rating table except for periods when stage-discharge relation was affected by ice. Records fair.

Discharge measurements of Lamoille Creek near Lamoille, Nev., during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Dec. 9	L. W. Jordan	0.90	2.7	June 13	J. W. Bones	2.46	231
Mar. 20	do	.93	4.2	24	do	1.88	131
Apr. 21	do	1.10	9.6	Sept. 10	do	.66	3.8
June 6	J. W. Bones	2.28	185				

Daily discharge, in second-feet, of Lamoille Creek near Lamoille, Nev., for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	7	6	6	3	3	3	6	42	68	69	14	5
2	7	7	4	3	3	3	7	50	82	68	14	5
3	7	6	4	3	2	3	5	59	100	65	13	5
4	7	7	4	4	3	2	6	67	111	62	12	4
5	7	7	4	3	3	4	6	79	146	59	10	5
6	7	7	4	3	2	4	6	77	170	56	17	5
7	7	6	4	3	2	4	6	83	200	52	12	5
8	8	7	4	3	2	3	7	88	214	52	10	5
9	8	7	4	3	3	3	7	76	216	52	10	5
10	7	6	4	4	3	4	8	67	223	55	8	4
11	7	6	4	3	3	5	8	68	232	53	8	5
12	7	6	4	3	3	5	8	64	250	46	8	5
13	7	6	4	4	3	6	9	69	252	45	8	4
14	7	6	4	4	3	5	8	75	214	43	8	5
15	7	6	4	4	3	5	8	76	214	42	8	5
16	7	6	4	4	3	4	8	77	214	37	7	5
17	7	6	4	3	3	4	9	76	198	33	7	4
18	7	6	5	4	3	4	8	70	229	30	7	5
19	7	6	6	4	2	4	8	73	180	29	7	5
20	6	6	4	3	2	3	8	75	186	26	7	5
21	7	6	4	3	2	3	8	86	193	25	6	4
22	6	6	4	2	2	4	10	80	229	23	6	6
23	6	6	4	2	2	4	12	80	187	22	6	6
24	6	6	4	2	2	4	15	84	144	21	6	6
25	7	6	4	2	3	5	18	88	122	21	6	5
26	7	5	4	2	3	5	20	82	103	18	5	5
27	7	5	4	3	3	5	19	76	96	17	6	4
28	6	6	4	3	4	5	22	70	89	17	5	5
29	5	6	4	3	.....	6	27	67	77	15	5	5
30	7	6	4	3	.....	6	33	65	72	14	5	6
31	7	.....	3	3	.....	6	.....	67	.....	14	4	.....

NOTE.—Stage-discharge relation affected by ice Dec. 7, 8, 11, Jan. 20–23, 26–27, Feb. 8–10, 13–16, 19–23, and Mar. 9; discharge estimated from weather records and observer's notes.

Monthly discharge of Lamoille Creek near Lamoille, Nev., for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	8	5	6.8	418
November	7	5	6.1	363
December	6	3	4.1	252
January	4	2	3.1	191
February	4	2	2.7	150
March	6	2	4.2	258
April	33	5	11.0	655
May	88	42	72.8	4,480
June	252	68	167	9,940
July	69	14	38.1	2,340
August	14	4	8.2	504
September	6	4	4.9	292
The year	252	2	27.4	19,800

LAMOILLE CREEK NEAR HALLECK, NEV.

LOCATION.—In NW. ¼ sec. 9, T. 35 N., R. 58 E., half a mile below mouth of Secret Creek, largest tributary, 1½ miles south of Halleck, Elko County, on Southern Pacific Railroad, and 2 miles above confluence with Humboldt River.

DRAINAGE AREA.—245 square miles.

RECORDS AVAILABLE.—May 12, 1913, to September 30, 1918.

GAGE.—Vertical staff on left bank, 200 feet below ford; read by Harry Gorman. Datum lowered 1.00 foot August 19, 1915; raised 2.5 feet September 20, 1917.

DISCHARGE MEASUREMENTS.—Made from cable 200 feet above gage or by wading.

CHANNEL AND CONTROL.—Bed composed of gravel. Control is gravel bar, which shifts occasionally and at times is affected by beaver dams. Banks subject to overflow during floods.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 2.70 feet June 24 (discharge, 115 second-feet); creek dry June 4–10, and July 16 to September 30. 1913–1918: Maximum stage recorded, 6.7 feet June 5, 1914 (discharge, 556 second-feet); minimum stage, creek dry for a time nearly every summer.

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

DIVERSIONS.—Below all diversions except one small ditch.

REGULATION.—Flow affected by irrigation diversions above.

ACCURACY.—Stage-discharge relation for low stages changed in June; remained permanent for high stages. Rating curve used October 1 to June 4 well defined between 20 and 200 second-feet; fairly well defined below and extended above. Curve used June 11 to September 30 well defined throughout. Gage read to hundredths once daily. Daily discharge determined by applying daily gage height to rating table except as noted in footnote to table of daily discharge. Records good. A varying quantity of water was carried in sloughs around gaging station when discharge in main channel exceeded 100 second-feet, but this stage was reached on only two days during current year.

Discharge measurements of Lamoille Creek near Halleck, Nev., during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Dec. 8	L. W. Jordan	1.81	27.7	June 25	J. W. Bones	2.39	88
Mar. 19	....do	2.21	69	Sept. 6	....do	.....	0
Apr. 22	L. W. Jordan	1.65	21.9				

Daily discharge, in second-feet, of Lamoille Creek near Halleck, Nev., for the year ending Sept 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.
1	2	7	31	27			47	7	1	7
2	2	7	28	27			47	6	1	6
3	2	12	24	25	15	35	47	6	1	4
4	3	12	24	25			46	4	0	3
5	3	14	25	24		43	43	4	0	2
6	3	16	25	27	33	41	41	4	0	2
7	3	18	24	25	36	49	39	2	0	1
8	3	18	28	25		47	39	2	0	1
9	3	18		25		49	38	2	0	1
10	4	18	26			43	46	4	0	1
11	4	18				41	56	3	14	1
12	4	18	25			94	44	2	21	1
13	4	18	25			85	43	2	41	1
14	4	18	25			65	53	1	53	1
15	4	18	25	25		67	49	1	51	1
16	5	21	26			65	46	1	46	.....
17	5	22	27			57	35	1	60	.....
18	5	22	25		25	49	31	1	68	.....
19	6	22	25			69	28	1	64	.....
20	6	22	27			69	25	1	61	.....
21	6	22	28			65	22	1	74	.....
22	6	21	25			58	22	1	88	.....
23	6	22	27			53	22	1	106	.....
24	7	24	27	22		49	22	1	115	.....
25	7	24	30			47	17	1	78	.....
26	7	25	31			44	14	1	60	.....
27	7	28	30			46	12	1	38	.....
28	7	31	25			49	12	1	30	.....
29	7	28	27	15	.....	47	9	1	14	.....
30	7	31	27		.....	46	7	1	11	.....
31	7	.....	27		.....	47	.....	1	.....	.....

NOTE.—Braced figures show mean discharge for periods indicated when stage-discharge relation was affected by ice; estimated from one discharge measurement, weather records, and observer's notes. Gage not read, discharge interpolated, Oct. 1-6, 14-20, Mar. 17, June 19. Creek dry June 4-10, and July 16 to Sept. 30.

Monthly discharge of Lamoille Creek near Halleck, Nev., for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	7	2	4.81	296
November	31	7	19.8	1,180
December	31	24	26.5	1,630
January	.....	.....	23.2	1,430
February	.....	.....	23.9	1,330
March	94	.....	52.4	3,220
April	56	7	33.4	1,990
May	7	1	2.13	131
June	115	0	36.5	2,170
July	7	0	1.06	65
August	0	0	0	0
September	0	0	0	0
The year	115	0	18.6	13,400

SECRET CREEK NEAR HALLECK, NEV.

LOCATION.—In NE. ¼ NW. ¼ sec. 1, T. 34 N., R. 59 E., at Ryan's ranch, 500 feet from Secret Pass highway, half a mile below mouth of Doisey Creek, three-quarters of a mile above old private gage at Sotty's mine, 12 miles above confluence with Lamoille Creek, and 15 miles southeast of Halleck, Elko County.

DRAINAGE AREA.—Not measured.

RECORDS AVAILABLE.—May 28, 1917, to September 30, 1918.

GAGE.—Vertical staff on right bank, 75 feet below lower fence on Ryan's ranch; read by A. S. Coleman.

DISCHARGE MEASUREMENTS.—Made by wading at gage.

CHANNEL AND CONTROL.—Bed composed of sand and gravel. Control is coarse gravel bar which is fairly permanent. One channel except at extremely high stages when water runs through shallow overflow channel on right bank. Stage of zero flow at gage height 0.7±0.1 foot, determined June 30, 1917.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 1.57 feet at 3 p. m. April 1 (discharge, 32 second-feet); minimum stage recorded, 0.79 foot at 5.40 p. m. August 6 (discharge, 0.3 second-foot).

1917–1918: Maximum stage recorded, 2.71 feet at 5 p. m. June 4, 1917 (discharge, 170 second-feet); minimum stage occurred in 1918.

ICE.—No information.

DIVERSIONS.—Station is below Secret Valley and Ryan's ranch diversions; the "71" ranch diverts water 4 to 6 miles below.

REGULATION.—Flow affected by irrigation diversions above.

ACCURACY.—Stage-discharge relation changed during winter. Rating curves fairly well defined below 90 second-feet. Gage read to hundredths once daily except October to March when only occasional readings were obtained. Daily discharge determined by applying daily gage height to rating table. Discharge October to March determined only for days when gage was read. Records good.

Discharge measurements of Secret Creek near Halleck, Nev., during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Mar. 23	L. W. Jordan	1.36	18.1	June 24	J. W. Bones	1.12	7.6
Apr. 21	do	1.41	19.9	Sept. 9	do	.90	1.3
June 7	J. W. Bones	1.13	7.3				

Daily discharge, in second-feet, of Secret Creek near Halleck, Nev., for the year ending Sept. 30, 1918.

Day.	Oct.	Dec.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1				32	16	11	2.8	1.3	0.5
2				19	15	10	2.6	1.7	.5
3				29	15	9.6	2.0	1.7	.9
4				28	18	8.9	2.2	1.7	1.1
5				21	17	8.9	2.2	1.7	1.3
6				24	18	8.1	2.0	.3	1.3
7		3.2		18	18	8.1	1.7	.5	1.1
8				25	17	7.4	1.7	.8	1.7
9				26	28	7.4	2.2	.8	1.7
10				30	22	6.6	2.4	.5	2.0
11				29	20	6.6	3.1	.9	1.7
12				30	18	6.6	2.4	1.0	2.0
13				30	15	6.0	3.8	.9	2.0
14				22	15	6.0	2.8	1.2	3.8
15	6.2			22	14	5.7	2.8	1.7	3.1
16				21	11	5.7	3.1	1.3	2.8
17				18	11	5.7	2.2	1.2	2.8
18				20	11	10	2.2	1.7	2.6
19				18	11	8.5	2.4	2.2	2.2
20				19	10	6.3	2.0	1.3	2.4
21				20	10	7.4	1.7	1.3	2.2
22				21	11	9.3	2.2	1.2	31
23			18	22	10	13	2.4	1.0	2.4
24				22	10	7.4	1.7	1.2	2.4
25				21	10	6.0	1.2	1.1	2.4
26				21	10	5.0	2.0	1.2	2.2
27				18	14	4.4	1.3	1.1	2.6
28		2.9		18	14	3.1	1.0	1.1	2.4
29		3.2		18	12	2.8	1.1	1.0	2.4
30				16	11	2.8	1.2	.7	2.6
31			18		12		1.3	.8	

Monthly discharge of Secret Creek near Halleck, Nev., for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
April	32	16	22.6	1,340
May	28	10	14.3	879
June	13	2.8	7.14	425
July	3.8	1.0	2.12	130
August	2.2	.3	1.16	71
September	31	.5	3.00	179
The period				3,020

NORTH FORK OF HUMBOLDT RIVER AT DEVILS GATE, NEAR HALLECK, NEV.

LOCATION.—In sec. 13, T. 38 N., R. 57 E., at narrows 3½ miles above buildings of Charles Clayton ranch (also known as Devils Gate ranch), 17 miles north of Halleck, Elko County, and 27 miles by wagon road from Elko.

DRAINAGE AREA.—830 square miles (measured on General Land Office maps).

RECORDS AVAILABLE.—November 11, 1913, to September 30, 1918; also at mouth of stream from October 10, 1902, to December 31, 1909, and October 1, 1910, to December 31, 1913.

GAGE.—Stevens continuous water-stage recorder on right bank; inspected by C. H. Crane. Original gage was about 15 miles downstream, comparatively little run-off entering below present station except during storms.

DISCHARGE MEASUREMENTS.—Made from cable about 30 feet below gage or by wading.

CHANNEL AND CONTROL.—Bed composed of sand with gravel riffle at control; about half of control section is affected by growth of moss. At extremely high stages, water may overflow right bank and pass around gage in overflow channel.

EXTREMES OF DISCHARGE.—Maximum stage during year, from water-stage recorder, 4.4 feet at 8 p. m. June 22 (discharge, 287 second-feet); minimum stage, 1.22 feet September 7 (discharge, 4.1 second-feet).

1913–1918: Maximum stage estimated 9.0 feet at 8 p. m. April 9, 1917 (discharge, 1,260 second-feet); minimum discharge, 1 second-foot, August 20–28 and September 30, 1913.

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

DIVERSIONS.—Numerous diversions in valley above and below Devils Gate. During summer almost all low-water flow is diverted.

REGULATION.—Flow during summer depends on amount of irrigation above. Small flow is maintained from seepage and springs.

ACCURACY.—Stage-discharge relation for low stages changed during ice break-up in March, and again by growth of moss during August and September; affected by ice January 8 to March 2. Two rating curves used, both well defined between 70 and 1,000 second-feet and fairly well defined below 70 second-feet; applicable October 1 to March 2 and March 3 to August 3; shifting-control method used August 4 to September 30. Operation of water-stage recorder satisfactory except August 26 to September 6. Daily discharge ascertained by applying to rating table mean daily gage height obtained from recorder graph by inspection except for period of ice effect, for which shifting-control method was used, and period during which recorder was not operating, for which it was estimated as indicated in footnote to daily-discharge table. Records good except those estimated, which are fair.

Discharge measurements of North Fork of Humboldt River at Devils Gate, near Halleck, Nev., during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Dec. 7	L. W. Jordan	1.76	24.9	June 8	J. W. Bones	1.50	20.0
Mar. 18	do	2.19	62	25	do	2.76	99
Apr. 22	do	2.12	58	Sept. 7	do	1.22	4.1

Daily discharge, in second-feet, of North Fork of Humboldt River at Devils Gate, near Halleck, Nev., for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	12	18	24	21		28	82	58	37	19	12	
2	12	19	25	22		28	83	53	34	14	12	
3	12	19	22	22		32	78	48	29	14	12	
4	12	19	28	27		36	66	49	28	14	11	5
5	12	21	21	27		40	61	49	26	14	11	
6	12	20	24	26		38	63	52	25	13	11	
7	12	20	27	27		36	61	53	22	12	10	4.1
8	12	21	40			40	60	55	22	12	10	4.4
9	12	21	37			40	61	58	24	12	10	4.7
10	13	21	37			40	74	60	28	12	10	4.7
11	13	21	40			41	105	56	34	12	10	5.0
12	14	23	24			64	110	48	38	12	10	5.8
13	14	23	24			61	98	44	40	12	10	6.2
14	14	24	25			55	97	39	43	12	10	6.6
15	14	24	21		20	51	90	34	42	12	10	7.0
16	14	24	22			52	82	28	38	12	9.0	7.8
17	14	24	28			54	76	27	43	12	9.0	7.8
18	13	23	26			58	71	28	55	12	9.0	7.8
19	12	21	26			70	64	26	64	12	8.6	7.8
20	12	23	26	25		71	61	22	61	12	8.6	7.4
21	13	20	24			76	56	20	114	12	8.6	7.0
22	14	19	25			78	56	21	244	13	8.2	7.0
23	16	20	23			81	58	19	210	13	8.2	6.6
24	16	19	26			82	63	19	153	13	8.2	4.7
25	17	21	26			85	65	19	107	13	7.8	6.2
26	17	21	26			92	69	19	81	12		6.2
27	17	19	26			97	66	22	54	12		6.2
28	18	19	27			92	64	25	41	12	7	6.2
29	18	19	26		.....	84	62	29	28	12		6.2
30	18	24	25		.....	77	61	36	22	12		7.0
31	18	.....	21		.....	78	.....	45	.....	12		.....

NOTE.—Braced figures show mean discharge for periods indicated; estimated from weather records, observer's notes, and comparison with flow of Marys River near Deeth.

Monthly discharge of North Fork of Humboldt River at Devils Gate, near Halleck, Nev., for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	18	12	14.1	867
November	24	18	21.0	1,250
December	40	21	26.5	1,630
January	.....	.....	24.9	1,530
February	.....	.....	20.0	1,110
March	97	28	59.9	3,680
April	110	56	72.1	4,290
May	60	19	37.5	2,310
June	244	22	59.6	3,550
July	19	12	12.6	775
August	12	.....	9.23	568
September	7.8	.....	6.01	358
The year	244	.....	30.3	21,900

SOUTH FORK OF HUMBOLDT RIVER NEAR ELKO, NEV.

LOCATION.—In sec. 19, T. 33 N., R. 55 E., at head of canyon below Cowling's ranch, 4 miles above mouth and 10 miles southwest of Elko, Elko County.

DRAINAGE AREA.—Not measured (1,150 square miles at old station, 1½ miles above).

RECORDS AVAILABLE.—August 29, 1896, to December 31, 1909; September 9, 1910, to September 30, 1918.

GAGE.—Stevens continuous water-stage recorder on right bank 1½ miles below highway bridge since November 14, 1913; inspected by Fred Henrich. Inclined staff on left bank one-fourth mile above bridge, used from February 26, 1907, to November 13, 1913. Prior to February, 1907, several gages at slightly different sites and datums.

DISCHARGE MEASUREMENTS.—Made from cable 110 feet above gage or by wading.

CHANNEL AND CONTROL.—Bed composed of gravel and sand. Rock riffle a short distance below gage affords fairly permanent control. One channel at all stages.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 5.16 feet at 2 p. m. June 21 (discharge, 1,300 second-feet); river dry in August and September.

1896–1918: Maximum stage recorded, 10.0 feet January 26, 1914 (discharge, 2,400 second-feet); minimum stage, river dry at times in 1915, 1916, and 1918.

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

DIVERSIONS.—Below all tributaries and all diversions except those of Hunter & Banks ranch, 3 miles downstream.

REGULATION.—Flow affected by diversions above.

ACCURACY.—Stage-discharge relation practically permanent except as affected by ice from January 7 to about March 4. Rating curve well defined below 450 second-feet, and fairly well defined up to 1,200 second-feet. Operation of water-stage recorder satisfactory October 1–7 and March 5 to June 24. During remainder of year staff gage read to hundredths once a week. Daily discharge ascertained by applying to rating table mean daily gage height determined from recorder graph by inspection, or by interpolation for days when gage was not read. Records good except for periods estimated, for which they are fair.

Discharge measurements of South Fork of Humboldt River near Elko, Nev., during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Dec. 3	L. W. Jordan	0.91	21.8	June 6	J. W. Bones	1.35	73
Mar. 5	do	1.68	106	Sept. 5	do		0
Apr. 3	do	1.23	55	28	do	.30	[a] 1.0
25	do	1.04	38.4				

[a] Estimated.

Daily discharge, in second-feet, of South Fork of Humboldt River near Elko, Nev., for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Sept.
1	4.8	12	26	52			53	32	27		
2	4.8	12	27	51		55	54	37	23		
3	4.8	13	28	50			52	40	24		
4	5.0	13	30	48			52	44	33		
5	5.2	13	32	47		101	49	44	47		
6	5.6	13	33	46		84	48	46	78		
7	5.6	13	35			70	46	44	108		
8	5.4	18	36			73	46	46	142		
9	6.3	18	38			63	44	53	168		
10	7.2	17	37			61	46	44	193		
11	7.2	17	35			59	48	37	206		
12	7.5	16	34			64	48	30	210		
13	7.8	16	32			74	49	29	233		
14	8.1	16	31	38		72	51	25	233		
15	8.4	16	29		15	66	49	21	203		
16	8.4	15	28			62	46	17	210	20	
17	9.4	15	31			57	44	16	250		
18	9.8	16	35			56	40	12	270		
19	10	16	38			59	38	9.0	210		1
20	11	17	41			64	36	6.0	193		
21	11	17	45			65	35	3.6	297		
22	11	18	48			62	35	2.4	157		
23	11	18	51			58	37	2.0	156		
24	11	19	51			58	37	3.6	141		
25	11	19	52			57	36	4.4	127		
26	11	20	52	30		56	30	38	113		
27	11	21	52			59	30	56	98		
28	11	23	52			63	30	55	84		2.0
29	11	24	52		.....	56	31	49	69		2.6
30	11	25	53		.....	55	33	40	55		3.4
31	11	.....	53		.....	54	.....	32	.....		.....

NOTE.—Braced figures show mean discharge for periods indicated; estimated from weather records and observer's notes. Creek dry Aug. 1 to Sept. 10.

Monthly discharge of South Fork of Humboldt River near Elko, Nev., for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	11	4.8	8.49	522
November	25	12	16.9	1,010
December	53	26	39.3	2,420
January	52	.....	37.3	2,290
February	.....	.....	15.0	833
March	.....	.....	62.8	3,860
April	54	30	42.4	2,520
May	56	2	29.6	1,820
June	297	23	145	8,630
July	.....	.....	20.	1,230
August	0	0	0	0
September	3.4	0	.83	50
The year	297	0	34.8	25,200

MAGGIE CREEK AT CARLIN, NEV.

LOCATION.—In sec. 26, T. 33 N., R. 52 E., 700 feet above highway bridge, half a mile above confluence with Humboldt River, and half a mile east of Carlin, Elko County.

DRAINAGE AREA.—Not measured.

RECORDS AVAILABLE.—June 6, 1913, to September 30, 1918.

GAGE.—Vertical staff on right bank about 800 feet above Pacific Fruit Express Co.'s dam, used from May 24 to July 15, 1917, and from September 22, 1917, to September 30, 1918; read by R. Tank. Vertical staff at bridge 100 feet above dam used from June 6 to October 25, 1913. Inclined staff on left bank about 600 feet above dam used from October 26, 1913, to May 23, 1917, and from July 21 to September 21, 1917.

DISCHARGE MEASUREMENTS.—Made from highway bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of sand and gravel; shifts occasionally. One channel at all stages. No well-defined control.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 1.68 feet at 5 p. m. April 11 (discharge, 31 second-feet). Minimum discharge, 0.2 second-foot February 1 and July 19 and 20.

1913–1918: Maximum stage recorded, 4.5 feet April 28, 1914 (discharge, 394 second-feet). Minimum discharge, 0.1 second-foot August and September, 1915.

DIVERSIONS.—No information.

REGULATION.—No information.

ACCURACY.—Stage-discharge relation changed January 23–26 and May 21 to July 6. Rating curves fairly well defined. Gage read to hundredths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table, except as indicated in footnote to table of daily discharge; shifting-control method used January 23–26. Records fair.

Discharge measurements of Maggie Creek at Carlin, Nev., during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Oct. 3	L. W. Jordan	0.95	2.6	June 5	J. W. Bones		[a] 1.1
Dec. 9	do	1.00	4.2	26	do	1.28	[a] 1.5
Mar. 6	do	1.44	14.1	Sept. 11	do	1.05	.9
Apr. 25	do	1.30	7.0				

[a] Estimated.

Daily discharge, in second-feet, of Maggie Creek at Carlin, Nev., for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	July.	Aug.	Sept.
1	2.8	5.9	6.4	3.2	0.2	6.3	24	2.4	.....	3.3	0.3
2	2.7	6.4	5.9	3.6	.9	13	24	.9	.....	6.3	.3
3	2.8	6.4	5.4	3.2	1.9	19	22	.9	.....	12	.3
4	3.0	6.4	5.4	4.6	1.9	19	21	1.1	.....	13	.3
5	3.0	6.4	5.1	4.3	2.9	25	17	1.4	.....	18	.3
6	2.8	6.4	3.4	4.1	2.9	18	17	1.1	.....	18	.3
7	2.8	6.4	2.5	4.3	8.0	14	17	1.5	1.4	18	.3
8	3.0	6.4	2.3	4.1	4.0	19	17	2.9	1.0	15	5.2
9	3.0	5.9	3.0	3.6	2.4	15	18	3.3	1.1	14	1.5
10	3.0	5.9	2.7	3.2	1.9	18	21	2.4	1.0	13	1.5
11	3.0	5.9	3.0	3.2	2.9	19	30	1.5	1.0	9.0	1.3
12	2.8	5.9	3.4	6.1	4.0	30	25	1.3	.8	3.3	.8
13	3.0	6.4	4.1	6.7	7.0	19	24	1.5	.6	1.3	.8
14	3.0	6.4	4.3	8.4	8.0	18	24	1.9	.5	.8	2.6
15	3.2	6.1	3.4	6.7	2.9	17	24	2.4	.4	1.9	8.0
16	3.6	5.9	4.1	6.1	2.4	18	22	2.4	.4	5.2	2.4
17	3.8	5.9	4.8	6.4	4.0	18	18	2.6	.4	13	1.5
18	3.8	5.9	4.1	6.7	3.3	17	20	3.3	.4	13	1.5
19	4.3	5.9	4.1	5.1	2.9	16	17	2.4	.2	7.0	1.5
20	4.3	5.4	4.8	4.1	2.4	18	16	1.7	.2	2.9	1.5
21	3.0	4.8	4.3	3.2	3.3	17	15	.....	.3	1.3	1.5
22	3.4	5.6	3.8	3.4	6.3	16	11	.....	.6	.6	1.9
23	3.8	6.1	3.8	2.9	11	13	7.5	.....	.6	.5	1.5
24	4.3	5.9	4.6	2.4	13	14	7.0	.....	.5	.4	1.5
25	4.3	6.1	4.3	1.9	8.0	17	6.6	.....	.4	.4	1.5
26	4.1	5.9	4.6	1.4	9.5	18	7.0	.....	.4	.4	1.5
27	4.3	5.9	4.1	.8	9.5	17	7.5	.....	.4	.3	1.5
28	4.6	6.4	4.1	.9	8.0	22	6.6	.....	.8	.4	1.5
29	4.3	6.4	4.1	3.3	.....	23	6.3	.....	1.5	.4	1.4
30	4.3	6.4	3.6	2.9	.....	24	6.6	.....	1.5	.4	1.5
31	5.4	.....	3.2	.6	.....	23	.....	.....	2.9	.3	.....

NOTE.—Temporary dam caused backwater Nov. 4–6; discharge interpolated. Mean discharge May 21 to July 6, estimated as 1.5 second-feet due to shifting control.

Monthly discharge of Maggie Creek at Carlin, Nev., for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	5.4	2.7	3.53	217
November	6.4	4.8	6.06	361
December	6.4	2.3	4.09	251
January	8.4	.6	3.92	241
February	13	.2	4.84	269
March	30	6.3	18.1	1,110
April	30	6.3	16.6	988
May	3.3	.9	1.79	110
June	.....	.....	1.5	89
July	2.9	.2	.91	56
August	18	.3	6.24	384
September	8	.3	1.58	94
The year	30	.2	57.6	4,170

ROCK CREEK NEAR BATTLE MOUNTAIN, NEV.

LOCATION.—In NE. ¼ sec. 17, T. 34 N., R. 48 E., at mouth of canyon, half a mile above highway bridge on Overland Trail, and 25 miles northeast of Battle Mountain, Lander County; below all tributaries.

DRAINAGE AREA.—Not measured.

RECORDS AVAILABLE.—March 26 to September 30, 1918, at present site; May 12 to August 1, 1896, at site 11 miles upstream; May 13, 1915, to November 7, 1916, at site 21 miles upstream; October 7, 1916, to September 30, 1917, at Rock Creek ranch, 20 miles upstream.

GAGE.—Stevens continuous water-stage recorder on left bank; inspected by Frank Eads.

DISCHARGE MEASUREMENTS.—Made by wading near gage or from highway bridge half a mile downstream.

CHANNEL AND CONTROL.—Bed composed of gravel and boulders. Principal control is rock riffle 50 feet below gage; shifts during high water. Banks high and not subject to overflow.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 2.97 feet during sudden flood which occurred between June 19 and 25 when recorder clock was stopped, so that only maximum stage but not the time, was recorded (discharge, about 350 second-feet); no flow during parts of July and August.

ICE.—No information.

DIVERSIONS.—There are diversions in valley above canyon. Station is above all diversions in Boulder Flat, and is below all tributaries.

REGULATION.—None except by diversion.

ACCURACY.—Stage-discharge relation changed by sudden flood between June 19 and 25. Rating curve used prior to June 19 well defined between 5 and 50 second-feet; curve used after June 25 well defined below 200 second-feet. Operation of water-stage recorder satisfactory except June 19-25. Daily discharge ascertained by applying to rating table mean daily gage height determined from recorder graph by inspection. Discharge not determined for the period June 19–25. Records good.

Discharge measurements of Rock Creek near Battle Mountain, Nev., for the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Mar. 26	L. W. Jordan	1.68	36.3	June 26	J. W. Bones	0.95	3.8
Apr. 4	do	1.48	21.1	Sept. 11	do	.81	[a]1.0
26	do	1.16	5.3				

[a] Estimated.

Daily discharge of Rock Creek near Battle Mountain, Nev., for the year ending Sept. 30, 1918.

Day.	Mar.	Apr.	May.	June.	July.	Sept.
1	.....	31	2	2	1	.....
2	.....	31	2	1	.9	.....
3	.....	28	2	1	.7	.....
4	.....	22	2	1	.5	.....
5	.....	21	1	1	.3	.....
6	.....	20	1	1	.....	.....
7	.....	15	1	.9	.....	.....
8	.....	10	2	1	.....	.....
9	.....	9	2	1	.....	.....
10	.....	10	2	1	.6	.....
11	.....	12	2	.9	.8	1
12	.....	18	2	.7	.5	.8
13	.....	18	2	1	.1	.8
14	.....	16	1	1	.....	2
15	.....	15	2	.4	.....	10
16	.....	14	2	.4	.....	9
17	.....	12	2	.8	.....	4
18	.....	11	2	1	.....	3
19	.....	9	2	.....	.....	2
20	.....	7	2	.....	.....	2
21	.....	6	2	.....	.....	1
22	.....	7	2	.....	.....	2
23	.....	6	2	.....	.....	7
24	.....	9	2	.....	.....	4
25	.....	6	2	.....	.....	3
26	33	5	1	4	.....	2
27	37	5	2	3	.....	2
28	39	5	3	2	.....	2
29	36	4	3	2	.....	2
30	30	3	2	1	.....	3
31	29	.....	2	.....	.....	.....

NOTE.—No gage-height record June 19–25 and July 17 to Sept. 10. A sudden flood between June 19 and 25 reached a maximum of 350 second-feet; daily discharge for this period not determined. Practically no flow July 6–9 and 14–31. Mean discharge for August estimated, 0.1 second-foot and Sept. 1–10, 0.5 second-foot.

Monthly discharge of Rock Creek near Battle Mountain, Nev., for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
March 26–31	39	29	34.0	406
April	31	3	12.8	762
May	3	1	1.9	117
July	1	0	.2	12
August	.....	.....	.1	6
September	10	.....	2.3	137

HUMBOLDT-LOVELOCKS IRRIGATION, LIGHT & POWER CO.'S FEEDER CANAL NEAR MILL CITY, NEV.

LOCATION.—In SW. ¼ sec. 29, T. 33 N., R. 35 E., a quarter of a mile below head of canal and 2 miles north of Mill City, Pershing County.

RECORDS AVAILABLE.—February 19, 1914, to September 30, 1918.

GAGE.—Stevens continuous water-stage recorder on left bank; inspected by Peter Organ.

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

CHANNEL AND CONTROL.—Earth section. Control indefinite. Stage-discharge relation affected by growth of aquatic plants and by wash from several small gullies below station.

EXTREMES OF DISCHARGE.—Maximum stage during year not determined; minimum stage, canal dry a large part of the year.

1914–1918: Maximum stage from water-stage recorder, 4.78 feet at 6 a. m. April 5, 1916 (discharge, 243 second-feet); canal dry at various times.

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

DIVERSIONS.—None.

REGULATION.—Flow regulated by headgates a quarter of a mile above station.

ACCURACY.—No information for current year.

COOPERATION.—Estimates of flow for year furnished by L. H. Taylor, consulting engineer, Reno, Nev.

Canal diverts from Humboldt River in sec. 29, T. 33 N., R. 35 E., for storage in Taylor-Pitt reservoirs near Humboldt. Water is returned to river during irrigation season, about 3 miles west of Humboldt through Humboldt-Lovelocks Irrigation, Light & Power Co.'s outlet canal and carried in natural channel to headgates of canals serving the Lovelocks district.

The following estimate of discharge was made by L. W. Jordan on March 28: Gage height, 0.60 foot; discharge, 0.25 second-foot.

Monthly discharge of Humboldt-Lovelocks Irrigation, Light & Power Co.'s feeder canal near Mill City, Nev., for the year ending Sept. 30, 1918.

Month.	Mean discharge in second-feet.	Run-off in acre-feet.
October 19–31	20	516
November	30	1,780
December	30	1,850
January 1–14	50	1,390
The period		5,540

NOTE.—Practically no flow during the year except for the period given.

HUMBOLDT-LOVELOCKS IRRIGATION, LIGHT & POWER CO.'S OUTLET CANAL NEAR HUMBOLDT, NEV.

LOCATION.—In SE. ¼ sec. 30, T. 32 N., R. 33 E., at outlet of lower Taylor-Pitt reservoir, 2½ miles west of Humboldt, Pershing County.

RECORDS AVAILABLE.—February 15, 1914, to September 30, 1918.

GAGE.—Stevens continuous water-stage recorder on right bank about 100 feet above weirs; inspected by William Jacoby.

DISCHARGE MEASUREMENTS.—Made from footbridge a quarter of a mile below gage or by wading.

CHANNEL AND CONTROL.—Two 8-foot Cippoletti weirs form a permanent control. Stage of zero flow at gage height 0.04 foot, determined April 7, 1917.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 2.64 feet May 4–9 (discharge, 258 second-feet); canal dry October 1 to March 27 and August 11 to September 30.

1914–1918: Maximum stage recorded, 3.02 feet at noon April 30, 1915 (discharge, 296 second-feet); minimum stage, canal dry a large part of each year.

ICE.—Gates usually closed during winter.

DIVERSIONS.—None.

REGULATION.—Flow regulated by outlet gates a few hundred feet above station.

ACCURACY.—Stage-discharge relation permanent. Rating curve well defined below 150 second-feet. Operation of water-stage recorder satisfactory during period when reservoir gates were open; only seepage through gates passed gage at other times. Daily discharge ascertained by applying to rating table the mean daily gage height determined by inspection of recorder graph except August 7–10 for which it was interpolated. Canal dry except March 28 to August 10. Records excellent.

Canal conducts stored water released from Taylor-Pitt reservoirs to Humboldt River in SW. ¼ sec. 31, T. 33 N., R. 33 E., for irrigation use in Lovelocks Valley, several miles downstream.

Discharge measurements of Humboldt-Lovelocks Irrigation, Light & Power Co.'s outlet canal near Humboldt, Nev., during the year ending Sept. 30, 1918.

[Made by J. W. Bones.]

Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*
June 3	1.47	106
20	1.44	104

Daily discharge, in second-feet, of Humboldt-Lovelocks Irrigation, Light & Power Co.'s outlet canal near Humboldt, Nev., for the year ending Sept. 30, 1918.

Day.	Mar.	Apr.	May.	June.	July.	Aug.	Day.	Mar.	Apr.	May.	June.	July.	Aug.
1	.....	2.5	255	106	6.8	136	16	.....	22	167	72	104	.....
2	.....	2.5	249	106	8.4	49	17	.....	22	153	66	100	.....
3	.....	2.5	255	106	8.4	2.0	18	.....	22	154	53	100	.....
4	.....	2.5	258	104	8.0	1.4	19	.....	22	155	111	100	.....
5	.....	2.5	258	94	8.0	1.7	20	.....	22	137	118	102	.....
6	.....	2.5	258	93	49	2.0	21	.....	22	138	102	109	.....
7	.....	40	258	93	82	1.6	22	.....	22	138	73	120	.....
8	.....	108	258	94	82	1.2	23	.....	22	138	62	121	.....
9	.....	111	258	94	88	.8	24	.....	58	112	59	133	.....
10	.....	111	213	96	111	.4	25	.....	131	92	22	129	.....
11	.....	109	168	107	111	.....	26	.....	165	90	2.8	129	.....
12	.....	109	168	104	111	.....	27	.....	189	91	2.8	138	.....
13	.....	58	168	97	120	.....	28	2.2	241	92	2.8	137	.....
14	.....	16	171	92	120	.....	29	2.5	252	92	2.8	136	.....
15	.....	22	185	93	120	.....	30	2.5	252	92	3.1	138	.....
							31	2.5	.....	96	.....	136	.....

Monthly discharge of Humboldt-Lovelocks Irrigation, Light & Power Co.'s outlet canal near Humboldt, Nev., for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
March 28–31	2.5	2.2	2.42	19
April	252	2.5	72.1	4,290
May	258	90	172	10,600
June	118	2.8	74.4	4,430
July	138	6.8	95.7	5,880
August 1–10	136	.4	19.6	389
The period	.....	.....	.....	25,600

PYRAMID AND WINNEMUCCA LAKES BASINS.

LAKE TAHOE AT TAHOE, CALIF.

LOCATION.—In SE. ¼ sec. 6, T. 15 N., R. 17 E., near outlet of lake at Tahoe, Placer County.

DRAINAGE AREA.—519 square miles (including water surface of lake which is 193 square miles).

RECORDS AVAILABLE.—1900 to September 30, 1918.

GAGE.—Vertical staff fastened to piling of boat landing near outlet; read once a day by employee of United States Reclamation Service. Datum is 6,220 feet above sea level. Mean low-water elevation of lake is 6,226.0 feet.

EXTREMES OF STAGE.—Maximum stage recorded during year, 8.70 feet June 23–27; minimum stage recorded, 7.08 feet February 4 and 5.

1900–1918: Maximum stage recorded, 11.26 feet July 14, 15, 17, and 18, 1907; minimum stage recorded, 4.68 feet December 19–21, 1913.

ACCURACY.—Gage read to hundredths once daily; not read when water surface is rough.

COOPERATION.—Record furnished by United States Reclamation Service.

Daily gage height, in feet, of Lake Tahoe at Tahoe, Calif., for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	8.41	7.97	7.75	7.47	7.11	7.49	7.84	8.07	8.38	8.66	8.01	7.38
2	8.40	7.96	7.74	7.47	7.09	7.47	7.84	8.09	8.40	8.65	8.00	7.36
3	8.38	7.94	7.72	7.46	7.09	7.44	7.84	8.11	8.41	8.64	7.98	7.35
4	8.36	7.93	7.70	7.46	7.08	7.42	7.84	8.13	8.42	8.62	7.96	7.33
5	8.34	7.92	7.69	7.45	7.08	7.41	7.83	8.14	8.43	8.60	7.94	7.31
6	8.32	7.94	7.68	7.45	7.19	7.41	7.83	8.16	8.45	8.58	7.92	7.29
7	8.31	7.92	7.67	7.45	7.30	7.52	7.83	8.18	8.46	8.56	7.90	7.29
8	8.30	7.90	7.65	7.44	7.31	7.53	7.84	8.19	8.48	8.54	7.88	7.27
9	8.29	7.88	7.63	7.43	7.30	7.54	7.86	8.20	8.50	8.52	7.85	7.25
10	8.28	7.86	7.61	7.41	7.29	.....	7.86	8.22	8.52	8.50	7.83	7.23
11	8.27	7.86	7.59	7.39	7.27	.....	7.88	8.24	8.54	8.48	7.81	7.22
12	8.26	7.86	7.59	7.37	7.26	.....	7.89	8.25	8.57	8.46	7.79	7.21
13	8.25	7.84	7.58	7.39	7.26	7.75	7.90	8.26	8.59	8.44	7.77	7.27
14	8.25	7.83	7.57	7.40	7.29	7.74	7.91	8.26	8.60	8.41	7.74	7.35
15	8.24	7.81	7.57	7.39	7.30	7.72	7.92	8.26	8.61	8.38	7.71	7.34
16	8.23	7.79	7.56	7.37	7.31	7.71	7.92	8.26	8.62	8.37	7.68	7.33
17	8.21	7.78	7.57	7.36	7.35	7.70	7.93	8.26	8.63	8.35	7.65	7.32
18	8.19	7.78	7.55	7.35	7.35	7.69	7.93	8.27	8.64	8.34	7.62	7.31
19	8.17	7.77	7.54	7.34	7.36	7.75	7.94	8.27	8.65	8.31	7.57	7.29
20	8.15	7.76	7.53	7.32	7.38	7.75	7.95	8.27	8.66	8.29	7.60	7.28
21	8.13	7.75	7.53	7.30	7.39	7.76	7.96	8.28	8.68	8.29	7.55	7.28
22	8.11	7.74	7.51	7.28	7.43	7.76	7.97	8.29	8.69	8.24	7.53	7.29
23	8.09	7.72	7.50	7.26	7.45	7.76	7.98	8.30	8.70	8.20	7.51	7.29
24	8.07	7.70	7.49	7.24	7.59	7.75	7.99	8.32	8.70	8.17	7.49	7.28
25	8.05	7.69	7.49	7.23	7.58	7.74	8.00	8.33	8.70	8.15	7.48	7.27
26	8.03	7.67	7.51	7.21	7.58	7.75	8.01	8.34	8.70	8.13	7.46	7.26
27	8.01	7.66	7.51	7.21	7.54	7.82	8.02	8.35	8.70	8.10	7.45	7.24
28	8.00	7.64	7.50	7.19	7.51	7.83	8.03	8.36	8.69	8.08	7.43	7.22
29	8.00	7.63	7.49	7.17	.....	7.83	8.05	8.36	8.69	8.06	7.42	7.24
30	7.99	7.63	7.49	7.15	.....	8.83	8.06	8.37	8.68	8.04	7.41	7.23
31	7.98	.....	7.48	7.13	.....	7.83	.....	8.37	.....	8.02	7.39	.....

NOTE.—No reading Mar. 10–12; lake too rough.

TRUCKEE RIVER AT TAHOE, CALIF.

LOCATION.—In NW. ¼ sec. 7, T. 15 N., R. 17 E., at Tahoe, Placer County, a short distance below dam at outlet of Lake Tahoe.

DRAINAGE AREA.—519 square miles.

RECORDS AVAILABLE.—July 3, 1895, to February 29, 1896; June 17, 1900, to September 30, 1918.

GAGE.—Vertical staff fastened to large cottonwood tree on left bank, 300 feet below dam at outlet of Lake Tahoe. Original gage, 100 feet above, was destroyed by dredging operations July 15, 1912.

DISCHARGE MEASUREMENTS.—Made from cable 140 feet below gage or by wading.

CHANNEL AND CONTROL.—Bed composed of gravel; practically permanent. No well-defined control.

EXTREMES OF DISCHARGE.—1895–96 and 1900–1918: Maximum mean daily discharge, 1,340 second-feet, July 13–20, 1907 (stage, 4.3 feet); minimum, river dry during parts of 1900, 1901, 1914, and 1918.

ICE.—Stage-discharge relation not seriously affected by ice.

DIVERSIONS.—No information.

REGULATION.—Flow regulated by operation of gates in dam at Lake Tahoe.

ACCURACY.—Stage-discharge relation not permanent. Rating curves well defined. Gage read to hundredths at least once each day. Stage controlled by outlet gates at Lake Tahoe. Daily discharge ascertained by applying mean daily gage height to rating table.

COOPERATION.—Daily-discharge record and discharge measurements furnished by United States Reclamation Service which maintains station in cooperation with Stone & Webster Engineering Corporation.

Discharge measurements of Truckee River at Tahoe, Calif., during the year ending Sept. 30, 1918.

[Made by U. S. Reclamation Service.]

Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*
Oct. 14	2.97	363
Aug. 26	3.58	578

Daily discharge, in second-feet, of Truckee River at Tahoe, Calif., for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	437	303	297	323	376	303	18	18	0	455	685	569
2	355	303	300	323	323	303	18	18	0	455	681	569
3	355	303	297	349	323	303	18	18	0	455	681	569
4	355	303	297	349	323	303	18	18	0	455	681	569
5	355	303	294	372	323	394	18	18	0	470	677	508
6	355	303	294	372	323	394	18	18	0	470	677	470
7	355	303	294	372	326	394	18	18	0	617	673	470
8	355	303	291	372	329	394	18	18	0	554	673	470
9	355	300	291	372	329	394	18	18	0	585	669	466
10	355	300	316	372	329	397	18	18	0	685	669	466
11	355	300	316	372	329	397	18	18	0	685	665	372
12	355	300	316	339	366	401	18	18	0	685	665	372
13	355	300	316	310	300	401	18	18	0	685	661	372
14	352	300	316	310	300	401	18	18	0	685	657	267
15	352	300	316	310	366	401	18	18	0	685	653	267
16	352	300	376	310	394	401	18	18	0	645	649	267
17	352	300	376	310	394	401	18	18	0	645	645	345
18	352	300	376	310	394	397	18	18	0	645	645	345
19	352	300	376	310	394	336	18	18	0	677	641	345
20	303	300	329	339	394	336	18	18	0	677	641	345
21	303	300	316	383	366	339	18	18	0	673	637	345
22	303	297	345	383	366	339	18	18	0	673	633	345
23	303	297	345	383	329	339	18	18	122	725	629	345
24	303	297	345	379	329	339	18	18	138	725	577	345
25	303	297	345	379	329	339	18	18	138	725	577	376
26	303	297	345	379	303	181	18	18	451	685	577	376
27	303	297	372	379	303	113	18	18	379	685	577	376
28	303	297	297	379	303	113	18	18	415	685	577	372
29	303	297	323	379	.....	113	18	18	415	685	573	372
30	303	297	323	379	.....	113	18	18	455	685	573	273
31	303	.....	323	376	.....	18	.....	18	.....	685	573	.....

Monthly discharge of Truckee River at Tahoe, Calif., for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	437	303	337	20,700
November	303	297	300	17,900
December	376	291	325	20,000
January	383	310	354	21,800
February	394	300	342	19,000
March	401	18	316	19,400
April	18	18	18.0	1,070
May	18	18	18.0	1,110
June	455	0	83.8	4,990
July	725	455	631	38,800
August	685	578	638	39,200
September	569	267	398	23,700
The year	725	0	314	228,000

NOTE.—Computed by engineers of U. S. Geol. Survey.

TRUCKEE RIVER AT ICELAND, CALIF.

LOCATION.—In sec. 36, T. 18 N., R. 17 E., above dam of ice company, 400 feet northeast of Southern Pacific Railroad station at Iceland, Nevada County, and 23 miles west of Reno, Nev.

DRAINAGE AREA.—Not measured.

RECORDS AVAILABLE.—August 1, 1912, to September 30, 1918.

GAGE.—Barrett & Lawrence water-stage recorder on right bank above dam.

DISCHARGE MEASUREMENTS.—Made from cable 130 feet above gage.

CHANNEL AND CONTROL.—Bed composed of small boulders; fairly smooth and permanent. Control at dam of National Ice Co. Right bank subject to overflow at high stages.

EXTREMES OF DISCHARGE.—1907–1918: Maximum mean daily discharge recorded, 15,300 second-feet March 18, 1907 (stage, 11.5 feet); minimum mean daily discharge recorded, 310 second-feet December 10, 1908 (stage, 7.9 feet).

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

DIVERSIONS.—No information.

REGULATION.—See Truckee River at Tahoe.

ACCURACY.—Stage-discharge relation changed November 14. No information regarding rating curves. Mean daily gage heights determined from water-stage recorder graph. Daily discharge ascertained by applying mean daily gage height to rating table.

COOPERATION.—Daily-discharge record furnished by United States Reclamation Service, which maintains station in cooperation with Stone & Webster Engineering Corporation.

Daily discharge, in second-feet, of Truckee River at Iceland, Calif., for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	508	419	741	433	433	469	885	1,560	930	605	745	614
2	445	432	510	433	469	440	970	1,720	930	577	745	614
3	445	412	375	417	417	451	806	1,660	930	577	745	614
4	445	419	359	440	417	451	610	1,880	930	577	745	614
5	464	419	359	451	433	489	557	1,990	930	566	728	580
6	464	422	359	469	1,620	533	610	1,770	1,010	540	728	561
7	464	425	364	469	510	701	640	1,770	1,010	632	728	614
8	445	401	364	469	451	533	846	1,720	1,010	594	717	543
9	445	412	364	451	451	510	1,260	1,510	1,010	605	717	552
10	445	412	375	424	451	610.	2,070	1,320	1,090	621	717	476
11	428	412	417	451	451	557	1,910	1,180	1,140	720	717	476
12	435	412	417	469	462	557	1,910	1,180	1,140	785	706	489
13	445	412	433	417	462	557	1,690	1,320	1,140	766	706	639
14	445	402	433	417	462	557	1,260	1,360	1,050	752	696	664
15	428	402	402	417	440	510	1,260	1,270	820	799	696	498
16	428	402	433	424	489	519	1,360	1,180	690	772	685	433
17	425	408	469	424	489	543	1,420	1,090	605	733	685	485
18	435	418	469	430	477	557	1,550	1,050	605	684	685	476
19	435	418	469	408	489	557	1,420	1,050	550	660	685	463
20	428	408	510	417	477	519	1,840	1,010	550	660	685	485
21	419	402	433	451	451	519	2,070	1,010	455	660	685	476
22	419	402	451	469	451	543	1,550	1,050	419	660	685	494
23	419	402	451	462	424	583	2,070	1,090	387	660	675	494
24	428	402	451	462	408	583	1,990	1,140	415	696	675	494
25	419	402	469	458	433	701	1,840	1,050	447	708	639	494
26	428	402	599	440	469	970	1,840	1,010	690	690	639	520
27	428	402	583	440	414	806	1,550	892	605	672	639	566
28	419	402	469	433	402	610	1,480	785	616	672	639	507
29	428	397	451	444	.....	610	1,480	660	605	660	639	507
30	428	397	433	433	.....	669	1,620	660	660	690	639	507
31	439	.....	433	433	.....	669	.....	930	.....	720	639	.....

Monthly discharge of Truckee River at Iceland, Calif., for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	508	419	438	26,900
November	432	397	409	24,300
December	741	359	447	27,500
January	469	408	440	27,100
February	1,620	402	493	27,400
March	970	440	577	35,500
April	2,070	557	1,410	83,900
May	1,990	660	1,250	76,900
June	1,140	387	779	46,400
July	799	540	668	41,100
August	745	639	692	42,500
September	664	433	532	31,700
The year	2,070	359	679	491,000

NOTE.—Computed by engineers of U. S. Geol. Survey.

TRUCKEE RIVER AT RENO, NEV.

LOCATION.—In sec. 11, T. 19 N., R. 19 E., at Virginia Street bridge in Reno, Washoe County, 6 miles above mouth of Steamboat Creek and 12 miles below Nevada-California boundary.

DRAINAGE AREA.—1,070 square miles (measured on topographic maps).

RECORDS AVAILABLE.—July 1, 1906, to September 30, 1918.

GAGE.—Vertical staff fastened to retaining wall on left bank about 20 feet below the bridge; datum 4,481.60 feet above sea level.

DISCHARGE MEASUREMENTS.—Made from the Rock Street bridge 800 feet below gage or by wading.

CHANNEL AND CONTROL.—Bed composed of gravel and boulders; slightly shifting. No well-defined control. One channel at all stages; river confined by retaining walls.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 3.6 feet April 23 (discharge, 2,040 second-feet); minimum stage recorded, 0.7 foot June 25 and 26 (discharge, 76 second-feet).

1906–1918: Maximum stage recorded, 8.2 feet March 18, 1907 (discharge, 14,600 second-feet); minimum stage, −0.1 foot July 2 and 3, 1912 (discharge, 18 second-feet).

ICE.—Stage-discharge relation slightly affected by ice during some winters.

DIVERSIONS.—Numerous diversions for Truckee Valley above and below station.

REGULATION.—Flow affected somewhat by operation of several power plants above station, by storage at Lake Tahoe, and by irrigation diversions for Truckee Valley.

ACCURACY.—Stage-discharge relation permanent during year; not affected by ice. Rating curve well defined between 125 and 3,000 second-feet. Gage read to tenths once a day. Daily discharge ascertained by applying daily gage height to rating table. Records good.

COOPERATION.—Gage-height record furnished by Weather Bureau.

Discharge measurements of Truckee River at Reno, Nev., during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Dec. 15	L. W. Jordan	1.50	361	June 2	J. W. Bones	1.78	575
Apr. 2	do	2.50	991	15	do	1.94	629

Daily discharge, in second-feet, of Truckee River at Reno, Nev., for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	185	185	313	418	364	418	990	1,400	474	266	313	266
2	185	185	474	364	418	474	1,060	1,600	532	223	364	223
3	125	185	364	364	418	418	852	1,400	532	223	364	266
4	12)	185	364	418	364	474	718	1,600	592	223	313	266
5	99	185	313	418	313	474	654	1,710	592	223	313	266
6	125	223	313	418	364	532	654	1,400	654	223	364	223
7	152	313	266	364	920	532	654	1,400	718	223	313	152
8	152	266	223	418	532	592	920	1,300	784	313	313	152
9	125	266	266	418	474	592	1,130	1,210	718	364	313	223
10	125	223	266	418	474	532	1,930	920	718	313	313	152
11	125	223	313	364	474	592	1,930	718	718	313	313	99
12	152	223	364	418	474	592	1,930	718	718	364	266	99
13	152	266	364	364	418	474	1,600	784	718	364	364	152
14	125	266	313	364	364	532	920	920	784	364	364	532
15	125	223	364	418	364	592	1,130	852	592	418	313	364
16	125	223	532	364	418	592	1,210	784	532	418	364	223
17	125	223	418	364	532	592	1,210	784	364	364	364	223
18	152	313	418	313	474	654	1,300	718	313	364	364	223
19	152	266	418	313	474	654	1,300	718	185	313	364	223
20	152	266	364	364	474	592	1,400	718	223	313	364	185
21	152	266	313	364	474	592	1,710	654	266	364	313	185
22	152	223	364	418	418	654	1,930	654	152	364	313	223
23	152	223	474	418	418	654	2,040	654	152	364	313	266
24	185	266	418	418	364	654	1,930	654	99	364	313	266
25	152	266	364	418	364	718	1,710	654	76	364	313	266
26	152	266	364	418	474	920	1,600	592	76	364	313	266
27	152	223	474	364	532	920	1,400	592	223	364	266	266
28	185	223	474	364	474	718	1,300	592	223	364	266	313
29	223	223	418	364	.....	718	1,300	474	266	364	223	313
30	185	313	418	364	.....	784	1,400	418	223	364	266	313
31	185	.....	418	364	.....	852	.....	364	.....	418	266	.....

Monthly discharge of Truckee River at Reno, Nev., for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	223	99	150	9,220
November	313	185	240	14,300
December	532	223	372	22,900
January	418	313	385	23,700
February	920	313	451	25,000
March	920	418	616	37,900
April	2,040	654	1,330	79,100
May	1,710	364	902	55,500
June	784	76	441	26,200
July	418	223	331	20,400
August	364	223	319	19,600
September	532	99	240	14,300
The year	2,040	76	480	348,000

HONEY LAKE BASIN.

LONG VALLEY CREEK NEAR SCOTTS, CALIF.

LOCATION.—At dam site 1 mile below Scotts, Lassen County.

DRAINAGE AREA.—Not measured.

RECORDS AVAILABLE.—March 10, 1917, to September 30, 1918 (discharge measurements only for 1918).

GAGE.—Inclined staff in two sections on right bank.

DISCHARGE MEASUREMENTS.—Made from cable 30 feet above gage or by wading.

CHANNEL AND CONTROL.—Bed composed of sand; shifts badly. No well-defined control.

ICE.—No information.

DIVERSIONS.—No information.

REGULATION.—No information.

ACCURACY.—Stage-discharge relation not permanent. Gage not read during year.

Discharge measurements of Long Valley Creek near Scotts, Calif., during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Feb. 11	J. F. Kunesh	2.96	3.1	May 29	J. F. Kunesh	3.17	1.6
Mar. 29	Charles Leidl	3.38	37	June 28	do		0
May 3	J. F. Kunesh	3.24	5.3				

BAXTER CREEK NEAR LASSEN,[1] CALIF.

LOCATION—In NE. ¼ SW. ¼ sec. 32, T. 29 N., R. 13 E., 200 feet below highway bridge on county road at ranch of D. J. Sweeny and 2½ miles northwest of Janesville, Lassen County.

RECORDS AVAILABLE.—February 17, 1913, to July 31, 1916; December 20, 1917, to September 30, 1918.

GAGE.—Vertical staff on left bank; read by D. J. Sweeny. Prior to March 21, 1915, gage was 400 feet above at different datum. Present gage was reconstructed December 20, 1917, and datum raised 0.07 foot.

DISCHARGE MEASUREMENTS.—Made from footbridge or by wading.

[1] Formerly called Janesville.

CHANNEL AND CONTROL.—Bed composed of gravel, small boulders, and sand; somewhat shifting. Control was an earth dam constructed in July, 1917. This was partly washed out February 6, 1918, and the break cleaned out February 8, 1918, making the artificial control, constructed in 1915, again effective at low water. High-water control consists of roots and brush and is fairly permanent.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 4.3 feet during night of March 26–27 (discharge, 56 second-feet); stream practically dry July 1 to September 30.

1913–1916; 1918: Maximum stage recorded, 9.6 feet at 5 p. m. January 25, 1914 (discharge, 360 second-feet); stream practically dry during fall of 1915 and 1918.

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

DIVERSIONS.—About 14 small ditches divert water in Baxter and Elysian valleys above gage. Most of this returns to creek by seepage and overflow.

REGULATION.—Diversions above regulate flow during irrigating season.

ACCURACY.—Stage-discharge relation changed February 8 when earth dam was partly removed and artificial control made effective; not affected by ice during year. Rating curves well defined. Gage read to half-tenths once daily to February 8 and to hundredths twice daily after that date. Daily discharge ascertained by applying mean daily gage height to rating table. Records fair prior to February 8 and good after that date.

Discharge measurements of Baxter Creek near Lassen, Calif., during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Dec. 22	S. C. Whipple	2.26	1.1	Mar. 27	Charles Leidl	2.99	21
Feb. 8	J. F. Kunesh	2.31	2.4	28	do	2.51	12
8	do	[a] 2.24	6.8	Apr. 30	J. F. Kunesh	2.34	10
9	do	1.80	1.5	May 2	do	2.51	13
26	do	1.87	2.4	29	do	1.80	2.2
26	do	1.91	3.0	June 28	do	1.36	[b].1
Mar. 26	Charles Leidl	3.33	30				

[a] Control changed before measurement was made. [b] Estimated.

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Daily discharge, in second-feet, of Baxter Creek near Lassen, Calif., for the year ending Sept. 30, 1918.

Day.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.
1	.....	0.6	2.8	3.4	10	9	1.0
2	.....	.4	1.4	3.6	9	9	1.0
3	.....	.4	.6	9	7	9	.8
4	.....	.8	2.8	6	6	13	.7
5	.....	1.4	2.8	7.5	5.5	14	.6
6	.....	1.4	22	4.8	7	13	.5
7	.....	1.4	5.0	6	7	10	.4
8	.....	.8	3.6	3.3	7.5	11	.4
9	.....	.5	3.9	4.8	14	10	.4
10	.....	.3	3.5	4.4	13	9	.3
11	.....	.3	3.3	11	10	7	.4
12	.....	.4	4.1	9	10	6.5	.3
13	.....	.5	4.8	10	11	6	.3
14	.....	.5	3.5	8	10	5	.2
15	.....	.5	2.9	7	10	5	.1
16	.....	.6	3.3	9	9	5	.1
17	.....	1.4	3.4	17	9.5	5	.1
18	.....	.8	2.9	36	10	4.9	.1
19	.....	.5	2.9	34	10	4.4	.1
20	.7	.5	3.0	32	9.5	4.4	.1
21	1.2	.4	3.9	32	11	3.6	.1
22	1.6	.4	4.1	26	11	3.5	1.5
23	.1	.5	4.8	19	12	3.5	.1
24	.1	.4	4.4	15	13	3.1	.1
25	.1	.3	3.5	46	12	2.7	.1
26	2.1	.3	4.5	37	12	3.5	.1
27	2.8	.3	3.4	30	11	3.4	.1
28	1.4	.6	3.5	17	11	3.0	.1
29	1.4	2.8	.....	11	9.5	2.5	.1
30	.8	.8	.....	10	9	1.3	.1
31	.8	.6	.....	10	.....	1.3	.....

NOTE.—Stream practically dry July 1 to September 30.

Monthly discharge of Baxter Creek near Lassen, Calif., for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
December 20–31	2.8	0.1	1.09	25.9
January	2.8	.3	.69	42.4
February	22	.6	4.09	227
March	46	3.3	15.4	947
April	14	5.5	9.88	588
May	14	1.3	6.18	380
June	1.5	.1	.34	20.2
The period	.....	.....	.....	2,230

NOTE.—Creek practically dry July, August, and September.

SCHLOSS CREEK AT LASSEN,[1] CALIF.

LOCATION.—In SW. ¼ sec. 9, T. 28 N., R. 13 E., half a mile above road crossing at school house in Lassen, Lassen County.

DRAINAGE AREA.—Not measured.

RECORDS AVAILABLE.—March 22 to June 30, 1915; December 21, 1917, to September 30, 1918.

GAGE.—Vertical staff on left bank; read by Gross and Wemple. Old gage used prior to June 30, 1915, was 200 feet below present gage.

DISCHARGE MEASUREMENTS.—Made by wading at gage.

CHANNEL AND CONTROL.—Bed composed of loose gravel.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 1.8 feet April 9 (discharge, 3.2 second-feet); stream dry December 21 to March 21 and June 12 to September 30.

ICE.—Creek usually dry.

DIVERSIONS.—None above station.

REGULATION.—None.

ACCURACY.—Stage-discharge relation permanent. Rating curve fairly well defined below 1 second-foot and extended above. Gage read to hundredths once daily. Daily discharge ascertained by applying daily gage height to rating table. Records fair.

Discharge measurements of Schloss Creek at Lassen, Calif., during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Dec. 21	Kunesh and Whipple	.....	0	Apr. 30	J. F. Kunesh	1.57	0.6
Feb. 9	J. F. Kunesh	.....	0	May 2	do	1.60	.7
25	do	.....	0	29	do	1.40	.2
Mar. 27	Charles Leidl	1.60	.8	June 28	do	.....	0
28	do	1.58	.6				

Daily discharge, in second-feet, of Schloss Creek near Lassen, Calif., for the year ending Sept. 30, 1918.

Day.	Mar.	Apr.	May.	June.	Day.	Mar.	Apr.	May.	June.	Day.	Mar.	Apr.	May.	June.
1	.....	0.8	0.7	0.1	11	.....	1.4	0.3	0.1	21	0.0	0.8	0.3	.....
2	.....	.8	.7	.1	12	.....	.8	.3	.....	22	.02	1.0	.2	.....
3	.....	.7	.8	.1	13	.....	.8	.3	.....	23	.2	1.1	.2	.....
4	.....	.6	1.0	.1	14	.....	.6	.2	.....	24	.3	.8	.2	.....
5	.....	.6	.7	.1	15	.....	.6	.3	.....	25	1.9	.6	.2	.....
6	.....	.5	.6	.1	16	.....	.6	.3	.....	26	2.2	.3	.2	.....
7	.....	.5	.5	.1	17	.....	.8	.4	.....	27	.8	.4	.3	.....
8	.....	.5	.6	.05	18	.....	.8	.3	.....	28	.8	.6	.2	.....
9	.....	3.2	.8	.05	19	.....	1.7	.3	.....	29	.7	.7	.2	.....
10	.....	2.0	.6	.01	20	.....	2.2	.3	.....	30	.8	.7	.2	.....
										31	.8	.....	.2	.....

NOTE.—Creek dry Dec. 21 to Mar. 21 and June 12 to Sept. 30.

[1] Formerly called Janesville.

Monthly discharge of Schloss Creek near Lassen, Calif., for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
March	2.2	0.0	0.28	17.2
April	3.2	.3	.92	54.7
May	1.0	.2	.40	24.6
June	.1	.0	.03	1.8
The period				98.3

JANESVILLE CREEK AT LASSEN,[1] CALIF.

LOCATION.—In SE. ¼ sec. 9, T. 28 N., R. 13 E., 40 feet above county road at Lassen, Lassen County.

DRAINAGE AREA.—Not measured.

RECORDS AVAILABLE.—March 3 to June 7, 1913, March 22 to June 30, 1915; December 21, 1917, to September 30, 1918.

GAGE.—Vertical staff gage fastened to cottonwood tree on left bank 40 feet above road; read by Gross and Wemple. Gage used prior to June 30, 1915, was staff fastened to cottonwood tree on left bank 300 feet above present gage.

DISCHARGE MEASUREMENTS.—Made by wading.

CHANNEL AND CONTROL.—Bed composed of sand and gravel. Control at low water consists of sand and gravel and is affected by leaves and other débris. High-water control is the concrete culvert 40 feet below.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 2.02 feet at 6 p. m. April 22 and 23 (discharge, 4.6 second-feet); stream practically dry July 16 to September 30.

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

DIVERSIONS.—A small quantity of water is diverted for municipal use at Janesville through a 3-inch pipe above gage.

REGULATION.—None.

ACCURACY.—Stage-discharge relation slightly affected by leaves and other débris lodging on control. Rating curve well defined below 5 second-feet. Gage read to hundredths once daily and oftener during high water. Daily discharge ascertained by applying mean daily gage height to rating table. Records fair.

Discharge measurements of Janesville Creek at Lassen, Calif., during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Dec. 21	Kunesh and Whipple	1.51	[a]0.1	Mar. 27	Charles Leidl	1.88	2.5
Feb. 7	J. F. Kunesh	1.65	.5	28	do	1.80	1.8
8	do	1.60	.3	Apr. 30	J. F. Kunesh	1.84	2.2
25	do	1.56	.2	May 2	do	1.89	2.7
26	do	1.57	.2	29	do	1.67	.9
Mar. 26	Charles Leidl	1.92	3.2	June 28	do	1.41	[a].1

[1] Formerly called Janesville.
[a] Estimated.

Daily discharge, in second-feet, of Janesville Creek at Lassen, Calif., for the year ending Sept. 30, 1918.

Day.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.
1		0.4	0.4	0.3	2.1	3.1	1.3	0.05
2		.4	.4	.3	1.8	2.4	1.5	.05
3		.4	.3	2.8	1.5	2.9	1.6	.05
4		.4	.3	.4	1.3	3.1	1.5	.05
5		.4	.4	.4	1.2	2.7	1.5	.05
6		.4	2.7	.4	1.2	2.4	.4	.05
7		.4	.6	.4	1.3	2.5	.4	.05
8		.4	.4	.4	1.2	2.2	.4	.05
9		.5	.4	.4	4.2	3.2	.4	.05
10		.5	.4	.6	4.2	2.5	.2	.05
11		.4	.4	.9	3.1	1.7	.9	.05
12		.1	.4	.8	2.2	2.2	.6	.05
13		.1	.4	.6	2.2	1.7	.6	.05
14		.1	.4	.6	1.8	1.8	.4	.05
15		.1	.4	.6	1.5	1.5	.1	.05
16		.1	.3	.6	1.7	1.7	.1	
17		.1	.3	1.0	1.9	1.7	.1	
18		.2	.3	1.0	1.9	1.9	.1	
19		.1	.2	1.1	2.8	1.9	.1	
20		.1	.3	1.1	3.5	1.7	.1	
21	0 1	.1	.3	1.1	4.2	1.6	.1	
22	.1	.1	.3	1.2	4.6	1.6	.1	
23	.2	.1	.3	1.1	4.6	1.5	.1	
24	.1	.2	.3	1.2	3.9	1.4	.05	
25	.1	.3	.3	2.7	3.6	1.6	.05	
26	.2	.3	.3	2.9	1.7	1.5	.05	
27	.1	.2	.3	2.4	1.7	1.5	.05	
28	.1	.2	.3	1.7	1.7	1.6	.05	
29	.1	.2		1.7	2.8	1.5	.05	
30	.4	.2		2.0	2.6	1.5	.05	
31	.4	.2		2.2		1.4		

NOTE.—No gage-height record Jan. 13, 28, and Mar. 10, discharge interpolated. Stream practically dry July 16 to Sept. 30.

Monthly discharge of Janesville Creek at Lassen, Calif., for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
December 21-31	0.4	0.1	0.17	3.71
January	.5	.1	.25	15.4
February	2.7	.3	.43	23.9
March	2.9	.3	1.13	69.5
April	4.6	1.2	2.47	147
May	3.2	1.4	1.98	122
June	1.6	.05	.432	25.7
July	.05	0	.024	1.48
The period				409

SUSAN RIVER AT SUSANVILLE, CALIF.

LOCATION.—Three-quarters of a mile southwest of Susanville, Lassen County, 2 miles above Piute Creek, and 3½ miles below Chevy Creek.

DRAINAGE AREA.—Not measured.

RECORDS AVAILABLE.—June 3, 1900, to December 31, 1905; February 8, 1917, to September 30, 1918.

GAGE.—Inclined staff gage attached to alder tree on right bank at old electric light plant; read by F. W. Hutchinson. No change in datum since December 20, 1903, when it was lowered 2.0 feet.

DISCHARGE MEASUREMENTS.—Made from cable at gage or by wading 300 feet upstream.

CHANNEL AND CONTROL.—Bed composed of gravel and cobblestones; practically permanent. No well-defined control. Left bank subject to overflow.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 8.9 feet at 2 p. m. April 9 (discharge, 492 second-feet); minimum stage recorded, 4.35 feet at 7.30 p. m. August 10 (discharge, 0.8 second-foot).

1900–1905 and 1917–1918: Maximum stage recorded, 9.9 feet February 22, 1904 (discharge, 1,750 second-feet); minimum stage occurred in 1918.

DIVERSIONS.—Ramsey ditch diverts about 800 feet above station, on right bank. See miscellaneous measurements, page 264.

REGULATION.—Probably none from ditch.

ACCURACY.—Stage-discharge relation permanent during year. Rating curve well defined between 2 and 800 second-feet. Gage read to hundredths twice daily, sometimes oftener, and highest stage noted. Daily discharge ascertained by applying mean daily gage height to rating table. Records good.

Discharge measurements of Susan River at Susanville, Calif., during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Dec. 22	S. C. Whipple	4.91	12	Mar. 28	Charles Leidl	7.50	222
Feb. 9	J. F. Kunesh	5.08	18	Apr. 30	J. F. Kunesh	6.16	80
10	do	5.01	15	May 2	do	6.15	79
27	do	4.94	11	30	do	5.68	49
Mar. 28	Charles Leidl	6.90	149	June 27	do	4.81	9.0
28	do	7.28	194				

Daily discharge, in second-feet, of Susan River at Susanville, Calif., for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	8.5	12	34	14	13	19	196	81	28	3.3	3.3	3.4
2	8.5	12	17	13	11	20	160	82	24	2.7	3.3	3.4
3	8	12	16	11	11	27	117	81	23	3.0	2.8	3.4
4	8	12	15	13	12	32	94	81	21	2.6	2.0	3.4
5	8	14	13	13	14	29	83	74	40	2.1	2.1	2.4
6	8	15	12	13	145	24	135	69	90	1.9	2.3	3.8
7	8	15	11	14	44	24	101	62	103	1.9	3.1	4.3
8	8	14	12	14	31	21	121	62	110	1.8	2.7	4.7
9	8	14	12	13	26	21	422	68	108	1.6	1.4	5.0
10	8	14	12	10	26	21	128	64	106	2.6	.9	4.7
11	8	14	11	13	23	22	158	58	110	3.6	1.5	4.7
12	8	14	10	14	24	23	184	50	108	2.7	1.8	8.5
13	8	14	11	11	23	23	166	47	106	2.6	2.0	16
14	8	14	11	14	23	23	129	46	100	1.8	2.0	17
15	8.5	14	11	13	12	18	115	40	97	1.6	2.3	10
16	8.5	14	12	13	15	27	105	38	99	1.5	3.4	8.5
17	8.5	14	14	13	20	28	114	37	100	1.1	3.4	8.5
18	8.5	14	14	14	20	60	115	35	95	1.1	3.4	7
19	8.5	14	13	11	23	104	106	33	69	1.0	3.4	6.5
20	9	14	12	11	15	96	114	31	50	1.1	3.4	5.5
21	9	14	12	11	17	101	124	31	41	1.9	3.4	5.5
22	10	14	11	10	21	118	142	29	36	2.0	3.4	8
23	10	14	13	11	20	128	144	45	35	2.0	3.4	8.
24	11	14	13	11	16	135	136	69	31	2.0	3.1	8.5
25	11	14	13	12	16	282	129	88	25	2.1	3.0	8.5
26	11	14	15	11	19	338	105	108	14	2.1	2.4	8.5
27	11	14	20	11	15	222	82	106	10	1.8	2.3	8.5
28	11	14	17	10	18	178	80	105	7.5	2.3	2.3	11
29	11	14	14	11	.....	196	81	101	5.5	2.1	2.6	20
30	11	15	14	11	.....	196	80	94	4.7	2.4	2.7	13
31	12	.....	14	11	.....	208	.....	41	.....	3.1	3.4	.....

Monthly discharge of Susan River at Susanville, Calif., for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	12	8	9.11	560
November	15	12	13.8	821
December	34	10	13.8	849
January	14	10	12.1	744
February	145	11	24.0	1,330
March	338	18	89.2	5,480
April	422	80	132	7,850
May	108	29	63.1	3,880
June	110	4.7	59.9	3,560
July	3.6	1.0	2.11	130
August	3.4	.9	2.66	164
September	20	3.4	7.71	459
The year	422	.9	35.7	25,800

SURPRISE VALLEY BASIN.

BIDWELL CREEK NEAR FORT BIDWELL, CALIF.

LOCATION.—In sec. 19, T. 47 N., R. 16 E., 500 feet below second main tributary of creek, at O'Conner's ranch, 7 miles north of Fort Bidwell, Modoc County.

DRAINAGE AREA.—Not measured.

RECORDS AVAILABLE.—December 13, 1917, to September 30, 1918.

GAGE.—Vertical staff nailed to 8-inch cottonwood tree on left bank 250 feet above ford; read by A. A. Sparks.

DISCHARGE MEASUREMENTS.—Made by wading at ford.

CHANNEL AND CONTROL.—Control composed of large boulders 10 feet below gage which is in a pool; probably permanent.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 2.7 feet at 5 p. m. May 3 (discharge, 26 second-feet); minimum stage recorded, 1.38 feet August 31 and September 2–6 (discharge, 0.2 second-foot).

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

DIVERSIONS.—None.

REGULATION.—None.

ACCURACY.—Stage-discharge relation changed April 2, May 8 and 16 owing to improvements in channel above control. Rating curves fairly well defined. Gage read to hundredths twice a day. Daily discharge ascertained by applying mean daily gage height to rating table. Records fair.

Discharge measurements of Bidwell Creek near Fort Bidwell, Calif., during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Dec. 13	Kunesh and Whipple	1.38	1.0	May 8	J. F. Kunesh	2.41	23
Mar. 17	J. F. Kunesh	1.40	1.0	16	do	[a] 2.30 / [b] 2.19	16
Apr. 2	do	[a] 1.80 / [b] 1.75	6.4	June 4	do	2.20	16
17	do	1.75	6.1	17	do	1.97	7.0
May 8	do	[a] 2.55 / [b] 2.40	22	23	do	1.86	4.9

[a] Before changing channel. [b] After changing channel.

Daily discharge, in second-feet, of Bidwell Creek near Fort Bidwell, Calif., for the year ending Sept. 30, 1918.

Day.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1		1.2	2.1	1.0	8	20	11	3.6	0.6	0.3
2		1.2	1.0	1.0	6.5	21	11	2.5	.5	.2
3		1.0	.9	1.2	6	24	13	2.2	.5	.2
4		1.3	.9	1.0	5.5	23	16	2.1	.5	.2
5		1.3	.9	1.0	5	23	19	1.9	.5	.2
6		1.2	1.7	1.0	5	24	20	1.8	.5	.2
7		2.0	1.0	1.0	5.5	22	19	1.8	.5	.3
8		1.4	.9	1.0	5.5	22	18	1.5	.4	.5
9		2.0	1.0	1.0	12	26	18	1.5	.4	.5
10		2.6	.9	1.0	12	18	16	1.4	.4	.5
11		1.0	1.0	1.0	12	21	15	1.4	.4	
12		1.4	1.0	1.0	12	18	14	1.3	.4	
13	0.9	1.2	1.0	1.0	9.5	20	13	1.2	.4	
14	.8	1.2	.9	.9	7.5	17	11	1.2	.4	
15	.7	1.0	.9	1.0	7	17	9.5	1.1	.7	
16	.7	1.0	1.0	1.1	7	17	8.5	1.1	.7	
17	1.0	1.0	1.0	1.0	6.5	16	8	.9	.6	
18	1.0	1.0	1.0	1.1	7	15	7	.9	.4	
19	1.0	1.0	1.0	1.0	8.5	10	6	.9	.4	
20	.9	1.1	.9	1.7	13	8.5	5.5	.8	.4	
21	1.1	1.0	.9	1.8	17	8	5.5	.8	.5	
22	.9	1.0	.9	1.9	18	8.5	4.8	.8	.4	
23	1.0	.9	.9	2.1	18	10	4.6	.8	.4	
24	1.0	1.0	.9	2.6	19	11	4.0	.9	.3	
25	1.0	1.0	.9	2.8	18	11	4.0	.9	.5	
26	1.6	1.0	.9	2.9	18	11	3.7	.8	.3	
27	2.2	1.0	.9	2.9	18	10	3.5	.8	.3	
28	2.5	1.0	1.0	2.6	19	11	3.4	.6	.3	
29	1.4	1.0		3.4	20	11	3.1	.6	.3	
30	1.7	1.0		6.0	21	11	2.8	.6	.3	
31	1.3	1.2		8.0		11			.2	

NOTE.—Gage not read Sept. 11-30; mean discharge estimated as 0.5 second-foot. Feb. 13 and 14 estimated because of ice.

Monthly discharge of Bidwell Creek near Fort Bidwell, Calif., for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
December 13-31	2.5	0.7	1.19	44.8
January	2.6	1.0	1.20	73.8
February	2.1	.9	1.01	56.1
March	8.0	.9	1.87	115
April	21	5.0	11.6	690
May	26	8.0	16.0	984
June	20	2.8	9.93	591
July	3.6	.6	1.25	76.9
August	.6	.2	.43	26.4
September			.44	26.2
The period				2,680

BIDWELL CREEK AT FORT BIDWELL, CALIF.[1]

LOCATION.—In NW. ¼ sec. 8, T. 46 N., R. 16 E., at Martin's Hot Springs, at mouth of canyon, 1 mile north of Fort Bidwell, Modoc County.

DRAINAGE AREA.—27 square miles.

RECORDS AVAILABLE.—November 3, 1911, to June 30, 1912; December 13, 1917, to September 30, 1918.

GAGE.—Vertical staff fastened to stump on right bank 40 feet below private culvert; read by Fred M. Martin. Original gage used to June 30, 1912, was vertical staff spiked to cottonwood tree 100 feet above present gage. Gages have different datums and controls.

DISCHARGE MEASUREMENTS.—Made from culvert or by wading.

CHANNEL AND CONTROL.—Control composed of boulders and coarse gravel 50 feet below gage; slightly shifting.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 1.98 feet at 5 p. m. May 5 (discharge, 55 second-feet); minimum stage recorded, 1.0 foot July 19 to September 11 (discharge, 2.4 second-feet).

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

DIVERSIONS.[2]—Three small ditches divert above gage and ten or more small irrigation ditches divert within 1 mile below gage.

REGULATION.—None.

ACCURACY.—Stage-discharge relation changed March 6. Rating curves well defined. Gage read to hundredths once a day except during snow run-off period when read twice a day. Daily discharge ascertained by applying mean daily gage height to rating table. Records good.

Discharge measurements of Bidwell Creek at Fort Bidwell, Calif., during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Dec. 2	Kunesh and Whipple	1.33	9.7	Apr. 4	J. F. Kunesh	1.51	21
13	do	1.18	4.5	15	do	1.58	25
Mar. 2	J. F. Kunesh	1.26	7.6	20	do	1.71	33
2	do	1.28	8.2	27	do	1.81	42
4	do	1.26	7.5	May 7	do	1.89	47
5	do	1.33	9.3	7	do	1.91	49
11	do	1.22	7.3	16	do	1.70	31
14	do	1.23	8.0	June 3	do	1.59	23
25	do	1.53	21	12	do	1.54	21
26	do	1.60	25	17	do	1.42	16
26	do	1.60	25	23	do	1.25	9.3
Apr. 1	do	1.68	31				

[1] Published as "near Fort Bidwell" in Water-Supply Paper 360.
[2] See list of ditches and diversions on page 265.

Daily discharge, in second-feet, of Bidwell Creek at Fort Bidwell, Calif., for the year ending Sept. 30, 1918.

Day.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	.....	8	8.5	8.5	31	48	25	4.5	2.4	2.4
2	.....	8	5	8	26	46	24	4.5	2.4	2.4
3	.....	8	5	6	20	48	24	4.5	2.4	2.4
4	.....	7	5	7.5	20	50	24	4.5	2.4	2.4
5	.....	7	5	9	18	54	25	4.5	2.4	2.4
6	.....	7	5	12	17	52	25	4.5	2.4	2.4
7	.....	7	5	9.5	17	50	25	4.5	2.4	2.4
8	.....	7	8.5	10	19	47	25	4.5	2.4	2.4
9	.....	6	7	7	40	38	25	4.1	2.4	2.4
10	.....	6	7	7	38	38	19	4.1	2.4	2.4
11	.....	8.5	5	8	40	34	19	3.7	2.4	2.4
12	.....	8.5	5	7	38	36	20	3.7	2.4	3.4
13	4.7	8.5	5	7	33	36	18	3.7	2.4	4.5
14	4.7	8.5	5	8	28	40	17	3.2	2.4	4.5
15	3.9	5	8.5	10	24	40	18	3.2	2.4	4.5
16	3.1	5	5	8	22	32	17	2.8	2.4	4.5
17	5	5	5	9	21	31	14	2.6	2.4	4.5
18	5	7	5	10	22	29	12	2.6	2.4	4.5
19	3.9	7	5	10	25	26	12	2.4	2.4	4.5
20	3.9	8.5	5	10	32	25	10	2.4	2.4	4.5
21	3.9	8.5	5	13	39	24	7	2.4	2.4	4.5
22	3.9	8	5	14	46	24	8	2.4	2.4	4.5
23	3.9	7	5	14	50	24	8	2.4	2.4	4.5
24	5	5	5	15	50	24	7	2.4	2.4	4.5
25	5	5	8.5	20	48	25	7	2.4	2.4	4.5
26	8.5	5	5	24	42	25	7	2.4	2.4	4.5
27	8.5	5	5	19	41	25	7	2.4	2.4	4.5
28	8.5	5	12	19	40	24	6	2.4	2.4	4.5
29	8	5	.....	21	40	23	4.5	2.4	2.4	6
30	8	5	.....	25	48	22	4.5	2.4	2.4	4.5
31	8	8.5	.....	30	.....	25	.....	2.4	2.4	.....

NOTE.—Gage not read Jan. 1–6 and July 23–27, discharge interpolated; estimated Feb. 20 because of ice.

Monthly discharge of Bidwell Creek at Fort Bidwell, Calif., for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
December 13–31	8.5	3.1	5.55	209
January	8.5	5.0	6.76	416
February	12	5.0	5.89	327
March	30	6.0	12.4	762
April	50	17	32.5	1,930
May	54	22	34.4	2,120
June	25	4.5	15.5	922
July	4.5	2.4	3.25	200
August	2.4	2.4	2.40	148
September	6	2.4	3.74	223
The period	.....	.....	.....	7,260

BOX CANYON CREEK NEAR FORT BIDWELL, CALIF.

LOCATION.—In S. ½ sec. 27, T. 46 N., R. 17 E., 1 mile above Fee's reservoir and 10 miles east of Fort Bidwell, Modoc County; below all tributaries above reservoir.

DRAINAGE AREA.—Not measured.

RECORDS AVAILABLE.—Discharge measurements only for 1918.

GAGE.—Vertical staff fastened to a juniper tree on right bank, 1 mile above the reservoir.

DISCHARGE MEASUREMENTS.—Made by wading.

CHANNEL AND CONTROL.—Bed consists of boulders. Left bank is rim rock; right bank slopes gently for 200 feet and then is an abrupt rock bank. Control consists of boulders for low water and boulders and sage brush slope for high water.

DIVERSIONS.—None above.

REGULATION.—Flow completely regulated by operation of gates in dam at outlet of Cooks Lake.

ACCURACY.—Gage is read only when the reservoir is full and overflowing and as it lacked about 4 feet of being full no readings were made.

COOPERATION.—Mr. Billups furnished a statement that there was no overflow from the reservoir.

Discharge measurements of Box Canyon Creek near Fort Bidwell, Calif., during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*
Dec. 14	Kunesh and Whipple	1.05	0.5
Mar. 25	J. F. Kunesh	1.35	1.6
May 9	....do	1.07	.4

WARNER LAKES BASIN.

COWHEAD LAKE NEAR FORT BIDWELL, CALIF.

LOCATION.—In south half of T. 47 N., R. 17 E., on road through Long Canyon to Schadler's ranch, 7 miles northeast of Fort Bidwell, Modoc County, and 1½ miles southeast of Schadler's house.

RECORDS AVAILABLE.—Occasional readings 1911 to 1913 and in 1918.

DRAINAGE AREA.—43 square miles tributary to lake.

GAGE.—Painted on two large rocks near south end of lake, 1½ miles southeast of Schadler's house.

COOPERATION.—Gage-height record furnished by H. W. Schadler.

Gage height, in feet, of Cowhead Lake near Fort Bidwell, Calif., for the year ending Sept. 30, 1918.

Dec. 12	1.0	Mar. 16	1.1
Mar. 1	.2	20	1.5
5	.3	25	1.6
10	.5		

TWENTYMILE CREEK NEAR WARNER LAKE, OREG.

LOCATION.—In sec. 24, T. 40 S., R. 23 E., a quarter of a mile above highway bridge on Warner Lake-Coleman Valley road at mouth of canyon, below all tributaries, and 2 miles south of Warner Lake, Lake County.

DRAINAGE AREA.—155 square miles (measured on map issued by United States Reclamation Service), not including 58 square miles tributary to Cowhead Lake which contributed no water to Twentymile Creek from about June 1, 1911, except very little in spring of 1914.

RECORDS AVAILABLE.—March 1, 1910, to July 2, 1916; December 16, 1917, to September 30, 1918.

GAGE.—Vertical staff attached to old gage well on right bank a quarter of a mile above bridge; read by Hannah Barry. Original gage at bridge was removed to present site on June 3, 1910; gage readings during 1910 and 1911 at present site were referred to same datum. Readings for 1912–1914 are referred to datum 0.32 foot lower than that used during 1911. Water-stage recorder was used from March 31 to July 20, 1914, and from December 3, 1914, to September 30, 1915. Staff gage was read weekly prior to December 3, 1914.

DISCHARGE MEASUREMENTS.—Made from highway bridge or by wading.

CHANNEL AND CONTROL.—Bed is solid rock reef broken by crevices and obstructed by boulders and gravel; shifts slightly. Water seeps under the boulders and gravel.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 4.0 feet at 9 p. m. March 18 (discharge, 380 second-feet); minimum stage recorded during year, 0.02 foot July 19 (discharge, 1.5 second-feet).

1910–1916 and 1918: Maximum stage recorded, 4.8 feet at original gage at bridge, March 1, 1910 (discharge, 2,610 second-feet). The peak may have been higher. Minimum stage recorded, 0.02 foot July 19, 1918 (discharge, 1.5 second-feet).

ICE.—Stage-discharge relation not affected by ice during year.

DIVERSIONS.—Some diversion for irrigation along Twelvemile and Fifteehmile creeks and along Eightmile Creek, a tributary of Cowhead Lake. Two small ditches divert just above the gage. A ditch also diverts from the head of Twelvemile Creek into Lake Anne for storage. See miscellaneous measurements, page 265.

REGULATION.—None.

ACCURACY.—Stage-discharge relation changed March 26. Rating curves well defined. Gage read to hundredths twice a day. Daily discharge ascertained by applying mean daily gage height to rating table. Records good.

Discharge measurements of Twentymile Creek near Warner Lake, Oreg., during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Dec. 16	Kunesh and Whipple..	0.58	5.5	May 23	J. F. Kunesh.....	1.50	32
Mar. 19	J. F. Kunesh.....	2.38	92	June 8	.....do.....	1.45	31
May 11	.....do.....	1.59	33	21	.....do.....	.47	6.5

Daily discharge, in second-feet, of Twentymile Creek near Warner Lake, Oreg., for the year ending Sept. 30, 1918.

Day.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	.....	a 6	4.5	6.5	35	38	24	2.9	.....	.....
2	.....	5.5	5.5	7	18	47	27	2.6	.....	.....
3	.....	5.5	6	16	14	53	31	a 2.4	.....	.....
4	.....	6	5.5	27	b 13	61	a 29	2.1	.....	.....
5	.....	6	6.5	20	15	b 90	a 27	1.9	.....	1.8
6	.....	6.5	10	10	b 20	53	25	1.8	.....	1.9
7	.....	6	22	10	b 19	46	22	1.8	.....	1.9
8	.....	6.5	10	10	18	50	29	1.6	.....	.....
9	.....	4.5	7	7	105	46	21	1.6	.....	.....
10	.....	4.5	a 10	9.5	46	40	21	1.6	.....	.....
11	.....	5.5	12	10	25	38	18	1.6	1.6	.....
12	.....	7.5	12	6.5	24	a 40	a 17	1.6	1.6	.....
13	.....	6.5	5.5	6.5	15	43	a 17	1.6	1.6	.....
14	.....	6.5	7	7	18	40	16	a 1.6	1.6	.....
15	.....	6.5	5.5	6	17	35	14	a 1.6	1.6	.....
16	5.5	6.5	4.5	a 29	18	40	13	1.6	1.6	.....
17	5.5	7	4.0	52	18	38	11	a 1.6	1.6	.....
18	6.0	7	3.7	204	18	33	10	1.6	1.7	.....
19	6.0	6.5	5	127	19	31	8	1.5	1.7	.....
20	5.5	4.4	5	104	21	35	8.5	.....	1.6	.....
21	5.5	5.5	4.5	83	25	35	6	.....	1.8	.....
22	5.5	6	5	90	29	29	9	.....	1.8	.....
23	5.5	6.5	a 6	71	31	31	a 8	.....	1.8	.....
24	5.5	6	a 6	104	31	35	7.5	.....	1.7	.....
25	5.5	6.5	7	142	35	29	6.5	.....	1.8	.....
26	5.5	4.5	5	220	31	27	6.5	.....	.....	.....
27	5.5	5.5	5	80	33	25	6.5	.....	.....	.....
28	6.5	6	4.7	24	38	24	a 6	.....	.....	.....
29	7.5	5	.....	35	40	24	6	.....	.....	2.5
30	7	4.0	.....	160	38	24	6	.....	.....	8.5
31	6	2.6	.....	70	.....	24	.....	.....	.....	.....

a Gage not read; discharge interpolated.
b Gage not read; discharge estimated from Rock Creek and Twelvemile Creek.

NOTE.—Discharge for periods when gage was not read estimated as follows: July 20–31, 1.8 second-feet; Aug. 1–10, 1.6 second-feet; Aug. 26 to Sept. 4, 1.8 second-feet; Sept. 8–28, 2.0 second-feet.

Monthly discharge of Twentymile Creek near Warner Lake, Oreg., for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
December 16–31	7.5	5.5	5.88	187
January	7.5	2.6	5.77	355
February	22	3.7	6.94	385
March	220	6.5	56.6	3,480
April	105	13	27.6	1,640
May	90	24	38.8	2,390
June	31	6	15.2	904
July	2.9	.....	1.81	111
August	.....	.....	1.67	103
September	8.5	.....	2.19	130
The period	.....	.....	.....	9,680

KEENO CREEK NEAR FORT BIDWELL, CALIF.

LOCATION.—In sec. 1, T. 47 N., R. 17 E., near Nevada-California State line, at proposed point of diversion 1 mile above outlet of Cowhead Lake, 9 miles southwest of Warner Lake, Oreg., and 12 miles northeast of Fort Bidwell, Modoc County.

DRAINAGE AREA.—Not measured.

RECORDS AVAILABLE.—December 11, 1917, to September 30, 1918.

GAGE.—Vertical staff in two sections cut in solid rock ledge on left bank just above sheep corral at point of diversion.

DISCHARGE MEASUREMENTS.—Made by wading.

CHANNEL AND CONTROL.—Bed composed of solid rock and boulders; permanent.

EXTREMES OF DISCHARGE.—Maximum stage recorded, 2.2 feet, from flood marks on gage, night of March 18–19 (discharge, 21 second-feet); no flow December 11 to February 28 and April 1 to September 30.

ICE.—Creek is usually dry during winter.

DIVERSIONS.—None.

REGULATION.—None.

ACCURACY.—Stage-discharge relation permanent. Rating curve well defined below 5 second-feet; extended above. Gage read to hundredths once daily and occasionally oftener. Daily discharge ascertained by applying mean daily gage height to rating table. Records fair.

Discharge measurements of Keeno Creek near Fort Bidwell, Calif., during the year ending Sept. 30, 1918.

[Made by J. F. Kunesh.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*		*Feet.*	*Sec.-ft.*		*Feet.*	*Sec.-ft.*
Dec. 11	0.90	0.0	Mar. 20	1.54	3.0	Apr. 9	1.07	0
Mar. 13	1.20	.1	28	1.35	.5			

Daily discharge, in second-feet, of Keeno Creek near Fort Bidwell, Calif., for the year ending Sept. 30, 1918.

Day.	Mar.	Day.	Mar.	Day.	Mar.
1		11		21	4.1
2		12		22	1.9
3		13	0.1	23	.4
4		14	*a* .1	24	*a* .4
5		15	*a* .1	25	.4
6		16	*a* 3.3	26	14
7		17	*a* 6.5	27	8.5
8		18	10	28	.6
9		19	17	29	.2
10		20	3.4	30	.1
				31	*a* .1

a Gage not read; discharge estimated.

NOTE.—Discharge, Mar. 1–12, estimated 0.1 second-foot. Stream dry except during March. Total run-off for year, 144 acre-feet.

FIFTEENMILE CREEK NEAR WARNER LAKE, OREG.[1]

LOCATION.—In sec. 21, T. 41 S., R. 23 E., at highway bridge on Fort Bidwell-Warner Lake road, half a mile north of California-Oregon line, 15 miles northeast of Fort Bidwell, Calif., and 8 miles southwest of Warner Lake, Lake County.

DRAINAGE AREA.—Not measured.

RECORDS AVAILABLE.—March 10 to May 15, 1913; December 8, 1917, to September 30, 1918.

GAGE.—Vertical staff in two sections, first section on left upstream corner of the bridge, second section 30 feet upstream from bridge; read by stage driver.

DISCHARGE MEASUREMENTS.—Made by wading or from the bridge.

[1] Published as Fifteenmile Creek near Fort Bidwell, Calif, in Water-Supply Paper 360.

CHANNEL AND CONTROL.—Control consists of several large boulders at lower side of bridge for extreme low water, boulders and gravel 30 feet downstream from bridge for medium water, and bridge and graded road for high water; slightly shifting.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 1.21 feet April 9 (discharge, 24 second-feet); minimum stage recorded, 0.31 foot August 15 to September 7 (discharge, 0.5 second-foot).

DIVERSIONS.—Several very small irrigation ditches; negligible.

REGULATION.—None.

ACCURACY.—Stage-discharge relation changed slightly about April 9. Rating curves well defined. Gage read to hundredths once a day. Daily discharge ascertained by applying daily gage height to rating table. Records good.

Discharge measurements of Fifteenmile Creek near Warner Lake, Oreg., during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Dec. 8	Kunesh and Whipple..	0.34	1.1	Apr. 9	J. F. Kunesh.....	1.20	21
Mar. 9	J. F. Kunesh.....	.40	1.4	9	.....do.....	1.20	24
9	.....do.....	.38	1.4	22	.....do.....	.68	5.2
18	.....do.....	.47	2.1	May 22	.....do.....	.46	2.3
19	.....do.....	.58	3.3	June 24	.....do.....	.38	1.0
27	.....do.....	.71	5.1				

Daily discharge, in second-feet, of Fifteenmile Creek near Warner Lake, Oreg., for the year ending Sept. 30, 1918.

Day.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	.....	1.3	*a* 1.0	1.6	2.6	2.2	1.7	0.9	0.6	0.5
2	.....	1.2	1.0	1.0	2.5	2.2	1.7	.9	.6	.5
3	.....	1.2	1.0	1.3	2.7	2.2	1.7	.9	.6	.5
4	.....	1.2	1.0	1.6	2.5	2.2	2.0	.9	.6	.5
5	.....	1.0	1.0	1.6	1.6	2.2	1.7	.9	.6	.5
6	.....	1.3	1.1	*a* 1.6	1.6	2.2	1.6	.8	.6	.5
7	.....	1.6	1.2	1.5	2.0	2.2	1.4	.8	.6	.5
8	1.2	1.7	2.5	1.5	2.4	2.2	1.3	.7	.6	.5
9	1.6	*a* 1.7	1.6	1.3	23	2.2	1.3	.7	.6	.6
10	*a* 1.5	*a* 1.7	1.3	1.4	5.5	2.2	1.3	.7	.6	.6
11	*a* 1.4	*a* 1.7	1.0	1.5	5.0	2.0	1.2	.7	.6	.6
12	*a* 1.2	*a* 1.6	1.0	1.4	5.0	2.0	1.2	.7	.6	.6
13	*a* 1.1	1.6	1.0	1.5	3.5	2.0	1.2	.6	.6	.6
14	1.0	*a* 1.6	*a* 1.0	*a* 1.5	2.6	2.2	1.2	.6	.6	.6
15	1.0	1.6	*a* 1.0	*a* 1.5	1.7	2.5	1.2	.6	.5	.6
16	1.0	1.6	1.0	1.5	2.2	2.2	1.2	.6	.5	.6
17	1.0	1.5	1.0	2.4	1.2	3.0	1.1	.6	.5	.6
18	1.5	1.5	1.0	3.2	1.2	2.2	1.1	.6	.5	.6
19	1.0	1.7	1.0	3.8	2.2	2.2	1.2	.6	.5	.6
20	1.0	1.4	1.1	3.8	2.2	2.2	1.2	.6	.5	.6
21	1.0	1.2	*a* 1.2	5.2	3.6	2.0	1.1	.6	.5	.6
22	1.0	1.2	*a* 1.2	9.0	4.9	1.8	1.1	.6	.5	.6
23	1.1	1.0	*a* 1.3	11	3.8	1.8	1.0	.6	.5	.6
24	1.2	1.0	1.3	11	4.2	1.7	1.0	.6	.5	.6
25	1.3	1.0	*a* 1.4	11	3.5	1.7	.9	.6	.5	.6
26	1.3	1.0	*a* 1.4	14	2.2	1.6	1.0	.6	.5	.6
27	1.3	1.0	*a* 1.5	5.0	1.9	1.4	.9	.6	.5	.6
28	1.4	*a* 1.0	*a* 1.5	3.7	2.0	1.8	1.0	.6	.5	.6
29	1.3	*a* 1.0	.....	3.7	2.2	1.8	.8	.6	.5	.6
30	1.2	*a* 1.0	.....	3.7	2.2	1.8	.9	.6	.5	.6
31	1.2	*a* 1.0	.....	3.2	.....	1.8	.....	.6	.5	.....

a Gage height affected by ice, discharge estimated.

NOTE.—Gage not read on Sunday, discharge interpolated

Monthly discharge of Fifteenmile Creek near Warner Lake, Oreg., for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
December 8–31	1.6	1.0	1.20	57.1
January	1.7	1.0	1.33	81.8
February	2.5	1.0	1.20	66.6
March	14	1.0	3.77	232
April	23	1.2	3.46	206
May	3.0	1.4	2.05	126
June	2.0	.8	1.24	73.8
July	.9	.6	.68	41.8
August	.6	.5	.55	33.8
September	.6	.5	.57	33.9
The period				953

TWELVEMILE CREEK NEAR FORT BIDWELL, CALIF.

LOCATION.—In NE. ¼ NE. ¼ sec. 31, T. 48 N., R. 17 E. a quarter of a mile below mouth of Tenmile Creek, at bridge on Fort Bidwell-Warner Lake road, a quarter of a mile south of Oregon-California line, 10 miles southwest of Warner Lake, Oreg., and 12 miles northeast of Fort Bidwell, Modoc County.

DRAINAGE AREA.—Not measured.

RECORDS AVAILABLE.—May 14 to June 30, 1912; April 1 to June 17, 1913; December 8, 1917, to September 30, 1918.

GAGE.—Vertical staff fastened to one of clump of several large cottonwood trees on left bank, 80 feet below bridge; read by stage driver.

DISCHARGE MEASUREMENTS.—Made by wading or from bridge.

CHANNEL AND CONTROL.—Control composed of boulders and gravel 15 feet below gage; permanent.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 2.9 feet May 1 and 5 (discharge, 92 second-feet); minimum stage recorded, 1.38 feet July 30, August 3, 27–31, and September 2–7 and 19–21 (discharge, 1.4 second-feet).

DIVERSIONS.—Peterson ditch, capacity about 20 second-feet, diverts from south fork of Twelvemile Creek 3 miles above gage. Eightmile Creek, a tributary of Twelvemile Creek, is diverted partly at Shadler's ranch and partly into Lake Anne for storage. La Xague and Fisher ditches divert below gage.

REGULATION.—None.

ACCURACY.—Stage-discharge relation permanent during year. Rating curve well defined below 40 second-feet. Gage read to hundredths once a day from December 8 to April 25 and from June 16 to September 30; twice a day to hundredths or tenths April 25 to June 16. Daily discharge ascertained by applying mean daily gage height to rating table. Records good.

Discharge measurements of Twelvemile Creek near Fort Bidwell, Calif., during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Dec. 8	Kunesh and Whipple	1.54	2.9	Apr. 25	J. F. Kunesh	2.20	30
Mar. 6	J. F. Kunesh	1.63	4.4	May 10	do	2.17	30
8	do	1.50	2.5	20	do	2.12	28
19	do	1.56	2.6	22	do	2.11	26
21	do	1.58	3.3	June 6	do	2.11	25
27	do	1.72	6.1	18	do	1.73	8.2
Apr. 8	do	1.70	5.7	22	do	1.58	3.8
9	do	1.94	15	24	do	1.52	3.3

Daily discharge, in second-feet, of Twelvemile Creek near Fort Bidwell, Calif., for the year ending Sept. 30, 1918.

Day.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	.....	2.6	a 2.6	2.5	7.5	62	27	2.4	1.4	b 1.4
2	.....	2.6	2.6	2.5	6.5	51	b 26	2.4	1.5	1.4
3	.....	2.5	b 2.6	b 2.8	6.0	55	25	2.4	1.4	1.4
4	.....	2.5	2.6	a 3.0	7.0	65	27	2.3	b 1.4	1.4
5	.....	2.6	2.8	a 3.0	6.0	88	30	2.3	1.4	1.4
6	.....	b 3.0	2.8	a 4.0	5.5	54	30	2.2	1.4	1.4
7	.....	3.4	3.3	2.5	b 6.0	54	30	b 2.1	1.4	1.4
8	3.0	3.7	3.8	2.5	6.0	48	b 28	2.0	1.4	b 1.4
9	3.2	a 3.5	2.5	2.5	15	36	b 26	1.9	1.4	1.5
10	2.5	a 3.2	b 2.5	b 2.5	14	37	24	1.9	1.4	1.4
11	b 2.5	a 3.0	2.5	2.5	14	40	20	1.8	b 1.4	1.4
12	2.5	2.8	2.5	2.5	14	42	20	1.7	1.4	1.4
13	2.6	b 2.8	2.5	2.5	14	42	20	1.6	1.5	1.6
14	2.5	2.8	a 2.5	2.6	b 12	42	18	b 1.6	1.4	1.7
15	2.5	2.5	a 2.5	3.8	9.5	43	16	1.6	1.4	b 1.6
16	b 2.6	2.5	2.5	2.5	6.0	39	b 13	1.5	1.4	1.5
17	2.8	2.5	b 2.5	b 2.6	9.5	b 36	9.5	1.6	1.4	1.4
18	2.8	2.6	2.5	2.8	9.5	b 33	8.0	1.5	b 1.4	1.4
19	2.8	2.8	2.5	3.4	12	b 31	7.0	1.5	1.4	1.4
20	2.5	b 2.7	2.5	3.2	12	28	7.0	1.5	1.4	1.4
21	2.5	a 2.6	2.8	3.5	b 18	29	6.0	b 1.5	1.5	1.4
22	2.5	a 2.6	2.8	3.7	24	30	3.5	1.5	1.5	b 1.4
23	b 2.5	2.5	2.8	5.0	20	30	b 3.2	1.8	1.5	1.4
24	2.5	2.5	b 2.8	b 6.0	29	28	3.0	2.0	1.4	1.4
25	3.7	2.5	a 2.8	6.5	34	30	2.9	2.0	b 1.4	1.4
26	3.7	2.5	a 2.8	9.0	27	b 28	2.8	2.0	1.4	1.4
27	3.5	b 2.5	a 2.8	7.0	34	26	3.2	2.0	1.4	1.4
28	3.5	a 2.5	a 2.8	6.0	b 36	24	3.2	b 1.9	1.4	1.4
29	3.3	2.5	.....	6.0	39	26	2.5	1.8	1.4	b 1.4
30	b 3.0	a 2.5	.....	8.5	43	26	b 2.4	1.4	1.4	1.5
31	2.8	a 2.6	.....	b 8.0	.....	27	.....	1.5	1.4	.....

a Gage height affected by ice; discharge estimated.
b Gage not read; discharge interpolated.

Monthly discharge of Twelvemile Creek near Fort Bidwell, Calif., for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
December 8-31	3.7	2.5	2.85	136
January	3.7	2.5	2.72	167
February	3.8	2.5	2.70	150
March	9.0	2.5	4.05	249
April	43	5.5	16.5	982
May	88	24	39.7	2,440
June	30	2.4	14.8	881
July	2.4	1.4	1.85	114
August	1.5	1.4	1.42	87.3
September	1.7	1.4	1.43	85.1
The period	.....	.....	.....	5,290

EAST FORK OF HORSE CREEK NEAR FORT BIDWELL, CALIF.

LOCATION.—In T. 46 N., R. 18 E., Washoe County, Nev., three-fourths mile above junction with West Fork of Horse Creek, 5 miles above junction with Twelvemile Creek, 10 miles south of Warner Lake, Oreg., and 14 miles northeast of Fort Bidwell, Modoc County, Calif.

DRAINAGE AREA.—Not measured.

RECORDS AVAILABLE.—December 21, 1917, to September 30, 1918.

GAGE.—Vertical staff fastened to fence post on left bank; read by Oliver Ghrist.

DISCHARGE MEASUREMENTS.—Made by wading.

CHANNEL AND CONTROL.—Bed composed of large boulders in loose shifting sand; slightly shifting.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 2.2 feet night of March 18–19, from flood marks on gage (discharge, 6.6 second-feet); minimum discharge estimated about 0.3 second-foot.

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

DIVERSIONS.—None.

REGULATION.—None.

ACCURACY.—Stage-discharge relation practically permanent. Rating curve well defined below 2 second-feet and extended above. Gage read to hundredths once a day during high water, and occasionally the rest of the time. Maximum stage between readings determined from flood marks on gage. Daily discharge ascertained by applying mean daily gage height to rating table and interpolating for days when gage was not read. Records fair.

Discharge measurements of East Fork of Horse Creek near Fort Bidwell, Calif., during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Dec. 21	Kunesh and Whipple	.....	[a] 0.6	Mar. 29	J. F. Kunesh	1.58	0.8
Mar. 13	J. F. Kunesh	1.50	.3	Apr. 26	do	1.54	*a*.7
20	do	1.80	2.0	June 24	Oliver Ghrist	1.49	*a*.3

[a] Estimated.

Daily discharge, in second-feet, of East Fork of Horse Creek near Fort Bidwell, Calif., for the year ending Sept. 30, 1918.

Day.	Mar.	Apr.	May.	Day.	Mar.	Apr.	May.	Day.	Mar.	Apr.	May.
1	.....	0.6	[a] 0.4	11	.....	[a] 0.6	0.4	21	3.2	[a] 0.5	[a] 0.4
2	.....	*a*.7	*a*.4	12	.....	.6	*a*.4	22	2.2	*a*.5	*a*.4
3	.....	.8	.4	13	0.4	*a*.6	*a*.4	23	[a] 1.6	*a*.4	.4
4	.....	*a*.9	*a*.4	14	[b] .4	[a] 6	*a*.4	24	[a] 1.1	.4	*a*.4
5	.....	1.0	*a*.4	15	[b] .4	*a*.5	*a*.4	25	.5	*a*.5	*a*.4
6	.....	[a] 1.0	*a*.4	16	[b] 1.6	*a*.5	.4	26	2.7	.6	*a*.4
7	.....	[a] 1.0	*a*.4	17	[b] 2.7	.5	*a*.4	27	2.3	*a*.6	*a*.4
8	.....	[a] 1.1	*a*.4	18	3.8	*a*.6	*a*.4	28	.8	*a*.6	*a*.4
9	.....	1.1	.4	19	3.6	.6	*a*.4	29	.7	*a*.5	*a*.4
10	.....	.6	*a*.4	20	2.9	*a*.6	*a*.4	30	*a*.7	*a*.5	.4
								31	*a*.6	.....	*a*.4

[a] Gage not read, discharge interpolated.
[b] Gage not read, discharge estimated from flow of Twentymile Creek.

NOTE.—No record Dec. 21 to Mar. 12 and June 1 to Sept. 30. See monthly discharge table for estimates of discharge.

Monthly discharge of East Fork of Horse Creek near Fort Bidwell, Calif., for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
December 21–31			a 0.6	13.1
January			a .6	36.9
February			a .6	33.3
March	3.8		1.27	78.1
April	1.1	0.4	.65	38.7
May	.4	.4	.40	24.6
June			a .4	23.8
July			a .3	18.4
August			a .3	18.4
September			a .3	17.9
The period				303

a Estimated.

WEST FORK OF HORSE CREEK NEAR FORT BIDWELL, CALIF.

LOCATION.—In T. 46 N., R. 18 E., Washoe County, Nev., 1,200 feet above junction with East Fork of Horse Creek, 5 miles above junction with Twelvemile Creek, 10 miles south of Warner Lake, Oreg., and 14 miles northeast of Fort Bidwell, Modoc County, Calif.

DRAINAGE AREA.—Not measured.

RECORDS AVAILABLE.—December 21, 1917, to September 30, 1918.

GAGE.—Vertical staff fastened to juniper tree on right bank; read by Oliver Ghrist.

DISCHARGE MEASUREMENTS.—Made by wading.

CHANNEL AND CONTROL.—Bed composed of large boulders and gravel; probably permanent.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 1.0 foot night of March 19–20, from flood marks on gage (discharge, 33 second-feet); no flow December 21 to March 15 and April 12 to September 30.

ICE.—No flow in winter.

DIVERSIONS.—None.

REGULATION.—None.

ACCURACY.—Stage-discharge relation permanent. Rating curve defined by two measurements and point of zero flow. Gage read to hundredths once a day and maximum stage between readings obtained from flood marks on gage. Daily discharge ascertained by applying mean daily gage height to rating table. Records fair.

Discharge measurements of West Fork of Horse Creek near Fort Bidwell, Calif., during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Dec. 21	S. C. Whipple		0	Mar. 29	J. F. Kunesh	−0.18	0.2
Mar. 13	J. F. Kunesh		0	Apr. 26	do		0
20	do	0.20	5.3				

Daily discharge, in second-feet, of West Fork of Horse Creek near Fort Bidwell, Calif., for the year ending Sept. 30, 1918.

Day.	Mar.	Apr.	Day.	Mar.	Apr.	Day.	Mar.	Apr.
1		0.1	11		a 0.1	21	8	
2		a.1	12			22	b 6.5	
3		a.1	13			23	b 5	
4		a.1	14			24	b 3.5	
5		a.1	15			25	1.8	
6		a.1	16	a 3		26	9.5	
7		a.1	17	a 6		27	5	
8		a.1	18	9		28	.7	
9		.2	19	18		29	.3	
10		.1	20	10		30	b.2	
						31	b.2	

a Gage not read, discharge estimated. b Gage not read, discharge interpolated.

NOTE.—No flow except Mar. 16 to Apr. 11.

Monthly discharge of West Fork of Horse Creek near Fort Bidwell, Calif., for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
March	18	0	2.80	172
April	.2	0	.04	2.4
The year				174

ROCK CREEK NEAR FORT BIDWELL, CALIF.

LOCATION.—On line between secs. 21 and 28, T. 47 N., R. 18 E., Washoe County, Nev., at proposed point of diversion into Cowhead Lake, 1½ miles above its mouth, 9 miles south of Warner Lake, Oreg., and 13 miles northeast of Fort Bidwell, Modoc County, Calif.

DRAINAGE AREA.—33 square miles.

RECORDS AVAILABLE.—March 7 to May 15, 1913; December 10, 1917, to September 30, 1918.

GAGE.—Inclined staff fastened over original gage which is bolted to solid rock ledge on left bank 1½ miles above mouth of creek, used since 1917; read by Oliver Ghrist. Datum of new gage is 0.51 foot higher than that of original gage.

DISCHARGE MEASUREMENTS.—Made by wading.

CHANNEL AND CONTROL.—Bed composed of boulders; permanent. No well-defined control.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 2.9 feet night of March 25–26, from flood marks on gage (discharge, 209 second-feet); minimum flow estimated to be about 0.1 second-foot.

ICE.—Stage-discharge relation seriously affected by ice December 10 to March 11.

DIVERSIONS.—None.

REGULATION.—None.

ACCURACY.—Stage-discharge relation permanent. Rating curve well defined. Gage read to hundredths twice daily and the maximum between visits obtained from flood marks on gage. Mean daily gage height determined from hydrograph of gage heights obtained. Mean daily discharge ascertained by applying mean daily gage height to rating table. December 10 to March 12 and June 1 to September 30 estimated from Twentymile Creek. Records good.

Discharge measurements of Rock Creek near Fort Bidwell, Calif., during the year ending Sept. 30, 1918.

[Made by J. F. Kunesh.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*		*Feet.*	*Sec.-ft.*		*Feet.*	*Sec.-ft.*
Dec. 10	0.87	0.1	Mar. 20	2.09	46	Apr. 9	2.00	35
Mar. 13	.93	.3	28	1.53	7.8	9	2.14	49
20	1.83	17	29	1.82	18	26	.83	.1

Daily discharge, in second-feet, of Rock Creek near Fort Bidwell, Calif., for the year ending Sept. 30, 1918.

Day.	Mar.	Apr.	May.	Day.	Mar.	Apr.	May.	Day.	Mar.	Apr.	May.
1		22	a 0.1	11		5	a 0.1	21	44	a 0.3	a 0.1
2		10	a.1	12		2.7	a.1	22	50	a.2	a.1
3		4.9	.1	13	0.4	2.0	a.1	23	50	a.2	.1
4		3.4	a.1	14	b.4	a 1.7	a.1	24	75	.2	a.1
5		4.5	a.1	15	b.4	a 1.4	.1	25	93	a.2	a.1
6		11	a.1	16	b10	1.1	.1	26	126	.1	a.1
7		10	a.1	17	b20	.9	a.1	27	42	.1	a.1
8		8.5	a.1	18	32	.6	a.1	28	30	a.1	a.1
9		21	.1	19	47	.4	a.1	29	47	a.1	a.1
10		9.5	a.1	20	44	.3	a.1	30	57	a.1	.1
								31	52		a.1

a Gage not read, discharge interpolated.
b Gage not read, discharge estimated.

NOTE.—No record Dec. 10 to Mar. 12 and June 1 to Sept. 30; see monthly discharge table for estimates of discharge. Discharge Mar. 1–12 estimated as 1.0 second-foot.

Monthly discharge of Rock Creek near Fort Bidwell, Calif., for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
December 10–31			a0.2	8.7
January			a .2	12.3
February			a .5	27.8
March	126		26.8	1,650
April	22	0.1	4.08	243
May	.1	.1	.10	6.1
June			a .1	6.0
July			a .1	6.1
August			a .1	6.1
September			a .1	6.0
The period				1,970

a Estimated.

DEEP CREEK ABOVE DISMAL CREEK, NEAR WARNER LAKE, OREG.

LOCATION.—In NE. ¼ SW. ¼ sec. 29, T. 40 S., R. 22 E., at south end of Big Valley, 500 feet above Dismal Creek, 15 miles north of Fort Bidwell, Calif., and 10 miles west of Warner Lake, Lake County, Oreg.

DRAINAGE AREA.—Not measured.

RECORDS AVAILABLE.—December 5, 1917, to September 30, 1918.

GAGE.—Vertical staff gage on right bank, 500 feet above mouth of Dismal Creek at south end of Big Valley, used from December 5 to April 17, when it was moved 200 feet downstream; read by Gerald Johnson. No relation between gage datums.

DISCHARGE MEASUREMENTS.—Made by wading.

CHANNEL AND CONTROL.—Control at old site consisted of gravel and brush; not permanent. Control at present site consists of large boulders and gravel; permanent.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 3.9 feet at 7 p. m. May 4 (discharge, 138 second-feet); minimum stage recorded, 2.49 feet at 5.45 p. m. August 28 (discharge, 1.1 second-feet).

ICE.—Stage-discharge relation probably seriously affected by ice from December to March.

DIVERSIONS.—None.

REGULATION.—None.

ACCURACY.—Stage-discharge relation permanent. Rating curves well defined. Gage read to tenths occasionally during March and April and to hundredths once daily during rest of period. Daily gage height corrected for diurnal fluctuation during snow run-off. Daily discharge ascertained by applying daily gage height to rating table. Records fair.

Discharge measurements of Deep Creek above Dismal Creek, near Warner Lake, Oreg., during the year ending Sept. 30, 1918.

[Made by J. F. Kunesh.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*		*Feet.*	*Sec.-ft.*		*Feet.*	*Sec.-ft.*
Dec. 5	1.88	4.6	Apr. 12	2.37	31	May 21	3.31	48
Mar. 6	1.74	5.0	22	3.31	50	June 5	3.28	45
7	1.80	6.8	23	3.24	43	6	3.31	50
8	1.70	4.2	24	3.38	57	18	3.01	21
Apr. 10	2.52	42	May 20	3.33	52	24	2.90	15
11	2.37	32						

NOTE.—Gage heights read from gage at old site, Dec. 5 to Apr. 12, from gage at new site Apr. 22 to June 24.

Daily discharge, in second-feet, of Deep Creek above Dismal Creek, near Warner Lake, Oreg. for the year ending Sept. 30, 1918.

Day.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	.....	a 12	b 98	40	10	3.6	1.2
2	.....	a 12	b 106	45	9	2.0	1.2
3	.....	a 12	b 113	40	7	2.0	1.3
4	.....	a 12	120	51	b 7	1.9	1.2
5	5	a 12	115	51	b 6	2.1	1.2
6	5	a 12	106	55	6	2.1	1.2
7	6.5	a 18	110	55	5.5	2.1	1.3
8	4.3	a 24	81	b 50	4.8	2.0	1.3
9	b 4.3	a 30	81	45	4.3	2.1	1.3
10	b 4.5	36	71	49	4.1	2.0	1.4
11	b 4.7	36	71	39	4.1	2.1	1.4
12	b 4.9	36	87	37	4.1	2.1	1.3
13	b 5	b 36	93	20	4.1	2.0	2.0
14	b 5.5	36	79	20	3.2	1.9	2.0
15	b 5.5	b 35	71	19	3.6	2.1	1.3
16	b 5.5	b 34	57	24	3.9	2.1	b 1.4
17	b 5.5	33	56	19	3.9	2.1	1.4
18	b 6	a 33	51	24	3.9	1.9	b 1.3
19	b 6	a 33	52	16	3.9	2.1	1.2
20	b 6.5	a 38	52	13	3.9	2.0	2.0
21	b 6.5	a 44	56	13	3.4	2.1	.....
22	b 6.5	48	51	13	3.4	2.0	.....
23	8	48	51	14	3.9	1.9	.....
24	9	51	51	14	4.1	1.8	.....
25	12	54	46	11	3.6	1.5	.....
26	a 12	b 62	45	10	3.4	1.6	.....
27	a 12	b 69	43	9.5	b 3.1	1.2	.....
28	a 12	b 76	46	8.5	b 2.8	1.1	.....
29	a 12	b 84	39	7.5	2.5	1.2	.....
30	a 12	b 91	42	7	2.1	1.2	.....
31	a 12	.....	40	.....	2.3	1.4	.....

a Gage not read, discharge estimated from flow of Deep Creek at Adel.
b Gage not read, discharge interpolated.

NOTE.—No gage-height record Dec. 6 to Mar. 4, discharge estimated as 4.6 second-feet; Sept. 21-30, discharge estimated as 4.9 second-feet.

Monthly discharge of Deep Creek above Dismal Creek, near Warner Lake, Oreg., for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
December	.....	.....	a 4.6	283
January	.....	.....	a 4.6	283
February	.....	.....	a 4.6	255
March	12	4.3	7.00	430
April	91	12	38.6	2,300
May	120	39	70.3	4,320
June	55	7	27.3	1,620
July	10	2.1	4.42	272
August	3.6	1.1	1.91	117
September	.....	1.2	2.56	152
The period	.....	.....	.....	10,000

a Estimated from Deep Creek at Adel.

DEEP CREEK BELOW DISMAL CREEK, NEAR WARNER LAKE, OREG.[1]

LOCATION.—In NE. ¼ SW. ¼ sec. 29, T. 40 S., R. 22 E., at south end of Big Valley, 200 feet below mouth of Dismal Creek, 15 miles north of Fort Bidwell, Calif., and 10 miles west of Warner Lake, Lake County.

DRAINAGE AREA.—Not measured.

RECORDS AVAILABLE.—May 1 to June 17, 1913; December 1, 1917, to September 30, 1918.

GAGE.—Vertical staff gage on left bank 200 feet below mouth of Dismal Creek at south end of Big Valley; read by Gerald Johnson.

DISCHARGE MEASUREMENTS.—Made by wading.

CHANNEL AND CONTROL.—Bed composed of boulders and coarse gravel; permanent. Banks not subject to overflow.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 2.8 feet at 6.30 p. m. May 4 (discharge, 317 second-feet); minimum stage recorded, 0.24 foot September 5 and 6 (discharge, 1.6 second-feet).

DIVERSIONS.—Cressler's ditch, capacity 30 second-feet, diverts water half a mile below gage; Billup's and Conlan's ditches, capacity about 2.5 second-feet, divert from Dismal Creek about half a mile above mouth.

REGULATION.—None.

ACCURACY.—Stage-discharge relation changed April 11, June 18 and 24, by removal of several tree trunks from control. Rating curves fairly well defined. Gage read to tenths occasionally to May 2 and once daily to hundredths from May 3 to September 20 after which no observer was available. Daily gage height corrected for diurnal fluctuation during snow run-off. Daily discharge ascertained by applying daily gage height to rating table. Records fair.

Discharge measurements of Deep Creek below Dismal Creek, near Warner Lake, Oreg., during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Dec. 5	Kunesh and Whipple..	[a] 0.82	6.5	Apr. 23	J. F. Kunesh.....	1.75	97
Mar. 7	J. F. Kunesh.....	[a] 1.00	9.0	24	.....do.....	1.88	125
7	.....do.....	[a] .80	8.7	May 20	.....do.....	1.75	98
8	.....do.....	[a] .76	5.7	21	.....do.....	1.70	87
Apr. 10	.....do.....	1.67	58	June 5	.....do.....	1.68	79
11	.....do.....	1.51	47	6	.....do.....	1.71	86
11	.....do.....	[b] 1.51 [c] 1.43	46	18	.....do.....	[b] 1.19 [c] 1.12	33
12	.....do.....	1.47	51	24	.....do.....	[b] .94 [c] .90	24
22	.....do.....	1.81	103				

[a] Affected by ice. [b] Before changing control. [c] After changing control.

[1] Published as "Deep Creek above Big Valley, near Fort Bidwell, Calif.," in Water-Supply Paper 360.

Daily discharge, in second-feet, of Deep Creek below Dismal Creek, near Warner Lake, Oreg., for the year ending Sept. 30, 1918.

Day.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	.....	a 22	a 226	72	15	6.5	3.2
2	.....	a 22	a 243	75	15	3.8	2.3
3	.....	a 22	261	69	15	4.0	2.2
4	.....	a 22	302	90	a 15	2.3	1.9
5	.....	a 22	270	90	a 14	2.7	1.6
6	.....	22	216	100	14	2.3	1.6
7	a 9.0	a 30	246	100	13	3.4	1.7
8	a 5.5	a 38	174	a 82	13	2.3	2.1
9	a 6.0	a 46	159	65	11	2.3	2.2
10	a 6.5	54	136	74	11	2.2	2.2
11	a 7.0	54	153	62	11	4.2	2.1
12	a 7.5	65	174	61	11	4.2	2.2
13	a 8.0	b 65	176	59	11	4.2	2.3
14	a 8.5	b 65	159	45	7.5	3.8	2.3
15	a 9.0	b 61	132	42	11	4.2	2.3
16	a 9.5	b 56	114	44	8	4.2	a 2.3
17	a 10	b 56	103	38	8	4.2	2.3
18	a 11	b 56	95	34	7	4.0	a 2.2
19	a 11	b 56	112	27	7.5	4.2	2.2
20	a 12	b 68	100	24	8	4.2	2.3
21	a 13	b 84	94	23	7	4.2	.....
22	14	102	97	22	6.5	4.2	.....
23	15	102	89	22	7	4.0	.....
24	16	108	87	22	9	3.8	.....
25	22	121	81	20	7	2.5	.....
26	a 22	a 138	78	19	7	3.8	.....
27	a 22	a 156	78	19	a 6.5	2.5	.....
28	a 22	a 173	78	19	a 5.5	2.5	.....
29	a 22	a 191	72	18	4.8	2.5	.....
30	a 22	a 208	76	17	4	2.9	.....
31	a 22	.....	72	.....	6	3.2	.....

a Gage not read; discharge interpolated.
b Gage not read; discharge estimated from Deep Creek at Adel.

NOTE.—Gage-height record Dec. 1 to Mar. 6 fragmentary and flow affected by ice; discharge estimated as 6.5 second-feet. No record Sept. 21–30, discharge estimated as 6 second-feet.

Monthly discharge of Deep Creek below Dismal Creek, near Warner Lake, Oreg., for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
December	.....	.....	a 6.5	400
January	.....	.....	a 6.5	400
February	.....	.....	a 6.5	361
March	22	5.5	12.0	738
April	208	22	76.2	4,530
May	302	72	144	8,850
June	100	17	48.5	2,890
July	15	4.0	9.56	588
August	6.5	2.2	3.53	217
September	.....	1.6	3.45	206
The period	.....	.....	.....	19,200

a Estimated from flow of Deep Creek at Adel.

DEEP CREEK AT ADEL, OREG.

LOCATION.—In SE. ¼ sec. 21, T. 39 S., R. 24 E., just back of Wible's Hotel at Adel, Lake County, one-eighth mile upstream from wagon bridge crossing creek; below all tributaries.

DRAINAGE AREA.—250 square miles (measured on U. S. Reclamation Service map).

RECORDS AVAILABLE.—May 11, 1909, to May 31, 1916; December 18, 1917, to September 30, 1918.

GAGE.—Vertical staff gage in two sections on left bank one-eighth mile above bridge. One section is at water's edge and other is painted on northwest corner of gage well previously used. Barrett & Lawrence water-stage recorder used from June 20 to September 30, 1914, March 19 to May 27, 1915, and March 7 to May 31, 1916; Friez water-stage recorder used March 10 to June 19, 1914. At all other times staff gage was read by W. S. Wible.

DISCHARGE MEASUREMENTS.—Made from wagon bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of gravel and boulders; probably permanent except for slight shifts affecting only low water. Banks subject to overflow at gage and bridge in extreme floods. Zero flow, gage height 2.0 feet.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 5.2 feet April 9–11 (discharge, 1,180 second-feet); mininum stage recorded, 2.4 feet July 1–10, 14, and 15 (discharge, 2.7 second-feet).

1909–1918: Maximum stage recorded, 9.0 feet at 6 p. m. March 2, 1910 (discharge, 4,950 second-feet); minimum stage, 2.35 feet August 19–21, 1915 (discharge, 2 second-feet).

ICE.—Stage-discharge relation not affected by ice during year.

DIVERSIONS.—Considerable area irrigated from tributaries, and 2,000 or 3,000 acres watered by natural flooding in Big Valley and Crane Lake. Five ditches, with total capacity of about 30 second-feet, divert water within 2 miles above gage and carry about 5,000 acre-feet around the gage each year. See miscellaneous measurements, page 266.

REGULATION.—None.

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

Discharge measurements of Deep Creek at Adel, Oreg., during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Dec. 18	Kunesh and Whipple	3.06	46	May 22	J. F. Kunesh	3.37	94
Mar. 18	J. F. Kunesh	3.21	73	June 7	do	3.18	62
May 10	do	3.70	164	21	do	2.77	13

Daily discharge, in second-feet, of Deep Creek at Adel, Oreg., for the year ending Sept. 30, 1918.

Day.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1		36	19	36	284	208	68	2.7	4.4	4.4
2		36	30	43	300	208	78	2.7	4.4	4.4
3		19	36	78	208	223	68	2.7	4.4	4.4
4		15	43	60	130	253	68	2.7	4.4	4.4
5		15	43	43	108	253	60	2.7	4.4	5.5
6		19	98	24	108	284	51	2.7	4.4	7
7		51	98	15	167	253	54	2.7	4.4	7
8		43	87	24	223	194	45	2.7	4.4	7
9		30	78	19	550	167	36	2.7	4.4	7
10		60	30	15	705	167	36	2.7	4.4	7
11		24	43	15	705	154	36	4.4	4.4	7
12		15	36	15	600	154	36	4.4	4.4	7
13		15	30	15	438	154	24	4.4	4.4	7
14		15	24	13	284	154	24	2.7	4.4	7
15		15	15	19	208	154	24	2.7	4.4	7
16		15	15	30	208	154	24	4.4	4.4	7
17		15	15	43	208	154	19	4.4	4.4	7
18	45	19	15	102	223	154	15	4.4	4.4	7
19	87	30	15	253	194	130	15	4.4	4.4	7
20	51	51	19	284	253	130	13	4.4	4.4	7
21	24	43	19	223	223	130	11	4.4	4.4	7
22	15	43	24	208	268	117	11	4.4	4.4	7
23	51	30	19	300	223	93	10	4.4	4.4	7
24	87	19	19	375	208	87	10	4.4	4.4	7
25	60	15	15	335	194	87	10	4.4	4.4	7
26	51	30	19	375	180	87	10	4.4	7	10
27	78	30	24	300	194	87	10	4.4	7	10
28	98	30	30	335	167	87	8.5	4.4	7	10
29	60	30	.....	375	180	68	7.0	4.4	7	51
30	51	36	.....	375	167	68	7.0	4.4	4.4	51
31	43	19	.....	300	.....	68	.....	4.4	4.4	.....

Monthly discharge of Deep Creek at Adel, Oreg., for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
December 18–31	98	15	57.2	1,590
January	60	15	27.8	1,710
February	98	15	34.2	1,900
March	375	13	150	9,220
April	705	108	270	16,100
May	284	68	151	9,280
June	78	7	29.6	1,760
July	4.4	2.7	3.74	230
August	7	4.4	4.74	291
September	51	4.4	9.84	586
The period	.....	.....	.....	42,700

DISMAL CREEK ABOVE BIG VALLEY, NEAR WARNER LAKE, OREG.[1]

LOCATION.—About on line between secs. 16 and 17, T. 41 S., R. 22 E., at forest ranger's footbridge at proposed point of diversion into head of Twelvemile Creek, 1 mile north of California-Oregon line, 5 miles above Big Valley, 11 miles north of Fort Bidwell, Calif., and 12 miles southwest of Warner Lake, Lake County, Oreg.

DRAINAGE AREA.—Not measured.

RECORDS AVAILABLE.—April 11 to June 17, 1913; discharge measurements during 1918.

GAGE.—Vertical staff on the upstream right side of the forest ranger's footbridge one-fourth mile above the dam site.

[1] Published as "Dismal Creek near Fort Bidwell, Calif." in Water-Supply Paper 360.

DISCHARGE MEASUREMENTS.—Made by wading or from the footbridge.

CHANNEL AND CONTROL.—Boulders and loose gravel; permanent. Banks are loose loam and cave in during high water.

DIVERSIONS.—None.

REGULATION.—None.

Discharge measurements of Dismal Creek above Big Valley, near Warner Lake, Oreg., during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Dec. 4	Kunesh and Whipple..	1.63	1.2	May 21	J. F. Kunesh.....	2.50	36
Apr. 12	J. F. Kunesh.....	1.89	8.5	June 5	.....do.....	2.43	32
25	.....do.....	2.69	48	6	.....do.....	2.44	33
May 20	.....do.....	2.47	34	19	.....do.....	1.94	11

ABERT LAKE BASIN.

CHEWAUCAN RIVER NEAR PAISLEY, OREG.

LOCATION.—In NW. ¼ sec. 34, T. 33 S., R. 18 E., 180 feet above diversion dam of Withers power plant, one-fourth mile above mouth of Mill Creek, three-fourths mile above intake of Conn ditch, and 2½ miles upstream from Paisley, Lake County.

DRAINAGE AREA.—263 square miles (measured on map of Fremont National Forest).

RECORDS AVAILABLE.—November 6, 1912, to September 30, 1918, at gages above Mill Creek. Records at stations giving practically the same yearly run-off are available beginning January 4, 1905.

GAGE.—Lietz water-stage recorder (owned by Chewacan Land & Cattle Co.) on left bank, 180 feet above diversion dam; installed July 27, 1918; previous location a quarter of a mile downstream, just above Mill Creek. Gage inspected by W. A. Banister.

DISCHARGE MEASUREMENTS.—Made from cable 20 feet below original site of recorder, just above Mill Creek, or by wading; fairly good section.

CHANNEL AND CONTROL.—Bed composed of gravel and boulders. Control at present site is diversion dam of power canal; practically permanent during period of record. Control at former site, composed of boulders; shifts slightly during floods.

EXTREMES OF DISCHARGE.—Maximum stage during year, from water-stage recorder, 2.50 feet at 7.30 a. m. April 25 (discharge, 360 second-feet); minimum stage from recorder, 0.58 foot at noon November 26 (discharge, 15 second-feet).

1905–1907 and 1909–1918: Maximum stage recorded on old gage half a mile above Paisley, 9.40 feet at 5 p. m. November 23, 1909 (discharge from extension of rating curve, 4,000 second-feet); minimum stage from water-stage recorder, 0.44 foot November 11, 1916 (discharge, 9.6 second-feet).

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

DIVERSIONS.—About 160 acres are shown on surveys made by State engineer as irrigated above station.

REGULATION.—None.

ACCURACY.—Stage-discharge relation practically permanent at each gage except as affected by ice. Two well-defined rating curves used October 1 to July 18 and July 27 to September 30. Operation of recorder satisfactory most of time. Daily discharge ascertained by applying to rating table mean daily gage height obtained by inspecting recorder graph. Records good except for periods when stream was frozen, for which they are fair.

COOPERATION.—Most of field data furnished by Chewacan Land & Cattle Co.

Discharge measurements of Chewaucan River near Paisley, Oreg., during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Oct. 3	Bert Harber [a]	0.85	33.1	Apr. 29	Henshaw and Briggs	2.30	293
30	do	.90	34.3	May 17	R. C. Briggs	1.97	208
Nov. 27	do	.85	15.4	29	Bert Harber	1.55	125
Dec. 20	do	1.15	61	July 2	do	.85	35.2
Jan. 22	do	1.35	57	27	do	.90	29
Feb. 26	do	1.25	53	Aug. 28	do	.80	24.4
Apr. 21	do	2.30	302	Sept. 26	do	.85	28.6
21	do	2.30	281				

[a] Employee, Chewacan Land & Cattle Co.

Daily discharge, in second-feet, of Chewaucan River near Paisley, Oreg., for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	34	38	165	64	38	76	195	290	110	36	24	24
2	34	38	58	58	38	76	110	290	118	34	25	23
3	34	38	52	52	47	68	110	275	110	32	28	23
4	34	42	47	70	58	60	118	308	118	34	24	23
5	34	40	52	70	70	58	118	290	103	32	24	23
6	32	42	58	64	82	58	175	275	110	32	24	24
7	30	40	52	70	96	58	195	260	118	30	28	24
8	30	38	70	76	64	58	205	260	110	30	28	30
9	34	34	76	47	64	58	218	245	103	32	28	33
10	34	34	70	47	58	52	290	245	96	32	28	35
11	34	38	76	47	52	52	275	218	82	30	28	31
12	34	42	82	103	52	52	260	195	76	30	24	31
13	34	42	76	76	42	52	230	195	82	30	24	35
14	34	42	64	70	42	42	205	205	76	26	24	44
15	34	38	52	70	42	47	185	218	76	30	25	44
16	34	34	52	70	70	58	175	205	76	34	28	37
17	34	34	52	70	64	70	175	185	70	30	31	35
18	34	34	64	70	58	82	175	175	64	26	31	35
19	38	34	64	34	52	110	185	165	64	.....	31	35
20	38	34	64	38	47	125	218	165	58	.....	24	35
21	38	42	52	52	47	125	260	155	52	.....	31	33
22	38	38	58	58	58	165	290	155	52	.....	31	31
23	42	38	58	64	52	205	325	155	52	.....	28	33
24	42	38	76	70	52	218	325	[a] 148	47	.....	28	28
25	42	34	76	64	52	245	325	[a] 142	42	.....	28	25
26	[a] 41	29	70	47	52	230	275	135	42	.....	28	28
27	[a] 39	26	76	58	58	175	260	[a] 130	42	31	25	28
28	38	47	103	52	70	155	260	[a] 124	42	28	24	25
29	34	58	96	52	.....	175	275	118	[a] 40	28	24	25
30	38	118	76	38	.....	185	275	[a] 118	38	24	24	28
31	36	.....	70	38	.....	195	.....	118	.....	24	24	.....

[a] Interpolated.

NOTE.—Stage-discharge relation affected by ice Nov. 27; Jan. 11, 22, 23; Jan. 31 to Feb. 4; Feb. 15 to 27; Mar. 5 to 7, and possibly a few other days; ice in gage well prevented operation of recorder Jan. 14 to 17; daily discharge estimated from discharge measurements, observer's notes, and weather records. Mean discharge for July 19 to 26 estimated as 28 second-feet.

Monthly discharge of Chewaucan River near Paisley, Oreg., for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	42	30	35.7	2,200
November	118	26	40.8	2,430
December	165	47	69.6	4,280
January	103	34	60.0	3,690
February	96	38	56.3	3,130
March	245	42	109	6,700
April	325	110	223	13,300
May	308	118	199	12,200
June	118	38	75.6	4,500
July	36	24	29.6	1,820
August	31	24	26.6	1,640
September	44	23	30.3	1,800
The year	325	23	79.6	57,700

CHEWAUCAN RIVER AT NARROWS, NEAR PAISLEY, OREG.

LOCATION.—In NE. ¼ sec. 24, T. 34 S., R. 19 E., at constriction in Chewaucan Marsh known as "The Narrows," one-eighth mile below lower end of outside canal and 15 miles by road around north and east sides of marsh, southeast of Paisley, Lake County. Moss Creek enters upper marsh but seldom contributes any water to river.

DRAINAGE AREA.—Not measured.

RECORDS AVAILABLE.—January 18, 1914, to September 30, 1918.

GAGE.—Vertical staff on left bank just below wagon bridge; installed October 22, 1916; read by John Hamilton. For description of previous gages see Water-Supply Paper 460.

DISCHARGE MEASUREMENTS.—Made from wagon bridge or by wading.

CHANNEL AND CONTROL.—Dredged channel; fairly permanent, but stage-discharge relation affected by backwater from dam below during part of year.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 2.4 feet April 10 (discharge, 365 second-feet); minimum stage recorded, 0.20 foot June 30 (discharge, 2.5 second-feet).

1914–1918: Maximum stage recorded, 3.7 feet on ZX gage April 24, 1917 (discharge, 710 second-feet); minimum stage recorded, 0.22 foot September 8–10, 1915 (channel dry).

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

DIVERSIONS.—About 6,200 acres of uplands and 14,300 acres of marsh hay land are irrigated between gage above Paisley and this station.

REGULATION.—Discharge varies considerably owing to operation of dams and ditches used for irrigating marsh and bordering lands.

ACCURACY.—Stage-discharge relation shifting. Rating tables used as follows: October 23 to January 10, poorly defined; January 11 to April 26, well defined below 100 second-feet; April 28 to May 6, fairly well defined; May 8 to August 10 and September 10 to 30, fairly well defined below 25 second-feet. Indirect method for shifting control was used October 1–22, April 27, and August 11 to September 9. Gage read to half-tenths once daily. Daily discharge ascertained by applying daily gage reading to rating table. Records good except for period November to January, for which they are poor.

COOPERATION.—Part of measurements and gage heights furnished by Chewacan Land & Cattle Co.

Discharge measurements of Chewaucan River at Narrows, near Paisley, Oreg., during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Oct. 30	Bert Harber[a]	0.85	24.3	May 17	R. C. Briggs	1.18	18.2
Dec. 19	do	1.20	55	30	Bert Harber	.75	6.3
Jan. 21	do	1.00	47.5	July 2	do	.50	4.4
Feb. 25	do	1.20	80	25	do	.90	9.8
Apr. 22	do	.70	15.2	Aug. 28	do	.60	8.8
28	Briggs and Henshaw	1.51	100	Sept. 26	do	.75	7.3
28	do	1.51	98				

[a] Employee of Chewacan Land & Cattle Co.

Daily discharge, in second-feet, of Chewaucan River at Narrows, near Paisley, Oreg., for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	21	28	136	64	35	48	220	91	6.0	2.8	5.0	6.8
2	21	28	83	59	48	42	195	84	6.0	3.4	6.0	6.8
3	21	28	54	54	63	71	182	78	5.5	8.8	6.0	6.4
4	21	32	76	54	95	48	170	60	5.5	8.2	7.5	6.0
5	21	32	90	70	79	30	160	53	5.0	7.5	7.5	6.0
6	23	32	90	64	79	35	150	46	5.0	10.0	7.5	6.0
7	23	32	120	64	79	20	63	40	5.0	8.8	7.5	6.0
8	23	32	90	54	79	56	150	34	4.0	8.8	7.5	6.0
9	23	28	90	44	48	30	170	30	3.8	8.8	7.5	5.5
10	23	28	97	36	104	79	365	40	3.5	8.8	7.5	5.0
11	23	28	70	24	95	63	305	40	3.5	7.5	7.5	5.0
12	23	32	32	79	79	63	170	34	3.2	8.8	6.8	5.0
13	23	32	36	150	48	56	160	30	3.0	8.8	6.8	5.5
14	23	32	32	79	79	48	150	30	3.0	7.5	7.5	6.0
15	23	32	32	42	63	56	121	22	2.8	7.5	7.5	7.5
16	27	28	32	95	68	71	112	19	2.8	7.5	7.5	8.8
17	23	36	44	87	74	71	104	20	2.8	6.8	6.8	6.8
18	23	24	28	95	79	112	95	16	2.8	6.8	7.5	6.0
19	23	36	54	79	79	130	95	18	2.8	7.5	8.8	5.5
20	23	40	44	63	71	150	104	16	2.8	6.8	7.5	5.5
21	27	40	49	48	63	140	15	13	2.8	6.8	8.8	5.5
22	30	36	40	42	48	182	15	13	2.8	6.8	10.0	5.5
23	32	40	44	35	42	260	9	12	3.0	7.5	10.0	6.0
24	32	28	49	30	30	275	15	10	2.8	8.8	8.8	6.8
25	32	32	52	24	63	275	15	10	2.8	8.8	8.8	6.8
26	32	24	54	24	63	305	15	8.8	2.8	8.8	8.8	6.8
27	32	28	54	24	12	208	71	7.5	2.8	8.8	8.8	6.0
28	18	28	54	24	30	182	98	7.5	2.8	8.8	8.8	6.0
29	24	40	76	24	.....	182	105	6.8	2.8	8.8	8.8	6.0
30	24	54	76	24	.....	195	105	6.8	2.5	7.5	7.5	6.0
31	24	.....	76	24	.....	208	.....	6.0	.....	8.8	7.5	.....

NOTE.—Stage discharge relation affected by ice Jan. 8 to 10, 20 to 25, Jan. 27 to Feb. 2, Feb. 7, 16, 17, 20 to 22, and possibly a few other days; discharge estimated from discharge measurements, observer's notes, and temperature records.

Monthly discharge of Chewaucan River at Narrows, near Paisley, Oreg., for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	32	18	24.5	1,510
November	54	28	32.3	1,920
December	136	28	63.0	3,870
January	150	24	54.2	3,330
February	104	12	64.1	3,560
March	305	20	119	7,320
April	365	9	123	7,320
May	91	6.0	29.1	1,790
June	6.0	2.5	3.56	212
July	10	2.8	7.79	479
August	10	5.0	7.75	477
September	8.8	5.0	6.12	364
The year	365	2.5	44.5	32,200

CHEWAUCAN RIVER AT HOTCHKISS FORD, NEAR PAISLEY, OREG.

LOCATION.—At river crossing known as Hotchkiss Ford, near line between secs. 11 and 12, T. 35 S., R. 20 E., below lower Chewaucan Marsh, above Crooked Creek and 20 miles southeast of Paisley, Lake County. Willow Creek enters lower marsh but contributes water to it only when floods early in spring cause it to overflow its banks.

DRAINAGE AREA.—Not measured.

RECORDS AVAILABLE.—January 18, 1914, to September 30, 1918.

GAGE.—Vertical staff on left bank; read by John Hamilton.

DISCHARGE MEASUREMENTS.—Made by wading at medium and low stages; at high water, from plank projecting from wagon drawn across river by horse on shore, or from boat.

CHANNEL AND CONTROL.—Bed composed of fine gravel, sand, and mud; somewhat shifting; growth of aquatic plants, mostly tules, affects stage-discharge most of year. Banks low and river widens considerably at high stages.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 2.75 feet April 11 (discharge, 172 second-feet); stream bed dry August 2 to 6.

1914–1918: Maximum stage recorded, 4.55 feet April 26 and 27, 1917 (discharge, 506 second-feet); stream bed practically dry September 7–17, 1915, and August 2–6, 1918.

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

DIVERSIONS.—About 7,800 acres of marsh hay land are irrigated between the Narrows and Hotchkiss Ford stations. Total of 28,300 acres irrigated from river above station.

REGULATION.—Discharge may vary during irrigating season owing to operation of dams and ditches for irrigating marsh.

ACCURACY.—Stage-discharge relation shifting owing to growth of aquatic plants. Fairly well defined rating curves used October 1 to November 18, February 19 to April 27, May 8 to August 1 and August 7 to September 30. Indirect method for shifting control was used November 19 to February 18, and April 28 to May 7. Gage read to half-tenths once daily. Daily discharge ascertained by applying daily gage height to rating table.

COOPERATION.—Part of field data furnished by Chewacan Land & Cattle Co.

Discharge measurements of Chewaucan River at Hotchkiss Ford, near Paisley, Oreg., during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Oct. 30	Bert Harber[a]	1.25	19.6	May 17	R. C. Briggs	0.85	5.5
Dec. 19	.....do	1.35	45.2	May 30	Bert Harber	.65	1.4
Jan. 21	.....do	1.55	47.7	July 25	.....do	.65	1.2
Feb. 25	.....do	1.75	73	Aug. 28	.....do	.75	6.1
Apr. 22	.....do	1.15	23.7	Sept. 26	.....do	.60	2.6
28	Briggs and Henshaw	1.45	69				

[a] Employee, Chewacan Land & Cattle Co.

Daily discharge, in second-feet, of Chewaucan River at Hotchkiss Ford, near Paisley, Oreg., for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	15	19	35	58	50	32	110	76	0.8	0.6	0.1	1.8
2	15	19	50	58	46	35	115	72	.8	.6	0	2.6
3	15	19	110	50	38	38	105	58	.8	.6	0	3.2
4	15	19	95	50	50	38	95	46	.8	1.0	0	3.7
5	15	19	85	50	35	42	85	32	.8	1.4	0	2.6
6	15	23	90	50	42	58	80	28	.8	.8	0	2.6
7	15	23	72	50	42	38	80	19	.8	1.4	.1	2.6
8	15	23	67	50	58	95	76	11	1.4	1.4	.6	2.6
9	15	23	100	50	62	42	80	9	.8	.8	.6	2.6
10	15	23	100	50	58	42	115	9	.8	.8	.2	2.6
11	15	23	85	50	62	46	172	9	.8	1.4	2.6	3.7
12	15	23	54	42	58	42	156	7	1.4	1.4	1.0	3.7
13	15	23	46	85	54	42	125	7	2.0	1.4	1.0	3.7
14	15	23	46	50	62	38	105	7	1.4	1.4	1.8	4.8
15	15	23	95	85	72	38	80	5.5	.8	1.4	4.8	6.2
16	19	23	46	46	72	35	67	4.0	.8	1.4	6.2	7.5
17	15	27	50	50	50	38	62	5.5	1.4	1.4	3.7	7.5
18	15	45	46	50	58	38	58	4.0	1.4	.8	3.7	6.2
19	15	54	45	50	67	50	58	4.0	.8	.6	4.8	4.8
20	19	54	46	49	72	58	58	4.0	1.4	.6	4.8	3.7
21	19	58	46	48	76	62	46	4.0	.8	.6	4.8	2.6
22	19	58	46	48	72	62	25	3.0	.8	.6	7.5	3.7
23	19	54	42	49	110	76	14	3.0	.6	.6	7.5	3.7
24	19	32	42	49	115	100	11	2.0	.8	.6	3.7	2.6
25	19	28	46	50	74	120	11	2.0	.8	.8	6.2	2.6
26	19	32	50	50	67	140	11	1.4	.6	.8	6.2	2.6
27	23	32	50	50	50	145	11	1.4	.6	.6	3.7	4.8
28	23	32	50	50	58	130	69	1.4	.3	.8	5.3	2.6
29	27	28	50	50	.....	110	80	1.4	.3	.6	6.2	2.6
30	19	32	54	50	.....	105	80	1.0	.6	.3	4.8	2.6
31	19	.....	58	50	.....	105	.....	.8	.....	.2	.6	.....

NOTE.—Stage-discharge relation affected by ice, Jan. 9, 10, 19 to 24, 26 to 31, and possibly a few other days; discharge estimated from discharge measurements, observer's notes, and temperature records.

Monthly discharge of Chewaucan River at Hotchkiss Ford, near Paisley, Oreg., for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	27	15	17.2	1,060
November	58	19	30.5	1,810
December	110	35	61.2	3,760
January	85	42	52.2	3,210
February	115	35	61.8	3,430
March	145	32	65.8	4,050
April	172	11	74.7	4,440
May	76	.8	14.1	867
June	2.0	.3	.90	54
July	1.4	.2	.89	55
August	7.5	0	2.98	183
September	7.5	1.8	3.64	217
The year	172	0	32.0	23,100

ABERT LAKE NEAR VALLEY FALLS, OREG.

LOCATION.—In sec. 16, T. 35 S., R. 21 E., 1½ miles north of Valley Falls, Lake County.

RECORDS AVAILABLE.—Occasional readings during 1915 to 1918.

BENCH MARK.—Copper bolt cemented in rocky point on west side of lake about 100 yards east of road extending north from Valley Falls along shore of lake.

LAKE ELEVATIONS.—The following determinations of lake elevation have been made by leveling from bench mark:

Gage height, in feet, of Abert Lake during period Oct. 4, 1915, to June 15, 1918.

Oct. 4, 1915	5.23	Sept. 25, 1917	4.52
Apr. 29, 1917	5.23	Apr. 28, 1918	4.53
May 15, 1917	5.63	June 15, 1918	3.98
July 8, 1917	5.53		

CONN DITCH NEAR PAISLEY, OREG.

LOCATION.—In SE. ¼ sec. 27, T. 33 S., R. 18 E., just below road crossing, half a mile below intake of ditch, and 2 miles southwest of Paisley, Lake County.

RECORDS AVAILABLE.—July 17, 1914, to September 30, 1918.

GAGE.—Vertical staff on right or lower side of ditch, about 100 feet below road bridge; readings previous to April 29, 1918, referred to staff on left bank about 40 feet below bridge. Read by W. A. Banister.

DISCHARGE MEASUREMENTS.—Made from bridge or by wading.

CHANNEL AND CONTROL.—Ditch not particularly well built or maintained; control somewhat shifting.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 1.4 feet in June and July (discharge, 10.4 second-feet); ditch practically dry January 10 to April 30, 1914–1918: Maximum stage recorded, 1.75 feet July 20, 1914 (discharge, 19 second-feet); ditch dry at times.

ICE.—Water generally turned out of ditch during extremely cold weather.

ACCURACY.—Stage-discharge relation changed by relocation of gage while water was out; fairly permanent at other times. Rating curve used from October to January well defined; curve used May to September fairly well defined. Gage read to half-tenths once daily. Daily discharge ascertained by applying daily gage height to rating table. Records fair.

COOPERATION.—Most of gage heights and discharge measurements furnished by Chewacan Land & Cattle Co.

Conn ditch diverts from Chewaucan River in SE. ¼ sec. 27, T. 33 S., R. 18 E., and about three-eighths of a mile below Mill Creek and gaging station just above it. The water is used for irrigating 600 acres of Conn ranch on bench northwest of Paisley.

Discharge measurements of Conn ditch near Paisley, Oreg., during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Apr. 29	R. C. Briggs	0.19	[a]0.2	June 17	Bert Harber	1.40	9.8
May 17	do	1.34	8.4	July 2	do	1.20	6.6
19	Bert Harber[b]	1.30	9.8	27	do	1.40	10.9
29	do	1.25	8.8	Aug. 28	do	.80	2.7

[a] Estimated. [b] Employee of Chewacan Land & Cattle Co.

Daily discharge, in second-feet, of Conn ditch near Paisley, Oreg., for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	May.	June.	July.	Aug.	Sept.
1	0.4	0.2	0.2	0.2	5.5	7.6	6.8	3.8	1.5
2	.4	.2	.2	.1	5.5	7.6	6.8	3.8	1.5
3	.4	.3	.2	.1	5.5	7.6	6.8	3.8	1.5
4	.3	.3	.1	.1	7.6	8.4	6.8	3.8	1.1
5	.3	.3	.1	.1	8.4	8.4	a 6.8	3.8	1.1
6	.3	.3	.3	.1	8.4	7.6	6.8	4.3	1.0
7	.3	.3	.3	.1	8.4	7.6	6.8	4.3	1.1
8	2.1	.3	.3	.1	8.4	7.6	6.8	4.3	.5
9	.4	.3	1.1	.1	8.4	7.6	6.8	4.3	.5
10	.4	.3	.3	.....	8.4	7.6	6.8	4.3	.5
11	.4	.2	.3	.....	8.4	7.6	6.8	4.3	.5
12	.4	.2	a .3	.....	7.6	7.6	9.4	3.8	.6
13	.4	.3	a .3	.....	7.6	7.6	10.4	3.4	.6
14	.4	.3	.3	.....	7.6	7.6	10.4	2.7	.6
15	.3	.2	.4	.....	9.4	7.6	10.4	2.7	.6
16	.3	.2	.4	.....	9.4	10.4	10.4	2.7	.5
17	.3	.2	.4	.....	8.4	10.4	10.4	a 2.7	.4
18	.3	.2	.4	.....	7.6	9.4	9.4	a 2.7	.4
19	.3	.2	.3	.....	8.4	9.4	8.4	a 2.7	.4
20	.2	.2	.3	.....	8.4	9.4	7.6	a 2.7	.4
21	.2	.2	.3	.....	8.4	9.4	7.6	a 2.7	.4
22	.2	.4	.3	.....	8.4	9.4	8.4	a 2.7	.4
23	.4	.4	.2	.....	7.6	9.4	8.4	a 2.7	.4
24	.2	.3	.1	.....	7.6	9.4	8.4	2.7	.4
25	.2	.3	.1	.....	8.4	8.4	8.4	2.7	.5
26	.3	.3	.1	.....	8.4	9.4	8.4	a 2.7	.5
27	.4	.2	.1	.....	8.4	7.6	9.4	a 2.7	.5
28	.4	.2	.1	.....	8.4	7.6	8.4	2.7	.5
29	.4	.3	.1	.....	7.6	7.6	4.3	a 2.3	.5
30	.2	1.1	.2	.....	7.6	6.8	4.3	a 1.9	.5
31	.6	.....	.2	.....	7.6	.....	4.3	1.5	.....

a Interpolated.

NOTE.—Ditch practically dry Jan. 10 to Apr. 30.

Monthly discharge of Conn ditch near Paisley, Oreg., for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	2.1	0.2	0.39	24
November	1.1	.2	.29	17
December	1.1	.1	.27	17
January 1–9	.2	.1	.11	2
May	9.4	5.5	7.93	488
June	10.4	6.8	8.32	495
July	10.4	4.3	7.80	480
August	4.3	1.5	3.17	195
September	1.5	.4	.66	39
The year	.....	.....	.....	1,760

SMALLS CREEK AT PAISLEY, OREG.

LOCATION.—In SW. ¼ sec. 24, T. 33 S., R. 18 E., in western part of Paisley, Lake County, just above highway bridge, 200 yards below point of diversion from Chewaucan River, and 200 yards above headgate of Bagley ditch.

RECORDS AVAILABLE.—January 18, 1914, to September 30, 1918.

GAGE.—Vertical staff on left bank; read by W. A. Banister.

DISCHARGE MEASUREMENTS.—Made from bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of gravel; somewhat shifting. No well-defined control.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 1.95 feet May 8 to 10 (discharge, 77 second-feet); minimum stage recorded, 0.2 foot January 10 (discharge, 0.2 second-foot).

1914–1918: Maximum stage recorded, 2.2 feet May 15, 1914 (discharge, 107 second-feet); minimum stage recorded, that of 1918.

ICE.—Stage-discharge relation very slightly affected by ice during year.

ACCURACY.—Stage-discharge relation shifting. Fairly well defined rating curves used October 1 to June 23, June 28 to August 13, and August 14 to September 30; indirect method June 24–27. Gage read to half-tenths once a day. Daily discharge ascertained by applying daily gage height to rating table. Records good for irrigating season; poor for other periods.

COOPERATION.—Part of field data furnished by Chewacan Land & Cattle Co.

Smalls Creek is a natural slough or defluent of Chewaucan River and has been converted into an irrigation canal. It diverts water from the river in the SW. ¼ sec. 24, T. 33 S., R. 18 E., and irrigates 2,417 acres of the alluvial fan of Chewaucan River above the upper marsh, including 1,209 acres watered from Bagley ditch, which diverts water from Smalls Creek a short distance from the river. The irrigation season extends from about April 1 to September 15. Water is diverted at other times for watering stock. Surplus and return waters find their way to marsh.

Discharge measurements of Smalls Creek at Paisley, Oreg., during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Oct. 3	Bert Harber [a]	0.85	9.0	May 16	R. C. Briggs	1.79	63
30	do	.70	4.5	19	Bert Harber	1.65	52
Nov. 27	do	.70	3.4	29	do	1.40	39.1
Dec. 20	do	.70	4.5	June 17	do	1.10	18.9
Jan. 22	do	.70	3.1	July 2	do	.90	8.6
Feb. 26	do	.85	5.5	25	do	.85	7.8
Apr. 21	do	1.05	16.5	Aug. 28	do	.85	6.2
29	Briggs and Henshaw	1.50	42.6	Sept. 26	do	1.10	14.9

[a] Employee of Chewacan Land & Cattle Co.

Daily discharge, in second-feet, of Smalls Creek at Paisley, Oreg., for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	9.0	4.3	24	3.4	4.3	3.4	7.0	42	27	9.0	6.0	13
2	7.0	4.3	2.0	3.4	4.3	3.4	7.0	42	49	9.0	6.0	11
3	9.0	9.0	2.0	2.5	4.3	7.0	5.6	42	57	9.0	6.0	11
4	9.0	7.0	5.6	3.4	4.3	7.0	7.0	53	57	9.0	6.0	11
5	9.0	4.3	2.5	3.4	4.3	7.0	4.3	57	57	7.5	6.0	11
6	9.0	9.0	2.5	4.3	9.0	7.0	4.3	57	46	6.0	6.0	11
7	9.0	5.6	1.0	5.6	11	9.0	3.4	57	46	6.0	4.8	11
8	9.0	11	1.5	4.3	7.0	7.0	4.3	77	42	6.0	4.8	13
9	7.0	11	2.0	5.6	9.0	5.6	5.6	77	42	11	6.0	13
10	7.0	11	1.5	.2	9.0	11	13	77	39	11	7.5	13
11	7.0	13	2.0	11	9.0	7.0	11	69	36	9.0	7.5	13
12	9.0	3.4	2.5	11	7.0	9.0	11	65	36	9.0	7.5	13
13	9.0	11	3.0	13	7.0	9.0	9.0	61	33	9.0	7.5	15
14	9.0	11	3.4	15	5.0	13	5.6	61	24	9.0	8.0	15
15	7.0	11	2.5	7.0	5.0	11	5.6	69	22	7.5	8.0	15
16	7.0	9.0	2.5	11	5.0	11	5.6	69	22	7.5	8.0	13
17	7.0	3.4	2.5	7.0	5.0	13	5.6	65	19	7.5	8.0	13
18	4.3	2.0	4.3	7.0	5.0	15	4.3	61	19	6.0	8.0	13
19	4.3	2.5	4.3	4.3	5.0	15	4.3	53	19	6.0	8.0	13
20	4.3	2.5	4.3	2.5	3.4	15	13	53	17	6.0	8.0	13
21	4.3	2.5	3.4	1.5	3.4	15	17	49	17	6.0	9.5	11
22	4.3	9.0	3.4	2.0	3.4	3.4	30	49	19	6.0	8.0	13
23	3.4	11	4.3	2.0	4.3	7.0	53	46	15	4.8	8.0	13
24	3.4	11	4.3	2.0	3.4	15	53	46	12	6.0	8.0	11
25	3.4	5.6	4.3	2.0	4.3	3.4	53	46	12	6.0	8.0	15
26	2.5	5.6	4.3	2.5	5.5	7.0	36	46	10	6.0	8.0	15
27	2.5	4.3	4.3	4.3	5.6	9.0	49	49	10	6.0	8.0	15
28	4.3	11	15	4.3	4.3	9.0	49	42	9	6.0	6.5	15
29	2.0	13	13	5.6	.....	9.0	42	36	9	6.0	8.0	15
30	4.3	30	9.0	4.3	.....	9.0	42	36	9	6.0	10	15
31	4.3	.....	5.6	4.3	.....	7.0	.....	33	.....	6.0	13	.....

NOTE.—Stage-discharge relation affected by ice, Jan. 22 to 25, Jan. 31 to Feb. 4, Feb. 14 to 18, Feb. 26, and possibly at other times; discharge estimated or interpolated except Feb. 26 when result of measurement was used.

Monthly discharge of Smalls Creek at Paisley, Oreg., for the year ending Sept. 30, 1918

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	9	2.0	6.15	378
November	30	2.0	8.28	493
December	24	1.0	4.74	291
January	15	.2	5.15	317
February	11	3.4	5.61	312
March	15	3.4	9.01	554
April	53	3.4	18.7	1,110
May	77	33	54.4	3,340
June	57	9	27.7	1,650
July	11	4.8	7.25	446
August	13	4.8	7.50	461
September	15	11	13.1	780
The year	77	.2	14.0	10,100

BAGLEY DITCH AT PAISLEY, OREG.

LOCATION.—In SW. ¼ sec. 24, T. 33 S., R. 18 E., just below headgate, in Paisley, Lake County.

RECORDS AVAILABLE.—January 18, 1914, to September 30, 1918.

GAGE.—Vertical staff on left bank; read by W. A. Banister.

DISCHARGE MEASUREMENTS.—Made by wading or from plank across ditch at gage.

CHANNEL AND CONTROL.—Earth section. Control shifting.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 2.2 feet May 8 to 10 (discharge, 43 second-feet). Canal dry at times.

1914–1918: Maximum stage recorded, 2.5 feet May 15, 1914 (discharge, 68 second-feet). Canal dry at times.

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

ACCURACY.—Stage-discharge relation shifting. Rating curves used as follows: October 1 to January 11, well defined; January 12 to May 16, fairly well defined; May 19 to August 20, well defined above 5 second-feet; August 21 to September 30, fairly well defined. Gage read to half-tenths once daily. Daily discharge ascertained by applying daily gage height to rating table. Records good for irrigating season and fair for remainder of year.

COOPERATION.—Field data furnished by Chewacan Land & Cattle Co.

Bagley ditch (sometimes called Brattain ditch) diverts water from Smalls Creek in the SW. ¼ sec. 24, T. 33 S., R. 18 E., a few hundred yards below the point where Smalls Creek diverts from Chewaucan River, extends 6 miles in a southerly direction, and irrigates 1,209 acres lying above the area watered by Smalls Creek. Return and waste waters reach upper Chewaucan Marsh. The irrigation season extends from late in March or early in April to about September. Water is diverted for stock throughout the year.

Discharge measurements of Bagley ditch at Paisley, Oreg., during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Oct. 3	Bert Harber [a]	0.80	7.4	May 16	R. C. Briggs	2.05	36.8
30	....do	.60	3.6	19	Bert Harber	1.95	36.3
Nov. 26	....do	.50	2.1	29	....do	1.70	26.7
Dec. 20	....do	.55	3.6	June 17	....do	1.05	9.0
Jan. 22	....do	1.20	3.0	July 25	....do	.90	5.9
Apr. 21	....do	1.25	12.3	Aug. 28	....do	.95	5.8
29	R. C. Briggs	1.32	13.6	Sept. 26	....do	1.30	12.2

[a] Employee of Chewacan Land & Cattle Co.

Daily discharge, in second-feet, of Bagley ditch at Paisley, Oreg., for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	8.0	3.6	6.0	2.4	2.0	2.5	5.0	14	0	9.0	3.0	9
2	6.0	5.0	1.4	1.9	2.0	2.5	5.0	15	0	3.5	3.0	8
3	7.0	7.0	1.1	1.4	2.0	3.0	4.0	15	38	3.5	3.0	8
4	7.0	7.0	3.6	2.4	2.0	3.0	4.0	18	43	3.0	3.5	8
5	8.0	5.0	1.4	2.4	7.0	3.0	2.5	27	38	6.0	3.5	8
6	7.0	7.0	1.4	3.6	7.0	3.0	2.5	27	30	9.0	5.0	8
7	7.0	5.0	.6	3.6	7.0	4.0	2.5	27	28	3.0	3.0	10
8	7.0	9.0	.6	2.4	6.2	4.0	3.0	43	25	2.5	5.0	10
9	6.0	9.0	.6	5.0	6.2	2.5	4.0	43	25	2.5	3.5	12
10	7.0	9.0	.4	0	4.5	3.0	6.2	43	23	10	6.0	12
11	7.0	8.0	.4	3.6	4.5	2.5	4.0	38	23	4.0	6.0	12
12	7.0	3.6	1.0	5.0	4.5	3.5	4.0	38	23	4.0	6.0	12
13	7.0	8.0	1.7	5.5	4.5	3.5	2.5	34	22	9.0	6.0	13
14	8.0	7.0	2.4	5.5	4.5	4.5	1.6	34	14	9.0	6.0	14
15	6.0	6.0	1.9	2.5	4.5	4.0	1.6	38	13	4.0	6.0	13
16	6.0	7.0	1.9	4.5	4.5	4.0	1.6	38	10	8.0	6.0	12
17	6.0	2.4	1.4	4.5	4.5	5.5	1.6	38	10	9.0	5.0	11
18	4.3	1.4	3.0	4.5	4.5	5.5	2.0	36	11	7.0	6.0	11
19	4.3	2.4	3.0	4.0	4.5	5.5	2.0	36	10	5.5	6.0	10
20	4.3	2.4	3.0	3.5	4.5	4.5	5.0	36	11	5.0	6.0	10
21	4.3	3.6	2.4	3.5	4.5	4.5	12	34	12	5.0	6.5	10
22	4.3	5.0	2.4	3.0	4.5	2.5	22	34	13	4.5	5.8	10
23	3.6	5.0	3.0	4.0	4.5	4.0	22	32	11	4.0	5.0	11
24	3.6	5.0	3.6	4.0	3.5	5.0	18	32	9.0	7.0	6.5	10
25	3.6	3.6	3.6	4.0	3.5	1.6	18	32	8.0	7.0	6.5	12
26	3.0	3.0	3.0	3.5	3.5	3.5	13	32	6.0	6.0	6.5	12
27	3.0	2.4	3.0	4.0	3.0	4.5	14	34	7.0	6.0	6.5	12
28	3.6	5.0	5.0	4.0	3.0	5.0	14	30	1.3	6.0	5.8	12
29	1.4	7.0	8.0	2.5	.....	5.0	14	27	1.3	7.0	5.0	12
30	3.6	17	5.0	2.0	.....	5.0	14	25	9.0	4.0	7.5	12
31	1.4	.....	4.3	2.0	.....	5.0	.....	23	.....	3.5	10	.....

NOTE.—Stage-discharge relation affected by ice Jan. 31 to Feb. 4, and Feb. 14 to 19; discharge estimated.

Monthly discharge of Bagley ditch at Paisley, Oreg., for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	8	1.4	5.33	328
November	17	1.4	5.71	340
December	8	.4	2.58	159
January (30 days)	5.5	1.4	3.49	208
February	7	2.0	4.32	240
March	5.5	1.6	3.84	236
April	22	1.6	7.52	447
May	43	14	31.4	1,930
June (28 days)	43	1.3	17.0	944
July	10	2.5	5.69	350
August	10	3.0	5.45	335
September	14	8.0	10.8	643
The year	43	.....	.....	6,160

JONES-INNIS-ZX DITCH NEAR PAISLEY, OREG.

LOCATION.—In NW. ¼ sec. 19, T. 33 S., R. 19 E., 100 yards below intake and 1 mile east of Paisley, Lake County.

RECORDS AVAILABLE.—July 20, 1914, to September 30, 1918.

GAGE.—Vertical staff; read by W. A. Banister.

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

CHANNEL AND CONTROL.—Channel excavated in gravel and firm soil. Control shifting. Stage-discharge relation affected at times by growth of aquatic plants or changes in gates.

EXTREMES OF DISCHARGE.—Maximum discharge recorded during year, 98 second-feet on April 20 (gage height 2.4 feet); minimum stage recorded, 0.15 foot January 10 (ditch practically dry).

1914–1918: Maximum stage recorded, 3.25 feet June 10, 1917 (discharge, 193 second-feet); ditch dry at various times.

ICE.—Stage-discharge relation slightly affected by ice; discharge at such times is very small.

ACCURACY.—Stage-discharge relation shifting. Rating curves used as follows: October 1 to April 27, fairly well defined; April 28 to May 18, well defined; May 19 to September 30, fairly well defined. Gage read to half-tenths once daily. Daily discharge ascertained by applying daily gage reading to rating table. Records good during irrigating season; fair rest of year except for ice period, for which they are poor.

COOPERATION.—Most of field data furnished by Chewacan Land & Cattle Co.

Jones–Innis–ZX ditch (so called from the largest water users under it, ZX being the common name of the Chewacan Land & Cattle Co.'s ranch), diverts water from Chewaucan River in the NW. ¼ sec. 19, T. 33 S., R. 19 E., in natural sloughs, from which are irrigated an area of 2,218 acres of the lowest part of the alluvial fan of Chewaucan River immediately above the upper marsh. One of these (Paisley Slough) at its lower end discharges into the "Stock ditch," which is used for irrigation and watering cattle. The irrigation season extends from early in April to about July 1. Water is diverted practically the entire year for either irrigation or stock.

Discharge measurements of Jones–Innis–ZX ditch near Paisley, Oreg., during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Apr. 22	Bert Harber [a]	2.35	93	May 19	Bert Harber	2.05	64
29	Henshaw and Briggs	2.37	84	29	do	2.05	65
May 6	Bert Harber	2.30	84	June 17	do	1.50	22.5
17	R. C. Briggs	2.17	65	July 2	do	1.15	9.0
19	Bert Harber	2.05	63				

[a] Employee of Chewacan Land & Cattle Co.

Daily discharge, in second-feet, of Jones–Innnis–ZX ditch near Paisley, Oreg., for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	3.1	1.8	5.6	1.8	4.7	2.4	3.1	90	55	10	0.2	0.2
2	3.1	1.8	4.7	1.8	.....	2.4	3.1	84	55	8.8	.2	.2
3	3.9	.9	2.4	1.8	.....	2.4	4.7	84	47	2.5	.2	.2
4	3.9	.9	1.4	2.4	.....	2.4	3.1	96	55	2.5	.2	.2
5	3.9	.6	1.4	2.4	.....	2.4	1.8	84	47	2.2	.2	.2
6	3.9	.6	1.4	2.4	.....	2.4	1.8	81	43	2.0	.2	.2
7	3.9	.6	9.0	2.4	3.1	2.4	1.8	84	43	2.0	.2	.2
8	3.9	.6	9.0	1.8	3.1	2.4	1.8	84	43	2.0	.2	.4
9	3.9	.6	9.0	3.1	3.1	2.4	3.1	84	40	1.4	.2	.6
10	3.9	.6	9.0	9	2.4	3.1	4.7	68	40	2.0	.2	.6
11	3.9	.3	9.0	6.6	2.4	3.1	4.7	68	36	2.0	.2	.6
12	3.1	.6	6.0	4.7	2.4	2.4	4.7	68	32	2.0	.2	.6
13	2.4	.6	3.0	4.7	2.4	1.8	4.7	68	32	2.0	.2	1.0
14	2.4	.6	.9	4.7	.....	3.1	2.4	68	51	2.0	.2	1.0
15	2.4	.6	.2	3.1	.....	3.1	3.1	68	47	2.5	.2	1.0
16	2.4	.6	.2	3.1	.....	3.1	3:1	74	23	2.0	.2	.6
17	2.4	1.8	.2	2.4	.....	3.9	3.1	69	22	1.4	.2	.4
18	2.4	1.8	.2	2.4	.....	4.7	3.1	68	20	1.4	.2	.4
19	1.8	1.8	.3	2.4	.....	4.7	3.1	64	18	.6	.2	.6
20	1.8	1.8	.2	2.4	.....	4.7	98	64	18	.6	.2	.6
21	1.8	1.8	.2	2.4	.....	4.7	75	59	18	.4	.2	2.5
22	2.4	1.8	.2	2.4	.....	4.7	84	64	16	.2	.2	2.5
23	2.4	1.8	.2	2.4	.....	4.7	75	55	16	.2	.2	2.5
24	2.4	1.8	.3	2.4	2.4	4.7	80	51	14	.2	.2	2.5
25	2.4	1.8	.3	2.4	2.4	1.8	70	47	12	.2	.2	2.5
26	2.4	1.8	.3	2.4	4.7	1.8	64	47	12	.2	.2	2.5
27	2.4	1.8	.6	2.4	4.7	3.1	70	43	10	.2	.2	2.5
28	2.4	1.8	2.4	2.4	4.7	3.1	79	69	10	.2	1.0	2.5
29	2.4	1.8	2.4	2.4	.....	3.1	84	64	8.8	.2	1.0	2.5
30	2.4	5.6	2.4	2.4	.....	3.1	90	64	10	.2	.5	2.5
31	1.8	.....	2.4	2.4	.....	3.1	.....	43	.....	.2	0	.....

NOTE.—Stage-discharge relation affected by ice Feb. 2 to 6 and 14 to 23, and possibly at other times; mean discharge estimated by interpolation as 4 second-feet, Feb. 2 to 6 and 2.4 second-feet, Feb. 14 to 23.

Monthly discharge of Jones–Innis–ZX ditch near Paisley, Oreg., for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	3.9	1.8	2.83	174
November	5:6	.3	1.38	82
December	9.0	.2	2.74	168
January (30 days)	6.6	1.8	2.76	164
February	4.7	2.4	3.09	172
March	4.7	1.8	3.14	193
April	98	1.8	31.0	1,840
May	90	43	68.5	4,210
June	55	8.8	29.8	1,770
July	10	.2	1.75	108
August (30 days)	1.0	.2	.26	15
September	2.5	0	1.16	69
The year	.....	.....	.....	8,960

SILVER LAKE BASIN.

SILVER CREEK NEAR SILVER LAKE, OREG.

LOCATION.—In SW. ¼ sec. 28, T. 28 S., R. 14 E., near diversion point of proposed project of Silver Lake irrigation district, 1½ miles southwest of Silver Lake post office, Lake County, and 3 miles above mouth of Bridge Creek.

DRAINAGE AREA.—221 square miles.

RECORDS AVAILABLE.—December 29, 1904, to March 31, 1907; January 11, 1909, to September 30, 1918.

GAGE.—Inclined staff on right bank, used since July 24, 1915; read by J. H. Gowdy. Vertical staff on right bank, 10 feet upstream, used April 5, 1912, to July 23, 1915; inclined staff at location of present gage from 1905 to 1912.

DISCHARGE MEASUREMENTS.—Made from cable at gage or by wading.

CHANNEL AND CONTROL.—Bed composed of rocks and gravel; fairly permanent. No well-defined control.

EXTREMES OF DISCHARGE.—Maximum stage during year, 3.2 feet during night of April 9, observed from high-water marks next morning (discharge, 217 second-feet); minimum stage recorded during year, 0.18 foot August 30, September 2 and 6 (discharge, 0.3 second-feet).

1905–1907 and 1909–1918: Maximum stage recorded, 6.40 feet at 4 p. m. November 23, 1909 (discharge, 910 second-feet); minimum discharge recorded, that of 1918.

ICE.—Stage-discharge relation somewhat affected by ice at times.

DIVERSIONS.—A few small tracts irrigated above station, chiefly in Thompson Valley.

REGULATION.—Water stored in small reservoir in Thompson Valley.

ACCURACY.—Stage-discharge relation changed during later part of May. Rating curves used as follows: October 1 to May 21, well defined; June 1 to September 30, fairly well defined; indirect method May 22 to 31. Gage read to quarter-tenths once daily March 20 to June 23 and high-water mark during night noted; about three times a week at other times. Daily discharge ascertained by applying daily gage height to rating table. Records only fair during spring flood on account of diurnal fluctuation, and July to September on account of extremely small quantities involved; good at other times.

Discharge measurements of Silver Creek near Silver Lake, Oreg., during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Apr. 30	Briggs and Henshaw...	1.06	31.4	June 8	R. C. Briggs.....	.64	8.1
May 8	R. C. Briggs.....	.76	14.0	July 30	.....do.....	.25	.6
16	.....do.....	.83	17.7				

Daily discharge, in second-feet, of Silver Creek near Silver Lake, Oreg., for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	.....	.....	27	.....	4.9	3.0	102	30	9.5	.....	0.3	.....
2	3.7	.....	18	.....	.....	3.0	76	27	10	.....	.....	0.3
3	.....	3.7	15	.....	.....	3.0	48	24	11	2.6	.....	.....
4	.....	3.7	7.5	7.5	5.8	2.8	7.5	22	11	.....	.....	.....
5	3.7	.....	7.5	.....	.....	2.7	33	20	9.5	.....	.3	.....
6	.....	.....	.....	.....	7.5	2.5	36	18	9.5	3.1	.....	.3
7	3.7	.....	.....	7.5	27	2.4	58	18	8.5	2.6	.....	.....
8	.....	3.7	5.8	.....	.....	2.7	76	16	8.5	.....	.....	1.6
9	.....	.....	.....	.....	.....	3.0	158	15	9.5	2.6	.....	3.1
10	3.7	3.7	.....	.....	18	2.4	204	18	7.5	.....	.3	.....
11	.....	3.7	5.8	7.5	.....	1.8	138	17	7.5	3.1	.....	.....
12	.....	.....	.....	.....	.....	1.8	102	14	7.5	.....	.3	.....
13	3.7	.....	.....	5.8	15	1.8	79	12	6.8	3.1	.....	.....
14	3.7	3.7	.....	.....	.....	1.8	58	16	6.2	2.0	.....	.....
15	.....	.....	5.8	.....	15	1.8	45	17	6.2	.....	.....	.....
16	.....	.....	.....	.....	.....	1.6	51	17	6.2	1.2	.....	1.6
17	3.7	3.7	.....	4.9	.....	1.4	39	20	6.2	.....	.3	.....
18	.....	.....	7.5	.....	4.9	1.2	39	17	5.4	.9	.....	.....
19	.....	3.7	.....	.....	.....	19	42	15	5.8	.....	.3	1.0
20	3.7	.....	.....	4.9	7.5	36	51	12	6.2	.9	.....	.....
21	3.7	.....	7.5	.....	.....	33	79	11	6.2	.....	.....	.....
22	.....	3.7	.....	4.9	3.7	72	79	10	5.4	.....	.....	.....
23	.....	.....	.....	.....	.....	86	65	10	5.4	.....	.....	1.0
24	.....	3.7	7.5	.....	.....	86	79	10	5.4	.....	.3	.....
25	.....	3.7	.....	.....	8.6	94	72	10	5.4	.....	.....	.....
26	3.7	.....	.....	4.9	.....	106	45	10	5.0	.....	.3	.....
27	.....	.....	.....	4.9	4.9	102	42	10	4.6	.....	.....	1.0
28	.....	3.7	7.5	.....	.....	72	36	10	4.3	.....	.....	.....
29	3.7	.....	.....	4.9	.....	102	33	10	4.0	2.0	.....	.....
30	.....	.....	.....	.....	.....	111	33	10	3.1	.6	.3	1.0
31	3.7	.....	5.8	.....	.....	118	.....	10	.....	.....	.....	.....

NOTE.—Mean discharge, July 21–28 estimated 1 second-foot.

Monthly discharge of Silver Creek near Silver Lake, Oreg., for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	3.7	3.7	3.70	228
November	3.7	3.7	3.70	220
December	27	5.8	8.05	495
January	7.5	4.9	5.77	355
February	27	3.7	10.2	566
March	118	1.2	34.8	2,140
April	204	7.5	66.8	3,970
May	30	10	15.4	947
June	11	3.1	6.91	411
July	3.1	.....	1.83	113
August	.3	.3	.30	18
September	3.1	.3	1.26	75
The year	204	.3	13.2	9,540

NOTE.—Mean discharge for October, November, January, and August based on days for which daily discharge is given; mean discharge for December, February, July, and September obtained by interpolating daily discharge for days of no record.

MALHEUR AND HARNEY LAKES BASINS.

MUD LAKE OUTLET NEAR NARROWS, OREG.

LOCATION.—In NW. ¼ sec. 17, T. 27 S., R. 30 E., half a mile from gap in sand reef through which outlet enters Harney Lake, 3 or 4 miles southwest of Mud Lake, and 6 miles southwest of Narrows, Harney County.

RECORDS AVAILABLE.—May 10 to July 19, 1916; April 28 to September 30, 1917; April 22 to June 10, 1918.

GAGE.—Vertical staff on bent of bridge; read by C. Grousbeck.

DISCHARGE MEASUREMENTS.—Made from footbridge.

CHANNEL AND CONTROL.—Bed composed of mud and sand; shifting.

EXTREMES OF DISCHARGE.—Maximum discharge during season not recorded, probably about 100 second-feet, in January. Stream bed dry beginning June 10.

1916–1918: Maximum stage recorded. 3.8 feet May 31, 1917 (discharge, 245 second-feet).

ICE.—Stage-discharge relation probably not affected by ice.

DIVERSIONS.—Small area of hay land is irrigated by natural overflow below the gage on Malheur Lake outlet at Narrows.

ACCURACY.—Stage-discharge relation probably permanent during short period of records in 1918. Gage read about twice a week, but change in stage very gradual. Rating curve fairly well defined. Daily discharge ascertained by applying daily gage height to rating table. Records fair.

Discharge measurements of Mud Lake outlet near Narrows, Oreg., during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*
Oct. 3	R. C. Briggs	1.21	16.3
Apr. 22	F. F. Henshaw	1.94	48.5
June 10	R. C. Briggs	.60	0

Daily discharge, in second-feet, of Mud Lake outlet near Narrows, Oreg., for the period Apr. 22 to June 7, 1918.

April 22	49	May 3	34	May 24	16
25	43	10	20	June 2	9
27	38	19	19	7	3

NOTE.—Mean discharge and total run-off estimated as follows: April, 50 second-feet, 2,980 acre-feet; May, 22 second-feet, 1,350 acre-feet; June 1 to 10, 5 second-feet, 99 acre-feet. Total run-off for year about 20,000 acre-feet.

SILVIES RIVER NEAR BURNS, OREG.

LOCATION.—In sec. 7, T. 22 S., R. 30 E., at wagon bridge on Parker ranch, 12 miles northwest of Burns, Harney County.

DRAINAGE AREA.—940 square miles.

RECORDS AVAILABLE.—May 10, 1903, to July 24, 1906; December 14, 1908, to September 30, 1915; February 1 to June 19, 1916; March 25 to September 30, 1917; March 1 to September 30, 1918.

GAGE.—Inclined and vertical staff on left bank; datum raised 2.04 feet August 11, 1918; read by Mrs. Leonia Parker. Gurley printing water-stage recorder on left bank, about 1¼ miles upstream and 1 mile above Sylvester's ranch in sec. 31, T. 21 S., R. 30 E., used from December, 1911, to June 20, 1917.

DISCHARGE MEASUREMENTS.—Made from wagon bridge at gage, or by wading: high-water measurements from cable 1 mile upstream.

CHANNEL AND CONTROL.—Low-water control is gravel riffle about 25 feet below gage; probably shifts in high water. Above gage height of 13 feet, river overflows its banks near gage and begins cutting across bends, with no well-defined control.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 9.05 feet March 27 and April 1 (discharge, 574 second-feet); minimum stage recorded, 0.30 foot (new datum) August 12 to 22 and August 27 to September 9 (discharge, 3 second-feet).

1903–1906 and 1909–1918: Maximum stage recorded, 17.12 feet April 15, 1904 (discharge, 4,730 second-feet); minimum stage recorded, 2.2 feet September 9 to 12, 1903 (discharge, 3 second-feet).

ICE.—Stage-discharge relation not seriously affected by ice.

DIVERSIONS.—Large area of land in headwaters of Silvies River irrigated with flood water.

REGULATION.—Flow at lower station occasionally affected by operation of Sylvester's dam half a mile upstream.

ACCURACY.—Stage-discharge relation apparently permanent during year, except as affected by change of gage datum August 11. Rating curves well defined. Gage read to tenths twice a day during March and April; once a day to half-tenths thereafter. Daily discharge ascertained by applying mean daily gage height to rating table. Records good.

Discharge measurements of Silvies River near Burns, Oreg., during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Oct. 10	Briggs and Wright	2.60	18.6	June 5	F. F. Henshaw	2.78	39.0
Apr. 21	F. F. Henshaw	5.59	260	Aug. 11	R. C. Briggs	2.29	3.8
25	do	4.82	205				

Daily discharge, in second-feet, of Silvies River near Burns, Oreg., for the year ending Sept. 30, 1918.

Day.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	a 60	574	102	35	7	6	3
2	a 66	556	94	30	7	6	3
3	a 60	484	98	40	7	6	3
4	66	430	98	35	7	6	3
5	82	412	98	35	7	6	3
6	94	376	118	30	7	4	3
7	82	358	130	30	7	4	3
8	82	340	122	25	7	4	3
9	78	340	122	20	7	4	6
10	74	403	118	20	7	3	6
11	82	484	106	20	7	4	6
12	90	520	114	20	7	3	6
13	90	430	106	20	7	3	6
14	86	412	94	16	6	3	6
15	98	394	106	16	6	3	10
16	98	376	122	16	6	3	16
17	138	358	134	16	4	3	16
18	138	340	134	12	4	3	13
19	170	304	126	12	4	3	10
20	194	286	118	10	4	3	10
21	242	268	98	10	4	3	10
22	304	250	90	10	4	3	8
23	340	242	90	16	4	6	8
24	403	242	74	10	7	6	6
25	457	202	74	7	10	6	6
26	520	170	74	7	12	6	6
27	574	194	74	7	12	3	6
28	565	126	58	7	12	3	6
29	538	138	58	7	7	3	8
30	538	114	54	7	6	3	8
31	556	.....	50	.....	6	3	.....

a Estimated.

Monthly discharge of Silvies River near Burns, Oreg., for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
March	574	a 60	224	13,800
April	574	114	337	20,100
May	134	50	98.5	6,060
June	40	7	18.2	1,080
July	12	4	6.7	412
August	6	3	4.0	246
September	16	3	6.9	411
The period				42,100

a Estimated.

NOTE.—Total run-off for October to February estimated from information furnished by observer as 21,000 acre-feet; total for year about 63,000 acre-feet.

DONNER UND BLITZEN RIVER NEAR DIAMOND, OREG.

LOCATION.—In SW. ¼ sec. 8, T. 32 S., R. 32½ E., at mouth of canyon, 1½ miles above "P" ranch buildings, 25 miles southwest of Diamond, and 40 miles above Narrows, Harney County.

DRAINAGE AREA.—200 square miles.

RECORDS AVAILABLE.—May 22, 1910, to September 30, 1916; April 15, 1917, to September 30, 1918; also January 26, 1909, to July 31, 1910, and November 1 to 12, 1910, at former station below several diversion ditches.

GAGE.—Vertical staff on left bank; gage datum not always properly maintained; read by Jesus Achurra and Pat Donegan. Original gage was vertical staff on right bank just below wagon bridge near ranch buildings.

DISCHARGE MEASUREMENTS.—Made from cable 75 yards above gage or by wading.

CHANNEL AND CONTROL.—Bed composed of gravel and sand. Control of gravel; somewhat shifting. Banks subject to overflow at flood stages.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 3.05 feet at 8 a. m. March 4 (discharge, 442 second-feet); minimum stage recorded, 1.34 feet September 2 to 9 (discharge, 26 second-feet).

1909–1918: Maximum stage recorded, 6.4 feet at 7.30 p. m. May 3, 1915 (discharge, 2,060 second-feet); minimum discharge recorded, 23 second-feet December 19 and 26, 1915, and January 2, 9, and 16, 1916 (gage height, 1.5 feet).

ICE.—Stage-discharge relation not seriously affected by ice.

DIVERSIONS.—Present gage is above all irrigation ditches. Five ditches divert water from stream above old gage at ranch buildings.

REGULATION.—None.

ACCURACY.—Stage-discharge relation apparently permanent during year. Rating curve fairly well defined. Gage read to half-tenths once daily. Daily discharge ascertained by applying daily gage height to rating table. Records good.

Discharge measurements of Donner und Blitzen River near Diamond, Oreg., during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Oct. 6	R. C. Briggs	1.49	42.5	June 12	R. C. Briggs	2.42	217
Apr. 23	F. F. Henshaw	2.20	187	Aug. 7	do	1.38	30.6
24	do	2.38	207				

Daily discharge, in second-feet, of Donner und Blitzen River near Diamond, Oreg., for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	47	47	47	47	47	68	93	300	275	60	35	28
2	47	47	47	47	47	75	112	315	262	57	35	26
3	47	47	47	47	47	93	112	315	275	57	35	26
4	47	47	47	47	54	442	132	300	275	55	35	26
5	47	47	47	47	54	176	132	288	250	51	35	26
6	45	47	47	47	54	75	132	275	262	47	35	26
7	47	47	47	47	165	75	132	275	250	47	31	26
8	47	47	47	47	262	75	132	275	250	47	31	26
9	47	47	47	47	102	93	132	212	200	47	31	26
10	47	47	47	47	93	84	132	188	176	47	31	28
11	47	47	47	47	93	84	132	165	193	47	30	28
12	47	47	47	47	93	93	112	188	212	47	31	28
13	47	47	47	47	84	93	112	212	270	47	31	28
14	47	47	47	47	84	93	112	237	225	47	31	31
15	47	47	47	47	75	93	112	200	176	47	31	35
16	47	47	47	47	75	84	112	176	154	35	31	35
17	47	47	47	47	75	250	132	154	141	35	31	31
18	47	47	47	47	75	225	165	154	145	35	31	31
19	47	47	47	47	75	188	176	132	141	35	30	28
20	47	47	47	47	75	132	200	112	116	35	30	28
21	47	47	47	47	75	122	212	112	120	35	30	28
22	47	47	47	47	75	112	262	132	136	35	30	33
23	47	47	47	47	68	102	225	132	132	35	30	35
24	47	47	47	47	68	93	250	112	112	35	30	35
25	47	47	47	47	68	93	262	132	93	35	30	40
26	47	47	47	47	68	93	262	132	97	35	30	40
27	47	47	47	47	68	84	262	176	75	35	.30	40
28	47	47	47	41	68	93	275	225	75	35	30	42
29	47	47	47	41	.....	102	275	300	63	35	30	45
30	47	47	47	41	.....	93	275	275	60	35	30	57
31	47	.....	47	41	.....	93	.....	300	.....	35	30	.....

Monthly discharge of Donner und Blitzen River near Diamond, Oreg., for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	47	45	47.0	2,890
November	47	47	47.0	2,800
December	47	47	47.0	2,890
January	47	41	46.2	2,840
February	262	47	81.7	4,540
March	442	68	118	7,260
April	275	93	172	10,200
May	315	112	210	12,900
June	275	60	174	10,400
July	60	35	42.3	2,600
August	35	30	31.3	1,920
September	57	26	32.1	1,910
The year	442	26	87.2	63,200

DONNER UND BLITZEN RIVER NEAR NARROWS, OREG.

LOCATION.—In NE. ¼ sec. 26, T. 29 S., R. 31 E., at "grain camp" at bridge over movable diversion dam immediately below intake of Buena Vista canal, 2 or 3 miles above mouth of Keiger Creek, and 25 miles south of Narrows, Harney County.

DRAINAGE AREA.—Not measured.

RECORDS AVAILABLE.—March 21 to July 31, 1915; April 7 to July 17, 1916; April 16, 1917, to September 30, 1918.

GAGE.—Vertical staff on west abutment of bridge; read by Mrs. S. A. Jones.

DISCHARGE MEASUREMENTS.—Made from cable about 200 feet below gage or by wading.

CHANNEL AND CONTROL.—Artificial channel excavated in clayey material; slightly shifting. No defined control. Banks not subject to overflow.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 3.5 feet May 8 and 9 (discharge, 166 second-feet); minimum stage recorded, 0.32 foot June 2 (discharge, 0.2 second-foot).

1915–1918: Maximum stage, about 7.5 feet during March, 1917, as indicated by high-water marks (discharge, 780 second-feet) minimum stage occurred in 1918.

ICE.—Stage-discharge relation probably unaffected by ice.

DIVERSIONS.—About 14,000 acres of "P" ranch lands are irrigated by spring flooding from river and its tributaries above station. Buena Vista canal and three small ditches divert water from river just above gage. (See p. 253 for records on Buena Vista canal.) The following measurements of the small ditches were made June 11: West ditch, 18.1 second-feet; East ditch, 28.9 second-feet; Schaper ditch, 1.6 second-feet. Total diversion of these ditches, estimated from best available data, is included in table of monthly discharge.

REGULATION.—Diversion dam above gage backs up water 4 or 5 miles; pondage thus created may affect materially discharge for a day or two.

ACCURACY.—Stage-discharge relation changed slightly by gradual cutting out at control, especially at medium stages between 100 and 400 second-feet. Rating curves used as follows: November 4 to March 19, well defined; March 21 to September 30, well defined above 7 second-feet. Gage read to half tenths every other day until April 22; to hundredths daily thereafter. Daily discharge ascertained by applying daily gage height to rating table. Records good except those for August, which are poor.

Discharge measurements of Donner und Blitzen River near Narrows, Oreg., during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Oct. 4	Briggs and Wright	2.35	58	June 11	R. C. Briggs	1.07	8.3
Apr. 23	F. F. Henshaw	2.87	101	Aug. 8	do	1.92	40.0

Daily discharge, in second-feet, of Donner und Blitzen River near Narrows, Oreg., for the year ending Sept. 30, 1918.

Day.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1			68		58	a 92	79	0.4	1.2	3.4	14
2		61		64		100	86	.2	1.4	2.0	14
3			64		58	a 96	90	.3	1.4	2.6	14
4	50	61		64		92	96	.4	1.5	2.4	13
5			68		58	a 92	102	.4	1.6	2.2	13
6	50	55		64		92	104	.5	1.6	2.2	12
7			68		72	a 96	113	.6	1.0	2.0	13
8	50	55		64		100	166	.6	1.0	40	12
9			72		72	a 96	166	.5	.9		11
10	50	61		64		92	154	28	.9		11
11			58		79	a 96	154	8.4	1.0		11
12	50	61		61		100	130	6.0	1.0		11
13			68		79	a 96	96	5.4	1.0		11
14	50	68		61		92	15	3.0	1.0		11
15			68		114	a 92	13	2.2	1.0		11
16	50	68		64		92	58	.7	.9		12
17			69	64	114	a 92	132	1.8	.9		11
18	50	68				92	30	1.8	1.6		11
19			69	64	114	a 92	30	1.0	1.8		11
20	50	68				92	30	1.0	2.0		11
21			68	52	148	a 102	29	1.0	1.6		9.6
22	55	61				113	28	1.2	1.6		9.0
23			68	52	118	102	4.6	1.3	1.6		7.0
24	55	64				104	.6	1.6	1.6		7.0
25			68	58	84	104	.3	5.0	1.6		5.0
26	61	64				108	.3	5.0	1.6		5.0
27			72	58	84	111	.5	1.0	1.6	14	6.2
28	61	64				108	.4	1.0	1.8	14	6.2
29			72		76	104	.4	1.0	1.6	14	9.0
30	68	64				102	.4	1.2	1.6	14	11
31			64		84		.4		2.2	15	

a Interpolated.

NOTE.—Mean discharge for Aug. 9 to 26 estimated as 12 second-feet.

Monthly discharge of Donner und Blitzen River near Narrows, Oreg., for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.			
	Maximum.	Minimum.	Mean.	River.	Buena Vista canal.	Small ditches.a	Total.
October			b 50.0	3,070	0	0	3,070
November	68	50	c 53.6	3,190	b 298	0	3,490
December	68	55	c 62.9	3,870	b 307	0	4,180
January	72	58	c 67.8	4,170	b 307	0	4,480
February	64	52	c 61.0	3,390	b 555	0	3,940
March	148	58	c 88.2	5,420	b 941	600	6,960
April	113	92	98.1	5,840	1,430	20	7,290
May	166	.3	61.6	3,790	4,880	1,300	9,970
June	28	.2	2.75	164	4,100	2,500	6,760
July	2.2	.9	1.39	86	b 1,840	0	1,930
August	40	2.0	11.1	682	b 138	0	820
September	14	5.0	10.4	619	0	0	619
The year	166	.2	47.4	34,300	14,800	4,420	53,500

a Computed roughly from discharge measurements, records of gate openings, and observer's notes.
b Estimated.
c Based on days for which daily discharge is given.

DONNER UND BLITZEN RIVER NEAR VOLTAGE, OREG.

LOCATION.—In sec. 35, T. 26 S., R. 31 E., at bridge on road known as "Sod-house Lane," along original meander line of Malheur Lake, 2 miles west of Voltage post office and 6 miles east of Narrows, Harney County.

DRAINAGE AREA.—Not measured.

RECORDS AVAILABLE.—April 6, 1916, to May 25, 1918. (Fragmentary).

GAGE.—Vertical staff on abutment of bridge; read by Wilbur Springer.

DISCHARGE MEASUREMENTS.—Made from bridges across main channel and 16 culverts which carry water at high stages.

CHANNEL AND CONTROL.—Channel crooked and turns abruptly to right just below bridge; no well-defined control.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 1.99 feet May 22 (discharge, 148 second-feet). Discharge practically zero after June 10.

1916–1918: Maximum stage recorded, 3.3 feet May 21, 1917 (discharge, 800 second-feet).

ICE.—No record during ice period.

DIVERSIONS.—Several thousand acres irrigated from river and its tributaries; discharge at station is largely return water.

REGULATION.—Discharge considerably influenced by diversion dams.

ACCURACY.—Stage-discharge relation for main channel shifting; overflow is only indirectly related to gage heights. Poorly defined rating curve used April 17 to May 7; gage heights after that date affected by backwater from dam. Gage read to half-tenths once a day. Daily discharge ascertained by applying daily gage reading to rating table. Records fair.

Discharge measurements of Donner und Blitzen River near Voltage, Oreg., during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*
Oct. 3	Briggs and Wright	1.23	56
Apr. 22	F. F. Henshaw	1.94	141
June 10	R. C. Briggs	2.62	0

Daily discharge, in second-feet, of Donner und Blitzen River near Voltage, Oreg., for the year ending Sept. 30, 1918.

Day.	Apr.	May.	Day.	Apr.	May.	Day.	Apr.	May.
1	.....	66	11	.....	.....	21	96	.....
2	.....	58	12	.....	.....	22	148	.....
3	.....	55	13	.....	.....	23	120	.....
4	.....	51	14	.....	.....	24	118	.....
5	.....	49	15	.....	.....	25	116	.....
6	.....	49	16	.....	.....	26	114	.....
7	.....	45	17	79	.....	27	98	.....
8	.....	.....	18	72	.....	28	98	.....
9	.....	.....	19	65	.....	29	67	.....
10	.....	.....	20	72	.....	30	66	.....
						31	.....	.....

NOTE.—Mean discharge Apr. 17 to 30, 94.9 second-feet, run-off, 2,640 acre-feet; mean discharge for May, 27.5 second-feet, run-off, 1,690 acre-feet; mean for May 8 to 31 estimated as 20 second-feet. Total run-off March to May, inclusive, about 12,400 acre-feet.

BUENA VISTA CANAL NEAR NARROWS, OREG.

LOCATION.—In NE. ¼ sec. 26, T. 29 S., R. 31 E., at bridge over canal, 300 feet below intake, and opposite station on Donner und Blitzen River at "grain camp," 25 miles south of Narrows, Harney County.

RECORDS AVAILABLE.—Irrigating seasons 1915 to 1918.

GAGE.—Vertical staff on pier of bridge; read by Mrs. S. A. Jones. Datum 0.95 foot above that used from 1915 to 1917.

DISCHARGE MEASUREMENTS.—Made from wagon bridge.

CHANNEL AND CONTROL.—Canal is about 4 feet deep, excavated in clayey material.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 2.54 feet June 14 (discharge, 106 second-feet). Canal dry at times.

1915–1918: Maximum stage recorded, 4.6 feet May 14, 1915 (discharge, 179 second-feet).

ICE.—Water turned out of canal during extremely cold weather.

ACCURACY.—Stage-discharge relation changed May 11 when a temporary dam a few hundred feet below gage washed away. Two poorly defined rating curves used before and after that date. Gage read to hundredths once daily. Daily discharge ascertained by applying daily gage reading to rating table. Records good for April and June; very uncertain for remainder of season.

Buena Vista canal diverts water from left bank of Donner und Blitzen River, in NE. ¼ sec. 26, T. 29 S., R. 31 E., to irrigate marsh hay lands on west side of river.

Discharge measurements of Buena Vista canal near Narrows, Oreg., during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*
Apr. 23	F. F. Henshaw	0.86	31.7
June 11	R. C. Briggs	.40	23.5

Daily discharge, in second-feet, of Buena Vista canal near Narrows, Oreg., for the year ending Sept. 30, 1918.

Day.	Apr.	May.	June.	Day.	Apr.	May.	June.	Day.	Apr.	May.	June.
1	37	83	82	11	27	48	24	21	21	90	68
2	37	83	88	12	33	47	47	22	27	50	68
3	26	82	88	13	24	68	100	23	32	67	69
4	15	98	90	14	15	99	106	24	33	69	74
5	15	103	90	15	15	104	105	25	33	69	55
6	15	103	99	16	15	104	16	26	33	68	56
7	18	79	94	17	16	99	18	27	28	82	56
8	21	69	94	18	18	60	18	28	31	78	56
9	21	69	94	19	16	97	78	29	31	78	56
10	21	66	54	20	15	94	68	30	33	76	55
								31	.....	80	.....

Monthly discharge of Buena Vista canal near Narrows, Oreg., for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
November			a 5.0	298
December			a 5.0	307
January			a 5.0	307
February			a 10.0	555
March			a 15.3	941
April	37	15	24.1	1,430
May	104	47	79.4	4,880
June	106	16	68.9	4,100
July			a 30.0	1,840
August 1–7			a 10.0	138
The period				14,800

a Estimated.

KEIGER CREEK NEAR DIAMOND, OREG.

LOCATION.—In NW. ¼ sec. 10, T. 30 S., R. 33 E., 100 yards above point where creek forks and 2½ miles southeast of Diamond, Harney County.

DRAINAGE AREA.—75 square miles.

RECORDS AVAILABLE.—January 26, 1909, to September 30, 1918 (fragmentary).

GAGE.—Stevens 8-day water-stage recorder installed on left bank May 27, 1917, 25 feet below vertical staff used since May 14, 1911; inspected by H. A. Brenner. Gage used in 1909 and 1910 at different location and datum.

DISCHARGE MEASUREMENTS.—Made from footbridge or by wading.

CHANNEL AND CONTROL.—Bed composed of gravel; somewhat shifting at intervals. Banks not subject to overflow.

EXTREMES OF DISCHARGE.—Maximum stage during year, from water-stage recorder, 2.14 feet at 9 a. m. May 5 (discharge, 105 second-feet); minimum stage, 0.56 foot February 16 (discharge, 3.2 second-feet).

1909–1918: Maximum stage recorded, 4.7 feet May 9, 1912 (discharge, 330 second-feet). A higher flood may have occurred while records were suspended. Minimum discharge occurred during 1918.

ICE.—Stage-discharge relation somewhat affected by ice during extremely cold weather.

DIVERSIONS.—None above station.

REGULATION.—None.

ACCURACY.—Stage-discharge relation practically permanent during year. Rating curve well defined. Operation of recorder unsatisfactory most of time. Daily discharge ascertained by applying to rating table the mean daily gage height obtained by inspection of recorder graph. Records fair.

Discharge measurements of Keiger Creek near Diamond, Oreg., during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Oct. 8	R. C. Briggs	0.78	9.2	June 12	R. C. Briggs	1.46	52
Apr. 22	F. F. Henshaw	1.42	50	Aug. 8	do	.62	4.8
June 8	A. H. Page	1.54	61				

Daily discharge, in second-feet, of Keiger Creek near Diamond, Oreg., for the year ending Sept. 30, 1918.

Day.	Oct.	Feb.	Apr.	May.	June.	July.	Aug.	Sept.
1	.....	.....	.....	69	b 42	19	.....	.....
2	.....	.....	.....	73	42	18	.....	.....
3	.....	.....	.....	77	.....	a 17	.....	.....
4	.....	.....	.....	89	.....	a 16	5.2	.....
5	.....	.....	.....	97	.....	a 15	.....	.....
6	.....	.....	.....	89	.....	a 13	.....	.....
7	.....	.....	.....	85	.....	12	.....	.....
8	10	.....	.....	.....	61	12	4.6	.....
9	10	4.0	.....	.....	a 59	12	.....	.....
10	10	.....	.....	.....	a 57	16	.....	.....
11	10	.....	.....	.....	a 55	12	4.6	.....
12	11	.....	.....	54	54	a 12	.....	.....
13	12	.....	.....	57	b 65	a 11	.....	.....
14	12	.....	.....	69	b 60	11	.....	.....
15	.....	.....	.....	61	57	10	6.4	.....
16	.....	3.2	.....	a 57	54	9.0	.....	.....
17	.....	.....	.....	a 53	a 48	7.4	.....	5.5
18	.....	.....	.....	a 49	42	6.4	7.0	4.9
19	.....	.....	.....	46	a 40	5.5	5.2	4.6
20	.....	.....	.....	.....	a 38	a 4.6	.....	4.3
21	.....	.....	.....	.....	35	3.6	.....	b 4.3
22	.....	.....	51	.....	a 39	3.6	.....	b 4.3
23	.....	.....	a 50	.....	43	.....	.....	10
24	.....	.....	50	.....	37	.....	.....	7.4
25	.....	.....	57	.....	31	.....	4.0	6.7
26	.....	.....	61	.....	27	.....	.....	6.1
27	.....	.....	65	.....	23	.....	.....	5.8
28	.....	.....	54	.....	a 22	7.0	.....	5.5
29	.....	.....	57	.....	a 21	6.7	.....	5.5
30	.....	.....	65	.....	20	6.1	.....	8.6
31	.....	.....	.....	.....	.....	5.8	3.6	.....

a Interpolated. b Estimated.

NOTE.—Mean discharge for periods when recorder did not operate estimated by comparison with McCoy Creek as follows: May 8 to 11, 70 second-feet; May 20 to 31, 50 second-feet; June 3 to 7, 70 second-feet; July 23 to 27, 5.0 second-feet; September 1 to 16, 6.0 second-feet.

Monthly discharge of Keiger Creek near Diamond, Oreg., for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
April 22–30	65	50	56.7	1,010
May	97	.....	61.5	3,780
June	.....	20	47.4	2,820
July	19	3.6	9.57	588
August	.....	.....	5.08	312
September	10	.....	5.98	356
The period	.....	.....	.....	8,870

NOTE.—Total run-off for year estimated as 11,800 acre-feet.

McCOY CREEK NEAR DIAMOND, OREG.

LOCATION.—In sec. 12, T. 30 S., R. 32 E., 5 miles southwest of Diamond, Harney County, and 1,000 feet above Wells ranch house.

DRAINAGE AREA.—45 square miles.

RECORDS AVAILABLE.—May 23, 1910, to September 30, 1918 (fragmentary); also January 27 to June 30, 1909, on original gage which was below some diversions.

GAGE.—Vertical staff on right bank, installed August 7, 1913, 250 feet below gage installed May 23, 1910; read by C. A. Wells. Original gage was 2½ miles farther downstream and 3 miles from Diamond post office.

DISCHARGE MEASUREMENTS.—Made by wading; no equipment for flood measurements during 1918.

CHANNEL AND CONTROL.—Bed composed of clean gravel and sand; somewhat shifting. At high stages, rock diversion dam at intake of Wells's ditch may form control; slightly shifting during high water.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 3.28 feet at 6 a. m. June 3 (discharge, 107 second-feet); minimum stage recorded, 1.48 feet at 6 a. m. March 14 (discharge, 0.7 second-foot).

1910–1918: Maximum stage recorded, 6.6 feet during night of June 7, 1912 (discharge from extension of rating curve, 300 second-feet); minimum discharge occurred in 1918.

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

DIVERSIONS.—Above all diversions except one unimportant ditch.

REGULATION.—None.

ACCURACY.—Stage-discharge relation apparently permanent during year. 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 McCoy Creek near Diamond, Oreg., during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Oct. 8	Briggs and Wright	1.74	5.0	June 13	R. C. Briggs	2.92	72
Apr. 22	F. F. Henshaw	2.36	32.2	Aug. 8	do	1.62	1.8
June 8	A. H. Page	2.72	56				

Daily discharge, in second-feet, of McCoy Creek near Diamond, Oreg., for the year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	5.8	6.7	10.0	5.5	3.5	5.5	14	58	47	8.2	2.0	1.4
2	5.8	6.4	5.2	4.6	4.0	2.8	13	62	50	7.6	2.5	1.4
3	5.8	6.7	5.5	4.0	4.0	4.0	15	74	102	7.6	2.5	1.5
4	5.2	7.3	6.7	4.9	4.0	4.0	13	92	70	7.0	1.8	1.5
5	5.2	7.0	6.7	4.9	3.5	1.5	12	92	70	6.1	1.8	1.5
6	5.2	7.6	6.1	4.0	4.3	4.0	10	88	79	5.5	1.8	1.4
7	5.2	7.3	6.7	5.2	5.5	4.0	10	92	70	5.2	1.8	1.5
8	5.2	7.0	7.0	4.6	4.3	6.7	10	92	66	5.2	1.8	2.2
9	5.2	7.0	7.6	2.8	4.3	5.8	21	70	62	5.2	1.5	2.8
10	5.2	6.7	4.9	1.4	3.8	3.8	26	54	62	5.5	1.5	2.2
11	5.2	6.7	3.5	5.8	4.0	3.8	27	54	54	5.2	1.5	1.5
12	5.2	6.7	6.1	8.5	4.0	3.5	30	62	54	4.6	1.5	1.5
13	5.5	7.0	4.6	6.7	3.2	2.0	30	79	62	4.0	1.5	2.0
14	5.8	7.0	5.2	4.9	4.0	1.4	24	88	47	4.0	1.5	2.5
15	5.8	6.4	4.3	4.6	4.0	2.0	22	58	38	4.0	1.5	2.0
16	5.8	6.4	4.0	4.9	4.0	1.8	19	58	33	3.8	2.5	1.5
17	6.1	6.1	4.6	4.6	4.0	4.3	18	47	33	3.2	3.5	1.4
18	6.4	6.1	4.6	5.2	4.0	5.8	16	40	33	3.0	3.2	1.4
19	6.4	6.1	5.2	3.5	4.0	9.7	17	40	29	3.0	3.0	1.2
20	6.4	6.7	5.2	3.5	4.0	7.6	20	40	32	3.0	3.5	.9
21	6.4	6.7	4.3	4.6	5.2	7.0	27	39	36	3.0	4.0	.9
22	6.4	6.4	4.0	5.8	3.8	7.9	35	40	34	3.0	3.8	.9
23	6.4	5.8	4.6	4.6	4.0	8.2	44	47	23	3.0	3.0	1.5
24	6.4	5.8	5.8	3.8	4.6	10	47	54	18	3.0	2.5	1.4
25	6.4	6.4	5.2	4.3	3.8	11	50	44	15	3.0	2.0	1.3
26	6.4	5.2	5.5	4.0	5.2	12	38	40	12	3.0	1.8	1.2
27	6.4	4.6	5.2	3.8	4.0	11	35	35	10	3.0	1.5	1.1
28	6.7	6.7	6.1	4.0	3.8	10	37	32	10	2.5	1.5	1.1
29	6.1	7.9	6.4	4.0	.....	10	47	30	9.1	2.5	1.4	1.2
30	6.7	7.9	6.1	3.8	.....	11	50	44	8.8	2.0	1.4	1.5
31	7.0	.....	5.8	3.2	.....	14	.....	70	.....	1.5	1.4	.....

NOTE.—Stage-discharge relation affected by ice Jan. 28, Feb. 2, 3, 14–16, 18–20, Mar. 6 and 7, and possibly other days; discharge estimated. Discharge interpolated on account of missing gage heights, Mar. 25, June 20, July 30, Aug. 12, 13, and 18.

Monthly discharge of McCoy Creek near Diamond, Oreg., for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
October	7.0	5.2	5.93	365
November	7.9	4.6	6.61	393
December	10.0	3.5	5.57	342
January	8.5	1.4	4.52	278
February	5.5	3.2	4.10	228
March	14	1.4	6.33	389
April	50	10	25.9	1,540
May	92	30	58.6	3,600
June	102	8.8	42.4	2,520
July	8.2	1.5	4.21	259
August	4.0	1.4	2.15	132
September	2.8	.9	1.51	90
The year	102	.9	14.0	10,100

RIDDLE CREEK NEAR DIAMOND, OREG.

LOCATION.—In sec. 23, T. 28 S., R. 33 E., at bridge on road from Diamond to Waverly, at dam site of proposed Happy Valley reservoir, below all tributaries, 8 miles northeast of Diamond, Harney county.

DRAINAGE AREA.—Not measured.

RECORDS AVAILABLE.—April 14, 1917, to September 16, 1918.

GAGE.—Vertical staff on abutment of highway bridge; read by Sylvester Smith.

DISCHARGE MEASUREMENTS.—Made from bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of mud and sand; shifting. No well-defined control.

EXTREMES OF DISCHARGE.—Maximum stage during year, 1.53 feet March 28 (discharge, 50 second-feet); minimum stage recorded, 0.11 foot June 2 to 12 (discharge, 0.6 second-foot).

1917–1918: Maximum stage recorded, 4.5 feet in March, 1917, probably the 27th (discharge, 330 second-feet); minimum stage occurred in 1918.

ICE.—No record during winter.

DIVERSIONS.—Considerable area of hay land irrigated above station.

REGULATION.—None.

ACCURACY.—Stage-discharge relation changed during winter when records were suspended. Fairly well defined rating curves used in October and from March 17 to September 16. Gage read to hundredths twice a day until April 21; once a day thereafter. Daily discharge ascertained by applying mean daily gage height to rating table. Records fair.

Discharge measurements of Riddle Creek near Diamond, Oreg., during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*
Oct. 8	Briggs and Wright	0.84	6.3
Apr. 22	F. F. Henshaw	.73	6.8
June 13	R. C. Briggs	.18	[a].75

[a] Estimated.

Daily discharge, in second-feet, of Riddle Creek near Diamond, Oreg., for the year ending Sept. 30, 1918.

Day.	Oct.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1			43	2.0	0.6	0.6	2.3	0.6
2			37	1.6	.6	.6	2.3	.6
3			33	2.3	.6	.6	2.3	.8
4			30	1.8	.6	.6	2.3	.6
5			28	1.4	.6	.8	2.3	.8
6			25	1.0	.6	.8	1.6	1.2
7			7.5	1.0	.6	.8	1.6	1.6
8	6.3		11	.8	.6	1.0	1.6	1.8
9			31	.8	.6	1.2	2.0	1.8
10	6.3		16	.8	.6	1.2	2.1	1.6
11			24	.8	.6	1.4	2.1	1.6
12			13	.8	.6	1.4	2.3	1.4
13	6.3		13	.8	.9	1.8	2.0	1.6
14	6.3		18	1.0	.8	2.0	1.8	1.8
15			17	1.2	.8	2.5	1.8	2.3
16			18	1.4	.8	2.5	1.8	2.5
17	6.3	8	19	1.6	.8	3.5	1.8	
18		9	8.4	1.6	.8	3.7	1.8	
19		27	7.2	1.4	.8	3.1	1.8	
20		28	7.2	1.2	.8	2.9	1.6	
21		30	9.0	1.2	.8	2.7	1.6	
22		31	7.5	1.2	1.2	2.7	1.4	
23		34	7.5	1.2	1.2	2.5	1.4	
24		42	5.0	1.2	1.4	2.5	1.0	
25		42	3.5	.8	1.2	2.5	1.0	
26		47	3.3	.8	1.2	2.7	.8	
27		48	2.7	.8	1.2	2.5	.8	
28		49	1.6	.6	.8	2.5	.8	
29		41	1.8	.6	.6	2.3	.6	
30		42	1.8	.6	.6	2.3	.6	
31		46		.6		2.1	.6	

Monthly discharge of Riddle Creek near Diamond, Oreg., for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
March 17–31	49	8	34.9	1,040
April	43	1.6	15.0	893
May	2.3	.6	1.13	69.5
June	1.4	.6	.797	47.4
July	3.7	.6	1.95	120
August	2.3	.6	1.66	102
September 1–16	2.5	.6	1.41	44.7
The period				2,320

NOTE.—Total run-off for year estimated as 4,300 acre-feet.

SILVER CREEK ABOVE RILEY, OREG.

LOCATION.—In NW. ¼ sec. 30, T. 22 S., R. 26 E., at Cecil ranch, 3 miles below junction of Nichols Creek and 12 miles above Riley, Harney County.

DRAINAGE AREA.—260 square miles (measured on maps of United States Reclamation Service).

RECORDS AVAILABLE.—April 19, 1904, to July 14, 1906; February 16 to December 12, 1909; April 6 to October 19, 1910; flood periods of 1911, 1912, 1914–1918.

GAGE.—Vertical and inclined staff on right bank, a quarter of a mile above Cecil ranch house and 100 yards above point where creek divides into three channels; read by J. C. Cecil. Different gages used 1904 to 1906 and 1909 to 1910.

DISCHARGE MEASUREMENTS.—Made from cable 100 yards below gage or by wading.

CHANNEL AND CONTROL.—Bed composed of clean gravel; slightly shifting. Banks heavily covered with willows, which may affect stage-discharge relation somewhat. No well-defined control.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 3.65 feet March 24 and 28 (discharge, 236 second-feet). No record of mimimum stage.

1904–1906 and 1909–1918: Maximum stage recorded, 13.95 feet on original gage, observed from high water mark April 14, 1904 (discharge, 1,760 second-feet). Stream bed dry in August and September, 1910.

ICE.—Stage-discharge relation affected by ice; no record during winter.

DIVERSIONS.—Practically no land irrigated above.

REGULATION.—None.

ACCURACY.—Stage-discharge relation practically permanent. Rating curve well defined. Gage read to tenths once daily; diurnal fluctuation probably not large. Daily discharge ascertained by applying daily gage reading to rating table. Records good.

Discharge measurements of Silver Creek above Riley, Oreg., during the year ending Sept. 30, 1918.

Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*
Apr. 20	F. F. Henshaw	1.37	46.0
June 14	R. C. Briggs	.52	4.7

Daily discharge, in second-feet, of Silver Creek above Riley, Oreg., for the year ending Sept. 30, 1918.

Day.	Mar.	Apr.	May.	Day.	Mar.	Apr.	May.	Day.	Mar.	Apr.	May.
1	.....	113	a 28	11	.....	a 75	5	21	156	a 49	.....
2	.....	97	25	12	.....	68	.....	22	205	a 50	.....
3	.....	105	a 22	13	.....	64	.....	23	226	a 51	.....
4	.....	97	20	14	.....	64	.....	24	236	a 52	.....
5	.....	a 94	a 17	15	.....	64	.....	25	226	52	.....
6	.....	a 92	a 15	16	.....	a 61	.....	26	215	a 50	.....
7	.....	a 89	12	17	12	58	.....	27	226	a 48	.....
8	.....	a 87	a 10	18	25	a 55	.....	28	236	46	.....
9	.....	a 84	a 9	19	30	a 52	.....	29	226	35	.....
10	.....	82	a 7	20	89	49	.....	30	195	32	.....
								31	130	.....	.....

a Interpolated.

NOTE.—Mean discharge for May 12 to 31 estimated 4 second-feet.

Monthly discharge of Silver Creek above Riley, Oreg., for the year ending Sept. 30, 1918.

Month.	Discharge in second-feet.			Run-off in acre-feet.
	Maximum.	Minimum.	Mean.	
March 17–31	236	12	162	4,820
April	113	32	67.2	4,000
May	28	.....	8.1	498
The period	.....	.....	.....	9,320

MISCELLANEOUS DISCHARGE MEASUREMENTS.

Discharge measurements of streams in the Great Basin at points other than regular gaging stations, made during the year ending September 30, 1918, are listed in the following table.

Miscellaneous measurements in Great Basin during the year ending Sept. 30, 1918.[a]

Great Salt Lake basin.

Date.	Stream.	Tributary to—	Locality.	Gage height.	Discharge.
				Feet.	*Sec.-ft.*
1918.					
June 12	Box Elder Creek	Bear River	SW. ¼ sec. 20, T. 9 N., R. 1 W., just above Brigham municipal tailrace, 1½ miles east of Brigham, Utah.	.....	0.6
Aug. 5	....do	....do	....do	.....	3.5
25	....do	....do	....do	.....	4.0
May 11	Brigham municipal tailrace.	Box Elder Creek	SW. ¼ sec. 20, T. 9 N., R. 1 W., at mouth, 1½ miles east of Brigham, Utah.	.....	23.2
June 12	....do	....do	....do	.....	24.7
Aug. 25	....do	....do	....do	4.74	19.5
July 29	Haveter Spring	Thaynes Canyon Creek	T. 2, S. R. 4 E., near Park City, Utah.	— .38	3.1
Sept. 8	Pioneer Irrigation Co.'s outlet canal.	Weber River	SE. ¼ sec. 5, T. 6 N., R. 2 W., 1 mile south of Plain City, Utah.	.....	5.5
1917.					
Oct. 10	Jordan River	Great Salt Lake	SW. ¼ sec. 2, T. 1 S., R. 1 E., at W. Seventh South St. bridge in Salt Lake City, Utah.	.....	221
10	....do	....do	....do	.....	218

Sevier Lake basin.

1918.					
Aug. 20	Sevier River	Sevier Lake	Below East Panguitch canal, near Panguitch, Utah.	.....	[b] 3
1917.					
Oct. 22	....do	....do	NE. ¼ sec. 33, T. 24 S., R. 3 W., 200 feet below Annabella canal diversion dam, three-fourths mile east of Elsinore, Utah.	1.50	27.8
25	....do	....do	....do	1.08	1.8
30	....do	....do	....do	.98	[b] .7
1918.					
Apr. 19	....do	....do	....do	1.43	23.8
May 21	....do	....do	....do	1.20	7.4
June 18	....do	....do	....do	2.05	100
July 15	....do	....do	....do	1.46	29
31	....do	....do	....do	1.04	2.0
Sept. 30	....do	....do	....do	.98	[b] 1
1916.					
Jan. 22	....do	....do	NE. ¼ sec. 1, T. 23 S., R. 2 W., below Jumbo dam near Sigurd, Utah.[c]	.....	28.9
Aug. 14	....do	....do	....do	.....	77
1917.					
Sept. 12	....do	....do	....do	.....	33.7
Oct. 5	....do	....do	....do	.....	116
1918.					
June 3	....do	....do	....do	.....	12.3
1917.					
Oct. 16	....do	....do	NW. ¼ sec. 31, T. 22 S., R. 1 W., above backwater of Rockyford reservoir, ¾ mile east of Sigurd, Utah.	.....	186
25	....do	....do	....do	1.45	144
31	....do	....do	....do	1.51	156

[a] The table also includes measurements in Sevier Lake basin for 1915–1917, not published in previous reports.

[b] Estimated.

[c] Flow at this point when combined with flow of Jumbo canal is comparable to records published in this and in previous reports for Sevier River above Rockyford reservoir near Sigurd, Utah.

Miscellaneous measurements in Great Basin during the year ending Sept. 30, 1918—Con.

Sevier Lake basin—Continued.

Date.	Stream.	Tributary to—	Locality.	Gage height.	Discharge.
				Feet.	*Sec.-ft.*
1917.					
Nov. 26	Sevier River	Sevier Lake	NW. ¼ sec. 31, T. 22 S., R. 1 W., above backwater of Rockyford reservoir, ¾ mile east of Sigurd, Utah.	1.69	208
Dec. 14	do	do	do	1.64	194
1918.					
May 6	do	do	do	1.44	157
Aug. 12	do	do	do	[a] 1.54	80
22	do	do	do	1.40	90
Sept. 6	do	do	do	1.22	81
21	do	do	do	1.18	78
Aug. 5	do	do	SW. ¼ sec. 13, T. 18 S., R. 1 W., at Clark's Bridge, 1½ miles northwest of Fayette, Utah.	3.47	96
1915.					
June 7	do	do	NE. ¼ sec. 10, T. 15 S., R. 4 W., on county bridge, a block north of hotel at Leamington, Utah; former gaging station.	1.80	98
22	do	do	do	3.78	539
July 29	do	do	do	2.88	306
Oct. 10	do	do	do	1.50	71
Nov. 29	do	do	do	1.61	87
Dec. 11	do	do	do	1.38	62
1916.					
Jan. 24	do	do	do	.73	16.0
Feb. 16	do	do	do	.88	24.8
Mar. 29	do	do	do	3.31	483
May 2	do	do	do	4.78	892
17	do	do	do	4.59	842
29	do	do	do	2.80	330
June 29	do	do	do	2.27	219
July 22	do	do	do	3.16	416
Aug. 25	do	do	do	2.67	305
30	do	do	do	2.22	210
Sept. 23	do	do	do	2.84	381
Oct. 7	do	do	do	1.25	59
31	do	do	do	1.55	100
Dec. 14	do	do	do	.88	30.2
1917.					
Apr. 10	do	do	do	1.25	70
25	do	do	do	2.35	281
May 18	do	do	do	4.56	869
Aug. 9	do	do	do	2.60	318
Sept. 26	do	do	do	2.74	368
Oct. 31	do	do	do	1.73	133
1918.					
Jan. 4	do	do	do	1.50	101
Mar. 17	do	do	do	1.33	83
23	do	do	do	1.05	62
1917.					
Oct. 11	do	do	SW. ¼ sec. 30, T. 16 S., R. 6 W., just above Gunnison Bend reservoir, near Delta, Utah.	.....	65
1916.					
Dec. 7	Castle Creek canal	Castle Creek	.....	.....	[b] .1
1917.					
Aug. 30	do	do	.....	.60	[b] 3
1918.					
July 18	East Bench canal	Long canal	W. ½ sec. 2, T. 35 S., R. 5 W., 100 feet below Long canal gaging station and 3½ miles southeast of Panguitch, Utah.	.80	9.4
Aug. 7	do	do	do	.98	10.9
May 13	Vaeter canal	Sevier River	SW. ¼ sec. 10, T. 33 S., R. 5 W., at head, near Panguitch, Utah.	[c] .34	1.4
22	do	do	do	1.08	12.1
31	do	do	do	1.02	11.0
June 12	do	do	do	.78	7.5

[a] Stage-discharge relation affected by backwater from reservoir.
[b] Estimated.
[c] Datum lowered 0.5 foot.

Miscellaneous measurements in Great Basin during the year ending Sept. 30, 1918—Con.

Sevier Lake basin—Continued.

Date.	Stream.	Tributary to—	Locality.	Gage height.	Discharge.
				Feet.	*Sec.-ft.*
1916.					
June 25	Vaeter canal	Sevier River	SW. ¼ sec. 10, T. 33 S., R. 5 W., at head, near Panguitch, Utah.	1.16	13.3
July 8	do	do	do	.87	8.2
23	do	do	do	.57	4.6
Aug. 6	do	do	do	.86	8.6
20	do	do	do	.94	10.1
Sept. 10	do	do	do	1.00	10.8
June 26	Tropic canal	East Fork of Sevier River.	R. C. Syrett's ranch	.....	11.8
1917.					
Jan. 12	Seepage Slough	Otter Creek	W. ½ sec. 28, T. 30 S., R. 2 W., 50 feet above mouth near Coyoto, Utah.	.....	6.4
1918.					
May 16	Taylor canal	Bullion Creek [a]	Sec. 25, T. 27 S., R. 4 W., 3 miles southwest of Marysvale, Utah.	.34	2.0
June 17	do	do	do	.58	5.7
29	do	do	do	.43	2.8
July 20	do	do	do	.35	1.9
May 16	South canal [b]	Main canal	do	1.55	9.1
June 17	do	do	do	1.68	11.7
29	do	do	do	1.52	8.0
July 20	do	do	do	1.45	6.3
May 16	Acton canal	Bullion Creek	Sec. 30, T. 27 S., R. 3 W., 2 miles from Marysvale, Utah.	.34	6.0
Aug. 3	Three Creek	Pole Creek	NE. ¼ sec. 30, T. 25 S., R. 4½ W., 25 feet above mouth, 8 miles west of Sevier, Utah.	.....	9.7
1917.					
Oct. 22	Vermilion canal waste.	Sevier River	N. ½ sec. 21, T. 23 S., R. 2 W., near Vermilion, Utah.	.....	[c] 7.5
31	do	do	do	.....	13.5
Nov. 3	do	do	do	.....	[c] 14
26	do	do	do	.....	9
1916.					
Jan. 22	Jumbo power canal	do	NE. ¼ sec. 1, T. 23 S., R. 2 W., at bridge near head of canal near Sigurd, Utah.	.....	123
Aug. 14	do	do	do	.....	133
1917.					
Sept. 12	do	do	do	6.02	117
Oct. 5	do	do	do	6.58	109
1918.					
June 3	do	do	do	4.80	59
15	Lost Creek canal	Lost Creek	30 yards above division into upper and lower canals, near Salina, Utah.	.....	16.8
15	Upper Lost Creek canal.	Lost Creek canal	150 feet below division point, near Salina Utah.	.....	7.3
15	Lower Lost Creek canal.	do	30 feet below head of Burn's canal, near Salina, Utah.	.....	9.8
15	Salina Irrigation Co. canal.	Salina Creek	100 feet below weir, near Salina, Utah.	.....	59
1917.					
May 10	Canal C	Canal A	Sec. 31, T. 16 S., R. 6 W., 200 feet below headgates and 1½ miles north of Delta, Utah.	2.77	76
Oct. 7	Abraham canal	Sevier River	SW. ¼ sec. 10, T. 17 S., R. 7 W., 600 feet below head, 3½ miles west of Delta, Utah.	5.85	39.3
1918.					
May 5	do	do	do	6.11	155
19	do	do	do	5.46	86
June 9	do	do	do	6.05	98
30	do	do	do	6.40	152
July 21	do	do	do	5.26	74
1917.					
Oct. 7	Midland canal	Abraham canal	SW. ¼ sec. 10, T. 17 S., R. 7 W., 75 feet below head, 3½ miles west of Delta, Utah.	4.70	8.9

[a] Known also as Pine Creek. [b] Known also as Barney canal. [c] Estimated.

Miscellaneous measurements in Great Basin during the year ending Sept. 30, 1918—Con.

Sevier Lake basin—Continued.

Date.	Stream.	Tributary to—	Locality.	Gage height.	Discharge.
				Feet.	*Sec.-ft.*
1918.					
May 5	Midland canal	Abraham canal	SW. ¼ sec. 10, T. 17 S., R. 7 W., 75 feet below head, 3½ miles west of Delta, Utah.	4.50	8.0
June 9	do	do	do	4.80	5.8
May 5	Deseret High Line canal.	Sevier River	Sec. 15, T. 17 S., R. 7 W., 400 feet below head, 3 miles west of Delta, Utah.	5.65	105
19	do	do	do	5.58	88
June 9	do	do	do	5.95	79
30	do	do	do	5.78	76
July 21	do	do	do	5.20	55
1917.					
Oct. 7	Deseret canal	do	SE. ¼ sec. 15, T. 17 S., R. 7 W., 300 feet below head, 2½ miles west of Delta, Utah.	4.82	51
15	do	do	do	4.85	56
1918.					
May 5	do	do	do	4.84	119
19	do	do	do	4.56	68
June 9	do	do	do	4.66	78
30	do	do	do	4.80	112
July 21	do	do	do	4.55	57
1915.					
June 17	Smith canal	Deseret canal	SW. ¼ sec. 15, T. 17 S., R. 7 W., 50 feet below head, 2 miles west of Delta, Utah.	3.22	4.7
25	do	do	do	3.10	3.3
July 3	do	do	do	3.28	3.9
8	do	do	do	3.32	4.3
16	do	do	do	3.31	3.1
23	do	do	do	3.40	3.0
Aug. 3	do	do	do	3.20	3.0
21	do	do	do	2.96	2.6
Sept. 3	do	do	do	3.12	1.9
18	do	do	do	3.16	4.1
1916.					
May 16	do	do	do	[a] 1.41	12.8
28	do	do	do	.87	5.1
June 7	do	do	do	1.28	11.0
30	do	do	do	.84	4.3
Aug. 15	do	do	do	1.12	7.7
24	do	do	do	1.06	6.0
31	do	do	do	1.08	8.1
Oct. 5	do	do	do	.74	3.8
20	do	do	do	.48	1.2
1917.					
May 13	do	do	do	1.46	12.8
June 3	do	do	do	1.30	9.4
13	do	do	do	1.45	13.2
July 1	do	do	do	1.26	9.0
15	do	do	do	1.40	10.6
Sept. 2	do	do	do	1.36	9.5
16	do	do	do	1.46	8.9
Oct. 7	do	do	do	1.40	9.8
1918.					
May 5	do	do	do	1.24	9.6
June 9	do	do	do	1.44	13 9
30	do	do	do	1.30	11 8

Beaver River basin.

1918.					
Aug. 8	Cedar City Power Co.'s tailrace.	Coal Creek	50 feet below power house at Cedar City, Utah.	.....	5.8

[a] New datum.

Miscellaneous measurements in Great Basin during the year ending Sept. 30, 1918—Con.

Owens Lake basin.

Date.	Stream.	Tributary to—	Locality.	Gage height.	Discharge.
				Feet.	*Sec.-ft.*
1918. Mar. 15	Rock Creek	Owens River	Below mouth of Pine Creek near Round Valley, Calif.		49

Mono Lake basin.

Aug. 22	Tailrace of Nevada-California Power Co.'s Rush Creek plant.	Rush Creek	150 feet below power house at Silver Lake.		46
Aug. 23	Leevining Creek	Mono Lake	Outlet of Saddleback Lake		6.8

Walker Lake basin.

May 31	Strosnider canal	East Walker River	Road crossing near head, ½ mile below gaging station on river, above Mason Valley, near Mason, Nev.		11.7
June 20	do	do	do	1.64	12.5

Humboldt River basin.

Mar. 6	Susie Creek	Humboldt River	½ mile above mouth, at bridge on Overland Trail, 2½ miles northeast of Carlin, Nev.		4.8
1917. Oct. 3	Carlin Field canal	Maggie Creek	SW. ¼ sec. 23, T. 33 N, R. 52 E., 50 feet above mouth 150 feet from gaging station on Creek, and 1 mile from Carlin, Nev.		1.1
Dec. 12	Rock Creek	Humboldt River	Sec. 6, T. 37 N., R. 47 E., at former gaging station at Rock Creek ranch, 35 miles north of Battle Mountain, Nev.	.20	1.8
12	do	do	Same, below slough		3.3
12	do	do	Below junction with Antelope Creek, 7 miles below gaging station, sec. 6, T. 37 N., R. 47 E.		3.2

Honey Lake basin.

1918. Mar. 29	Charley Jones Creek	Long Valley Creek	1 mile below Scotts, Calif.		1.7
May 30	J. Broadwell ditch	Baxter Creek	Susanville-Lassen road near Lassen, Calif.		.7
Feb. 10	Ramsey ditch	Susan River	Susanville, Calif.		2.0
May 2	do	do	do		10.4
30	do	do	do		1.8
June 27	do	do	do		9.2
May 1	Willow Creek	do	Near Litchfield, Calif.	1.37	29
1	Balls Canyon Creek	Willow Creek	do		.3
Mar. 27	Hortson Slough	Susan River	1½ miles above Whitewater reservoir near Lassen, Calif.		43

Surprise Valley.

June 26	Cedar Creek	Middle Alkali Lake	Near Cedarville, Calif.	−.10	1.2
Apr. 20	Bidwell Creek	Upper Alkali Lake	Below all diversions near Fort Bidwell.		11
May 6	do	do	do		2.3
June 3	do	do	do		.1
Apr. 17	Harper Creek	Bidwell Creek	Fort Bidwell-High Grade crossing.		2.7
May 8	do	do	do		2.1
June 4	do	do	50 feet above mouth		1.6
23	do	do	40 feet above road crossing		.9

Miscellaneous measurements in Great Basin during the year ending Sept. 30, 1918—Con.

Surprise Valley—Continued.

Date.	Stream.	Tributary to—	Locality.	Gage height.	Discharge.
1918.				*Feet.*	*Sec.-ft.*
June 4	Bidwell Electric Co. ditch.	Diverts from Bidwell Creek.	30 feet below plant		2.1
Apr. 20	Martin Boucher ditch.	Diverts from Bidwell Creek.	½ mile below diversion near Fort Bidwell.		0.8
May 6	do	do	¼ mile below diversion		1.4
June 3	do	do	do		1.4
Mar. 5	McConnaughy ditch	do	½ mile below diversion near Fort Bidwell.		.2
Apr. 20	do	do	do		1.6
May 6	do	do	do		3.0
June 3	do	fo	do		1.5
Mar. 5	Peterson ditch	do	Near Fort Bidwell		0
Apr. 20	do	do	½ mile below diversion		1.4
May 6	do	do	do		1.2
June 3	do	do	do		1.9
Mar. 5	Conlan ditch	do	High Grade road		1.8
Apr. 20	do	do	do		.2
May 6	do	do	do		5.3
June 3	do	do	do		2.7
Mar. 5	Hickerson Peterson ditch.	do	Main street in Fort Bidwell		.5
Apr. 20	do	do	do		1.0
May 6	do	do	do		1.5
June 3	do	do	do		.2
1918.					
Apr. 20	McConnaughy and Peterson ditch.	do	Santiago's store in Fort Bidwell.		1.4
May 6	do	do	do		9.8
June 3	do	do	do		5.6
Apr. 20	Fee, Fee, Monroe and Smith ditch.	do	Schoolyard in Fort Bidwell		4.1
May 8	do	do	do		8.7
June 3	do	do	do		8.5
Apr. 15	Indian school water supply.	Bidwell creek	100 feet below hydroelectric plant.		.3
20	Baty, Christie, Fee, Smith ditch.	Diverts from Bidwell Creek.	200 feet below diversion near Fort Bidwell.		2.6
May 6	do	do	do		5 2
June 3	do	do	do		2.2
Apr. 20	Baty, Baty, and Fee ditch.	do	300 feet below diversion near Fort Bidwell.		3.9
May 6	do	do	100 feet below diversion		4.8
June 3	do	do	50 feet below diversion		.8
Apr. 20	Baty, Fee, and Sessions ditch.	do	40 feet below diversion near Fort Bidwell.		.9
May 6	do	do	do		4 1
June 3	do	do	do		.3
Apr. 20	Baty, Fee ditch	do	100 feet below diversion		1.8
May 6	do	do	150 feet below diversion		3.5
June 3	do	do	200 feet below diversion		1.3
May 9	Box Canyon Creek	Upper Alkali Lake	100 feet below Fee's reservoir		4.0

Warner Lakes basin.

May 11	Peterson ditch	South Fork of Twelvemile Creek.	Fort Bidwell-Adel crossing		8.4
23	do	do	do		8.6
June 8	do	do	do		8.9
22	do	do	do		7.0
Mar. 30	Barleycamp Creek	Fifteenmile Creek	do		.3
Apr. 10	do	do	do		4.8
Apr. 9	North Fork of Fifteenmile Creek.	do	do		.1
Mar. 13	Cowhead outlet	Twelvemile Creek			0
30	Twelvemile Creek	Twentymile Creek	C. K. Fox gage below Fifteenmile Creek.	1.37	13
Apr. 9	do	do	do	1.83	43
11	Dismal Creek	Deep Creek	150 feet above mouth		15
22	do	do	do		53
23	do	do	do		54
24	do	do	do		62
May 20	do	do	do		46
May 21	do	do	do		39
June 5	do	do	do		34
6	do	do	do		36
18	do	do	do		12

Miscellaneous measurements in Great Basin during the year ending Sept. 30, 1918—Con.

Warner Lakes basin—Continued.

Date.	Stream.	Tributary to—	Locality.	Gage height.	Discharge.
1918.				*Feet.*	*Sec.-ft.*
June 24	Dismal Creek	Deep Creek	150 feet above mouth		9.2
Apr. 12	Conlan ditch	Diverts from Dismal Creek.	500 feet below point of diversion.		.5
22	do	do	½ mile below point of diversion.		.6
May 20	do	do	¼ mile below point of diversion.		.3
June 5	do	do	do		1.4
18	do	do	½ mile below point of diversion.		1.5
24	do	do	do		1.4
Apr. 12	Billups ditch	do	30 feet above Lakeview-Big Valley trail.		.5
22	do	do	30 feet below diversion		1.7
May 20	do	do	100 feet below diversion		1.4
June 5	do	do	30 feet below diversion		1.1
18	do	do	50 feet below diversion		1.2
24	do	do	200 feet below diversion		1.0
June 6	Cressler ditch	Diverts from Deep Creek.	½ mile below diversion		21
24	do	do	do		3.8
May 10	Crump ditch	do	Adel, Oreg		3.4
22	do	do	do		3.6
June 7	do	do	do		3.5
21	do	do	do		2.9
May 10	Morris-Fitzgerald ditch	do	do	5.51	11
22	do	do	do	5.75	13
June 7	do	do	do	5.81	13
21	do	do	do	5.46	7.6
May 10	Messner-Wible ditch	do	do		3.5
22	do	do	do		.5
June 7	do	do	do		8.2
21	do	do	do		2.4
June 7	Wible ditch	Diverts from Messner-Wible ditch.	do		.5
May 10	Givan ditch	Diverts from Deep Creek.	do		6.6
22	do	do	do	5.50	4.5
June 7	do	do	do	5.50	4.7
21	do	do	do	5.09	1.0
May 10	M. C. ditch	do	do		83
22	do	do	do		49
June 7	do	do	do		62
21	do	do	do		14

Harney Lake basin.

1917.					
Oct. 1	"OO" Spring	Harney Lake	Sec. 34, T. 26 S., R. 28 E		14.1
1918.					
Apr. 26	do	do	do		13.9
June 10	do	do	do		8.4
1917.					
Oct. 1	"OO" Barnyard Spring	do	Sec. 36, T. 26 S., R. 28 E		5.1
1918.					
Apr. 26	do	do	do		6.0
June 10	do	do	do		3.0
1917.					
Oct. 2	East "OO" Spring	do	do		2.2
2	Johnson Spring	do	Sec. 6, T. 27 S., R. 29 E		2.0
2	Hughet Spring	do	Sec. 10, T. 27 S., R. 29 E., head		12.8
2	Sizemore Upper Spring	do	Sec. 9, T. 27 S., R. 29 E		[a] 3.5
2	Sizemore Lower Spring	do	NW. ¼ sec. 15, T. 27 S, R. 29 E.		
2	Sizemore drainage canal	do	Sec. 3, T. 27 S., R. 29 E		9.8
2	"OO" drainage canal	do	do		8.5
1918.					
Apr. 20	Silver Creek	do	Dunn Field, near Narrows, Oreg.	1.41	3.8

[a] Total flow measured in ditch below lower spring.

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