DEPARTMENT OF THE INTERIOR
FRANKLIN K. LANE, Secretary

UNITED STATES GEOLOGICAL SURVEY
GEORGE OTIS SMITH, Director

WATER-SUPPLY PAPER 393

SURFACE WATER SUPPLY OF THE UNITED STATES

1914

PART XII. NORTH PACIFIC DRAINAGE BASINS

B. SNAKE RIVER BASIN

N. C. GROVER, Chief Hydraulic Engineer
G. C. BALDWIN and F. F. HENSHAW, District Engineers

Prepared in cooperation with
THE STATES OF IDAHO, OREGON, NEVADA, AND WASHINGTON

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SURFACE WATER SUPPLY OF SNAKE RIVER BASIN, 1914.

AUTHORIZATION AND SCOPE OF WORK.

This volume is one of a series of 14 reports presenting results of measurements of flow made on streams in the United States during the year ending September 30, 1914.

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 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, 1895–1915.

1895	$12,500
1896	20,000
1897 to 1900, inclusive	50,000
1901 to 1902, inclusive	100,000
1903 to 1906, inclusive	200,000
1907	150,000
1908 to 1910, inclusive	100,000
1911 to 1915, inclusive	150,000

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 14.

Measurements of stream flow have been made at about 3,400 points in the United States [1] and also at many points in Alaska and the Hawaiian Islands. In July, 1914, 1,480 gaging stations were being maintained by the Survey and the cooperating organizations. Many

[1] Stream-gaging stations and publications relating to water resources, 1885–1913; U. S. Geol. Survey Water-Supply Paper 340, 1916.

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.

Information in regard to publications relating to water resources is presented in the appendix to this report (pp. 1 et seq.).

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 of 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, acre-feet, and millions of cubic 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 by the use of the factors given in the tables of convenient equivalents (pp. 9 and 10).

"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 (depth 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 of 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.

"Millions of cubic feet" is applied to quantities of water stored in reservoirs, most frequently in connection with studies of flood control.

The following terms not in common use are here defined:

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

"Control," "controlling section," and "point of control," terms used to designate the section or sections of the stream below the gage which determine the discharge relation at the gage. It should be

noted that the control may not be the same section or sections at all stages.

The "point of zero flow" for a given gaging station is that point on the gage—the gage height—to which the surface of the river would fall if there were no flow.

CONVENIENT EQUIVALENTS.

The following is a list of convenient equivalents for use in hydraulic computations:

Table for converting discharge in second-feet per square mile into run-off in depth in inches over the area.

Discharge (second feet per square mile).	Run-off (depth in inches).				
	1 day.	28 days.	29 days.	30 days.	31 days.
1.....	0.03719	1.041	1.079	1.116	1.153
2.....	.07438	2.083	2.157	2.231	2.306
3.....	.11157	3.124	3.236	3.347	3.459
4.....	.14876	4.165	4.314	4.463	4.612
5.....	.18595	5.207	5.393	5.578	5.764
6.....	.22314	6.248	6.471	6.694	6.917
7.....	.26033	7.289	7.550	7.810	8.070
8.....	.29752	8.331	8.628	8.926	9.223
9.....	.33471	9.372	9.707	10.041	10.376

NOTE.—For part of a month multiply the run-off for 1 day by the number of days.

Table for converting discharge in second-feet into run-off in acre-feet.

Discharge (second-feet).	Run-off (acre-feet).				
	1 day.	28 days.	29 days.	30 days.	31 days.
1.....	1.983	55.54	57.52	59.50	61.49
2.....	3.967	111.1	115.0	119.0	123.0
3.....	5.950	166.6	172.6	178.5	184.5
4.....	7.934	222.1	230.1	238.0	246.0
5.....	9.917	277.7	287.6	297.5	307.4
6.....	11.90	333.2	345.1	357.0	368.9
7.....	13.88	388.8	402.6	416.5	430.4
8.....	15.87	444.3	460.2	476.0	491.9
9.....	17.85	499.8	517.7	535.5	553.4

NOTE.—For part of a month multiply the run-off for 1 day by the number of days.

Table for converting discharge in second-feet into run-off in millions of cubic feet.

Discharge (second-feet).	Run-off (millions of cubic feet).				
	1 day.	28 days.	29 days.	30 days.	31 days.
1.....	0.0864	2.419	2.506	2.592	2.678
2.....	.1728	4.838	5.012	5.184	5.356
3.....	.2592	7.257	7.518	7.776	8.034
4.....	.3456	9.676	10.02	10.37	10.71
5.....	.4320	12.10	12.53	12.96	13.39
6.....	.5184	14.51	15.04	15.55	16.07
7.....	.6048	16.93	17.54	18.14	18.75
8.....	.6912	19.35	20.05	20.74	21.42
9.....	.7776	21.77	22.55	23.33	24.10

NOTE.—For part of a month multiply the run-off for 1 day by the number of days.

Table for converting discharge in second-feet into run-off in millions of gallons.

Discharge (second-feet).	Run-off (millions of gallons).				
	1 day.	28 days.	29 days.	30 days.	31 days.
1	0.6463	18.10	18.74	19.39	20.04
2	1.293	36.20	37.48	38.78	40.08
3	1.939	54.30	56.22	58.17	60.12
4	2.585	72.40	74.96	77.56	80.16
5	3.232	90.50	93.70	96.95	100.2
6	3.878	108.6	112.4	116.3	120.2
7	4.524	126.7	131.2	135.7	140.3
8	5.171	144.8	149.9	155.1	160.3
9	5.817	162.9	168.7	174.5	180.4

NOTE.—For part of a month multiply the run-off for 1 day by the number of days.

Table for converting velocity in feet per second into velocity in miles per hour.

[1 foot per second=0.681818 mile per hour, or two-thirds mile per hour, very nearly; 1 mile per hour=1.4666 feet per second. In computing the table the figures 0.68182 and 1.4667 were used.]

Feet per second (units).	Miles per hour for tenths of foot per second.									
	0	1	2	3	4	5	6	7	8	9
0	0.000	0.068	0.136	0.205	0.273	0.341	0.409	0.477	0.545	0.614
1	.682	.750	.818	.886	.995	1.02	1.09	1.16	1.23	1.30
2	1.36	1.43	1.50	1.57	1.64	1.70	1.77	1.84	1.91	1.98
3	2.05	2.11	2.18	2.25	2.32	2.39	2.45	2.52	2.59	2.66
4	2.73	2.80	2.86	2.93	3.00	3.07	3.14	3.20	3.27	3.34
5	3.41	3.48	3.55	3.61	3.68	3.75	3.82	3.89	3.95	4.02
6	4.09	4.16	4.23	4.30	4.36	4.43	4.50	4.57	4.64	4.70
7	4.77	4.84	4.91	4.98	5.05	5.11	5.18	5.25	5.32	5.39
8	5.45	5.52	5.59	5.66	5.73	5.80	5.86	5.93	6.00	6.07
9	6.14	6.20	6.27	6.34	6.41	6.48	6.55	6.61	6.68	6.75

1 second-foot equals 40 California miner's inches (law of March 23, 1901.)

1 second-foot equals 38.4 Colorado miner's inches.

1 second-foot equals 40 Arizona miner's inches.

1 second-foot equals 7.48 United States gallons per second; equals 448.8 gallons per minute; equals 646,317 gallons for one day.

1 second-foot for one year (365 days) covers 1 square mile 1.131 feet, or 13.572 inches deep.

1 second-foot for one year (365 days) equals 31,536,000 cubic feet.

1 second-foot equals about 1 acre-inch per hour.

1 second-foot for one year (365 days) equals 724 acre-feet.

1 second-foot for one day equals 86,400 cubic feet.

1,000,000,000 (1 United States billion) cubic feet equals 11,570 second-feet for one day.

1,000,000,000 cubic feet equals 414 second-feet for one 28-day month.

1,000,000,000 cubic feet equals 399 second-feet for one 29-day month.

1,000,000,000 cubic feet equals 386 second-feet for one 30-day month.

1,000,000,000 cubic feet equals 373 second-feet for one 31-day month.

100 California miner's inches equals 18.7 United States gallons per second.

100 California miner's inches for one day equals 4.96 acre-feet.

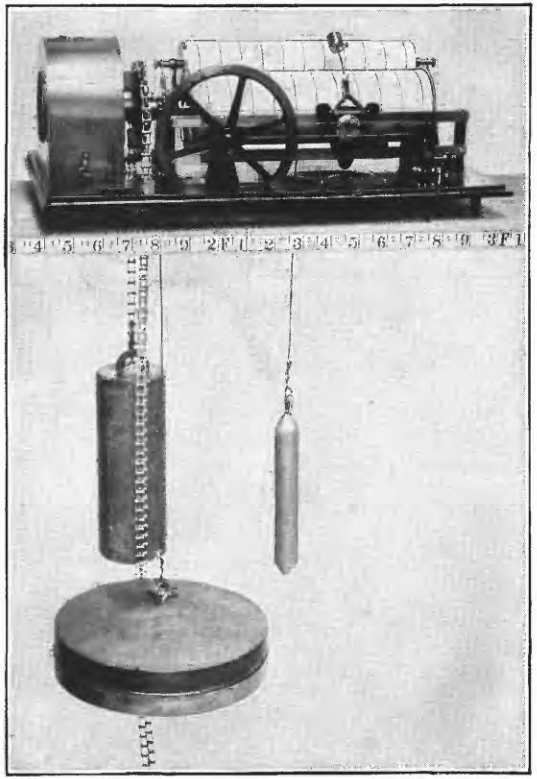
100 Colorado miner's inches equals 2.60 second-feet.

100 Colorado miner's inches equals 19.5 United States gallons per second.

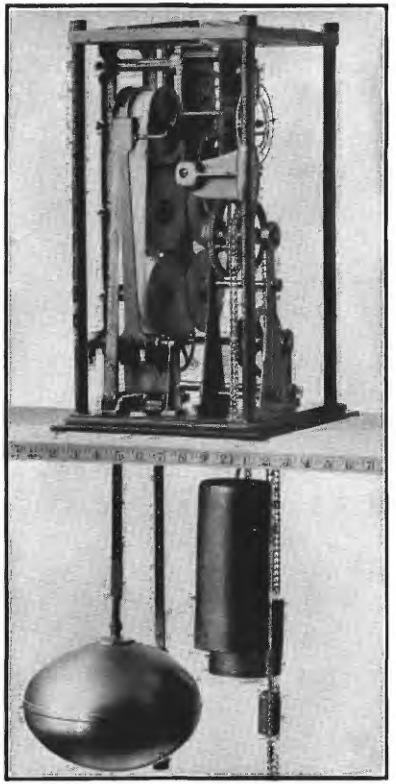
100 Colorado miner's inches for one day equals 5.17 acre-feet.

100 United States gallons per minute equals 0.223 second-foot.

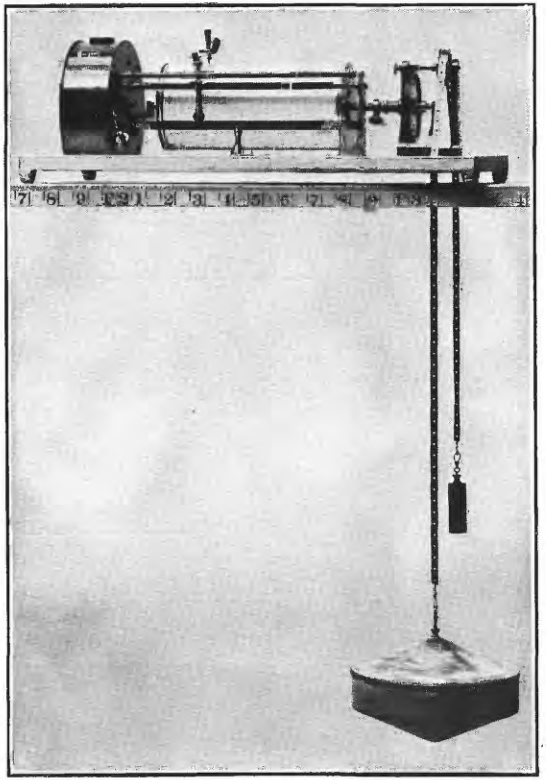
100 United States gallons per minute for one day equals 0.442 acre-foot.



A. STEVENS.

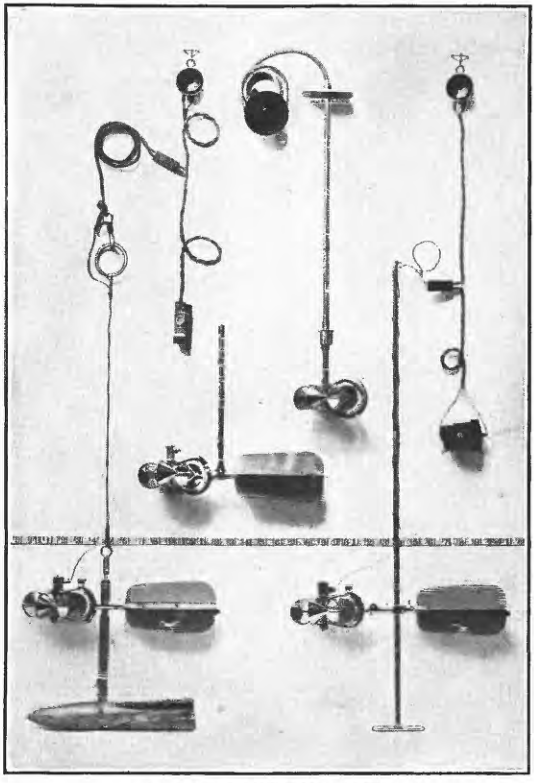


B. GURLEY PRINTING.

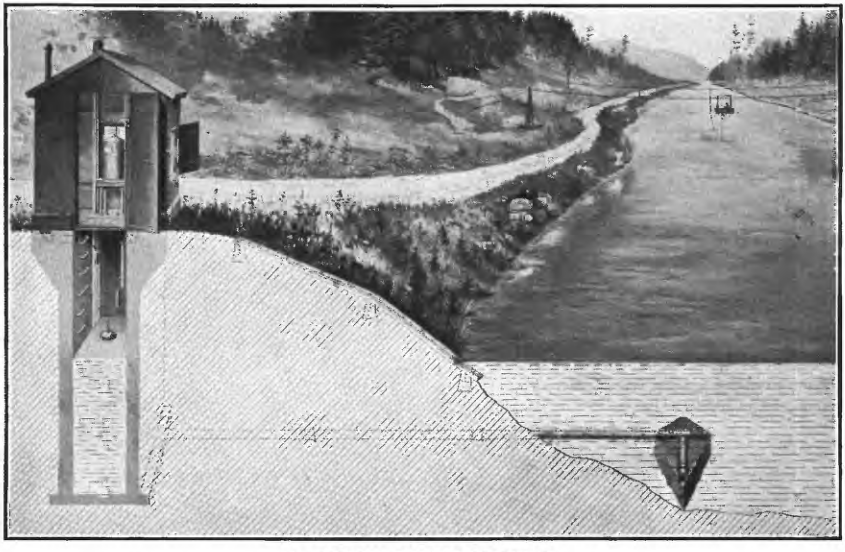


C. FRIEZ.

WATER-STAGE RECORDERS.



A. PRICE CURRENT METERS.



B. TYPICAL GAGING STATIONS.

1,000,000 United States gallons per day equals 1.55 second-feet.
1,000,000 United States gallons equals 3.07 acre-feet.
1,000,000 cubic feet equals 22.95 acre-feet.
1 acre-foot equals 325,850 gallons.
1 inch deep on 1 square mile equals 2,323,200 cubic feet.
1 inch deep on 1 square mile equals 0.0737 second-foot per year.
1 foot equals 0.3048 meter.
1 mile equals 1.60935 kilometers.
1 mile equals 5,280 feet.
1 acre equals 0.4047 hectare.
1 acre equals 43,560 square feet.
1 acre equals 209 feet square, nearly.
1 square mile equals 2.59 square kilometers.
1 cubic foot equals 0.0283 cubic meter.
1 cubic foot of water weighs 62.5 pounds.
1 cubic meter per minute equals 0.5886 second-foot.
1 horsepower equals 550 foot-pounds per second.
1 horsepower equals 76.0 kilogram-meters per second.
1 horsepower equals 746 watts.
1 horsepower equals 1 second-foot falling 8.80 feet.
1½ horsepower equals about 1 kilowatt.

To calculate water power quickly: $\frac{\text{Second-feet} \times \text{fall in feet}}{11} = \text{net horsepower on}$ water wheel realizing 80 per cent of theoretical power.

EXPLANATION OF DATA.

The data presented in this report cover the year beginning October 1, 1913, and ending September 30, 1914. At the first of January in most parts of the United States much of the precipitation in the preceding three months is stored as ground water, in the form of snow or ice, or in ponds, lakes, and swamps, and this stored water passes off in the streams during the spring break-up; at the end of September, on the other hand, the only stored water available for run-off is possibly a small quantity in the ground; therefore the run-off for the year beginning October 1 is practically all derived from precipitation within that year.

The base data collected at gaging stations (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 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 by the general methods outlined in standard text books 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 gage heights, give the daily discharge from which the monthly and yearly mean discharge is determined.

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

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

The description of the station gives, in addition to statements regarding location and equipment, information in regard to any conditions that may affect the constancy of the 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 the discharge in second-feet corresponding to the mean of the gage heights read each day. At stations on streams subject to sudden or rapid diurnal fluctuation the discharge obtained from the rating table and the mean daily gage height may not be the true mean discharge for the day. If such stations are equipped with water-stage recorders the mean daily discharge may be obtained by weighting discharge for parts of the day.

In the table of monthly discharge the column headed "Maximum" gives the mean flow for the day when the mean gage height was highest. As the gage height is the mean for the day it does not indicate correctly the stage when the water surface was at crest height and the corresponding discharge was consequently larger than given in the maximum column. Likewise, in the column headed "Minimum" the quantity given is the mean flow for the day when the mean gage height was lowest. The column headed "Mean" is the average flow in cubic feet for each second during the month. On this average flow computations recorded in the remaining columns, which are defined on page 8, are based.

The deficiency table presented for some of the gaging stations shows the number of days in each year on which the mean daily discharge was less than the discharge given in the table. By subtraction the table gives the number of days each year that the mean daily discharge was between the discharge given in the table and, also by subtraction, the number of days that the mean daily discharge was equal to or greater than the discharge given. In using the table for studies of power, allowance should be made for the various losses, the most important being wheel loss and head loss.

ACCURACY OF FIELD DATA AND COMPUTED RESULTS.

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

Footnotes added to the daily discharge tables give information regarding the probable accuracy of the rating tables used, and an accuracy column is inserted in the monthly discharge table. 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" or "approximate" 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 letter in the column headed "Accuracy" in the monthly discharge table rates the accuracy of the monthly mean and not that of the estimate of maximum or minimum discharge or the discharge for any one day. The rating is determined by considering the accuracy of the rating curve, the probable reliability of the observer, the number of gage readings per day, the range of the fluctuation in stage, and local conditions. In this column A indicates that the mean monthly flow is probably accurate within 5 per cent; B, within 10 per cent; C, within 15 per cent; D, within 25 per cent. Special conditions are covered by footnotes.

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 flow of the river above the station. "Second-feet per square mile" and "Run-off (depth 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 (depth 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, 1914, work in the Snake River basin was carried on in cooperation with the States of Idaho, Oregon, Nevada, and Washington, effected under contracts made between the Director of the Federal Survey and the State engineers or other officials and authorized by legislative acts appropriating money.

Special acknowledgments are due to Frank P. King, State engineer of Idaho, to John H. Lewis, State engineer of Oregon, to Henry Landes, State geologist of Washington, and to W. M. Kearney, State engineer of Nevada, for the efficient manner in which they represented their States in the investigations.

Acknowledgments are due also to the United States Reclamation Service, the United States Forest Service, and the United States Indian Office, which permitted the freest use of data gathered exclusively for them and paid for by them. The United States Weather Bureau also has furnished hydrometric and climatic data.

The following cities, private companies, and individuals have aided in the collection of records by paying the expense of work or otherwise assisting: Twin Falls Canal Co., I. B. Perrine, Idaho Railway, Light & Power Co., Twin Falls-Oakley Land & Water Co., Twin Falls-Salmon River Land & Water Co., West End Twin Falls Irrigation Co., Idaho Irrigation Co., Bray Lake Reservoir Co., J. M. Waterhouse, Idaho-Oregon Light & Power Co., L. S. Kimball, Willow River Land & Irrigation Co., Mesa Orchards Co., Crane Creek Irrigation, Land & Power Co., Maney Bros. Construction Co., Superintendent of Yellowstone National Park, Utah Construction Co., W. S. Hutson, Portneuf-Marsh Valley Canal Co., S. A. Mullenix, R. M. Woodward, E. M. Chandler, and Burbank Co.

DIVISION OF WORK.

The data for stations in Nevada, except those in the basin of Salmon Falls Creek, were collected and prepared for publication under the direction of E. A. Porter, district engineer, who was assisted by Lynn Crandall, Frank Weber, L. W. Jordan, and J. J. Sanford.

For stations in Idaho in the Malheur and Owyhee drainage basins in Oregon and in the Salmon Falls Creek basin in Nevada data were collected and prepared for publication under the direction of G. C. Baldwin, district engineer, who was assisted by A. B. Purton, R. C. Pierce, L. W. Jordan, C. G. Paulsen, L. W. Roush, A. W. Harrington, and J. W. Strohecker.

Data for stations in Oregon, except those in the Malheur and Owyhee drainage basins, were collected and prepared for publication under the direction of F. F. Henshaw, district engineer, who was

Daily discharge, in second-feet, of Snake River at south boundary of Yellowstone National Park for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.
1	510	510	486	418	561	535	356	821	5,020	1,970	641
2	510	561	486	418	587	486	356	922	5,180	1,860	.....
3	510	535	486	418	535	486	356	1,270	5,020	1,750	.....
4	510	510	463	418	510	463	356	1,270	5,020	1,640	.....
5	510	486	463	418	510	463	356	1,140	5,020	1,640	.....
6	510	587	440	418	510	440	356	1,070	4,040	1,540	.....
7	510	587	440	418	510	440	376	1,100	3,140	1,450	.....
8	510	535	440	418	486	418	376	1,640	3,140	1,360	.....
9	510	510	440	418	486	397	397	2,080	3,140	1,270	.....
10	510	510	440	418	486	376	397	2,460	3,140	1,270	.....
11	510	535	418	418	486	376	397	2,080	3,140	1,270	.....
12	510	510	418	397	510	376	418	1,860	2,990	1,180	.....
13	535	510	397	397	510	376	418	2,080	3,140	1,100	.....
14	535	486	418	397	535	356	440	2,580	3,140	1,100	.....
15	535	463	418	418	535	356	440	2,580	3,430	1,030	.....
16	535	463	418	418	561	356	486	2,850	3,580	956	.....
17	561	463	418	397	561	356	463	3,140	3,730	922	.....
18	561	486	418	397	561	356	486	3,430	4,040	887	.....
19	535	486	418	397	561	356	486	3,430	3,280	854	.....
20	535	510	418	418	535	336	698	3,580	3,430	821	.....
21	535	510	418	440	535	336	728	4,040	3,730	821	.....
22	535	535	418	440	510	336	790	4,520	3,140	790	.....
23	535	510	418	486	486	336	854	4,520	2,720	758	.....
24	510	486	418	486	561	336	790	4,850	2,580	728	.....
25	510	510	418	486	535	336	821	4,360	2,460	670	.....
26	510	535	418	535	561	336	821	3,730	2,460	641	.....
27	510	535	418	561	561	336	790	3,830	2,460	614	.....
28	510	561	418	587	561	356	758	4,040	2,330	587	.....
29	510	535	397	587	.....	356	698	4,040	2,200	641	.....
30	510	510	418	535	.....	356	670	4,360	2,200	698	.....
31	510	.....	418	510	.....	356	.....	4,680	.....	670	.....

NOTE.—Discharge determined from a curve well defined below 1,000 second-feet.

Monthly discharge of Snake River at south boundary of Yellowstone National Park for the year ending Sept. 30, 1914.

[Drainage area, 490 square miles.]

Month.	Discharge in second-feet.				Run-off.		Accuracy.
	Maximum.	Minimum.	Mean.	Per square mile.	Depth in inches on drainage area.	Total in acre-feet.	
October	561	510	521	1.06	1.22	32,000	A.
November	587	463	516	1.05	1.17	30,700	A.
December	486	397	430	.878	1.01	26,400	A.
January	587	397	448	.914	1.05	27,500	A.
February	587	486	530	1.08	1.12	29,400	A.
March	535	336	383	.782	.90	23,600	A.
April	854	356	538	1.10	1.23	32,000	A.
May	4,850	821	2,850	5.82	6.71	175,000	C.
June	5,180	2,200	3,400	6.94	7.74	202,000	C.
July	1,970	587	1,080	2.20	2.54	66,400	B.
The period	.....	.....	.....	.....	.....	645,000	

assisted by C. L. Batchelder, J. E. Stewart, P. V. Hodges, J. L. McAllister, and C. E. Stricklin.

For stations in Washington and in the Clearwater basin in Idaho records were collected and prepared for publication under the direction of G. L. Parker, district engineer, who was assisted by A. H. Tuttle, C. O. Brown, F. B. Storey, J. E. Stewart, and J. T. Hartson.

The manuscript was assembled by C. T. Bailey and reviewed by H. J. Dean.

STATION RECORDS.

SNAKE RIVER.

SNAKE RIVER AT SOUTH BOUNDARY OF YELLOWSTONE NATIONAL PARK.

Location.—In sec. 31, T. 19 S., R. 9 E., about half a mile above the soldier station at the south boundary of Yellowstone National Park, 23 miles south of West Thumb, 25 miles north of Moran, Wyo., and about one-fourth mile below the junction of Lewis and Snake rivers.

Drainage area.—490 square miles (determined from U. S. Geological Survey topographic maps).

Records available.—June 19, 1913, to August 1, 1914.

Gage.—Chain gage on right bank.

Discharge measurements.—Made by wading.

Channel and control.—Bed of stream is rocky and gravelly; one channel at gage.

Extremes of discharge.—Maximum stage recorded during the period October 1, 1913, to July 31, 1914, 6.31 feet at 5 p. m. June 2, 1914 (discharge, 5,200 second-feet); minimum stage recorded, 1.85 feet at 4 p. m. March 25, 1914 (discharge, 336 second-feet).

Winter flow.—Warm springs in the vicinity; discharge relation not affected by ice.

Accuracy.—Rating curve well defined for discharges below 1,000 second-feet.

Cooperation.—Gage-height record furnished by the superintendent of Yellowstone National Park.

Discharge measurements of Snake River at south boundary of Yellowstone National Park during the year ending Sept. 30, 1914.

[Made by C. G. Paulsen.]

Date.	Gage height.	Discharge.
	Feet.	*Sec.-feet.*
Mar. 10	1.95	377
Sept. 19 [a]	3.32	1,200

[a] Measurement made from bridge about 3 miles below gage.

Winter flow.—Discharge relation not seriously affected by ice.

Diversions and storage.—No diversions between dam and station and practically none from the river above the lake. Storage capacity of reservoir with dam at its present elevation, 400,000 acre-feet.

Accuracy.—Rating curve well defined; results good.

Cooperation.—Records of gage heights and measurements furnished by the United States Reclamation Service. Occasional measurements also made by the Geological Survey.

Discharge measurements of Snake River near Moran, Wyo., during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Nov. 22	S. C. Mahoney[a]	1.67	828	May 23	S. C. Mahoney[a]	1.07	465
Dec. 24	do	1.35	603	June 25	do	4.47	4,400
Mar. 11	C. G. Paulsen	.62	229	July 27	do	6.26	7,350
May 1	S. C. Mahoney[a]	.87	352				

[a] Employee, U. S. Reclamation Service.

Daily discharge, in second-feet, of Snake River near Moran, Wyo., for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	1,280	805	735	582	109	217	267	340	4,760	3,090	6,060	3,680
2	1,280	805	735	582	114	221	271	340	6,400	3,090	6,060	3,090
3	1,200	805	702	582	118	221	271	335	7,950	3,090	6,060	2,810
4	1,200	805	702	582	120	224	271	318	8,820	2,410	6,060	2,410
5	1,200	805	702	582	125	228	271	301	9,520	2,410	5,570	2,160
6	1,110	840	670	582	127	232	275	288	9,000	2,410	4,440	2,030
7	1,110	875	670	610	130	236	280	280	7,950	2,410	3,980	1,800
8	1,110	840	670	610	132	236	284	280	7,250	2,410	3,530	1,680
9	1,110	840	670	610	132	236	288	318	5,570	1,680	3,530	1,580
10	1,030	840	670	610	138	236	292	340	4,760	2,030	3,530	1,380
11	1,030	840	640	610	143	236	292	288	4,760	2,030	3,530	1,280
12	1,030	840	640	610	149	240	296	259	4,760	2,030	3,530	1,200
13	1,030	840	640	610	154	240	301	255	4,760	1,680	3,530	840
14	1,030	840	640	610	160	240	305	267	4,760	1,680	3,530	182
15	990	840	640	610	163	240	309	280	610	1,680	3,530	182
16	990	805	610	610	170	244	318	301	610	1,680	3,680	182
17	950	805	610	610	173	244	322	386	610	1,680	3,530	146
18	950	770	610	610	176	244	327	381	4,290	1,680	3,530	53
19	950	770	610	610	179	248	331	376	5,240	3,680	3,530	52
20	912	805	610	610	186	248	340	425	6,910	4,140	3,090	52
21	912	770	582	610	192	248	344	425	6,910	4,600	2,950	47
22	912	770	582	610	196	251	353	425	6,740	4,920	2,540	44
23	875	770	582	610	199	251	362	425	6,570	6,910	3,090	40
24	875	770	582	610	203	251	372	400	4,140	6,400	3,090	40
25	875	770	582	610	206	255	391	344	4,140	7,250	3,090	40
26	875	770	582	610	210	255	362	335	4,140	6,910	3,980	40
27	875	770	582	109	214	259	349	335	4,140	7,080	4,920	40
28	840	770	582	109	217	259	340	335	4,140	7,950	5,400	40
29	840	735	582	109	.....	263	340	335	3,090	7,950	4,920	40
30	840	735	582	109	.....	263	340	2,030	3,090	6,910	4,440	40
31	805	.....	582	109	.....	267	.....	2,950	.....	6,060	3,980	.....

NOTE.—Discharge determined from a fairly well defined rating curve.

JACKSON LAKE AT MORAN, WYO.

Location.—In sec. 18, T. 45 N., R. 114 W., a short distance above the gates at the outlet of the lake at Moran.

Records available.—June 1, 1909, to September 30, 1914. Records prior to January 1, 1911, fragmentary.

Gage.—Inclined staff on right shore just below the engineer's cottage.

Cooperation.—Gage-height record furnished by the United States Reclamation Service.

Daily gage height, in feet, of Jackson Lake at Moran, Wyo., for the year ending Spt. 30, 1914.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	34.00	33.35	33.23	32.90	33.55	35.20	36.15	38.30	51.45	52.00	46.40	36.00
2	34.00	33.35	33.20	32.90	33.60	35.22	36.15	38.50	51.80	52.00	45.90	35.70
3	34.00	33.35	33.18	32.90	33.65	35.24	36.17	38.65	51.98	52.00	45.50	35.55
4	33.95	33.35	33.16	32.90	33.75	35.26	36.20	38.90	52.00	51.95	45.00	35.40
5	33.92	33.37	33.14	32.90	33.85	35.28	36.20	39.10	52.10	52.00	44.50	35.20
6	33.90	33.38	33.12	32.90	33.95	35.30	36.25	39.30	52.00	52.00	44.20	35.00
7	33.90	33.40	33.10	32.90	34.03	35.35	36.30	39.45	51.75	52.00	43.85	34.82
8	33.90	33.40	33.08	32.90	34.12	35.40	36.35	39.65	51.55	52.00	43.50	34.65
9	33.85	33.40	33.07	32.90	34.20	35.45	36.40	40.10	51.35	52.00	43.20	34.60
10	33.80	33.40	33.05	32.90	34.25	35.50	36.45	40.50	51.25	52.08	43.00	34.45
11	33.75	33.40	33.02	32.90	34.30	35.51	36.50	40.90	51.20	52.08	42.75	34.30
12	33.72	33.40	33.00	32.90	34.35	35.52	36.60	41.15	51.18	52.08	42.50	34.20
13	33.70	33.38	32.98	32.90	34.40	35.54	36.65	41.40	51.15	52.08	42.20	34.10
14	33.70	33.38	32.97	32.90	34.45	35.55	36.70	41.80	51.20	52.08	42.95	34.15
15	33.70	33.35	32.95	32.90	34.50	35.60	36.75	42.30	51.40	52.08	42.68	34.30
16	33.65	33.35	32.95	32.90	34.58	35.65	36.80	42.70	51.80	52.10	41.42	34.40
17	33.62	33.35	32.95	32.90	34.65	35.68	36.85	43.20	52.20	52.10	41.10	34.50
18	33.60	33.35	32.93	32.90	34.73	35.73	36.87	43.70	52.50	52.05	40.80	34.75
19	33.58	33.35	32.91	32.90	34.80	35.76	36.87	44.30	52.65	52.00	40.50	34.90
20	33.53	33.35	32.91	32.90	34.88	35.78	36.90	44.80	52.68	51.80	40.30	35.20
21	33.50	33.35	32.90	32.90	34.95	35.80	37.00	45.35	52.60	51.60	40.00	35.50
22	33.48	33.35	32.90	32.90	34.98	35.82	37.10	45.95	52.40	51.30	39.80	35.68
23	33.48	33.32	32.90	32.90	35.03	35.84	37.20	46.70	52.30	51.00	39.60	35.80
24	33.45	33.30	32.90	32.90	35.06	35.96	37.40	47.40	52.10	50.40	39.30	35.90
25	33.43	33.28	32.90	32.90	35.10	35.92	37.60	47.95	52.12	49.90	39.00	36.00
26	33.40	33.25	32.90	32.90	35.13	35.96	37.75	48.45	52.10	49.55	38.60	36.10
27	33.40	33.25	32.90	33.30	35.16	36.00	37.85	49.00	52.10	48.90	38.20	36.20
28	33.40	33.25	32.90	33.35	35.18	36.10	38.00	49.60	52.05	48.40	37.60	36.38
29	33.38	33.25	32.90	33.40	.....	36.10	38.10	50.10	52.00	47.80	37.20	36.48
30	33.38	33.25	32.90	33.45	.....	36.12	38.20	50.60	52.00	47.20	36.80	36.58
31	33.35	.....	32.90	33.50	.....	36.15	.....	51.10	.....	46.70	36.40	.....

NOTE.—Add 6,700 feet to reduce these gage heights to sea-level datum.

SNAKE RIVER NEAR MORAN, WYO.

Location.—In sec. 17, T. 45 N., R. 114 W., about 1½ miles below Moran post office and the United States Reclamation Service dam at the outlet to Jackson Lake. No important tributaries between dam and station.

Drainage area.—820 square miles.

Records available.—September 21, 1903, to September 30, 1914.

Gage.—Inclined staff on left bank.

Discharge measurements.—Made from a cable about 100 feet below gage or by wading.

Channel and control.—Gravel and bowlders; probably permanent.

Extremes of discharge.—Maximum stage recorded during year, 7.73 feet, afternoon of June 5, 1914 (discharge, 9,580 second-feet); minimum stage recorded, 0.40 foot September 23 to 30, 1914 (discharge, 40 second-feet).

Monthly discharge of Snake River near Moran, Wyo., for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	1,280	805	1,000	61,500	B.
November	875	735	802	47,700	B.
December	735	582	632	38,900	B.
January	610	109	524	32,200	B.
February	217	109	162	9,000	B.
March	267	217	243	14,900	A.
April	391	267	315	18,700	A.
May	2,950	255	474	29,100	B.
June	9,520	610	5,210	310,000	B.
July	7,950	1,680	3,870	238,000	B.
August	6,060	2,540	4,070	250,000	B.
September	3,680	40	907	54,000	B.
The year	9,520	40	1,530	1,100,000	

SNAKE RIVER NEAR HEISE, IDAHO.

Location.—In sec. 5, T. 3 N., R. 41 E., about 600 feet above the Anderson dam, 3 miles above Heise, and 25 miles below station formerly maintained near Lyon. Several small creeks enter between the stations at Lyon and Heise

Drainage area.—Not measured.

Records available.—September 25, 1910, to September 30, 1914.

Gage.—Friez water-stage recorder on left bank.

Discharge measurements.—Made from a cable about 100 feet below the gage.

Channel and control.—The Anderson dam—a crib-and-stone diversion structure. Discharge relation has at times been affected by repair work on the dam and by damage to the crest by high water and ice.

Extremes of discharge.—Maximum stage recorded during year, 9.85 feet at 5 p. m. June 5 (discharge, 33,600 second-feet); minimum stage recorded, 1.38 feet at 6 p. m. February 27 and 8.30 a. m. March 12 (discharge, 2,540 second-feet); 2,540 second-feet does not represent the absolute minimum during the year; the following estimates have been made as probably representing the discharge during periods when discharge relation was seriously affected by ice: 2,240 second-feet, January 30; 2,200 second-feet, January 31; and 2,400 second-feet February 1–16.

Winter flow.—Automatic record discontinued during winter; discharge relation at times badly affected by ice gorges.

Diversions and storage.—Above all main diversions. A small ditch diverts water around the station, but its maximum capacity is probably not 20 second-feet. The only water stored above the station is at Jackson Lake, Wyo., where the Reclamation Service dam can at present store about 400,000 acre-feet.

Accuracy.—Results impaired by ice gorges in the winter and by damage to the crest of the dam by ice and floods.

Discharge measurements of Snake River near Heise, Idaho, during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Nov. 24	A. B. Purton	2.05	3,760	July 8	C. G. Paulsen	5.18	13,300
Jan. 30	C. G. Paulsen	1.74	2,240	9	....do	5.04	12,500
Mar. 18	....do	1.74	3,160	Aug. 16	....do	3.74	8,320
26	A. W. Harrington	1.59	2,880	Sept. 11	....do	2.73	5,320
May 16	C. G. Paulsen	6.19	18,000				

Daily discharge, in second-feet, of Snake River near Heise, Idaho, for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	5,280	4,340	3,800	.....	.....	2,670	2,960	10,300	24,200	15,700	12,900	8,000
2	5,150	4,340	3,850	.....	.....	2,720	2,960	11,100	26,900	15,300	12,500	7,680
3	5,030	4,440	3,900	.....	.....	2,570	3,140	12,900	31,000	15,300	12,500	7,060
4	5,030	4,340	3,960	.....	.....	2,570	3,500	14,900	32,000	14,900	12,900	6,770
5	5,030	4,220	4,010	3,220	.....	2,570	4,030	13,700	33,400	14,900	12,500	6,200
6	5,030	4,440	3,880	3,220	.....	2,570	4,560	12,500	33,400	14,500	11,800	5,920
7	5,150	4,790	3,760	3,220	.....	2,570	5,030	11,800	31,000	14,100	10,300	5,920
8	5,400	4,560	3,630	3,320	.....	2,570	5,150	12,500	26,400	13,300	9,640	5,660
9	5,530	4,340	3,500	3,410	.....	2,570	5,030	14,900	24,200	12,500	8,970	5,530
10	5,400	4,220	3,480	.....	.....	2,570	5,280	16,900	22,000	12,200	8,640	5,280
11	5,280	4,340	3,460	.....	.....	2,570	5,790	16,900	19,800	12,500	8,640	5,150
12	5,030	4,440	3,440	.....	.....	2,570	6,200	15,300	19,400	12,500	8,640	5,150
13	5,030	4,340	3,420	.....	.....	2,570	6,200	14,500	19,800	12,200	8,320	5,150
14	5,150	4,340	3,410	.....	.....	2,570	6,480	14,500	20,200	11,400	8,320	5,030
15	5,030	4,220	3,320	.....	.....	2,680	8,320	15,300	20,200	11,100	8,320	4,910
16	4,910	4,120	3,220	.....	.....	2,800	9,640	16,900	19,400	10,700	8,320	4,680
17	4,790	4,120	3,220	.....	2,570	2,960	8,640	18,600	17,700	10,300	8,000	4,560
18	4,680	4,120	3,220	3,220	2,590	3,140	8,000	20,200	18,100	9,640	8,000	4,560
19	4,680	4,120	3,220	3,140	2,620	3,140	8,320	20,200	20,200	9,300	8,000	4,440
20	4,560	4,220	3,220	3,050	2,640	3,050	10,300	19,800	23,300	9,640	8,000	4,680
21	4,560	4,220	3,220	3,030	2,620	2,960	12,500	20,700	25,100	11,100	7,370	4,910
22	4,560	4,010	3,220	3,000	2,600	2,880	12,200	22,400	25,100	11,400	7,370	4,680
23	4,440	3,860	3,220	2,980	2,590	2,880	12,900	24,200	22,400	11,800	7,060	4,560
24	4,440	3,700	3,220	2,960	2,570	2,960	13,300	25,100	20,700	12,900	7,060	4,340
25	4,560	4,120	3,220	3,090	2,570	2,880	12,500	23,700	19,000	12,900	7,060	4,220
26	4,680	4,090	3,220	3,220	2,570	2,880	12,200	22,000	18,600	12,500	7,370	4,120
27	4,560	4,060	3,220	3,140	2,570	2,880	11,400	20,200	17,700	13,300	7,680	4,120
28	4,440	4,040	3,220	2,840	2,620	2,880	10,700	20,700	16,500	13,300	8,640	4,120
29	4,440	4,010	3,220	2,540	.....	2,880	9,990	21,100	16,100	13,700	8,970	4,120
30	4,340	3,900	3,220	2,240	.....	2,880	9,990	20,200	16,100	14,100	9,300	4,120
31	4,340	.....	3,220	2,200	.....	2,960	.....	21,500	.....	14,100	8,640	.....

NOTE.—Discharge determined from a well-defined rating curve. Discharge Nov. 23 to Feb. 16 computed from occasional staff-gage readings and ice notes. Discharge estimated on account of ice as follows: Jan. 1–4, 10–17, at 3,220 second-feet; Feb. 1–16, 2,400 second-feet.

Monthly discharge of Snake River near Heise, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	5,530	4,340	4,860	299,000	A.
November	4,790	3,700	4,210	251,000	A.
December	4,010	.....	3,430	211,000	C.
January	.....	.....	3,090	190,000	C.
February	2,640	.....	2,480	138,000	C.
March	3,140	2,570	2,770	170,000	A.
April	13,300	2,960	7,910	471,000	A.
May	25,100	10,300	17,600	1,080,000	A.
June	33,400	16,100	22,700	1,350,000	A.
July	15,700	9,300	12,700	781,000	A.
August	12,900	7,060	9,090	559,000	A.
September	8,000	4,120	5,190	309,000	A.
The year	33,400	.....	8,020	5,810,000	

IDAHO CANAL NEAR SHELLEY, IDAHO.

Location.—In sec. 31, T. 1 N., R. 37 E., about 600 feet below the head gates, and about 1½ miles southwest of Shelley.

Records available.—June 20, 1912, to September 30, 1914. No water diverted during irrigation season of 1913 on account of break in canal.

Gage.—**Bristol** water-stage recorder.

Discharge measurements.—Made from a footbridge at gage.

Channel and control.—Concrete-lined rating flume; some aquatic plants during summer.

Extremes of discharge.—Maximum stage recorded August 19 to September 30, 1914, 1.78 feet at 4 p. m. September 19 (discharge, 54 second-feet); canal dry August 20–23 and September 24–30.

Accuracy.—Results good.

Idaho canal diverts water from the left bank of Snake River in sec. 31, T. 1 N. R. 37 E., and discharges into Blackfoot River in sec. 24, T. 2 S., R. 36 E.

Discharge measurements of Idaho canal near Shelley, Idaho, during the year ending Sept. 30, 1914.

[Made by C. G. Paulsen.]

Date.	Gage height	Discharge.
	Feet.	*Sec.-ft.*
Aug. 19	1.74	50.5
Do	2.41	87.4
Do	.81	16.1

Daily discharge, in second-feet, of Idaho canal near Shelley, Idaho, for the year ending Sept. 30, 1914.

Day.	Aug.	Sept.	Day.	Aug.	Sept.	Day.	Aug.	Sept.
1		31	11		27	21		46
2		31	12		25	22		48
3		33	13		31	23		15
4		31	14		41	24	14	
5		33	15		46	25	27	
6		31	16		50	26	29	
7		31	17		46	27	27	
8		33	18		50	28	27	
9		29	19	15	52	29	29	
10		29	20		50	30	29	
						31	31	

NOTE.—Discharge determined from a fairly well defined rating curve. Gates closed prior to Aug. 19.

Monthly discharge of Idaho canal near Shelley, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
August	31	0	7.35	452	C.
September	52	0	28.0	1,670	C.
The period				2,120	

IDAHO CANAL NEAR FIRTH, IDAHO.

Location.—In sec. 13, T. 2 S., R. 36 E., about three-fourths mile below the highway bridge, 1½ miles below the point where Sand Creek crosses the canal, and about 5 miles southeast of Firth; just above the flume that carries the canal over the Eastern Idaho Slough, about 5 miles above point at which it discharges into Blackfoot River.

Records available.—March 29 to September 30, 1914.

Gage.—Friez water-stage recorder on left bank.

Discharge measurements.—Made by wading at low and medium stages; high-stage measurements can be made from a flume 200 feet above the gage or from the bridge three-fourths mile above.

Channel and control.—Twin Hess-McGinnis flumes each about 10 feet in diameter.

Extremes of discharge.—Maximum stage recorded during year, 4.56 feet at 5 and 6 p. m. May 19 (discharge, 341 second-feet); canal dry July 21 to August 1.

Accuracy.—Rating curve well defined; records probably good. Automatic gage records unsatisfactory at times owing to incorrect setting.

Idaho canal diverts water from the left bank of Snake River in sec. 31, T. 1 N., R. 37 E., and discharges into Blackfoot River in sec. 24, T. 2 S., R. 36 E. The canal receives water from Sand Creek just above the station.

Discharge measurements of Idaho canal near Firth, Idaho, during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Mar. 29	A. W. Harrington	1.79	41.1	July 14	C. G. Paulsen	2.78	111
Apr. 26	C. G. Paulsen	3.78	231	Aug. 19	do	2.12	58.6
May 20	do	3.53	200				

NOTE.—On Aug. 19, C. G. Paulsen estimated the point of zero flow to be at gage height 0.50 foot.

Daily discharge, in second-feet, of Idaho canal near Firth, Idaho, for the year ending Sept. 30, 1914.

Day.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1		45	234	55	46	0	124
2		46	221	88	31	17	117
3		48	214	106	21	20	78
4		54	214	234	36	16	57
5		58	214	289	90	28	49
6		72	254	303	82	47	53
7		88	303	296	71	68	57
8		132	282	296	68	82	66
9		177	275	254	48	95	60
10		202	254	234	39	45	67
11		195	261	228	35	35	69
12		195	234	254	80	82	111
13		207	268	240	99	84	118
14		219	282	228	116	92	124
15		231	214	183	109	66	171
16		244	221	62	137	89	240
17		256	228	34	88	80	247
18		268	261	68	42	78	234
19		261	303	102	21	80	240
20		261	195	84	22	84	254
21		261	165	121	0	77	268
22		261	154	221	0	81	261
23		268	148	142	0	84	268
24		282	148	41	0	78	234
25		275	148	18	0	99	214
26		247	62	31	0	115	208
27		247	36	36	0	103	195
28		247	65	80	0	142	177
29	40	234	46	88	0	183	148
30	41	247	27	58	0	189	142
31	41		52		0	142	

NOTE.—Discharge determined from a well-defined rating curve. Discharge interpolated Apr. 13–17, 20–21, and Sept. 13.

Monthly discharge of Idaho canal near Firth, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
March 29–31	41	40	40.7	242	A.
April	282	45	194	11,500	A.
May	303	27	193	11,900	A.
June	303	18	149	8,870	A.
July	137	0	41.3	2,540	B.
August	189	0	80.0	4,920	A.
September	268	49	155	9,220	A.
The period				49,200	

SNAKE RIVER NEAR BLACKFOOT, IDAHO.

Location.—In sec. 30, T. 3 S., R. 34 E., about one-fourth mile below the mouth of Blackfoot River, 2 miles east of Rich post office, and about 14 miles southwest of Blackfoot. Blackfoot River, entering about one-fourth mile above the station, is the only important tributary between the station and the mouth of Henrys Fork, about 60 miles above. Portneuf and Bannock rivers, together with about 2,500 second-feet of spring water, enter between this station and that at Neeley.

Drainage area.—Not measured.

Records available.—June 6, 1910, to September 30, 1914.

Gage.—Friez water-stage recorder installed July 6, 1913, at same datum as vertical staff on the right bank. Datum was raised 0.06 foot June 25, 1911, and 0.03 foot October 1, 1912, when a new staff was installed 50 feet below original site.

Discharge measurements.—Made from a cable just above gage or, at low stages, by wading.

Channel and control.—Channel is of very coarse gravel; shifts slightly during high water; two channels at low stages.

Extremes of discharge.—Maximum stage recorded during year, 12.63 feet at noon June 8 (discharge, 35,600 second-feet); minimum stage recorded, 3.40 feet at 6.30 p. m. February 6 (discharge, 1,670 second-feet).

Winter flow.—Discharge relation affected slightly by floating ice.

Diversions.—Practically all the normal summer flow is diverted in the Idaho Falls district, above station.

Accuracy.—Measuring conditions good; results reliable.

Discharge measurements of Snake River near Blackfoot Idaho, during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Jan. 21	C. G. Paulsen	5.10	4,410	July 10	L. W. Roush	6.21	7,070
Mar. 19	do	5.02	4,350	Aug. 11	C. G. Paulsen	4.60	3,430

Daily discharge, in second-feet, of Snake River near Blackfoot, Idaho, for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	6,100	5,490	5,370	3,610	3,090	3,890	3,700	13,200	17,900	10,800	5,610	5,140
2	6,230	5,490	5,140	3,890	2,770	4,180	3,790	13,200	19,700	10,100	5,250	4,910
3	5,850	5,610	5,140	4,480	3,170	4,080	3,890	14,000	23,000	10,100	4,800	4,590
4	5,610	5,980	4,910	4,380	3,170	4,180	3,980	15,700	27,300	9,700	4,690	4,280
5	5,730	6,100	4,590	4,690	2,770	4,080	4,280	17,900	30,300	9,700	5,140	3,890
6	5,730	5,980	4,480	4,480	2,180	4,080	4,590	17,400	32,400	9,340	5,140	3,700
7	5,850	5,980	4,590	4,380	2,320	3,980	5,140	16,100	34,400	9,340	4,910	3,430
8	5,980	6,230	4,590	4,800	2,300	3,790	6,100	15,300	35,500	8,310	4,480	3,260
9	6,230	6,360	3,890	4,380	2,130	3,790	6,500	14,800	33,400	7,210	4,080	3,170
10	6,500	6,100	4,180	4,080	2,210	3,790	6,640	16,500	29,300	7,060	3,790	3,010
11	6,640	5,730	4,180	4,180	2,930	3,790	6,640	18,300	25,900	7,060	3,430	3,010
12	6,640	5,730	3,790	3,700	3,340	3,990	6,920	18,800	22,500	7,060	3,340	2,850
13	6,360	5,730	3,700	3,340	3,610	3,790	7,510	17,400	21,100	7,360	3,260	3,090
14	6,230	5,730	3,790	3,090	3,700	3,700	7,980	16,100	20,600	7,210	3,170	3,430
15	6,360	5,730	4,080	3,610	3,610	3,790	7,980	14,400	20,600	6,780	3,090	3,610
16	6,360	5,730	3,980	3,980	3,430	3,890	9,240	14,400	19,700	6,360	3,010	3,890
17	6,230	5,490	4,380	4,590	3,430	4,080	11,200	15,700	17,900	5,730	3,010	4,380
18	6,230	5,490	4,480	4,590	3,430	4,180	11,200	17,900	14,800	4,800	3,170	4,690
19	6,100	5,490	3,890	4,180	3,520	4,280	10,400	19,700	13,600	3,980	3,260	4,800
20	5,980	5,610	3,340	4,480	3,520	4,280	10,400	20,200	14,400	3,520	3,090	4,910
21	5,850	5,730	3,520	4,480	3,980	4,180	12,000	20,200	17,000	3,170	3,010	5,370
22	5,850	5,730	3,520	4,280	4,380	4,180	14,400	20,600	19,700	3,170	2,850	5,850
23	5,850	5,610	3,430	4,180	4,480	4,080	14,800	21,600	20,200	3,170	2,690	5,980
24	5,730	5,370	2,690	3,890	4,380	3,980	16,100	23,000	18,300	3,520	2,620	5,730
25	5,730	5,370	3,430	4,080	4,380	3,980	16,500	24,400	16,500	4,180	2,470	5,250
26	5,730	5,490	4,280	4,230	4,080	3,980	16,500	23,900	14,800	4,800	2,620	5,020
27	5,850	5,610	4,380	4,380	3,890	3,890	16,100	22,000	14,000	4,480	2,850	4,910
28	5,850	5,610	4,590	3,520	3,980	3,790	15,700	19,700	13,600	4,590	2,930	4,910
29	5,730	5,610	4,180	3,610	.....	3,790	15,300	18,800	12,800	4,590	3,520	4,910
30	5,730	5,490	4,080	3,430	.....	3,790	14,000	18,800	11,600	4,800	4,280	4,910
31	5,610	.....	3,980	2,930	.....	3,700	.....	17,400	.....	5,250	5,020	.....

NOTE.—Discharge determined from a well-defined rating curve.

Monthly discharge of Snake River near Blackfoot, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	6,640	5,610	6,010	370,000	A.
November	6,360	5,370	5,710	340,000	A.
December	5,370	2,690	4,150	255,000	B.
January	4,800	2,930	4,060	250,000	B.
February	4,480	2,130	3,360	187,000	B.
March	4,280	3,700	3,960	243,000	A.
April	16,500	3,700	9,650	574,000	A.
May	24,400	13,200	18,000	1,110,000	A.
June	35,500	11,600	21,100	1,260,000	A.
July	10,800	3,170	6,360	391,000	A.
August	5,610	2,470	3,700	228,000	A.
September	5,980	2,850	4,360	259,000	A.
The year	35,500	2,130	7,540	5,470,000	

SNAKE RIVER AT NEELEY, IDAHO.

Location.—In sec. 11, T. 8 S., R. 30 E., half a mile north of Neeley post office, 4 miles southwest of American Falls, and about 32 miles above the Minidoka dam. Portneuf and Bannock rivers, and about 2,500 second-feet of spring water enter between the Blackfoot gaging station and Neeley. Raft River enters below the station and above the Minidoka dam.

Drainage area.—Not measured.

Records available.—March 17, 1906, to September 30, 1914.

Gage.—Friez water-stage recorder installed August 8, 1910, on left bank at site of staff gage previously used.

Discharge measurements.—Made from a cable about 6 feet above gage. A cable installed a short distance above by a private company can be used as a stay wire in high water.

Channel and control.—Lava, rock, and gravel; shifted slightly in 1914.

Extremees of discharge.—Maximum stage recorded during year, 11.95 feet at 8 p. m. June 9 (discharge, 38,000 second-feet); minimum stage recorded, 4.92 feet at 11 a. m. August 25, to 1 p. m. August 26 (discharge, 4,790 second-feet).

Winter flow.—Discharge relation somewhat affected by ice.

Diversions.—No diversions of importance between the Blackfoot station and that at Neeley.

Accuracy.—Conditions for measuring discharge good; results reliable.

Discharge measurements of Snake River at Neeley, Idaho, during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Dec. 23	C. G. Paulsen	[a] 5.28	5,310	July 18	C. G. Paulsen	5.88	7,880
Apr. 12	do	6.41	9,780	19	do	5.64	7,130
July 12	L. W. Roush	6.30	9,540	19	do	5.64	6,920
13	do	6.41	9,370	20	do	5.43	6,340
16	C. G. Paulsen	6.20	8,710	20	do	5.41	6,270
17	do	6.10	8,240	20	do	5.40	6,130
18	do	5.90	7,910	Aug. 21	do	5.08	5,200

[a] Discharge relation affected by ice.

Daily discharge, in second-feet, of Snake River at Neeley, Idaho, for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	8,910	8,360	8,540	6,630	6,060	7,500	7,010	17,300	20,200	12,800	7,670	7,340
2	8,910	8,360	8,180	6,900	5,910	7,840	6,850	16,800	21,800	12,400	7,840	7,340
3	8,910	8,540	8,010	7,500	5,760	8,010	7,010	16,800	23,900	12,000	7,340	7,010
4	8,540	8,720	8,010	7,500	6,060	7,840	7,010	17,700	27,700	12,000	7,010	6,690
5	8,540	9,100	7,840	7,500	5,910	7,840	7,170	20,200	31,000	11,600	7,170	6,380
6	8,540	9,100	7,840	7,500	5,980	7,840	7,500	21,800	33,300	11,600	7,340	5,910
7	8,720	9,100	.....	7,340	6,060	7,840	8,010	20,800	34,900	11,200	7,340	5,760
8	8,910	9,100	.....	7,500	6,530	7,500	8,720	19,700	36,600	10,800	7,170	5,600
9	9,100	9,280	.....	7,500	6,380	7,500	9,650	18,200	37,700	10,000	6,530	5,450
10	9,460	9,280	.....	6,690	6,060	7,340	9,840	18,700	36,600	9,840	6,220	5,300
11	9,650	9,100	.....	.....	6,220	7,340	10,000	20,800	32,700	9,650	5,910	5,160
12	9,650	8,720	.....	.....	6,380	7,170	10,000	22,300	28,800	9,650	5,600	5,160
13	9,650	8,720	.....	.....	6,530	7,170	10,400	21,800	25,500	9,840	5,450	5,300
14	9,280	8,720	.....	.....	6,530	7,170	10,800	20,200	23,900	9,840	5,450	5,450
15	9,280	8,720	.....	.....	6,530	7,170	11,200	18,700	23,400	9,460	5,300	5,910
16	9,280	8,540	.....	.....	6,380	7,170	11,600	17,300	23,400	9,100	5,160	6,220
17	9,460	8,540	.....	7,170	6,380	7,340	13,200	17,700	21,800	8,540	5,160	6,530
18	9,280	8,360	.....	7,500	6,380	7,500	14,500	19,700	18,700	7,840	5,160	7,010
19	9,100	8,360	.....	7,500	6,380	7,500	14,500	21,300	16,300	6,850	5,300	7,170
20	9,100	8,360	.....	7,170	6,690	7,500	14,100	23,400	15,900	6,220	5,300	7,340
21	8,910	8,540	.....	7,340	7,670	7,500	14,100	23,400	17,300	5,910	5,300	7,500
22	8,720	8,540	.....	7,500	8,720	7,500	15,900	23,400	19,700	5,600	5,160	7,840
23	8,720	8,540	5,310	7,500	8,720	7,500	18,200	24,400	21,800	5,450	5,010	8,180
24	8,720	8,360	.....	7,340	8,180	7,340	18,700	25,500	21,800	5,600	4,870	8,360
25	8,720	8,180	.....	7,170	8,010	7,340	20,200	27,100	19,700	5,910	4,870	7,840
26	8,720	8,360	.....	8,180	7,840	7,170	20,200	27,700	18,200	6,850	4,870	7,500
27	8,720	8,540	.....	8,540	7,500	7,170	20,200	27,100	16,300	7,010	4,870	7,170
28	8,910	8,540	.....	7,700	7,500	7,010	19,700	24,900	15,900	6,850	5,010	7,010
29	8,720	8,720	.....	6,850	.....	7,170	19,200	22,800	15,000	6,850	5,300	7,010
30	8,720	8,540	.....	6,530	.....	7,010	18,200	22,300	13,600	6,850	5,910	7,170
31	8,540	.....	.....	6,380	.....	7,010	.....	21,300	.....	7,170	6,690	.....

NOTE.—Discharge determined from two well-defined rating curves. Discharge estimated, because of ice, from observer's notes, as follows: Dec. 7–22, 24–31, 6,700 second-feet; Jan. 11–16, 6,250 second-feet.

Monthly discharge of Snake River at Neeley, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	9,650	8,540	8,980	552,000	A.
November	9,280	8,180	8,660	515,000	A.
December	8,540	.....	6,920	425,000	C.
January	8,540	.....	7,110	437,000	B.
February	8,720	5,760	6,760	375,000	B.
March	8,010	7,010	7,410	456,000	B.
April	20,200	6,850	12,800	762,000	A.
May	27,700	16,800	21,300	1,310,000	A.
June	37,700	13,600	23,800	1,420,000	A.
July	12,800	5,450	8,750	538,000	A.
August	7,840	4,870	5,910	363,000	A.
September	8,360	5,160	6,650	396,000	A.
The year	37,700	4,870	10,400	7,550,000	

SNAKE RIVER NEAR MINIDOKA, IDAHO.

Location.—In sec 2, T. 9 S., R. 25 E., 100 yards below Howells Ferry, about 1 mile below the Reclamation Service dam, and about 6 miles south of Minidoka post office, the nearest railroad point; about 6 miles above the Montgomerys Ferry station, discontinued December 31, 1910. Raft River enters between the Neeley and Minidoka stations.

Drainage area.—Not measured.

Records available.—April 21, 1910, to September 30, 1914.

Gage.—Friez water-stage recorder located on the right bank, at same datum and directly across the river from the old staff gage used previous to August 28, 1911.

Discharge measurements.—Made from a cable about 50 feet below the gage.

Channel and control.—Coarse gravel; shifts slightly but infrequently.

Extremes of discharge.—Maximum stage recorded during year, 14.18 feet at 4 and 5 p. m. June 8 (discharge, 36,400 second feet); minimum stage recorded, 4.63 feet at 7 p. m. September 21 (discharge, 1,810 second-feet).

Winter flow.—Discharge relation not seriously affected by ice, but Friez gage is out of order at times because of cold weather.

Diversions and storage.—The North and South Side Minidoka canals divert water between Neeley and Minidoka stations; no diversions between the station and the Twin Falls North Side and South Side canals at Milner. About 54,000 acre-feet storage is possible at the Minidoka dam.

Accuracy.—Conditions for measuring discharge good; records reliable.

Discharge measurements of Snake River near Minidoka, Idaho, during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Oct. 6	L. W. Jordan	8.60	12,200	July 8	L. W. Roush	7.43	8,130
Jan. 17	C. G. Paulsen	6.21	4,880	Aug. 22	C. G. Paulsen	6.08	4,290
17	.....do	6.23	4,960	Sept. 7	.....do	5.66	3,680
June 20	Paulsen and Longwell[a]	8.58	11,900				

[a] Hydrographer, U. S. Reclamation Service.

Daily discharge, in second-feet, of Snake River near Minidoka, Idaho, for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	10,800	8,490	8,180	7,570	6,410	7,570	6,840	16,600	20,400	11,600	4,390	3,080
2	9,460	8,490	8,180	6,980	6,270	7,870	6,690	15,800	19,100	10,800	4,390	3,670
3	9,460	8,490	8,490	6,410	6,000	7,870	6,690	15,400	20,800	8,180	4,390	3,870
4	10,800	8,490	8,180	6,550	6,130	7,870	6,550	16,200	23,900	8,490	4,280	3,970
5	11,600	8,810	7,870	5,720	6,410	7,870	6,550	17,900	27,400	9,130	4,070	4,500
6	11,600	9,130	7,870	4,390	5,590	7,570	6,840	19,100	30,600	9,460	4,390	3,970
7	11,900	8,810	7,870	5,200	5,330	7,570	7,270	19,100	31,900	9,130	4,180	3,670
8	12,300	8,810	8,180	6,550	5,080	7,270	7,570	17,900	34,700	8,180	4,180	3,570
9	12,300	8,810	8,180	5,080	5,080	7,270	8,490	16,600	36,100	8,180	4,960	3,570
10	11,900	8,810	6,690	4,960	5,080	7,270	9,130	16,200	36,100	7,570	4,840	3,770
11	10,800	8,810	5,330	5,200	5,200	6,980	9,460	15,400	33,800	6,690	5,080	3,570
12	9,460	8,810	5,590	5,460	5,590	6,980	9,460	13,400	30,600	6,980	5,080	3,670
13	9,130	8,490	5,860	5,330	6,130	6,980	9,790	17,400	26,500	8,180	5,200	3,470
14	8,180	8,180	6,000	4,610	6,270	6,840	10,100	17,900	22,100	6,980	5,200	3,770
15	9,460	8,180	6,000	4,180	6,550	6,980	10,500	17,000	21,700	7,270	4,960	3,870
16	9,460	8,490	6,130	4,610	6,550	7,270	10,800	15,800	22,100	6,980	4,720	3,080
17	8,180	8,810	6,840	5,080	6,410	7,270	11,900	15,400	21,300	5,860	4,840	3,080
18	8,490	8,810	7,270	6,270	6,410	7,570	13,400	15,800	19,100	5,720	4,390	6,130
19	9,790	8,810	7,270	7,270	6,410	7,270	13,400	17,000	14,600	5,330	4,070	5,200
20	8,810	8,490	6,980	7,270	6,980	7,570	13,400	19,500	12,600	4,610	4,070	8,180
21	9,130	8,490	.....	7,270	7,570	7,270	13,000	20,400	10,100	5,200	4,390	6,130
22	8,810	8,180	.....	8,180	8,810	7,270	13,800	20,800	13,000	4,840	4,500	6,000
23	8,810	8,180	.....	7,870	8,810	7,270	15,800	21,300	19,100	4,280	4,280	7,570
24	8,180	8,180	.....	8,180	8,490	7,570	17,000	21,700	20,400	5,330	4,390	9,460
25	8,490	8,180	.....	8,810	8,490	7,270	17,900	22,600	19,500	5,460	4,390	7,270
26	8,810	7,870	.....	8,490	8,180	7,570	18,700	26,500	16,200	5,330	4,180	6,270
27	9,130	7,570	6,410	8,810	7,870	7,270	18,700	26,100	13,400	5,460	3,970	6,270
28	8,810	7,870	6,690	8,490	7,570	6,980	18,700	24,300	12,600	5,200	3,770	6,410
29	8,490	7,870	7,570	7,570	.....	6,980	18,300	22,100	13,000	4,390	2,990	5,330
30	8,490	8,180	7,870	6,980	.....	6,840	17,900	20,400	11,900	4,500	2,990	6,410
31	8,490	.....	7,870	6,690	.....	6,840	.....	20,400	.....	4,500	2,710	.....

NOTE.—Discharge determined from a well-defined rating curve. Discharge Dec. 21–26 estimated at 6,700 second-feet. Discharge Nov. 23–24 and June 21 estimated.

Monthly discharge of Snake River near Minidoka, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	12,300	8,180	9,660	594,000	A.
November	9,130	7,570	8,450	503,000	B.
December	8,490	5,330	7,080	435,000	B.
January	8,810	4,180	6,520	401,000	B.
February	8,810	5,080	6,630	368,000	B.
March	7,870	6,840	7,320	450,000	A.
April	18,700	6,550	11,800	702,000	A.
May	26,500	13,400	18,800	1,160,000	A.
June	36,100	10,100	21,800	1,300,000	A.
July	11,600	4,280	6,770	416,000	A.
August	5,200	2,710	4,330	266,000	A.
September	9,460	3,080	4,960	295,000	A.
The year	36,100	2,710	9,510	6,890,000	

NORTH SIDE MINIDOKA CANAL NEAR MINIDOKA, IDAHO.

Location.—In sec. 1, T. 9 S., R. 25 E., about 350 feet below the Minidoka dam, about 6 miles south of Minidoka.

Records available.—May 1, 1909, to September 30, 1914.

Gage.—Friez water-stage recorder.

Discharge measurements.—Made from suspension footbridge a few feet above gage.

Channel and control.—Rock cut; permanent but rough.

Extremes of discharge.—Maximum stage recorded during year, 9.44 feet May 20 (discharge, 1,520 second-feet); canal dry May 31 and June 1–2. No winter records kept. Probably no flow throughout parts of that season at least.

Diversions.—No diversions made from the canal close enough to the station to affect the gage heights.

Winter flow.—No records kept.

Accuracy.—Conditions for determining discharge fairly good; records reliable.

Cooperation.—Records furnished by United States Reclamation Service.

Discharge measurements of North Side Minidoka canal near Minidoka, Idaho, during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Oct. 5	L. W. Jordan	8.06	1,120	July 21	M. Aylor	9.10	1,440
Apr. 20	M. Aylor	5.58	646	28	do	8.95	1,400
20	do	5.58	647	Aug. 7	Aylor and Stearman	8.46	1,260
28	Aylor and Stearman	6.35	789	14	do	8.64	1,300
May 6	M. Aylor	7.68	1,050	20	do	8.72	1,320
13	do	9.28	1,440	22	C. G. Paulsen	8.54	1,280
23	Aylor and Stearman	9.36	1,460	24	M. Aylor	8.55	1,280
June 6	M. Aylor	4.74	466	31	Aylor and Stearman	8.12	1,200
15	Aylor and Stearman	8.40	1,230	Sept. 5	do	7.16	953
26	do	8.70	1,330	7	C. G. Paulsen	6.86	878
July 2	M. Aylor	8.84	1,430	11	Aylor and Stearman	6.24	740
7	L. W. Roush	9.11	1,390	17	do	4.59	447
11	M. Aylor	9.14	1,460	22	do	5.00	509
14	Aylor and Stearman	9.13	1,440	29	do	6.16	720

Daily discharge, in second-feet, of North Side Minidoka canal near Minidoka, Idaho, for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Apr.	May.	June.	July.	Aug.	Sept.
1	719	48	.....	807	0	1,350	1,270	1,090
2	826	48	169	850	0	1,360	1,280	982
3	1,070	49	297	862	136	1,390	1,270	947
4	1,160	50	316	918	209	1,400	1,270	947
5	1,120	50	319	949	235	1,400	1,280	947
6	986	49	319	1,020	360	1,420	1,280	924
7	819	49	320	1,100	546	1,440	1,280	891
8	759	49	349	1,200	783	1,440	1,260	869
9	698	48	427	1,280	940	1,440	1,280	829
10	581	48	498	1,310	1,050	1,440	1,280	758
11	379	48	517	1,390	1,120	1,450	1,280	742
12	356	48	516	1,420	1,200	1,450	1,290	734
13	456	49	517	1,460	1,250	1,450	1,280	636
14	479	48	520	1,470	1,270	1,440	1,290	510
15	381	48	518	1,480	1,260	1,440	1,320	451
16	390	48	516	1,490	1,260	1,430	1,340	460
17	321	48	519	1,490	1,250	1,440	1,330	443
18	144	48	585	1,480	1,260	1,440	1,340	444
19	12	48	610	1,510	1,270	1,430	1,340	439
20	29	48	610	1,520	1,270	1,430	1,330	434
21	83	48	610	1,520	1,290	1,430	1,310	437
22	83	48	613	1,000	1,290	1,420	1,290	468
23	62	48	676	998	1,300	1,420	1,270	504
24	50	48	707	1,500	1,290	1,420	1,270	498
25	50	48	711	1,520	1,300	1,420	1,270	493
26	50	48	717	1,500	1,310	1,440	1,280	495
27	48	48	717	1,460	1,320	1,420	1,270	496
28	48	49	746	1,460	1,350	1,400	1,260	648
29	48	52	760	1,490	1,330	1,370	1,200	728
30	48	.....	785	679	1,340	1,330	1,180	766
31	48	.....	.....	0	.....	1,280	1,190	.....

NOTE.—Discharge determined from a fairly well defined rating curve. No records furnished Nov. 30, 1913, to Apr. 1, 1914; canal presumably dry.

Monthly discharge of North Side Minidoka canal near Minidoka, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).
	Maximum.	Minimum.	Mean.	
October	1,160	12	397	24,400
November 1-29	52	48	48	2,780
April 2-30	785	169	534	30,700
May	1,520	0	1,230	75,500
June	1,350	0	993	59,000
July	1,450	1,280	1,410	86,800
August	1,340	1,180	1,280	78,600
September	1,090	434	667	39,600

SOUTH SIDE MINIDOKA CANAL NEAR MINIDOKA, IDAHO.

Location.—In sec. 12, T. 9 S., R. 25 E., about 300 yards below the Minidoka dam, about 6 miles south of Minidoka.

Records available.—April 21, 1909, to September 30, 1914.

Gage.—Friez water-stage recorder. Between the seasons of 1909 and 1910 the gage was moved 200 or 300 feet farther down the canal, which was widened below the station during the winter of 1910–11; datum unchanged since spring of 1910.

Discharge measurements.—Made from suspension footbridge a few feet above gage.

Channel and control.—Canal section is in earth; may shift; discharge relation affected by growth of aquatic plants.

Extremes of discharge.—Maximum stage recorded during year, 5.47 feet July 6 (discharge, 932 second-feet); minimum stage recorded, 0.47 foot April 22 (discharge, 13 second-feet). It is probable that canal was dry at times during period for which no records were kept.

Winter flow.—No records.

Accuracy.—Records considered reliable. Conditions have, however, necessitated the use of several rating curves with periods of shifting between.

Cooperation.—Records furnished by United States Reclamation Service.

Discharge measurements of South Side Minidoka canal near Minidoka, Idaho, during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Oct. 11	United States Reclamation Service engineers	1.50	112	July 28	M. Aylor	5.26	877
Apr. 29	H. L. Crawford	2.25	234	Aug. 7	....do	4.81	734
May 13	M. Aylor	5.18	882	14	....do	5.22	836
23	....do	5.05	823	20	....do	4.98	781
June 3	....do	4.62	725	22	C. G. Paulsen	4.96	765
6	....do	4.51	693	27	M. Aylor	4.98	770
11	....do	3.93	550	31	....do	4.85	686
26	....do	4.79	739	Sept. 5	....do	4.71	694
July 2	....do	5.31	879	8	C. G. Paulsen	4.74	640
8	L. W. Roush	5.50	936	11	M. Aylor	4.24	574
11	M. Aylor	5.39	912	17	....do	3.43	406
15	....do	5.35	895	22	....do	3.42	407
21	....do	5.36	906	29	....do	3.41	408

Daily discharge, in second-feet, of South Side Minidoka canal near Minidoka, Idaho, for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Dec.	Apr.	May.	June.	July.	Aug.	Sept.
1	250				298	784	912	863	739
2	272				295	840	894	864	691
3	272				296	728	902	853	706
4	250				303	763	923	818	701
5	247				329	777	929	765	694
6	245				380	722	932	740	704
7	245				432	667	842	735	712
8	239				526	583	922	745	663
9	195				580	563	903	782	639
10	144				642	563	898	805	600
11	109				680	554	905	813	561
12	107				813	557	908	795	534
13	97				830	525	897	782	490
14	103				824	544	886	835	466
15	103				848	579	897	832	428
16	98				838	582	890	830	414
17	82				807	591	892	856	394
18	54				747	719	896	821	396
19	39				742	778	894	775	409
20	29				702	792	900	780	412
21	32				744	785	899	780	402
22	37			13	828	760	898	772	406
23	36			159	825	750	898	763	386
24	37			148	828	770	892	772	414
25	38			54	499	765	889	780	415
26				53	526	760	886	772	428
27				55	706	761	884	772	410
28				187	697	827	874	757	376
29				276	680	856	877	723	402
30				300	694	849	864	713	406
31					763		856	738	

NOTE.—Discharge determined from a fairly well-defined curve and by the indirect method for shifting channels. No data furnished Oct. 26 to Apr. 21; canal probably dry.

Monthly discharge of South Side Minidoka canal near Minidoka, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).
	Maximum.	Minimum.	Mean.	
October 1–25	272	29	134	6,650
April 22–30	300	13	138	2,460
May	848	295	636	39,000
June	856	525	703	41,800
July	932	842	895	54,900
August	864	713	788	48,400
September	739	376	513	30,500

LAKE MILNER AT MILNER, IDAHO.

Location.—In sec. 29, T. 10 S., R. 21 E., in the backwater of the Twin Falls Co.'s dam at Milner.

Records available.—April 10, 1911, to September 30, 1914.

Gage.—Staff gage at the dam. A Lietz and a Friez water-stage recorder have also been used for short periods. All gages have same datum.

Accuracy.—Gage heights occasionally seriously affected by wind.

Cooperation.—Gage-height record furnished by the Twin Falls North Side Land & Water Co. and the Twin Falls Canal Co.

Daily gage height, in feet, of Lake Milner at Milner, Idaho, for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July	Aug.	Sept.
1	7.41	6.07	6.56	8.45	6.60	7.70	9.00	9.70	10.02	10.05	9.95	8.18
2	7.25	6.24	6.68	8.30	6.00	7.60	9.15	9.90	10.00	10.05	9.95	8.03
3	7.50	6.35	6.80	7.85	5.80	7.85	9.25	9.70	10.15	10.00	9.90	8.20
4	7.26	6.40	6.80	7.57	7.10	7.90	9.50	9.50	10.05	10.05	9.95	8.20
5	7.34	6.44	7.12	7.85	7.35	7.90	9.65	10.05	10.00	10.00	9.93	8.50
6	7.29	6.48	7.25	7.50	7.15	7.90	9.60	10.00	10.10	10.15	9.92	9.00
7	7.24	6.64	7.25	6.90	7.60	7.80	10.00	10.05	10.10	10.15	9.80	9.10
8	7.22	6.62	7.80	8.50	7.75	7.80	9.75	9.90	10.05	9.98	9.76	8.80
9	7.11	6.59	7.88	7.85	7.75	7.80	9.95	9.95	10.10	10.05	9.58	8.72
10	6.91	6.56	8.00	7.25	7.75	7.85	9.95	9.85	10.10	10.15	10.00	8.75
11	6.85	6.59	7.45	7.60	7.60	7.80	10.00	10.00	10.10	9.70	9.88	9.00
12	6.42	6.62	7.48	7.30	7.50	7.75	9.95	9.65	410.00	9.80	9.90	8.40
13	6.24	6.58	7.68	7.85	7.73	7.35	9.95	10.05	10.00	10.00	9.90	8.70
14	6.13	6.40	7.75	7.80	7.90	6.60	9.90	10.00	10.05	10.00	9.95	8.78
15	6.69	6.30	7.78	7.10	7.70	7.60	9.90	9.95	10.15	10.18	9.90	8.89
16	6.60	6.20	7.88	7.18	7.65	7.25	9.55	9.95	10.20	10.20	9.88	9.55
17	6.45	6.38	8.00	7.50	7.65	6.20	9.85	10.00	10.05	10.10	9.55	9.40
18	6.15	6.57	8.20	7.75	7.60	6.20	10.10	10.00	10.02	10.12	9.89	9.40
19	6.80	6.75	8.05	8.05	7.55	6.30	9.90	10.00	10.00	10.18	9.80	10.55
20	6.46	6.7	7.75	7.80	7.75	7.00	9.80	10.15	10.00	10.00	9.80	8.00
21	6.20	6.6	7.65	7.78	8.00	8.05	9.80	10.15	9.75	9.70	9.78	9.95
22	6.38	6.6	7.58	8.25	8.05	8.40	9.80	10.05	9.55	9.90	9.82	8.80
23	6.64	6.64	7.56	7.95	8.10	8.50	9.90	10.10	10.15	9.98	9.89	9.10
24	6.39	6.60	7.75	7.55	7.90	9.15	9.90	10.00	10.00	10.18	9.88	9.75
25	6.73	6.22	7.70	7.50	7.50	9.45	10.00	10.15	10.00	10.20	10.00	9.10
26	6.83	6.29	7.75	7.50	7.80	9.65	9.75	10.15	9.85	10.10	10.00	8.40
27	6.46	6.36	7.80	7.95	7.80	9.75	9.75	10.00	10.10	10.00	9.80	8.65
28	6.30	6.44	7.10	7.20	7.70	8.50	9.80	9.85	10.10	10.00	9.80	8.90
29	6.05	6.47	8.10	9.50	.....	8.60	9.75	9.95	10.05	9.90	9.70	9.00
30	6.11	6.42	8.40	7.78	.....	8.75	9.90	10.00	10.05	9.80	9.30	8.45
31	6.12	.....	8.45	7.25	.....	8.85	.....	10.05	.....	9.95	8.70	.....

NOTE.—Record is from Friez water-stage recorder, Oct. 1–17 and Oct. 20 to Dec. 2, and from staff gage during rest of year.

SNAKE RIVER AT MILNER, IDAHO.

Location.—In sec. 29, T. 10 S., R. 21 E., about 300 yards below the dam at Milner. No tributaries enter Snake River between the Minidoka dam station and Milner, and no important quantity of water between Milner and the station near Twin Falls except some seepage and spring water.

Drainage area.—Not measured.

Records available.—May 10, 1909, to September 30, 1914.

Gage.—Inclined staff on left bank for low and medium-stage readings installed October 20, 1909, with vertical section for high-water readings. The original gage was on the right bank. During part of the irrigating season, owing to the small flow of water, a temporary gage is maintained about 100 yards below the main gage.

Discharge measurements.—Made from a cable at the gage and at the temporary low-water station from foot planks.

Channel and control.—Old crib-and-rock diversion dam; somewhat shifting.

Extremes of discharge.—Maximum stage recorded during year, 18.5 feet June 8–9 (discharge, 31,500 second-feet); minimum stage recorded, —0.65 foot, morning of September 2 (discharge, 13 second-feet).

Diversions.—The Twin Falls canals divert water at the Milner dam just above the station and at times during the irrigating season take practically the whole flow of the river.

Winter flow.—Discharge relation not seriously affected by ice, but records are discontinued for short periods, owing to inaccessibility of gages.

Accuracy.—Conditions for determining discharge poor, but records considered fairly reliable.

Cooperation.—Gage-height record furnished by the Twin Falls Canal Co.

Discharge measurements of Snake River at Milner, Idaho, during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Jan. 14	A. B. Purton	12.48	5,370	July 18	W. N. McConnel [a]	10.13	2,020
Mar. 18	A. W. Harrington	13.01	6,990	19	L. W. Roush	10.18	1,820
June 13	C. G. Paulsen	16.50	21,000	21	do	.91	87.4
July 14	W. N. McConnel [a]	10.76	2,450	23	Roush and McConnel [a]	.94	94.9
15	do	10.52	2,310	27	W. N. McConnel [a]	1.05	106
16	do	11.34	3,510				

[a] Assistant to deputy State engineer.

Daily discharge, in second-feet, of Snake River at Milner, Idaho, for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	12,800	8,170	6,900	.....	6,030	6,600	6,600	13,200	15,500	6,900	34	16
2	8,170	7,690	6,900	.....	5,250	6,600	6,600	12,400	15,000	6,310	28	13
3	6,310	7,210	7,210	.....	4,780	6,900	6,310	11,500	14,100	4,780	28	14
4	7,640	7,210	7,520	4,780	4,780	6,600	4,340	9,960	17,800	4,560	31	14
5	8,970	7,520	7,520	5,250	4,780	6,900	4,340	12,000	19,600	4,340	32	16
6	10,300	7,520	6,900	4,780	3,930	6,900	3,930	13,700	24,000	4,130	32	20
7	10,300	8,170	6,310	2,920	4,130	6,900	5,760	14,600	27,000	3,930	32	20
8	9,940	8,860	5,250	6,600	4,340	6,900	4,780	14,600	31,500	3,560	31	20
9	9,580	7,520	4,780	3,560	4,560	6,900	5,760	12,800	31,500	2,780	31	18
10	9,230	7,520	4,560	3,230	4,780	6,900	6,900	10,300	31,000	3,560	34	18
11	8,870	7,210	4,350	4,340	4,340	6,900	7,520	13,200	30,500	3,230	34	24
12	8,510	7,840	4,140	3,740	4,560	5,760	8,510	6,900	27,500	2,410	31	16
13	8,340	7,520	3,930	4,780	5,250	5,500	8,860	12,400	23,000	2,780	27	21
14	8,170	7,320	4,070	5,500	5,760	5,250	8,860	12,800	20,100	1,850	28	21
15	6,600	7,110	4,200	2,650	5,760	5,500	9,220	12,800	15,000	2,100	28	23
16	8,860	6,900	4,340	3,560	5,760	6,600	8,860	11,100	16,400	2,780	27	25
17	8,510	7,210	4,340	3,560	5,760	6,900	9,590	10,700	16,400	3,070	21	24
18	8,020	7,520	4,340	4,340	5,760	6,900	9,590	10,300	15,000	1,850	24	23
19	7,520	7,840	.....	6,600	5,760	5,250	10,700	12,000	11,500	1,850	27	.....
20	8,860	9,960	.....	6,600	5,760	4,340	10,300	12,800	7,520	115	26	.....
21	7,520	9,250	.....	6,310	6,030	5,760	10,300	14,600	6,900	99	26	.....
22	6,310	8,540	.....	7,210	7,210	5,250	9,960	15,900	4,560	139	26	2,150
23	8,860	7,840	.....	8,170	8,170	4,340	12,800	17,300	11,500	96	26	2,250
24	8,510	7,520	.....	7,840	8,170	4,780	14,100	17,300	15,000	156	28	6,170
25	8,860	6,920	.....	7,210	6,900	4,560	14,600	17,800	14,600	147	29	7,060
26	8,860	6,310	.....	7,520	7,520	5,250	16,400	17,800	12,800	107	32	3,650
27	8,860	6,310	.....	8,170	7,210	8,510	15,500	21,600	9,590	99	30	3,840
28	8,510	6,310	.....	7,210	6,900	7,210	15,900	19,200	6,900	99	30	4,030
29	7,840	6,900	.....	1,400	.....	6,900	15,500	17,800	7,210	85	26	5,380
30	8,170	6,900	.....	7,840	.....	6,900	15,000	15,900	7,210	62	24	4,900
31	8,860	.....	.....	6,900	.....	6,900	.....	15,500	.....	56	19	.....

NOTE.—Discharge determined from several fairly well-defined rating curves. Discharge Dec. 19–31 estimated at 4,560 second-feet; Jan. 1–3 at 6,100 second-feet; and Sept. 19–21 at 3,500 second-feet. Discharge also estimated for short periods for which gage heights are lacking from October to December.

Monthly discharge of Snake River at Milner, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	12,800	6,310	8,600	529,000	A.
November	9,960	6,310	7,550	449,000	B.
December	7,520	.....	5,060	311,000	B.
January	8,170	1,400	5,510	339,000	B.
February	8,170	3,930	5,710	317,000	A.
March	8,510	4,340	6,240	384,000	A.
April	16,400	3,930	9,580	570,000	A.
May	21,600	6,900	13,900	855,000	A.
June	31,500	4,560	16,900	1,010,000	A.
July	6,900	56	2,190	135,000	B.
August	34	19	28	1,750	A.
September	.....	13	1,680	100,000	B.
The year	31,500	13	6,900	5,000,000	

NORTH SIDE TWIN FALLS CANAL AT MILNER, IDAHO.

Location.—In sec. 20, T. 10 S., R. 21 E., at a highway bridge about three-fourths mile below the head gates at the dam at Milner.

Records available.—May 10, 1909, to September 30, 1914.

Gage.—Vertical staff at south end of bridge.

Discharge measurements.—Made from a cable about 150 feet below the gage.

Channel and control.—Canal lined with concrete during winter of 1909–10; channel permanent, but covered with a growth of moss during certain seasons.

Extremes of discharge.—Maximum discharge published for year, 2,680 second-feet (gage height, 7.9) May 21 and 22; maximum stage recorded during year, 7.95 feet May 7 and 11 (discharge, 2,580 second-feet); difference in discharge relation due to shifting channel; no flow March 17, 27–31, and April 1–3.

Winter flow.—Discharge relation not affected by ice.

Accuracy.—Individual measurements can be made with a fair degree of accuracy, but the daily discharge estimates are approximate at times on account of the unusually variable discharge relation, caused partly by the gowth of moss but probably in some measure by changes in entrance velocity at the head gates or other unexplained phenomena. The monthly estimates, however, are based on sufficient current-meter measurements to be fairly reliable.

Cooperation.—Gage-height record furnished by the Twin Falls Canal Co., and results of measurements during the irrigation season by the special hydrographer stationed at this point in connection with the delivery of stored water from Jackson Lake.

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Discharge measurements of North Side Twin Falls canal at Milner, Idaho, during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Oct. 12	L. W. Jordan	4.35	1,070	July 30	W. N. McConnel [a]	7.66	2,430
Dec. 20	C. G. Paulsen	6.10	1,690	Aug. 1	do	7.76	2,470
Jan. 13	A. B. Purton	3.67	757	4	do	7.75	2,560
Mar. 18	A. W. Harrington	4.28	981	8	do	7.54	2,440
May 9	do	7.64	2,480	13	do	7.20	2,270
June 13	C. G. Paulsen	7.75	2,640	15	do	7.20	2,340
15	do	7.85	2,670	18	do	6.95	2,210
July 10	W. N. McConnel [a]	7.09	2,340	20	do	6.10	1,810
13	do	5.55	1,570	22	do	6.10	1,780
17	do	2.60	515	24	do	6.15	1,740
18	do	3.35	859	26	do	6.50	1,870
20	L. W. Roush	4.35	1,100	28	do	6.30	1,770
21	do	6.30	1,990	Sept. 2	do	5.68	1,460
22	McConnel and Roush	4.75	1,270	3	do	5.23	1,270
24	W. N. McConnel [a]	6.54	2,030	8	do	5.85	1,460
25	do	6.75	2,050	11	do	6.83	1,910
27	do	7.65	2,440	14	do	6.55	1,800
29	do	7.59	2,370	18	do	6.68	1,910

[a] Assistant to deputy State engineer.

Daily discharge, in second-feet, of North Side Twin Falls canal at Milner, Idaho, for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	1,510	532	1,130	678	433	643	0	2,430	2,650	2,650	2,530	1,580
2	1,380	1,050	1,170	678	328	610	0	2,520	2,650	2,650	2,530	1,450
3	1,420	1,050	1,210	643	328	712	0	2,390	2,650	2,600	2,530	1,240
4	1,400	1,050	1,210	610	328	678	1,770	2,390	2,650	2,650	2,530	1,240
5	1,390	1,090	1,300	610	547	678	2,160	2,570	2,650	2,600	2,490	1,370
6	1,380	1,090	1,380	518	460	712	2,160	2,520	2,650	2,650	2,490	1,490
7	1,380	1,170	1,380	518	489	712	2,340	2,620	2,650	2,650	2,490	1,710
8	1,320	1,130	1,590	610	643	678	2,070	2,520	2,650	2,560	2,400	1,490
9	1,260	1,130	1,630	578	678	678	1,300	2,480	2,650	2,600	2,260	1,490
10	1,200	1,130	1,720	594	610	678	1,300	2,450	2,650	2,330	2,260	2,020
11	1,140	1,130	1,660	610	643	712	1,300	2,640	2,650	1,000	2,170	1,930
12	1,090	1,130	1,600	610	712	1,510	610	2,460	2,650	1,080	2,220	1,880
13	1,070	1,130	1,550	748	748	1,380	610	2,570	2,650	1,410	2,260	1,930
14	1,050	1,080	1,600	678	678	1,250	610	2,570	2,650	2,650	2,350	1,840
15	1,170	1,030	1,660	547	643	821	626	2,580	2,650	923	2,260	1,880
16	1,170	973	1,720	547	678	896	643	2,590	2,650	2,650	2,170	2,100
17	1,130	1,010	1,770	643	678	0	678	2,600	2,650	181	1,170	1,990
18	973	1,090	1,720	712	678	1,050	2,210	2,610	2,650	961	2,170	1,880
19	1,210	1,170	1,720	748	610	1,170	2,210	2,620	2,650	1,160	2,170	2,280
20	1,090	1,090	1,730	678	678	1,420	2,160	2,670	2,600	1,160	1,820	1,750
21	973	1,100	1,730	678	748	1,720	2,160	2,680	2,560	1,970	1,770	1,750
22	1,050	1,110	1,720	821	748	1,850	2,160	2,680	2,280	1,660	1,820	1,620
23	51	1,120	1,720	678	748	1,990	2,250	2,650	2,650	1,160	1,820	1,580
24	50	1,130	1,550	610	712	2,120	2,250	2,650	2,650	1,570	1,860	1,580
25	50	895	1,550	643	610	2,210	2,340	2,650	2,650	2,040	1,910	1,540
26	50	660	1,630	643	712	2,340	2,300	2,650	2,560	2,490	1,770	1,450
27	518	1,050	1,210	748	678	0	2,250	2,650	2,650	2,440	1,770	1,490
28	491	1,130	1,050	547	678	0	2,300	2,650	2,650	2,490	1,820	1,580
29	460	1,090	1,050	748	.....	0	2,250	2,560	2,650	2,440	1,690	1,580
30	447	1,130	963	678	.....	0	2,520	2,650	2,650	2,490	1,560	1,450
31	460	.....	876	547	.....	0	.....	2,650	.....	2,530	1,580	.....

NOTE.—Discharge determined by the indirect method for shifting channels.

Monthly discharge of North Side Twin Falls canal at Milner, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	1,510	.....	946	58,200	B.
November	1,170	532	1,060	63,100	B.
December	1,770	876	1,470	90,400	B.
January	821	518	642	39,500	B.
February	748	328	615	34,200	B.
March	2,340	0	943	58,000	B.
April	2,520	0	1,580	94,000	B.
May	2,680	2,390	2,580	159,000	B.
June	2,650	2,280	2,630	156,000	A.
July	2,650	181	2,010	124,000	A.
August	2,530	1,560	2,120	130,000	A.
September	2,280	1,240	1,670	99,400	B.
The year	2,680	0	1,530	1,110,000	

SOUTH SIDE TWIN FALLS CANAL AT MILNER, IDAHO.

Location.—In sec. 29, T. 10 S., R. 21 E., at the wagon bridge about one-eighth mile below the head gates at the dam at Milner.

Records available.—May 10, 1909, to September 30, 1914.

Gage.—Friez water-stage recorder installed in 1913. A new staff gage, installed during the spring of 1912 about 100 feet upstream from the old gage at the bridge and at same datum, has been adopted as the standard gage.

Discharge measurements.—Made from the highway bridge.

Channel and control.—Rock cut; should be permanent.

Extremes of dischage.—Maximum stage recorded during year, 9.7 feet July 18–20 and 22–28 (discharge, 3,190 second-feet); minimum stage recorded, 1.75 feet March 17–19 (discharge, 87 second-feet).

Winter flow.—Apparently affected at times by ice.

Accuracy.—Conditions for determining discharge good; gage heights reliable.

Cooperation.—Gage-height record furnished by the Twin Falls Canal Co.

Discharge measurements of South Side Twin Falls canal at Milner, Idaho, during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Jan. 14	A. B. Purton	[a] 4.10	540	July 11	W. N. McConnel [b]	9.6	3,050
23	....do	[a] 2.12	106	23	L. W. Roush	9.69	3,220
Mar. 17	A. W. Harrington	1.78	89.8	Aug. 4	W. N. McConnel [b]	7.75	2,190
May 10	....do	8.80	2,660	21	....do	8.57	2,490
June 14	C. G. Paulsen	9.06	2,850				

[a] Discharge relation affected by ice.

[b] Assistant to deputy State engineer.

Daily discharge, in second-feet, of South Side Twin Falls canal at Milner, Idaho, for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	1,160	809	728	1,200	809	561	590	1,560	3,010	3,130	2,140	2,140
2	1,280	809	744	1,200	650	561	590	1,830	3,010	3,130	2,190	2,190
3	1,360	776	826	1,090	842	590	590	2,190	3,070	3,130	2,250	2,360
4	1,160	776	760	909	744	561	650	2,420	3,070	3,130	2,140	2,650
5	1,090	776	744	776	712	561	650	2,470	3,010	3,130	2,080	2,830
6	1,280	776	744	712	1,360	561	776	2,420	3,070	3,130	2,030	2,710
7	1,120	776	792	712	1,120	561	776	2,420	3,010	3,130	2,030	2,530
8	1,120	776	776	696	943	561	776	2,360	3,070	3,130	2,030	2,470
9	875	776	776	696	1,120	302	842	2,530	3,070	3,130	2,300	2,470
10	978	776	776	696	681	302	909	2,650	3,010	3,130	2,890	1,740
11	978	776	776	760	650	302	909	2,770	2,890	3,130	3,010	2,140
12	909	776	728	760	650	909	909	2,770	2,830	3,130	3,010	2,190
13	809	776	744	635	477	909	909	2,770	2,830	3,130	3,010	2,250
14	744	760	744	546	532	809	909	2,830	2,770	3,130	3,010	2,140
15	712	776	744	546	532	909	909	2,830	2,830	3,130	2,950	1,830
16	712	776	728	546	590	94	1,050	2,890	2,770	3,130	2,890	909
17	760	776	728	518	590	87	1,050	2,950	2,770	3,190	2,710	1,700
18	760	776	728	227	590	87	1,090	2,950	3,070	3,190	2,590	1,700
19	760	452	728	666	590	87	1,360	2,950	3,010	3,190	2,590	1,700
20	760	452	744	635	590	325	1,360	2,950	3,070	3,190	2,530	1,360
21	760	452	1,160	728	590	325	1,360	2,950	3,070	3,130	2,530	1,790
22	909	452	1,120	169	504	349	1,360	2,890	3,070	3,190	2,650	1,280
23	696	135	1,120	169	450	477	1,360	2,950	3,070	3,190	2,650	1,280
24	1,280	142	1,200	314	450	590	1,360	2,950	3,070	3,190	2,650	1,320
25	135	1,440	1,160	314	590	561	1,360	3,010	3,070	3,190	2,590	1,360
26	135	1,520	1,200	314	561	561	1,360	3,010	3,070	3,190	2,590	1,320
27	842	744	1,200	314	561	561	1,360	3,010	3,070	3,190	2,590	1,320
28	842	744	1,120	314	561	532	1,360	3,010	3,130	3,190	2,530	1,320
29	1,120	744	1,610	842	.....	532	1,360	3,010	3,130	3,130	2,470	590
30	1,090	744	1,650	842	.....	532	1,400	3,010	3,130	2,250	2,470	1,320
31	590	.....	1,610	842	.....	532	.....	3,010	.....	2,080	2,420	.....

NOTE.—Discharge determined from two rating curves fairly well defined below and well defined above 900 second-feet. Discharge estimated on account of ice Jan. 8-28.

Monthly discharge of South Side Twin Falls canal at Milner, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	1,360	135	894	55,000	A.
November	1,520	135	735	43,700	A.
December	1,650	728	942	57,900	B.
January	1,200	169	635	39,000	C.
February	1,360	450	680	37,800	C.
March	909	87	490	30,100	A.
April	1,400	590	1,040	61,900	A.
May	3,010	1,560	2,720	167,000	A.
June	3,130	2,770	3,000	179,000	A.
July	3,190	2,080	3,090	190,000	A.
August	3,010	2,030	2,530	156,000	A.
September	2,830	590	1,870	111,000	A.
The year	3,190	87	1,560	1,130,000	

SNAKE RIVER NEAR TWIN FALLS, IDAHO.

Location.—In sec. 33, T. 9 S., R. 17 E., at Perrine's bridge on the I. B. Perrine Blue Lakes ranch, about 4 miles north of Twin Falls post office and 3½ miles below Shoshone Falls; about 200 feet above outlet from Blue Lakes.

Drainage area.—Not measured.

Records available.—September 29, 1911, to September 30, 1914.

Gage.—Inclined staff on left bank about 100 feet above the bridge.

Discharge measurements.—Made from the lower side of the Perrine bridge.

Channel and control.—Lava boulders; should be permanent.

Extremes of discharge.—Maximum stage recorded during year, 13.3 feet at 6 a. m. and 7 p. m. June 10 (discharge, 32,200 second-feet); minimum stage recorded, 2.2 feet at 7 p. m. August 2 (discharge, 520 second-feet).

Winter flow.—Discharge relation not affected by ice.

Diversions.—No water for irrigation taken from the river between Milner and King Hill except small ranch ditches.

Accuracy.—Rating curve well defined; records reliable, especially for medium stages.

Discharge measurements of Snake River near Twin Falls, Idaho, during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Jan. 15	A. B. Purton	5.40	5,110	June 12	C. G. Paulsen	12.25	28,200
May 11	A. W. Harrington	8.53	14,100	Aug. 6	L. W. Roush	2.26	585

Daily discharge, in second-feet, of Snake River near Twin Falls, Idaho, for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	13,400	8,440	7,060	8,160	7,060	7,320	7,060	16,400	16,400	7,320	612	580
2	8,720	7,600	7,320	7,600	6,530	7,320	7,060	13,400	15,700	6,790	550	580
3	8,160	7,880	7,600	7,060	5,280	7,600	7,320	12,700	15,400	5,520	580	580
4	8,720	7,880	7,320	6,530	5,040	7,600	4,590	11,400	18,600	2,520	580	580
5	11,100	7,880	7,060	6,530	6,020	7,600	4,590	13,700	20,800	4,160	580	580
6	11,400	8,160	7,060	6,530	5,520	7,600	4,370	13,000	25,400	4,590	580	580
7	11,100	8,720	6,530	4,370	4,590	7,600	4,590	16,400	27,700	4,590	580	580
8	12,100	8,440	6,270	4,370	5,040	7,600	5,760	15,700	28,900	4,160	580	580
9	11,800	8,160	6,530	6,020	5,040	7,600	6,790	14,400	31,000	3,180	580	580
10	11,800	8,160	6,530	4,590	5,040	7,600	7,600	12,100	32,200	3,540	580	580
11	11,800	8,440	5,520	4,590	5,040	7,600	9,020	13,000	31,000	3,940	580	580
12	10,200	8,440	3,940	4,590	4,820	6,530	9,600	8,160	27,700	3,000	580	580
13	9,020	8,440	4,160	4,590	5,520	6,270	9,300	11,800	23,800	3,000	580	645
14	8,720	7,880	4,370	6,020	6,530	7,060	9,900	14,400	21,500	3,000	580	612
15	7,600	7,600	4,370	5,040	6,270	6,530	10,200	13,700	16,800	2,360	580	645
16	9,900	7,320	4,370	3,940	6,270	6,790	10,200	12,400	17,800	3,360	580	645
17	9,300	7,600	4,590	3,940	6,270	7,600	9,900	11,800	17,800	4,160	580	645
18	7,600	7,880	5,520	4,590	6,270	7,600	11,100	11,400	16,400	2,670	580	645
19	8,160	8,160	5,760	6,530	6,270	7,600	11,800	12,700	12,700	2,220	580	2,520
20	9,900	8,440	5,520	7,060	6,020	6,020	11,800	14,700	9,020	1,820	580	5,040
21	8,160	8,160	5,280	7,060	6,530	6,020	11,400	16,100	8,160	1,190	580	5,520
22	8,440	8,160	5,280	8,160	7,880	5,520	11,100	17,100	5,520	715	580	5,040
23	9,020	8,440	5,040	9,300	9,020	5,040	12,400	16,800	12,400	752	580	4,160
24	8,160	8,720	4,820	8,720	9,020	5,040	15,100	17,800	16,100	1,090	580	7,060
25	8,160	7,600	4,590	8,160	8,160	5,040	15,700	18,600	16,400	752	580	9,300
26	10,200	6,790	4,370	8,160	8,160	5,040	16,400	20,000	14,400	715	580	5,520
27	9,300	7,060	5,040	8,720	8,160	9,900	16,400	23,000	11,800	715	580	4,590
28	9,020	7,060	5,520	8,720	7,600	8,160	17,100	21,100	7,600	715	580	4,820
29	8,720	7,060	4,160	4,160	.....	7,600	16,800	19,300	8,160	680	580	5,040
30	8,720	7,060	4,160	9,300	.....	7,600	16,400	17,100	8,160	680	580	5,280
31	9,020	.....	6,020	7,880	.....	7,320	.....	16,800	.....	612	580	.....

NOTE.—Discharge determined from a well-defined rating curve.

Monthly discharge of Snake River near Twin Falls, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	13,400	7,600	9,590	590,000	A.
November	8,720	6,790	7,920	471,000	A.
December	7,600	3,940	5,540	341,000	A.
January	9,300	3,940	6,480	398,000	A.
February	9,020	4,590	6,390	355,000	A.
March	9,900	5,040	7,010	431,000	A.
April	17,100	4,370	10,400	619,000	A.
May	23,000	8,160	15,100	928,000	A.
June	32,200	5,520	17,800	1,060,000	A.
July	7,320	612	2,730	168,000	A.
August	612	550	580	35,700	A.
September	9,300	580	2,490	148,000	A.
The year	32,200	550	7,660	5,540,000	

SNAKE RIVER NEAR HAGERMAN, IDAHO.

Location.—In sec. 2, T. 8 S., R. 13 E., at Owsleys Ferry, one-fourth mile above intake of proposed Upper Salmon Falls power canal, and about 4 miles south of Hagerman.

Drainage area.—Not measured.

Records available.—August 24, 1912, to September 30, 1914.

Gage.—Inclined staff 50 feet below the ferry. An auxiliary staff is maintained at the proposed power-house site, 1¾ miles below the regular gage.

Discharge measurements.—Made from cable 140 feet above gage. Prior to June 9, 1914, measurements made from boat or ferry.

Channel and control.—Rocky; practically permanent.

Extremes of discharge.—Maximum stage recorded during year, 7.75 feet at 6 p. m. June 10 (discharge, 35,100 second-feet); minimum stage recorded, 3.3 feet July 30 to August 20, August 26, and August 31 to September 10 (discharge, 4,920 second-feet).

Winter flow.—Discharge relation not affected by ice.

Diversions.—At times during the irrigation season the entire flow of the river is diverted into the canals at Milner and the flow at this station is maintained entirely by springs, seepage, and waste water from irrigation up the river.

Accuracy.—Rating curve well defined; records good.

Discharge measurements of Snake River near Hagerman, Idaho, during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Oct. 16	L. W. Jordan	4.83	12,700	June 9	C. G. Paulsen	7.75	35,200
Nov. 29	A. B. Purton	4.52	11,500	10	do	7.78	35,000
Feb. 21	C. G. Paulsen	4.60	11,300	Aug. 4	L. W. Roush	3.30	4,800
May 24	do	5.89	20,400				

Daily discharge, in second-feet, of Snake River near Hagerman, Idaho, for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	14,600	.....	10,800	11,400	12,000	11,400	10,300	18,100	18,800	9,710	4,920	4,920
2	15,300	.....	10,800	10,800	11,400	11,400	10,300	16,600	18,100	9,710	4,920	4,920
3	15,300	.....	10,800	10,300	10,800	11,400	10,300	16,600	17,400	9,710	4,920	4,920
4	15,300	.....	10,800	9,710	9,710	11,400	9,710	14,600	18,100	8,100	4,920	4,920
5	15,300	.....	10,800	9,710	9,160	11,400	9,160	15,300	22,500	5,750	4,920	4,920
6	15,300	12,700	10,800	9,160	9,160	10,800	8,100	17,400	28,000	9,160	4,920	4,920
7	15,300	12,000	10,300	8,620	9,160	10,800	8,100	17,400	30,500	8,620	4,920	4,920
8	15,300	12,000	10,300	7,110	9,160	10,800	9,160	18,100	31,300	8,100	4,920	4,920
9	15,300	12,000	9,710	8,100	8,620	10,800	9,710	14,600	34,700	7,110	4,920	4,920
10	15,300	11,400	9,710	8,100	8,620	10,800	10,300	13,300	34,700	7,110	4,920	4,920
11	14,600	10,800	8,100	9,160	8,620	10,300	11,400	14,600	34,700	7,110	4,920	5,330
12	14,000	10,800	8,100	9,160	8,620	10,800	12,700	14,600	32,200	7,110	4,920	5,330
13	12,700	10,300	8,100	9,160	9,160	10,800	12,700	16,600	28,000	7,110	4,920	5,330
14	12,700	9,710	8,100	9,160	9,160	10,800	13,300	16,000	26,400	7,110	4,920	5,330
15	12,700	9,710	8,620	9,160	9,160	10,800	13,300	16,000	19,500	7,110	4,920	5,330
16	12,700	9,710	8,620	9,160	9,160	10,800	12,700	16,000	18,800	6,640	4,920	7,110
17	12,700	10,300	9,160	8,100	9,160	10,800	12,700	17,400	17,400	6,640	4,920	10,300
18	12,700	10,300	9,160	8,100	9,160	10,800	12,000	17,400	16,600	6,190	4,920	12,700
19	12,700	10,300	9,710	10,300	8,620	10,800	12,000	17,400	15,300	6,190	4,920	8,100
20	13,300	10,300	9,710	11,400	9,160	10,300	12,700	16,600	14,000	6,190	4,920	6,640
21	.....	10,300	9,710	11,400	9,710	9,710	14,000	16,600	12,700	6,190	5,120	9,710
22	.....	10,300	9,160	12,000	11,400	9,160	15,300	19,500	9,160	6,190	5,330	10,300
23	.....	10,300	8,620	12,000	12,000	8,100	16,600	19,500	9,710	5,750	5,330	9,710
24	.....	10,300	8,620	12,000	12,000	8,620	18,100	20,200	11,400	6,640	5,330	12,000
25	.....	9,710	8,620	11,400	12,000	9,160	18,100	21,000	10,800	6,640	5,330	12,700
26	.....	9,710	8,620	11,400	12,000	9,710	19,500	22,500	9,160	5,330	5,120	12,700
27	.....	10,300	8,620	10,300	11,400	10,300	19,500	26,400	9,710	5,330	5,330	10,300
28	.....	10,300	8,620	10,300	11,400	10,800	19,500	22,500	9,710	5,750	5,330	11,400
29	.....	10,800	8,620	9,710	.....	10,800	19,500	20,200	9,710	5,750	5,330	9,710
30	.....	10,800	8,620	13,300	.....	10,300	18,800	19,500	9,710	4,920	5,330	10,300
31	.....	.....	8,620	12,700	.....	10,300	.....	19,500	.....	4,920	4,920	.....

NOTE.—Discharge determined from a well-defined rating curve. Discharge estimated Oct. 21–31 at 12,700 second-feet, and Nov. 1–5 at 12,000 second-feet on account of unreliable gage heights.

Monthly discharge of Snake River near Hagerman, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	15,300	.....	13,600	836,000	B.
November	.....	9,710	10,800	643,000	B.
December	10,800	8,100	9,310	572,000	A.
January	13,300	7,110	10,100	621,000	A.
February	12,000	8,620	9,990	555,000	A.
March	11,400	8,100	10,500	646,000	A.
April	19,500	8,100	13,300	791,000	A.
May	26,400	13,300	17,800	1,090,000	A.
June	34,700	9,160	19,300	1,150,000	A.
July	9,710	4,920	6,900	424,000	A.
August	5,330	4,920	5,040	310,000	A.
September	12,700	4,920	7,650	455,000	A.
The year	34,700	4,920	11,200	8,090,000	

SNAKE RIVER AT KING HILL, IDAHO.

Location.—In sec. 7, T. 5 S., R. 11 E., just east of the Oregon Short Line Railroad station at King Hill. Salmon Falls Creek, tributary from the south, about 30 miles above, and Malad River, from the north, about 20 miles above King Hill, are the only important tributaries between Twin Falls and this station.

Drainage area.—Not measured.

Records available.—May 13, 1909, to September 30, 1914.

Gage.—Inclined gage on the right bank installed August 17, 1910, at datum 2.2 feet lower than the old gage on the left bank, which was washed out March 1, 1910.

Discharge measurements.—Made from a cable a short distance below the gage.

Channel and control.—Lava boulders and gravel; practically permanent.

Extremes of discharge.—Maximum stage recorded during year, 14.38 feet at 2.37 p. m. June 10 (discharge, 37,400 second-feet); minimum stage recorded, 5.4 feet at 2.12 p. m. August 21, 2.50 p. m. August 22, 2.10 p. m. August 24, and 1.15 p. m. August 31 (discharge, 6,180 second-feet).

Winter flow.—Discharge relation not affected by ice.

Diversions.—No important diversions for irrigation between the Twin Falls station and King Hill.

Accuracy.—Rating curve well defined; records are reliable.

Discharge measurements of Snake River at King Hill, Idaho, during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*
Aug. 1	L. W. Roush	5.55	6,560
Aug. 26	C. G. Paulsen	5.49	6,340

Daily discharge, in second-feet, of Snake River at King Hill, Idaho, for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	17,800	13,700	13,100	13,100	13,100	13,100	12,800	20,100	24,000	12,400	6,610	6,180
2	17,800	13,400	12,800	13,100	11,600	13,400	12,800	19,400	22,000	11,800	6,610	6,390
3	16,000	13,700	12,800	13,100	11,300	13,400	12,400	18,600	21,600	11,600	6,390	6,610
4	14,700	13,700	12,800	12,800	10,400	13,700	11,800	16,400	20,900	10,100	6,390	6,610
5	16,400	13,700	12,800	12,800	10,700	13,700	11,600	16,700	25,900	8,530	6,390	6,390
6	16,400	14,000	12,400	12,100	10,700	13,700	11,300	20,100	28,700	8,530	6,390	6,610
7	17,800	14,000	12,100	11,000	10,400	13,700	10,100	18,600	31,900	8,790	6,390	6,610
8	17,800	14,000	11,600	11,000	10,400	13,700	10,400	18,200	34,300	8,530	6,180	6,610
9	17,800	14,000	11,600	11,000	10,700	14,000	11,600	18,200	36,300	8,790	6,180	6,610
10	17,800	14,000	11,800	10,700	10,700	13,700	13,100	19,000	37,500	8,790	6,390	6,610
11	17,800	14,000	10,700	11,300	10,100	13,700	14,700	17,100	37,500	8,530	6,390	6,610
12	16,400	14,000	10,700	11,800	10,400	13,700	15,000	16,400	35,100	8,270	6,390	6,610
13	14,300	13,700	10,100	12,100	10,700	13,100	14,700	15,300	31,500	8,020	6,390	7,290
14	14,000	13,400	10,400	12,100	12,100	12,400	14,700	17,100	21,000	8,270	6,390	7,290
15	13,700	13,100	10,100	11,800	12,100	13,100	15,300	17,500	22,800	8,020	6,610	8,020
16	14,000	13,100	10,700	11,300	12,100	13,100	15,000	17,800	23,200	8,020	6,390	8,020
17	14,700	13,400	10,700	11,000	12,100	13,400	14,700	18,600	24,000	8,020	6,390	7,770
18	13,700	13,700	11,300	10,700	11,800	14,000	14,700	19,000	20,100	8,020	6,180	7,770
19	15,000	14,000	11,300	10,700	12,100	13,400	15,000	19,000	17,500	7,770	6,180	7,530
20	15,300	14,000	11,300	10,700	12,100	13,100	15,000	20,100	16,000	7,290	6,180	12,400
21	14,000	13,700	11,300	12,100	13,100	11,800	16,400	21,600	13,100	7,060	6,180	10,400
22	13,700	13,700	11,300	13,400	14,700	11,800	16,400	22,800	11,800	7,060	6,180	12,400
23	14,700	14,000	10,700	16,000	15,300	11,600	17,500	22,800	10,700	7,060	6,180	11,600
24	15,300	14,000	10,400	16,000	15,700	11,300	18,600	24,000	22,000	7,060	6,180	10,400
25	14,000	13,700	10,700	13,700	16,000	11,800	20,100	25,200	21,200	6,830	6,180	15,000
26	14,300	12,400	10,400	14,000	13,400	11,800	21,200	27,900	18,200	6,830	6,390	13,100
27	14,300	12,400	10,100	15,000	13,700	13,100	21,600	29,500	16,700	6,610	6,390	11,300
28	14,700	12,400	10,400	14,000	13,700	14,000	22,400	29,500	16,000	6,610	6,180	11,600
29	14,300	13,100	10,400	13,400	.....	13,700	22,800	25,500	15,000	6,610	6,180	11,800
30	14,000	13,100	10,700	13,700	.....	13,100	22,400	23,600	12,400	6,610	6,180	12,100
31	14,000	.....	11,800	13,700	.....	13,100	.....	24,000	.....	6,610	6,180	.....

NOTE.—Discharge determined from a well-defined rating curve.

Monthly discharge of Snake River at King Hill, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	17,800	13,700	15,400	947,000	A.
November	14,000	12,400	13,600	809,000	A.
December	13,100	10,100	11,300	695,000	A.
January	16,000	10,700	12,600	775,000	A.
February	16,000	10,100	12,200	678,000	A.
March	14,000	11,300	13,100	806,000	A.
April	22,800	10,100	15,500	922,000	A.
May	29,500	15,300	20,600	1,270,000	A.
June	37,500	10,700	23,100	1,370,000	A.
July	12,400	6,610	8,160	502,000	A.
August	6,610	6,180	6,320	389,000	A.
September	15,000	6,180	8,810	524,000	A.
The year	37,500	6,180	13,400	9,690,000	

SNAKE RIVER NEAR MURPHY, IDAHO.

Location.—In the NW. ¼ sec. 18, T. 2 S., R. 1 E., three-fourths mile below the Swan Falls power plant, 1¼ miles below the company ferry, and 12 miles east of Murphy.

Drainage area.—Not measured.

Records available.—August 21, 1913, to September 30, 1914.

Gage.—Friez water-stage recorder permanently installed September 7, 1914; vertical staff bolted to large bowlder for low-water readings and inclined staff in two sections for higher stages; gages on right bank one-fourth mile below Cantwell's house. Friez automatic records also obtained by means of a temporary installation December 13, 1913, to June 27, 1914.

Discharge measurements.—Made from ferryboat above dam. Conditions good.

Channel and control.—Apparently solid lava rock; probably permanent.

Extremes of discharge.—Maximum stage recorded during year, 12.13 feet at 11.30 a. m. June 10 (discharge, 39,600 second-feet); minimum stage recorded, −1.4 feet (approximately), August 4 (discharge, 5,440 second-feet).

Winter flow.—Discharge relation not affected by ice.

Diversions.—Practically all the water diverted between Milner dam and this station is for use by small pumping plants.

Regulation.—The flow at low stages can be regulated to some extent at the Swan Falls power plant, and gage heights show considerable diurnal fluctuation due to changes in load and to manipulation of sluice gates.

Accuracy.—Rating curve well defined. During low stages, when staff-gage readings only were available, records are approximate.

Discharge measurements of Snake River near Murphy, Idaho, during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Dec. 13	R. C. Pierce	[a]3.4	12,900	June 11	A. B. Purton	11.94	40,100
14	....do	2.88	10,700	12	....do	11.97	39,100
Apr. 30	A. W. Harrington	7.90	23,500	Aug. 11	....do	− .87	5,800

[a] Discharge relation affected by artificial regulation at power house.

Daily discharge, in second-feet, of Snake River near Murphy, Idaho, for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	15,300	15,300	14,300	11,800	14,800	14,800	14,000	22,900	23,500	13,400	5,910	6,570
2	16,300	14,800	13,800	13,300	13,800	15,300	13,800	21,600	23,800	13,100	5,700	6,210
3	17,900	14,800	13,600	14,300	13,100	15,500	13,800	19,000	23,200	12,600	5,910	6,570
4	17,600	14,500	13,600	13,800	12,200	15,000	14,300	18,100	22,900	12,600	5,440	6,210
5	14,800	14,800	13,800	13,600	11,200	14,800	13,600	17,300	24,800	11,400	6,060	6,570
6	15,000	15,000	13,300	12,900	11,600	14,900	12,600	18,400	27,300	9,690	6,670	6,380
7	18,400	15,300	12,900	13,300	11,800	15,000	12,900	21,300	31,900	10,000	6,470	6,050
8	18,100	14,800	13,300	12,400	11,200	15,300	12,400	22,500	34,600	10,200	6,290	6,290
9	17,900	14,800	12,400	10,800	11,000	15,800	13,800	22,900	35,400	10,600	6,210	6,570
10	19,000	15,300	12,400	11,600	11,200	16,000	13,800	21,900	38,700	10,000	6,050	6,470
11	18,400	14,800	12,200	11,600	11,400	16,000	15,300	20,700	38,700	10,000	6,050	6,470
12	18,400	15,000	13,100	10,600	11,400	15,800	16,300	20,400	38,700	10,000	6,470	6,470
13	16,800	15,000	12,000	10,600	11,400	15,000	17,100	20,100	36,200	9,860	6,570	6,570
14	15,800	15,300	10,600	10,600	11,400	14,300	17,100	17,600	32,300	8,720	6,890	6,780
15	15,500	15,300	10,800	11,400	12,200	14,500	17,100	21,600	28,800	8,570	6,890	7,120
16	15,000	14,800	10,800	12,000	12,200	15,000	17,600	21,900	24,200	8,140	5,840	7,360
17	15,000	14,500	10,800	11,000	12,200	15,000	17,900	21,000	24,500	8,000	6,210	7,740
18	15,500	14,000	11,000	10,200	12,600	15,800	17,600	19,800	24,500	8,720	6,470	7,610
19	14,800	14,800	11,200	10,600	12,400	16,300	17,100	19,800	23,500	9,860	6,470	7,610
20	13,800	15,000	11,800	11,400	12,600	16,000	18,700	20,100	21,000	6,890	6,130	7,360
21	15,300	15,500	11,800	12,900	12,400	15,000	19,000	21,600	18,700	7,240	6,380	9,690
22	15,300	15,000	11,600	13,300	14,500	14,000	19,000	23,500	17,100	7,870	6,380	11,200
23	12,900	14,300	11,400	14,500	16,800	13,600	19,000	24,500	15,000	8,870	6,130	13,300
24	15,000	15,000	11,200	16,800	16,800	13,300	19,200	24,800	14,500	6,470	6,570	10,800
25	15,800	14,800	11,200	16,300	16,300	12,600	21,600	25,900	21,300	6,380	6,050	11,400
26	14,800	14,500	10,800	15,000	16,000	12,600	22,200	26,200	22,200	6,470	7,240	14,800
27	15,800	13,600	10,800	15,300	14,800	12,600	23,800	27,300	21,000	5,770	6,470	14,300
28	16,500	13,600	10,800	15,300	14,800	14,000	23,800	29,900	18,100	6,050	5,980	11,800
29	15,800	13,800	11,000	15,300	.....	15,500	23,500	28,400	15,800	6,290	6,380	11,200
30	15,800	13,600	11,200	14,000	.....	14,500	23,500	27,000	13,800	6,380	5,980	11,600
31	14,500	.....	10,800	13,100	.....	14,300	.....	24,800	.....	5,770	6,210	.....

NOTE.—Discharge determined from a well-defined rating curve.

Monthly discharge of Snake River near Murphy, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	19,000	12,900	16,000	984,000	B.
November	15,500	13,600	14,700	875,000	B.
December	14,300	10,600	11,900	732,000	A.
January	16,800	10,200	12,900	793,000	A.
February	16,800	11,000	13,000	722,000	A.
March	16,300	12,600	14,800	910,000	A.
April	23,800	12,400	17,400	1,040,000	A.
May	29,900	17,300	22,300	1,370,000	A.
June	38,700	13,800	25,200	1,500,000	A.
July	13,400	5,770	8,900	547,000	B.
August	7,240	5,440	6,270	386,000	B.
September	14,800	6,050	8,500	506,000	A.
The year	38,700	5,440	14,300	10,400,000	

SNAKE RIVER AT WEISER, IDAHO.

Location.—In sec. 31, T. 11 N., R. 5 W., about 200 yards downstream from the wagon bridge at Weiser. Between the stations at King Hill and Weiser, Bruneau River, Succor Creek, and Owyhee and Malheur rivers enter Snake River on the left bank and Boise, Payette, and Weiser rivers on the right bank.

Drainage area.—Not measured.

Records available.—October 8, 1910, to September 30, 1914. Gage about one-half mile farther upstream read by Weather Bureau parts of years since 1895.

Gage.—Inclined staff on right bank.

Discharge measurements.—Made from cable a few feet below gage.

Channel and control.—Rocks and coarse gravel; fairly permanent.

Extremes of discharge.—Maximum stage recorded during year, 11.82 feet at 9 a. m. May 25 and 26 (discharge, 51,000 second-feet); water fell below gage August 9–15 and 18. By comparison of records of United States Geological Survey gage with those of Weather Bureau gage an approximate minimum discharge of 6,210 second-feet is obtained.

Winter flow.—Discharge relation not seriously affected by ice.

Diversions.—Some water diverted for irrigation between King Hill and Weiser, but almost entirely by pumping.

Accuracy.—Conditions for determining flow good; records reliable.

Discharge measurements of Snake River at Weiser, Idaho, during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec-ft.*			*Feet.*	*Sec-ft.*
Oct. 17	C. G. Paulsen	7.16	17,300	June 27	L. W. Roush	8.94	28,300
Dec. 11	L. W. Jordan	6.79	15,300	Aug. 19	do	4.93	6,480
Feb. 19	L. W. Roush	6.96	15,800	21	do	5.02	6,810
Apr. 7	A. W. Harrington	10.18	38,000				

Daily discharge, in second-feet, of Snake River at Weiser, Idaho, for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	18,200	17,000	17,600	14,800	17,600	29,000	25,000	38,600	42,600	18,800	7,870	6,610
2	16,500	17,600	17,600	16,500	20,000	30,500	24,400	37,100	41,000	18,800	7,870	6,610
3	17,600	17,600	17,600	17,600	18,800	30,500	23,700	37,900	44,200	17,600	7,440	6,610
4	19,400	17,600	16,500	19,400	17,600	29,800	24,400	37,900	42,600	16,500	7,440	6,610
5	17,600	17,000	16,500	20,600	16,500	29,000	29,000	37,900	42,600	17,600	7,440	6,610
6	15,900	17,600	16,500	20,000	14,800	29,000	31,900	36,300	42,600	17,600	7,440	6,610
7	17,600	18,200	16,500	18,800	14,200	30,500	36,300	34,800	44,200	14,200	7,020	6,610
8	20,000	20,000	15,900	18,800	15,300	31,900	38,600	37,100	45,800	14,200	6,610	6,610
9	20,600	18,800	15,900	18,200	15,300	33,300	37,100	39,400	47,500	13,200	6,210	6,610
10	21,200	18,800	15,900	15,900	15,900	35,600	37,100	40,200	46,600	13,200	6,210	7,020
11	21,200	18,800	15,300	14,200	15,900	35,600	38,600	41,800	49,100	12,600	6,210	7,440
12	21,800	20,000	15,300	14,200	15,300	35,600	41,000	40,200	49,100	11,600	6,210	7,440
13	20,600	20,000	15,900	14,200	15,900	35,600	43,400	38,600	48,300	11,600	6,210	7,440
14	19,400	19,400	15,300	14,200	15,300	34,800	43,400	39,400	46,600	11,600	6,210	7,440
15	18,200	18,800	14,800	14,800	15,300	34,800	43,400	34,800	42,600	11,100	6,210	7,440
16	17,600	19,400	14,200	15,300	15,900	35,600	45,800	40,200	38,600	10,600	6,610	8,310
17	17,600	19,400	14,200	16,500	15,900	37,900	50,800	42,600	33,300	10,200	6,210	8,760
18	17,000	18,200	14,200	15,900	15,900	39,400	47,500	43,400	33,300	9,220	6,210	10,200
19	17,000	17,000	14,200	15,900	16,500	41,000	43,400	42,600	34,100	8,310	6,210	9,690
20	16,500	18,200	14,200	15,300	17,000	41,800	41,000	41,800	33,300	11,100	6,210	9,220
21	17,000	18,800	14,200	15,900	19,400	41,000	43,400	41,800	31,200	10,200	6,610	9,220
22	17,600	19,400	14,200	18,800	28,400	37,900	43,400	42,600	28,400	8,760	6,210	9,220
23	18,200	18,800	14,200	21,200	29,000	36,300	41,800	46,600	24,400	9,690	6,210	10,200
24	17,600	18,200	13,700	21,200	30,500	34,800	41,800	50,000	22,400	7,870	6,210	13,200
25	17,600	18,800	14,200	25,000	30,500	33,300	42,600	50,800	20,000	8,310	6,210	13,700
26	17,600	18,200	14,200	25,000	31,900	30,500	43,400	50,800	29,000	7,870	6,610	12,100
27	17,600	18,800	13,700	24,400	28,400	27,700	43,400	49,100	29,000	6,610	6,610	14,800
28	17,600	19,400	13,200	23,700	26,300	26,300	43,400	47,500	27,700	7,870	6,210	15,300
29	18,800	18,200	13,200	23,100	.....	27,000	41,000	49,100	25,000	7,440	6,610	13,200
30	18,200	18,200	13,700	22,400	.....	27,700	39,400	46,600	21,200	7,440	6,610	12,100
31	17,600	.....	14,200	21,200	.....	26,300	.....	44,200	.....	7,440	6,610	.....

NOTE.—Discharge determined from a well-defined rating curve.

Monthly discharge of Snake River at Weiser, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	21,800	15,900	18,300	1,130,000	A.
November	20,000	17,000	18,500	1,100,000	A.
December	17,600	13,200	15,100	928,000	A.
January	25,000	14,200	18,500	1,140,000	A.
February	31,900	14,200	19,600	1,090,000	A.
March	41,800	26,300	33,200	2,040,000	A.
April	50,800	23,700	39,000	2,320,000	A.
May	50,800	34,800	42,000	2,580,000	A.
June	49,100	20,000	36,900	2,200,000	A.
July	18,800	6,610	11,600	713,000	A.
August	7,870	6,210	6,610	406,000	A.
September	15,300	6,610	9,100	541,000	A.
The year	50,800	6,210	22,300	16,200,000	

SNAKE RIVER NEAR BURBANK, WASH.

Location.—In sec. 28, T. 9 N., R. 31 E., at the head of Fivemile Rapids, 4 miles above Burbank, and 1,500 feet above the intake of the Burbank Power & Water Co. canal.

Records available.—September 1, 1909, to September 30, 1914. Fragmentary records October 2, 1907, to August 31, 1909.

Drainage area.—109,000 square miles.

Gage.—Inclined staff; datum of gage 300 feet above sea level. Auxiliary vertical staff at lower end of power canal was read April 1 to September 30.

Discharge measurements.—Made from Northern Pacific Railway bridge at Burbank.

Channel and control.—Control at the head of the rapids; may shift at flood stages.

Extremes of discharge.—Maximum stage recorded during the year, 46.2 feet May 25 and 26, estimated from reading on gage at lower end of power canal (discharge, 175,000 second-feet); minimum stage recorded, 34.6 feet September 4 (discharge, 11,400 second-feet).

1909–1914: Maximum stage recorded, 51.8 feet May 29, 1913 (discharge, 293,000 second-feet); minimum stage recorded, 34.6 feet September 4 (discharge, 11,400 second-feet).

Winter flow.—Discharge relation not affected by ice.

Diversion.—A large amount of water is used for irrigation in southern Idaho.

Storage.—Jackson Lake reservoir (capacity of 400,000 acre-feet) is largest in operation. Numerous smaller reservoirs are also operated.

Accuracy.—Results fairly reliable.

Cooperation.—Gage-height record furnished by the Burbank Power & Water Co.

The following discharge measurement was made by G. L. Parker: October 24–25, 1913: Gage height, 37.42 feet; discharge, 29,400 second-feet.

Daily discharge, in second-feet, of Snake River near Burbank, Wash., for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	21,500	30,800	32,800	23,000	33,900	56,600	47,100	90,700	125,000	59,400	18,600	12,200
2	28,000	31,800	31,800	23,800	32,800	53,800	49,800	87,300	132,000	53,800	18,600	11,800
3	23,200	31,800	30,800	24,600	33,800	58,000	49,800	90,700	134,000	45,800	18,000	11,800
4	24,600	32,800	29,800	25,400	23,800	62,200	49,800	103,000	142,000	44,500	18,000	11 400
5	24,600	32,800	28,000	28,000	29,800	56,600	49,800	110,000	138,000	47,100	16,600	11,600
6	27,100	31,800	27,100	31,800	29,800	56,600	53,800	108,000	129,000	47,100	16,000	11,800
7	27,100	30,800	24,600	39,600	25,400	55,200	80,600	101,000	121,000	47,100	16,600	11,800
8	21,600	33,900	23,800	40,800	23,000	55,200	89,000	94,200	107,000	45,800	16,600	11,800
9	27,100	32,800	25,400	38,400	22,200	60,800	92,400	99,400	105,000	42,000	14,400	11,800
10	28,000	33,900	25,400	37,200	23,800	63,600	90,700	117,000	105,000	35,000	14,400	12,600
11	31,800	32,800	24,600	35,000	26,200	66,600	89,000	123,000	101,000	33,900	14,400	13,400
12	31,800	31,800	23,800	34,200	28,000	68,100	89,000	132,000	96,000	36,100	13,900	13,600
13	35,000	33,900	23,800	33,500	28,000	68,100	90,700	134,000	96,000	36,100	13,400	13,900
14	33,900	35,000	25,400	32,800	28,000	66,600	94,200	123,000	101,000	36,100	13,000	13,900
15	32,800	33,900	25,400	31,600	28,000	66,600	103,000	123,000	112,000	36,100	13,000	14,900
16	33,900	32,800	26,200	30,400	28,900	68,100	108,000	136,000	105,000	32,800	13,000	18,000
17	32,800	31,800	25,400	29,200	28,900	71,200	127,000	142,000	97,700	30,800	13,000	16,000
18	29,800	30,800	23,800	28,000	27,100	75,800	123,000	153,000	92,400	28,000	13,000	18,600
19	30,800	31,800	23,000	28,600	28,000	79,000	114,000	148,000	89,000	25,400	12,800	22,200
20	28,000	32,800	22,200	29,200	27,100	82,300	101,000	146,000	89,000	23,000	12,600	23,800
21	28,900	30,800	23,000	29,800	28,900	85,600	116,000	144,000	84,000	23,000	12,200	23,800
22	29,800	31,800	21,500	29,400	30,800	82,300	116,000	144,000	82,300	22,200	11,800	23,800
23	28,900	31,800	20,800	28,900	38,400	79,000	108,000	142,000	79,000	21,500	12,400	23,800
24	28,900	31,800	21,500	33,600	51,100	74,200	117,000	171,000	69,600	21,500	13,000	20,800
25	29,800	31,800	22,200	38,400	53,800	71,200	119,000	175,000	60,800	20,000	12,200	21,500
26	29,800	30,800	22,200	40,800	58,000	69,600	112,000	175,000	59,400	18,600	12,200	23,800
27	33,900	31,800	22,200	41,400	59,400	60,800	108,000	165,000	60,800	18,000	12,200	23,800
28	31,800	30,800	23,800	42,600	58,000	58,000	105,000	150,000	63,600	18,000	12,200	22,200
29	32,800	33,900	23,800	38,400	.....	53,800	99,400	138,000	63,600	18,600	12,200	23,800
30	29,800	33,900	23,000	36,100	.....	47,100	94,200	130,000	62,200	18,600	12,200	23,000
31	30,800	.....	23,000	36,100	.....	44,500	.....	127,000	.....	18,600	12,200	.....

NOTE.—Discharge determined from a well-defined rating curve. From Oct. 1 to Mar. 30 daily gage heights were read on the gage 1,000 feet above the power canal. Apr. 1 to Sept. 30 this gage was read about once a week and the gage at the lower end of power canal was read daily.

Monthly discharge of Snake River near Burbank, Wash., for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	35,000	21,500	29,500	1,810,000	A.
November	35,000	30,800	32,300	1,920,000	A.
December	32,800	20,800	24,800	1,520,000	A.
January	42,000	23,000	32,900	2,020,000	B.
February	59,400	20,800	33,400	1,850,000	A.
March	85,600	44,500	65,100	4,000,000	A.
April	127,000	47,100	92,900	5,530,000	A.
May	175,000	87,300	130,000	7,990,000	A.
June	142,000	59,400	96,700	5,750,000	B.
July	59,400	18,000	32,400	1,990,000	B.
August	18,600	11,800	14,000	861,000	B.
September	23,800	11,400	17,100	1,020,000	B.
The year	175,000	11,400	50,100	36,300,000	

Days of deficiency in discharge of Snake River near Burbank, Wash., for the years ending Sept. 30, 1910–1914.

Discharge in second-feet.	Theoretical horsepower per foot of fall.	Days of deficiency in discharge.					Discharge in second-feet.	Theoretical horsepower per foot of fall.	Days of deficiency in discharge.				
		1909–10	1910–11	1911–12	1912–13	1913–14			1909–10	1910–11	1911–12	1912–13	1913–14
11,800	1,340	.....	.....	.....	.....	.....	34,000	3,860	163	175	166	200	208
13,000	1,480	9	.....	.....	.....	22	36,000	4,090	178	183	170	207	213
14,000	1,590	27	.....	.....	.....	34	38,000	4,320	188	190	188	216	220
15,000	1,700	37	.....	.....	.....	38	40,000	4,550	201	201	207	221	225
16,000	1,820	45	6	2	4	38	45,000	5,120	222	219	227	241	232
17,000	1,930	53	22	3	15	43	50,000	5,680	238	229	234	247	243
18,000	2,040	56	32	9	23	44	60,000	6,820	243	248	251	258	261
19,000	2,160	62	41	14	27	55	70,000	7,960	251	271	266	261	278
20,000	2,270	66	46	21	31	55	80,000	9,090	256	277	270	263	285
22,000	2,500	72	65	30	48	66	90,000	10,200	261	288	277	272	297
24,000	2,730	77	94	47	78	96	100,000	11,400	263	298	288	287	311
26,000	2,950	83	118	63	109	110	150,000	17,000	314	339	318	322	359
28,000	3,180	102	141	110	145	119	200,000	22,700	349	355	337	345	365
30,000	3,410	125	159	132	154	152	250,000	28,400	363	365	359	355	.....
32,000	3,640	156	174	156	187	182	300,000	34,100	365	.....	366	365	.....

NOTE.—The above table gives the theoretical horsepower per foot fall that may be developed at different rates of discharge and shows the number of days on which the discharge and corresponding horsepower were respectively less than the amounts given in the columns for discharge and horsepower. In using this table, allowance should be made for the various losses, the principal ones being the wheel loss, which may be as large as 20 per cent, and the head loss, which may be as large as 5 per cent.

TRIBUTARY BASINS.

HENRYS FORK AT WARM RIVER, IDAHO.

Location.—In sec. 12, T. 9 N., R 43 E., about one-half mile from the Warm River railroad station, and about 300 yards above the mouth of Warm River; about 40 miles above junction with Snake River. Warm River, Fall River, and Teton River, the principal tributaries, enter below station.

Drainage area.—Not measured.

Records available.—September 3, 1910, to September 30, 1914.

Gage.—Vertical staff on left bank.

Discharge measurements.—Made from cable at gage.

Channel and control.—Gravel and sand; subject to growth of moss.

Extremes of discharge.—Maximum stage recorded during year, 7.1 feet at 5 p. m. April 26 (discharge, 3,010 second-feet); minimum stage recorded, 4.3 feet at 2 p. m. February 7 (discharge, 880 second-feet).

Diversions.—Practically none.

Winter flow.—Discharge relation not affected by ice.

Accuracy.—Records good, though daily discharge as determined may be approximate for short periods during which moss existed in the channel.

Discharge measurements of Henrys Fork at Warm River, Idaho, during the year ending Sept. 30, 1914.

[Made by C. G. Paulsen.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*		*Feet.*	*Sec.-ft.*		*Feet.*	*Sec.-ft.*
Feb. 1.....	4.59	1,050	May 14.....	6.06	2,220	Sept. 24.....	4.73	1,120
Mar. 16.....	4.59	1,030	July 11.....	5.00	1,300			

Daily discharge, in second-feet, of Henrys Fork at Warm River, Idaho, for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	1,160	1,220	1,160	1,010	1,040	1,040	1,040	2,400	1,850	1,290	1,100	1,040
2	1,160	1,220	1,130	1,020	1,020	1,020	1,040	2,540	1,930	1,290	1,100	1,040
3	1,160	1,220	1,100	1,040	1,010	990	1,040	2,540	2,010	1,290	1,100	1,040
4	1,160	1,220	1,080	1,040	990	1,020	1,040	2,630	2,010	1,290	1,100	1,040
5	1,190	1,260	1,060	1,040	954	1,040	1,100	2,400	2,010	1,290	1,100	1,040
6	1,220	1,290	1,040	1,040	917	1,040	1,160	2,180	2,010	1,290	1,100	1,040
7	1,220	1,290	1,040	1,040	880	1,040	1,190	2,180	1,930	1,290	1,100	1,040
8	1,220	1,290	1,020	1,060	924	1,040	1,220	2,180	1,850	1,290	1,100	1,040
9	1,260	1,260	990	1,080	968	1,040	1,220	2,180	1,770	1,290	1,100	1,040
10	1,290	1,220	1,000	1,100	1,010	1,040	1,290	2,260	1,700	1,220	1,100	1,040
11	1,220	1,220	1,020	1,040	1,060	1,040	1,290	2,260	1,620	1,290	1,100	1,040
12	1,220	1,220	1,040	1,080	1,100	1,040	1,420	2,260	1,620	1,290	1,100	1,040
13	1,290	1,220	1,040	1,120	1,070	1,040	1,420	2,180	1,620	1,290	1,100	1,040
14	1,360	1,220	1,040	1,160	1,040	1,040	1,420	2,100	1,560	1,290	1,100	1,040
15	1,320	1,220	1,040	1,120	1,020	1,040	1,490	2,100	1,560	1,290	1,100	1,220
16	1,290	1,290	988	1,080	990	1,040	1,560	2,100	1,560	1,290	1,100	1,160
17	1,290	1,260	935	1,040	1,020	1,040	1,630	2,180	1,520	1,290	1,100	1,160
18	1,290	1,220	953	1,100	1,040	1,040	1,700	2,260	1,480	1,250	1,040	1,160
19	1,290	1,190	971	1,080	1,060	1,040	1,860	2,260	1,550	1,200	1,040	1,160
20	1,290	1,160	990	1,060	1,080	1,040	2,010	2,260	1,620	1,160	1,040	1,160
21	1,290	1,130	990	1,040	1,100	1,040	2,440	2,180	1,590	1,160	1,040	1,160
22	1,290	1,100	1,000	1,040	1,040	1,040	2,820	2,100	1,560	1,160	1,040	1,160
23	1,290	1,100	1,020	1,040	1,040	1,040	2,820	2,100	1,560	1,160	1,040	1,160
24	1,290	1,130	1,040	1,040	1,040	1,040	2,820	2,140	1,420	1,160	1,040	1,100
25	1,290	1,160	1,040	1,040	1,040	1,040	2,920	2,180	1,420	1,160	1,040	1,100
26	1,260	1,160	1,040	1,000	1,040	1,040	3,010	2,100	1,420	1,160	1,040	1,100
27	1,220	1,160	1,040	970	1,040	1,040	2,920	2,010	1,420	1,160	1,040	1,100
28	1,220	1,160	1,040	935	1,040	1,040	2,590	2,010	1,420	1,160	1,040	1,100
29	1,220	1,160	1,020	970	.....	1,040	2,260	1,930	1,360	1,160	1,040	1,100
30	1,220	1,160	1,000	1,000	.....	1,040	2,260	1,850	1,290	1,100	1,040	1,100
31	1,220	.....	990	1,040	.....	1,040	.....	1,850	.....	1,100	1,040	.....

NOTE.—Discharge determined from a well-defined rating curve. Gage was read irregularly and discharge was interpolated for many short periods.

Monthly discharge of Henrys Fork at Warm River, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	1,360	1,160	1,250	76,900	A.
November	1,290	1,100	1,200	71,400	B.
December	1,160	935	1,030	63,300	C.
January	1,160	935	1,050	64,600	C.
February	1,100	880	1,020	56,600	B.
March	1,040	990	1,040	64,000	B.
April	3,010	1,040	1,800	107,000	B.
May	2,630	1,850	2,190	135,000	B.
June	2,010	1,290	1,640	97,600	B.
July	1,290	1,100	1,230	75,600	A.
August	1,100	1,040	1,070	65,800	A.
September	1,220	1,040	1,090	64,900	A.
The year	3,010	880	1,300	943,000	

HENRYS FORK NEAR REXBURG, IDAHO.

Location.—In sec. 30, T. 6 N., R. 39 E., just below the highway bridge 7 miles due west of Rexburg; about 1 mile below entrance of south channel of the Teton, and 7 miles below the main Teton. No tributaries between this station and Snake River; Fall River enters about 20 miles and Warm River about 35 miles above.

Drainage area.—Not measured.

Records available.—April 13, 1909, to September 30, 1914.

Gage.—Friez water-stage recorder about 25 feet above the vertical staff on right bank and 150 feet below the bridge. New gage installed September 29, 1912, with datum 0.67 foot lower than original gage, but at same site. There is an auxiliary gage at the cable, but it is not used for daily gage readings.

Discharge measurements.—Made from cable about one-fourth mile below the gage. At high stages water overflows both banks and measurements are made from the bridge.

Channel and control.—Shifting gravel.

Extremes of discharge.—Maximum stage recorded during year, 9.82 feet from 8 a. m. to 1 p. m. June 6 (discharge, 7,050 second-feet); minimum stage recorded, 2.49 feet from 2 a. m. July 31 to 6 a. m. August 1 (discharge, 629 second-feet).

Winter flow.—Discharge relation much affected by ice, which forms solid cover at the gage. Automatic records discontinued in very cold weather.

Diversions.—No diversions from Henrys Fork below the station; most of the water used above the station is taken from the tributaries.

Accuracy.—As the control shifts and the discharge relation is affected by ice, the estimates of daily discharge are probably approximate for greater part of the time; monthly means, however, should be fairly reliable.

Discharge measurements of Henrys Fork near Rexburg, Idaho, during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Nov. 25	A. B. Purton	4.86	2,450	July 22	C. G. Paulsen	2.74	735
Feb. 3	C. G. Paulsen	[a] 5.60	1,880	23	do	2.67	708
Mar. 17	do	4.44	2,080	Aug. 15	do	3.11	1,100
May 13	do	7.36	4,710	17	do	3.18	1,180
July 10	do	3.96	1,550	Sept. 25	do	4.93	2,530
13	do	4.07	1,660				

[a] Ice about 1.4 feet thick.

Daily discharge, in second-feet, of Henrys Fork near Rexburg, Idaho, for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Dec.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	2,130	2,350	2,280	2,100	1,980	4,420	4,140	2,400	633	1,470
2	2,130	2,430	2,200	2,140	1,980	4,800	4,420	2,230	654	1,470
3	2,060	2,580	2,280	2,140	2,060	4,990	5,180	2,140	654	1,470
4	2,130	2,580	2,280	2,140	2,140	5,370	6,240	1,900	698	1,470
5	2,130	2,500	2,280	2,140	2,210	5,760	6,830	1,900	734	1,470
6	2,130	2,500	2,200	1,980	2,540	5,280	7,030	1,820	796	1,440
7	2,200	2,650	2,280	1,900	2,880	4,610	6,920	1,740	861	1,410
8	2,280	2,810	2,280	1,830	2,960	4,320	6,520	1,660	902	1,410
9	2,350	2,650	2,280	1,830	2,960	4,420	6,030	1,590	918	1,410
10	2,500	2,500	2,280	1,900	2,880	4,990	5,340	1,550	934	1,410
11	2,500	2,500	2,280	1,900	2,880	5,280	4,570	1,650	978	1,410
12	2,430	2,500	.....	1,980	2,880	5,280	4,190	1,730	1,050	1,410
13	2,500	2,500	.....	1,900	3,050	4,700	4,000	1,650	1,040	1,510
14	2,500	2,500	.....	1,980	2,880	4,140	4,080	1,540	1,080	.....
15	2,500	2,430	.....	1,980	2,960	3,770	4,180	1,450	1,100	.....
16	2,500	2,430	.....	2,060	3,400	4,040	3,980	1,340	1,130	.....
17	2,430	2,430	.....	2,060	3,680	4,510	3,600	1,170	1,190	.....
18	2,350	2,430	.....	2,060	3,400	5,180	3,330	989	1,220	.....
19	2,350	2,500	.....	2,060	3,230	5,660	3,320	897	1,250	.....
20	2,350	2,500	.....	2,060	3,400	5,760	3,400	810	1,310	.....
21	2,350	2,580	.....	1,980	4,040	5,560	3,770	752	1,410	3,050
22	2,430	2,500	.....	1,900	4,700	5,470	4,130	743	1,410	3,140
23	2,430	2,480	.....	1,980	5,080	5,560	4,210	698	1,410	2,880
24	2,500	2,450	.....	1,980	5,470	5,660	3,840	698	1,410	2,620
25	2,500	2,430	.....	1,900	5,660	5,760	3,290	675	1,370	2,460
26	2,500	2,350	.....	1,830	5,560	5,760	3,020	675	1,370	2,460
27	2,500	2,500	.....	1,830	5,560	5,370	3,190	675	1,410	2,460
28	2,430	2,430	.....	1,900	5,280	4,890	3,090	675	1,440	2,460
29	2,430	2,350	.....	1,830	4,610	4,610	2,740	654	1,470	2,460
30	2,350	2,430	.....	1,760	4,320	4,320	2,480	633	1,470	2,380
31	2,350	.....	.....	1,900	.....	4,140	.....	633	1,470	.....

NOTE.—Discharge determined from several parallel rating curves and by the indirect method for shifting channels. Discharge Dec. 12–31 estimated, on account of ice, at 2,050 second-feet. Discharge Sept. 14–20 estimated at 2,280 second-feet, as no gage heights were recorded.

Monthly discharge of Henrys Fork River near Rexburg, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	2,500	2,060	2,360	145,000	A.
November	2,810	2,350	2,490	148,000	A.
December	.....	.....	2,130	131,000	C.
January	.....	.....	[a] 1,950	120,000	D.
February	.....	.....	[a] 1,900	105,000	C.
March	2,140	1,760	1,970	121,000	B.
April	5,660	1,980	3,550	211,000	A.
May	5,760	3,770	4,980	306,000	A.
June	7,030	2,480	4,370	260,000	B.
July	2,400	633	1,280	78,700	B.
August	1,470	633	1,120	68,900	B.
September	3,140	1,410	2,040	121,000	A.
The year	.....	.....	.....	1,820,000	

[a] Estimated on account of ice.

WARM RIVER AT WARM RIVER, IDAHO.

Location.—In sec. 13, T. 9 N., R. 43 E., at highway-bridge half a mile above Warm River station, on the Yellowstone branch of the Oregon Short Line Railroad, less than one-fourth mile above the entrance of Robinson Creek; about half a miles above junction of Warm River with Henrys Fork.

Drainage area.—About 144 square miles.

Records available.—January 24, 1912, to September 30, 1914.

Gage.—Vertical staff on lower side of pier; gage datum unchanged but position of gage on pier was changed May 19, 1912, to secure location in smooth water.

Discharge measurements.—Made from the bridge or by wading.

Channel and control.—Rocky; moss grows in the stream bed; discharge relation not constant.

Extremes of discharge.—Maximum stage recorded during year, 2.1 feet at 3.20 p. m. May 4 (discharge, 725 second-feet); minimum stage recorded, 1.32 feet at 2.20 p. m. February 14 and 1.20 p. m. March 21 (discharge, 201 second-feet).

Winter flow.—Discharge relation not affected by ice.

Diversions.—None.

Accuracy.—Gage read irregularly; estimates complicated by effect of moss growth, but considered fairly reliable.

Discharge measurements of Warm River at Warm River, Idaho, during the year ending Sept. 30, 1914.

[Made by C. G. Paulsen.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*		*Feet.*	*Sec.-ft.*		*Feet.*	*Sec.-ft.*
Feb. 2	1.40	233	May 14	1.74	409	Sept. 24	1.45	262
Mar. 15	1.36	232	July 11	1.54	292			

Daily discharge, in second-feet, of Warm River at Warm River, Idaho, for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	264	275	259	264	238	215	229	488	382	291	264	215
2	264	275	259	256	238	222	229	560	450	291	264	215
3	264	275	259	249	238	229	234	640	522	291	264	215
4	264	275	256	249	238	229	238	725	522	291	264	215
5	267	292	252	249	235	229	264	602	504	278	264	215
6	270	309	249	249	232	222	291	478	485	264	264	215
7	270	300	249	249	229	215	291	471	415	264	264	215
8	270	291	249	246	234	215	261	508	350	264	264	220
9	270	286	249	242	238	215	303	538	344	264	264	220
10	270	280	254	238	235	215	320	538	338	264	264	220
11	270	280	259	238	232	215	320	530	332	286	264	220
12	270	280	264	238	229	215	320	568	332	280	264	224
13	275	280	264	238	215	215	335	492	332	275	264	224
14	280	280	264	238	201	215	350	415	329	286	238	224
15	275	280	264	238	232	220	356	415	320	286	238	275
16	270	280	256	238	264	218	363	415	320	286	238	280
17	270	280	249	238	251	215	382	415	306	286	238	280
18	270	280	249	238	238	215	402	415	291	286	238	280
19	270	280	249	238	238	215	444	415	320	286	238	280
20	272	280	249	238	238	215	485	415	350	286	238	283
21	275	270	249	238	238	201	560	398	335	264	224	286
22	275	259	249	238	229	264	600	382	320	264	215	259
23	275	259	249	238	229	264	620	382	291	264	215	259
24	275	267	249	238	229	264	640	382	291	264	215	264
25	275	275	249	238	229	215	640	382	291	264	215	264
26	275	275	249	238	229	215	640	382	291	264	215	264
27	275	275	249	238	222	215	640	382	291	264	215	256
28	275	275	264	238	215	215	528	382	291	264	215	249
29	275	275	264	238	.....	215	415	382	291	264	215	249
30	275	267	264	238	.....	215	415	382	291	264	215	264
31	275	.....	264	238	.....	229	.....	382	.....	264	215	.....

NOTE.—Discharge determined by the indirect method for shifting channels. Discharge interpolated for many short periods in which gage heights were not recorded.

Monthly discharge of Warm River at Warm River, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	280	264	272	16,700	B.
November	309	259	278	16,500	B.
December	264	249	255	15,700	B.
January	264	238	242	14,900	B.
February	264	201	233	12,900	B.
March	264	201	222	13,600	B.
April	640	229	405	24,100	B.
May	725	382	460	28,300	B.
June	522	291	351	20,900	A.
July	291	264	274	16,800	A.
August	264	215	241	14,800	A.
September	286	215	245	14,600	B.
The year	725	201	290	210,000	

ROBINSON CREEK AT WARM RIVER, IDAHO.

Location.—In sec. 13, T. 9 N., R. 43 E., at the Oregon Short Line Railroad bridge, about one-third mile above Warm River station on the Yellowstone branch, and about 300 yards above the mouth.

Drainage area.—About 41 square miles.

Records available.—January 24, 1912, to September 30, 1914.

Gage.—Vertical staff fastened to pile on downstream side of the bridge.

Discharge measurements.—Made from highway or railroad bridge or by wading.

Channel and control.—Rocky; probably permanent.

Extremes of discharge.—Maximum stage recorded during year, 3.6 feet at 2.30 p. m. April 24 and at 3.30 p. m. May 4 (discharge, 675 second-feet); minimum discharge, approximately 73 second-feet (gage height, 1.7 feet) at 2.30 p. m. February 7. It is possible that the discharge was less than this during the periods when ice was present.

Winter flow.—Discharge relation affected by slush and shore ice.

Diversions.—None.

Accuracy.—Rating curve fairly well defined and results fairly good, though conditions for measurements are rather poor and drift may lodge on the piers and affect the rating for certain periods.

Discharge measurements of Robinson Creek at Warm River, Idaho, during the year ending Sept. 30, 1914.

[Made by C. G. Paulsen.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*		*Feet.*	*Sec.-ft.*		*Feet.*	*Sec.-ft.*
Feb. 2	a 1.81	86.7	May 14	3.21	472	Sept. 24	1.96	104
Mar. 15	1.83	90.0	July 11	2.14	142			

a Small amount of ice at gage but control was practically clear.

Daily discharge, in second-feet, of Robinson Creek at Warm River, Idaho, for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	102	115	110	94	87	80	99	450	274	144	105	102
2	105	118	106	94	88	84	99	564	290	144	105	102
3	102	122	102	94	88	87	108	646	306	144	105	102
4	102	126	.....	90	87	84	118	675	341	144	105	102
5	106	144	.....	90	82	80	151	570	360	131	105	102
6	110	163	.....	90	78	80	184	465	379	118	105	102
7	114	149	.....	90	73	80	190	513	324	118	105	102
8	118	135	.....	90	86	80	195	564	290	118	105	102
9	118	126	.....	90	99	80	207	591	270	118	105	102
10	118	118	.....	90	99	80	245	618	251	110	105	102
11	118	106	.....	90	99	80	245	591	232	144	102	102
12	118	94	.....	90	99	80	245	564	232	144	102	102
13	136	102	.....	90	90	80	276	514	232	144	102	102
14	153	110	.....	90	80	80	306	465	207	144	102	105
15	144	118	.....	90	84	92	324	489	195	144	102	173
16	135	118	.....	90	87	86	341	513	195	144	102	126
17	126	118	.....	90	87	80	341	513	174	144	102	129
18	118	118	.....	84	87	87	341	564	153	141	102	132
19	118	116	.....	82	92	94	341	538	174	138	102	135
20	126	115	.....	81	97	94	341	513	195	135	102	135
21	135	107	.....	80	102	94	341	466	190	115	102	135
22	130	99	.....	78	87	94	400	420	184	115	102	126
23	126	87	.....	77	87	94	538	420	163	110	102	118
24	126	98	.....	76	87	94	675	380	163	110	102	112
25	126	110	.....	77	87	94	564	341	158	110	102	112
26	122	110	.....	.....	87	87	564	360	153	110	102	112
27	118	110	.....	.....	84	87	564	379	153	110	102	110
28	116	110	.....	.....	80	87	500	379	153	110	102	108
29	115	110	.....	.....	.....	87	420	341	153	110	102	105
30	115	110	.....	.....	.....	87	420	290	135	105	102	105
31	115	.....	.....	87	.....	94	.....	282	.....	105	102	.....

NOTE.—Discharge determined from a well-defined rating curve except as follows: Discharge interpolated for many short periods in which gage heights were not recorded; discharge estimated, on account of ice, Dec. 4–31, 90 second-feet; Jan. 26–30, 82 second-feet.

Monthly discharge of Robinson Creek at Warm River, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	153	102	120	7,380	B.
November	163	87	116	6,900	B.
December	.....	.....	91.5	5,630	C.
January	94	76	86.3	5,310	C.
February	102	73	88.2	4,900	C.
March	94	80	86.0	5,290	B.
April	675	99	323	19,200	B.
May	675	282	483	29,700	A.
June	379	135	223	13,300	A.
July	144	105	126	7,750	A.
August	105	102	103	6,330	A.
September	173	102	113	6,720	B.
The year	675	.....	164	118,000	

BLACKFOOT RIVER ABOVE THE RESERVOIR, NEAR HENRY, IDAHO.

Location.—Approximately in sec. 9, T. 7 S., R. 42 E., at the bridge on the stage road from Soda Springs to Henry, about 7 miles south of Henry, and 13 miles north of Soda Springs; about 1½ miles above the flow line of the Blackfoot-Marsh reservoir; no important tributaries enter in this distance.

Drainage area.—Not measured.

Records available.—March 25 to September 30, 1914.

Gage.—Vertical staff on right crib pier of bridge; an auxiliary vertical staff on right bank 15 feet upstream to be read during high water; both gages at same datum. A reference gage is installed at the cable, one-half mile below.

Discharge measurements.—Made by wading or from cable at the shearing plant, half a mile below.

Channel and control.—Rock and gravel; not well defined; shifting possibly, owing to growth of aquatic vegetation and the effect of ice.

Extremes of dischage.—Maximum stage recorded during year, 6.45 feet at 3.15 p. m. April 24 (discharge, 1,450 second-feet); minimum stage recorded, 1.60 feet at 12.50 and 2 p. m. March 25 (discharge, 79 second-feet).

Winter flow.—Discharge relation probably affected by ice.

Diversions and storage.—The water of Blackfoot River is impounded below the station in the Blackfoot-Marsh reservoir, constructed by the Indian Service.

Accuracy.—Rating curve fairly well defined.

Discharge measurements of Blackfoot River above the reservoir, near Henry, Idaho, during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Mar. 25	G. C. Baldwin	1.60	78.9	June 29	C. G. Paulsen	3.03	265
Apr. 21	C. G. Paulsen	5.95	1,290	Aug. 7	....do	2.16	132
May 4	....do	5.38	974	Sept. 22	L. W. Roush	2.05	120

Daily discharge, in second-feet, of Blackfoot River above the reservoir, near Henry, Idaho, for the year ending Sept. 30, 1914.

Day.	Mar.	Apr.	May.	June.	July.	Aug.	Day.	Mar.	Apr.	May.	June.	July.	Aug.
1	.....	79	1,020	489	232	136	16	.....	1,020	649	302	190	.....
2	.....	87	944	582	241	136	17	.....	1,100	720	302	175	.....
3	.....	96	982	519	175	136	18	.....	867	792	280	161	.....
4	.....	96	1,020	519	175	136	19	.....	964	792	260	161	.....
5	.....	128	905	582	190	130	20	.....	1,060	719	302	161	.....
6	.....	161	792	684	206	125	21	.....	1,260	719	380	161	.....
7	.....	206	755	602	241	130	22	.....	1,300	684	459	161	.....
8	.....	161	684	519	241	130	23	.....	1,350	615	430	168	.....
9	.....	190	649	519	223	128	24	.....	1,350	598	325	260	.....
10	.....	280	684	519	223	125	25	79	1,260	582	280	241	.....
11	.....	325	719	489	214	130	26	79	1,180	615	302	216	.....
12	.....	454	755	430	191	130	27	79	1,100	615	375	190	.....
13	.....	582	719	402	168	130	28	79	1,100	582	328	161	.....
14	.....	649	684	364	175	130	29	79	944	519	280	148	.....
15	.....	792	649	325	190	120	30	79	944	519	232	136	.....
							31	79	.....	504	.....	136	.....

NOTE.—Discharge determined from a fairly well-defined rating curve. Discharge estimated as follows, on account of unreliable gage heights: Aug. 16–31, 110 second-feet; Sept. 1–21, 115 second-feet; and Sept. 22–30, 120 second-feet.

Monthly discharge of Blackfoot River above the reservoir, near Henry, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
March 25–31	79	79	79	1,100	C.
April	1,350	79	703	41,800	B.
May	1,020	504	716	44,000	B.
June	684	232	413	24,600	B.
July	260	136	191	11,700	B.
August	136	.....	120	7,380	C.
September	.....	.....	116	6,900	D.
The period	.....	.....	.....	137,000	

BLACKFOOT MARSH RESERVOIR NEAR HENRY, IDAHO.

Location.—In sec. 12, T. 5 S., R. 40 E., about 16 miles northwest of Henry.

Records available.—January 1, 1912, to September 30, 1914.

Gage.—Vertical staff near outlet tunnel at left end of dam. As the gage heights are published the zero of the gage is 6,100 feet above sea level.

Cooperation.—Records furnished by Office of Indian Affairs.

Daily gage height, in feet, of Blackfoot Marsh reservoir near Henry, Idaho, for the year ending Sept. 30, 1914.

[Waddell and Burnett, observers.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	58.40	58.70	59.44	59.60	59.80	60.20	60.10	63.60	64.80	63.90	62.00	60.20
2	58.38	58.70	59.45	59.55	59.84	60.22	60.10	63.72	64.80	63.85	61.95	60.15
3	58.30	58.70	59.50	59.55	59.84	60.25	60.10	63.80	64.80	63.78	61.90	60.10
4	58.30	58.70	59.52	59.50	59.90	60.28	60.10	63.90	64.80	63.70	61.85	60.00
5	58.35	58.78	59.47	59.47	59.95	60.30	60.10	64.00	64.75	63.68	61.80	59.90
6	58.35	58.85	59.50	59.45	59.98	60.30	60.10	64.10	64.80	63.58	61.85	59.80
7	58.35	58.92	59.51	59.43	59.98	60.33	60.20	64.10	64.80	63.58	61.72	59.77
8	58.35	58.95	59.52	59.40	60.02	60.35	60.30	64.18	64.78	63.48	61.68	59.59
9	58.35	59.00	59.54	59.40	60.05	60.35	60.35	64.20	64.75	63.43	61.45	59.59
10	58.40	59.05	59.55	59.40	60.00	60.32	60.45	64.22	64.75	63.35	61.45	59.50
11	58.45	59.08	59.56	59.40	60.00	60.28	60.55	64.28	64.70	63.38	61.40	59.45
12	58.45	59.10	59.58	59.38	60.05	60.22	60.70	64.35	64.65	63.30	61.30	59.30
13	58.50	59.10	59.59	59.39	60.05	60.25	60.80	64.40	64.60	63.26	61.20	59.30
14	58.50	59.10	59.60	59.35	60.05	60.25	60.95	64.45	64.60	63.15	61.13	59.30
15	58.50	59.20	59.60	59.35	60.05	60.25	61.08	64.45	64.58	63.15	61.10	59.15
16	58.50	59.20	59.60	59.35	60.05	60.22	61.30	64.55	64.50	63.05	61.00	59.25
17	58.50	59.22	59.65	59.34	60.05	60.20	61.45	64.60	64.45	63.01	60.90	59.15
18	58.50	59.22	59.64	59.34	60.05	60.20	61.60	64.65	64.40	62.93	60.82	59.08
19	58.52	59.25	59.65	59.36	60.05	60.18	61.70	64.70	64.38	62.85	60.77	59.10
20	58.52	59.27	59.65	59.40	60.05	60.15	62.00	64.75	64.30	62.83	60.80	59.03
21	58.55	59.30	59.64	59.41	60.08	60.15	62.20	64.85	64.35	62.63	60.78	59.00
22	58.50	59.30	59.62	59.50	60.10	60.12	62.40	64.90	64.30	62.60	60.78	58.95
23	58.50	59.30	59.60	59.55	60.10	60.10	62.60	64.90	64.25	62.52	60.75	59.00
24	58.54	59.32	59.60	59.57	60.10	60.10	62.80	64.90	64.20	62.43	60.75	59.00
25	58.55	59.35	59.60	59.60	60.15	60.10	62.90	64.92	64.17	62.47	60.70	59.00
26	58.55	59.35	59.60	59.70	60.15	60.10	63.15	64.90	64.07	62.40	60.68	58.97
27	58.57	59.39	59.60	59.75	60.18	60.10	63.15	64.92	64.07	62.30	60.60	58.85
28	58.57	59.40	59.60	59.80	60.20	60.10	63.30	64.90	64.00	62.20	60.55	58.90
29	58.70	59.42	59.60	59.80	.....	60.10	63.40	64.90	64.00	62.18	60.50	58.90
30	58.75	59.42	59.60	59.80	.....	60.10	63.50	64.87	63.90	62.16	60.40	58.98
31	58.77	.....	.....	59.80	.....	60.10	.....	64.85	.....	62.10	60.30	.....

NOTE.—To reduce gage heights to sea-level datum, add 6,100 feet.

BLACKFOOT RIVER NEAR HENRY, IDAHO.

Location.—In sec. 11, T. 5 S., R. 40 E., about 200 feet below the wagon bridge at Rocky Ford crossing, about 1 mile below the Blackfoot-Marsh dam of the United States Indian Service, and about 12 miles northwest of Henry. Soda Springs, about 30 miles south, is the most convenient railroad station.

Drainage area.—Not measured.

Records available.—July 15, 1908, to September 30, 1914.

Gage.—Friez water-stage recorder installed September 18, 1912, at the site of the old gage on the left bank of the stream; datum of new gage is 0.11 foot lower than the original datum, but was set to read the same as the old gage on that date. Level notes and discharge measurements indicate that the original gage settled 0.11 foot prior to 1912.

Discharge measurements.—Made by wading or from cable and car. Cable moved in 1913 to position about 100 yards above bridge.

Channel and control.—Permanent lava bowlders, gravel, and bedrock. Moss grows in the stream bed during certain periods of the year.

Extremes of discharge.—Maximum stage during year not known; probably occurred during last part of June (maximum discharge not estimated); minimum stage recorded, 1.08 feet February 3 to 8 (discharge, 29 second-feet).

Winter flow.—Automatic records discontinued during winter; effect of ice on staff-gage heights checked by record of gate openings at dam.

Diversions.—None between dam and station and practically none between dam and station at Shelley.

Accuracy.—Estimates of daily discharge approximate at times because of presence of ice or of moss in the channel; but sufficient measurements have been made to make the monthly estimates reliable; record of gate openings at dam affords rough check on the estimates.

Discharge measurements of Blackfoot River near Henry, Idaho, during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Nov. 18	A. B. Purton	1.30	63.6	Aug. 5	C. G. Paulsen	2.71	620
Apr. 18	C. G. Paulsen	1.82	226	5	do	2.32	419
19	do	1.95	260	6	do	2.10	309
19	do	2.20	395	6	do	2.89	721
19	do	1.65	163				

Daily discharge, in second-feet, of Blackfoot River near Henry, Idaho, for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.
1	503	64	64	218	32	32	225	317	638
2	278	64	64	251	32	32	225	317	638
3	240	64	64	262	29	34	225	317	638
4	222	64	64	262	29	35	225	317	638
5	222	64	64	262	29	35	225	317	643
6	222	64	64	262	29	37	225	321	654
7	218	64	64	262	29	78	138	321	659
8	218	64	64	262	29	153	67	326	665
9	218	64	64	262	49	204	67	347	670
10	222	64	64	198	118	225	69	365	665
11	185	64	64	143	147	229	105	365	670
12	66	64	64	143	147	229	147	365	681
13	64	66	64	143	147	229	186	365	686
14	64	66	64	143	147	229	214	360	698
15	64	66	64	143	147	229	214	365	714
16	64	66	64	143	147	229	214	365	.....
17	64	66	64	143	147	229	214	365	.....
18	64	64	64	107	147	229	218	365	.....
19	64	64	132	34	147	229	252	365	.....
20	64	64	143	34	147	229	252	365	.....
21	64	64	154	34	63	225	252	365	.....
22	64	64	154	32	32	225	252	365	.....
23	64	64	154	32	32	225	252	365	.....
24	64	64	154	32	32	225	288	401	.....
25	64	64	154	32	32	225	313	415	.....
26	64	64	154	32	32	225	313	467	.....
27	64	64	154	32	32	225	313	507	.....
28	64	64	154	32	32	225	313	590	.....
29	64	64	154	32	.....	225	313	627	.....
30	64	64	154	32	.....	225	313	632	.....
31	64	.....	179	32	.....	225	.....	632	.....

NOTE.—Discharge determined from two fairly well defined rating curves. Discharge June 16–30 estimated from records at station at Shelley at 700 second-feet, on account of unreliable gage heights.

Monthly discharge of Blackfoot River near Henry, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	503	64	130	7,990	A.
November	66	64	64.3	3,830	B.
December	179	64	101	6,210	B.
January	262	32	130	7,990	B.
February	147	29	77.2	4,290	B.
March	229	32	182	11,200	A.
April	313	67	221	13,200	A.
May	632	317	396	24,300	B.
June	.....	638	682	40,600	C.
July	.....	.....	[a] 635	39,000	C.
August	.....	.....	[a] 480	29,500	C.
September	.....	.....	[a] 470	28,000	C.
The year	.....	29	299	216,000	

[a] Estimated from record at station at Shelley, on account of unreliable gage heights.

BLACKFOOT RIVER NEAR SHELLEY, IDAHO.

Location.—In sec. 7, T. 2 S., R. 38 E., about 1½ miles above the mouth of the canyon, about 3 miles above the N. A. Just ranch, 10 miles southeast of Shelley post office, and about 18 miles northeast of Blackfoot. Wolverine Creek enters about 1¼ miles above.

Drainage area.—Not measured.

Records available.—June 26, 1909, to September 30, 1914. Records were obtained at Presto, about 5 miles below, from April 17, 1903, to December 31, 1909.

Gage.—Friez water-stage recorder on right bank.

Discharge measurements.—Made from cable about 10 feet below gage house.

Channel and control.—Rocky; practically permanent.

Extremes of discharge.—Maximum stage recorded during year, 5.7 feet December 13, but discharge relation was affected by ice; maximum discharge probably 1,000 second-feet, about noon June 4 (stage, 5.3 feet); minimum stage recorded, 3.23 feet at 12.30 p. m. January 24 (discharge, 70 second-feet); minimum discharge probably occurred during period January 20 to February 8, when discharge relation was affected by ice.

Winter flow.—Discharge relation somewhat affected by ice; automatic record fragmentary at times because of cold weather.

Diversions and storage.—No important diversions above station. Entire flood flow of Blackfoot River is stored behind the Indian Service dam, 40 miles above.

Accuracy.—Accurate low-water measurements made difficult by reason of rough cross section; records as whole reliable.

Discharge measurements of Blackfoot River near Shelley, Idaho, during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Oct. 11	R. C. Pierce	4.08	288	Feb. 24	C. G. Paulsen	3.46	102
Nov. 27	A. B. Purton	3.59	128	Mar. 20	do	4.05	306
Jan. 20	C. G. Paulsen	3.38	88.6	July 30	do	4.90	701
Feb. 5	do	[a] 3.57	88.3				

[a] Discharge relation affected by ice.

Daily discharge, in second-feet, of Blackfoot River near Shelley, Idaho, for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	637	133	88	96	299	560	796	745	702	672
2	379	140	88	96	315	571	829	739	696	672
3	319	142	88	96	332	566	863	739	696	667
4	276	137	88	96	366	550	897	739	690	667
5	280	137	88	96	402	539	897	745	690	667
6	284	137	88	96	468	534	863	739	478	661
7	287	142	88	96	529	519	829	733	678	661
8	303	140	88	147	434	514	829	733	678	655
9	303	140	.....	224	420	514	829	733	672	655
10	299	137	.....	260	478	560	829	739	672	655
11	295	140	.....	257	514	571	829	739	672	655
12	203	140	.....	260	593	560	796	733	667	649
13	147	140	.....	262	550	555	796	739	667	649
14	145	142	.....	264	643	550	796	745	667	648
15	142	140	.....	303	764	545	796	727	672	647
16	140	137	.....	319	758	593	796	721	678	646
17	140	135	.....	319	609	598	796	714	672	645
18	137	135	.....	307	534	566	796	714	672	644
19	137	137	.....	295	566	560	796	708	566	643
20	135	142	.....	284	708	560	796	714	128	643
21	135	137	.....	282	690	555	796	714	111	643
22	133	137	98	279	621	539	796	708	109	550
23	133	153	98	276	615	534	796	702	111	303
24	133	147	98	274	609	545	764	702	178	272
25	133	137	100	272	621	598	764	702	420	268
26	133	135	98	272	604	632	796	702	524	264
27	135	135	97	280	587	684	796	702	560	268
28	135	135	96	284	576	708	758	702	604	264
29	133	126	.....	287	566	796	752	696	643	246
30	133	135	.....	303	560	796	745	702	672	137
31	133	.....	.....	295	.....	796	.....	708	672	.....

NOTE.—Rating curve fairly well defined. Discharge Feb. 9–21 estimated, on account of ice, at 200 second feet. Discharge Mar. 1–6, 12–13, 21–24, and Sept. 13–19 interpolated.

Monthly discharge of Blackfoot River near Shelley, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	637	133	208	12,800	A.
November	147	126	138	8,210	B.
December	.....	.....	[a] 158	9,720	C.
January	.....	.....	[a] 191	11,700	C.
February	.....	.....	[a] 142	7,890	C.
March	319	96	235	14,400	B.
April	764	299	544	32,400	B.
May	796	514	589	36,200	B.
June	897	745	807	48,000	B.
July	745	696	722	44,400	A.
August	702	109	559	34,400	A.
September	672	137	544	32,400	A.
The year	897	.....	404	293,000	

[a] Monthly mean estimated largely from records at station near Henry.

FORT HALL UPPER CANAL NEAR BLACKFOOT, IDAHO.

Location.—In sec. 13, T. 3 S., R. 35 E., about 500 feet below head gates of the canal, and 3½ miles southeast of Blackfoot.

Records available.—May 8, 1912, to September 30, 1914.

Gage.—Bristol water-stage recorder at concrete-lined rating flume.

Discharge measurements.—Made from a suspension footbridge at the gage.

Channel and control.—Concrete-lined rating flume with a concrete cut-off wall at the lower end. Growth of aquatic plants may affect discharge relation.

Extremes of discharge.—Maximum stage recorded during year, 4.25 feet at 7 a. m. July 10 (discharge, 325 second-feet). Canal dry October 30 to 31, 1913, and July 24 to 26, 1914.

Winter flow.—Not estimated; only a small quantity of water for stock is run through the canal at that time.

Diversions.—Canal diverts water for use of Fort Hall Indian Reservation.

Accuracy.—Rating curves fairly well defined; results good.

Cooperation.—Gage heights furnished by United States Office of Indian Affairs.

Fort Hall upper canal diverts from the left bank of Blackfoot River in sec. 12, T. 3 S., R. 35 E.

Discharge measurements of Fort Hall upper canal near Blackfoot, Idaho, during the year ending Sept. 30, 1914.

[Made by C. G. Paulsen.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*		*Feet.*	*Sec.-ft.*		*Feet.*	*Sec.-ft.*
Apr. 27	1.67	42.3	May 19	3.08	185	Aug. 18	3.21	211
27	1.36	16.2	July 15	1.73	60.4			
May 19	3.34	222	31	3.49	239			

Daily discharge, in second-feet, of Fort Hall upper canal near Blackfoot, Idaho, for the year ending Sept. 30, 1914.

Day.	Oct.	Apr.	May.	June.	July.	Aug.	Sept.
1	80	.....	45	227	183	238	183
2	85	.....	46	227	205	238	183
3	112	.....	58	238	194	238	178
4	112	.....	72	216	205	238	178
5	112	.....	77	216	238	238	167
6	112	.....	82	216	249	227	183
7	112	.....	97	216	283	260	183
8	112	.....	111	216	295	238	178
9	112	.....	112	216	307	238	183
10	112	.....	113	216	172	238	183
11	112	.....	114	216	43	238	172
12	67	.....	125	172	43	238	147
13	67	.....	136	172	51	205	132
14	67	.....	157	172	51	205	132
15	67	.....	158	172	76	205	132
16	67	.....	159	178	157	205	112
17	67	.....	155	172	227	205	98
18	67	.....	182	183	227	205	103
19	67	.....	216	183	260	205	98
20	67	.....	216	172	271	194	94
21	67	.....	205	194	271	194	94
22	67	.....	216	194	271	194	94
23	67	24	205	183	175	194	94
24	67	20	205	183	0	183	90
25	67	19	205	183	0	205	85
26	67	61	194	183	0	205	85
27	67	55	194	183	90	205	78
28	67	47	194	183	205	205	72
29	30	24	216	183	238	205	72
30	0	28	216	183	238	205	77
31	0	.....	216	.....	238	205	.....

NOTE.—Discharge determined from two fairly well-defined rating curves and by the indirect method for shifting channels.

Monthly discharge of Fort Hall upper canal near Blackfoot, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	112	0	75.5	4,640	C.
April 23–30	61	19	34.8	552	B.
May	216	45	152	9,350	B.
June	238	172	195	11,600	B.
July	307	0	176	10,800	B.
August	260	183	216	13,300	B.
September	183	72	129	7,680	B.

FORT HALL LOWER CANAL NEAR BLACKFOOT, IDAHO.

Location.—In sec. 15, T. 3 S., R. 35 E., about half a mile below head gates of canal, and 2½ miles southeast of Blackfoot.

Records available.—May 15, 1912, to September 30, 1914.

Gage.—Bristol water-stage recorder at concrete rating flume.

Discharge measurements.—Made from a suspension footbridge at gage.

Channel and control.—Concrete-lined flume. Growth of aquatic plants and position of check and lateral headgates below affect discharge relation.

Extremes of discharge.—Maximum stage recorded during year, 3 feet at 8 a. m. July 27 (discharge, 96 second-feet); a discharge of 97 second-feet (gage height, 2.24 feet) was computed June 8; difference in discharge relation due to shifting channel; canal reported dry June 13 to 15.

Winter flow.—Not recorded; only a small quantity of water for stock passes through canal.

Accuracy.—Conditions poor; estimates of daily discharge only approximate.

Cooperation.—Gage-height record furnished by Office of Indian Affairs.

Fort Hall lower canal diverts from the left bank of Blackfoot River in sec. 11, T. 3 S., R. 35 E.

Discharge measurements of Fort Hall lower canal near Blackfoot, Idaho, during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Oct. 9	R. C. Pierce	1.42	30.7	July 15	C. G. Paulsen	2.43	52.4
9	do	1.07	16.5	31	do	2.91	91.8
9	do	2.03	72.3	31	do	2.59	64.3
10	do	2.43	112	31	do	1.81	21.6
Apr. 27	C. G. Paulsen	1.03	12.1	Aug. 18	do	2.59	56.6
May 19	do	1.54	53.2				

Daily discharge, in second-feet, of Fort Hall lower canal near Blackfoot, Idaho, for the year ending Sept. 30, 1914.

Day.	Oct.	Apr.	May.	June.	July.	Aug.	Sept.
1	37	.....	19	89	40	93	54
2	39	.....	20	88	52	91	52
3	37	.....	19	87	70	92	52
4	32	.....	21	85	80	92	49
5	28	.....	22	83	68	93	48
6	29	.....	22	87	78	84	50
7	30	.....	22	97	75	52	51
8	33	.....	22	94	75	47	52
9	40	.....	21	95	80	47	53
10	70	.....	22	48	84	47	53
11	31	.....	22	20	80	60	49
12	.....	.....	32	15	78	71	43
13	.....	.....	41	0	82	80	46
14	.....	.....	44	0	78	82	40
15	.....	.....	43	0	69	82	39
16	.....	17	46	1	74	68	37
17	.....	16	46	44	74	66	38
18	.....	16	46	44	71	66	40
19	.....	16	50	45	73	66	39
20	.....	16	46	43	78	64	36
21	.....	16	50	63	74	64	36
22	.....	16	50	61	75	60	36
23	.....	17	56	60	80	54	35
24	.....	15	58	61	78	52	34
25	.....	15	59	60	82	61	34
26	.....	15	59	61	87	66	18
27	.....	14	59	51	92	68	21
28	.....	15	58	35	87	68	17
29	.....	16	83	35	85	68	17
30	.....	16	87	33	82	66	17
31	.....	.....	86	.....	78	56	.....

NOTE.—Discharge determined from several poorly defined rating curves and by the indirect method for shifting channels. Discharge Oct. 12–29 estimated at 31 second-feet.

Monthly discharge of Fort Hall lower canal near Blackfoot, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October 1–29	70	28	33.2	1,910	D.
April 16–30	17	14	15.7	467	C.
May	87	19	42.9	2,640	C.
June	97	0	52.8	3,140	D.
July	92	40	76.1	4,680	D.
August	93	47	68.6	4,220	B.
September	54	17	39.5	2,350	D.

BLACKFOOT RIVER NEAR BLACKFOOT, IDAHO.

Location.—In the NE. ¼ sec. 27, T. 3 S., R. 34 E., at the old Jarvis ranch, about 2 miles above the junction of Blackfoot River with Snake River, and about 8 miles southwest of Blackfoot. Left bank at station is in allotment No. 958 of the Fort Hall Indian Reservation.

Drainage area.—Not measured.

Records available.—July 27 to September 27, 1913; July 11 to September 22, 1914. Records are kept only during the period when stored water may be carried in Snake River.

Gage.—Inclined staff on right bank at the tenant house on the Jarvis ranch.

Discharge measurements.—Made from cable and car or by wading. Conditions good.

Channel and control.—Gravel; not well defined. Discharge relation possibly affected by backwater from Snake River during high stages in that stream.

Extremes of discharge.—Maximum stage recorded during year, 8.67 feet at 5.30 p. m. September 21 and 5 p. m. September 22 (discharge, 668 second-feet); minimum stage recorded, 4.55 feet August 22 to 24 (discharge, 69 second-feet).

Winter flow.—No records kept.

Diversions and storage.—The Indian Service reservoir near Henry, Idaho, has a capacity of about 200,000 acre-feet. Station is below all diversions from Blackfoot River.

Accuracy.—Rating curve fairly well defined. Results reliable.

Discharge measurements of Blackfoot River near Blackfoot, Idaho, during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Nov. 26	A. B. Purton	6.08	253	Aug. 14	C. G. Paulsen	5.97	228
July 11	L. W. Roush	7.52	476	Sept. 10	do	6.74	346

Daily discharge, in second-feet, of Blackfoot River near Blackfoot, Idaho, for the year ending Sept. 30, 1914.

Day.	July.	Aug.	Sept.	Day.	July.	Aug.	Sept.
1	.....	152	360	16	605	284	622
2	.....	164	376	17	504	306	656
3	.....	184	360	18	376	329	656
4	.....	178	360	19	262	314	656
5	.....	191	329	20	240	254	656
6	.....	191	344	21	198	82	673
7	.....	122	344	22	184	69	673
8	.....	262	360	23	140	69	.....
9	.....	276	360	24	376	69	.....
10	.....	299	344	25	376	73	.....
11	472	240	360	26	344	212	.....
12	537	233	360	27	329	226	.....
13	605	212	472	28	178	269	.....
14	622	240	537	29	164	314	.....
15	622	269	571	30	152	344	.....
				31	152	360	.....

NOTE.—Discharge determined from a fairly well defined rating curve.

Monthly discharge of Blackfoot River near Blackfoot, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
July 11-31	622	140	354	14,700	B.
August	360	69	219	13,500	B.
September 1-22	673	329	474	20,700	B.
The period				48,900	

LITTLE BLACKFOOT RIVER AT HENRY, IDAHO.

Location.—In sec. 10, T. 6 S., R. 42 E., on Skinner's ranch at Henry, a short distance above the flow line of the Blackfoot-Marsh reservoir, about 20 miles north of Soda Springs.

Drainage area.—Not measured.

Records available.—March 24 to September 30, 1914.

Gage.—Vertical staff with enamel face fastened to a log across the stream just below Skinner's barn.

Discharge measurements.—Can probably be made at all stages by wading.

Channel and control.—Rocky, with mud and sand; subject to growth of aquatic plants.

Extremes of discharge.—Maximum stage recorded during year, 3.5 feet at 8 p. m. April 19 (approximate discharge, computed from extension of rating table, 292 second-feet); minimum stage recorded, 1.20 feet March 24, April 1 to 7.30 a. m. April 2, and July 4 at 6 p. m. to July 7 (minimum discharge, 6.9 second-feet, July 5, 6, and 7, computed by indirect method for shifting channel).

Winter flow.—No ice.

Diversions.—A ditch for watering stock diverts water around the station, and a small ditch takes water from the warm springs that enter the river between the station and the flow line of the reservoir.

Accuracy.—Results fair.

Discharge measurements of Little Blackfoot River at Henry, Idaho, during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Mar. 24	G. C. Baldwin	1.20	12.5	June 23	C. G. Paulsen	1.52	23.8
Apr. 17	C. G. Paulsen	1.76	52.6	26	do	1.63	28.0
17	do	2.20	98.2	Aug. 4	do	1.51	16.0
20	do	2.64	166	6	do	1.50	15.7
May 2	do	1.58	39.6	Sept. 22	L. W. Loush	1.62	19.3
3	do	1.53	34.0				

Daily discharge, in second-feet, of Little Blackfoot River at Henry, Idaho, for the year ending Sept. 30, 1914.

Day.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	.....	13	39	17	18	22	19
2	.....	14	37	20	13	22	19
3	.....	15	34	30	9.8	19	19
4	.....	16	31	41	7.5	16	19
5	.....	19	31	25	6.9	16	19
6	.....	25	31	19	6.9	16	19
7	.....	25	27	22	6.9	15	19
8	.....	32	23	28	14	15	19
9	.....	46	21	32	14	16	19
10	.....	78	24	32	14	16	19
11	.....	148	24	35	19	16	19
12	.....	141	24	24	19	18	20
13	.....	141	18	24	19	18	.....
14	.....	128	18	23	20	18	.....
15	.....	155	18	23	20	18	.....
16	.....	128	27	18	21	18	.....
17	.....	76	24	17	22	18	.....
18	.....	78	23	17	23	17	.....
19	.....	176	24	20	23	17	.....
20	.....	176	23	22	23	17	.....
21	.....	141	22	22	23	17	20
22	.....	155	22	23	23	17	19
23	.....	122	22	23	22	17	.....
24	13	78	22	22	22	17	.....
25	13	57	22	22	20	17	.....
26	13	57	21	25	19	17	.....
27	13	48	21	22	18	20	.....
28	13	48	20	22	16	20	.....
29	13	39	17	22	16	19	.....
30	13	39	15	22	16	19	.....
31	13	.....	15	.....	17	19	.....

NOTE.—Discharge relation affected by growth of moss, May 14 to Sept. 30. Discharge determined from several fairly well defined curves and by the indirect method for shifting channels. Discharge estimated Sept. 13–20, 22 second-feet; Sept. 23–30, 15 second-feet.

Monthly discharge of Little Blackfoot River at Henry, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
March 24–31	13	13	13	206	C.
April	176	13	80.5	4,790	A.
May	39	15	23.9	1,470	B.
June	41	17	23.8	1,420	B.
July	23	6.9	17.2	1,060	B.
August	22	15	17.6	1,080	B.
September	.....	.....	18.8	1,120	C.
The period	.....	.....	.....	11,100	

MEADOW CREEK NEAR HENRY, IDAHO.

Location.—In sec. 3, T. 6 S., R. 42 E., about 1½ miles northeast of Henry, about half a mile above the backwater from the Blackfoot-Marsh reservoir, and three-fourths mile below Goose Lake or Pelican Slough.

Drainage area.—Not measured.

Records available.—April 17 to September 30, 1914.

Gage.—Stevens water-stage recorder installed June 27 on left bank just above abandoned rock dam, to replace vertical staff used April 17 to June 26.

Discharge measurements.—Made from a cable and car at the gage or by wading.
Channel and control.—Old rock diversion dam; fairly permanent.
Extremes of discharge.—Minimum stage recorded, 4.39 feet at 4 p. m. April 17 (discharge, 283 second-feet; taken from rating curve used April 20 to September 30); minimum stage recorded, 2.13 feet August 20 to September 1 (discharge, 8.5 second-feet).
Diversions.—None since reservoir was constructed.
Accuracy.—Records fairly reliable.

Discharge measurements of Meadow Creek near Henry, Idaho, during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Apr. 20	C. G. Paulsen	4.25	253	June 30	C. G. Paulsen	2.40	15.1
May 2	do	3.40	103	Aug. 4	do	2.36	14.9
3	do	3.34	94.4	Sept. 21	L. W. Roush	2.43	17.0
June 27	do	2.40	15.8				

Daily discharge, in second-feet, of Meadow Creek near Henry, Idaho, for the year ending Sept. 30, 1914.

Date.	Apr.	May.	June.	July.	Aug.	Sept.	Date.	Apr.	May.	June.	July.	Aug.	Sept.
1	.....	118	25	15	15	8.5	16	.....	76	16	12	9.4	14
2	.....	103	25	15	15	8.7	17	.....	54	16	12	9.0	15
3	.....	95	25	15	15	9.0	18	.....	54	16	12	8.7	15
4	.....	89	30	15	15	9.0	19	.....	54	20	12	8.7	16
5	.....	82	45	15	14	9.0	20	254	54	20	12	8.5	16
6	.....	76	37	15	13	9.2	21	246	54	16	11	8.5	17
7	.....	70	37	15	13	9.4	22	239	54	16	11	8.5	17
8	.....	64	37	15	12	9.4	23	231	49	16	10	8.5	17
9	.....	59	37	14	12	9.8	24	224	54	16	10	8.5	18
10	.....	59	37	14	11	10	25	216	49	16	10	8.5	18
11	.....	56	37	14	11	10	26	216	49	16	11	8.5	18
12	.....	54	30	14	11	11	27	169	45	16	11	8.5	18
13	.....	54	25	14	10	11	28	160	43	16	12	8.5	18
14	.....	54	20	13	10	12	29	151	43	15	12	8.5	18
15	.....	54	18	13	9.6	12	30	118	37	15	13	8.5	18
							31	.....	30	.....	14	8.5	.....

NOTE.—Discharge determined from a fairly well defined rating curve. Discharge June 23 to Aug. 3 estimated, on account of moss growth and unreliable gage heights.

Monthly discharge of Meadow Creek near Henry, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
April 20-30	254	118	202	4,410	B.
May	118	30	60.8	3,740	B.
June	45	15	23.7	1,410	B.
July	15	10	12.9	793	C.
August	15	8.5	10.5	646	B.
September	18	8.5	13.4	797	B.
The period	.....	.....	.....	11,800	

BIG LOST RIVER NEAR CHILLY, IDAHO.

Location.—In sec. 30, T. 8 N., R. 21 E., at Howell's ranch, about 12 miles from Chilly post office, and about 30 miles up the river from Mackay, the nearest railroad point.

Drainage area.—Not measur

Records available.—April 25, 1904, to August 31, 1906; July 1, 1907, to September 30, 1914.

Gage.—Vertical staff on left bank. Prior to June 7, 1912, vertical staff on left bank 100 feet below the present gage and at different datum.

Discharge measurements.—Made from a cable about half a mile below the gage. At times two small ditches divert water between the gage and the cable, but their combined capacity is probably not more than 5 second-feet.

Channel and control.—Coarse gravel; fairly permanent.

Extremes of discharge.—Maximum stage recorded, 7.14 feet, morning of June 3 (discharge, 2,540 second-feet); minimum stage recorded, 3.59 feet March 29 and 30 (discharge, 61 second-feet).

Winter flow.—Winter records not kept; data insufficient for estimates.

Diversions.—Practically none above the station.

Accuracy.—Records fair.

Several tributaries enter between this station and the Mackay dam site. Thousand Springs Creek, measured on September 10, 1911, 56 second-feet, and Warm Springs Creek, estimated at 30 second-feet on August 4, 1910, have a fairly constant flow. There are sinks between this station and the dam site, but the water rises again wholly or in part above the dam site.

Discharge measurements of Big Lost River near Chilly, Idaho, during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Oct. 6	R. C. Pierce	3.98	148	Mar. 23	C. G. Paulsen	[b] 4.26	94.7
Jan. 24	C. G. Paulsen	[a] 5.36	91.4	May 8	do	5.14	703
24	do	[a] 5.51	95.0	July 25	do	4.53	380

[a] Ice about 3 feet thick.

[b] Ice beginning to go out.

Daily discharge, in second-feet, of Big Lost River near Chilly, Idaho, for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	142	142	.....	69	482	2,100	1,170	350	147
2	133	142	.....	69	512	2,100	1,090	330	147
3	128	142	.....	69	640	2,200	1,090	330	147
4	128	142	.....	77	709	1,910	1,170	320	147
5	142	142	.....	86	576	1,720	1,170	320	133
6	142	142	.....	97	543	1,350	1,090	297	133
7	156	142	.....	133	512	1,090	1,010	284	133
8	156	142	.....	133	744	928	890	266	133
9	156	142	.....	133	966	852	815	266	139
10	150	142	.....	147	1,090	709	1,260	241	147
11	142	128	.....	147	966	744	928	241	147
12	142	128	.....	179	890	744	852	233	147
13	142	128	.....	196	852	852	779	233	147
14	142	142	.....	233	966	779	744	233	147
15	142	172	.....	274	1,170	966	709	233	196
16	142	172	.....	274	1,440	1,170	640	225	196
17	142	142	.....	297	1,530	1,530	608	233	241
18	142	128	.....	297	1,530	1,720	512	233	241
19	142	128	.....	454	1,620	1,910	512	225	233
20	142	128	.....	375	1,720	1,810	512	225	233
21	142	128	.....	330	1,720	2,100	512	203	241
22	142	.....	.....	375	2,000	1,620	482	203	241
23	142	.....	95	350	2,200	1,170	454	196	233
24	142	.....	92	350	1,810	1,090	400	196	233
25	142	.....	90	330	1,530	1,720	375	196	233
26	142	.....	72	320	1,170	1,170	375	196	233
27	142	.....	69	297	1,090	1,260	350	179	233
28	142	.....	69	297	1,260	1,260	350	179	233
29	142	.....	61	320	1,530	1,260	350	179	233
30	142	.....	61	350	1,620	1,170	350	179	233
31	142	.....	82	.....	1,720	.....	350	179	.....

NOTE.—Discharge relation affected by ice Nov. 22 to Mar. 24. Discharge determined from a fairly well-defined rating curve. Discharge Nov. 22–30 estimated at 125 second-feet on account of ice; Mar. 23–24 also estimated on account of ice.

Monthly discharge of Big Lost River near Chilly, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	156	128	142	8,730	A.
November	172	.....	136	8,090	B.
March 23–31	95	61	76.8	1,370	B.
April	454	69	235	14,000	B.
May	2,200	482	1,200	73,800	B.
June	2,200	709	1,370	81,500	A.
July	1,260	350	706	43,400	A.
August	350	179	239	14,700	B.
September	241	133	189	11,200	B.

BIG LOST RIVER NEAR MACKAY, IDAHO.

Location.—In sec. 17, T. 7 N., R. 24 E., at A. D. Streeter's ranch, about 2½ miles below the Mackay dam, and about 2 miles above the town of Mackay. Beginning April 29, 1913, this station replaces the one at Olson's bridge, 1 mile upstream.

Drainage area.—Not measured.

Records available.—November 12, 1903, to September 1, 1906; June 6, 1912, to September 30, 1914. The flow in Streeter ditch must be added to that shown by the records for 1913–14 to make them comparable with the records for 1912.

Gage.—Vertical staff on left bank at A. D. Streeter's house, beginning April 29, 1913. Vertical staff on left bank 50 feet above Olson's bridge, October 1, 1912, to April 28, 1913.

Discharge measurements.—Made by wading or from cable 600 feet below the Olson gage. When measured from cable the flow in the Streeter ditch must be deducted. Conditions good.

Channel and control.—Rocky at both sites; fairly permanent.

Extremes of discharge.—Maximum stage recorded during year, 5.4 feet at 9.30 a. m. June 4 (discharge, 1,880 second-feet); minimum stage recorded, 0.36 foot March 26 to 28 (discharge, 41 second-feet).

Winter flow.—Discharge relation not affected by ice.

Diversions.—Sharp ditch diverts water between the Mackay dam and Olson's bridge and the Streeter ditch heads between Olson's bridge and the present gage.

Regulation.—Discharge regulated by the opening and closing of the gates at Mackay dam, 2½ miles above the station.

Accuracy.—Rating curve well defined; records reliable.

Discharge measurements of Big Lost River near Mackay, Idaho, during the year ending Sept. 30, 1914.

[Made by C. G. Paulsen.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.	Date.	Gage. height.	Discharge.
	Feet.	*Sec.-ft.*		*Feet.*	*Sec.-ft.*		*Feet.*	*Sec.-ft.*
Jan. 22	1.22	196	Mar. 25	1.08	158	May 6	1.94	414
Mar. 21	1.19	180	26	.36	40.9	July 28	1.84	369

Daily discharge, in second-feet, of Big Lost River near Mackay, Idaho, for the year ending Sept. 30, 1914.

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	264	264	222	196	184	172	49	250	936	979	340	209
2	264	264	222	196	184	172	52	250	1,060	979	324	209
3	264	264	222	196	184	172	57	278	1,470	936	324	196
4	278	264	222	196	184	172	196	324	1,880	894	356	196
5	264	264	222	196	184	172	196	389	1,600	979	340	196
6	278	264	222	196	184	172	442	406	1,510	1,020	340	196
7	264	264	209	196	184	172	389	406	1,200	979	308	196
8	264	264	209	196	184	172	340	424	1,060	894	293	196
9	264	264	209	196	184	172	308	442	979	894	278	209
10	264	264	209	196	184	172	209	534	894	811	264	209
11	264	264	209	196	184	172	184	610	852	894	264	209
12	264	264	209	196	184	172	184	649	770	894	250	209
13	264	264	209	196	184	172	172	591	770	811	250	222
14	264	264	209	196	184	172	172	572	770	811	236	222
15	264	264	209	184	184	172	172	591	770	811	236	222
16	264	250	209	184	184	184	172	610	770	729	222	222
17	264	250	196	184	184	184	161	729	811	689	222	236
18	264	250	196	184	184	184	161	770	811	610	222	236
19	264	250	196	184	103	184	161	811	1,060	572	222	250
20	264	236	196	184	45	184	161	852	1,240	534	222	250
21	264	236	196	184	460	184	172	894	1,330	478	222	250
22	264	236	196	184	71	184	172	894	1,470	478	222	250
23	264	236	196	184	196	184	184	979	1,290	442	222	250
24	264	222	196	184	184	184	209	1,200	1,060	424	209	264
25	264	222	196	184	184	161	209	1,240	1,060	424	209	264
26	264	222	196	184	172	41	236	1,110	1,200	406	209	264
27	264	222	196	184	172	41	236	979	1,150	389	209	264
28	264	222	196	184	172	41	250	894	1,060	372	209	264
29	264	222	196	184	.....	45	250	894	1,020	356	209	264
30	264	222	196	184	.....	45	250	852	1,020	372	[illegible]	264
31	264	.....	196	184	.....	46	.....	894	.....	340	209	.....

NOTE.—Discharge determined from a rating curve well defined below 1,000 second-feet.

Monthly discharge of Big Lost River near Mackay, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	278	264	265	16,300	A.
November	264	222	249	14,800	A.
December	222	196	205	12,600	A.
January	196	184	189	11,600	A.
February	184	[a] 45	181	10,100	A.
March	184	[a] 41	150	9,220	A.
April	442	[a] 49	204	12,100	A.
May	1,240	250	688	42,300	A.
June	1,880	770	1,100	65,500	B.
July	1,020	340	684	42,100	A.
August	356	209	253	15,600	A.
September	264	196	230	13,700	A.
The year	1,880	[a] 41	367	266,000	

[a] Minimum due to artificial regulation.

SHARP DITCH NEAR MACKAY, IDAHO.

Location.—In sec. 12, T. 7 N., R. 23 E., about 250 feet below the head gates, 200 feet below the old rating flume and original gage, and about 3½ miles above Mackay.

Records available.—June 6, 1912, to September 30, 1914, except during the winter, when canal is practically dry.

Gage.—Staff gage installed June 26, 1913, to replace the original gage, which was on the old rating flume. No determined relation between old and new datum.

Discharge measurements.—Made by wading or from a plank.

Channel and control.—Gravel and sand; poorly defined and apt to be affected by growth of aquatic plants.

Extremes of discharge.—Maximum stage recorded, 7.72 feet at 9.30 a. m. August 6 (discharge, 37 second-feet); water reported by observer to be below gage November 18, 22, 25, and 29; ditch practically dry during winter months.

Winter flow.—No records.

Diversions.—Present gage is below a small wasteway.

Regulation.—Flow affected by operation of head gates and by the wasteway.

Accuracy.—Results fair. Discharge relation somewhat affected by moss, but rating curves are fairly well defined.

Station is maintained for the purpose of determining the total flow of Big Lost River in the vicinity of Mackay dam. Sharp ditch diverts water from the left bank of Big Lost River in sec. 12, T. 7 N., R. 23 E., for irrigation. No water returned to river except that of the wasteway, and perhaps some seepage.

Discharge measurements of Sharp ditch near Mackay, Idaho, during the year ending Sept. 30, 1914.

[Made by C. G. Paulsen.]

Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*
May 8	7.11	22.5
July 26	7.35	26.4

Daily discharge, in second-feet, of Sharp ditch near Mackay, Idaho, for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Apr.	May.	June.	July.	Aug.	Sept.
1	6.0	6.5	.....	14	30	13	34	20
2	6.0	6.2	.....	14	31	12	35	20
3	6.0	6.0	.....	14	32	12	35	21
4	5.3	6.2	.....	18	34	11	35	20
5	5.6	6.3	.....	22	34	10	36	20
6	5.8	6.5	.....	22	34	10	37	21
7	6.0	6.2	.....	22	32	9.8	34	22
8	5.6	6.0	.....	22	29	9.7	32	22
9	5.3	5.3	.....	22	28	9.6	32	22
10	5.9	4.6	.....	22	28	9.5	31	22
11	6.5	4.0	.....	22	28	10	31	21
12	6.6	4.3	.....	18	28	9.6	31	20
13	6.7	4.6	.....	14	29	9.1	28	20
14	6.8	5.0	.....	18	26	11	27	20
15	6.6	5.3	.....	22	22	13	26	20
16	6.5	.....	6.8	22	22	16	26	20
17	6.2	.....	7.6	26	23	20	25	17
18	6.0	.....	7.6	30	29	21	25	17
19	6.2	.....	7.4	30	35	23	25	17
20	6.5	.....	7.1	30	36	25	25	14
21	6.8	.....	7.1	31	22	25	25	12
22	6.6	.....	7.1	32	7.1	25	25	12
23	6.5	.....	8.6	32	7.0	31	24	11
24	6.2	.....	10	33	6.8	31	24	10
25	6.0	.....	12	34	7.1	31	23	9.7
26	5.8	.....	12	33	34	28	22	8.7
27	5.7	.....	12	32	34	25	22	8.7
28	5.6	.....	14	30	28	26	22	7.8
29	6.2	.....	14	30	20	28	21	7.8
30	6.8	.....	14	30	22	34	21	7.8
31	6.8	.....	.....	30	.....	34	20	.....

NOTE.—Discharge relation affected by moss growth July 1 to Sept. 30. Discharge determined from a fairly well-defined rating curve and by the indirect method for shifting channels. Discharge interpolated for many short periods in which gage heights were not recorded.

Monthly discharge of Sharp ditch near Mackay, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	6.8	5.3	6.16	379	D.
November 1–15	6.5	4.0	5.53	165	D.
April 16–30	14	6.8	9.82	292	B.
May	34	14	24.9	1,530	B.
June	36	6.8	25.9	1,540	B.
July	34	9.1	18.8	1,160	B.
August	37	20	27.7	1,700	B.
September	22	7.8	16.4	976	B.

STREETER DITCH NEAR MACKAY, IDAHO.

Location.—In sec. 17, T. 7 N., R. 24 E., at A. D. Streeter's house, about 2 miles northwest of Mackay.

Records available.—May 16 to December 5, 1913; April 12 to September 30, 1914.

Gage.—Vertical staff.

Discharge measurements.—Made by wading or from the bridge.

Channel and control.—Gravel and sand; discharg relation affected by growth of aquatic plants.

Extremes of discharge.—Maximum stage recorded, 2.60 feet May 30 and June 3–5 (discharge, 36 second-feet); canal practically dry during winter months.

Winter flow.—Canal practically dry December 6 to April 11.
Diversions.—Station is above all turnouts.
Accuracy.—Records fairly reliable.

Streeter ditch diverts from Big Lost River in sec. 18 below Olson's bridge.

Discharge measurements of Streeter ditch near Mackay, Idaho, during the year ending Sept. 30, 1914.

[Made by C. G. Paulsen.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*		*Feet.*	*Sec.-ft.*
Jan. 22		1.0	May 6	1.41	1.3
Mar. 21	1.12	.5	July 28	2.18	13.0

Daily discharge, in second-feet, of Streeter ditch near Mackay, Idaho, for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Dec.	Jan.	Apr.	May.	June.	July.	Aug.	Sept.
1	17	1	1			1.1	23	20	13	9.2
2	17	1	1			1.2	29	18	13	9.2
3	17	1	1			1.3	36	18	13	7.9
4	7	1	1			1.3	36	18	29	7.9
5	7	1	1			1.3	36	3.2	18	7.9
6	1	1				1.3	29	2.8	2.2	7.9
7	14	1				1.4	23	2.8	14	7.9
8	14	1				1.4	20	2.8	14	7.9
9	14	1				1.5	18	2.8	12	9.2
10	14	1				1.6	18	23	11	9.2
11	14	1				1.6	18	23	10	9.2
12	14	1			0.9	1.8	16	23	9.2	9.2
13	14	1			.8	1.7	16	23	9.2	9.2
14	14	1			.8	2.4	16	23	18	9.2
15	14	1			.8	2.7	16	23	14	12
16	14	1			.8	3.8	16	23	12	12
17	14	1			.8	4.9	18	20	12	12
18	14	1			.8	5.8	18	20	12	12
19	1	1			.8	12	23	18	12	14
20	1	1			.8	18	26	16	12	14
21	1	1			.9	18	23	16	12	16
22	1	1		1	.9	18	29	16	12	16
23	1	1			1.0	23	23	16	12	1.1
24	1	1			1.0	20	23	16	11	1.1
25	1	1			1.1	23	18	14	10	1.1
26	1	1			1.2	14	23	14	10	1.1
27	1	1			1.2	29	23	14	10	1.1
28	1	1			1.3	18	23	14	10	1.1
29	1	1			1.3	16	23	13	10	1.0
30	1	1			1.3	36	23	13	10	1.0
31	1					29		13	9.2	

NOTE.—Discharge determined from two fairly well-defined rating curves.

Monthly discharge of Streeter ditch near Mackay, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	17	1	7.97	490	B.
November	1	1	1.00	59.5	C.
December 1–5	1	1	1.00	9.9	C.
April 12–30	1.3	.8	.97	36.7	B.
May	36	1.1	10.1	621	B.
June	36	16	22.7	1,350	B.
July	23	2.8	15.6	959	B.
August	29	2.3	12.1	744	D.
September	16	1.0	7.92	471	D.

THOUSAND SPRINGS CREEK NEAR CHILLY, IDAHO.

Location.—In the NW. ¼ sec. 21, T. 9 N., R. 22 E., 1 mile northeast of Chilly, one-fourth mile below the proposed dam site of the Thousand Springs Irrigation & Land Co., and about 3½ miles above mouth of creek. Several springs, flowing in the aggregate 5 to 10 miner's inches, enter between the station and the proposed dam and numerous springs enter below.

Drainage area.—Not measured.

Records available.—November 26, 1912, to February 28, 1913; January 25 to September 30, 1914.

Gage.—Vertical staff on right bank.

Discharge measurements.—Made by wading or from bridge one-fourth mile above the gage. Conditions good.

Channel and control.—Shifting somewhat; probably some aquatic plants.

Extremes of discharge.—Maximum stage recorded during year, 5.58 feet March 21–23 (discharge, 61 second-feet); minimum stage recorded, 2.93 feet January 25–26, 30–31, and February 2 (discharge, 2.3 second-feet).

Winter flow.—Discharge relation affected by ice.

Accuracy.—Impaired by ice and shifting control.

Discharge measurements of Thousand Springs Creek near Chilly, Idaho, during the year ending Sept. 30, 1914.

[Made by C. G. Paulsen.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*		*Feet.*	*Sec.-ft.*
Jan. 25	2.93	2.3	May 7	3.90	16.8
Mar. 24	5.39	55.6	July 26	4.92	25.9

Daily discharge, in second-feet, of Thousand Springs Creek near Chilly, Idaho, for the year ending Sept. 30, 1914.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	.....	2.3	5.0	41	28	18	33	26	20
2	.....	2.3	6.2	41	28	23	30	26	20
3	.....	2.5	5.0	41	24	28	34	26	19
4	.....	2.5	5.0	47	21	30	38	28	19
5	.....	2.5	5.0	47	20	41	41	28	19
6	.....	3.0	5.0	50	19	44	36	27	19
7	.....	3.0	7.6	53	17	47	33	26	19
8	.....	3.5	8.4	53	17	47	41	26	17
9	.....	3.8	9.1	53	17	44	41	24	15
10	.....	5.0	13	53	19	42	41	23	15
11	.....	6.2	14	53	18	41	38	23	15
12	.....	5.0	16	47	17	44	38	23	15
13	.....	3.6	16	44	17	44	33	23	17
14	.....	3.2	18	44	17	44	30	23	18
15	.....	3.8	26	44	17	42	30	23	18
16	.....	3.8	26	44	18	41	30	23	19
17	.....	3.8	33	44	21	41	28	23	20
18	.....	4.4	41	44	21	41	28	23	19
19	.....	5.0	47	44	21	41	26	23	19
20	.....	3.8	56	44	30	41	30	23	23
21	.....	9.1	62	44	19	50	28	23	23
22	.....	8.0	62	44	18	47	28	23	23
23	.....	6.9	62	44	18	47	28	23	23
24	.....	6.2	56	38	19	47	28	24	22
25	2.3	6.2	56	33	19	47	28	21	21
26	2.3	6.2	56	30	18	50	26	21	21
27	2.3	6.2	53	29	16	50	26	21	21
28	2.3	5.0	47	28	16	46	26	21	20
29	2.3	.....	42	28	15	41	26	21	20
30	2.3	.....	36	28	15	38	26	20	20
31	2.3	.....	41	.....	14	.....	26	20	.....

NOTE.—Discharge determined from two parallel rating curves fairly well defined and by the indirect method for shifting channels, June 25–29. Discharge estimated, on account of ice, Jan. 27–29 and Feb. 3–8.

Monthly discharge of Thousand Springs Creek near Chilly, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
January 25–31	2.3	2.3	2.30	32	C.
February	9.1	2.3	4.53	252	C.
March	62	5.0	30.2	1,860	B.
April	53	28	42.6	2,530	B.
May	30	14	19.2	1,180	C.
June	50	18	41.6	2,480	C.
July	41	26	31.5	1,940	C.
August	28	20	23.5	1,440	B.
September	23	15	19.3	1,150	B.
The period	.....	.....	.....	12,900	

ANTELOPE CREEK NEAR DARLINGTON, IDAHO.

Location.—In sec. 29 (approximately), T. 5 N., R. 25 E., at the John G. Richardson ranch, about 12 miles above the mouth of the creek, 6 miles west of Moore, 8 miles southwest of Darlington, and 17 miles southeast of Mackay.

Drainage area.—Not measured.

Records available.—April 29, 1913, to September 30, 1914.

Gage.—Inclined staff with vertical high-water section on left bank about 150 yards above Richardson's house.

Discharge measurements.—Made by wading or from a cable 300 feet below gage.
Channel and control.—Gravel; shifts slightly, probaby when ice goes out.
Extremes of discharge.—Maximum stage recorded during year, 6 feet at 1 p. m. March 14 and 7.30 a. m. March 15 (discharge relation seriously affected by ice; discharge March 1–15 estimated at 15 second-feet); maximum discharge recorded, 511 second-feet (gage height, 4.25 feet) at 7 a. m. June 4. Minimum discharge probably occurred during winter. Estimated discharge February 1–28, 10 second-feet. Minimum gage height, 1.29 feet at 6 p. m. August 25, 26, and 27, September 2, 3, 4, and 5 (discharge, 11 second-feet).
Winter flow.—Ice several feet in thickness forms at the station.
Accuracy.—Records fair except during winter months.

Discharge measurements of Antelope Creek near Darlington, Idaho, during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Oct. 2	R. C. Pierce	1.55	31.0	Mar. 27	C. G. Paulsen	[b] 1.56	23.4
2	do	1.55	31.9	May 10	do	3.41	292
Jan. 28	C. G. Paulsen	[a] 3.30	10.7	July 27	do	1.69	33.0
29	do	[a] 2.35	10.0	27	do	1.69	32.9

[a] Ice 4 feet thick at control.
[b] Ice 3 feet thick at control, but water running freely underneath.
NOTE.—On Oct. 2, R. C. Pierce estimated that zero flow would occur at about gage height of 0.4 foot.

Daily discharge, in second-feet, of Antelope Creek near Darlington, Idaho, for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	34	32	.....	23	158	256	119	24	11
2	32	35	.....	21	185	339	112	21	11
3	31	35	.....	29	194	470	119	27	11
4	29	33	.....	29	214	470	119	25	11
5	32	34	.....	35	185	443	119	20	11
6	34	37	.....	52	204	314	112	20	12
7	37	35	.....	64	194	245	86	19	13
8	40	34	.....	80	214	224	80	18	14
9	40	34	.....	86	256	185	69	18	14
10	36	34	.....	92	290	167	92	18	15
11	40	35	.....	92	314	194	86	18	15
12	39	36	.....	98	267	185	69	18	16
13	38	37	.....	92	256	176	69	15	19
14	37	35	.....	105	245	158	64	15	20
15	34	34	.....	134	278	158	59	15	24
16	35	32	20	167	302	158	59	15	24
17	34	31	20	134	339	204	59	15	27
18	34	31	25	126	364	204	59	14	32
19	34	29	20	134	416	234	52	13	35
20	32	32	21	185	390	224	52	13	35
21	32	31	18	204	390	234	52	13	38
22	31	28	18	176	443	194	48	13	39
23	31	.....	21	185	390	167	39	12	36
24	32	.....	21	185	416	142	35	11	30
25	32	.....	21	176	390	167	32	11	29
26	32	.....	18	185	256	185	32	11	28
27	32	.....	22	167	245	142	31	11	30
28	31	.....	20	158	224	134	30	13	29
29	31	.....	24	142	224	126	25	12	27
30	29	.....	22	150	256	134	22	11	26
31	31	.....	25	.....	234	.....	22	11	.....

NOTE.—Discharge relation believed to have been affected by ice Nov. 23 to Mar. 15. Discharge determined from two well-defined rating curves. Shift occurred during winter. Discharge estimated on account of ice, Nov. 23–31, 25 second-feet; Mar. 1–15, 15 second-feet.

Monthly discharge of Antelope Creek near Darlington, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	40	29	33.7	2,070	B.
November	37	.....	31.1	1,850	B.
December	.....	.....	a 15.0	922	D.
January	.....	.....	a 12.0	738	D.
February	.....	.....	a 10.0	555	D.
March	25	.....	18.1	1,110	C.
April	204	21	117	6,960	A.
May	443	158	282	17,300	B.
June	470	126	221	13,200	B.
July	119	22	65.3	4,020	A.
August	27	11	15.8	972	B.
September	39	11	22.7	1,350	B.
The year	470	.....	70.5	51,000	

a Estimated on account of ice.

PORTNEUF RIVER ABOVE THE RESERVOIR, NEAR CHESTERFIELD, IDAHO.

Location.—In sec. 3, T. 6 S., R. 38 E., just above the ford crossing the river to the Faulkner ranch house, a short distance above the flow line of the Portneuf-Marsh Valley Irrigation Co.'s reservoir, and about 7 miles northwest of Chesterfield post office. No important tributaries between the station and the dam.

Drainage area.—Not measured.

Records available.—April 28, 1912, to September 30, 1914.

Gage.—Vertical staff on left bank.

Discharge measurements.—Made by wading.

Channel and control.—Clay and fine gravel; aquatic plants grow freely during summer.

Extremes of discharge.—Maximum stage recorded during year, 4.28 feet February 13 (discharge relation relation seriously by ice); maximum discharge, 81 second-feet (gage height, 4.2 feet), occurred April 3. Minimum stage recorded, 2.10 feet January 16 (discharge, 9 second-feet); minimum discharge, 8.8 second-feet (gage height, 2.5 feet) occurred October 1; growth of aquatic plants in channel. Maximum and minimum stages approximate only, owing to infrequent gage readings at extemely high and low water.

Winter flow.—Discharge relation at times seriously affected by ice.

Diversions.—None between the station and the reservoir and only small ranch ditches above. Topons Creek, which is tributary below the dam, is partly diverted into the reservoir.

Accuracy.—Records fairly reliable; discharge relation affected by growth of aquatic plants.

Discharge measurements of Portneuf River above the reservoir, near Chesterfield, Idaho, during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Oct. 1	L. W. Jordan	2.50	8.8	Apr. 14	C. G. Paulsen	3.83	63.0
Nov. 15	A. B. Purton	2.51	12.2	July 2	do	2.68	17.1
15	do	2.51	12.2	Aug. 2	do	2.50	13.7
Feb. 8	C. G. Paulsen	a 3.75	9.73	Sept. 18	L. W. Roush	2.47	11.0

a Discharge relation affected by ice.

Daily discharge, in second-feet, of Portneuf River above the reservoir, near Chesterfield, Idaho, for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	8.8	11	12	10	.....	14	64	34	21	17	14	11
2	8.9	11	12	9.9	.....	14	72	34	22	18	14	11
3	9.0	11	12	9.8	.....	14	81	34	44	16	13	11
4	9.3	11	12	9.8	.....	14	80	33	44	16	13	11
5	9.6	11	12	9.8	.....	14	80	32	46	16	13	11
6	9.9	11	12	9.7	.....	14	79	30	46	16	13	11
7	10	11	12	9.7	.....	14	78	30	42	16	13	11
8	10	11	12	9.7	.....	14	77	28	34	16	13	11
9	11	11	12	9.6	.....	14	77	27	30	16	13	11
10	11	11	12	9.5	.....	15	76	27	28	16	13	11
11	11	11	12	9.4	.....	15	73	26	28	16	12	11
12	11	12	12	9.4	.....	15	69	26	26	16	12	11
13	11	12	11	9.3	.....	15	65	24	25	16	11	11
14	10	12	11	9.2	.....	20	61	24	23	14	10	11
15	10	12	11	9.1	.....	25	60	24	22	14	10	11
16	10	12	11	9.0	.....	30	58	30	22	14	10	12
17	10	12	11	9.2	.....	36	57	32	20	14	10	11
18	10	12	11	9.3	.....	41	56	30	20	14	10	11
19	10	12	10	9.5	.....	47	56	28	20	14	10	11
20	10	12	10	9.7	13	52	56	28	19	14	10	11
21	10	12	10	9.9	13	47	56	28	21	14	10	11
22	10	12	10	10	13	43	56	27	21	14	10	11
23	10	12	10	10	13	39	56	26	20	14	10	11
24	10	12	10	.....	14	35	52	25	18	14	10	11
25	10	12	10	.....	14	30	48	25	18	14	10	11
26	10	12	10	.....	14	26	46	24	21	14	10	11
27	10	12	10	.....	14	22	44	24	21	14	11	11
28	11	12	10	.....	14	30	41	21	20	14	11	11
29	11	12	10	.....	.....	38	38	21	19	14	11	11
30	11	12	10	.....	.....	47	36	21	18	14	11	11
31	11	.....	10	.....	.....	55	.....	21	.....	14	11	.....

NOTE.—Discharge determined from several fairly well-defined rating curves and by the indirect method for shifting channels. Oct. 1 to Apr. 17 gage read weekly and Aug. 1 to Sept. 30 every other day; discharge interpolated for intervening periods, except Jan. 23 to Feb. 19, during which period discharge was estimated at 10 second-feet on account of ice.

Monthly discharge of Portneuf River above the reservoir, near Chesterfield, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	11	8.8	10.1	621	B.
November	12	11	11.6	690	B.
December	12	10	11.0	676	B.
January	.....	.....	9.69	596	B.
February	14	.....	11.1	616	C.
March	55	14	27.4	1,680	C.
April	81	36	61.6	3,670	C.
May	34	21	27.2	1,670	B.
June	46	18	26.0	1,550	B.
July	18	14	14.9	916	B.
August	14	10	11.4	701	B.
September	12	11	11.0	655	B.
The year	81	.....	19.4	14,000	

PORTNEUF DIVERSION CHANNEL NEAR CHESTERFIELD, IDAHO.

Location.—About on the line between sec. 19 and sec. 30, T. 6 S., R. 39 E., at the wagon bridge about 200 yards below the flume in which the new channel crosses the old, about one-fourth mile below the dam, and about 2 miles west of Chesterfield.

Records available.—April 19 to September 30, 1914.

Gage.—Vertical staff nailed to bent of wagon bridge.

Discharge measurements.—Made by wading or from footbridge a short distance below gage.

Channel and control.—Not well defined; being artificial, channel will probably shift; in summer covered with weeds.

Extremes of discharge.—Maximum stage recorded, 2.65 feet July 22–25 and July 29 to August 4 (discharge relation badly affected by growth of aquatic plants during summer months; maximum discharge is indefinite). Discharge of 146 second-feet reported July 22 and 23. Water reported out of canal several days.

Diversions.—Above all diversions from this channel.

Accuracy.—Discharge relation badly affected by growth of aquatic vegetation; results only fair.

Cooperation.—Gage heights and results of occasional measurements furnished by the Portneuf-Marsh Valley Irrigation Co.

Discharge measurements of Portneuf diversion channel near Chesterfield, Idaho, during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Nov. 16	A. B. Purton	1.80	77.4	July 19	Ware and Johnston [a]	2.50	137
16	H. M. Johnston [a]	1.80	86.2	Aug. 2	C. G. Paulsen	2.65	144
Apr. 14	C. G. Paulsen	.36	8.3	Sept. 18	L. W. Roush	1.26	18.7

[a] Employees of Portneuf-Marsh Valley Irrigation Co.

Daily discharge, in second-feet, of Portneuf diversion channel near Chesterfield, Idaho, for the year ending Sept. 30, 1914.

Day.	Apr.	May.	June.	July.	Aug.	Sept.	Day.	Apr.	May.	June.	July.	Aug.	Sept.
1	.....	11	12	.....	140	55	16	.....	.....	.....	124	72	25
2	.....	17	32	.....	139	55	17	.....	.....	.....	124	71	22
3	.....	17	32	.....	138	32	18	.....	.....	.....	132	78	19
4	.....	17	32	128	137	32	19	60	.....	.....	137	77	19
5	.....	17	32	128	59	31	20	60	.....	.....	137	76	19
6	.....	17	30	119	59	29	21	60	12	.....	137	76	19
7	.....	17	30	110	58	28	22	60	12	.....	146	75	19
8	.....	4.9	30	110	61	28	23	45	12	.....	146	74	19
9	.....	4.9	30	106	60	28	24	35	12	.....	145	60	19
10	.....	4.9	30	106	59	27	25	35	12	.....	144	59	19
11	.....	.....	.....	74	59	27	26	35	12	.....	144	59	19
12	.....	.....	.....	74	58	26	27	26	12	.....	143	58	21
13	.....	.....	.....	74	58	26	28	11	12	.....	142	58	24
14	.....	.....	.....	74	60	26	29	11	12	.....	142	57	27
15	.....	.....	.....	74	59	26	30	11	12	.....	141	56	30
							31	.....	12	.....	140	56	.....

NOTE.—Discharge determined from a poorly defined rating curve. Channel dry May 11–20 and June 11 to July 3.

Monthly discharge of Portneuf diversion channel near Chesterfield, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
April 19–30	60	11	37.4	890	B.
May	17	0	8.38	515	C.
June	32	0	9.67	575	C.
July	146	0	110	6,760	B.
August	140	56	73.1	4,490	C.
September	55	19	26.5	1,580	C.
The period				14,800	

PORTNEUF RIVER BELOW THE RESERVOIR, NEAR CHESTERFIELD, IDAHO.

Location.—In sec. 30, T. 6 S., R. 39 E., about one-fourth mile below the Portneuf-Marsh Valley Irrigation Co.'s dam, where a small flume crosses the river; about 2½ miles from Chesterfield post office. Topons Creek enters the stream about 3 miles below the dam, but is partly diverted into the reservoir.

Drainage area.—Not measured.

Records available.—May 23, 1912, to September 30, 1914.

Gage.—Vertical staff on right bank at the flume.

Discharge measurements.—Made by wading or from the flume.

Channel and control.—Gravel, subject to growth of aquatic plants. On July 27, 1912, a wooden control, which is submerged at certain stages, was installed about 6 feet below the gage.

Extremes of discharge.—Maximum stage recorded during year, 4.80 feet April 19–22 (discharge, 81 second-feet); minimum stage recorded, 2.38 feet September 30; minimum discharge, 3.5 second-feet (gage height, 2.50 feet) May 2–7, computed by indirect method of shifting channel owing to growth of aquatic plants.

Winter flow.—Discharge relation not affected by ice.

Diversion and storage.—The capacity of the reservoir with the dam at its present height is 28,000 acre-feet; practically no diversions above the station. The company canal diverts about 23 miles below, and there are numerous ranch ditches between the dam and diversion point.

Accuracy.—Records approximate during certain periods.

Cooperation.—Gage-height record furnished by the Portneuf-Marsh Valley Irrigation Co.

Discharge measurements of Portneuf River below the reservoir, near Chesterfield, Idaho, during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Oct. 2	L. W. Jordan	2.49	6.0	July 2	C. G. Paulsen	3.60	22.8
Nov. 16	A. B. Purton	2.51	6.7	Aug. 2	do	2.52	5.9
Feb. 9	C. G. Paulsen	2.61	11.7	Sept. 18	L. W. Roush	2.40	4.4
Apr. 14	do	4.04	54.6				

Daily discharge, in second-feet, of Portneuf River below the reservoir, near Chesterfield, Idaho, for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	July.	Aug.	Sept.
1	6.1	12	6.7	11	13	12	13	5.7	23	6.8	4.0
2	6.1	12	6.6	12	13	12	13	3.5	23	6.8	4.0
3	6.1	12	6.6	13	13	12	13	3.5	23	7.1	3.5
4	6.1	12	6.5	13	13	12	13	3.5	.....	7.1	3.7
5	6.1	12	6.5	13	13	12	13	3.5	.....	4.7	3.7
6	6.1	12	6.4	13	13	12	13	3.5	.....	4.7	3.7
7	6.1	12	6.3	13	13	12	13	3.5	.....	4.4	4.0
8	6.1	12	6.3	13	12	12	13	19	.....	3.7	4.0
9	6.1	11	6.3	13	12	12	13	19	.....	4.0	4.0
10	6.1	10	6.2	13	12	12	13	19	.....	4.0	4.0
11	6.1	9.6	6.2	13	12	11	13	24	.....	4.0	4.4
12	6.2	8.9	6.2	13	12	11	13	24	6.1	4.0	5.1
13	6.2	8.2	6.1	13	12	11	25	24	6.1	4.0	5.1
14	6.2	7.5	6.0	13	12	11	55	24	6.1	4.0	5.1
15	6.3	6.8	6.0	13	12	12	55	24	6.1	4.0	5.1
16	6.3	6.8	5.9	13	12	12	67	24	6.8	4.4	5.1
17	6.3	6.8	5.9	13	12	12	68	24	6.8	4.4	4.8
18	6.4	6.8	5.8	13	12	12	69	24	6.8	4.4	4.4
19	6.4	6.8	5.8	13	12	12	81	24	6.1	4.4	4.4
20	6.4	6.8	5.7	13	12	12	81	24	6.1	4.0	4.4
21	6.4	6.8	5.7	13	12	13	81	11	6.1	4.0	4.4
22	6.4	6.8	5.7	13	12	13	81	11	6.1	4.4	4.4
23	6.4	6.8	5.7	13	12	13	74	11	6.1	4.4	4.4
24	6.4	6.8	5.7	13	12	13	71	11	6.1	4.4	4.4
25	6.4	6.8	5.7	13	12	13	71	11	6.1	4.4	4.4
26	6.4	6.8	5.7	13	12	13	71	11	5.7	3.7	4.4
27	6.4	6.8	5.7	13	12	13	50	11	5.7	3.7	4.4
28	6.4	6.8	6.7	13	12	13	20	11	5.7	3.7	4.4
29	6.4	6.8	7.7	13	.....	13	20	11	6.1	4.0	4.4
30	6.4	6.7	8.7	13	.....	13	5.7	11	6.8	4.0	3.7
31	6.4	.....	9.8	13	.....	13	.....	11	6.8	4.0	.....

NOTE.—Discharge determined from several parallel rating curves. Gage read weekly prior to Apr. 15; discharge interpolated for days on which gage height was not recorded. Discharge estimated July 4–11 at 6.5 second-feet.

Monthly discharge of Portneuf River below the reservoir, near Chesterfield, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	6.4	6.1	6.26	385	B.
November	12	6.7	8.66	515	B.
December	9.8	5.7	6.35	390	C.
January	13	11	12.9	793	C.
February	13	12	12.2	678	B.
March	13	11	12.2	750	B.
April	81	5.7	40.1	2,390	C.
May	24	3.5	14.3	879	D.
June 1–25	.....	.....	[a] 30.5	1,510	D.
July	23	5.7	7.91	486	C.
August	7.1	3.7	4.50	277	C.
September	5.1	3.5	4.33	258	C.

[a] Estimated.

PORTNEUF RIVER AT TOPAZ, IDAHO.

Location.—In sec. 23, T. 9 S., R. 37 E., just below the Oregon Short Line Railroad bridge, one-fourth mile below Topaz flag station; about 1¼ miles above the diversion dam of the Portneuf-Marsh Valley Irrigation Co.

Drainage area.—Not measured.

Records available.—January 12, 1913, to September 30, 1914.

Gage.—Vertical staff on left bank.

Discharge measurements.—Made from a highway bridge about one-half mile above the gage. Conditions fair.

Channel and control.—Loose rock riffle; fairly permanent.

Extremes of discharge.—Maximum stage recorded during year, 5.47 feet at 6 p. m. April 23 (discharge, 760 second-feet); minimum stage recorded, 2.9 feet at 1 p. m. October 3 and September 12 and 13 (discharge, 163 second-feet).

Winter flow.—Discharge relation not affected by ice. Warm spring water enters above.

Diversions and storage.—Present capacity of Portneuf-Marsh dam near Chesterfield about 28,000 acre-feet. The main diversion canal heads about 1¼ miles below the gage. Numerous ranch diversions are made above.

Accuracy.—Rating curve only fairly well defined, possibly because of rather poor conditions for measuring.

Cooperation.—Gage-height record furnished by the Portneuf-Marsh Valley Irrigation Co.

Discharge measurements of Portneuf River at Topaz, Idaho, during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Nov. 22	A. B. Purton	3.64	283	May 5	C. G. Paulsen	4.92	592
Feb. 16	C. G. Paulsen	3.00	181	July 3	do	3.74	315
Mar. 27	G. C. Baldwin	3.75	309	Aug. 8	do	3.21	227
Apr. 22	C. G. Paulsen	5.42	747	Sept. 17	L. W. Roush	3.23	224

Daily discharge, in second-feet, of Portneuf River at Topaz, Idaho, for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	170	202	186	194	186	202	346	565	437	325	285	178
2	170	202	186	186	186	211	346	565	413	368	285	178
3	163	202	178	178	186	220	368	512	368	325	285	178
4	170	211	186	178	178	211	368	512	368	266	285	178
5	170	211	186	186	186	229	413	538	486	285	285	178
6	170	229	186	186	186	220	461	486	565	305	285	178
7	178	238	186	186	186	211	437	512	512	325	266	178
8	186	220	186	186	178	229	461	565	486	325	238	170
9	194	211	178	178	170	256	461	593	486	325	256	170
10	202	211	178	178	178	285	461	593	486	325	247	170
11	202	211	178	178	186	285	461	565	437	325	238	170
12	194	202	178	178	186	285	512	565	413	325	238	163
13	194	202	178	178	178	285	565	565	390	325	229	163
14	186	194	178	178	178	305	565	565	368	285	229	178
15	186	202	178	178	186	368	593	538	368	285	229	186
16	194	211	178	178	186	368	621	565	325	285	220	194
17	194	211	186	178	186	486	621	565	325	285	211	220
18	186	238	178	186	186	461	679	565	285	285	211	220
19	186	256	178	194	186	486	709	565	285	285	211	220
20	186	266	178	186	194	512	739	565	285	285	211	220
21	194	256	170	186	202	461	739	565	285	285	211	266
22	186	266	170	178	211	390	739	538	285	285	211	266
23	186	238	178	178	211	368	770	538	285	285	202	266
24	186	229	178	170	211	346	739	538	285	285	202	266
25	186	229	178	178	202	325	739	512	285	285	202	266
26	186	220	178	186	202	325	709	512	325	285	202	266
27	186	211	178	186	194	325	709	486	325	285	194	266
28	186	220	186	194	194	325	679	461	325	285	194	266
29	186	211	178	186	.....	325	621	461	346	285	194	266
30	186	202	178	186	.....	325	621	437	346	285	194	235
31	186	.....	178	186	.....	325	.....	413	.....	285	178	.....

NOTE.—Discharge determined from a fairly well-defined rating curve.

Monthly discharge of Portneuf River at Topaz, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	202	163	185	11,400	B.
November	266	194	220	13,100	B.
December	186	170	180	11,100	B.
January	194	170	183	11,300	B.
February	211	170	189	10,500	B.
March	512	202	321	19,700	B.
April	770	346	575	34,200	B.
May	593	413	533	32,800	B.
June	565	285	373	22,200	B.
July	368	266	299	18,400	B.
August	285	178	230	14,100	B.
September	285	163	212	12,600	B.
The year	770	163	292	211,000	

PORTNEUF RIVER AT POCATELLO, IDAHO.

Location.—In sec. 27, T. 6 S., R. 34 E., just above the slaughterhouse bridge at the foot of Carson Street, at the west end of the town of Pocatello, Idaho.

Records available.—August 13, 1911, to September 30, 1914.

Drainage area.—Not measured.

Gage.—Vertical staff on left bank about 20 feet above bridge. A new bridge was constructed in 1914 just above the gage.

Discharge measurements.—Made from the old bridge.

Channel and control.—Rough, with good-sized bowlders; probably permanent.

Extremes of discharge.—Maximum stage recorded during year, 6.18 feet at 6.15 p. m. April 25 (discharge, 1,070 second-feet); minimum stage recorded, 2.5 feet August 18–20 (discharge, 130 second-feet).

Winter flow.—Shore ice at control; discharge relation somewhat affected by ice cover at gage.

Diversions.—The Portneuf-Marsh Valley Irrigation Co. has a storage reservoir near Chesterfield with a capacity of 28,000 acre-feet. This water is used for irrigation of lands in the vicinity of Downey, on Marsh Creek. Some ranch diversions are made below the station.

Accuracy.—Measuring section is rough, but a large number of measurements have been made and records should be reliable.

Discharge measurements of Portneuf River at Pocatello, Idaho, during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Jan. 19	C. G. Paulsen	3.37	299	May 21	C. G. Paulsen	5.36	864
Mar. 19	A. W. Harrington	5.09	656	July 7	do	3.23	255
21	G. C. Baldwin	4.91	605	Sept. 30	do	3.52	292
Apr. 25	C. G. Paulsen	6.18	1,080				

Daily discharge, in second-feet, of Portneuf River at Pocatello, Idaho, for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	187	260	290	254	400	538	509	958	425	270	153	161
2	187	270	270	257	376	454	509	919	425	260	153	178
3	187	290	260	260	376	454	509	919	425	270	153	178
4	187	290	260	251	353	454	538	919	506	251	153	161
5	187	300	251	242	331	454	538	919	506	214	153	161
6	196	300	280	242	290	454	631	919	565	331	178	161
7	196	310	251	242	.....	454	698	919	661	270	187	170
8	205	331	242	239	.....	454	698	866	628	331	196	161
9	232	310	232	235	.....	454	698	888	596	310	196	161
10	270	300	237	232	.....	481	734	911	535	331	187	161
11	260	290	241	196	310	509	770	934	535	353	187	161
12	251	290	246	224	300	509	770	915	506	270	153	170
13	251	290	251	251	310	509	770	839	478	270	145	187
14	242	300	244	251	310	509	770	839	451	251	145	205
15	242	310	238	251	310	509	770	802	425	232	145	280
16	242	310	232	270	290	538	843	802	425	214	145	310
17	242	331	232	290	300	631	843	802	376	187	145	290
18	242	331	232	285	300	664	881	839	331	178	130	290
19	242	331	232	280	331	664	881	877	310	170	130	310
20	232	331	220	280	425	664	919	877	310	161	130	310
21	232	331	208	280	535	599	958	877	290	161	251	310
22	232	331	196	331	478	568	997	839	290	161	196	310
23	232	353	211	310	596	538	997	730	290	161	196	310
24	223	353	227	290	506	538	1,040	661	310	153	187	310
25	223	331	242	331	599	509	1,080	661	310	153	178	300
26	223	310	242	425	509	509	1,080	661	310	153	178	280
27	223	310	242	425	481	509	1,080	596	290	153	170	310
28	223	310	242	376	454	509	1,040	535	290	153	161	300
29	223	300	242	310	.....	509	997	478	270	153	145	300
30	223	300	246	376	.....	509	997	478	270	153	145	310
31	223	.....	251	376	.....	509	.....	425	.....	153	145	.....

NOTE.—Discharge determined from a fairly well defined rating curve. A parallel curve was used Feb. 25 to May 7 on account of débris on control. Discharge estimated at 290 second-feet Feb. 7–10, on account of ice. Discharge interpolated for several periods in December and January in which gage heights were not recorded.

Monthly discharge of Portneuf River at Pocatello, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	270	187	225	13,800	A.
November	353	260	310	18,400	A.
December	290	196	242	14,900	B.
January	425	196	286	17,600	B.
February	599	.....	380	21,100	C.
March	664	454	521	32,000	B.
April	1,080	509	818	48,700	A.
May	958	425	794	48,800	B.
June	661	270	411	24,500	A.
July	353	153	220	13,500	A.
August	251	130	165	10,100	B.
September	310	161	240	14,300	B.
The year	1,080	130	384	278,000	

TOPONS CREEK NEAR CHESTERFIELD, IDAHO.

Location.—In sec. 34, T. 6 S., R. 38 E., at the Butterfield ranch, about half a mile below the heading of the diversion canal into the Portneuf-Marsh reservoir, and about 7 miles west of Chesterfield.

Drainage area.—Not measured.

Records available.—April 25, 1912, to September 30, 1914.

Gage.—Vertical staff on right bank, back of Butterfield's barn, and about 100 yards downstream.

Discharge measurements.—Made by wading; high-water measurements can be made under poor conditions at a footbridge about 600 feet above gage.

Channel and control.—Rocky; likely to be partly clogged at times by drift and fallen trees.

Extremes of discharge.—Maximum stage recorded during year, 6.7 feet April 19 (discharge, 220 second-feet); minimum stage recorded, 3.29 feet November 16 (discharge, 9 second-feet). By indirect methods for shifting channels a discharge of 8 second-feet (gage heights of 3.36 and 3.37 feet) was determined for September 25–30.

Winter flow.—Several feet of ice form at station; discharge relation often affected.

Diversions and storage.—A few small diversions above and below the station, but the main diversion, at least in flood periods, is into the Portneuf-Marsh reservoir on Portneuf River by means of a feeder canal heading about one-half mile above gage.

Accuracy.—Records prior to August 2, 1914, dependent for a large part of the time on gage readings—decidedly unreliable at times—made by a local observer; rating curves fairly well defined, however, and for periods during which gage was read by the company's gate tender, records should be reliable.

Cooperation.—Gage-height record furnished by the Portneuf-Marsh Valley Irrigation Co.

Discharge measurements of Topons Creek near Chesterfield, Idaho, during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Oct. 2	L. W. Jordan	3.39	11.7	July 2	C. G. Paulsen	4.08	34.1
Nov. 16	A. B. Purton	3.29	7.8	Aug. 2	do	3.73	16.3
Feb. 9	C. G. Paulsen	[a] 4.57	10.6	Sept. 18	L. W. Roush	3.66	15.6
Apr. 14	do	6.03	167				

[a] Discharge relation affected by ice.

Daily discharge, in second-feet, of Topons Creek near Chesterfield, Idaho, for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	11	11	.....	.....	19	33	154	114	39	18	13
2	11	11	.....	.....	19	35	146	114	35	17	13
3	11	11	.....	.....	19	37	154	130	30	17	13
4	11	11	.....	.....	18	39	146	114	26	17	13
5	11	12	.....	.....	18	52	186	107	26	17	13
6	11	12	.....	.....	18	65	178	100	26	18	13
7	11	12	.....	.....	18	78	170	93	30	17	13
8	12	12	.....	.....	18	91	170	93	30	17	13
9	12	11	.....	.....	18	104	170	93	39	17	13
10	12	11	.....	.....	18	117	178	93	43	17	13
11	12	11	.....	.....	19	130	170	93	38	17	13
12	12	10	.....	.....	19	140	162	93	33	16	13
13	12	10	.....	.....	19	151	162	79	28	15	13
14	12	10	.....	16	19	162	162	79	28	15	13
15	11	9	.....	17	20	162	162	72	28	15	14
16	11	9	.....	17	21	162	154	66	24	12	14
17	11	9	16	17	22	162	154	60	23	11	15
18	11	9	16	17	23	191	154	54	20	10	15
19	11	9	16	17	24	220	186	49	19	10	14
20	11	9	16	17	25	202	154	49	19	10	12
21	11	9	17	18	26	194	146	44	19	12	10
22	11	9	17	18	26	194	138	44	19	14	9
23	11	9	17	18	26	194	130	44	19	14	9
24	11	9	17	18	26	194	138	44	19	15	9
25	11	9	.....	19	25	194	138	44	19	15	8
26	11	10	.....	19	25	186	130	54	19	15	8
27	11	10	.....	19	25	170	122	54	19	15	8
28	11	10	.....	19	25	170	122	49	19	15	8
29	11	10	.....	.....	27	162	114	49	19	15	8
30	11	10	.....	.....	29	162	114	44	19	14	8
31	11	.....	.....	.....	31	.....	130	.....	19	13	.....

NOTE.—Discharge determined from several rating curves and by the indirect method for shifting channels. Discharge estimated on account of ice, as follows: Dec. 1–31, 11 second-feet; Jan. 1–16, 12 second-feet; Jan. 25–31, 16 second-feet; Feb. 1–13, 13 second-feet. Gage read irregularly; many interpolations of discharge necessary.

Monthly discharge of Topons Creek near Chesterfield, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	12	11	11.2	689	C.
November	12	9	10.1	601	C.
December	.....	.....	11	676	D.
January	17	.....	14.1	867	D.
February	19	.....	15.5	861	C.
March	31	18	22.1	1,360	C.
April	220	33	138	8,210	B.
May	186	114	151	9,280	A.
June	130	44	73.8	4,390	A.
July	43	19	25.6	1,570	C.
August	18	10	14.8	910	B.
September	15	8	11.7	696	B.
The year	220	.....	41.7	30,100	

PEBBLE CREEK NEAR PEBBLE, IDAHO.

Location.—In sec. 8, T. 8 S., R. 38 E., about half a mile above the forest ranger's station on Pebble Creek, and about 1½ miles from Pebble post office. No tributaries between the station and Portneuf River.

Drainage area.—Not measured.

Records available.—September 26, 1911, to September 30, 1914.

Gage.—Vertical staff on left bank.

Discharge measurements.—Made by wading.

Channel and control.—Rocky; probably permanent.

Winter flow.—Discharge relation affected by ice.

Extremes of discharge.—Maximum stage recorded, 1.45 feet April 27 (discharge, 74 second-feet); minimum discharge published, 5.5 second-feet (measurement of February 10); it is probable, however, that there was a lower discharge during period when discharge relation was affected by ice; minimum stage reported, 0.30 foot September 1, 2, 4, 9, and 11. Maximum and minimum discharge very indefinite owing to infrequent gage readings and approximate records.

Diversions.—Several ranch ditches take out between the gage and Portneuf River.

Accuracy.—Results approximate only.

Cooperation.—Gage-height record furnished by United States Forest Service.

Discharge measurements of Pebble Creek near Pebble, Idaho, during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Oct. 2	L. W. Jordan	0.44	8.3	Feb. 10	C. G. Paulsen	(a)	5.5
Nov. 22	A. B. Purton	.47	9.4				

[a] Observer absent and hydrographer unable to find gage because of deep snow drifts.

Monthly discharge of Pebble Creek near Pebble, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October			10.8	664	C.
November			11.7	696	C.
December			8.0	492	D.
January	10		8.45	520	D.
February	10	5.5	7.91	439	D.
March		10	10.4	640	D.
July		9	19.5	1,200	D.
August	9		7.52	462	D.
September		6	7.67	456	D.

NOTE.—Discharge largely estimated or interpolated on account of few and irregular gage readings. No estimates possible for April, May, and June on account of insufficient data.

BIRCH CREEK NEAR DOWNEY, IDAHO.

Location.—In sec. 20, T. 12 S., R. 36 E., just below the Idaho Light & Power Co.'s power house, 12 miles southwest of Downey post office.

Drainage area.—About 3.5 square miles.

Records available.—October 14, 1911, to August 3, 1914, when station was discontinued.

Gage.—Vertical staff on left bank, 300 feet below the power house.

Discharge measurements.—Made by wading.

Channel and control.—Composed of rocks; shifts.

Extremes of discharge.—Maximum stage recorded during year, 3.7 feet May 13–21 (discharge, 20 second-feet); minimum stage recorded, 3.1 feet December 24–27 (discharge, 3.4 second-feet).

Winter flow.—Formation of ice prevented by operation of power plant.

Accuracy.—Rating curves poorly defined; records approximate.

Cooperation.—Station installed and gage readings and some discharge measurements furnished by the United States Forest Service.

Discharge measurements of Birch Creek near Downey, Idaho, during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Oct. 4	L. W. Jordan	3.20	5.1	June 12	J. P. Martin[a]	3.58	15.1
June 12	J. P. Martin[a]	3.58	15.6	Sept. 12	G. C. Baldwin	3.6	7.4

[a] District engineer, United States Forest Service.

Daily discharge, in second-feet, of Birch Creek near Downey, Idaho, for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.
1	5.3	5.1	4.2	5.1	5.1	6.2	5.5	13	13	11	6.2
2	5.3	5.1	4.2	5.1	5.1	5.5	5.5	13	13	11	9.7
3	5.3	5.1	3.7	5.1	5.1	5.1	6.2	13	13	11	9.7
4	5.1	5.1	3.7	5.1	5.1	5.1	6.2	14	14	11	.....
5	5.1	6.2	4.2	5.1	5.1	5.1	7.2	14	14	10	.....
6	5.5	7.2	4.2	5.5	5.1	5.1	7.7	16	14	9.7	.....
7	7.2	7.2	4.2	5.5	5.1	6.2	8.4	16	13	9.7	.....
8	7.2	6.2	5.1	5.1	5.1	6.2	8.4	16	14	9.7	.....
9	6.2	5.5	5.1	5.1	5.1	6.2	8.4	16	14	9.7	.....
10	6.2	5.1	5.1	5.1	5.1	6.2	9.7	16	14	9.7	.....
11	5.5	5.5	4.2	5.1	5.1	6.2	9.7	18	14	9.7	.....
12	5.1	5.5	4.2	5.1	5.1	7.2	9.7	18	15	9.7	.....
13	5.1	5.1	4.2	5.1	5.1	7.2	9.7	20	15	9.7	.....
14	5.1	5.1	4.2	5.1	5.1	7.2	9.7	20	15	9.7	.....
15	5.1	5.1	4.2	5.1	5.1	7.2	9.7	20	14	9.7	.....
16	5.1	5.1	4.2	6.2	5.1	7.2	9.7	20	14	9.7	.....
17	5.1	5.1	5.1	6.2	5.1	7.2	9.7	20	14	9.7	.....
18	5.1	5.1	5.1	5.1	5.5	7.2	9.7	20	14	9.7	.....
19	5.1	5.1	5.1	5.1	6.2	7.2	11	20	13	9.7	.....
20	5.1	5.1	4.2	5.1	7.2	6.2	11	20	13	9.7	.....
21	5.1	5.1	4.2	5.1	7.2	6.2	11	20	13	9.7	.....
22	5.1	5.1	4.2	5.1	6.2	5.1	11	20	13	9.7	.....
23	5.1	5.1	3.7	5.1	5.1	5.1	11	20	13	9.7	.....
24	5.1	5.5	3.4	5.1	5.1	5.1	11	20	13	9.7	.....
25	5.1	5.5	3.4	5.1	5.1	5.1	13	18	13	9.7	.....
26	6.2	5.1	3.4	5.5	5.1	6.2	13	18	13	8.4	.....
27	6.2	4.2	3.4	5.5	5.1	6.2	13	13	13	8.4	.....
28	5.1	4.2	4.2	5.1	5.1	6.2	13	14	13	7.2	.....
29	5.1	4.2	4.2	5.1	.....	5.5	13	13	11	7.2	.....
30	5.1	3.7	5.1	5.1	.....	5.1	11	11	11	7.2	.....
31	5.1	.....	5.1	5.1	.....	5.1	.....	11	.....	7.2	.....

NOTE.—Discharge determined from a rating curve, the applicability of which is uncertain on account of the few discharge measurements and the shifting condition at the control.

Monthly discharge of Birch Creek near Downey, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).
	Maximum.	Minimum.	Mean.	
October	7.2	5.1	5.42	333
November	7.2	3.7	5.24	312
December	5.1	3.4	4.28	263
January	6.2	5.1	5.22	321
February	7.2	5.1	5.34	297
March	7.2	5.1	6.06	373
April	13	5.5	9.76	581
May	20	11	16.8	1,030
June	15	11	13.4	797
July	11	7.2	9.47	582
The period				4,890

NOTE.—Record is only approximate on account of the few discharge measurements and shifting conditions at the control.

RAFT RIVER NEAR BRIDGE, IDAHO.

Location.—In sec. 7, T. 15 S., R. 27 E., about one-fourth mile above the Olson ranch, and 2 miles above Bridge post office. Clear Creek is tributary to Raft River below Bridge post office, but the water from this stream seldom reaches the river, at least not in a surface channel.

Drainage area.—Not measured.

Records available.—September 18, 1909, to September 30, 1914.

Gage.—Inclined staff on right bank installed February 24, 1911; also supplementary gage in high-water channel; datum of regular gage bears no determined relation to that of the original gage, which was at Hawkins's ranch, farther upstream.

Discharge measurements.—Made by wading. High-water measurements must be made from bridge across various sloughs.

Channel and control.—Composed of gravel; shifts at times; high-water channel is dammed off during the irrigating season, but the dam is likely to go out during floods.

Extremes of discharge.—Maximum stage recorded during year, 9.3 feet at 9.30 a. m. January 26 (discharge relation affected by ice; discharge estimated at 120 second-feet January 22–26); maximum discharge, 317 second-feet (gage height, 6.10 feet), occurred at 10 a. m. February 22. Minimum stage recorded, 3.23 feet at 11 a. m. August 17 (discharge, 9.9 second-feet).

Winter flow.—Discharge relation affected by ice.

Diversions.—Small ranch diversions above the station; mostly flood-water rights.

Accuracy.—Rating curve for present station fairly well defined; records fairly reliable, especially since the establishment of gage now used.

Discharge measurements of Raft River near Bridge, Idaho, during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Dec. 21	C. G. Paulsen	3.29	3.4	May 6	A. W. Harrington	4.63	84.5
Mar. 10	A. W. Harrington	4.42	82.3	June 16	C. G. Paulsen	4.07	49.7

Daily discharge, in second-feet, of Raft River near Bridge, Idaho, for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	18	19	26	.....	92	127	69	122	48	18	13	11
2	18	19	24	.....	121	208	64	122	44	14	12	12
3	17	24	24	.....	115	269	78	110	45	15	12	11
4	17	24	21	.....	.....	82	83	92	78	15	29	12
5	17	24	.....	.....	.....	59	87	92	135	19	19	12
6	17	34	.....	.....	.....	59	103	86	162	172	15	12
7	18	32	.....	.....	.....	63	127	72	136	62	15	12
8	19	32	.....	.....	.....	92	126	72	107	34	13	12
9	25	29	.....	.....	.....	92	126	83	150	28	13	12
10	26	24	.....	.....	.....	92	125	93	125	26	12	12
11	25	24	.....	.....	.....	96	137	104	114	24	12	12
12	24	24	.....	.....	.....	71	191	105	86	19	12	12
13	22	24	.....	.....	34	67	162	100	77	17	12	12
14	21	26	.....	.....	29	66	149	75	72	15	12	13
15	20	29	.....	.....	29	75	149	66	59	12	10	13
16	20	29	.....	.....	32	84	148	70	52	12	10	15
17	20	26	.....	.....	32	100	161	102	41	12	9.9	15
18	20	26	.....	.....	34	123	141	108	34	12	10	15
19	20	26	.....	.....	51	148	140	134	33	12	12	15
20	20	26	.....	.....	87	161	134	134	111	12	12	26
21	20	29	.....	.....	140	122	140	187	61	12	11	15
22	20	26	.....	.....	317	98	132	148	49	12	11	15
23	20	26	.....	.....	134	98	132	141	45	13	11	15
24	20	24	.....	.....	82	114	139	136	36	12	11	15
25	20	26	.....	.....	55	86	150	149	30	11	11	15
26	20	26	.....	.....	55	86	144	162	36	12	11	15
27	19	26	.....	208	48	80	131	137	33	12	11	16
28	19	26	.....	92	44	75	117	85	28	12	11	15
29	19	26	.....	100	.....	75	111	71	20	13	11	15
30	19	26	.....	109	.....	74	123	62	20	13	11	15
31	19	.....	.....	100	.....	79	.....	47	.....	15	11	.....

NOTE.—Discharge determined from a rating curve fairly well defined below 100 second-feet and by the indirect method for shifting channels. Discharge estimated, on account of ice, as follows: Dec. 5–31, 16 second-feet; Jan. 1–17, 22 second-feet; 18–21, 36 second-feet; 22–26, 120 second-feet; Feb. 4–12, 75 second-feet.

Monthly discharge of Raft River near Bridge, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	26	17	20.0	1,230	B.
November	34	19	26.1	1,550	B.
December	26	.....	17.0	1,050	D.
January	.....	.....	55.7	3,420	D.
February	317	29	78.8	4,380	C.
March	269	59	101	6,210	C.
April	191	64	127	7,560	C.
May	187	47	105	6,460	C.
June	162	20	68.9	4,100	C.
July	172	11	22.2	1,360	B.
August	29	9.9	12.4	762	B.
September	26	11	13.9	827	B.
The year	317	9.9	53.8	38,900	

GOOSE CREEK ABOVE TRAPPER CREEK, NEAR OAKLEY, IDAHO.

Location.—In sec. 13, T. 15 S., R. 21 E., about 200 feet above the upper dam site on Goose Creek, 5 miles from the junction with Trapper Creek, and about 10 miles south of Oakley post office.

Drainage area.—Not measured.

Records available.—April 29, 1911, to September 30, 1914.

Gage.—Friez water-stage recorder. Owing to change in control by flood July 30, 1912, gage was moved August 22, 1912, about 200 feet upstream from original site and established at a new datum.

Discharge measurements.—Made from a cable about 250 feet above gage or by wading.

Channel and control.—Fairly permanent until débris was washed in from a gully below, July 30, 1912; control at the new section rocky and fairly permanent.

Extremes of discharge.—Maximum stage recorded during year, 4.0 feet at midnight March 1 (discharge, 404 second-feet); minimum stage recorded, 1.7 feet December 24 and August 21 and 28 (discharge, 12 second-feet August 20–29). It is possible that there was a discharge of less than 12 second-feet on several days during period when discharge relation was affected by ice.

Winter flow.—Discharge relation affected by ice.

Diversions and storage.—The waters of Goose Creek are impounded a few miles below by the dam for Oakley reservoir.

Accuracy.—Records poor.

Cooperation.—Gage-height records furnished by the Twin Falls-Oakley Land & Water Co.

Discharge measurements of Goose Creek above Trapper Creek, near Oakley, Idaho, during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Dec. 18	C. G. Paulsen	[a] 1.98	27.5	May 8	A. W. Harrington	[a] 3.30	233
Feb. 24	C. A. McClelland [b]	[c] 3.05	140	June 17	C. G. Paulsen	[a] 2.57	85.5
Mar. 8	A. W. Harrington	[a] 3.36	216				

[a] Hook gage in well.
[b] Hydrographer for Twin Falls-Oakley Land & Water Co.
[c] Lower outside staff gage.

NOTE.—Lower staff gage read 3.45 Mar. 8, and 3.48 May 8.

Daily discharge, in second-feet, of Goose Creek above Trapper Creek, near Oakley, Idaho, for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Dec.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	19	27	.....	.....	267	92	267	.....	58	17	14
2	19	27	.....	.....	331	92	267	.....	55	18	14
3	19	30	.....	.....	267	92	239	.....	52	20	15
4	19	30	.....	.....	106	99	226	.....	50	21	16
5	19	30	.....	.....	92	106	226	.....	49	22	16
6	22	33	.....	.....	113	113	226	.....	47	23	16
7	22	33	.....	.....	201	121	226	.....	45	24	16
8	24	36	.....	.....	226	129	239	.....	43	22	16
9	30	36	.....	.....	201	147	239	.....	42	21	16
10	30	33	.....	.....	167	157	239	.....	40	20	16
11	30	33	.....	.....	147	178	239	.....	39	19	16
12	30	33	.....	.....	113	189	239	.....	38	18	16
13	27	33	.....	.....	106	189	239	.....	37	17	17
14	27	36	.....	.....	99	201	239	.....	36	16	17
15	27	36	.....	.....	99	213	239	.....	35	15	18
16	27	36	.....	.....	99	226	239	.....	34	14	18
17	27	36	.....	.....	106	226	239	86	33	14	19
18	27	33	26	.....	106	239	226	84	32	13	19
19	27	33	.....	.....	106	239	213	83	30	13	19
20	27	33	.....	.....	106	239	201	82	28	12	19
21	27	33	.....	.....	106	239	201	81	27	12	19
22	24	33	.....	.....	99	239	189	80	25	12	19
23	24	33	.....	.....	99	267	189	79	23	12	19
24	24	33	.....	138	99	298	178	78	22	12	19
25	27	33	.....	106	99	331	167	76	21	12	19
26	24	.....	.....	106	99	331	167	74	20	12	19
27	27	.....	.....	92	99	331	157	71	19	12	19
28	27	.....	.....	92	92	298	157	68	18	12	20
29	27	.....	.....	.....	92	298	147	65	17	12	20
30	27	.....	.....	.....	92	267	138	62	16	13	21
31	27	.....	.....	.....	92	.....	121	.....	16	13	.....

NOTE.—Rating curves fairly well defined; gage readings unreliable and irregular. Discharge estimated, on account of ice, as follows: Nov. 26–30, 30 second-feet; Feb. 1–19, 18 second-feet; Feb. 20–23, 100 second-feet. Discharge June 1–16 estimated at 100 second-feet. Gage read weekly June to September and discharge interpolated.

Monthly discharge of Goose Creek above Trapper Creek, near Oakley, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	30	19	25.3	1,560	B.
November	36	27	32.4	1,930	B.
December	.....	.....	[a] 27.0	1,660	D.
January	.....	.....	[a] 25.0	1,540	D.
February	.....	.....	45.6	2,530	D.
March	331	92	133	8,180	B.
April	331	92	206	12,300	C.
May	267	121	210	12,900	C.
June	.....	62	89.0	5,300	D.
July	58	16	33.8	2,080	D.
August	24	12	15.9	978	D.
September	21	14	17.6	1,050	D.
The year	331	.....	71.8	52,000	

[a] Estimated on account of ice.

TRAPPER CREEK NEAR OAKLEY, IDAHO.

Location.—In sec. 33, T. 14 S., R. 21 E., about 1½ miles above Shaw's ranch, and about 1 mile from the east boundary of the Minidoka National Forest; about 5 miles above the Oakley dam, and 9 miles southwest of Oakley.

Drainage area.—Not measured.

Records available.—May 1, 1911, to September 30, 1914. Records prior to April 8, 1913, were obtained at different location and are fragmentary and unsatisfactory.

Gage.—Friez water-stage recorder used since April 8, 1913. Previous gage records obtained as follows: May 1, 1911, to August 31, 1912, from Lietz water-stage recorder in sec. 34, three-fourths mile above Shaw's house; September 1 to December 7, 1912, from a vertical staff gage at Shaw's ranch in sec. 27.

Discharge measurements.—Made by wading.

Channel and control.—Composed of loose rocks at present site; shifting.

Extremes of discharge.—Maximum stage recorded during year, 3.17 feet at 10 p. m. February 28 (discharge, 70 second-feet); minimum stage and discharge indefinite owing to infrequent gage readings during periods of extremely high and low stages and the effect of ice on the discharge relation.

Winter flow.—Automatic gage records discontinued; discharge relation not seriously affected by ice.

Diversions and storage.—Small diversions at Shaw's ranch. Trapper Creek water is stored in the Oakley reservoir.

Accuracy.—Results approximate for old sites; fairly reliable for new.

Cooperation.—Gage-height record furnished by the Twin Falls-Oakley Land & Water Co.

Discharge measurements of Trapper Creek near Oakley, Idaho, during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Dec. 19	C. G. Paulsen	1.99	13.4	May 9	A. W. Harrington	2.82	47.8
Mar. 7	A. W. Harrington	2.16	17.4	June 18	C. G. Paulsen	2.30	21.2

Daily discharge, in second-feet, of Trapper Creek near Oakley, Idaho, for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	11	11	.....	.....	.....	38	19	38	33	17	12	8.8
2	11	12	.....	13	.....	26	18	38	30	17	12	8.8
3	11	12	.....	.....	.....	19	16	38	30	17	12	8.8
4	10	12	.....	.....	.....	19	15	38	30	17	12	8.8
5	11	12	.....	.....	.....	23	19	41	30	17	12	8.8
6	11	18	.....	.....	8.6	23	21	41	30	15	12	8.8
7	12	16	.....	.....	.....	21	24	44	30	15	.....	8.8
8	13	14	.....	.....	.....	21	27	46	33	15	.....	8.8
9	13	13	.....	11	.....	21	30	46	30	15	.....	8.8
10	12	.....	.....	.....	.....	21	33	50	30	15	.....	8.8
11	12	.....	.....	.....	.....	19	36	50	28	15	.....	8.8
12	12	.....	.....	.....	15	17	36	50	26	15	.....	9.6
13	12	.....	.....	.....	.....	17	36	50	26	15	.....	10
14	12	.....	.....	.....	.....	19	38	52	23	15	.....	11
15	12	.....	.....	.....	.....	21	38	50	23	13	.....	12
16	12	.....	.....	14	.....	21	41	50	23	13	.....	12
17	12	.....	.....	.....	.....	23	38	50	21	13	10	12
18	12	.....	.....	.....	.....	23	38	50	21	13	10	.....
19	12	.....	13	.....	.....	23	41	50	21	13	10	.....
20	12	.....	.....	.....	.....	21	44	46	23	12	10	.....
21	12	.....	.....	.....	56	21	46	46	21	12	10	.....
22	12	.....	.....	.....	.....	21	46	46	21	12	10	10
23	12	.....	.....	.....	.....	21	49	45	19	12	10	10
24	12	.....	.....	.....	.....	21	48	44	19	12	10	12
25	12	.....	.....	.....	.....	19	47	43	19	12	10	12
26	12	.....	13	.....	.....	19	44	42	19	12	10	12
27	12	13	.....	.....	.....	19	44	41	19	12	10	10
28	12	.....	.....	.....	26	19	41	41	17	12	10	10
29	11	.....	.....	.....	.....	19	41	38	17	12	10	10
30	11	.....	.....	.....	.....	19	38	36	17	12	10	10
31	11	.....	.....	11	.....	19	.....	36	.....	12	8.8	.....

NOTE.—Discharge determined from several fairly well-defined rating curves. Discharge estimated Nov. 10–30 at 13 second-feet; Aug. 7–16, and Sept. 18–21, at 11 second-feet.

Monthly discharge of Trapper Creek near Oakley, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	13	10	11.7	719	B.
November	18	11	13.1	780	C.
December	.....	.....	[a]13.0	799	C.
January	.....	.....	[a]12.3	756	D.
February	.....	.....	[a]21.3	1,180	D.
March	38	17	21.1	1,300	B.
April	49	15	35.1	2,090	B.
May	52	36	44.4	2,730	B.
June	33	17	24.3	1,450	B.
July	17	12	13.8	848	B.
August	.....	8.8	10.7	658	B.
September	12	8.8	10.1	601	B.
The year	.....	.....	.....	13,900	

[a] Estimated on account of infrequent gage readings.

BIRCH CREEK NEAR OAKLEY, IDAHO.

Location.—In sec. 24, T. 14 S., R. 23 E., about 600 feet below the head gates of the Birch Creek feeder canal, and three-fourths mile below Martindale's house, about 5 miles southeast of Oakley. This station replaces the former one above the feeder canal.

Drainage area.—Not measured.

Records available.—May 21 to September 30, 1914, at the present site. January 1, 1912, to May 31, 1913, at station above the diversion.

Gage.—Friez water-stage recorder on left bank; vertical staff on right bank is used for standard reference gage. Lietz water-stage recorder and vertical staff reference gage at upper site.

Discharge measurements.—Made by wading; conditions good.

Channel and control.—Composed of gravel; likely to shift.

Extremes of discharge.—Maximum stage recorded during year, 1.3 feet at 4 a. m. May 25 (discharge, 20 second-feet); no flow August 26 and 27.

Diversions.—Water is diverted by the Birch Creek feeder canal into the Oakley reservoir.

Accuracy.—Automatic records unsatisfactory; results approximate.

Cooperation.—Gage-height record furnished by the Twin Falls-Oakley Land & Water Co.

Discharge measurements of Birch Creek near Oakley, Idaho, during the yearending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Mar. 6	A. W. Harrington	[a] 2.45	7.5	June 18	C. G. Paulsen	1.05	10.7
May 7	do	1.22	16.9	18	do	1.04	10.1

[a] Referred to gage at old site above the diversion. Canal diverting practically entire flow. Gage below diversion read 0.40 feet.

Daily discharge, in second-feet, of Birch Creek near Oakley, Idaho, for the year ending Sept. 30, 1914.

Day.	May.	June.	July.	Aug.	Sept.	Day.	May.	June.	July.	Aug.	Sept.
1		18	6.5	0.8	0.1	16		7.8	2.7	.2	3.2
2		18	5.6	.8	.1	17		9.0	2.7	.2	2.7
3		18	5.4	.8	.1	18		11	2.2	.2	1.8
4		16	5.6	.8	.1	19		11	2.2	.2	1.8
5		9.0	5.8	.8	.2	20		12	2.2	.1	2.2
6		3.9	6.0	.6	.2	21	18	12	2.2	.1	2.7
7		3.9	6.2	.6	.3	22	18	11	2.2	.1	2.7
8		2.7	6.4	.6	.3	23	18	11	2.2	.1	2.7
9		2.7	6.5	.6	.4	24	18	9.0	1.9	.1	2.7
10		1.8	6.0	.6	.4	25	18	9.0	1.7	.1	2.2
11		1.8	5.4	.6	.4	26	18	9.0	1.5	.0	2.2
12		2.7	4.9	.6	.4	27	18	7.8	1.3	.0	2.2
13		3.2	4.4	.4	.4	28	18	7.8	1.1	.1	2.2
14		3.2	3.8	.4	.4	29	18	6.5	.8	.1	2.2
15		5.6	3.3	.2	1.8	30	18	6.5	.6	.1	2.2
						31	18		.8	.1	

NOTE.—Discharge determined from a rating curve not well defined. Discharge interpolated for several periods for which gage-height record was missing.

Monthly discharge of Birch Creek near Oakley, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
May 21-31	18	18	18.0	393	C.
June	18	1.8	8.36	497	C.
July	6.5	.6	3.55	218	D.
August	.8	0	.35	21.5	
September	3.2	.1	1.38	82.1	
The period				1,210	

BIG COTTONWOOD CREEK NEAR OAKLEY, IDAHO.

Location.—In sec. 19, T. 13 S., R. 21 E., about 1 mile above J. H. Roark's house, and about 10 miles northwest of Oakley; below all tributaries except Cedar Creek.

Drainage area.—Not measured.

Records available.—November 27, 1909, to September 30, 1914.

Gage.—Friez water-stage recorder installed in the spring of 1913 about one-fourth mile above the feeder canal that diverts water into the Oakley reservoir, and about one-half mile upstream from the site of the vertical staff used in 1912.

Discharge measurements.—Made by wading or from foot plank.

Channel and control.—Composed of small rocks; shifts occasionally during high water.

Extremes of discharge.—Maximum stage recorded during year, 1.7 feet April 22 (discharge, 90 second-feet); no flow April 8 and 9.

Winter flow.—Discharge relation not seriously affected by ice.

Diversions.—Since 1913 water has been diverted into Oakley reservoir by a feeder canal heading one-fourth mile below the station.

Accuracy.—Rating curves fairly well defined; gage-height record poor.

Cooperation.—Gage-height record furnished by the Twin Falls-Oakley Land & Water Co.

Discharge measurements of Big Cottonwood Creek near Oakley, Idaho, during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by-	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Dec. 17	C. G. Paulsen	0.59	2.1	June 15	C. G. Paulsen	1.00	21.1
Mar. 9	A. W. Harrington	.62	2.7	19	do	.98	19.1
May 7	do	1.50	67.0				

Daily discharge, in second-feet, of Big Cottonwood Creek near Oakley, Idaho, for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	2.2	2.2	.....	3.5	4.8	56	36	11	3.5	0.5
2	2.2	2.2	.....	3.5	6.8	56	36	11	3.5	.5
3	2.2	2.2	.....	3.5	6.8	58	36	11	2.2	.5
4	2.2	2.2	.....	2.2	8.9	60	36	8.8	2.2	.5
5	2.2	2.2	.....	2.2	11	62	32	11	2.2	.5
6	2.2	3.5	.....	2.2	14	64	32	8.8	1.5	.8
7	2.2	3.5	.....	2.2	4.8	67	28	8.8	1.5	.5
8	3.5	3.5	.....	2.2	.....	78	28	6.8	1.5	.8
9	4.8	3.5	.....	3.5	.....	78	28	6.8	2.2	.8
10	3.5	3.5	.....	3.5	11	78	28	6.8	3.5	.8
11	3.5	3.5	.....	3.5	28	78	24	4.8	2.2	.8
12	3.5	3.5	.....	3.5	28	72	24	4.8	2.2	.8
13	3.5	3.5	.....	3.5	28	67	24	4.8	2.2	.8
14	3.5	3.5	.....	3.5	32	62	20	4.8	2.2	.8
15	3.5	3.5	.....	4.8	36	62	20	4.8	1.5	1.5
16	3.5	3.5	2.2	4.8	46	62	20	3.5	1.5	1.5
17	3.5	3.5	2.2	6.8	51	67	20	3.5	.8	1.5
18	3.5	3.5	2.2	6.8	46	62	20	3.5	1.5	1.5
19	3.5	3.5	2.2	6.8	67	62	20	3.5	.8	1.5
20	3.5	3.5	2.2	6.8	78	62	20	3.5	1.5	1.5
21	3.5	2.2	4.8	6.8	84	56	20	3.5	.8	1.5
22	3.5	2.2	3.5	6.8	90	56	18	3.5	1.5	1.5
23	3.5	2.2	2.2	6.8	84	51	17	2.2	1.5	1.5
24	3.5	2.2	2.2	6.8	84	56	17	2.2	1.5	1.5
25	3.5	2.2	2.2	6.8	72	56	14	2.2	.8	1.5
26	3.5	2.2	2.2	6.8	78	51	14	2.2	.8	1.5
27	3.5	2.2	3.5	6.8	72	46	14	1.5	.8	1.5
28	3.5	2.2	3.5	6.8	67	46	14	2.2	.8	1.5
29	2.2	2.2	.....	6.8	62	46	14	2.2	.8	1.5
30	2.2	2.2	.....	6.8	62	46	11	2.2	.8	1.5
31	2.2	.....	.....	6.8	.....	36	.....	2.2	.8	.....

NOTE.—Discharge determined from a rating curve fairly well defined between 0.8 and 80 second-feet. Discharge estimated on account of poor gage-height record, Feb. 1–15, 2.0 second-feet; interpolated for several short periods when gage heights were not recorded. Entire flow presumed to have been diverted around the station Apr. 8–9.

Monthly discharge of Big Cottonwood Creek near Oakley, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	4.8	2.2	3.12	192	C.
November	3.5	2.2	2.85	170	C.
December	.....	.....	[a] 2.0	123	D.
January	.....	.....	[a] 2.0	123	D.
February	4.8	.....	2.32	129	D.
March	6.8	2.2	4.97	306	C.
April	90	.0	42.1	2,510	C.
May	78	36	60.0	3,690	C.
June	36	11	22.8	1,360	B.
July	11	1.5	5.11	314	C.
August	3.5	.8	1.65	101	D.
September	1.5	.5	1.11	66.0	D.
The year	90	.0	12.5	9,080	

[a] Estimated on account of poor and infrequent gage-height record.

SALMON FALLS CREEK BASIN.

PURPOSE OF INVESTIGATION.

During the last part of the irrigation season of 1914 a special investigation was carried on in the Salmon Falls Creek basin in cooperation with the State engineer of Idaho, the Utah Construction Co., and the Twin Falls-Salmon River Land & Water Co. Many temporary stations were installed on the creek and tributaries, and also on the diverting canals in order to determine the amount of water available and the amount used for irrigation during the period May 15 to September 30, 1914.

SALMON FALLS CREEK ABOVE UPPER VINEYARD DITCH NEAR CONTACT, NEV.

Location.—In sec. 5, T. 44 N., R. 63 E., about three-fourths mile above the headgates of Upper Vineyard ditch, 3 miles above the ranch house on Vineyard ranch, and about 10½ miles southwest of Contact.

Drainage area.—Not measured.

Records available.—May 17 to September 30, 1914, when the station was discontinued.

Gage.—Stevens water-stage recorder, with vertical staff on right bank.

Discharge measurements.—Made from a cable just above gage or by wading about 300 feet below gage.

Channel and control.—Bed of stream consists of rocks, gravel, and sand; probably permanent at control.

Extremes of discharge.—Maximum discharge recorded, 596 second-feet May 17–19 (estimated from hydrographs); minimum stage recorded, 5.19 feet September 9 (discharge, 25 second-feet).

Diversions.—Above all diversions on Vineyard and San Jacinto ranches.

Accuracy.—Results good.

Discharge measurements of Salmon Falls Creek above Upper Vineyard ditch, near Contact, Nev., during the year ending Sept. 30, 1914.

[Made by A. W. Harrington.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*		*Feet.*	*Sec.-ft.*		*Feet.*	*Sec.-ft.*
June 4	7.86	457	July 9	5.66	66.2	Aug. 6	5.37	36.8
10	6.85	254	15	5.62	61.7	18	5.24	27.0
23	6.35	145	22	5.49	44.0	Sept. 8	5.19	26.2
July 2	5.89	88.2	29	5.40	39.0	28	5.29	32.2

NOTE.—On Aug. 18, A. W. Harrington estimated the point of zero flow to be at gage height 3.70 feet.

Daily discharge, in second-feet, of Salmon Falls Creek above Upper Vineyard ditch, near Contact, Nev., for the year ending Sept. 30, 1914.

Day.	May.	June.	July.	Aug.	Sept.	Day.	May.	June.	July.	Aug.	Sept.
1	.....	390	90	39	26	16	.....	170	52	30	36
2	.....	416	87	47	27	17	596	170	49	28	34
3	.....	444	79	44	27	18	596	161	49	28	33
4	.....	459	81	41	27	19	596	155	46	28	33
5	.....	405	87	38	26	20	566	200	45	28	31
6	.....	404	85	37	26	21	566	186	46	27	31
7	.....	325	75	36	25	22	566	163	46	27	31
8	.....	320	66	35	25	23	566	148	47	27	31
9	.....	275	62	34	26	24	581	139	49	27	31
10	.....	243	69	34	26	25	581	150	45	26	31
11	.....	211	86	34	27	26	566	166	44	26	31
12	.....	193	86	33	26	27	480	135	42	27	31
15	.....	185	68	32	27	28	412	123	38	27	31
14	.....	174	62	31	29	29	400	106	39	27	31
15	.....	175	57	31	33	30	388	95	39	27	31
						31	388	.....	38	27	.....

NOTE.—Discharge determined from a well-defined rating curve June 20 to Sept. 30 and by hydrograph comparison with the station below Upper Vineyard ditch May 17 to June 19.

Monthly discharge of Salmon Falls Creek above Upper Vineyard ditch, near Contact, Nev., for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
May 17-31	596	388	523	15,600	B.
June	459	95	230	13,700	B.
July	90	38	59.8	3,680	A.
August	47	27	31.6	1,940	A.
September	36	25	29.3	1,740	B.
The period	.....	.....	.....	36,700	

UPPER VINEYARD DITCH NEAR CONTACT, NEV.

Location.—In sec. 8, T. 44 N., R. 63 E., about three-fourths mile below the diversion from Salmon Falls Creek, about 2 miles from the house on Vineyard ranch, and about 9 miles southwest of Contact.

Records available.—May 17 to September 30, 1914, when the station was discontinued.

Gage.—Vertical staff on right bank.

Discharge measurements.—Made by wading near gage.

Channel and control.—Permanent; section in rock cut.

Extremes of discharge.—Maximum stage recorded, 0.98 foot at 5.30 p. m. June 15 (discharge, 10 second-feet); canal dry June 16–18 and August 10 to September 20.

Accuracy.—Results reliable.

Discharge measurements of Upper Vineyard ditch near Contact, Nev., during the year ending Sept. 30, 1914.

[Made by A. W. Harrington.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*		*Feet.*	*Sec.-ft.*		*Feet.*	*Sec.-ft.*
June 4	0.79	5.9	July 2	0.84	6.8	July 22	0.59	2.4
10	.53	1.8	9	.74	4.8	29	.42	.8
19	.58	2.7	15	.70	4.1	Aug. 6	.33	.3
23	.75	5.4						

NOTE.—On May 29 A. W. Harrington estimated the point of zero flow to be at gage height 0.13 foot.

Daily discharge, in second-feet, of Upper Vineyard ditch near Contact, Nev., for the year ending Sept. 30, 1914.

Day.	May.	June.	July.	Aug.	Sept.	Day.	May.	June.	July.	Aug.	Sept.
1		4.1	3.6	0.6		16			3.1		
2		4.5	6.8	2.2		17			3.0		
3		4.5	6.0	2.1		18			1.8		
4		5.8	5.2	1.2		19		2.4	1.2		
5		5.8	7.0	.6		20		4.1	1.5		0.1
6		4.7	6.2	.3		21		5.1	2.8		.2
7		3.0	5.8	.2		22		4.7	2.4		.3
8		2.5	4.3	.0		23		5.2	2.2		.4
9		2.3	4.9			24		4.1	2.1		.5
10		1.7	5.2			25		6.0	1.8		.6
11		3.8	5.4			26		7.5	1.3		.7
12		3.8	7.9			27		5.6	1.0		.7
13		5.8	4.9			28	1.5	4.7	.5		.7
14		7.7	4.9			29	2.1	4.1	.8		.7
15		9.0	4.1			30	3.3	3.8	.7		.7
						31	3.5		.6		

NOTE.—Ditch dry May 17–27, June 16–18, Aug. 9 to Sept. 19. Discharge determined from a well-defined rating curve.

Monthly discharge of Upper Vineyard ditch near Contact, Nev., for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
May 17–31	3.5	0.0	0.69	20.5	B.
June	9.0	.0	4.21	251	B.
July	7.0	.5	3.52	216	B.
August	2.2	.0	.23	14.1	
September	.7	.0	.19	11.6	
The period				513	

SALMON FALLS CREEK BELOW UPPER VINEYARD DITCH, NEAR CONTACT, NEV.

Location.—In sec. 8, T. 44 N., R. 63 E., about three-fourths mile below the headgates of Upper Vineyard ditch, 1½ miles above the ranch house on Vineyard ranch, and about 9 miles southwest of Contact.

Drainage area.—Not measured.

Records available.—May 17 to June 27, 1914.

Gage.—McConnel water-stage recorder, with vertical staff on right bank.

Discharge measurements.—Made from a cable about 50 feet below gage or by wading.

Channel and control.—Bed of stream consists of bowlders, gravel, and sand; probably shifts during high water.

Extremes of discharge.—Maximum stage recorded, 3.52 feet at 4 p. m. May 17 (discharge, 605 second-feet); no daily record after June 30, when discharge was 90 second-feet (interpolated). Weekly measurements secured after that date until August 18, when a discharge of 29.6 second-feet (gage height, 0.69 foot) was measured at 11.25 a. m.

Winter flow.—Discharge relation probably affected considerably by ice.

Diversions.—Above all diversions, except Upper Vineyard ditch, on the Vineyard and San Jacinto ranches.

Accuracy.—Rating curve fairly well defined; results believed to be accurate.

Discharge measurements of Salmon Falls Creek below Upper Vineyard ditch, near Contact, Nev., during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
May 20	A. W. Harrington....	3.41	570	July 2	A. W. Harrington....	1.17	[a] 81.4
22	Purton and Harrington.	3.38	558	9	.....do.....	.98	[a] 61.4
29	A. W. Harrington....	2.78	425	15	.....do.....	.96	[a] 57.6
June 4	.....do.....	3.03	451	22	.....do.....	.86	[a] 41.6
10	.....do.....	2.12	252	29	.....do.....	.82	[a] 38.3
19	.....do.....	1.70	148	Aug. 6	.....do.....	.79	38.4
23	.....do.....	1.61	[a] 140	18	.....do.....	.69	29.6

[a] Discharge obtained by subtracting the measured discharge of Upper Vineyard ditch from that of Salmon Falls Creek above the ditch.

NOTE.—On Aug. 6, A. W. Harrington estimated the point of zero flow to be at gage height −0.80 foot.

Daily discharge, in second-feet, of Salmon Falls Creek below Upper Vineyard ditch, near Contact, Nev., for the year ending Sept. 30, 1914.

Day.	May.	June.	Day.	May.	June.	Day.	May.	June.
1	.....	388	11	.....	209	21	569	176
2	.....	414	12	.....	191	22	569	156
3	.....	442	13	.....	181	23	569	138
4	.....	455	14	.....	168	24	584	129
5	.....	401	15	.....	166	25	584	142
6	.....	401	16	.....	172	26	569	150
7	.....	324	17	599	172	27	483	124
8	.....	319	18	599	163	28	414	115
9	.....	275	19	599	157	29	401	100
10	.....	243	20	569	189	30	388	90
						31	388	.....

NOTE.—Discharge determined from a well-defined rating curve; estimated June 28–30. Mean discharge May 17–31, 526 second-feet; total in acre-feet, 15,600. Mean discharge June 1–30, 225 second-feet; total in acre-feet, 13,400.

LOWER VINEYARD DITCH NEAR CONTACT, NEV.

Location.—In sec. 16, T. 44 N., R. 63 E., about one-fourth mile below the diversion from Salmon Falls Creek, about three-fourths mile from the house on Vineyard ranch, and about 7½ miles southwest of Contact.

Records available.—May 17 to September 30, 1914.

Gage.—Vertical staff on left bank.

Discharge measurements.—Made by wading near the gage.

Channel and control.—No permanent control; much weed growth.

Extremes of discharge.—Maximum stage recorded, 2.01 feet at 7 a. m. May 25 (discharge, 5.2 second-feet); canal dry July 19 to September 30.

Accuracy.—Results approximate only.

Discharge measurements of Lower Vineyard ditch near Contact, Nev., during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
May 17	A. W. Harrington.....	1.11	0.7	July 2	A. W. Harrington.....	1.30	0.6
22	Purton and Harrington.	1.91	4.8	15	.....do.....	1.05	[a].2
June 19	A. W. Harrington.....	1.54	1.2				

[a] Estimated.

Daily discharge, in second-feet, of Lower Vineyard ditch near Contact, Nev., for the year ending Sept. 30, 1914.

Day.	May.	June.	July.	Day.	May.	June.	July.
1	.....	3.5	0.8	16	.....	1.6	0.1
2	.....	3.4	.7	17	0.7	3.2	.0
3	.....	3.5	.6	18	.7	2.8	.0
4	.....	3.6	.5	19	4.5	1.6	.....
5	.....	3.4	.7	20	4.6	2.2	.....
6	.....	3.2	.6	21	4.6	2.5	.....
7	.....	3.1	.2	22	4.8	2.2	.....
8	.....	2.2	.0	23	4.7	1.0	.....
9	.....	1.6	.5	24	5.2	.6	.....
10	.....	.2	.5	25	5.2	.0	.....
11	.....	.0	.6	26	5.1	.0	.....
12	.....	.0	.7	27	4.4	.0	.....
13	.....	1.8	.5	28	3.7	1.3	.....
14	.....	1.2	.4	29	3.7	1.3	.....
15	.....	.8	.2	30	3.5	1.2	.....
				31	3.4	.....	.....

NOTE.—Discharge determined from three poorly defined rating curves and by indirect methods for shifting channels. Ditch dry July 19 to Sept. 30.

Monthly discharge of Lower Vineyard ditch near Contact, Nev., for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).
	Maximum.	Minimum.	Mean.	
May 17-31	5.2	0.7	3.92	117
June	3.6	.0	1.77	105
July	.8	.0	.25	15.4
August	.0	.0	.00	.0
September	.0	.0	.00	.0
The period	.....	.....	.....	237

NOTE—On account of growth of aquatic plants, records are only approximate.

BIRD'S NEST DITCH NEAR CONTACT, NEV.

Location.—In sec. 16, T. 45 N., R. 64 E., about one-half mile below the heading of the ditch on the west side of Salmon Falls Creek, and about 1 mile northeast of Contact.

Records available.—June 29 to September 30, 1914.
Gage.—Vertical staff on right bank, about 300 feet below waste gate.
Discharge measurements.—Made by wading; conditions good.
Channel and control.—Bed of ditch earth and clay; well compacted and fairly permanent.
Extremes of discharge.—Maximum stage recorded, 2.25 feet at 10 a. m. July 6 (discharge, July 2–6, 23 second-feet); canal dry July 8 to August 13.
Accuracy.—Results fairly reliable.

Discharge measurements of Bird's Nest ditch near Contact, Nev., during the year ending Sept. 30, 1914.

[Made by A. W. Harrington.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*		*Feet.*	*Sec.-ft.*		*Feet.*	*Sec.-ft.*
June 29	1.94	14.1	Sept. 11	1.50	6.8	Sept. 11	1.06	1.3
Aug. 19	1.49	6.4	11	1.31	4.3	18	1.67	10.6
22	1.53	7.0	11	1.21	3.2	23	1.64	10.0
29	1.55	7.8						

NOTE.—On Sept. 11 the point of zero flow was estimated to be at gage height 0.8 foot.

Daily discharge, in second-feet, of Bird's Nest ditch near Contact, Nev., for the year ending Sept. 30, 1914.

Day.	June.	July.	Aug.	Sept.	Day.	June.	July.	Aug.	Sept.
1		18		7.0	16			7.0	10
2		23		6.6	17			6.8	11
3		23		6.2	18			6.5	10
4		23		6.3	19			6.6	10
5		23		6.4	20			6.9	10
6		23		6.4	21			7.1	9.8
7		12		6.4	22			7.4	9.7
8				6.5	23			7.3	9.7
9				6.5	24			7.2	9.5
10				6.6	25			7.0	9.3
11				6.8	26			7.2	9.3
12				6.8	27			7.4	9.3
13				6.8	28			7.6	9.3
14			5.2	7.9	29		14	7.8	9.3
15			6.0	9.0	30		13	7.6	9.3
					31			7.3	

NOTE.—Discharge determined from two fairly well-defined rating curves, interpolated for short periods during which gage heights were not recorded; estimated at 9.0 second-feet, June 26–28. Ditch dry July 8 to Aug. 13.

Monthly discharge of Bird's Nest ditch near Contact, Nev., for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
June 26–30	14		10.8	107	C.
July	23	0.0	4.68	288	C.
August	7.8	.0	4.06	250	C.
September	11	6.2	8.26	492	C.
The period				1,140	

HARRELL DITCH NEAR CONTACT, NEV.

Location.—In sec. 9, T. 45 N., R. 64 E., at the new diversion on the east side of Salmon Falls Creek, about half a mile above the old diversion, and about 2½ miles northeast of Contact.

Records available.—July 6 to September 30, 1914.

Gage.—Vertical staff on left bank, about 50 feet below diversion.

Discharge measurements.—Made by wading. Conditions good.

Channel and control.—Ditch bed, dirt and gravel; somewhat shifting. Discharge relation affected at times by backwater from beaver dams below station.

Extremes of discharge.—Maximum stage recorded, 1.87 feet July 6 (discharge, 18 second-feet); maximum discharge of 20 second-feet estimated for July 3 and 4; canal dry July 31 to August 14.

Accuracy.—Results fairly reliable.

Discharge measurements of Harrell ditch near Contact, Nev., during the year ending Sept. 30, 1914.

[Made by A. W. Harrington.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*		*Feet.*	*Sec.-ft.*		*Feet.*	*Sec.-ft.*
July 6	1.87	18.7	Aug. 22	1.39	7.2	Sept. 9	0.86	1.6
14	1.74	15.0	29	1.40	5.4	9	.77	.6
24	1.51	11.9	Sept. 4	[a] 1.10	3.8	18	1.24	5.1
28	1.43	9.7	9	1.11	4.2			
Aug. 19	1.08	4.2	9	1.01	3.1			

[a] Gage height 1.25 feet before removing beaver dam, one-fourth mile below.

NOTE.—Point of zero flow was estimated to be at about gage height, 0.45 foot.

Daily discharge, in second-feet, of Harrell ditch near Contact, Nev., for the year ending Sept. 30, 1914.

Day.	July.	Aug.	Sept.	Day.	July.	Aug.	Sept.	Day.	July.	Aug.	Sept.
1	.....	.....	4.4	11	16	.....	4.4	21	12	6.0	5.0
2	10	.....	4.3	12	16	.....	4.4	22	12	7.2	5.0
3	20	.....	4.2	13	16	.....	4.4	23	11	7.0	5.1
4	20	.....	3.8	14	16	.....	4.4	24	11	6.5	5.2
5	19	.....	3.9	15	15	3.0	4.6	25	10	6.2	5.2
6	18	.....	4.0	16	15	4.6	4.8	26	10	5.9	5.3
7	17	.....	4.2	17	14	4.4	5.0	27	9.9	5.7	5.2
8	16	.....	4.3	18	13	4.2	5.1	28	9.7	5.6	5.2
9	16	.....	4.4	19	13	4.0	5.0	29	9.7	5.4	5.1
10	16	.....	4.4	20	12	5.0	5.0	30	9.7	5.1	5.1
								31	.0	4.7	.....

NOTE.—Discharge determined from a rating curve not well defined; estimated July 2–5, July 31, Aug. 15, and Sept. 10–17, and interpolated for other short periods. Ditch dry Aug. 1–14.

Monthly discharge of Harrell ditch near Contact, Nev., for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
July 2–31	20	0	13.4	797	C.
August	7.2	0	2.92	180	C.
September	5.3	3.8	4.68	278	C.
The period	.....	.....	.....	1,260	

HIGH LINE CANAL NEAR SAN JACINTO, NEV.

Location.—In sec. 34, T. 46 N., R. 64 E., about 100 feet below the head gates through which water is diverted into the canal from the East Branch of Salmon Falls Creek, and about 4 miles south of San Jacinto.

Records available.—May 16 to September 30, 1914.

Gage.—Vertical staff on left bank. Lietz water-stage recorder at same section during part of period.

Discharge measurements.—Made by wading; conditions fairly good.

Channel and control.—Bed of canal consists of gravel; shifting. Considerable growth of aquatic plants below gage, but this condition probably does not affect discharge relation.

Extremes of discharge.—Maximum stage recorded, 8.50 feet at 8 a. m. June 24 (discharge, 91 second-feet); canal dry May 16–20.

Accuracy.—Rating curve fairly well defined.

Discharge measurements of High Line canal near San Jacinto, Nev., during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
May 25	Purton and Harrington.	7.46	19.4	July 14	A. W. Harrington	7.82	45.7
30	A. W. Harrington	7.44	22.2	20	do	7.64	34.2
June 3	do	7.56	24.1	Aug. 8	do	7.25	9.4
9	do	7.72	33.5	12	do	7.22	9.3
11	do	7.86	41.3	20	do	7.10	4.5
28	do	7.97	50.2	Sept. 2	do	7.15	6.5
July 3	do	7.96	48.7	10	do	7.16	7.1

NOTE.—Point of zero flow estimated to be at gage height 6.7 feet, Aug. 12, and at 6.6 feet, Sept. 22.

Daily discharge, in second-feet, of High Line canal near San Jacinto, Nev., for the year ending Sept. 30, 1914.

Day.	May.	June.	July.	Aug.	Sept.	Day.	May.	June.	July.	Aug.	Sept.
1		20	53	27	6.4	16	0	75	41	5.7	9.5
2		22	50	26	6.6	17	0	80	39	5.6	9.4
3		24	48	23	6.4	18	0	81	36	5.4	9.2
4		25	46	22	6.2	19	0	82	35	5.2	9.2
5		26	44	22	6.0	20	0	77	34	5.1	9.2
6		32	47	12	6.1	21	9.0	75	35	5.2	9.2
7		35	47	9.6	6.3	22	19	70	36	5.4	9.2
8		34	46	9.9	6.5	23	19	71	36	5.4	9.1
9		34	46	9.5	6.7	24	19	84	35	5.5	9.0
10		35	46	9.2	6.9	25	15	81	34	5.6	8.9
11		39	47	9.0	6.8	26	12	72	30	5.7	8.8
12		38	51	8.8	6.6	27	13	62	30	5.8	8.9
13		35	52	8.3	6.6	28	14	50	30	5.9	9.0
14		48	46	7.8	6.6	29	18	56	30	6.0	9.2
15		58	44	7.2	8.0	30	22	56	29	6.0	9.2
						31	21		29	6.2	

NOTE.—Discharge determined from a fairly well defined rating curve; estimated or interpolated for numerous short periods during which gage heights were not recorded.

Monthly discharge of High Line canal near San Jacinto, Nev., for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
May 16–31	22	0	11.3	359	C.
June	84	20	52.6	3,130	C.
July	53	29	40.4	2,480	C.
August	27	5.1	9.71	597	C.
September	9.5	6.0	7.86	468	C.
The period				7,030	

SALMON FALLS CREEK BELOW HIGH LINE CANAL, NEAR SAN JACINTO, NEV.

Location.—In sec. 27, T. 46 N., R. 64 E., about 1 mile below the diversion of High Line canal, about one-half mile above the heading of San Jacinto ditch, and about 2½ miles south of San Jacinto.

Drainage area.—Not measured.

Records available.—July 7 to September 30, 1914.

Gage.—McConnel water-stage recorder on right bank, with vertical staff used as reference gage.

Discharge measurements.—Made at low stages by wading about 700 feet above gage; no equipment for making medium or high stage measurements.

Channel and control.—Bed of stream consists of small stones and gravel; shifting.

Extremes of discharge.—Maximum stage recorded, 2.40 feet at 8 p. m. August 6 to 8 a. m. August 7 on McConnel water-stage recorder (discharge, 29 second-feet); minimum stage recorded, 2.07 feet August 20–23 and 26–27 (discharge, 10.9 second-feet).

Diversions.—High Line canal, Birds' Nest ditch, Harrell ditch, Lower and Upper Vineyard ditches, and several smaller ditches divert water from the river between this station and the station above Upper Vineyard ditch.

Accuracy.—Records fair for low water only.

Discharge measurements of Salmon Falls Creek below High Line canal, near San Jacinto, Nev., during the year ending Sept. 30, 1914.

[Made by A. W. Harrington.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*		*Feet.*	*Sec.-ft.*		*Feet.*	*Sec.-ft.*
July 7	2.16	18.8	Aug. 5	2.26	21.0	Sept. 5	2.12	13.4
14	2.12	14.3	12	2.28	21.8	10	2.14	14.4
24	2.19	14.0	20	2.07	10.8	19	2.24	23.0
28	2.12	11.3	Sept. 2	2.14	13.6			

NOTE.—On July 24 point of zero flow was estimated to be at gage height 1.6 feet.

Daily discharge, in second-feet, of Salmon Falls Creek below High Line canal, near San Jacinto, Nev., for the year ending Sept. 30, 1914.

Day.	July.	Aug.	Sept.	Day.	July.	Aug.	Sept.	Day.	July.	Aug.	Sept.
1	.....	17.5	14.3	11	16.4	22	14.3	21	12.6	10.9	23
2	.....	19.0	14.3	12	17.9	22	14.3	22	13.5	10.9	24
3	.....	20	14.3	13	17.4	21	13.8	23	14.4	10.9	24
4	.....	22	14.3	14	16.4	19.6	13.8	24	14.0	11.4	24
5	.....	20	13.2	15	15.8	17.4	17.4	25	13.5	11.4	23
6	.....	24	13.8	16	14.3	13.8	24	26	12.6	10.9	23
7	18.4	28	13.8	17	13.9	13.2	24	27	12.1	10.9	23
8	19.0	24	14.3	18	13.5	13.8	24	28	12.1	12.2	23
9	16.4	23	14.3	19	12.6	13.2	23	29	13.0	13.2	23
10	15.8	22	14.3	20	12.1	10.9	23	30	14.5	14.3	23
								31	16.0	14.8	.....

NOTE.—Discharge determined from several fairly well-defined rating curves.

Monthly discharge of Salmon Falls Creek below High Line canal, near San Jacinto, Nev., for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
July 7–31	19.0	12.1	14.7	730	B.
August	28	10.9	16.7	1,030	B.
September	24	13.2	18.8	1,120	A.
The period	.....	.....	.....	2,880	

SAN JACINTO DITCH NEAR SAN JACINTO, NEV.

Location.—In sec. 27, T. 46 N., R. 64 E., about 100 feet below the diversion from the West Branch of Salmon Falls Creek, and about 2 miles south of San Jacinto.

Records available.—May 15 to September 30, 1914.

Gage.—Vertical staff on left bank.

Discharge measurements.—Made by wading near gage.

Channel and control.—Stream bed of silt; no permanent control. Discharge relation affected by growth of aquatic plants.

Extremes of discharge.—Maximum stage recorded, 2.68 feet May 18 (discharge, 20 second-feet); no flow September 29–30.

Accuracy.—Large number of measurements have been made; results good.

Discharge measurements of San Jacinto ditch near San Jacinto, Nev., during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
May 15	A. W. Harrington	2.54	17.4	July 28	A. W. Harrington	1.65	2.1
26	A. B. Purton	2.61	18.1	Aug. 5	do	1.68	2.5
June 2	A. W. Harrington	2.13	8.1	13	do	1.52	1.8
3	do	2.16	9.4	13	do	1.83	5.0
11	do	1.79	3.8	14	do	1.70	3.5
July 7	do	1.54	1.0	14	do	1.77	4.0
17	do	1.34	.4	21	do	1.33	.6
24	do	1.85	2.0	Sept. 10	do	1.47	2.0

NOTE.—Point of zero flow estimated to be at gage height 0.75 foot on July 24 and Sept. 22.

Daily discharge, in second-feet, of San Jacinto ditch near San Jacinto, Nev., for the year ending Sept. 30, 1914.

Day.	May.	June.	July.	Aug.	Sept.	Day.	May.	June.	July.	Aug.	Sept.
1		9.4	3.1	2.5	1.6	16	18	12	1.4	2.2	3.0
2		8.3	3.0	2.5	1.6	17	19	13	.5	1.3	2.8
3		8.9	2.6	2.6	1.6	18	20	14	2.4	1.2	2.6
4		9.6	2.3	2.6	1.6	19	20	14	2.3	1.0	2.2
5		10	1.8	2.6	1.7	20	20	14	1.9	.9	2.2
6		11	1.6	2.7	1.7	21	20	15	1.8	.8	2.1
7		9.3	1.0	2.9	1.7	22	18	13	1.6	1.0	2.2
8		7.6	1.1	3.0	1.9	23	18	10	1.8	1.0	2.0
9		5.9	1.3	2.9	1.9	24	17	10	2.0	.8	1.9
10		5.3	1.6	2.5	2.0	25	18	9.8	2.9	.8	1.8
11		4.7	1.8	2.3	2.0	26	19	9.6	2.8	1.0	1.6
12		2.8	2.1	1.9	2.0	27	18	9.4	2.6	1.1	1.6
13		7.6	2.4	2.9	2.2	28	14	5.7	2.4	1.4	1.6
14		9.1	2.7	3.7	2.5	29	13	3.1	2.4	1.6	.0
15	17	10	3.1	3.1	2.8	30	12	3.1	2.4	1.6	.0
						31	10		2.5	1.6	

NOTE.—Discharge determined by the indirect method for shifting channels; interpolated for numerous short periods when gage heights were not recorded.

Monthly discharge of San Jacinto ditch near San Jacinto, Nev., for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
May 15–31	20	10	17.1	577	B.
June	15	2.8	9.17	546	B.
July	3.1	.5	2.10	129	B.
August	3.7	.8	1.94	119	B.
September	3.0	.0	1.88	112	B.
The period				1,480	

ISLAND DITCH NEAR SAN JACINTO, NEV.

Location.—In sec. 23, T. 46 N., R. 64 E., about 100 feet below the diversion from the West Branch of Salmon Falls Creek, and about 2 miles south of San Jacinto.

Records available.—July 17 to September 30, 1914.

Gage.—Vertical staff on right bank.

Discharge measurements.—Made by wading near

Channel and control.—Bed of ditch consists of gravel wash, slightly shifting in character. Probably not affected by growth of aquatic plants.

Extremes of discharge.—Maximum stage recorded, 3.38 feet at 8 a. m. August 7 (discharge, 9.4 second-feet). A maximum discharge of 10.1 second-feet (gage height, 3.36 feet, read at 1.15 p. m. September 18) was determined by indirect method for shifting channels. Minimum stage recorded, 3.11 feet July 20 and August 20 (discharge, 4 second-feet).

Accuracy.—Rating curves fairly well defined; results fair.

Discharge measurements of Island ditch near San Jacinto, Nev., during the year ending Sept. 30, 1914.

[Made by A. W. Harrington.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*		*Feet.*	*Sec.-ft.*
July 17	3.22	6.1	Aug. 7	2.95	1.6
25	3.15	4.3	7	2.84	.4
Aug. 7	3.38	9.1	22	3.12	4.0
7	3.29	7.8	Sept. 5	3.17	5.3
7	3.20	6.4	26	3.30	8.8
7	3.09	3.7			

NOTE.—Point of zero flow estimated to be at about gage height 2.45 feet on July 25 and Aug. 7.

Daily discharge, in second-feet, of Island ditch near San Jacinto, Nev., for the year ending Sept. 30, 1914.

Day.	July.	Aug.	Sept.	Day.	July.	Aug.	Sept.	Day.	July.	Aug.	Sept.
1	.....	6.8	5.0	11	.....	7.6	5.7	21	4.2	4.1	9.3
2	.....	7.1	5.1	12	.....	7.5	5.5	22	4.4	4.2	9.0
3	.....	7.4	5.1	13	.....	7.1	5.9	23	4.6	4.3	9.0
4	.....	7.7	5.1	14	.....	6.7	6.3	24	4.7	4.4	8.9
5	.....	8.2	5.1	15	.....	6.3	6.7	25	4.8	4.5	8.8
6	.....	8.7	5.2	16	.....	5.8	9.2	26	5.1	4.6	8.8
7	.....	9.2	5.2	17	6.1	5.4	9.9	27	5.4	4.7	9.1
8	.....	8.1	5.3	18	4.8	4.9	10.1	28	5.7	4.8	9.4
9	.....	8.0	5.4	19	4.4	4.5	9.9	29	6.0	4.9	9.7
10	.....	7.8	5.5	20	4.0	4.0	9.6	30	6.2	5.0	9.7
								31	6.5	5.0	.....

NOTE.—Discharge determined from two fairly well defined rating curves; interpolated for numerous short periods when gage heights were not recorded; estimated July 2–16 at 7 second-feet.

Monthly discharge of Island ditch near San Jacinto, Nev., for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
July 2–31	.....	.....	6.06	361	C.
August	9.2	4.0	6.11	376	C.
September	10.1	5.0	7.42	442	B.
The period	.....	.....	.....	1,180	

WEST BOAR'S NEST DITCH NEAR SAN JACINTO, NEV.

Location.—In sec. 14, T. 46 N., R. 64 E., about 400 feet below new diversion from West Branch of Salmon Falls Creek, and about one-half mile northeast of San Jacinto.

Records available.—May 27 to September 30, 1914.

Gage.—Vertical staff on right bank. Records from May 27 to June 25, 1914, are referred to the gage just below the original diversion, 500 feet below the new diversion.

Discharge measurements.—Made by wading near gage.

Channel and control.—No permanent control; considerable vegetation in channel.

Extremes of discharge.—Maximum stage recorded, 7.59 feet at 8 p. m. June 30 (discharge, 26 second-feet); minimum discharge, 2.1 second-feet (gage height, 1.41 feet, first gage) June 11.

Accuracy.—Records fair.

Discharge measurements of West Boar's Nest ditch near San Jacinto, Nev., during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
May 27	Purton and Harrington.	1.99	7.3	Aug. 12	A. W. Harrington.....	7.07	11.1
June 2	A. W. Harrington.....	1.83	5.8	20	.....do.....	6.88	7.3
11	.....do.....	1.41	2.1	Sept. 2	.....do.....	6.97	9.2
20	.....do.....	1.87	5.7	7	.....do.....	6.94	9.2
28	.....do.....	7.58	26.0	7	.....do.....	6.83	6.9
July 10	.....do.....	7.36	15.1	7	.....do.....	6.75	5.5
20	.....do.....	6.97	8.5	7	.....do.....	6.70	5.6
Aug. 7	.....do.....	7.33	17.7	19	.....do.....	7.12	14.2
8	.....do.....	7.16	13.0	30	.....do.....	7.12	16.5

NOTE.—Gage heights prior to June 28 refer to old gage.

Daily discharge, in second-feet, of West Boar's Nest ditch near San Jacinto, Nev., for the year ending Sept. 30, 1914.

Day.	June.	July.	Aug.	Sept.	Day.	June.	July.	Aug.	Sept.
1.....	6.6	23	9.9	9.0	16.....	3.9	10.9	10.3	14.5
2.....	5.8	21	10.3	9.2	17.....	3.6	10.0	9.6	15.0
3.....	6.0	19.7	10.7	9.0	18.....	3.5	8.7	9.0	14.2
4.....	6.2	19.1	11.2	8.7	19.....	4.5	8.7	8.1	14.2
5.....	6.4	18.2	11.6	8.7	20.....	5.7	8.7	7.3	14.3
6.....	6.6	17.6	14.6	8.7	21.....	5.0	8.8	7.2	14.3
7.....	6.7	17.0	17.7	9.0	22.....	4.0	8.8	7.3	14.6
8.....	6.8	16.2	13.1	9.2	23.....	3.0	8.9	7.3	14.6
9.....	5.2	15.7	12.2	9.2	24.....	24	8.7	7.2	14.9
10.....	3.6	15.2	11.4	9.2	25.....	24	8.9	7.2	14.9
11.....	2.1	14.6	11.2	9.4	26.....	25	8.6	7.4	14.6
12.....	3.2	14.4	10.9	10.1	27.....	26	8.3	7.6	15.1
13.....	4.6	14.1	11.0	11.4	28.....	26	8.5	7.7	15.4
14.....	4.3	12.6	10.8	13.0	29.....	26	8.7	8.5	15.9
15.....	4.2	11.4	10.8	14.8	30.....	26	9.1	8.6	16.4
					31.....	.....	9.5	8.8	.....

NOTE.—Discharge determined by the indirect method for shifting channels; interpolated for numerous short periods when gage heights were not recorded.

Monthly discharge of West Boar's Nest ditch near San Jacinto, Nev., for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
May 27-31	7.3	3.0	4.58	46	B.
June	26	2.1	9.62	572	C.
July	23	8.3	12.7	781	B.
August	17.7	7.2	9.89	608	B.
September	16.4	8.7	12.4	738	B.
The period	.....	.....	.....	2,740	

EAST BOAR'S NEST DITCH NEAR SAN JACINTO, NEV.

Location.—In sec. 35, T. 47 N., R. 64 E., about 300 feet below the diversion of the ditch from the East Branch of Salmon Falls Creek, and about 3 miles north of San Jacinto.

Records available.—May 19 to September 30, 1914.

Gage.—Vertical staff on right bank.

Discharge measurements.—Made by wading near gage.

Channel and control.—No permanent control; weeds in channel.

Extremes of discharge.—Maximum stage recorded, 1.80 feet May 19 (discharge, 11 second-feet); canal dry June 29 to August 15 and August 20 to September 15.

Accuracy.—Results approximate only.

Discharge measurements of East Boar's Nest ditch near San Jacinto, Nev., during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
May 19	A. W. Harrington	1.80	11 0	June 13	A. W. Harrington	1.52	3.9
25	Purton and Harrington	1.79	11.5	18	do	1.60	5.2
June 1	A. W. Harrington	1.70	8.6	Aug. 19	do	.40	.0

Daily discharge, in second-feet, of East Boar's Nest ditch near San Jacinto, Nev., for the year ending Sept. 30, 1914.

Day.	May.	June.	Aug.	Day.	May.	June.	Aug.	Day.	May.	June.	Aug.
1		4.4		11		2.0		21	11	4.0	
2		9.2		12		1.9		22	11	3.5	
3		8.3		13		3.8		23	11	3.0	
4		7.5		14		4.1		24	11	2.5	
5		6.7		15		4.5		25	11	2.0	
6		5.9		16		4.8	0.1	26	10	1.5	
7		5.2		17		5.2	.5	27	9.8	1.0	
8		4.4		18		5.5	.4	28	9.2	.5	
9		3.6		19	11	5.0		29	6.8		
10		2.8		20	11	4.5		30	4.5		
								31	2.1		

NOTE.—Ditch dry June 29 to Aug. 15, Aug. 19 to Sept. 15, and Sept. 16–30. Discharge Sept. 16–27 estimated at 0.1 second-foot.

Monthly discharge of East Boar's Nest ditch near San Jacinto, Nev., for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).
	Maximum.	Minimum.	Mean.	
May 19–31	11	2.1	9.18	237
June	9.2	.0	3.91	233
July	.0	.0	.00	.0
August	.5	.0	.03	2.0
September	.1	.0	.04	2.4
The period				474

SALMON FALLS CREEK NEAR SAN JACINTO, NEV.

Location.—In sec. 23, T. 47 N., R. 64 E., about 200 yards downstream from the entrance to the canyon, and about 5 miles north of San Jacinto.

Drainage area.—Not measured.

Records available.—September 17, 1909, to September 30, 1914.

Gage.—Barrett & Lawrence water-stage recorder after November 20, 1911; Friez water-stage recorder July 1, 1910, to November 20, 1911; vertical staff September 17, 1909, to June 30, 1910.

Discharge measurements.—Made by wading during low water; from cable and car during high water.

Channel and control.—Gravel; shifts somewhat.

Extremes of discharge.—Maximum stage recorded, 5.98 feet 8 p. m. to 12 midnight April 25 (discharge 837 second-feet); minimum stage recorded, 2.28 feet August 24–25 (discharge, 16 second-feet).

Winter flow.—Discharge relation not seriously changed during winter months, but the automatic record is at times affected by ice forming in float well or by stoppage of recorder clock due to cold weather.

Diversions.—Below all diversions on the San Jacinto and other ranches. Records will also show the water available for storage behind the Salmon dam, 20 miles downstream.

Accuracy.—Rating curves well defined; records reliable.

Cooperation.—Records of gage heights and some measurements furnished by the Twin Falls-Salmon River Land & Water Co.

Discharge measurements of Salmon Falls Creek near San Jacinto, Nev., during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Oct. 10	L. W. Jordan	2.84	60.8	June 18	A. W. Harrington	3.34	145
Dec. 14	C. G. Paulsen	2.84	62.6	30	Harrington and Tappan[a]	2.81	59.5
Jan. 20	A. B. Purton	2.87	62.6	July 13	A. W. Harrington	2.65	43.7
Feb. 14	C. E. Tappan[a]	2.83	57.1	21	do	2.48	26.3
Mar. 14	A. W. Harrington	3.73	234	31	Harrington and Tappan[a]	2.39	20.1
14	C. E. Tappan[a]	3.69	228	Aug. 10	A. W. Harrington	2.46	29.4
Apr. 14	do	5.42	668	19	do	2.36	21.8
May 13	Harrington and Tappan[a]	5.64	769	24	do	2.28	15.0
27	Purton and Harrington	5.31	638	31	Harrington and Tappan[a]	2.34	19.6
30	Harrington and Tappan[a]	4.56	439	Sept. 30	do	2.58	38.1

[a] Hydrographer, Twin Falls-Salmon River Land and Water Co.

NOTE.—On Aug. 10, point of zero flow was estimated to be at gage height 1.6 feet.

Daily discharge, in second-feet, of Salmon Falls Creek near San Jacinto, Nev., for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	45	.....	56	56	81	273	213	673	406	55	22	19
2	45	.....	56	61	62	292	216	617	395	48	25	19
3	45	.....	50	66	56	206	237	589	398	46	27	20
4	45	.....	57	68	60	144	265	562	424	45	39	20
5	45	.....	49	66	65	130	312	562	451	47	31	19
6	47	.....	49	68	52	195	399	589	478	46	28	19
7	49	.....	53	69	54	355	481	617	451	45	26	19
8	56	.....	53	69	60	368	522	617	414	42	26	20
9	65	.....	49	66	59	371	508	603	382	42	27	21
10	60	.....	48	56	60	350	522	617	356	41	27	21
11	60	.....	54	49	65	292	562	659	314	44	28	21
12	59	.....	57	50	64	244	673	701	276	42	29	22
13	59	.....	57	52	64	222	631	743	247	42	29	22
14	59	.....	59	61	60	204	631	729	207	41	29	24
15	59	.....	59	72	60	177	673	687	187	40	28	28
16	59	.....	59	72	56	241	687	673	170	38	25	33
17	59	.....	55	72	66	275	743	687	157	36	22	35
18	62	.....	64	72	76	310	757	701	143	32	21	35
19	62	.....	60	69	111	338	743	701	133	30	21	38
20	60	.....	45	69	122	353	687	687	143	29	19	38
21	61	.....	40	72	335	348	673	687	149	29	18	38
22	62	.....	42	75	300	322	701	645	149	28	17	38
23	61	.....	46	76	206	312	757	631	133	28	16	38
24	61	.....	49	87	134	320	785	617	111	28	16	38
25	62	.....	49	148	113	288	828	631	100	27	16	38
26	62	.....	47	376	97	273	828	645	111	25	16	38
27	62	.....	44	202	87	253	800	645	116	24	18	36
28	62	.....	42	105	97	237	757	589	94	22	18	36
29	64	75	40	84	.....	222	729	505	77	22	18	36
30	64	69	32	81	.....	220	687	438	62	22	19	36
31	64	.....	40	81	.....	220	.....	414	.....	22	19	.....

NOTE.—Discharge determined from two well-defined rating curves. Gage heights lacking, Nov. 1–28; discharge estimated at 70 second-feet.

Monthly discharge of Salmon Falls Creek near San Jacinto, Nev., for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	65	45	57.6	3,540	A.
November	.....	.....	70.1	4,170	C.
December	64	32	50.3	3,090	B.
January	376	49	86.1	5,290	B.
February	335	52	97.2	5,400	B.
March	371	130	270	16,600	A.
April	828	213	600	35,700	A.
May	743	414	628	38,600	A.
June	478	62	241	14,300	A.
July	55	22	35.7	2,200	B.
August	39	16	23.2	1,430	B.
September	38	19	28.8	1,710	A.
The year	828	16	182	132,000	

JAKES CREEK ABOVE HUBBARD RANCH, NEAR CONTACT, NEV.

Location.—In sec. 9, T. 43 N., R. 63 E., about 1 mile above the house on Hubbard ranch, about 1 mile above mouth of Willow Creek, and about 12 miles southwest of Contact.

Drainage area.—Not measured.

Records available.—May 18 to September 30, 1914.

Gage.—Vertical staff on right bank used also as a reference gage for water-stage recorder at same section. Stevens water-stage recorder May 23 to July 30, 1914; Lietz water-stage recorder August 4 to September 24, 1914.

Discharge measurements.—Made by wading near gage.

Channel and control.—Section of hard clay covered with gravel wash; permanent during period of record.

Extremes of discharge.—Maximum stage recorded, 2.57 feet at 7 p. m. June 2; rating table extends only to 1.6 feet, with corresponding discharge of 19.6 second feet; mean stage for June 2, 1.54 feet (discharge, 17.2 second-feet). Minimum stage recorded, 0.85 foot September 24–25 (discharge, 1.4 second-feet).

Diversions.—Station above all diversions on Hubbard and Vineyard ranches.

Accuracy.—Rating curve very well defined; records accurate.

Discharge measurements of Jakes Creek above Hubbard ranch, near Contact, Nev., during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
May 18	A. W. Harrington	1.40	12.0	July 16	A. W. Harrington	0.97	2.9
23	Purton and Harrington	1.41	12.5	Aug. 11	do	.89	1.7
June 12	A. W. Harrington	1.26	8.0	18	do	.88	1.6
22	do	1.15	5.6	25	do	.87	1.6
July 8	do	1.01	3.4	Sept. 8	do	.86	1.6

NOTE.—Aug. 11 point of zero flow was estimated to be at gage height 0.45 foot.

Daily discharge, in second-feet, of Jakes Creek above Hubbard ranch, near Contact, Nev., for the year ending Sept. 30, 1914.

Day.	May.	June.	July.	Aug.	Sept.	Day.	May.	June.	July.	Aug.	Sept.
1		10.8	4.5	2.1	1.5	16		6.6	2.9	1.7	1.9
2		17.2	4.1	2.1	1.5	17		6.6	2.9	1.7	1.9
3		10.5	4.8	2.0	1.5	18	12.0	6.4	2.7	1.7	1.7
4		11.4	4.5	2.0	1.5	19	13.1	6.4	2.6	1.7	1.6
5		11.1	4.2	1.9	1.5	20	12.0	6.6	2.6	1.7	1.5
6		11.7	3.9	1.9	1.5	21	12.0	6.6	2.6	1.7	1.5
7		11.1	3.6	1.8	1.5	22	12.0	6.0	2.6	1.7	1.5
8		10.5	3.3	1.8	1.5	23	12.0	6.0	2.6	1.7	1.5
9		9.0	3.4	1.8	1.6	24	12.4	5.8	2.5	1.7	1.4
10		8.5	3.5	1.8	1.6	25	13.1	5.8	2.4	1.6	1.4
11		8.0	3.9	1.8	1.6	26	11.1	6.2	2.3	1.6	1.4
12		8.0	3.7	1.8	1.5	27	9.3	5.6	2.3	1.6	1.5
13		7.6	3.4	1.8	1.6	28	9.9	5.2	2.3	1.6	1.5
14		7.1	3.1	1.8	1.7	29	10.5	4.5	2.2	1.7	1.5
15		6.4	3.0	1.8	2.0	30	10.5	5.0	2.2	1.7	1.5
						31	10.5		2.2	1.6	

NOTE.—Discharge determined from a well-defined rating curve.

Monthly discharge of Jakes Creek above Hubbard ranch, near Contact, Nev., for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
May 18-31	13.1	9.3	11.5	318	A.
June	17.2	4.5	7.94	472	A.
July	4.8	2.2	3.12	192	B.
August	2.1	1.6	1.77	109	B.
September	2.0	1.4	1.56	92.8	B.
The period				1,180	

JAKES CREEK BELOW HUBBARD RANCH, NEAR CONTACT, NEV.

Location.—In sec. 33, T. 44 N., R. 63 E., about 1 mile below the house on Hubbard ranch, about 200 feet below mouth of Knoll Creek, about 2 miles below mouth of Willow Creek, and about 9½ miles southwest of Contact.

Drainage area.—Not measured.

Records available.—May 18 to September 30, 1914.

Gage.—Vertical staff on right bank, used also as a reference gage for Friez water-stage recorder installed September 27, 1914, at same section.

Discharge measurements.—Made by wading near gage.

Channel and control.—Section of hard clay covered with gravel wash; probably shifting during times of high water.

Extremes of discharge.—Maximum stage recorded, 3.30 feet at 8.15 a. m. May 19 (discharge, 55 second-feet); minimum stage recorded, 1.34 feet September 8 (discharge, 1.8 second-feet).

Diversions.—Below all diversions on Hubbard ranch.

Accuracy.—Rating curve well defined; records reliable.

Discharge measurements of Jakes Creek below Hubbard ranch, near Contact, Nev., during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
May 18	A. W. Harrington	2.83	40.7	July 16	A. W. Harrington	1.48	3.5
23	Purton and Harrington	2.60	33.4	Aug. 11	do	1.40	2.4
June 12	A. W. Harrington	2.01	16.1	25	do	1.35	1.8
22	do	1.75	10.1	Sept. 8	do	1.34	1.9
July 8	do	1.52	4.3				

NOTE.—Aug. 11 point of zero flow was estimated to be at gage height 1.1 feet.

Daily discharge, in second-feet, of Jakes Creek below Hubbard ranch, near Contact, Nev., for the year ending Sept. 30, 1914.

Day.	May.	June.	July.	Aug.	Sept.	Day.	May.	June.	July.	Aug.	Sept.
1		28	6.6	3.0	1.9	16		15	3.8	2.2	2.0
2		30	6.3	3.0	1.9	17		14	3.8	2.1	2.1
3		31	6.0	2.9	1.9	18	41	13	3.7	2.1	2.1
4		33	5.7	2.9	1.9	19	55	12	3.7	2.1	2.1
5		33	5.4	2.8	1.8	20	46	11	3.6	2.0	2.1
6		32	5.1	2.8	1.8	21	42	10	3.6	2.0	2.1
7		32	4.8	2.7	1.8	22	42	9.6	3.5	2.0	2.1
8		30	4.5	2.7	1.8	23	34	9.2	3.5	1.9	2.1
9		28	4.4	2.6	1.8	24	35	8.8	3.4	1.9	2.1
10		24	4.3	2.6	1.8	25	36	8.4	3.4	1.9	2.1
11		19	4.2	2.5	1.8	26	37	8.1	3.3	1.9	2.1
12		18	4.1	2.5	1.8	27	37	7.8	3.3	1.9	2.1
13		17	4.0	2.4	1.8	28	34	7.5	3.2	1.9	2.1
14		16	3.9	2.4	1.8	29	28	7.2	3.2	1.9	2.1
15		15	3.8	2.3	1.9	30	29	6.9	3.1	1.9	2.1
						31	28		3.1	1.9	

NOTE.—Discharge determined from a well-defined rating curve. Gage readings infrequent after June 12; discharge interpolated for long periods.

Monthly discharge of Jakes Creek below Hubbard ranch, near Contact, Nev., for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
May 18–31	55	28	37.4	1,040	A.
June	33	6.9	17.8	1,060	B.
July	6.6	3.1	4.14	255	B.
August	3.0	1.9	2.31	142	B.
September	2.1	1.8	1.96	117	B.
The period				2,610	

WILLOW CREEK NEAR CONTACT, NEV.

Location.—In sec. 23, T. 43 N., R. 63 E., about 50 feet north of the south fence of the Hubbard ranch, about one-half mile west of the county road, and about 14 miles southwest of Contact; above all diversions.

Drainage area.—Not measured.

Records available.—May 24 to September 30, 1914.

Gage.—Vertical staff on left bank.

Discharge measurements.—Made by wading near the gage. Conditions fair.

Channel and control.—Bed of stream clay covered with gravel wash; probably shifts.

Extremes of discharge.—Maximum stage recorded, 1.16 feet May 24 (discharge, 34 second-feet); canal dry September 25–30.

Winter flow.—Probably affected considerably by ice.

Accuracy.—Records are fairly reliable.

Discharge measurements of Willow Creek near Contact, Nev., during the year ending Sept, 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
May 24	Purton and Harrington	1.16	33.8	June 22	A. W. Harrington	0.60	3.8
29	A. W. Harrington	.97	17.6	July 8	do	.39	.4
June 4	do	.98	19.9	16	do	.35.	a.2
12	do	.75	7.6				

a Estimated.

NOTE.—Station was visited by A. W. Harrington on July 30, Aug. 11, and Sept. 8 and the flow estimated at 0.1 second-foot or less. On July 30 point of zero flow estimated to be at gage height about 0.2 foot.

Daily discharge, in second-feet, of Willow Creek near Contact, Nev., for the year ending Sept. 30, 1914.

Day.	May.	June.	Day.	May.	June.
1		17.3	16		6.2
2		17.3	17		5.8
3		18.2	18		5.4
4		19.2	19		5.0
5		16.7	20		4.6
6		14.2	21		4.2
7		11.8	22		3.7
8		11.0	23		3.5
9		10.2	24	34	3.3
10		9.5	25	31	3.1
11		8.6	26	28	2.9
12		7.8	27	25	2.7
13		7.4	28	22	2.5
14		7.0	29	18.6	2.3
15		6.6	30	18.0	2.1
			31	17.3	

Monthly discharge of Willow Creek near Contact, Nev., for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
May 24-31	34	17.3	24.2	384	B.
June	19.2	2.1	8.00	476	B.
July			a.5	31	
August			a.1	6	
September			a.1	6	
The period				903	

a Estimated.

TROUT CREEK NEAR SAN JACINTO, NEV.

Location.—In sec. 5, T. 46 N., R. 65 E., about 250 feet above the point where the High Line canal flume crosses the creek, and about 4 miles northeast of San Jacinto.

Drainage area.—Not measured.

Records available.—May 14 to September 30, 1914.

Gage.—Vertical staff on left bank.

Discharge measurements.—Made by wading near gage. Conditions fair.

Channel and control.—Bed of stream clay covered with gravel wash; shifts.

Extremes of discharge.—Maximum stage recorded, 1.40 feet at 4 p. m. May 25 (discharge, 13.4 second-feet); minimum discharge recorded, 0.1 second-foot (estimated) August 11–31.

Winter flow.—Discharge relation probably affected by ice.

Diversions.—One diversion made from Cow Creek, a tributary of Trout Creek, about 1 mile above gage.

Accuracy.—Rating curve well defined; record reliable.

Discharge measurements of Trout Creek near San Jacinto, Nev., during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
May 14	A. W. Harrington.....	1.37	12.8	June 16	A. W. Harrington.....	0.84	3.5
25	Purton and Harrington.	1.39	12.8	18	.....do.....	.60	1.6
30	A. W. Harrington.....	1.17	7.8	July 3	.....do.....	.54	1.0
June 8	.....do.....	1.14	7.8				

Daily discharge, in second-feet, of Trout Creek near San Jacinto, Nev., for the year ending Sept. 30, 1914.

Day.	May.	June.	July.	Day.	May.	June.	July.	Day.	May.	June.	July.
1	.....	7.5	1.2	11	.....	6.0	1.9	21	12.9	2.7	.....
2	.....	7.9	1.2	12	.....	5.4	1.2	22	13.0	2.6	.....
3	.....	9.0	1.1	13	.....	4.8	.5	23	13.0	2.5	.....
4	.....	8.6	1.1	14	12.6	4.4	.....	24	13.0	2.3	.....
5	.....	10.4	1.1	15	12.6	3.9	.....	25	13.1	3.8	.....
6	.....	9.0	1.0	16	12.5	3.5	.....	26	11.3	4.3	.....
7	.....	7.5	1.0	17	12.5	1.5	.....	27	10.2	3.1	.....
8	.....	7.3	1.0	18	12.4	1.5	.....	28	9.0	2.1	.....
9	.....	6.8	.9	19	12.4	2.3	.....	29	8.6	1.8	.....
10	.....	6.4	1.7	20	12.9	3.1	.....	30	8.1	1.6	.....
								31	7.8	.....	.....

NOTE.—Discharge determined from a fairly well-defined rating curve. July 14 to Sept. 30 the entire flow of Trout Creek was diverted into Cow Creek ditch. The flow of this ditch was estimated as follows: July 14–30, 0.3 second-foot; August, 0.13 second-foot; and September, 0.24 second-foot.

Monthly discharge of Trout Creek near San Jacinto, Nev., for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
May 14–31	13.1	7.8	11.6	412	B.
June	10.4	1.5	4.79	285	B.
July 1–13	1.9	.5	1.15	29.6	B.
The period	.....	.....	.....	727	

SHOSHONE CREEK NEAR SAN JACINTO, NEV.

Location.—In sec. 17, T. 47 N., R. 65 E., about half a mile above the headworks o North Side ditch, 2 miles above the house on Shoshone ranch, and about 11 miles northeast of San Jacinto. .

Drainage area.—Not measured.

Records available.—May 14 to September 30, 1914.

Gage.—Stevens water-stage recorder on right bank installed August 27, 1914, with vertical staff used as reference gage; May 14 to August 27, 1914, staff gage about 500 feet downstream, used also as reference gage for Lietz water-stage recorder, June 15 to July 31, 1914; and Stevens recorder August 3 to August 27, 1914.

Discharge measurements.—Made from a cable about 500 feet downstream or by wading.

Channel and control.—Bed of stream consists of gravel and loose rocks; probably shifts.

Extremes of discharge.—Maximum stage recorded, 2.37 feet at 10.20 a. m. May 14 (discharge, 135 second-feet); minimum stage recorded, 0.26 foot August 22–27 (discharge, 7.4 second-feet). Records taken from first staff gage installed.

Winter flow.—Discharge relation probably affected to some extent by ice.

Diversions.—Above all diversions on Shoshone ranch. Numerous diversions are made in Shoshone basin, which ends about 10 miles above the station.

Accuracy.—Results accurate for low and medium stages.

Discharge measurements of Shoshone Creek near San Jacinto, Nev., during the year ending Sept. 30, 1914.

Date.	Made by—	New gage height.	Old gage height.	Discharge.	Date.	Made by—	New gage height.	Old gage height.	Discharge.
			Feet.	*Sec.-ft.*				*Feet.*	*Sec.-ft.*
May 14	A. W. Harrington	.....	2.37	141	July 27	A. W. Harrington	.....	0.23	10.1
26	Purton and Harrington	.....	1.93	93.3	Aug. 10	.....do.....	.....	.20	7.7
June 1	A. W. Harrington	.....	1.23	49.1	17	.....do.....	.....	.16	7.9
8	.....do.....	.....	1.28	55.3	24	.....do.....	.....	.26	7.2
17	.....do.....	.....	.91	36.4	31	.....do.....	3.72	.28	8.2
July 4	.....do.....	.....	.56	19.8	Sept. 7	.....do.....	3.70	.27	9.2
11	.....do.....	.....	.47	17.9	14	.....do.....	3.74	.27	9.5
21	.....do.....	.....	.24	10.8	21	.....do.....	3.78	.31	10.3
					30	Harrington and Burkett [a]	3.80	.34	11.2

[a] Employee, Idaho State engineer.

NOTE.—Point of zero flow estimated to be at gage height −0.5 foot on old gage on July 27 and 2.85 feet on new gage on Sept. 30.

Daily discharge, in second-feet, of Shoshone Creek near San Jacinto, Nev., for the year ending Sept. 30, 1914.

Day.	May.	June.	July.	Aug.	Sept.	Day.	May.	June.	July.	Aug.	Sept.
1	.....	50	25	10.2	8.8	16	130	37	12.5	8.5	12.3
2	.....	53	24	11.2	8.4	17	128	34	11.8	8.2	12.0
3	.....	54	23	12.1	8.4	18	125	33	11.0	7.9	11.0
4	.....	53	22	11.8	8.4	19	123	32	10.7	7.6	10.8
5	.....	59	21	11.0	8.6	20	97	35	10.2	8.0	10.4
6	.....	57	19.2	9.9	8.6	21	100	36	9.7	7.8	10.4
7	.....	57	17.3	9.4	8.6	22	93	34	9.4	7.4	10.4
8	.....	53	16.6	9.2	8.8	23	85	33	9.7	7.4	10.4
9	.....	54	16.2	8.7	9.0	24	82	32	9.7	7.4	10.6
10	.....	54	17.0	8.9	9.0	25	82	32	9.9	7.4	10.8
11	.....	54	17.0	8.7	9.0	26	96	32	9.7	7.4	10.8
12	.....	50	15.6	8.7	9.3	27	80	32	9.4	7.4	11.0
13	.....	46	14.2	8.5	9.5	28	69	29	9.4	9.7	11.0
14	135	44	13.9	8.7	9.7	29	64	28	9.3	9.7	10.8
15	133	40	13.2	8.7	11.8	30	58	27	9.2	9.5	10.8
						31	54	.....	9.2	9.0	.....

NOTE.—Daily discharge determined from three well-defined rating curves; interpolated for various short periods during which gage heights were not recorded.

Monthly discharge of Shoshone Creek near San Jacinto, Nev., for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
May 14–31	135	54	96.3	3,440	B.
June	59	27	42.1	2,510	A.
July	25	9.2	14.1	867	B.
August	12.1	7.4	8.90	547	A.
September	12.3	8.4	10.0	595	B.
The period				7,960	

NORTH SIDE DITCH NEAR SAN JACINTO, NEV.

Location.—In sec. 17, T. 47 N., R. 65 E., about one-fourth mile below the diversion from Shoshone Creek, 1 mile above the ranch house on Shoshone ranch, and 10 miles northeast of San Jacinto.

Records available.—May 14 to September 30, 1914.

Gage.—Vertical staff on right bank.

Discharge measurements.—Made by wading.

Channel and control.—Bed of ditch consists of earth and gravel, with some flat rocks; weeds and moss grow to some extent.

Extremes of discharge.—Maximum stage recorded, 2.26 feet at 9.30 a. m. September 16 (discharge, 5.2 second-feet); maximum discharge determined by indirect method for shifting channels, 5.9 second-feet (gage height, 2.19 feet June 10); canal dry prior to May 16.

Accuracy.—Results reasonably accurate for all stages.

Discharge measurements of North Side ditch near San Jacinto, Nev., during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
May 19	A. W. Harrington	2.00	3.7	July 27	A. W. Harrington	2.12	3.6
26	Purton and Harrington	2.03	3.8	Aug. 10	.....do	1.98	2.0
June 8	A. W. Harrington	2.06	4.0	24	.....do	2.21	4.5
17	.....do	1.95	3.0	31	.....do	2.24	4.4
July 11	.....do	2.04	2.9	Sept. 7	.....do	2.21	4.4
21	.....do	1.87	1.2	21	.....do	2.16	4.3

NOTE.—Point of zero flow estimated to be at gage height 1.3 feet on July 27.

Daily discharge, in second-feet, of North Side ditch near San Jacinto, Nev., for the year ending Sept. 30, 1914.

Day.	May.	June.	July.	Aug.	Sept.	Day.	May.	June.	July.	Aug.	Sept.
1	.....	2.4	4.0	3.5	4.4	16	0.9	2.9	1.2	2.0	5.2
2	.....	4.0	3.7	.....	4.4	17	1.8	3.5	1.1	2.1	4.7
3	.....	4.2	4.2	.....	4.4	18	2.7	4.6	.6	2.8	4.4
4	.....	4.0	4.0	.....	4.3	19	3.6	4.8	1.2	4.7	3.6
5	.....	5.0	4.1	.....	4.3	20	2.5	5.5	1.2	4.7	3.5
6	.....	4.8	3.7	.....	4.4	21	3.3	5.5	1.4	4.7	4.0
7	.....	4.7	3.6	.....	4.4	22	2.5	5.1	1.5	4.7	3.8
8	.....	4.2	3.3	.....	4.4	23	2.5	5.0	2.7	4.5	3.8
9	.....	5.0	2.8	.....	3.8	24	2.2	4.2	2.9	4.4	3.8
10	.....	5.9	2.6	2.1	3.8	25	3.5	4.2	3.6	4.5	3.8
11	.....	5.7	2.7	2.1	3.6	26	3.9	4.5	3.4	4.7	3.8
12	.....	5.0	1.7	2.3	3.6	27	2.7	4.6	3.4	4.4	3.8
13	.....	4.2	1.3	2.3	3.6	28	1.3	4.6	3.3	4.8	3.8
14	.....	3.7	1.2	2.3	3.8	29	2.9	4.5	3.3	4.7	3.5
15	.....	3.3	1.0	2.3	4.4	30	3.3	4.2	3.2	5.0	3.5
						31	2.9	.....	2.8	4.9	.....

NOTE.—Discharge determined from two fairly well-defined rating curves and by indirect methods for shifting channels; estimated Aug. 2–9 at 2.3 second-feet.

Monthly discharge of North Side ditch near San Jacinto, Nev., for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
May 14–31	3.9	0.0	2.36	84.3	B.
June	5.9	2.4	4.46	265	B.
July	4.2	.6	2.60	160	B.
August	5.0	2.0	3.32	204	B.
September	5.2	3.5	4.02	239	B.
The period	.....	.....	.....	952	

CEDAR CREEK NEAR ROSEWORTH, IDAHO.

Location.—In sec. 12, T. 14 S., R. 13 E., 500 or 600 feet above the dam site of the West End Twin Falls Irrigation Co., 100 feet above the intake of the diversion tunnel, about 10 miles south of Roseworth post office, and 7 miles west of the Salmon dam on Salmon Falls Creek; about 2½ miles below the mouth of House Creek, and about 12 miles above the mouth of the stream.

Drainage area.—Not measured.

Records available.—May 30, 1909, to September 30, 1914.

Gage.—Vertical staff on right bank; has shifted at times, but gage heights have been corrected to original datum.

Discharge measurements.—Made from a plank across the creek at the gage or by wading.

Channel and control.—Gravel; moss-covered.

Extremes of discharge.—Maximum stage recorded during year, 4.46 feet at 6.30 p. m. February 21 (discharge, 120 second-feet); maximum discharge, 127 second-feet (gage height, 4.3 feet April 24), determined by indirect method for shifting channels; minimum stage recorded, 1.52 feet August 3–5, 8–9, and 12–14 (discharge, 9.6 second-feet).

Winter flow.—Discharge relation at times affected by ice.
Diversions.—Small ranch diversions above station.
Accuracy.—Discharge relation affected by backwater caused by growth of aquatic plants; records fairly reliable.

Discharge measurements of Cedar Creek near Roseworth, Idaho, during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Oct. 9	L. W. Jordan	2.26	20.5	Mar. 18	J. W. Strohecker	2.71	40.4
Dec. 15	C. G. Paulsen	2.06	16.1	Apr. 1	do	2.14	22.8
Jan. 17	Strohecker and Purton	2.03	15.0	May 14	do	3.09	61.6
Feb. 21	J. W. Strohecker	3.79	78.0	29	do	2.56	40.2
Mar. 15	A. W. Harrington	2.52	36.9	July 17	L. W. Roush	1.74	12.9
16	do	2.59	37.0				

Daily discharge, in second-feet, of Cedar Creek near Roseworth, Idaho, for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	20	18	17	24	16	88	23	49	35	22	10	15
2	19	19	17	28	16	70	26	41	33	19	10	16
3	19	19	17	24	17	32	27	45	35	19	9.6	16
4	19	19	16	22	17	30	34	49	33	22	9.6	16
5	19	19	16	22	16	28	34	54	40	22	9.6	17
6	20	19	15	20	.....	32	39	58	36	19	10	17
7	22	20	15	19	.....	39	43	63	36	19	10	17
8	20	22	15	18	.....	47	41	63	38	19	9.6	18
9	20	22	15	18	.....	45	37	66	36	18	9.6	18
10	19	22	15	17	.....	47	35	68	34	16	10	18
11	19	23	15	17	18	37	41	68	32	16	10	17
12	18	24	15	16	18	39	45	68	34	15	9.6	17
13	18	22	15	15	16	39	41	66	36	15	9.6	18
14	17	22	15	17	16	34	41	63	36	14	9.6	18
15	17	19	16	17	14	35	47	63	38	14	10	18
16	19	19	16	16	14	37	47	58	39	13	10	20
17	19	19	16	16	16	37	60	58	36	13	10	20
18	18	19	16	16	16	41	58	56	34	13	10	23
19	18	19	15	16	18	43	54	58	32	12	10	23
20	19	19	15	16	26	41	51	56	32	12	11	23
21	19	20	15	16	100	41	74	54	32	13	11	21
22	19	20	15	18	78	37	90	54	28	13	11	21
23	19	20	15	23	60	34	96	51	28	12	12	20
24	19	20	14	26	39	34	127	49	26	11	13	20
25	19	19	14	70	26	34	103	45	27	11	13	20
26	19	19	13	26	28	32	83	45	26	13	14	18
27	19	19	14	20	32	32	78	43	24	12	14	18
28	19	18	15	20	109	34	68	41	25	11	14	18
29	18	17	15	18	.....	34	63	39	25	11	15	18
30	18	17	17	18	.....	35	58	39	25	11	15	18
31	18	.....	38	16	.....	27	.....	55	.....	11	15	.....

NOTE.—Discharge determined from several parallel rating curves; shifting occurred between periods of applicability. Discharge Feb. 6–10 estimated, on account of ice, at 15 second-feet.

Monthly discharge of Cedar Creek near Roseworth, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	22	17	18.9	1,160	A.
November	24	17	19.8	1,180	B.
December	38	13	16.0	984	B.
January	70	15	20.8	1,280	B.
February	109	.....	28.6	1,590	B.
March	88	27	39.2	2,410	A.
April	127	23	55.5	3,300	B.
May	68	35	53.7	3,300	A.
June	40	24	32.4	1,930	B.
July	22	11	14.9	916	B.
August	15	9.6	11.1	682	B.
September	23	15	18.6	1,110	B.
The year	127	9.6	27.4	19,800	

DEVIL CREEK NEAR THREE CREEK, IDAHO.

Location.—In sec. 15, T. 15 S., R 12 E., at the Reynolds ranch, where the road from Buhl to Three Creek crosses Devil Creek (upper or second crossing).

Drainage area.—Not accurately known.

Records available.—November 10, 1912, to August 8, 1914, when the station was discontinued.

Gage.—Vertical staff.

Discharge measurements.—Made by wading or from the bridge.

Channel and control.—Mud. Banks are brushy and likely to overflow. Conditions of flow are not permanent.

Extremes of discharge.—Maximum stage recorded during year, 3.30 feet March 1–2 (discharge, 23 second-feet); maximum discharge, 26 second-feet (gage height, 3.20 feet April 24), determined by indirect method for shifting channels. Minimum stage recorded, 1.89 feet at 8 a. m. February 19 (discharge, 1.5 second-feet); minimum discharge, 0.9 second-foot (gage height, 1.90 feet August 5–8), determined by indirect method for shifting channels.

Winter flow.—Discharge relation not seriously affected by ice.

Accuracy.—Measurements made frequently during spring run-off; records fairly reliable.

Records will indicate the amount of water available for diversion into the Cedar Creek reservoir, the proposed point of diversion being about 2 miles below the gaging station.

Discharge measurements of Devil Creek near Three Creek, Idaho, during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Oct. 8	L. W. Jordan	2.05	1.7	Mar. 16	J. W. Strohecker	3.13	18.0
Jan. 17	Purton and Strohecker	1.99	1.6	19	.....do	3.10	17.3
26	J. W. Strohecker	2.06	2.8	26	.....do	2.79	7.9
31	.....do	1.93	1.7	28	.....do	2.65	6.6
Feb. 4	.....do	1.91	1.7	Apr. 2	.....do	2.54	5.0
7	.....do	1.91	1.6	6	.....do	2.43	4.1
10	.....do	1.91	1.4	8	.....do	2.25	3.3
17	.....do	1.90	1.5	20	.....do	2.30	4.0
19	.....do	1.89	1.4	25	.....do	3.11	19.6
21	.....do	2.46	5.5	30	.....do	2.72	9.0
28	.....do	3.09	11.9	May 11	.....do	2.46	5.6
Mar. 6	.....do	3.18	16.6	25	.....do	2.51	6.2
14	.....do	3.06	14.5	July 17	L. W. Roush	2.17	2.7

Daily discharge, in second-feet, of Devil Creek near Three Creek, Idaho, for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.
1	1.9	2.0	1.4	1.7	1.8	23	5.1	9.4	2.1	1.4	2.0
2	2.3	2.0	1.4	1.7	1.7	23	5.1	6.8	3.4	1.4	1.8
3	2.3	1.9	1.4	1.7	1.7	18	3.2	6.1	3.4	1.2	2.1
4	1.8	1.8	1.4	1.4	1.7	12	1.3	6.1	2.1	1.2	2.9
5	2.0	1.6	1.4	1.4	1.7	6.9	2.6	6.1	2.1	1.3	.9
6	2.8	2.0	1.4	1.4	1.7	16	4.0	5.7	3.4	1.4	.9
7	2.7	2.4	1.4	1.4	1.7	16	3.7	4.9	3.4	1.4	.9
8	2.2	2.3	1.4	1.7	1.7	16	3.4	4.9	4.9	1.2	.9
9	2.0	1.8	1.4	1.4	1.7	16	3.4	4.9	2.1	1.3	.....
10	2.0	2.3	1.4	1.7	1.7	16	3.4	6.1	2.3	1.3	.....
11	2.0	2.8	1.4	1.7	1.7	16	2.8	4.9	2.1	1.3	.....
12	1.8	2.7	1.4	1.4	1.7	16	2.3	4.4	2.3	1.0	.....
13	1.8	3.6	1.6	1.1	1.7	15	2.8	4.7	2.0	1.2	.....
14	1.7	3.9	1.8	1.4	1.7	15	3.4	4.7	1.8	1.2	.....
15	1.8	2.6	1.8	1.7	1.7	17	4.2	4.4	1.8	1.8	.....
16	1.5	2.3	.....	2.0	1.6	19	4.9	5.5	1.8	2.1	.....
17	1.6	2.3	.....	1.7	1.6	18	4.4	6.1	1.8	2.0	.....
18	1.6	2.4	.....	1.8	1.6	18	4.4	4.9	1.8	1.8	.....
19	1.8	2.6	.....	1.2	1.5	17	2.1	4.9	1.8	1.8	.....
20	2.0	2.8	.....	1.4	3.2	14	3.8	4.9	1.8	1.8	.....
21	2.2	2.3	.....	1.4	5.0	11	5.0	4.9	1.8	2.1	.....
22	2.0	2.3	.....	1.4	2.6	10	6.1	4.7	1.8	2.1	.....
23	2.2	2.3	.....	1.4	2.6	10	15	4.7	1.5	2.1	.....
24	2.1	1.8	.....	2.4	1.9	9.4	26	4.7	1.5	2.1	.....
25	1.8	1.4	.....	6.0	1.8	8.8	18	6.1	1.8	2.1	.....
26	2.1	1.4	.....	2.6	1.7	8.4	17	4.4	1.4	2.1	.....
27	1.8	1.5	.....	2.4	4.0	7.4	16	4.7	1.4	2.1	.....
28	2.0	1.4	.....	2.2	12	6.4	13	4.0	1.4	2.1	.....
29	2.0	1.4	.....	2.0	.....	6.0	12	4.4	1.4	1.8	.....
30	1.9	1.4	.....	1.9	.....	5.7	9.5	4.7	1.4	1.8	.....
31	2.0	.....	.....	1.8	.....	5.4	.....	4.0	.....	2.0	.....

NOTE.—Discharge determined from several parallel rating curves; shifting occurred between periods of applicability. Discharge Dec. 16–31 estimated at 1.5 second-feet. Discharge interpolated for many short periods in which gage heights were not recorded.

Monthly discharge of Devil Creek near Three Creek, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	2.8	1.5	1.99	122	C.
November	3.9	1.4	2.18	130	D.
December	.....	.....	1.48	91	D.
January	6.0	1.1	1.82	112	C.
February	12	1.5	2.38	132	C.
March	23	5.4	13.4	824	A.
April	26	1.3	6.93	412	A.
May	9.4	4.0	5.22	321	B.
June	4.9	1.4	3.12	186	B.
July	2.1	1.0	1.66	102	B.
August 1–8	2.9	.9	1.55	24.6	C.
The period	.....	.....	.....	2,460	

BIG WOOD RIVER NEAR BELLEVUE, IDAHO.

Location.—In sec. 20, T. 1 S., R. 18 E., three-fourths mile below Blair's ranch, about 1¼ miles above the flow line of the Magic dam reservoir, and 10 miles southwest of Bellevue post office. Malad [1] River enters the reservoir between this station and the dam.

[1] Not Camas Creek; decision of U. S. Geographic Board.

Drainage area.—Not measured.

Records available.—August 1 to November 14, 1911; April 18, 1912, to September 30, 1913; June 12 to September 30, 1914.

Gage.—Lallie water-stage recorder on right bank.

Discharge measurements.—Made from a cable about 30 feet above gage.

Control.—Coarse gravel; drift collects below station.

Extremes of discharge.—Maximum stage recorded during year, 4.0 feet June 21 (discharge, 1,610 second-feet); minimum stage recorded, 0.69 second-foot August 21 (discharge, 64 second-feet).

Winter flow.—Records discontinued during winter.

Diversions.—Considerable water is used for irrigation in the valleys above the station. Flood waters are stored in the Idaho Irrigation Co.'s reservoir impounded by the Magic dam, about 9 miles below.

Accuracy.—Rating curves fairly well defined; data reliable.

Cooperation.—Gage-height record and a number of discharge measurements furnished by the Idaho Irrigation Co.

Discharge measurements of Big Wood River near Bellevue, Idaho, during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
May 10	G. C. Baldwin	3.99	1,600	July 18	L. Crosby [a]	1.68	301
June 23	Crosby and Duplissea [a]	3.12	1,020	24	do	1.23	165
30	A. V. Tallman [b]	2.76	777	Aug. 5	do	.99	111
July 8	Crosby and Beebe [a]	2.40	604	24	Paulsen and Crosby [a]	.70	65.5

[a] Employee, Idaho Irrigation Co. [b] Employee, Idaho State engineer.

Daily discharge, in second-feet, of Big Wood River near Bellevue, Idaho, for the year ending Sept. 30, 1914.

Day.	June.	July.	Aug.	Sept.	Day.	June.	July.	Aug.	Sept.
1		762	146	71	16	1,130	380	68	87
2		706	144	71	17	1,260	340	69	87
3		628	143	71	18	1,400	302	71	89
4		694	142	69	19	1,470	285	72	97
5		761	111	69	20	1,470	252	71	135
6		706	106	69	21	1,610	210	64	146
7		654	102	71	22	1,300	183	69	146
8		602	99	71	23	1,000	153	68	137
9		628	95	69	24	975	162	68	133
10		602	93	69	25	950	160	69	135
11		553	84	69	26	924	158	69	140
12	938	506	76	71	27	898	155	69	151
13	877	461	75	72	28	872	151	71	158
14	818	440	78	75	29	845	146	69	160
15	818	418	78	79	30	818	142	69	162
					31		144	69	

NOTE.—Discharge determined from a fairly well-defined rating curve.

Monthly discharge of Big Wood River near Bellevue, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
June 12-30	1,610	818	1,070	40,400	B.
July	762	142	401	24,700	B.
August	146	64	86.4	5,310	B.
September	162	69	101	6,010	B.
The period				76,300	

BIG WOOD RIVER BELOW MAGIC DAM, NEAR RICHFIELD, IDAHO.

Location.—In sec. 18, T. 2 S., R 18 E., about half a mile below the Magic dam of the Idaho Irrigation Co.

Drainage area.—Not measured.

Records available.—April 19 to November 21, 1911; April 1, 1912, to September 30, 1914.

Gage.—Lallie water-stage recorder on right bank.

Discharge measurements.—Made from cable about 20 feet above gage.

Channel and control.—Large, clean gravel; probably permanent.

Extremes of discharge.—Maximum stage recorded during year, 6.77 feet at 8 p. m. May 25 (discharge, approximately 2,520 second-feet); minimum stage recorded, 1.56 feet at noon March 18 (discharge, 24 second-feet).

Winter flow.—Automatic gage records discontinued during winter.

Diversions.—Richfield diversion dam diverts part of the flow of the river about 2 miles below; the remainder of the water goes on down to the North Gooding diversion and to supply prior rights down the river.

Accuracy.—Rating curve well defined; records reliable.

Cooperation.—Gage-height record and most of the discharge measurements furnished by the Idaho Irrigation Co.

Discharge measurements of Big Wood River below Magic dam, near Richfield, Idaho, during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Dec. 11	C. G. Paulsen	3.00	324	May 11	L. Crosby[a]	5.71	1,910
Apr. 9	Paulsen and Crosby[a]	2.93	293	19	do	6.14	2,150
May 1	L. Crosby[a]	3.13	357	July 20	do	4.79	1,400
3	do	1.65	29.6	22	do	4.49	1,210
3	do	1.61	27.6	Aug. 24	O. G. Paulsen	3.95	887

[a] Engineer, Idaho Irrigation Co.

Daily discharge, in second-feet, of Big Wood River below Magic dam, near Richfield, Idaho, for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Dec.	Mar.	Apr.	May.	June	July.	Aug.	Sept.
1	443	149	217	.....	265	376	1,660	1,210	1,120	850
2	443	186	217	.....	265	394	1,780	1,220	1,110	842
3	438	184	217	.....	197	176	2,010	1,250	1,080	835
4	438	181	217	.....	229	480	2,240	1,250	1,060	858
5	438	181	242	.....	147	842	2,190	1,220	1,040	873
6	438	179	320	.....	184	1,190	2,070	1,220	984	873
7	438	176	320	.....	220	1,330	1,840	1,250	984	858
8	433	168	320	.....	223	1,440	1,640	1,330	984	835
9	433	161	320	.....	229	1,580	1,440	1,330	984	740
10	433	158	320	.....	192	1,780	1,280	1,360	977	665
11	433	156	320	.....	136	1,920	1,120	1,390	977	626
12	433	156	320	.....	123	1,980	1,160	1,390	970	582
13	433	154	320	.....	173	1,920	1,160	1,390	963	570
14	385	154	320	.....	173	1,870	1,120	1,390	948	553
15	358	154	320	.....	173	1,870	1,140	1,390	941	512
16	358	154	320	.....	173	1,950	1,170	1,390	934	507
17	358	154	320	184	245	2,100	1,180	1,410	927	448
18	358	154	309	106	245	2,160	1,210	1,410	920	390
19	358	154	282	142	245	2,160	1,250	1,390	912	390
20	354	154	282	142	245	2,130	1,280	1,390	904	390
21	337	154	282	145	245	2,130	1,360	1,300	897	385
22	328	154	282	145	245	2,160	1,360	1,220	889	371
23	328	154	242	145	245	2,270	1,280	1,280	881	341
24	328	154	181	145	214	2,420	1,170	1,280	873	341
25	320	154	184	145	309	2,480	1,160	1,220	865	337
26	305	154	184	154	345	2,300	1,160	1,200	858	337
27	301	154	184	197	345	2,040	1,180	1,180	858	337
28	297	184	184	203	345	1,840	1,190	1,170	850	337
29	297	217	184	209	345	1 720	1,190	1,150	842	337
30	293	217	184	166	349	1,660	1,180	1,130	850	293
31	200	.....	184	217	.....	1,640	.....	1,130	858	.....

NOTE.—Discharge determined from a well-defined rating curve. Discharge Jan. 1 to Mar. 16 estimated at 180 second-feet, from information furnished by Lothrop Crosby, engineer, Idaho Irrigation Co.

Monthly discharge of Big Wood River below Magic dam, near Richfield, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	443	200	372	22,900	A.
November	217	149	165	9,820	B.
December	320	181	261	16,000	B.
January	.....	.....	180	11,100	C.
February	.....	.....	180	10,000	C.
March	.....	.....	172	10,600	C.
April	349	123	236	14,000	B.
May	2,480	176	1,690	104,000	C.
June	2,240	1,120	1,410	83,900	B.
July	1,410	1,130	1,290	79,300	A.
August	1,120	842	943	58,000	A.
September	873	293	554	33,000	B.
The year	2,480	.....	624	453,000	

BIG WOOD RIVER BELOW NORTH GOODING CANAL, NEAR SHOSHONE, IDAHO.

Location.—In sec. 15, T. 4 S., R. 18 E., about 300 yards below the heading of the North Gooding canal, and about 13 miles northeast of Shoshone.

Drainage area.—Not measured.

Records available.—January 1 to October 31, 1911; March 26, 1912, to September 30, 1914.

Gage.—Vertical staff on left bank.

Discharge measurements.—Made by wading or from a cable.

Channel and control.—Lava rock; very rough; permanent.

Extremes of discharge.—Maximum stage recorded during year, 12.55 feet at 8 a. m. and 6 p. m. May 25 (discharge, 1,290 second-feet); minimum stage recorded, 7.00 feet at 5 p. m. February 2 (discharge indeterminate; discharge relation affected by ice; estimated February 1–10, inclusive, at 18 second-feet). It is possible, however, that discharge may have been less than this at some time during period when discharge relation was affected by ice.

Winter flow.—Records discontined during winter.

Diversions.—Below all diversions of the Idaho Irrigation Co.

Accuracy.—Rating curves well defined; results reliable.

Cooperation.—Gage-height record and occasional measurements furnished by Idaho Irrigation Co.

Discharge measurements of Big Wood River below North Gooding canal, near Shoshone, Idaho, during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Dec. 12	C. G. Paulsen	7.88	54.9	May 22	C. G. Paulsen	12.17	1,100
Jan. 15	Paulsen and Seward[a]	7.65	29.9	June 29	A. V. Tallman[b]	9.03	189
Apr. 11	C. G. Paulsen	8.05	72.0	Aug. 25	C. G. Paulsen	7.37	23.9

[a] Employee, Idaho Irrigation Co. [b] Employee, Idaho State Engineer.

Daily discharge, in second-feet, of Big Wood River below North Gooding canal, near Shoshone, Idaho, for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Dec.	Jan.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	48	48	33	.....	63	63	72	653	173	116	26
2	42	48	43	.....	63	63	76	688	180	116	26
3	37	50	57	.....	63	72	43	885	376	122	26
4	40	51	51	.....	64	72	36	1,020	445	116	26
5	42	51	50	.....	64	59	259	1,070	242	116	59
6	42	51	51	.....	67	48	619	973	180	76	47
7	42	51	85	.....	64	47	802	802	180	72	65
8	42	50	67	.....	65	76	843	619	277	72	64
9	42	48	59	.....	67	85	885	470	259	67	90
10	43	48	59	.....	67	100	973	295	259	60	46
11	44	47	55	.....	67	72	1,020	153	277	54	43
12	44	47	58	.....	67	23	1,110	105	259	44	62
13	45	44	57	.....	67	20	1,070	146	277	55	33
14	46	44	57	.....	67	36	973	146	259	44	34
15	47	44	57	30	85	31	928	140	259	47	26
16	47	44	59	29	134	31	973	166	259	45	26
17	48	31	61	29	128	40	1,020	195	259	45	26
18	48	31	61	31	146	72	1,110	195	259	48	27
19	48	31	38	30	95	76	1,110	242	259	50	26
20	48	31	38	31	67	76	1,110	295	421	37	26
21	48	31	.....	36	65	80	1,110	398	234	31	26
22	48	31	.....	36	63	72	1,110	421	140	28	26
23	48	31	.....	32	67	60	1,110	334	140	26	26
24	48	31	.....	25	59	59	1,210	218	153	26	26
25	48	31	.....	31	59	61	1,310	180	140	26	36
26	48	31	.....	31	19	65	1,160	195	110	26	38
27	48	31	.....	31	17	72	1,020	195	110	26	36
28	48	31	.....	24	17	76	885	180	105	26	31
29	48	31	.....	.....	30	76	763	188	110	26	31
30	48	35	.....	.....	28	72	725	160	105	26	31
31	48	.....	.....	.....	67	.....	653	.....	105	27	.....

NOTE.—Discharge determined from a well-defined rating curve. Discharge estimated, on account of ice, as follows: Dec. 21–31, 35 second-feet; Jan. 1–14, 33 second-feet; Jan. 29–31, 20 second-feet; Feb. 1–10, 18 second-feet; Feb. 11–17, 25 second-feet; Feb. 18–28, 45 second-feet. Discharge interpolated for large part of October.

Monthly discharge of Big Wood River below North Gooding canal, near Shoshone, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	48	37	45.6	2,800	B.
November	51	31	40.1	2,390	A.
December	85	.....	47.8	2,940	B.
January	.....	.....	30.6	1,880	C.
February	.....	.....	30.4	1,690	D.
March	146	17	66.5	4,090	A.
April	100	20	61.8	3,680	A.
May	1,310	36	842	51,800	A.
June	1,070	105	391	23,300	A.
July	445	105	220	13,500	A.
August	122	26	54.7	3,360	A.
September	90	26	37.0	2,200	A.
The year	1,310	.....	157	114,000	

MALAD RIVER [1] NEAR BLAINE, IDAHO.

Location.—In sec. 15, T. 1 S., R. 16 E., just below a sheep bridge, which is about 2½ miles above the flow line of the Magic dam reservoir, and 1½ miles below the Central Idaho Railroad bridge, about 4 miles southeast of Blaine; no tributaries between station and reservoir.

Drainage area.—Not measured.

Records available.—May 9, 1912, to September 30, 1914.

Gage.—Lallie water-stage recorder.

Discharge measurements.—Made by wading or from the sheep bridge above the gage.

Channel and control.—Rocky; probably permanent.

Extremes of discharge.—Maximum stage recorded during year, 10.73 feet, by current-meter measurement April 8 (discharge, 3,850 second-feet); minimum stage recorded, 1.09 feet August 12–14 and 16–18 (discharge, 6.1 second-feet).

Winter flow.—Records discontinued during winter.

Diversions.—None between station and reservoir.

Accuracy.—Results good.

Cooperation.—Gage-height record and part of discharge measurements furnished by the Idaho Irrigation Co.

Discharge measurements of Malad River near Blaine, Idaho, during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Apr. 8	Paulsen and Crosby [a]	10.73	3,850	June 30	A. V. Tallman [b]	1.88	47.0
May 9	G. C. Baldwin	3.69	411	Aug. 24	Paulsen and Crosby [a]	1.19	8.1
June 24	L. Crosby [a]	2.15	73.3				

[a] Employee, Idaho Irrigation Co. [b] Employee, Idaho State engineer.

Daily discharge, in second-feet, of Malad River near Blaine, Idaho, for the year ending Sept. 30, 1914.

Day.	June.	July.	Aug.	Sept.	Day.	June.	July.	Aug.	Sept.
1	.....	38	8.9	7.3	16	80	39	6.1	14
2	.....	35	9.1	7.5	17	70	25	6.1	15
3	.....	32	8.6	7.5	18	61	19	6.1	14
4	.....	36	8.9	7.3	19	58	19	7.5	14
5	.....	40	9.4	7.0	20	61	18	9.7	13
6	.....	39	9.4	7.0	21	74	23	8.4	13
7	.....	41	8.4	7.0	22	74	22	8.0	12
8	.....	38	8.0	7.0	23	72	22	8.0	11
9	.....	30	7.7	6.8	24	70	21	8.0	11
10	136	40	7.0	6.8	25	68	20	8.0	11
11	118	43	6.4	6.6	26	74	14	8.0	11
12	114	38	6.1	7.7	27	68	11	7.7	12
13	107	37	6.1	8.9	28	62	10	7.7	13
14	100	41	6.1	10	29	54	11	7.7	15
15	90	42	6.3	13	30	45	10	7.5	14
					31	.....	11	7.5	.....

NOTE.—Discharge determined from a well-defined rating curve. Discharge interpolated June 15–16.

[1] Not Camas Creek; decision of United States Geographic Board.

Monthly discharge of Malad River near Blaine, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
June 10-30	136	45	78.9	3,280	A.
July	43	10	27.9	1,720	A.
August	9.7	6.1	7.69	473	B.
September	15	6.6	10.3	613	B.
The period				6,090	

LITTLE WOOD RIVER NEAR RICHFIELD, IDAHO.

Location.—In sec. 30, T. 4 S., R. 20 E., about 1 mile east of the Richfield railroad station, and about half a mile above the heading of the Dietrich canal.

Drainage area.—Not measured.

Records available.—January 1 to October 9, 1911; May 1, 1912, to September 30, 1914.

Gage.—Vertical staff on right bank.

Discharge measurements.—Made by wading or from a suspension footbridge.

Channel and control.—Large gravel and rock; some weeds.

Extremes of discharge.—Maximum stage recorded during year, 4.25 feet 10 a. m. and 12 noon January 14 (discharge, 144 second-feet); maximum discharge, 440 second-feet (gage height of 4.15 feet) April 17. Minimum stage recorded, 2.13 feet June 25 (discharge, 43 second-feet).

Winter flow.—Discharge relation badly affected by ice; estimates made from discharge measurements.

Diversions.—Two canals divert a short distance below the station.

Accuracy.—Records reliable.

Cooperation.—Prior to May 1, 1912, all data were collected and furnished by the Idaho Irrigation Co.; since that date gage-height and part of discharge measurements record have been furnished by the company.

Discharge measurements of Little Wood River near Richfield, Idaho, during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Dec. 10	C. G. Paulsen	[a] 3.10	152	Apr. 9	Paulsen and Crosby [b]	3.60	316
Jan. 13	Paulsen and Ringland [b]	[a] 4.17	129	May 9	G. C. Baldwin	3.31	263
14	do	[a] 4.25	145	June 22	L. C. Walker [b]	2.48	109
Feb. 9	E. B. Ringland [b]	(a)	108	Aug. 23	C. G. Paulsen	2.71	137

[a] Discharge relation affected by ice.

[b] Employee, Idaho Irrigation Co.

Daily discharge, in second-feet, of Little Wood River near Richfield, Idaho, for the year ending Sept. 30, 1914.

Day.	Apr.	May.	June.	July.	Aug.	Sept.	Day.	Apr.	May.	June.	July.	Aug.	Sept.
1	199	294	150	58	54	148	16	405	230	189	98	108	164
2	199	294	161	58	58	144	17	451	240	156	93	107	169
3	199	283	169	58	61	140	18	405	251	152	77	106	169
4	230	283	209	73	65	142	19	382	251	137	70	110	169
5	272	294	262	89	65	133	20	382	230	103	65	113	166
6	283	294	316	104	65	131	21	405	230	96	58	116	163
7	294	283	316	98	66	140	22	405	220	93	51	118	162
8	294	272	316	93	68	144	23	382	220	86	50	133	160
9	316	251	316	88	72	143	24	360	220	65	46	137	160
10	338	262	272	93	76	143	25	360	230	43	46	138	160
11	360	272	240	98	85	142	26	360	230	44	55	140	160
12	360	267	209	104	94	146	27	338	209	58	54	138	160
13	382	262	209	101	94	150	28	338	181	80	54	137	156
14	382	251	230	96	94	155	29	316	163	80	52	138	158
15	405	240	230	96	101	160	30	316	169	65	54	139	160
							31	.....	150	.....	51	140	.....

NOTE.—Discharge determined from a well-defined rating curve. No record October, November, and March. Discharge interpolated for many days for which gage-height record was missing.

Monthly discharge of Little Wood River near Richfield, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
December	.....	.....	[a] 145	8,920	D.
January	.....	.....	[a] 130	7,990	C.
February	.....	.....	[a] 118	6,550	D.
April	451	199	337	20,100	A.
May	294	150	243	14,900	A.
June	316	43	168	10,000	A.
July	104	46	73.6	4,530	B.
August	140	54	101	6,210	B.
September	169	131	153	9,100	B.

[a] Estimated on account of ice.

DRY CREEK NEAR BLANCHE, IDAHO.

Location.—In sec. 5, T. 4 S., R. 14 E., about 250 feet below proposed diversion dam, one-fourth mile above the old Crist diversion dam, and two-thirds mile above the Crist ranch; about 16 miles northeastof Bliss, and about 10 miles from Blanche post office.

Drainage area.—Not measured.

Records available.—September 24, 1911, to April 30, 1914, when station was discontinued; records incomplete.

Gage.—Vertical staff on right bank. From September 24 to October 28, 1911, a temporary gage at the dam site was used, but gage heights were corrected to readings on new gage datum.

Discharge measurements.—Made from a cable at high stages.

Channel and control.—Gravel; likely to shift.

Extremes of discharge.—Maximum stage recorded during year, 5.4 feet February 20 (discharge estimated, 309 second-feet); minimum stage recorded, 1.8 feet October 1–3 (discharge, 0.9 second-foot).

Winter flow.—Discharge relation not affected by ice.

Accuracy.—Rating curve fairly well defined; records doubtful on account of shifting control.

Cooperation.—Gage-height record furnished by the Bray Lake Reservoir Co.

Discharge measurements of Dry Creek near Blanche, Idaho, during the year ending Sept. 30, 1914.

[Made by C. G. Paulsen.]

Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*
Dec. 9	1.88	1.4
Apr. 7	2.33	23.4

Daily discharge, in second-feet, of Dry Creek near Blanche, Idaho, for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.
1	0.9	1.2	1.4	1.4	3.3	60	86
2	.9	1.2	1.4	3.8	2.2	60	81
3	.9	2.2	1.4	6.2	2.2	49	90
4	1.0	2.8	1.4	4.6	2.8	56	95
5	1.2	26	1.4	5.4	1.4	49	104
6	1.2	78	1.4	6.2	1.4	60	46
7	1.4	3.3	1.4	6.2	2.2	68	24
8	1.8	2.2	1.3	6.2	2.2	81	27
9	1.8	1.4	1.3	4.6	3.3	104	24
10	1.8	1.4	1.3	3.3	4.6	77	24
11	1.8	1.4	1.4	3.3	2.2	119	60
12	1.8	1.4	1.4	3.3	3.3	86	64
13	1.8	1.4	1.4	2.2	4.6	104	53
14	1.8	1.4	1.4	3.3	6.2	114	56
15	2.0	1.4	1.5	2.2	6.2	95	53
16	2.0	1.4	1.6	2.2	8.1	114	46
17	2.0	1.4	1.7	1.4	3.3	99	39
18	2.0	1.4	1.8	8.1	44	119	39
19	1.8	1.4	1.6	3.3	4.6	99	27
20	1.8	1.4	1.4	4.6	309	104	22
21	1.8	1.4	1.4	8.1	104	86	18
22	1.8	1.4	1.4	20	86	95	18
23	1.8	1.4	1.4	8.1	104	77	14
24	1.8	1.4	1.4	8.1	86	90	14
25	1.8	1.4	1.4	50	60	77	13
26	1.6	1.4	1.4	26	53	86	11
27	1.5	31	1.4	8.1	27	68	8.8
28	1.3	3.3	1.4	8.1	86	77	8.8
29	1.2	2.2	1.4	6.2	.....	72	8.8
30	1.2	1.8	1.4	4.6	.....	86	7.7
31	1.2	.....	1.4	4.6	.....	72	.....

NOTE.—Discharge determined from two parallel rating curves; shift in control Feb. 20. Discharge interpolated for many short periods for which gage-height record was lacking.

Monthly discharge of Dry Creek near Blanche, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	2.0	0.9	1.57	96.5	C.
November	78	1.2	6.01	358	C.
December	1.8	1.3	1.43	87.9	C.
January	50	1.4	7.54	464	D.
February	309	1.4	36.5	2,030	D.
March	119	49	84.0	5,160	D.
April	104	7.7	39.4	2,340	C.
The period	.....	.....	.....	10,500	

BRUNEAU RIVER NEAR ROWLAND, NEV.

Location.—In sec. 29, T. 47 N., R. 56 E., at Hiram Salls's ranch, one-half mile below Taylor Creek, 1½ miles above McDonald Creek and Rowland post office, and about 100 miles north of Elko, the nearest railway point.

Drainage area.—Not measured.

Records available.—May 19, 1913, to September 30, 1914.

Gage.—Vertical staff in two sections spiked to left abutment of footbridge at Salls's ranch; read twice daily by Mrs. Hiram Salls.

Discharge measurements.—By wading or from footbridge.

Channel and control.—Bed of stream is of gravel; banks are fairly high, but left bank might overflow at extreme stages. Control is a well defined gravel riffle and appears to be fairly permanent. Point of zero flow, 1.0±.1 on September 1, 1915.

Extremes of discharge.—Maximum discharge (estimated), 972 second-feet (gage height, 5.8 feet) April 17, 1914; minimum discharge, 10 second-feet (gage height, 1.60 feet) August 23 to September 11, 1914.

Winter flow.—Ice does not seriously affect discharge relation, but estimates for short periods are based on observer's notes and temperature and precipitation records.

Diversions.—A few small diversions for ranches above the station.

Accuracy.—Medium and low-stage records apparently good. No discharge measurements have been secured above 250 second-feet nor prior to June 24, 1914.

Discharge measurements of Bruneau River near Rowland, Nev., during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
June 24	L. W. Jordan	2.60	132	July 14	J. P. Martin	2.15	50.0
25	do	2.60	131				

Daily discharge, in second-feet, of Bruneau River near Rowland, Nev., for the years ending Sept. 30, 1913–14.

Day.	May.	June.	July.	Aug.	Sept.	Day.	May.	June.	July.	Aug.	Sept.
1913.						1913.					
1	.....	236	92	66	52	16	.....	283	45	24	21
2	.....	236	92	40	40	17	.....	236	45	24	21
3	.....	236	92	31	31	18	.....	214	35	24	21
4	.....	214	92	31	31	19	225	192	29	24	21
5	.....	214	92	40	31	20	214	171	24	24	21
6	.....	214	92	40	24	21	236	150	24	24	24
7	.....	214	74	40	24	22	203	111	24	24	24
8	.....	192	74	40	24	23	203	111	24	17	31
9	.....	192	74	40	24	24	203	111	31	12	31
10	.....	192	58	31	24	25	283	171	58	12	24
11	.....	383	58	31	24	26	283	130	92	12	24
12	.....	370	58	31	24	27	283	111	111	58	24
13	.....	320	45	24	24	28	283	111	111	58	24
14	.....	320	45	24	24	29	283	92	111	40	24
15	.....	283	45	24	21	30	283	92	74	58	24
						31	283	.....	66	58	.....

Daily discharge, in second-feet, of Bruneau River near Rowland, Nev., for the years ending Sept. 30, 1913–14—Continued.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1913-14.												
1	24	31	24	31	40	74	225	409	248	74	20	10
2	24	31	24	31	40	74	248	357	320	74	20	10
3	24	31	24	31	40	83	320	409	409	58	20	10
4	24	31	24	31	40	83	462	462	357	66	20	10
5	24	35	24	31	40	102	570	462	357	58	20	10
6	24	35	24	31	40	102	883	462	320	58	20	10
7	24	35	24	31	35	120	912	462	295	58	19	10
8	27	35	24	31	31	120	854	462	271	58	19	10
9	40	35	24	31	31	150	854	516	271	55	16	10
10	33	35	24	31	31	182	738	570	271	55	14	10
11	31	52	24	35	31	182	738	516	271	45	14	10
12	31	52	24	35	31	203	626	516	248	45	14	14
13	31	74	24	35	31	225	570	462	225	45	14	14
14	31	74	24	35	31	225	738	462	203	45	14	14
15	31	74	24	35	35	271	738	435	192	45	14	14
16	31	58	24	35	35	320	738	462	192	40	12	20
17	31	58	24	35	35	357	972	462	192	37	12	20
18	31	52	24	52	45	409	912	409	160	35	12	20
19	31	52	24	27	45	409	854	409	160	33	12	20
20	31	52	24	27	58	462	796	409	214	33	11	20
21	31	52	24	35	130	462	796	409	214	33	11	20
22	31	35	24	92	92	462	738	409	225	33	11	20
23	31	31	24	74	74	109	738	383	203	33	10	20
24	31	27	24	58	74	409	682	383	160	31	10	20
25	31	24	24	58	74	320	682	357	130	27	10	20
26	31	24	24	92	74	295	626	357	120	27	10	20
27	31	24	24	52	74	295	570	320	111	26	10	20
28	31	24	27	52	74	295	516	295	92	24	10	20
29	31	24	27	40	.....	248	462	271	66	24	10	20
30	31	24	27	40	.....	225	409	248	66	20	10	20
31	31	.....	31	40	.....	225	.....	248	.....	20	10	.....

NOTE.—Discharge determined from a rating curve well defined below 300 second-feet. No discharge measurements obtained prior to June 24, 1914, and all open-water estimates are based on the assumption of permanent discharge relation. Discharge relation slightly affected by ice Nov. 25 to Dec. 30, 1913, and from Feb. 7–15, 1914; estimates based on observer's notes and temperature and precipitation records.

Monthly discharge of Bruneau River near Rowland, Nev., for the years ending Sept. 30, 1913–14.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
1913.					
May 19–31	283	203	251	6,480	B.
June	383	92	203	12,100	B.
July	111	24	64.1	3,940	B.
August	66	12	33.1	2,040	B.
September	52	21	26.0	1,550	B.
The period	.....	.....	.....	26,100	
1913-14.					
October	40	24	29.6	1,820	B.
November	74	24	40.7	2,420	B.
December	31	24	24.5	1,510	C.
January	92	27	41.7	2,560	B.
February	130	31	50.4	2,800	B.
March	462	74	252	15,500	B.
April	972	225	666	39,600	C.
May	570	248	413	25,400	B.
June	409	66	219	13,000	A.
July	74	20	42.4	2,610	A.
August	20	10	13.8	848	B.
September	20	10	15.5	922	B.
The year	972	10	151	109,000	

BRUNEAU RIVER NEAR HOT SPRING, IDAHO.

Location.—In sec. 34, T. 7 S., R. 6 E., at Dunham's ranch, about 2 miles above Hot Spring post office; below all important tributaries except Jacks and Wickahoney creeks.

Drainage area.—Not measured.

Records available.—July 3, 1909, to September 30, 1914.

Gage.—Vertical staff on right bank close to Dunham's house; installed March 12, 1910, to replace gage about one-fourth mile upstream, which was destroyed by flood March 2, 1910; datum of new gage unrelated to that of original gage.

Discharge measurements.—Made from cable at gage or by wading.

Channel and control.—Coarse gravel and rocks; fairly permanent.

Extremes of discharge.—Maximum stage recorded during year, 6.95 feet at 9 a. m. May 11 (discharge, 1,920 second-feet). Upon several occasions throughout the winter months the water fell below the gage. Estimates were made to cover these periods; lowest estimate, 50 second-feet December 21 and 22.

Winter flow.—Discharge relation not affected by ice.

Diversions.—Small ranch diversions only above this station. Buckaroo ditch takes out about 1 mile below station; the storage and diversion dam of the Owyhee Land & Irrigation Co. is about 20 miles below.

Accuracy.—Records reliable.

Discharge measurements of Bruneau River near Hot Spring, Idaho, during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Dec. 7	C. G. Paulsen	4.13	123	Apr. 26	A. W. Harrington	6.58	1,640
Feb. 13	L. W. Roush	4.42	212	Sept. 23	A. B. Purton	3.93	105
13	do	4.36	218				

Daily discharge, in second-feet, of Bruneau River near Hot Spring, Idaho, for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	93	160	160	831	144	1,180	571	1,180	1,320	538	136	76
2	93	160	130	511	93	970	511	1,110	1,480	511	149	76
3	93	160	93	346	55	571	633	1,140	1,800	484	149	76
4	93	144	55	253	55	398	797	1,250	1,720	484	136	76
5	93	144	55	253	93	398	1,040	1,400	1,560	594	122	76
6	117	144	55	211	60	1,040	1,320	1,320	1,400	484	122	76
7	93	144	105	211	60	602	1,720	1,400	1,250	432	136	76
8	117	175	93	211	60	763	1,640	1,560	1,180	407	122	76
9	144	211	117	211	60	763	1,480	1,640	1,110	382	122	76
10	144	193	117	93	93	831	1,400	1,720	1,110	358	110	76
11	144	160	117	55	144	831	1,480	1,960	904	382	110	76
12	144	144	144	55	175	763	1,480	1,800	838	382	110	76
13	144	144	144	55	211	900	1,320	1,720	838	335	98	76
14	144	211	160	211	211	697	1,250	1,640	904	313	98	76
15	144	211	144	211	144	763	1,480	1,720	904	291	98	76
16	160	211	160	175	130	831	1,560	1,800	904	270	87	76
17	144	175	144	175	144	935	1,720	1,880	871	270	87	98
18	144	175	144	175	144	1,040	1,480	1,880	871	232	87	122
19	144	193	144	175	175	1,110	1,320	1,720	904	196	87	122
20	160	144	93	144	276	1,140	1,320	1,800	904	196	98	110
21	160	144	50	93	322	1,110	1,640	1,800	904	196	110	110
22	160	144	50	93	1,140	1,110	1,800	1,800	904	213	122	110
23	160	144	93	298	1,040	1,040	1,880	1,800	774	196	76	110
24	144	117	130	253	511	970	1,640	1,800	712	179	76	98
25	144	130	144	175	453	900	1,640	1,720	652	179	76	98
26	144	193	175	298	453	831	1,640	1,560	682	164	76	98
27	144	175	117	900	232	730	1,480	1,480	623	149	76	98
28	144	160	93	1,040	211	665	1,480	1,320	594	149	76	98
29	144	160	55	253	.....	571	1,320	1,180	594	149	76	98
30	144	160	93	144	.....	571	1,250	1,320	566	136	76	98
31	144	.....	175	144	.....	571	.....	1,320	.....	136	76	.....

NOTE.—Discharge determined from two well-defined rating curves. Discharge estimated Dec. 4–6, 21–22, 29; Jan. 11–13; Feb. 3, 4, and 6–9, when water was below gage.

Monthly discharge of Bruneau River near Hot Spring, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	160	93	135	8,300	B.
November	211	130	164	9,760	B.
December	175	50	114	7,010	B.
January	1,040	55	266	16,400	B.
February	1,140	55	246	13,700	B.
March	1,180	398	826	50,800	A.
April	1,880	511	1,380	82,100	A.
May	1,960	1,110	1,570	96,500	A.
June	1,800	566	993	59,100	B.
July	594	136	303	18,600	B.
August	149	76	103	6,330	B.
September	122	76	89.5	5,330	B.
The year	1,960	50	516	374,000	

BUCKAROO DITCH AT HOT SPRING, IDAHO.

Location.—In sec. 22, T. 7 S., R. 6 E., at the bridge across the canal at Hot Spring post office, about 1 mile below canal heading.

Records available.—April 12, 1912, to June 3, 1914, when station was discontinued.

Gage.—Vertical staff on upstream side of bridge, left bank.

Discharge measurements.—Made from bridge or by wading.

Channel and control.—Poorly defined; earth section; growth of aquatic plants causes backwater.

Extremes of discharge.—Maximum stage recorded during year, 4.05 feet at 8.30 a. m. May 24 (discharge, 61 second-feet); no flow December 20 to January 3, March 12–31, and April 12–18, inclusive.

Winter flow.—Small flow maintained for watering stock.

Diversions.—None above station except the wasteway.

Accuracy.—Results approximate.

Cooperation.—Gage-height record furnished by J. M. Waterhouse.

Discharge measurements of Buckaroo ditch at Hot Spring, Idaho, during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Dec. 6	C. G. Paulsen	2.66	3.7	Apr. 26	A. W. Harrington	3.70	41.8
Feb. 12	L. W. Roush	2.50	1.9	Sept. 24	A. B. Purton	2.68	4.9

Daily discharge, in second-feet, of Buckaroo ditch at Hot Spring, Idaho, for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.
1	9.7	11	3.6	.....	1.1	7.3	.....	52	32
2	10	12	3.6	.....	1.1	1.9	1.9	52	37
3	10	12	3.6	.....	1.1	1.9	1.9	52	50
4	10	12	3.6	9.3	1.1	1.1	1.9	47	.....
5	10	12	3.6	9.3	1.1	1.1	4.0	32	.....
6	10	12	3.6	9.3	1.1	1.1	4.0	35	.....
7	11	12	3.6	.6	1.1	1.1	4.0	35	.....
8	11	12	3.6	.6	1.1	1.1	4.0	35	.....
9	12	11	3.0	.6	1.1	1.1	23	37	.....
10	13	5.0	3.0	.6	1.1	1.1	23	40	.....
11	13	5.0	3.0	1.9	1.1	1.1	9.3	42	.....
12	13	5.8	3.0	1.9	1.9	.....	.....	42	.....
13	13	5.8	3.0	1.9	1.9	.....	.....	40	.....
14	13	7.6	3.0	1.9	1.9	.....	.....	40	.....
15	13	8.6	3.0	1.9	1.9	.....	.....	40	.....
16	13	6.7	3.0	1.9	1.5	.....	.....	40	.....
17	13	6.7	3.0	1.9	1.5	.....	.....	42	.....
18	13	6.7	3.0	1.9	1.9	.....	.....	42	.....
19	13	6.7	3.0	1.9	1.9	.....	47	35	.....
20	13	6.7	.....	6.4	1.9	.....	47	47	.....
21	13	6.7	.....	6.4	1.9	.....	47	50	.....
22	13	7.6	.....	1.9	2.8	.....	47	52	.....
23	13	7.6	.....	1.9	2.8	.....	47	52	.....
24	13	7.6	.....	1.9	2.8	.....	45	61	.....
25	13	7.6	.....	1.5	2.8	.....	45	58	.....
26	12	7.6	.....	1.5	5.5	.....	47	58	.....
27	12	7.6	.....	1.5	5.5	.....	42	55	.....
28	12	7.6	.....	1.5	5.5	.....	42	58	.....
29	12	13	.....	1.5	.....	.....	46	58	.....
30	12	13	.....	1.5	.....	.....	55	45	.....
31	12	.....	.....	1.5	.....	.....	.....	30	.....

NOTE.—Rating curves poorly defined on account of backwater from growth of aquatic plants. Ditch dry Dec. 20 to Jan. 3; Mar. 12 to Apr. 1; Apr. 12–18. Discharge interpolated Oct. 31.

Daily discharge, in second-feet, of Grandview canal at near Grandview, Idaho, for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Apr.	May.	June.	July.	Aug.	Sept.
1	52	26	33	142	88	136	106	40
2	52	16	33	142	88	136	106	40
3	52	16	58	142	88	136	106	40
4	57	16	58	142	78	136	112	40
5	57	16	58	142	94	118	118	40
6	57	16	68	142	106	118	118	40
7	52	16	68	142	136	0	100	40
8	52	16	78	142	136	0	94	40
9	48	16	78	142	136	0	83	40
10	48	16	100	142	142	0	83	40
11	48	16	106	148	148	112	78	44
12	48	16	106	154	124	112	78	44
13	48	16	112	154	118	112	78	44
14	44	16	124	154	0	118	78	44
15	30	16	124	154	0	118	78	44
16	30	16	124	154	118	118	78	44
17	30	16	124	154	118	118	58	48
18	30	16	124	148	112	118	58	52
19	30	11	130	148	136	112	53	52
20	30	11	130	136	112	112	49	52
21	30	11	130	136	118	100	49	40
22	30	11	130	142	118	100	49	42
23	30	11	124	148	118	100	41	52
24	32	11	124	161	124	100	33	52
25	31	.....	106	0	124	100	36	52
26	27	.....	106	0	130	100	42	52
27	26	.....	106	0	130	106	41	52
28	26	.....	106	78	130	106	40	52
29	26	.....	112	94	130	106	40	57
30	26	.....	130	118	136	106	40	57
31	26	.....	.....	118	.....	106	40	.....

NOTE.—Discharge determined from three parallel rating curves. Discharge Nov. 25 to Mar. 10 estimated at 7 second-feet. Canal dry Mar. 11–31; May 25–27, June 14–15, July 7–10.

Monthly discharge of Grandview canal near Grandview, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	57	26	38.9	2,390	D.
November	26	.....	13.5	803	D.
December	.....	.....	7.0	430	C.
January	.....	.....	7.0	430	C.
February	.....	.....	7.0	389	C.
March	.....	0	2.26	139	C.
April	130	33	100	5,950	B.
May	161	0	126	7,750	B.
June	148	0	111	6,600	C.
July	136	0	98.7	6,070	C.
August	118	33	69.8	4,290	C.
September	57	40	45.9	2,730	B.
The year	161	0	52.5	38,000	

BRUNEAU RIVER NEAR GRANDVIEW, IDAHO.

Location.—In sec. 1, T. 6 S., R. 4 E., about one-fourth mile below the diversion dam of the Owyhee Land & Irrigation Co., 10 miles east of Grandview, and about 1½ miles above mouth of Bruneau River; below all tributaries.

Drainage area.—Not accurately known.

Monthly discharge of Buckaroo ditch at Hot Spring, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	13	9.7	12.1	744	D.
November	13	5.0	8.77	522	D.
December	3.6	0	1.99	122	C.
January	9.3	0	2.46	151	D.
February	5.5	1.1	2.07	115	D.
March	7.3	0	.64	39.4	D.
April	55	0	21.1	1,260	C.
May	61	30	45.3	2,790	C.
June 1–3	50	32	39.7	236	C.
The period				5,980	

GRANDVIEW CANAL NEAR GRANDVIEW, IDAHO.

Location.—In sec. 35, T. 5 S., R. 4 E., at the bridge where the road from Comet post office (discontinued) to Grandview crosses the canal; about 10 miles east of Grandview and about 1 mile below the dam of the Owyhee Land & Irrigation Co.

Records available.—April 11, 1912, to September 30, 1914.

Gage.—Vertical staff at downstream side of the bridge, right bank.

Discharge measurements.—Made from the bridge or by wading. Conditions for wading good.

Channel and control.—Earth section; shifts; covered in summer with aquatic plants.

Extremes of discharge.—Maximum stage recorded during year, 5.4 feet May 24 (discharge, 161 second-feet); no flow March 11–31, May 25–27, June 14–15, and July 7–10.

Winter flow.—Stock water is run at times during the winter, but gage readings are discontinued.

Diversions.—Only two small ranch diversions above the station.

Accuracy.—Records fair.

Discharge measurements of Grandview canal near Grandview, Idaho, during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Dec. 4	C. G. Paulsen	2.47	7.4	Apr. 27	A. W. Harrington	4.50	106
Feb. 15	L. W. Roush	2.43	7.1	Sept. 22	A. B. Purton	3.80	43.4

Monthly discharge of Bruneau River near Grandview, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	143	98	121	7,440	A.
November	198	112	155	9,220	A.
December	178	85	131	8,060	B.
January	617	85	242	14,900	B.
February	993	112	272	15,100	A.
March	1,220	416	860	52,900	A.
April	1,700	478	1,260	75,000	A.
May	1,990	860	1,460	89,800	A.
June	1,600	359	847	50,400	A.
July	447	16	170	10,500	A.
August	16	16	16	984	B.
September	98	16	46.4	2,760	A.
The year	1,990	16	465	337,000	

MARYS CREEK NEAR OWYHEE, NEV.

Location.—In sec. 19, T. 15 S., R. 15 E., 7 miles north of Nevada-Idaho line, 12 miles northeast of Owyhee, 3½ miles above the diversion to the Riddle Reservoir, and 3 miles below the Indian Meadow dam site.

Drainage area.—About 30 square miles.

Records available.—December 11, 1913, to September 30, 1914.

Gage.—Stevens water-stage recorder.

Discharge measurements.—Made from footbridge or by wading.

Channel and control.—Rocks and sand; fairly permanent.

Accuracy.—Records good except for periods of extreme low water.

Records show the amount of water available for the Three Creeks Reservoir project of the United States Indian Service.

Discharge measurements of Marys Creek near Owyhee, Nev., during the year ending Sept. 30, 1914.

[Made by Frank Weber.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*		*Feet.*	*Sec.-ft.*		*Feet.*	*Sec.-ft.*
Dec. 11	a 2.10	3.8	May 24	2.76	42.7	May 7	3.11	65.7
Jan. 30	a 2.11	5.8	31	2.36	14.4	28	2.80	39.8
Feb. 21	a 2.30	6.0	Apr. 15	3.58	120	June 25	2.40	14.5
Mar. 16	a 2.90	41.3	16	3.26	90.2			

a Discharge relation affected by ice.

Records available.—January 1, 1895, to December 31, 1903; May 1, 1909, to September 30, 1914.

Gage.—Vertical staff installed March 10, 1910, to replace gage destroyed by flood March 2, 1910; datum of new gage 0.87 foot lower than that of gages previously used.

Discharge measurements.—Made from cable just above gage or by wading.

Channel and control.—Gravel; shifts at extreme stages.

Extremes of discharge.—Maximum stage recorded during year, 5.0 feet May 28 (discharge, 1,990 second-feet); minimum stage recorded, 2.0 feet July 31 to September 14 (discharge, 16 second-feet).

Winter flow.—Discharge relation not seriously affected by ice.

Diversions.—None below station. The canal of the Owyhee Land & Irrigation Co. (capacity about 250 second-feet) diverts water about one-fourth mile above the station.

Accuracy.—Rating curve well defined; records reliable.

Discharge measurements of Bruneau River near Grandview, Idaho, during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Dec. 4	C. G. Paulsen	2.50	118	Apr. 24	A. W. Harrington	4.53	1,530
8	do	2.56	129	Sept. 22	A. B. Purton	2.35	73.5
Feb. 15	L. W. Roush	2.72	194				

Daily discharge, in second-feet, of Bruneau River near Grandview, Idaho, for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	98	112	141	333	217	416	545	948	1,220	359	16	16
2	112	112	131	416	178	1,040	478	948	1,320	333	16	16
3	112	112	122	359	178	775	545	860	1,510	307	16	16
4	112	112	112	307	178	545	694	1,040	1,600	260	16	16
5	112	112	112	260	178	478	860	1,130	1,600	447	16	16
6	112	112	112	260	143	416	1,220	1,130	1,320	447	16	16
7	112	112	112	217	128	656	1,600	1,130	1,220	359	16	16
8	112	112	143	217	112	904	1,600	1,220	1,040	333	16	16
9	112	128	128	217	112	948	1,410	1,320	948	260	16	16
10	128	128	112	178	112	1,040	1,320	1,510	775	178	16	16
11	128	143	128	143	198	948	1,320	1,600	775	260	16	16
12	128	143	128	112	198	948	1,410	1,600	775	217	16	16
13	128	178	143	85	260	860	1,220	1,600	775	160	16	16
14	128	178	160	217	260	775	1,130	1,410	775	160	16	16
15	128	198	160	217	198	860	1,220	1,510	734	143	16	28
16	128	198	178	178	160	860	1,410	1,600	734	85	16	62
17	128	198	160	198	143	1,040	1,510	1,600	694	112	16	85
18	128	198	178	178	178	1,220	1,410	1,600	656	85	16	85
19	128	178	143	217	198	1,220	1,220	1,600	617	85	16	85
20	128	178	128	160	217	1,220	1,220	1,510	775	85	16	98
21	143	178	112	160	307	1,130	1,410	1,600	860	74	16	74
22	143	178	85	143	860	1,130	1,600	1,600	904	62	16	74
23	143	178	98	217	993	1,040	1,700	1,700	734	85	16	74
24	143	178	85	307	694	1,040	1,600	1,800	581	62	16	85
25	143	178	128	217	416	948	1,510	1,800	478	62	16	85
26	143	178	178	217	307	860	1,510	1,800	478	62	16	85
27	112	160	143	617	284	860	1,410	1,890	416	52	16	62
28	98	160	112	416	217	694	1,410	1,990	388	52	16	62
29	98	160	98	307	.....	617	1,130	1,700	359	43	16	62
30	98	150	112	217	.....	617	1,040	1,410	359	28	16	62
31	98	.....	178	217	.....	545	.....	1,220	.....	16	16	.....

NOTE.—Discharge determined from a well-defined rating curve.

Daily discharge, in second-feet, of Marys Creek near Owyhee, Nev., for the year ending Sept. 30, 1914.

Day.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	.....	6.4	5.8	6.0	18	44	29	8.2	4.0	3.1
2	.....	6.2	5.8	6.0	47	46	.....	7.3	4.0	3.1
3	.....	5.9	5.8	6.2	70	54	.....	6.6	4.0	3.1
4	.....	.....	5.8	6.2	89	62	.....	7.3	4.0	3.1
5	.....	.....	5.8	6.4	127	63	.....	6.8	3.7	3.1
6	.....	.....	5.8	6.4	109	64	.....	6.8	3.5	3.0
7	.....	.....	5.8	6.8	92	67	.....	6.3	3.4	3.1
8	.....	.....	5.8	8.0	80	71	.....	6.1	3.4	3.1
9	.....	.....	5.8	17	84	76	.....	5.9	3.4	3.2
10	.....	.....	5.8	56	97	80	.....	6.1	3.2	3.2
11	3.7	.....	5.8	43	74	76	.....	5.9	3.1	3.4
12	3.7	.....	5.8	40	73	70	.....	5.7	3.0	3.7
13	3.7	.....	5.9	40	92	65	.....	5.5	3.0	4.0
14	3.7	.....	5.9	40	98	62	.....	5.0	2.8	4.0
15	3.7	.....	5.9	42	106	72	.....	5.0	2.8	5.9
16	3.7	.....	5.9	42	93	82	.....	4.6	2.7	8.5
17	3.7	.....	5.9	43	79	70	.....	4.5	2.7	9.4
18	3.7	.....	5.9	43	73	62	.....	4.3	2.7	7.3
19	3.7	.....	5.9	44	81	57	.....	4.0	2.7	6.1
20	3.7	.....	6.0	45	87	54	.....	4.2	2.6	6.3
21	3.8	.....	6.0	45	106	53	.....	4.4	2.6	6.3
22	3.8	.....	6.0	46	88	50	.....	4.6	2.7	6.1
23	3.9	.....	6.0	46	81	48	.....	4.8	2.6	6.1
24	3.9	.....	6.0	46	80	50	.....	4.8	2.7	6.1
25	4.0	.....	6.0	35	73	52	14.5	4.6	2.6	5.9
26	4.0	.....	6.0	29	61	47	15	4.2	2.7	5.2
27	4.0	.....	6.0	24	63	41	13.6	4.2	2.7	3.8
28	4.0	.....	6.0	22	54	36	11.8	4.0	2.8	3.7
29	4.0	5.7	.....	21	46	32	9.7	3.8	2.8	3.7
30	4.3	5.9	.....	18	45	30	8.8	3.8	2.9	3.7
31	5.2	6.2	.....	16	.....	28	.....	3.7	3.0	.....

NOTE.—Discharge determined from two well-defined curves, one applicable Dec. 11 to Apr. 18, the other Apr. 21 to Sept. 30. Mean flow June 2–24 estimated as 22 second-feet. Discharge interpolated July 21–22, Aug. 27–31, and Sept. 30.

Monthly discharge of Marys Creek near Owyhee, Nev., for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
December 11–31	5.2	3.7	3.90	162	C.
January	.....	.....	[a] 5.8	357	C.
February	6.0	5.8	5.89	327	B.
March	56	6.0	28.9	1,780	B.
April	127	18	78.9	4,690	A.
May	82	28	56.9	3,500	A.
June	.....	8.8	20.3	1,210	C.
July	8.2	3.7	5.26	323	C.
August	4.0	2.6	3.06	188	C.
September	9.4	3.0	4.68	278	C.
The period	.....	.....	.....	12,800	

[a] Estimated.

EAST FORK OF BRUNEAU RIVER NEAR THREE CREEK, IDAHO.

Location.—In sec. 7 (approximate), T. 16 S., R. 11 E., in the lower end of the field at the Dunn ranch, about 4 miles by road southwest of Three Creek store; river enters the canyon a short distance below.

Drainage area.—Not measured.

Records available.—November 10, 1912, to June 30, 1914.

Gage.—Vertical staff on right bank.

Discharge measurements.—Made by wading or from a footbridge.

Channel and control.—Clay and fine gravel; at times moss covered.

Extremes of discharge.—Maximum stage recorded during year, 2.05 feet May 16 (discharge, 110 second-feet); minimum stage recorded, 0.31 foot February 16 (discharge, 3.9 second-feet).

Winter flow.—Discharge relation not much affected by ice, as stream is fed largely by springs.

Diversions.—Some water is used above station to irrigate hay meadows.

Accuracy.—Rating curves fairly well defined; records fair.

Cooperation.—Gage-height record furnished by the West End-Twin Falls Irrigation Co.

Discharge measurements of East Fork of Bruneau River near Three Creek, Idaho, during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Oct. 8	L. W. Jordan	0.48	6.1	Apr. 9	J. W. Strohecker	1.12	43.0
Jan. 18	Purton and Strohecker	.37	4.9	11	do	1.07	37.5
22	J. W. Strohecker	.38	5.3	15	do	1.32	52.2
24	do	.60	10.5	17	do	1.54	69.1
26	do	.42	6.2	22	do	1.68	81.1
30	do	.38	4.7	23	do	1.76	90.2
Feb. 6	do	.38	4.6	29	do	1.50	69.5
7	do	.35	4.3	May 5	do	1.82	89.4
16	do	.31	3.9	8	do	1.86	93.2
20	do	.55	11.1	11	do	2.01	106
Mar. 5	do	.45	7.7	16	do	2.05	106
8	do	.59	15.1	18	do	2.01	104
11	do	.66	18.8	26	do	1.82	84.6
17	do	.83	23.3	27	do	1.73	74.0
27	do	.69	18.6	July 16	L. W. Roush	.85	12.8
Apr. 7	do	1.17	44.4				

Daily discharge, in second-feet, of East Fork of Bruneau River near Three Creek, Idaho, for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.
1	6.2	5.7	5.0	4.9	4.6	9.0	17	57	70
2	6.2	5.7	4.9	4.6	4.5	11	18	59	66
3	6.2	5.7	4.9	4.9	4.3	7.5	20	74	66
4	6.2	5.7	4.8	5.1	4.3	7.4	24	85	65
5	6.2	5.7	4.8	5.4	4.3	7.7	29	89	68
6	6.4	5.7	4.8	5.3	4.6	9.2	37	84	61
7	6.4	5.8	4.8	4.9	4.3	13	42	84	51
8	6.2	6.0	4.8	4.9	4.3	16	39	95	49
9	6.2	6.0	4.8	4.6	4.3	20	39	106	44
10	6.2	6.0	4.5	4.6	4.3	20	36	110	36
11	6.4	6.3	4.4	4.9	4.3	18	37	106	38
12	6.4	6.3	4.4	4.9	4.3	17	36	104	34
13	6.2	6.3	4.4	4.6	4.2	16	36	101	33
14	6.2	6.0	4.5	4.6	4.1	17	42	101	31
15	6.2	6.0	4.5	4.8	4.0	19	52	106	31
16	6.2	6.0	4.8	4.9	3.9	21	72	110	29
17	6.2	5.7	4.6	4.8	4.0	23	71	106	25
18	6.2	5.7	4.4	4.9	5.3	24	62	106	26
19	6.2	5.7	4.4	4.9	6.4	25	57	102	25
20	6.2	5.7	4.4	5.0	11	24	67	103	27
21	6.2	5.7	4.4	5.1	12	22	84	100	29
22	6.2	5.1	4.5	5.3	10	22	80	95	26
23	5.9	5.1	4.4	5.8	8.0	21	86	98	24
24	5.9	5.1	4.4	8.6	7.0	21	88	94	23
25	5.9	5.1	4.4	7.4	7.0	20	85	88	22
26	5.9	5.1	4.4	6.3	7.1	20	81	81	21
27	5.8	5.2	4.4	6.7	6.7	18	77	74	21
28	5.8	5.2	4.4	5.0	17	18	72	74	20
29	5.8	5.1	4.4	4.6	.....	18	67	71	19
30	5.8	5.1	4.4	4.6	.....	17	59	70	18
31	5.8	.....	4.4	4.6	.....	17	.....	70	.....

NOTE.—Discharge determined from several parallel rating curves. Discharge estimated Dec. 28–29 on account of ice.

Monthly discharge of East Fork of Bruneau River near Three Creek, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	6.4	5.8	6.12	376	C.
November	6.3	5.1	5.65	336	C.
December	5.0	4.4	4.56	280	C.
January	8.6	4.6	5.21	320	C.
February	17	3.9	6.08	338	B.
March	25	7.4	17.4	1,070	B.
April	88	17	53.7	3,200	A.
May	110	57	90.5	5,560	A.
June	70	18	36.6	2,180	C.
The period				13,700	

EAST FORK OF BRUNEAU RIVER NEAR HOT SPRING, IDAHO.

Location.—On unsurveyed land at the J. E. Wilkins ranch known as Winter Camp, about 22 miles from Hot Spring post office.

Drainage area.—Not measured.

Records available.—August 13, 1910, to September 30, 1914.

Gage.—Vertical staff on left bank at lower end of the Valley, and about three-fourths mile below the ranch house.

Discharge measurements.—Made from a suspension footbridge just below the gage or by wading.

Channel and control.—Apparently permanent; channel composed of gravel and sand; shifts at measuring section.

Extremes of discharge.—Maximum stage recorded during year, 10.3 feet at 5.30 p. m. February 22 and 9.30 a. m. February 23 (approximate discharge, 449 second-feet, dreived from extension of rating table); minimum stage recorded, 3.43 feet September 1–14, inclusive (discharge, 5.6 second-feet).

Winter flow.—Discharge relation affected by ice.

Diversions.—Small ranch diversions only.

Accuracy.—Rating curve well defined. Gage-height record uncertain at times.

Discharge measurements of East Fork of Bruneau River near Hot Spring, Idaho, during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Dec. 7	C. G. Paulsen	3.65	8.4	Apr. 25	A. W. Harrington	6.96	172
Feb. 14	L. W. Roush	4.55	19.6	Sept. 24	A. B. Purton	3.63	9.1
14	do	4.39	20.2				

Daily discharge, in second-feet, of East Fork of Bruneau River near Hot Spring, Idaho, for the year ending Sept. 30, 1914.

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	10	8.9	10	.....	.....	324	.....	124	112	30	7.1	5.6
2	8.9	8.9	9	.....	.....	324	.....	112	100	20	7.1	5.6
3	8.9	10	9	.....	.....	136	.....	100	100	17	7.1	5.6
4	8.9	10	8	.....	.....	83	.....	118	100	292	7.1	5.6
5	8.9	10	8	.....	.....	56	.....	130	118	20	10	5.6
6	10	12	8	.....	.....	51	.....	130	124	20	8.9	5.6
7	12	12	8	.....	.....	46	.....	148	130	17	7.1	5.6
8	10	12	8	.....	.....	118	.....	136	112	17	7.1	5.6
9	10	12	8	.....	.....	106	.....	130	112	17	8.9	5.6
10	10	12	8	.....	.....	88	.....	148	100	15	8.9	5.6
11	10	12	8	.....	.....	83	.....	176	88	15	8.9	5.6
12	10	12	8	.....	.....	72	.....	197	78	15	8.9	5.6
13	10	12	8	.....	.....	61	.....	190	72	15	8.9	5.6
14	12	12	8	.....	20	58	.....	176	72	15	8.9	5.6
15	12	12	8	.....	19	56	.....	169	61	15	8.9	7.1
16	12	12	8	.....	18	56	.....	176	56	10	8.9	10
17	10	12	8	.....	17	56	.....	197	51	10	8.9	10
18	10	12	8	.....	15	61	.....	204	46	8.9	8.9	12
19	10	12	8	30	83	66	.....	204	42	8.9	8.9	12
20	10	12	8	30	100	66	.....	183	42	8.9	8.9	8.9
21	8.9	12	8	34	118	66	.....	190	42	8.9	7.1	8.9
22	8.9	12	8	34	386	56	.....	176	42	8.9	7.1	8.9
23	8.9	12	8	38	386	56	.....	169	42	8.9	7.1	8.9
24	8.9	12	8	46	142	56	.....	169	42	8.9	7.1	8.9
25	8.9	12	8	124	83	51	176	169	42	8.9	7.1	8.9
26	8.9	12	8	183	78	56	190	176	42	8.9	7.1	8.9
27	8.9	12	8	212	56	56	190	176	42	7.1	7.1	8.9
28	8.9	11	8	130	46	56	183	162	42	7.1	7.1	8.9
29	8.9	11	8	56	.....	56	169	130	38	7.1	7.1	8.9
30	8.9	10	8	42	.....	46	142	124	38	7.1	7.1	8.9
31	8.9	.....	8	30	.....	46	.....	112	.....	7.1	6.4	.....

NOTE.—Discharge determined from a well-defined rating curve. Discharge relation affected by ice Nov. 28 to Jan. 18 and Feb. 1-13. Discharge estimated Jan. 1-18, 10 second-feet; Feb. 1-13, 15 second-feet; Apr. 1-16, 56 second-feet; Apr. 17-24, 110 second-feet.

Monthly discharge of East Fork of Bruneau River near Hot Spring, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	12	8.9	9.73	598	B.
November	12	8.9	11.5	684	C.
December	10	8	8.13	500	C.
January	212	.....	37.7	2,320	C.
February	386	.....	62.9	3,490	C.
March	324	46	82.8	5,090	B.
April	190	.....	94.2	5,610	D.
May	204	100	158	9,720	C.
June	130	38	70.9	4,220	C.
July	292	7.1	21.8	1,340	C.
August	10	6.4	7.93	488	C.
September	12	5.6	7.58	451	B.
The year	386	5.6	47.7	34,500	

THREE CREEK NEAR THREE CREEK, IDAHO.

Location.—In sec. 27, T. 15 S., R. 11 E., just below mouth of Deer Creek, about 1½ miles north of Three Creek post office, and about 4 miles below proposed diversion by West End Twin Falls Irrigation Co.

Drainage area.—Not measured.

Records available.—November 9, 1912, to June 30, 1914.

Gage.—Vertical staff on left bank.

Discharge measurements.—Made by wading or from footbridge.

Channel and control.—Gravel and mud; likely to shift; during very high stages water overflows both banks.

Extremes of discharge.—Maximum stage recorded during year, 3.68 feet at 2.30 p. m. April 24 (discharge, 71 second-feet); minimum stage recorded, 0.63 foot February 6 (discharge, 0.8 second-foot).

Winter flow.—Discharge relation not affected by ice.

Accuracy.—Conditions unfavorable for accurate results, but sufficient current-meter measurements were made during the periods of appreciable run-off to insure reliable records.

Discharge measurements of Three Creek near Three Creek, Idaho, during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Oct. 8	L. W. Jordan	0.86	2.8	Mar. 17	J. W. Strohecker	1.71	20.6
Jan. 18	Purton and Strohecker	.76	2.2	31	do	1.21	11.6
22	J. W. Strohecker	.77	2.1	Apr. 11	do	1.55	18.8
24	do	1.55	18.5	16	do	2.04	28.2
30	do	.78	2.7	21	do	2.40	35.5
Feb. 6	do	.63	.8	23	do	3.16	55.3
11	do	.74	2.2	24	do	3.70	75.6
19	do	.77	3.1	28	do	2.80	46.9
19	do	.98	7.5	May 7	do	2.43	35.1
20	do	1.22	12.4	12	do	2.84	48.1
23	do	.83	3.6	25	do	2.80	47.8
Mar. 1	do	1.04	8.7	28	do	2.14	32.4
3	do	1.11	9.8	July 16	L. W. Roush	.83	1.4
7	do	1.41	14.9				

Daily discharge, in second-feet, of Three Creek near Three Creek, Idaho, for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.
1	2.6	2.6	3.2	3.5	2.2	9.7	11	36	27
2	2.6	2.6	3.2	2.6	1.8	9.6	12	34	24
3	2.6	2.6	3.2	2.6	1.6	9.2	12	36	23
4	2.6	2.6	2.8	2.5	1.8	10	14	42	24
5	2.6	2.6	2.8	2.6	1.2	11	17	42	25
6	2.8	2.6	2.8	2.6	.8	17	20	36	24
7	2.8	2.8	2.8	2.4	1.2	14	18	35	20
8	3.1	2.8	2.8	2.6	1.6	15	17	42	24
9	3.1	2.8	2.6	2.6	1.9	15	17	47	19
10	3.0	2.8	2.6	2.6	2.0	16	18	58	17
11	2.8	3.5	2.4	2.4	2.3	15	17	52	15
12	2.8	3.5	2.1	2.4	2.4	14	16	49	15
13	2.8	3.5	2.0	2.1	2.2	14	16	47	14
14	2.8	2.8	2.1	2.0	2.3	15	18	49	13
15	2.8	3.2	2.1	2.0	3.0	16	21	58	11
16	2.8	2.6	2.2	2.1	2.8	18	29	58	10
17	2.8	3.2	2.4	2.1	2.5	20	26	52	9.9
18	2.8	3.2	2.6	2.0	4.2	21	25	49	9.7
19	2.8	3.2	2.6	2.1	5.3	21	22	49	9.0
20	2.8	3.3	2.7	2.3	9.0	20	25	47	9.0
21	2.8	3.5	2.5	2.1	32	18	36	49	9.1
22	2.8	3.5	2.5	2.1	6.2	18	39	47	7.8
23	2.6	3.5	2.8	2.1	3.6	17	55	47	7.4
24	2.6	2.8	3.1	9.1	4.2	16	69	47	7.4
25	2.6	2.8	2.8	3.1	4.7	16	69	47	7.4
26	2.6	2.8	2.5	3.2	5.1	15	60	42	6.5
27	2.6	2.8	2.6	2.9	5.5	15	55	35	5.8
28	2.6	2.8	2.6	2.6	26	13	49	32	5.3
29	2.6	2.6	2.6	2.7	.....	13	44	29	4.7
30	2.6	2.6	2.6	2.7	.....	12	39	28	4.2
31	2.6	.....	2.6	2.5	.....	12	.....	26	.....

NOTE.—Discharge determined from several rating curves fairly well defined by frequent measurements.

Monthly discharge of Three Creek near Three Creek, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	3.1	2.6	2.74	168	D.
November	3.5	2.6	2.95	176	D.
December	3.2	2.0	2.62	161	D.
January	9.1	2.0	2.68	165	D.
February	32	.8	4.98	277	C.
March	21	9.2	15.0	922	A.
April	69	11	29.5	1,760	A.
May	58	26	43.5	2,670	B.
June	27	4.2	13.6	809	C.
The period	.....	.....	.....	7,110	

CHERRY CREEK NEAR THREE CREEK, IDAHO.

Location.—In sec. 32, T. 15 S., R. 11 E., about one-eighth mile above Three Creek school, and 1½ miles west of Three Creek store.

Drainage area.—Not measured.

Records available.—December 1, 1912, to June 30, 1914.

Gage.—Vertical staff.

Discharge measurements.—Made by wading.

Channel and control.—Mud and fine gravel; will shift at high stages.

Extremes of discharge.—Maximum stage recorded during year, 2.65 feet April 25 (discharge, 31 second-feet); no flow October 5–26 and December 24–25.
Winter flow.—Discharge relation affected by ice.
Accuracy.—Records fair only, on account of ice and small quantities of water.
Cooperation.—Gage-height record furnished by West End Twin Falls Irrigation Co.

Records will indicate the amount of water available for diversion into the Cedar Creek reservoir of the West End Twin Falls Irrigation Co., the proposed point of diversion being 3 miles above the station.

Discharge measurements of Cherry Creek near Three Creek, Idaho, during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Jan. 18	Purton and Strohecker.	1.70	0.2	Mar. 9	J. W. Strohecker.....	2.12	10.6
24	J. W. Strohecker.....	1.79	.8	25	.....do.....	2.04	8.4
30	.....do.....	1.70	.4	31	.....do.....	1.93	4.9
Feb. 3	.....do.....	1.70	.5	Apr. 10	.....do.....	2.08	11.2
6	.....do.....	1.70	.4	20	.....do.....	2.13	11.8
12	.....do.....	1.69	.6	23	.....do.....	2.51	26.1
16	.....do.....	1.69	.6	28	.....do.....	2.52	26.1
19	.....do.....	1.73	1.2	May 6	.....do.....	2.29	17.9
20	.....do.....	1.92	3.2	20	.....do.....	2.27	17.6
23	.....do.....	1.86	1.5	28	.....do.....	2.10	9.7
Mar. 6	.....do.....	1.93	4.2	July 16	L. W. Roush.....	1.47	[a].05

[a] Estimated.

Daily discharge, in second-feet, of Cherry Creek near Three Creek, Idaho, for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.
1	0.0	0.2	0.3	0.6	0.4	2.7	5.2	20	8.1
2	.0	.2	.2	.3	.3	3.6	5.6	19	7.6
3	.0	.3	.2	.2	.4	3.8	6.0	18	7.6
4	.0	.3	.1	.1	.4	3.4	6.7	18	9.2
5	.0	.3	.1	.6	.4	3.6	8.1	19	9.2
6	.0	.3	.1	.6	.4	4.2	9.7	18	11
7	.0	.4	.1	.1	.4	6.2	11	17	7.8
8	.0	.4	.1	.1	.4	8.9	12	17	11
9	.0	.4	.1	.2	.4	10	12	17	8.3
10	.0	.4	.1	.1	.8	12	12	23	4.6
11	.0	.6	.1	.1	.6	12	13	21	4.2
12	.0	.6	.1	.2	.6	11	12	21	4.4
13	.0	.6	.1	.2	.4	9.9	11	22	3.8
14	.0	.5	.1	.2	.4	9.9	10	19	3.6
15	.0	.5	.1	.3	.5	9.9	11	16	3.2
16	.0	.4	.1	.4	.6	11	13	22	2.3
17	.0	.4	.1	.4	.6	11	14	20	2.0
18	.0	.4	.1	.4	.7	11	14	18	2.1
19	.0	.4	.1	.2	1.2	10	13	18	1.8
20	.0	.3	.1	.4	3.2	9.9	13	18	2.2
21	.0	.3	.1	.4	3.7	9.9	16	17	2.3
22	.0	.2	.1	.4	2.6	9.3	20	17	2.2
23	.0	.3	.1	.4	1.5	8.7	25	15	2.0
24	.0	.3	.0	1.2	1.3	8.5	27	15	1.8
25	.0	.3	.0	1.9	1.5	8.3	31	14	1.7
26	.0	.3	.1	1.2	1.6	8.1	28	14	1.2
27	.1	.3	.1	1.2	1.4	7.6	27	12	1.2
28	.1	.3	.0	.7	4.9	6.7	26	9.6	1.2
29	.1	.2	.0	.4	.....	6.2	23	9.2	1.2
30	.2	.2	.0	.4	.....	5.6	22	8.1	1.1
31	.2	.....	.0	.4	.....	4.9	.....	7.6	.....

NOTE.—Discharge determined from several rating curves, fairly well defined by frequent measurements. No flow Oct. 1–26; Dec. 24–25 and 28–31.

Monthly discharge of Cherry Creek near Three Creek, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	0.2	0.0	0.02	1	
November	.6	.2	.35	21	
December	.3	.0	.09	6	
January	1.9	.1	.46	28	
February	4.9	.3	1.13	63	D.
March	12	2.7	7.99	491	B.
April	31	5.2	15.2	904	A.
May	23	7.6	16.8	1,030	A.
June	11	1.1	4.33	258	C.
The period				2,800	

DEADWOOD CREEK NEAR THREE CREEK, IDAHO.

Location.—In sec. 19, T. 15 S., R. 12 E., at the Helsley ranch, about 5½ miles northeast of the Three Creek post office.

Drainage area.—Not measured.

Records available.—November 9, 1912, to July 23, 1914.

Gage.—Vertical staff on left bank about 100 yards east of the house.

Discharge measurements.—Made by wading except at extreme high stages, when the bridge at the road crossing above can be utilized.

Channel and control.—Both banks are very heavily covered with brush and channel is choked with dead brush, which may affect the discharge relation during flood periods.

Extremes of discharge.—Maximum stage recorded during year, 3.65 feet at 5 p. m. February 28 (discharge, 61 second-feet); no flow October 1–10.

Winter flow.—Channel chokes with snow and records are approximate.

Accuracy.—Records not good, owing to poor conditions and small quantities of water.

Discharge measurements of Deadwood Creek near Three Creek, Idaho, during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Jan. 18	A. B. Purton	1.00	0.5	Mar. 10	J. W. Strohecker	1.72	5.0
26	J. W. Strohecker	1.60	3.0	18	do	1.71	5.0
29	do	1.05	.6	28	do	1.48	3.8
31	do	1.03	.5	30	do	1.39	3.2
Feb. 4	do	1.00	.3	Apr. 2	do	1.34	3.0
7	do	1.00	.2	8	do	1.70	5.8
10	do	.99	.3	20	do	2.15	10.7
14	do	.98	.3	22	do	2.47	15.3
17	do	1.00	.4	24	do	2.80	24.8
19	do	.99	.4	29	do	2.50	13.6
21	do	1.20	1.3	May 2	do	2.22	9.8
26	do	1.05	.5	8	do	2.73	17.7
28	do	3.65	61.0	16	do	2.90	20.9
Mar. 2	do	2.00	5.9	22	do	2.92	22.2
6	do	3.32	27.1	28	do	2.53	14.2
8	do	1.88	5.5	July 17	L. W. Roush	.92	.7

Daily discharge, in second-feet, of Deadwood Creek near Three Creek, Idaho, for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.
1	.....	0.7	0.7	.....	0.4	25	2.8	11	14	1.0
2	.....	.7	.7	.....	.4	5.9	2.9	9.4	16	.9
3	.....	.8	.7	.....	.4	5.4	3.4	10	17	.9
4	.....	.7	.7	.....	.3	5.0	3.9	14	14	.9
5	.....	.7	.7	.....	.3	4.6	4.4	14	14	.9
6	.....	.9	.8	.....	.3	27	4.9	13	14	.9
7	.....	.7	1.0	.....	.2	16	5.4	13	16	.9
8	.....	.7	.7	.....	.3	5.5	5.8	18	12	.9
9	.....	.7	.7	.....	.3	5.3	5.8	19	12	.9
10	.....	.7	.7	.....	.3	5.1	5.9	21	10	.9
11	0.2	.7	.7	.....	.3	4.4	5.9	21	7.7	.9
12	.2	.7	.7	.....	.3	3.7	5.9	20	7.5	.9
13	.4	.8	.....	.....	.3	4.2	6.2	19	5.8	.9
14	.4	.9	.....	.....	.3	4.8	6.6	20	5.6	.9
15	.4	.8	.....	.....	.3	5.0	8.3	23	5.6	.7
16	.4	.8	.....	.....	.4	5.1	10	21	5.6	.7
17	.4	.9	.....	.....	.4	5.0	9.5	20	5.6	.7
18	.4	1.1	.....	0.5	.4	5.0	9.0	21	5.6	.7
19	.5	1.1	.....	.4	.4	5.0	10	20	5.6	.7
20	.5	1.0	.....	.4	.8	4.7	11	21	6.6	.7
21	.6	1.1	.....	.5	1.3	4.3	13	21	6.6	.7
22	.6	.9	.....	.5	1.2	4.4	15	21	6.6	.7
23	.6	.8	.....	.6	1.1	4.5	20	21	3.9	.7
24	.6	.8	.....	.7	1.0	4.2	25	21	1.6	.....
25	.6	.9	.....	5.0	.8	4.0	22	21	1.8	.....
26	.6	.9	.....	3.0	.5	4.1	22	18	1.6	.....
27	.6	.9	.....	2.2	1.0	4.0	20	15	1.6	.....
28	.7	.9	.....	1.4	61	3.8	19	14	1.6	.....
29	.7	.8	.....	.6	.....	3.5	14	14	1.6	.....
30	.6	.7	.....	.6	.....	3.2	11	13	1.2	.....
31	.7	.....	.....	.5	.....	3.0	.....	12	.....	.....

NOTE.—Discharge determined from several rating curves defined by frequent measurements. Discharge estimated, on account of ice and snow, Dec. 13–31, 0.6 second-foot; Jan. 1–17, 0.5 second-foot, no flow Oct. 1–10.

Monthly discharge of Deadwood Creek near Three Creek, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	0.7	0	0.35	21.5	D.
November	1.1	.7	.83	49.4	D.
December	1.0	.....	.65	40.0	D.
January	5.0	.....	.82	50.4	D.
February	61	.2	2.68	149	D.
March	27	3.0	6.28	386	C.
April	25	2.8	10.3	613	A.
May	23	9.4	17.4	1,070	A.
June	17	1.2	7.61	453	C.
July 1–23	1.0	.7	.83	37.7	D.
The period	.....	.....	.....	2,870	

OWYHEE RIVER AT MOUNTAIN CITY, NEV.

Location.—40 feet upstream from the livery barn in the village of Mountain City, which is 100 miles north of Elko, the nearest railroad point. The gage is 300 feet below Slaughter House Creek and one-half mile above California Creek.

Records available.—May 17 to December 31, 1913, when station was discontinued.

Drainage area.—350 square miles.
Gage.—Vertical staff.
Channel and control.—Gravel; probably shifting during high water.
Discharge measurements.—Made by wading.
Winter flow.—Discharge relation affected by ice.
Accuracy.—Records fair.

Discharge measurements of Owyhee River at Mountain City, Nev., during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Dec. 17	Frank Weber	[a] 2.26	22.8	June 16	Frank Weber	2.59	93
Mar. 10	do	3.10	179	July 18	J. P. Martin	2.04	19.1

[a] Discharge relation affected by ice.

Daily discharge, in second-feet, of Owyhee River at Mountain City, Nev., for the period Oct. 1 to Nov. 30, 1913.

Day.	Oct.	Nov.	Day.	Oct.	Nov.	Day.	Oct.	Nov.
1	18	23	11	31	37	21	22	32
2	16	23	12	28	37	22	22	32
3	16	23	13	28	37	23	22	32
4	14	23	14	28	36	24	22	32
5	13	30	15	24	34	25	22	32
6	13	34	16	24	34	26	22	32
7	17	37	17	22	32	27	22	32
8	22	37	18	21	32	28	22	32
9	27	37	19	21	32	29	23	32
10	28	37	20	22	32	30	23	32
						31	23	.....

Monthly discharge of Owyhee River at Mountain City, Nev., for the period Oct. 1 to Dec. 31, 1913.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	31	13	21.9	1,350	B.
November	37	23	32.2	1,920	B.
December	.....	.....	[a] 27.0	1,660	C.

[a] Estimated.

OWYHEE RIVER NEAR OWYHEE, NEV.

Location.—In sec. 21, T. 46 N., R. 53 E., half a mile above the J. P. Jones ranch, and just above mouth of Jones Creek, 8 miles southeast of Owyhee. The river crosses the Nevada-Idaho line 14 miles northwest of the station.
Drainage area.—380 square miles (Forest Service atlas).
Records available.—November 29, 1913, to September 30, 1914.
Gage.—Stevens water-stage recorder.
Discharge measurements.—Made by wading or from cable.
Channel and control.—Rocky; probably permanent.
Winter flow.—Discharge relation affected by ice.
Accuracy.—Good except during winter.

Discharge measurements of Owyhee River near Owyhee, Nev., during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Oct. 1	Frank Weber	[a] 18.5		Apr. 1	Frank Weber	4.04	306
Nov. 19	do	2.38	42.8	6	do	8.86	1,200
Dec. 2	do	[b] 2.28	32.5	7	do	9.16	1,290
16	do	[b] 2.21	32.8	13	do	8.12	995
Jan. 2	do	[b] 3.34	99.3	18	do	7.64	886
24	do	[b] 2.70	52.4	28	W. M. Schlittler	6.11	652
Feb. 9	do	[b] 2.54	48.6	May 1	do	5.20	524
14	do		[a] 48.4	14	Frank Weber	5.11	502
27	do	[b] 2.47	44.1	June 1	do	3.64	228
28	do	[b] 2.85	74.1	16	do	2.88	110
Mar. 9	do	3.60	196	July 18	J. P. Martin	2.00	19.8
18	do	4.79	426				

[a] Measured at dam site, 4½ miles below gage. [b] Discharge relation affected by ice.

Daily discharge, in second-feet, of Owyhee River near Owyhee, Nev., for the year ending Sept. 30, 1914.

Day.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1		32	68	62	81	298	540	231	45	15	9
2		29	98	62	85	378	533	244	40	16	9.5
3		31	73	58	87	540	569	256	50	16	9.4
4		32	63	50	95	669	609	242	121	15	9.8
5		32	58	46	111	849	605	229	60	14	9.8
6		32	57	39	148	1,180	578	236	46	13	9.9
7		31	57	47	196	1,300	567	226	37	13	10
8		28	56	48	202	1,220	585	223	31	13	10
9		24	54	48	219	1,160	605	205	31	12	10
10		22	53	47	225	1,180	646	183	30	12	10
11		25	55	47	243	1,280	647	165	28	12	11
12		28	55	47	225	1,110	585	143	28	12	11
13		28	55	45	227	1,020	531	124	27	12	11
14		31	55	43	271	1,160	494	118	25	12	12
15		31	54	45	338	1,280	488	114	20	12	14
16		30	53	48	398	1,280	522	108	19	12	16
17		28	45	53	438	1,130	494	98	20	12	15
18		28	36	61	458	878	462	96	20	12	15
19		32	33	61	316	860	442	94	19	12	14
20		32	32	60	307	840	416	143	19	12	14
21		28	40	63	307	820	400	130	19	12	14
22		28	48	75	316	790	384	112	20	12	14
23		28	53	68	276	770	367	96	26	12	14
24		28	53	61	378	740	351	87	21	11	14
25		29	53	61	408	720	356	90	19	11	14
26		33	64	48	398	700	346	93	18	11	14
27		32	78	45	351	680	300	80	16	11	14
28		29	78	73	324	651	273	68	15	9.8	14
29	38	28	58		324	572	256	59	15	8.8	14
30	34	30	42		316	540	239	52	15	8.4	14
31		43	58		298		231		15	8.7	

NOTE.—Discharge determined from two well-defined curves, one applicable Nov. 29 to Mar. 16, the other Mar. 17 to Sept. 30. Discharge relation affected by ice Nov. 29 to Dec. 1, Dec. 3–7, Jan. 1 to Mar. 4. Discharge estimated Apr. 19–27 and Sept. 26–30. All estimates made by comparison with flow of Bruneau River.

Monthly discharge of Owyhee River near Owyhee, Nev., for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
December	43	22	29.7	1,830	B.
January	98	32	56.0	3,440	B.
February	73	39	54.0	3,000	B.
March	458	81	270	16,600	A.
April	1,300	298	886	52,700	A.
May	647	231	465	28,600	A.
June	256	52	145	8,630	A.
July	121	15	29.5	1,810	B.
August	16	8.4	12.1	744	B.
September	16	9.0	12.3	732	B.
The period				118,000	

OWYHEE RIVER AT OWYHEE, OREG.

Location.—In sec. 2, T. 21 S., R. 46 E., at the county bridge about 1½ miles above Owyhee post office, 3 miles above the mouth of the river, and about 10 miles southwest of Nyssa.

Drainage area.—11,100 square miles. Watershed not well defined on available maps. Area approximate and should be used with caution.

Records available.—March 26, 1890, to October 3, 1896; August 27, 1903, to September 30, 1914.

Gage.—Chain gage on the upstream side of the highway bridge.

Discharge measurements.—Made from bridge or by wading.

Channel and control.—One channel only; stream bed of cemented gravel; fairly permanent.

Extremes of discharge.—Maximum stage recorded during year, 7.9 feet March 17 (discharge, 8,310 second-feet); minimum stage recorded, 1.96 feet August 17–20 (discharge August 1–31 estimated at 2.5 second-feet); minimum discharge, 1 second-foot (gage height, 2.0 feet) September 13–27.

Winter flow.—Discharge relation affected for short periods by ice, but not seriously.

Diversions.—The Owyhee canal diverts from the left bank of the river about 6 miles above the station. Practically all the normal low-water flow is taken. The maximum diversion by this canal has been approximately 250 second-feet.

Accuracy.—Conditions for accurate measurement at very low stages are unfavorable. Higher stage records, of paramount interest at this station, are probably reliable.

Discharge measurements of Owyhee River at Owyhee, Oreg., during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Nov. 25	C. G. Paulsen	2.73	239	June 25	A. B. Purton	2.95	307
Dec. 10	L. W. Jordan	3.03	356	Aug. 21	L. W. Roush	2.07	[a] 2.5
Feb. 24	Baldwin and Harrington	6.19	4,020				

[a] Estimated. Point of zero flow estimated to be at gage height 1.9 feet.

Daily discharge, in second-feet, of Owyhee River at Owyhee, Oreg., for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	29	111	216	.....	903	2,680	2,990	2,840	1,160	230	.....	4
2	30	114	216	.....	782	3,300	2,840	2,540	1,070	230	.....	4
3	30	114	216	.....	667	3,820	2,540	2,400	986	230	.....	4
4	40	131	216	.....	630	3,300	3,300	2,130	903	230	.....	4
5	40	131	315	.....	592	3,300	4,580	2,130	986	230	.....	4
6	40	150	315	.....	592	3,470	5,250	2,130	1,070	186	.....	4
7	40	150	342	.....	629	3,640	5,980	2,000	1,070	278	.....	4
8	40	150	.....	.....	629	5,250	5,250	2,000	986	107	.....	4
9	40	173	.....	.....	556	5,720	5,020	2,000	986	104	.....	4
10	42	173	.....	.....	488	6,240	4,580	1,880	903	101	.....	4
11	42	173	.....	.....	488	7,080	5,480	1,880	903	73	.....	4
12	42	194	.....	.....	667	7,370	6,510	1,880	903	70	.....	4
13	42	194	.....	.....	705	6,240	5,020	2,130	986	45	.....	1
14	42	216	.....	.....	705	5,720	4,800	2,000	782	43	.....	1
15	42	216	.....	629	782	5,980	4,580	1,880	705	42	.....	1
16	51	216	.....	629	782	6,510	4,190	1,880	592	23	.....	1
17	51	244	.....	667	822	8,310	4,190	1,880	522	20	.....	1
18	65	268	.....	592	743	7,370	4,190	1,880	456	18	.....	1
19	65	268	.....	592	488	7,080	4,190	1,880	394	17	.....	1
20	65	268	.....	522	1,030	7,370	4,000	1,880	365	16	.....	1
21	65	268	.....	556	2,990	6,790	3,820	1,880	337	6	.....	1
22	65	268	.....	1,030	4,190	6,240	3,640	1,880	284	6	.....	1
23	65	294	.....	862	4,000	5,860	3,820	1,880	284	26	.....	1
24	65	294	.....	862	4,000	5,480	4,380	1,880	284	12	.....	1
25	81	234	.....	903	3,300	5,480	4,190	1,760	310	4	.....	1
26	81	225	.....	1,120	2,400	4,580	4,190	1,650	310	4	.....	1
27	81	249	.....	1,300	2,130	4,380	3,820	1,650	337	4	.....	1
28	81	225	.....	2,540	2,400	4,000	3,470	1,650	337	4	.....	4
29	95	203	.....	1,760	.....	3,470	3,300	1,550	337	4	.....	4
30	95	225	.....	1,350	.....	3,140	3,140	1,440	284	4	.....	4
31	95	.....	.....	1,030	.....	3,140	.....	1,350	.....	4	.....	.....

NOTE.—Discharge determined from several parallel rating curves. Discharge estimated, on account of ice, as follows: Dec. 8–10, 355 second-feet; 11–15, 340 second-feet; 16–20, 330 second-feet; 21–31, 320 second-feet; Jan. 1–14, 400 second-feet.

Monthly discharge of Owyhee River at Owyhee, Oreg., for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	95	29	56.4	3,470	D.
November	294	111	205	12,200	C.
December	.....	216	315	19,400	C.
January	2,540	.....	727	44,700	D.
February	4,190	488	1,400	77,800	B.
March	8,310	2,680	5,240	322,000	B.
April	6,510	2,540	4,240	252,000	B.
May	2,840	1,350	1,930	119,000	B.
June	1,160	284	661	39,300	B.
July	278	4	76.5	4,700	C.
August	.....	.....	[a] 2.50	154	D.
September	4	1	2.50	149	D.
The year	8,310	1	1,240	895,000	

[a] Estimated.

OWYHEE CANAL NEAR OWYHEE, OREG.

Location.—In sec. 6, T. 21 S., R. 46 E., at Wilson's ranch, 2½ miles below the headgates of canal, 5 miles above Owyhee, and about 15 miles southwest of Nyssa.

Records available.—May to October, 1904; May to September, 1905; October 5, 1911, to September 30, 1914.

Gage.—Inclined staff on right bank at the wagon bridge. Gage used during 1904–5 was one-fourth mile upstream from present gage.

Discharge measurements.—Made from the bridge or by wading.

Channel and control.—Smooth earth section; shifting at high stages.

Extremes of discharge.—Maximum stage recorded during year, 5.1 feet April 20, 22–25, April 29 to May 1, May 12, 15, 20, and 22 (discharge, 225 second-feet); no flow April 14 and 15.

Winter flow.—Canal dry December 11–April 1.

Diversions.—Two wasteways return surplus water to the river between the gage in the canal and the station on Owyhee River. Two small ditches with a combined capacity of about 3 second-feet divert from the canal above the present station.

Accuracy.—Results fair.

Discharge measurements of Owyhee canal near Owyhee, Oreg., during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Nov. 25	C. G. Paulsen	4.08	138	June 25	A. B. Purton	4.95	213
Dec. 10	L. W. Jordan	[a] 2.20	7.7	Aug. 21	L. W. Roush	3.74	115

[a] Discharge relation affected by ice.

Daily discharge, in second-feet, of Owyhee canal near Owyhee, Oreg., for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Dec.	Apr.	May.	June.	July.	Aug.	Sept.
1	157	149	133	.....	225	207	207	173	117
2	157	149	133	207	216	216	207	165	117
3	157	149	133	207	216	189	207	165	117
4	157	149	133	100	216	207	207	181	117
5	157	149	141	149	216	207	198	173	117
6	157	149	140	198	216	216	198	157	110
7	157	149	100	207	216	207	198	149	117
8	157	149	8	207	216	207	189	149	117
9	157	149	8	198	216	207	189	141	11
10	157	157	8	207	216	216	198	141	117
11	157	157	.....	207	216	207	198	133	117
12	157	125	.....	181	225	216	207	133	125
13	149	133	.....	149	216	216	207	133	125
14	149	141	.....	0	216	207	198	125	125
15	149	141	.....	0	225	207	198	125	125
16	149	141	.....	173	216	207	198	125	125
17	149	141	.....	216	216	198	198	117	133
18	149	141	.....	216	216	198	189	117	133
19	149	141	.....	216	216	189	189	117	133
20	149	141	.....	225	225	181	189	117	133
21	149	141	.....	216	216	189	189	117	133
22	149	141	.....	225	225	189	189	117	141
23	149	141	.....	225	216	198	216	117	141
24	149	141	.....	225	216	198	189	117	114
25	149	141	.....	225	216	207	189	117	141
26	149	141	.....	216	216	216	181	110	141
27	149	141	.....	216	216	207	181	117	141
28	149	133	.....	216	216	216	181	117	141
29	149	133	.....	225	216	216	173	117	141
30	149	133	.....	225	216	207	173	125	141
31	149	.....	.....	.....	216	.....	173	125	.....

NOTE.—Discharge determined from a fairly well defined rating curve.

Monthly discharge of Owyhee canal near Owyhee, Oreg., for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	157	149	152	9,350	B.
November	157	125	143	8,510	B.
December 1–10	141	8	93.7	1,860	C.
April 2–30	225	0	190	10,900	B.
May	225	216	217	13,300	B.
June	216	181	205	12,200	B.
July	216	173	194	11,900	B.
August	181	110	133	8,180	B.
September	141	110	128	7,620	B.

SOUTH FORK OF OWYHEE RIVER NEAR TUSCARORA, NEV.

Location.—In sec. 28, T. 40 N., R. 52 E., at McKenna's ranch, 3 miles above the bridge on the Elko-Tuscarora road, 6 miles southeast of Tuscarora, and 51 miles northwest of Elko; 2 miles above mouth of Taylor Creek.

Drainage area.—Not measured.

Records available.—May 24 to November 15, 1913, when station was discontinued.

Gage.—Vertical staff.

Discharge measurements.—Made by wading.

Channel and control.—Gravel; shifting during high water.

Accuracy.—Records not very reliable on account of poor rating curve.

The following discharge measurement was made by Frank Weber:

October 2, 1913: Gage height, 1.78 feet; discharge, 1.9 second-feet.

Daily discharge, in second-feet, of South Fork of Owyhee River near Tuscarora, Nev., for the period Oct. 1 to Nov. 15, 1913.

Day.	Oct.	Nov.	Day.	Oct.	Nov.	Day.	Oct.	Nov.
1	1.9	2.1	11	1.9	2.1	21	2.1	.....
2	1.9	2.1	12	1.9	2.1	22	2.1	.....
3	1.9	2.1	13	1.9	2.1	23	2.1	.....
4	1.9	2.1	14	1.9	2.1	24	2.1	.....
5	1.9	2.1	15	1.9	2.1	25	2.1	.....
6	1.9	2.1	16	1.9	.....	26	2.1	.....
7	1.9	2.1	17	2.0	.....	27	2.1	.....
8	1.9	2.1	18	2.0	.....	28	2.1	.....
9	1.9	2.1	19	2.1	.....	29	2.1	.....
10	1.9	2.1	20	2.1	.....	30	2.1	.....
						31	2.1	.....

NOTE.—Discharge determined from a poorly defined rating curve; interpolated Oct. 16–19. Mean discharge for October, 1.99 second-feet (122 acre-feet); mean discharge Nov. 1–15, 2.1 second-feet (62.5 acre-feet).

JACK CREEK NEAR TUSCARORA, NEV.

Location.—At the Woodward ranch, on the stage road from Elko to Mountain City, 60 miles northwest of Elko, 12 miles northeast of Tuscarora, 1½ miles above Snow Creek, and 8 miles above the confluence with South Fork Owyhee River.
Drainage area.—Not measured.
Records available.—May 15, 1913, to September 30, 1914.
Gage.—Vertical staff.
Discharge measurements.—Made by wading or from footbridge above.
Channel and control.—Bowlders, rough, steep, and probably permanent.
Winter flow.—Discharge relation affected by ice.
Diversions.—Several small diversions above the gage.
Accuracy.—Records fair.

Discharge measurements of Jack Creek near Tuscarora, Nev., during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Oct. 2	Porter & Weber	1.79	3.03	June 22	L. W. Jordan	2.88	73.0
May 4	L. W. Jordan	3.12	115	July 20	J. P. Martin	2.25	13.4

Daily discharge, in second-feet, of Jack Creek near Tuscarora, Nev., for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	3.1	6.4	7.7	11	21	89	190	48	6.6	2.6
2	3.1	6.4	7.7	11	28	98	202	43	6.6	2.0
3	3.1	6.4	7.7	11	32	107	202	43	6.6	2.0
4	3.1	7.7	7.7	11	59	111	178	43	6.6	2.0
5	4.1	7.7	7.7	14	81	132	155	38	6.6	2.0
6	4.1	7.7	3.1	16	128	132	155	38	5.2	2.0
7	5.1	7.7	5.1	18	140	144	155	38	5.2	2.0
8	5.1	7.7	5.1	24	151	144	155	34	5.2	2.0
9	5.6	7.7	5.1	32	186	155	124	34	5.2	2.0
10	6.4	7.7	5.1	37	244	155	93	22	5.2	2.0
11	6.4	7.7	5.1	42	220	155	84	22	5.2	2.0
12	6.4	7.7	5.1	47	197	166	78	22	5.2	2.6
13	6.4	7.7	5.1	47	208	155	73	19	4.2	2.6
14	6.4	7.7	3.1	53	197	155	68	19	4.2	2.6
15	6.4	7.7	3.1	62	220	178	68	19	4.2	3.2
16	6.4	7.7	3.1	70	220	178	68	16	4.2	4.2
17	6.4	7.7	3.1	76	151	155	73	16	4.2	4.2
18	6.4	7.7	3.1	81	162	144	76	16	3.2	4.2
19	6.4	7.7	5.1	81	174	144	73	13.5	3.2	4.2
20	6.4	7.7	5.1	76	197	138	76	13.5	3.2	4.2
21	6.4	7.7	11	86	208	132	73	13.5	3.2	4.2
22	6.4	7.7	7.7	81	197	132	76	13.5	3.2	4.2
23	6.4	7.7	7.7	70	186	155	76	11	2.6	4.2
24	6.4	7.7	7.7	57	174	155	68	11	2.6	5.2
25	6.4	7.7	7.7	47	174	166	68	11	2.6	5.2
26	6.4	7.7	7.7	40	162	178	64	9.5	2.6	5.2
27	6.4	7.7	16	36	151	178	64	9.5	2.6	5.2
28	6.4	7.7	16	30	128	190	58	9.5	2.6	5.2
29	6.4	7.7	.....	26	107	178	54	8.0	2.6	5.2
30	6.4	7.7	.....	21	73	190	48	8.0	2.6	5.2
31	6.4	.....	.....	20	.....	202	.....	8.0	2.6	.....

NOTE.—Discharge determined from two well-defined rating curves, one applicable Oct. 1 to May 3, the other May 4 to Sept. 30, change in rating being caused by lowering the gage 0.07 foot May 4. Discharge interpolated for several short periods. Discharge relation affected by ice during December and January.

Monthly discharge of Jack Creek near Tuscarora, Nev., for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	6.4	3.1	5.72	352	C.
November	7.7	6.4	7.57	450	C.
December	.....	.....	[a] 6.5	400	D.
January	.....	.....	[a] 7.5	461	D.
February	16	3.1	6.59	366	C.
March	86	11	43.0	2,640	B.
April	244	21	153	9,100	B.
May	202	89	151	9,280	A.
June	202	48	99.8	5,940	A.
July	48	8.0	21.6	1,330	B.
August	6.6	2.6	4.19	258	C.
September	5.2	2.0	3.45	205	C.
The year	244	2.0	42.5	30,800	

[a] Estimated on account of ice.

JORDAN CREEK NEAR JORDAN VALLEY, OREG.

Location.—In sec. 9, T. 30 S., R. 45 E., near the upper end of the canyon which begins at the lower end of Jordan Valley, and about 9 miles below Jordan Valley post office; above mouth of Cow Creek.

Drainage area.—Not measured.

Records available.—April 28, 1911, to September 30, 1914.

Gage.—Inclined staff on right bank.

Discharge measurements.—Made from a cable at the gage or by wading.

Channel and control.—One channel at all stages; lava-rock bed and control; practically permanent.

Extremes of discharge.—Maximum stage recorded during year, 7.9 feet at 3 p. m. April 17 (discharge, 1,180 second-feet); creek dry August 11 to September 30.

Winter flow.—Discharge relation affected by ice.

Diversions.—Practically the entire summer flow is diverted in the valley above the station.

Accuracy.—Rating curve well defined; records fair except for winter periods.

Discharge measurements of Jordan Creek near Jordan Valley, Oreg., during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Oct. 18	G. C. Baldwin	3.04	11.9	Apr. 8	L. W. Roush	7.70	1,100
Mar. 6	L. W. Roush	6.10	509	May 12	do	5.86	432
9	do	6.77	755	June 9	do	4.52	145
15	G. C. Baldwin	7.34	955	16	do	3.87	69.0
21	L. W. Roush	7.64	1,030				

Daily discharge, in second-feet, of Jordan Creek near Jordan Valley, Oreg., for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.
1	1.2	15	47	.....	93	529	415	415	145	43	0.8
2	1.2	16	49	.....	74	514	415	415	160	37	.6
3	1.3	16	42	.....	.....	499	415	415	160	31	.6
4	1.4	18	36	.....	.....	415	499	472	160	31	.5
5	1.8	20	43	.....	.....	529	590	529	176	28	.3
6	2.1	23	43	.....	.....	499	877	499	176	25	.2
7	5.1	27	43	.....	.....	590	1,130	470	164	28	.2
8	8.1	53	47	.....	.....	590	1,090	442	152	30	.1
9	8.1	55	50	.....	.....	724	1,070	442	145	27	.1
10	9.4	53	53	.....	.....	798	1,050	470	131	24	.1
11	9.4	56	48	.....	.....	837	1,090	442	118	19	.....
12	8.8	58	43	.....	.....	837	1,050	442	105	16	.....
13	8.4	60	39	.....	64	798	960	389	93	14	.....
14	8.1	55	37	.....	72	877	918	364	82	12	.....
15	8.8	51	40	.....	70	960	1,000	389	82	9.7	.....
16	10	49	43	.....	62	1,000	1,090	416	70	7.5	.....
17	12	47	41	.....	64	1,050	1,180	442	58	5.6	.....
18	12	45	.....	.....	74	1,130	1,010	416	45	3.4	.....
19	12	45	.....	.....	168	1,130	837	389	43	3.4	.....
20	10	47	.....	.....	292	1,130	798	364	42	3.9	.....
21	12	46	.....	.....	415	1,090	960	364	41	2.8	.....
22	12	45	.....	.....	415	1,000	960	364	37	2.5	.....
23	13	39	.....	.....	332	918	877	364	37	2.3	.....
24	13	42	.....	152	250	960	837	389	37	2.3	.....
25	12	45	.....	176	240	837	798	415	53	2.0	.....
26	12	47	.....	176	220	724	694	340	64	1.7	.....
27	12	51	.....	176	268	655	590	300	72	1.6	.....
28	12	51	.....	145	316	592	499	260	58	1.4	.....
29	15	50	.....	128	.....	529	470	230	49	1.4	.....
30	14	49	.....	112	.....	500	470	203	41	.9	.....
31	15	.....	.....	105	.....	470	.....	176	.....	.8	.....

NOTE.—Discharge determined from a well-defined rating curve. Discharge estimated, on account of ice, as follows: Dec. 18–31, 35 second-feet; Jan. 1–23, 60 second-feet; Feb. 3–12, 55 second-feet. Discharge interpolated for many days for which gage heights were not recorded. No flow Aug. 11 to Sept. 30.

Monthly discharge of Jordan Creek near Jordan Valley, Oreg., for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	15	1.2	9.07	558	B.
November	60	15	42.5	2,530	B.
December	53	.....	39.8	2,450	C.
January	.....	.....	82.3	5,060	D.
February	415	.....	144	8,000	B.
March	1,130	415	765	47,000	A.
April	1,180	415	821	48,900	A.
May	529	176	388	23,900	A.
June	176	37	93.2	5,550	A.
July	43	.8	13.5	830	B.
August	.8	0	.11	6.9	D.
September	0	0	0	0	
The year	1,180	0	200	145,000	

COW CREEK AT NARROWS, NEAR JORDAN VALLEY, OREG.

Location.—In the SE. ¼ sec. 28, T. 28 S., R. 44 E., at outlet of Upper Cow Lake, about 50 feet above the upper falls, and about 20 miles northwest of the town of Jordan Valley.

Drainage area.—Not measured.

Records available.—March 7 to June 16, 1914.

Gage.—Vertical staff on left bank. Temporary gage at lower datum used March 7 to 22.

Discharge measurements.—Made from a boat or by wading.

Channel and control.—Channel of lava rock; control, a rock ledge about 50 feet below gage; permanent.

Extremes of discharge.—Maximum stage recorded, 11.30 feet (temporary gage) March 8 (discharge, 647 second-feet); minimum stage recorded, 6.31 feet (permanent gage) June 16 (discharge, 1.6 second-feet). No surface outflow from the lake during the summer months.

Diversions.—Entire summer flow of Cow Creek above the lake is diverted for irrigation. Oliver ditch diverts water from lower end of the lake.

Regulation.—Flow regulated by storage capacity of lake. No outflow from early summer until the high water of the following spring.

Discharge measurements of Cow Creek at Narrows, near Jordan Valley, Oreg., during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Mar. 8	L. W. Roush	[a] 11.30	647	Apr. 5	L. W. Roush	7.37	99.2
13	G. C. Baldwin	[a] 11.04	422	20	do	7.45	116
24	L. W. Roush	7.92	242	May 2	do	7.11	58.4
26	do	7.70	179	11	do	6.76	18.7
29	do	7.52	130	June 3	do	6.52	5.2

[a] Gage height refers to a temporary gage.

NOTE.—On May 2 point of zero flow was estimated to be at gage height 6.0 feet.

Daily discharge, in second-feet, of Cow Creek at Narrows, near Jordan Valley, Oreg., for the year ending Sept. 30, 1914.

Day.	Mar.	Apr.	May.	June.	Day.	Mar.	Apr.	May.	June.
1	.....	100	59	7.4	16	416	131	14	1.6
2	.....	87	58	6.7	17	409	135	14	.....
3	.....	85	53	5.3	18	395	133	17	.....
4	.....	82	44	4.6	19	379	126	17	.....
5	.....	100	39	4.4	20	353	116	16	.....
6	.....	133	35	3.8	21	308	105	17	.....
7	516	154	33	3.5	22	264	103	17	.....
8	647	159	29	3.5	23	238	105	16	.....
9	621	152	23	3.1	24	235	107	16	.....
10	595	157	18	2.7	25	205	107	16	.....
11	569	157	19	2.5	26	178	105	16	.....
12	496	154	16	2.2	27	157	98	16	.....
13	423	144	16	2.2	28	147	87	14	.....
14	420	133	15	2.0	29	128	84	12	.....
15	416	122	14	1.7	30	116	76	9.9	.....
					31	105	.....	8.1	.....

NOTE.—Discharge determined as follows: Mar. 7-22 from a fairly well-defined curve applicable to a temporary gage; Mar. 23 to June 16 from a well-defined curve.

Monthly discharge of Cow Creek at Narrows, near Jordan Valley, Oreg., for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
March 7-31	647	105	349	17,300	B.
April	159	76	118	7,020	A.
May	59	8.1	22.8	1,400	A.
June 1-16	7.4	1.6	3.58	114	B.
The period	.....	.....	.....	25,800	

COW CREEK AT MOUTH, NEAR JORDAN VALLEY, OREG.

Location.—In the SW. ¼ sec. 16, T. 30 S., R. 44 E., one-fourth mile above the highway bridge, about half a mile above the mouth, and about 16 miles west of the town of Jordan Valley.

Drainage area.—Not measured.

Records available.—March 9 to June 16, 1914.

Gage.—Vertical staff on left bank; read twice daily.

Discharge measurements.—Made from bridge or by wading.

Channel and control.—Bed of stream composed of gravel. Low-water control is about 100 feet downstream; probably shifting. Discharge regulation may be affected by backwater during extremely high stages in Jordan Creek.

Extremes of discharge.—Maximum stage recorded, 6.4 feet at 5.30 p. m. March 14 (discharge, 402 second-feet); minimum stage recorded, 3.29 feet at 5.30 p. m. June 16 (discharge, 8.5 second-feet).

Diversions.—Practically entire low-water flow diverted above station for irrigation. No diversions below the station.

Regulation.—Flood flow regulated by natural storage in Cow Lakes. Summer flow supplied from springs.

Accuracy.—Records reliable.

Discharge measurements of Cow Creek at mouth, near Jordan Valley, Oreg., during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Mar. 15	G. C. Baldwin	6.36	406	Apr. 29	L. W. Roush	4.56	80.5
22	L. W. Roush	6.07	313	May 12	do	3.96	34.0
Apr. 2	do	4.90	114	June 9	do	3.63	21.2

Daily discharge, in second-feet, of Cow Creek at mouth, near Jordan Valley, Oreg., for the year ending Sept. 30, 1914.

Day.	Mar.	Apr.	May.	June.	Day.	Mar.	Apr.	May.	June.
1		130	69	15	16	379	123	29	8.5
2		116	65	23	17	379	123	35	
3		104	61	18	18	379	123	35	
4		93	50	16	19	379	110	40	
5		93	50	18	20	357	104	36	
6		93	50	20	21	357	104	33	
7		98	37	21	22	313	110	39	
8		104	42	22	23	302	104	48	
9	402	110	40	20	24	271	104	45	
10	402	116	38	18	25	251	98	40	
11	402	116	40		26	231	93	37	
12	402	130	37	17	27	212	93	32	
13	402	123	36	15	28	194	83	32	
14	402	116	33	13	29	176	78	29	
15	379	116	32	12	30	159	73	24	
				10	31	137		22	

NOTE.—Discharge determined from a fairly well-defined rating curve; interpolated Mar. 10–13 and June 10–15.

Monthly discharge of Cow Creek at mouth, near Jordan Valley, Oreg., for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
March 9–31	402	137	316	14,400	A.
April	130	73	106	6,310	A.
May	69	22	39.9	2,450	B.
June 1–16	23	8.5	16.7	529	C.
The period				23,700	

BOISE RIVER NEAR TWIN SPRINGS, IDAHO.

Location.—On unsurveyed land, approximately in sec. 23, T. 4 N., R. 6 E., above the flow line of the Arrowrock reservoir, 4 miles below Twin Springs, 18 miles above Arrowrock, and 38 miles from Boise, on the Boise to Twin Springs stage road; about one-fourth mile above Roy Call's ranch house at the mouth of Birch Creek. North Fork, entering about 10 miles above, and South Fork, about 12 miles below, are the main tributaries of Boise River above Arrowrock.

Drainage area.—830 square miles.

Records available.—March 22, 1911, to September 30, 1914.

Gage.—Inclined staff on right bank.

Discharge measurements.—Made from cable about 50 feet upstream from gage.

Channel and control.—Gravel and bowlders; probably permanent.

Extremes of discharge.—Maximum stage recorded during year, 6.0 feet at 5 p. m. May 23 (discharge, 5,520 second-feet); minimum stage recorded, 2.0 feet August 27, September 1, 3–4, 6, 8, 9, and 11 (discharge, 340 second-feet).

Winter flow.—Discharge relation slightly affected by shore ice.

Diversions.—None.

Accuracy.—Rating curve well defined; records only fair because of irregularity of gage readings.

Discharge measurements of Boise River near Twin Springs, Idaho, during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Jan. 22	L. W. Roush	2.18	447	July 28	A. B. Purton	2.40	600
May 26	C. G. Paulsen	4.85	3,500	28	....do	2.40	596

Daily discharge, in second-feet, of Boise River near Twin Springs, Idaho, for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	394	473	452	515	484	583	920	2670	4070	1700	583	340
2	408	494	442	515	484	583	1020	3210	4550	1700	515	340
3	423	515	432	452	394	583	1120	3750	5030	1640	532	340
4	394	650	423	423	408	583	1640	3910	4470	1580	549	340
5	394	785	.....	394	423	657	2150	3590	3910	1520	583	340
6	394	920	.....	394	437	657	2670	3270	3270	1460	515	340
7	515	781	.....	394	452	741	2820	3270	2820	1400	484	340
8	657	657	.....	549	452	825	2820	3910	2380	1340	452	340
9	583	657	.....	423	452	922	2820	4300	2310	1240	452	340
10	515	741	.....	394	452	1020	2800	4550	2240	1200	452	340
11	484	825	.....	394	452	1120	2970	4070	2170	1160	452	340
12	500	737	.....	414	452	1230	3270	3910	2100	1120	452	340
13	515	657	.....	433	452	1340	2820	3910	2190	1070	423	340
14	515	638	.....	452	423	1460	3440	4070	2290	995	423	515
15	515	620	.....	452	394	1520	4070	4230	2380	920	408	657
16	500	602	.....	452	394	1580	4710	4550	2670	870	394	583
17	484	583	.....	452	439	1770	4070	5030	2740	754	340	549
18	452	583	.....	452	484	1960	3600	4710	2820	737	340	515
19	484	583	.....	452	500	1020	3120	4790	2970	737	340	515
20	515	549	.....	452	515	1830	3910	4870	3120	781	340	515
21	484	515	.....	452	576	1830	4000	4710	3120	825	340	484
22	484	494	.....	452	636	1900	3430	5190	2680	737	340	452
23	484	473	.....	452	697	1960	3590	5520	2240	698	340	442
24	484	452	.....	452	658	1700	3590	5350	2100	659	340	432
25	484	473	.....	452	620	1580	3280	4550	2100	620	340	423
26	484	494	.....	452	602	1460	2970	3590	1830	583	340	438
27	484	515	.....	452	583	1290	2970	3590	1830	583	340	452
28	484	515	.....	452	583	1120	2780	3590	1830	583	349	438
29	468	515	.....	452	.....	1070	2580	3590	1700	583	358	423
30	452	515	.....	484	.....	1020	2380	3590	1830	583	367	420
31	452	.....	500	484	.....	970	.....	3830	.....	583	340	.....

NOTE.—Discharge determined from a well-defined rating curve. Discharge estimated, on account of ice, as follows: Dec. 5–10, 425 second-feet; 11–13, 450 second-feet; 14-16, 425 second-feet; 17–24, 375 second-feet, 25–30, 400 second-feet. Discharge interpolated for many days for which gage height was not recorded.

Monthly discharge of Boise River near Twin Springs, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	657	394	480	29,500	B.
November	920	452	600	35,700	B.
December	.....	.....	414	25,500	D.
January	549	394	448	27,500	C.
February	697	394	496	27,500	C.
March	1,960	583	1,220	75,000	B.
April	4,710	920	2,950	176,000	B.
May	5,520	2,670	4,120	253,000	B.
June	5,030	1,700	2,730	162,000	B.
July	1,700	583	999	61,400	B.
August	583	340	414	25,500	B.
September	657	340	422	25,100	B.
The year	5,520	340	1,280	924,000	

BOISE RIVER AT DOWLING'S RANCH, NEAR ARROWROCK, IDAHO.

Location.—In sec. 15, T. 3 N., R. 4 E., at Dowling's ranch on the Boise & Arrowrock Railroad, 2 miles below the Highland power dam, 4 miles below Arrowrock, three-fourths mile above Moore Creek, about 4 miles above the Highland gaging station, and about 16 miles from Boise; below all main tributaries except Moore Creek.

Drainage area.—2,230 square miles.
Records available.—March 13, 1911, to September 30, 1914.
Gage.—Inclined staff on left bank, 200 or 300 yards above ford.
Discharge measurements.—Made from cable about 50 feet below gage.
Channel and control.—Gravel and medium-sized cobbles; probably permanent.
Extremes of discharge.—Maximum stage recorded during year, 7.7 feet at 9.30 a. m. May 23 (discharge, 11,500 second-feet); minimum stage recorded, 2.8 feet August 26 to September 12 (discharge, 649 second-feet).
Winter flow.—Discharge relation affected by ice for short periods.
Diversions.—None between Arrowrock dam and the station. All low-water flow is diverted below during irrigation season.
Accuracy.—Rating curve well defined; records good.

Discharge measurements of Boise River at Dowling's ranch, near Arrowrock, Idaho, during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Nov. 12	Purton and Price[a]	3.75	1,540	Mar. 28	A. B. Purton	4.56	2,740
Jan. 21	Baldwin and Roush	3.20	977	Sept. 15	A. C. Price[a]	3.20	1,030
25	L. W. Roush	3.29	1,050	19	Purton and Price[a]	3.19	971
Feb. 26	A. W. Harrington	3.69	1,430				

[a] Hydrographer, U. S. Reclamation Service.

Daly discharge, in second-feet, of Boise River at Dowling's ranch, near Arrowrock, Idaho, for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	800	971	1,020	.....	1,020	1,540	2,280	5,920	8,040	2,760	1,020	649
2	761	971	883	.....	971	1,600	2,600	6,490	8,370	2,760	1,020	649
3	761	971	842	.....	971	1,480	2,940	7,090	9,040	2,760	1,020	649
4	761	1,110	800	.....	971	1,600	3,320	8,700	7,720	3,320	1,020	649
5	761	1,260	800	.....	.....	1,600	3,520	9,380	6,790	2,760	1,020	649
6	800	1,720	800	.....	.....	1,600	6,210	7,720	4,870	2,600	1,020	649
7	1,020	1,600	800	.....	.....	1,600	6,490	7,720	4,870	2,430	971	649
8	1,160	1,370	800	.....	.....	1,600	6,790	8,370	4,620	2,430	927	649
9	1,160	1,370	800	.....	.....	1,850	6,790	9,040	4,620	2,280	927	649
10	1,060	1,370	761	.....	.....	2,130	7,090	8,370	3,940	2,130	883	649
11	971	1,420	971	722	.....	2,430	7,090	8,040	3,520	2,130	842	649
12	971	1,420	1,020	686	971	2,430	7,090	8,040	3,520	2,130	842	649
13	971	1,420	1,060	800	927	2,600	6,790	8,370	3,520	1,980	800	686
14	971	1,260	1,020	820	927	2,760	7,090	8,040	3,520	1,850	800	761
15	971	1,260	971	841	927	2,940	8,040	9,040	4,160	1,720	800	927
16	927	1,210	.....	862	800	3,320	10,400	9,720	4,620	1,600	800	971
17	927	1,210	.....	883	883	3,940	9,380	9,720	4,870	1,480	800	971
18	927	1,160	.....	971	1,020	4,390	7,720	9,720	4,870	1,370	800	971
19	927	1,160	.....	971	1,060	4,390	7,720	9,720	5,380	1,370	761	971
20	927	1,160	.....	971	1,110	4,160	7,720	9,380	5,120	1,480	722	927
21	927	1,160	.....	1,020	1,370	3,940	8,040	9,720	5,380	1,600	722	883
22	927	1,060	.....	1,060	1,850	3,940	8,040	10,800	4,870	1,420	722	883
23	927	1,060	.....	1,060	1,720	3,940	8,370	11,500	3,940	1,370	722	842
24	927	1,160	.....	1,110	1,600	3,940	7,720	11,100	3,720	1,320	686	800
25	927	1,160	.....	1,060	1,600	3,520	7,090	10,400	3,520	1,260	686	800
26	927	1,260	.....	1,160	1,480	3,130	7,090	9,720	3,520	1,210	649	800
27	927	1,260	.....	1,110	1,480	2,940	6,490	7,400	3,130	1,160	649	800
28	927	1,260	.....	1,110	1,540	2,760	5,920	7,090	3,130	1,160	649	800
29	927	1,260	.....	1,060	.....	2,760	5,650	6,790	3,130	1,110	649	800
30	971	1,160	.....	1,060	.....	2,430	5,380	6,790	2,940	1,060	649	800
31	971	.....	.....	1,020	.....	2,280	.....	7,090	.....	1,060	649	.....

NOTE.—Discharge determined from a well-defined rating curve. Discharge estimated, on account of ice, as follows: Dec. 16–31, 890 second-feet; Jan. 1–10, 1,060 second-feet; Feb. 5–11, 950 second-feet.

Monthly discharge of Boise River at Dowling's ranch, near Arrowrock, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	1,160	761	930	57,200	A.
November	1,720	971	1,240	73,800	B.
December	1,060	.....	890	54,700	C.
January	.....	.....	999	61,400	C.
February	1,850	.....	1,140	63,300	B.
March	4,390	1,480	2,760	170,000	A.
April	10,400	2,280	6,560	390,000	A.
May	11,500	5,920	8,610	529,000	B.
June	9,040	2,940	4,780	284,000	B.
July	3,320	1,060	1,840	113,000	A.
August	1,020	649	814	50,100	B.
September	971	649	773	46,000	B.
The year	11,500	649	2,620	1,890,000	

BOISE RIVER NEAR HIGHLAND, IDAHO.

Location.—In sec. 32, T. 3 N., R. 4 E., about one-fourth mile above Smythe's ranch, and one-half mile below Kirk's ranch (the old Kunzi ranch); and station on the Boise & Arrowrock Railroad, and about 3 miles southwest of the old Highland post office; about 8 miles above the old station near Boise, which it replaced; 2½ miles below the mouth of Moore Creek and below all important tributaries.

Drainage area.—2,650 square miles.

Records available.—December 15, 1894, to October 31, 1904, at the old station; March 18, 1905, to September 30, 1914, at present station.

Gage.—Inclined and vertical staffs installed November 22, 1909. Prior to that date several gages at about the same location but at different datums.

Discharge measurements.—Made from a cable about 100 feet above the present gage.

Channel and control.—Bowlders and gravel; rough; shifts during high water.

Extremes of discharge.—Maximum stage recorded during year, 12.0 feet at 8 a. m. April 16 (discharge, 11,300 second-feet); minimum stage recorded, 3.58 feet, morning of September 6, 8, and 9 (discharge, 706 second-feet).

Winter flow.—Discharge relation seldom affected by ice.

Diversions.—Practically none above station. Low-water flow is all diverted farther down during the irrigating season.

Accuracy.—Measurements sufficient to insure a reliable record even for periods of shifting channel.

Discharge measurements of Boise River near Highland, Idaho, during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Oct. 4	A. C. Price[a]	3.78	822	June 25	A. C. Price[a]	7.15	3,300
Nov. 12	Purton and Price[a]	5.07	1,750	July 1	.....do.....	6.59	3,300
Jan. 20	Baldwin and Roush	4.21	1,140	8	Price and Steward[a]	5.97	2,430
Feb. 26	L. W. Roush	5.09	1,770	17	.....do.....	5.00	1,710
Apr. 4	A. W. Harrington	8.03	4,180	28	A. C. Price[a]	4.42	1,260
18	A. B. Purton	10.62	9,290	30	A. B. Purton	4.31	1,220
May 2	G. C. Baldwin	10.00	7,440	Aug. 12	A. C. Price[a]	3.98	991
28	Price and Tallman[a]	9.35	7,600	24	Tallman and Lakin[a]	3.70	836
June 13	A. B. Purton	7.55	4,350	29	A. B. Purton	3.71	782

[a] Hydrographer, U. S. Reclamation Service.

Daily discharge, in second-feet, of Boise River near Highland, Idaho, for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	836	950	1,150	1,080	1,220	1,880	2,960	6,420	8,020	3,180	1,210	718
2	830	1,080	950	1,150	1,220	1,880	2,920	7,440	8,150	3,030	1,210	718
3	824	1,150	950	1,220	1,020	1,880	3,260	8,370	8,750	2,890	1,140	718
4	824	1,080	950	1,220	950	1,980	4,140	9,300	8,400	2,760	1,280	718
5	824	1,080	950	1,220	1,150	2,080	6,260	9,440	7,550	3,770	1,210	718
6	824	2,080	950	1,220	824	2,080	7,270	7,970	6,430	2,960	1,140	718
7	1,080	2,190	950	1,220	1,020	2,080	7,360	8,100	5,800	2,710	1,140	718
8	1,370	1,610	886	1,220	1,220	2,490	7,760	8,720	5,620	2,470	1,070	718
9	1,300	1,530	824	1,080	1,020	2,670	7,840	9,330	4,820	2,280	1,000	718
10	1,150	1,450	824	950	1,080	2,880	8,420	9,780	4,510	2,200	1,000	718
11	1,080	1,530	1,020	824	1,220	3,220	8,500	10,200	4,200	2,340	1,000	718
12	1,080	1,790	1,080	824	1,080	3,300	8,100	10,100	4,160	2,160	1,000	718
13	1,150	1,530	1,080	950	1,080	3,520	8,510	9,920	4,280	1,980	937	836
14	1,220	1,370	1,220	1,150	1,080	3,750	8,750	9,280	4,280	2,010	937	836
15	1,080	1,300	1,080	1,150	1,080	3,830	9,650	9,440	4,140	1,840	937	1,030
16	1,020	1,300	950	1,080	950	4,340	11,300	9,440	4,720	1,780	873	1,170
17	1,080	1,300	824	1,080	1,020	4,730	10,100	9,600	5,020	1,710	873	1,100
18	1,020	1,220	1,020	1,220	1,220	5,120	9,250	9,600	5,320	1,620	873	1,100
19	1,020	1,220	1,080	1,150	1,220	5,530	8,870	9,280	5,620	1,540	873	1,100
20	1,020	1,220	886	1,080	1,300	5,180	8,800	9,440	5,320	1,550	873	1,030
21	1,080	1,220	824	1,150	1,530	5,120	8,900	9,600	5,020	1,810	873	1,100
22	1,080	1,080	824	1,220	2,190	4,780	9,490	9,600	4,720	1,630	812	1,030
23	1,020	1,080	1,080	1,220	2,300	4,730	9,590	9,920	4,140	1,470	812	963
24	1,020	1,080	950	1,220	2,140	4,670	9,360	9,760	3,870	1,470	806	963
25	1,020	1,150	1,080	1,220	1,980	4,340	9,300	9,600	3,730	1,390	800	963
26	1,020	1,230	1,150	1,220	1,880	3,880	7,970	8,640	3,640	1,320	794	898
27	1,020	1,300	1,020	1,370	1,700	3,690	8,070	8,160	3,540	1,250	788	898
28	1,020	1,450	1,020	1,300	1,790	3,260	7,840	7,680	3,450	1,250	782	898
29	950	1,300	950	1,150	.....	3,090	7,630	7,490	3,360	1,270	776	898
30	950	1,220	1,020	1,220	.....	3,040	6,620	7,460	3,270	1,210	776	898
31	950	.....	1,150	1,220	.....	3,000	.....	7,750	.....	1,210	776	.....

NOTE.—Discharge determined from several rating curves fairly well defined by frequent measurements.

Monthly discharge of Boise River near Highland, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	1,370	824	1,020	62,700	B.
November	2,190	950	1,340	79,700	B.
December	1,220	824	990	60,900	B.
January	1,370	824	1,150	70,700	B.
February	2,300	824	1,340	74,400	B.
March	5,530	1,880	3,480	214,000	B.
April	11,300	2,920	7,830	466,000	B.
May	10,200	6,420	8,930	549,000	C.
June	8,750	3,270	5,130	305,000	B.
July	3,770	1,210	2,000	123,000	B.
August	1,280	776	947	58,200	B.
September	1,170	718	878	52,200	A.
The year	11,300	718	2,920	2,120,000	

SOUTH FORK OF BOISE RIVER NEAR LENOX,[1] IDAHO.

Location.—In sec. 24, T. 2 N., R. 6 E., at R. S. Sandlin's ranch, about 1 mile above mouth of Smith Creek, about 3 miles above flow line of Arrowrock reservoir, 14 miles above mouth of the South Fork, and about 18 miles above Arrowrock dam, about 7 miles south of Lenox post office. Smith Creek, Long Gulch, and Rattlesnake Creek enter between station and Boise River.

[1] Formerly published as near Prairie.

Drainage area.—1,090 square miles.
Records available.—March 24, 1911, to September 30, 1914.
Gage.—Inclined staff on right bank.
Discharge measurements.—Made from a cable about 75 feet above gage.
Channel and control.—Stream bed at the cable is composed of mud and gravel and cuts out and fills; control probably permanent.
Extremes of discharge.—Maximum stage recorded during year, 7.9 feet at 5.30 a. m. May 23 (discharge, 5,450 second-feet); minimum stage recorded, 2.38 feet September 10 and 11 (discharge, 309 second-feet).
Winter flow.—Discharge relation slightly affected by ice.
Diversions.—No important diversions above or below, the river occupying a canyon about 400 feet deep for a large part of its course.
Accuracy.—Rating curves well defined; results good.

Discharge measurements of South Fork of Boise River near Lenox, Idaho, during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Jan. 24	L. W. Roush	2.60	399	July 29	A. B. Purton	2.96	529
May 27	C. G. Paulsen	6.29	3,290	29	....do	2.95	538

Daily discharge, in second-feet, of South Fork of Boise River near Lenox, Idaho, for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	359	400	440	344	400	526	1,260	2,950	3,440	1,260	513	351
2	355	400	362	372	363	526	1,410	3,310	3,560	1,260	513	334
3	352	482	326	400	326	526	1,580	3,950	3,310	1,180	513	316
4	348	440	326	430	363	526	1,840	4,360	3,190	1,480	633	316
5	344	420	335	461	400	526	2,240	4,220	3,190	1,400	559	316
6	362	702	344	421	400	526	3,160	3,690	2,950	1,120	469	316
7	482	758	.....	381	400	550	3,420	3,440	2,950	1,050	469	316
8	526	623	.....	390	420	573	3,420	3,950	2,300	984	469	316
9	526	526	.....	400	440	623	3,550	4,220	2,100	984	448	316
10	526	550	.....	381	420	675	3,810	4,490	1,820	922	469	316
11	504	550	.....	362	400	787	3,810	4,220	1,560	1,120	469	316
12	482	675	.....	433	400	817	3,550	4,360	1,730	984	469	316
13	440	573	.....	504	400	909	3,680	4,090	1,560	806	469	333
14	440	550	.....	462	381	974	3,680	4,090	1,640	806	469	390
15	440	527	.....	420	362	1,170	4,210	4,220	1,730	726	389	448
16	440	504	360	410	372	1,370	4,880	4,490	1,730	752	370	513
17	420	482	381	400	381	1,580	4,220	4,760	1,910	700	351	469
18	400	420	390	400	381	974	3,950	4,760	2,100	675	351	469
19	400	410	400	400	410	1,940	3,560	4,630	2,100	650	316	469
20	400	400	.....	390	440	1,840	3,950	4,490	2,300	626	351	448
21	420	400	.....	381	573	1,840	4,220	4,490	1,910	700	333	448
22	400	400	.....	362	623	1,840	3,950	4,900	1,910	752	316	428
23	400	400	.....	420	573	1,840	3,820	5,450	1,730	556	333	428
24	400	400	.....	400	573	1,580	3,950	4,490	1,560	602	333	415
25	420	400	.....	400	573	1,490	3,820	4,090	1,560	602	316	402
26	400	400	.....	400	550	1,490	3,560	3,310	1,560	579	316	389
27	400	482	.....	400	538	1,490	3,560	3,440	1,480	556	333	389
28	400	504	.....	400	526	1,490	3,440	3,070	1,400	556	333	389
29	381	440	.....	400	.....	1,410	3,190	3,070	1,330	534	333	389
30	400	461	.....	400	.....	1,410	2,840	3,070	1,330	513	351	389
31	400	.....	.....	400	.....	1,330	.....	3,260	.....	448	351	.....

NOTE.—Discharge determined from three well-defined rating curves applicable as follows: Oct. 1 to Apr. 15; Apr. 17 to July 29; and July 30 to Sept. 30. Discharge estimated, on account of ice, as follows: Dec. 7–15, 350 second-feet; 20–31, 380 second-feet.

Monthly discharge of South Fork of Boise River near Lenox, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	526	344	418	25,700	B.
November	758	400	489	29,100	B.
December	.....	.....	367	22,600	C.
January	504	344	404	24,800	B.
February	623	326	442	24,500	B.
March	1,940	526	1,130	69,500	B.
April	4,880	1,260	3,380	201,000	B.
May	5,450	2,950	4,040	248,000	B.
June	3,560	1,330	2,100	125,000	B.
July	1,480	448	835	51,300	A.
August	633	316	410	25,200	A.
September	513	316	382	22,700	A.
The year	5,450	316	1,200	869,000	

COTTONWOOD CREEK NEAR ARROWROCK, IDAHO.

Location.—In sec. 35, T. 4 N., R. 5 E., about 1½ miles above the mouth of the creek, and about one-fourth mile inside the boundary of the national forest, about 5 miles northeast of Arrowrock. A small tributary enters from the west about half a mile below the station.

Drainage area.—Not measured.

Records available.—March 7 to September 30, 1914.

Gage.—Vertical staff spiked to large cottonwood tree on left bank.

Discharge measurements.—Made by wading. Conditions fair.

Channel and control.—Rocky, but badly choked with drift, which shifts during high water.

Extremes of discharge.—Maximum stage recorded during year, 2.1 feet at 6 p. m. March 18 and 19 (discharge, 85 second-feet); maximum discharge, 102 second-feet (gage height, 1.9 feet) April 15. Minimum stage recorded, 0.16 foot September 2–8 (discharge, 1 second-foot).

Diversions.—Small ditch diverts water near mouth of creek.

Accuracy.—Gage heights hard to read accurately at high stages; control shifted badly during high water. Results good after May 1.

Discharge measurements of Cottonwood Creek near Arrowrock, Idaho, during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Mar. 7	G. C. Baldwin	1.61	25.0	May 26	C. G. Paulsen	.96	23.9
27	A. B. Purton	1.60	36.0	27	do	.97	26.2
Apr. 17	do	1.62	75.6	July 27	A. B. Purton	.28	2.4
May 1	G. C. Baldwin	1.24	47.8	27	do	.27	2.1

Daily discharge, in second-feet, of Cottonwood Creek near Arrowrock, Idaho, for the year ending Sept. 30, 1914.

Day.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	.....	29	50	17	9.0	1.6	1.1
2	.....	32	48	17	7.3	1.3	1.0
3	.....	36	52	17	6.7	1.3	1.0
4	.....	41	50	20	6.7	1.3	1.0
5	.....	63	48	20	6.7	1.3	1.0
6	.....	61	45	20	6.2	1.3	1.0
7	24	54	43	17	4.9	1.3	1.0
8	28	57	43	13	4.4	1.3	1.0
9	29	60	43	13	4.4	1.3	1.1
10	37	73	43	13	4.4	1.2	1.1
11	42	65	43	13	4.4	1.1	1.1
12	43	63	43	28	4.4	1.1	2.1
13	53	72	40	25	4.4	1.2	2.6
14	50	86	39	17	4.0	1.2	3.1
15	57	102	37	15	4.4	1.2	3.5
16	64	88	37	13	4.0	1.2	3.1
17	72	78	35	13	3.7	1.3	2.6
18	85	76	34	13	3.7	1.1	2.3
19	80	80	34	13	3.3	1.1	2.1
20	69	82	29	17	10	1.1	2.1
21	69	73	28	13	8.2	1.1	2.1
22	69	73	28	13	6.2	1.1	2.1
23	53	62	28	9.6	5.3	1.1	2.1
24	44	62	29	9.6	4.6	1.1	2.1
25	40	57	28	15	4.2	1.1	2.1
26	40	54	27	11	3.7	1.1	2.1
27	36	54	25	9.6	2.3	1.1	2.1
28	36	52	23	9.6	2.2	1.1	2.1
29	36	48	21	9.6	1.8	1.1	2.1
30	36	48	20	9.6	1.8	1.1	2.1
31	29	.....	18	.....	1.6	1.1	.....

NOTE.—Discharge determined from several rating curves and by the indirect method for shifting channels.

Monthly discharge of Cottonwood Creek near Arrowrock, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
March 7-31	85	24	48.8	2,420	D.
April	102	29	62.7	3,730	C.
May	52	18	35.8	2,200	B.
June	28	9.6	14.8	881	B.
July	10	1.6	4.80	295	B.
August	1.6	1.1	1.19	73.2	C.
September	3.5	1.0	1.86	111	C.
The period	.....	.....	.....	9,710	

MALHEUR RIVER NEAR DREWSEY, OREG.

Location.—In sec. 5, T. 20 S., R. 34 E., at Jones's ranch, just below the heading of the Jones-Miller ditch; about 13 miles above Drewsey. Pine Creek enters one-eighth mile above and Griffin Creek 1 mile below station.

Drainage area.—Not measured.

Records available.—March 9 to September 30, 1914. Discontinued Oct. 4, 1914.

Gage.—Inclined staff on right bank.

Discharge measurements.—Made by wading or from a boat.

Channel and control.—Rocky; fairly permanent.

Extremes of discharge.—Maximum stage recorded, 6.0 feet April 15 and 16 (discharge, 2,420 second-feet); minimum stage recorded, 1.1 feet August 22–23 and 26–27 (discharge, 22 second-feet).

Diversions.—None above the station.

Accuracy.—Results good.

Cooperation.—Field data furnished by Malheur Adjudication Survey.

Discharge measurements of Malheur River near Drewsey, Oreg., during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Oct. 1	McAllister and Ingram[a]	1.42	35.3	Apr. 30	J. L. McAllister[a]	3.35	427
Mar. 9	Purton and McAllister[a]	3.23	366	May 25	do	3.19	378
27	J. L. McAllister[a]	3.48	523	June 23	do	1.85	73.2
Apr. 21	do	4.15	918	Sept. 1	do	1.15	23.5

[a] Employee, Oregon State engineer.

Daily discharge, in second-feet, of Malheur River near Drewsey, Oreg., for the year ending Sept. 30, 1914.

Day.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	.....	432	388	199	63	30	24
2	.....	480	367	188	58	30	24
3	.....	712	367	199	58	28	24
4	.....	778	409	199	58	28	24
5	.....	1,260	432	188	49	28	24
6	.....	1,580	409	168	49	28	24
7	.....	1,500	388	188	49	28	24
8	.....	1,140	388	188	49	28	24
9	388	1,260	388	178	47	32	24
10	432	1,260	388	150	45	32	26
11	432	1,260	409	142	45	28	28
12	409	1,260	348	118	43	28	28
13	388	1,180	348	150	41	26	28
14	480	1,580	348	133	41	24	30
15	679	2,420	329	118	41	24	32
16	991	2,420	409	104	41	24	41
17	1,260	1,180	348	91	38	24	45
18	1,030	1,070	329	91	38	26	35
19	1,070	991	312	85	35	26	32
20	1,070	847	312	79	32	24	35
21	1,070	918	329	74	32	24	35
22	991	847	329	74	35	22	32
23	991	812	329	74	30	22	35
24	847	744	455	79	32	26	35
25	712	712	367	111	32	26	32
26	505	588	329	126	32	22	32
27	505	648	278	104	30	22	32
28	409	588	235	85	30	26	32
29	432	505	210	68	30	24	32
30	388	432	199	68	30	24	35
31	348	.....	199	.....	30	24	.....

NOTE.—Discharge determined from a fairly well-defined rating curve.

Monthly discharge of Malheur River near Drewsey, Oreg., for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
March 9-31	1,260	348	688	31,400	B.
April	2,420	432	1,050	62,500	B.
May	455	199	344	21,200	A.
June	199	68	127	7,560	A.
July	63	30	40.7	2,500	A.
August	32	22	26.1	1,600	B.
September	45	24	30.3	1,800	B.
The period				129,000	

MALHEUR RIVER AT RIVERSIDE, OREG.

Location.—In sec. 22, T. 23 S., R. 37 E., at the wagon bridge about 100 yards below the mouth of South Fork, about half a mile above Riverside post office.

Drainage area.—1,910 square miles. Approximate as watershed is not well defined on existing maps.

Records available.—January 16, 1909, to August 16, 1913; December 14, 1913, to September 30, 1914.

Gage.—Chain gage on downstream side of bridge.

Discharge measurements.—Made from highway bridge or by wading.

Channel and control.—Stones and small bowlders; control may be changed by ice jams, which occasionally occur.

Extremes of discharge.—Maximum stage recorded during year 4.4 feet March 17 and 18 (discharge, 2,040 second-feet); minimum stage recorded, 0.7 foot July 28 to August 5 (discharge, 2.6 second-feet).

Diversions.—Some water is diverted for irrigating ranches along the river; probably only a small proportion of the total flow is used.

Accuracy.—Results are fairly good for ordinary stages, but extreme high and low water are uncertain, as no measurements have been obtained at these stages.

Dicharge measurements of Malheur River at Riverside, Oreg., during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Dec. 14	G. C. Baldwin	1.73	83.3	May 1	J. L. McAllister [a]	2.77	514
Mar. 12	McAllister and Purton	3.80	1,390	27	do	2.49	360
28	J. L. McAllister [a]	3.08	753	June 26	do	1.61	94.3
Apr. 25	do	3.35	916	Sept. 4	do	1.10	25.5

[a] Employee, Oregon State engineer.

Daily discharge, in second-feet, of Malheur River at Riverside, Oreg., for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1					132	1,690	529	529	240	80	2.6	21
2					160	1,210	529	473	209	80	2.6	17
3					189	764	590	421	267	63	2.6	25
4					162	764	884	374	267	56	2.6	25
5					162	1,110	926	473	267	71	2.6	25
6					115	1,690	1,360	421	267	71	5.4	25
7					94	1,530	1,580	421	209	48	5.4	25
8					125	1,810	1,530	421	209	48	5.4	25
9					132	1,810	1,470	374	224	48	5.4	25
10					115	1,690	1,420	374	180	48	5.4	25
11					132	1,530	1,470	352	180	48	5.4	30
12					137	1,470	1,470	374	141	48	5.4	36
13					137	1,470	1,470	374	141	48	17	48
14			83		141	1,580	1,530	374	141	30	17	48
15					123	1,810	1,470	374	141	30	17	48
16					134	1,920	1,810	374	141	30	17	48
17					112	2,040	1,580	374	141	30	17	48
18					134	2,040	1,470	421	98	30	17	48
19					159	1,920	1,260	421	98	30	17	48
20					361	1,920	1,530	421	98	21	17	48
21					1,020	1,580	1,530	421	48	17	17	63
22					397	1,470	1,060	473	56	17	17	63
23					374	1,300	970	473	56	13	17	63
24					319	691	884	421	56	10	17	63
25				1,020	559	374	884	421	98	5.4	17	63
26				1,210	421	803	803	398	98	5.4	17	63
27				233	421	764	727	374	137	5.4	21	63
28				216	622	727	656	352	137	2.6	21	63
29				178	.....	374	656	352	119	2.6	21	63
30				164	.....	656	656	331	119	2.6	21	63
31				164	.....	656	.....	397	.....	2.6	21	.....

NOTE.—Discharge determined from a fairly well-defined rating curve. Discharge estimated, on account of ice, as follows: Dec. 15–31, 80 second-feet; Jan. 1–21, 125 second-feet; 22–24, 300 second-feet.

Monthly discharge of Malheur River at Riverside, Oreg., for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
December 14–31	.....	.....	80.2	2,860	D.
January	.....	.....	218	13,400	D.
February	1,020	94	253	14,100	C.
March	2,040	374	1,330	81,800	A.
April	1,810	529	1,160	69,000	A.
May	529	331	405	24,900	A.
June	267	48	153	9,100	B.
July	80	2.6	33.6	2,070	B.
August	21	2.6	12.7	781	B.
September	63	17	43.9	2,610	B.
The period	.....	.....	.....	221,000	

MALHEUR RIVER NEAR NAMORF, OREG.

Location.—In sec. 2, T. 21 S., R. 40 E., at F. J. Froman's ranch, 2 miles above Namorf, and 15 miles above Harper; about 20 miles below Juntura and the mouth of the North Fork; about 23 miles from Westfall.

Drainage area.—Not measured.

Records available.—May 24, 1913, to September 30, 1914.

Gage.—Inclined staff on right bank about 100 yards above ranch house.

Discharge measurements.—Made by wading or from flume 100 yards above the gage.

Channel and control.—Cobblestones and gravel; fairly permanent.

Extremes of discharge.—Maximum stage recorded during year, 5.75 feet at 6.30 a. m. March 18 (discharge, 2,900 second-feet); minimum stage recorded, 2.40 feet August 8–10 (discharge, 15 second-feet).

Winter flow.—Affected by ice for short periods.

Diversions.—Station is above the Harper basin and Vale diversions. Considerable water is diverted in the vicinity of Drewsey and from the North Fork near Juntura and in Agency Valley.

Accuracy.—Results good except for frozen season.

Discharge measurements of Malheur River near Namorf, Oreg., during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Dec. 11	G. C. Baldwin	2.96	132	Apr. 23	J. L. McAllister[a]	4.78	1,690
Mar. 11	Purton and McAllister[a]	5.05	1,990	May 18	do	3.95	794
30	J. L. McAllister[a]	4.25	1,030	19	do	3.88	729
31	do	4.18	984	June 30	do	3.04	191
Apr. 23	do	4.80	1,670	Sept. 8	do	2.67	66.0

[a] Employee, Oregon State engineer.

Daily discharge, in second-feet, of Malheur River near Namorf, Oreg., for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	108	161	182	.....	250	2,320	1,010	947	444	178	26	54
2	117	161	182	.....	250	2,060	907	849	444	139	26	61
3	124	169	182	.....	226	1,220	1,010	849	444	139	26	54
4	108	169	169	.....	226	1,010	1,220	802	444	157	26	54
5	108	169	161	.....	226	1,340	1,450	897	444	139	26	54
6	108	169	158	.....	203	1,940	1,810	849	444	139	26	61
7	117	169	155	.....	182	2,190	2,320	849	477	169	21	61
8	117	182	152	.....	182	2,320	2,444	802	444	139	15	61
9	124	182	149	.....	203	2,320	2,320	756	444	131	15	74
10	142	182	146	.....	203	2,440	2,320	756	412	111	15	74
11	154	182	146	.....	203	2,060	2,320	802	381	111	21	74
12	161	182	111	.....	203	2,060	2,320	756	369	104	26	74
13	161	182	128	.....	161	1,940	2,320	712	323	88	29	80
14	161	182	146	.....	182	2,060	2,190	669	351	88	29	88
15	161	182	146	.....	203	2,440	2,190	669	335	74	29	104
16	161	182	137	.....	203	2,710	2,320	756	323	69	29	111
17	161	182	128	.....	161	2,840	2,710	756	281	54	29	131
18	161	182	111	.....	203	2,970	2,320	756	231	49	33	131
19	161	182	120	.....	301	2,710	2,190	756	222	49	33	139
20	161	169	128	.....	301	2,580	1,940	712	178	49	38	121
21	161	169	111	.....	859	2,440	1,810	669	178	49	38	121
22	161	169	111	.....	1,220	2,440	1,810	756	169	49	45	111
23	161	169	111	.....	635	2,060	1,740	756	139	49	45	104
24	161	169	111	.....	520	2,190	1,620	849	157	45	45	104
25	161	169	111	.....	811	1,940	1,560	849	178	38	49	104
26	161	182	128	.....	811	1,570	1,500	802	222	29	49	104
27	161	182	104	.....	720	1,450	1,380	756	270	29	49	104
28	161	182	111	484	1,510	1,110	1,270	669	260	29	49	104
29	161	182	128	357	.....	1,110	1,160	588	222	29	54	104
30	161	182	111	250	.....	1,010	1,050	549	186	26	54	104
31	161	.....	111	250	.....	1,010	.....	513	.....	26	54	.....

NOTE.—Discharge determined from two well-defined rating curves, with shift Apr. 23. Discharge estimated, on account of ice, as follows: Jan. 1–21, 225 second-feet; 22–24, 475 second-feet; 25–27, 975 second-feet.

Monthly discharge of Malheur River near Namorf, Oreg., for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	161	108	147	9,040	B.
November	182	161	176	10,500	B.
December	182	104	135	8,300	D.
January			336	20,700	D.
February	1,510	161	406	22,500	C.
March	2,970	1,010	2,000	123,000	A.
April	2,710	907	1,820	108,000	A.
May	947	513	757	46,500	A.
June	477	139	314	18,700	A.
July	178	26	83.0	5,100	A.
August	54	15	33.8	2,080	B.
September	139	54	90.8	5,400	B.
The year	2,970	15	524	380,000	

VINES DITCH NEAR LITTLE VALLEY, OREG.

Location.—In the SE. ¼ sec. 32, T. 18 S., R. 42 E., just above the Oregon Eastern Railway bridge, about half a mile below intake, and between the gage and cable of the station on Malheur River, 5 miles below Little Valley.

Records available.—Irrigating seasons of 1904 and 1905; April 9 to September 30, 1914.

Gage.—Vertical staff about 50 feet above the railway bridge.

Discharge measurements.—Made from a plank at the gage.

Channel and control.—Earth section; somewhat obstructed by weeds at times.

Accuracy.—Results good, except for August and September, when they are uncertain on account of obstructed channel and lack of measurements.

Cooperation.—Record furnished by State Water Board.

Vines ditch diverts from right bank of Malheur River.

The records for this station are presented in order to make possible an estimate of the total flow of Malheur River at this point.

Discharge measurements of Vines ditch near Little Valley, Oreg., during the year ending Sept, 30, 1914.

[Made by J. L. McAllister.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*		*Feet.*	*Sec.-ft.*		*Feet.*	*Sec.-ft.*
Apr. 9	1.50	5.9	May 15	1.85	11.2	July 17	2.21	14.9
May 7	2.00	13.8	June 4	1.90	10.0			

Daily discharge, in second-feet, of Vines ditch near Little Valley, Oreg., for the year ending Sept. 30, 1914.

Day.	Apr.	May.	June.	July.	Aug.	Sept.	Day.	Apr.	May.	June.	July.	Aug.	Sept.
1	.....	6.6	8.4	10.7	0.2	3.4	16	12.9	12.0	4.3	15.2	1.1	4.0
2	.....	10.0	9.2	10.7	.0	3.6	17	13.4	12.0	4.3	14.9	1.2	4.0
3	.....	9.5	11.4	8.4	.0	3.8	18	13.4	12.4	3.8	14.9	1.3	4.3
4	.....	9.0	9 9	8.1	.3	3.8	19	12.9	12.9	3.2	13.5	1.8	4.3
5	.....	13.8	9.9	9.9	1.2	3.8	20	1.4	12.9	1.8	12.3	1.8	4.3
6	.....	5.0	8.4	9.2	1.2	3.8	21	1.4	12.4	1.2	11.8	1.9	4.6
7	.....	10.6	8.4	.0	1.2	3.8	22	1.2	12.0	1.8	11.4	1.9	4.6
8	.....	12.0	8.7	1.8	1.2	4.0	23	1.4	1.4	3.8	1.0	1.9	4.6
9	5.9	12.9	8.4	7.3	1.0	4.0	24	5.4	.1	6.4	.8	1.9	4.8
10	5.9	12.9	8.4	11.4	.7	4.0	25	10.0	4.1	9.9	.7	1.9	4.8
11	6.2	13.8	8.4	11.4	.7	4.0	26	10.0	13.2	7.0	.5	2.5	4.8
12	5.8	12.4	7.0	9.9	.7	4.0	27	9.5	11.4	11.4	.2	3.0	4.8
13	8.7	14.7	5.8	9.9	1.0	4.0	28	4.5	11.1	11.4	.0	3.0	4.6
14	10.0	6.6	5.0	9.9	1.1	4.0	29	8.7	10.7	10.7	.0	3.0	4.6
15	12.9	12.9	4.8	15.8	1.2	4.0	30	8.0	10.2	10.7	.0	3.2	4.6
							31	.....	8.4	.....	.3	3.2	.....

NOTE.—Discharge determined from two fairly well-defined rating curves applicable Apr. 9 to May 25 and May 26 to September 30.

Monthly discharge of Vines ditch near Little Valley, Oreg., for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
April 9–30	13.4	1.2	7.70	336	B.
May	14.7	.1	10.3	633	B.
June	11.4	1.2	7.12	424	B.
July	15.8	.0	7.48	460	B.
August	3.2	.0	1.49	92	C.
September	4.8	3.4	4.19	249	C.
The period	.....	.....	.....	2,190	

MALHEUR RIVER NEAR LITTLE VALLEY, OREG.

Location.—In sec. 32, T. 18 S., R. 43 E., about three-fourths mile above J. F. Maddock's house, and about one-half mile above the bridge at the crossing of the Oregon & Eastern Railroad; about 5 miles below Little Valley siding, and about 14 miles above Vale.

Drainage area.—Not measured.

Records available.—March 22 to September 30, 1914.

Gage.—Inclined staff on left bank.

Discharge measurements.—Made from cable at Maddock's house.

Channel and control.—Gravel; fairly permanent.

Extremes of discharge.—Maximum stage recorded during year, 3.8 feet at 7.30 p. m. April 10 (discharge, 2,690 second-feet); minimum stage recorded, 0.05 foot at 7 a. m. August 11 and 6.20 a. m. August 12 (discharge, 14 second-feet).

Diversions.—Vines ditch heads on the right bank about one-half mile above the gage; Farmer's ditch diverts 1 mile below the gage.

Accuracy.—Results good.

Discharge measurements of Malheur River near Little Valley, Oreg., during the year ending Sept. 30, 1914.

[Made by J. L. McAllister.[a]]

Date	Gage height.	Discharge.	Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*		*Feet.*	*Sec.-ft.*		*Feet.*	*Sec. ft.*
Mar. 22	3.65	2,500	May 15	1.85	650	July 17	0.40	46.7
Apr. 8	3.64	2,500	June 4	1.57	457	Aug. 11	.06	14.0
May. 7	2.08	823	July 1	.89	149			

[a] Employee, Oregon State engineer.

Daily discharge, in second-feet, of Malheur River near Little Valley, Oreg., for the year ending Sept. 30, 1914.

Day.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	.....	970	970	509	146	25	44
2	.....	925	925	541	137	25	46
3	.....	882	840	646	137	25	46
4	.....	840	800	477	125	21	49
5	.....	970	800	509	137	17	46
6	.....	1,300	759	417	110	17	46
7	.....	1,960	800	417	125	19	49
8	.....	2,200	800	417	122	17	52
9	.....	2,440	800	417	110	17	52
10	.....	2,570	800	417	97	16	52
11	.....	2,570	759	417	93	14	56
12	.....	2,440	759	390	76	14	59
13	.....	2,570	759	417	76	17	62
14	.....	2,440	759	362	76	17	68
15	.....	2,320	646	337	59	19	68
16	.....	2,320	720	303	59	17	73
17	.....	3,070	759	275	47	19	86
18	.....	2,940	759	241	44	23	97
19	.....	2,200	720	205	37	27	102
20	.....	1,960	682	186	35	33	110
21	.....	1,730	682	179	35	35	110
22	2,440	1,510	646	146	33	37	110
23	2,200	1,160	682	152	35	35	117
24	2,080	970	720	128	35	35	97
25	1,960	1,010	800	122	35	37	86
26	1,730	1,410	759	146	30	40	86
27	1,510	1,110	720	186	27	40	80
28	1,300	1,200	609	205	27	40	80
29	1,160	1,200	541	186	25	44	80
30	925	1,060	541	179	25	46	86
31	970	.....	541	.....	25	46	.....

NOTE.—Discharge determined from a well-defined rating curve.

Monthly discharge of Malheur River near Little Valley, Oreg., for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
March 22-31	2,440	925	1,630	32,300	B.
April	3,070	840	1,740	104,000	B.
May	970	541	737	45,300	A.
June	646	122	318	18,900	A.
July	146	25	70.3	4,320	A.
August	46	14	26.9	1,650	B.
September	117	44	73.2	4,360	B.
The period	.....	.....	.....	211,000	

MALHEUR RIVER AT VALE, OREG.

Location.—In sec. 29, T. 18 S., R. 45 E., at the highway bridge at Vale. Bully Creek enters one-fourth mile above and Willow Creek 2½ miles below the station.

Drainage area.—4,860 square miles. Area approximate, as watershed is not well defined on available maps.

Records available.—March 20, 1890, to June 30, 1891; January 1, 1895, to September 30, 1896; March 20, 1903, to April 1, 1907; and May 29, 1908, to September 30, 1914.

Gage.—Chain gage on downstream side of bridge.

Discharge measurements.—Made from a suspension footbridge about one-fourth mile downstream, or by wading.

Channel and control.—Gravel; shifts. One channel only.

Extremes of discharge.—Maximum stage recorded during year, 7.8 feet at 12.15 p. m. March 18 (discharge, 3,590 second-feet); minimum stage recorded, 3.3 feet August 16–21 (discharge, 10 second-feet).

Winter flow.—Discharge relation occasionally seriously affected by ice.

Diversions.—Important diversions are made for irrigation both above and below station.

Accuracy.—Records for low stage not satisfactory on account of shifts in channel; high-stage records reliable.

Discharge measurements of Malheur River at Vale, Oreg., during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Dec. 18	G. C. Baldwin	4.18	159	May 5	J. L. McAllister[a]	4.94	658
Mar. 5	Purton and McAllister[a]	6.28	1,800	11	do	4.76	584
5	do	6.25	1,760	20	do	4.68	542
16	J. L. McAllister[a]	7.60	3,560	June 9	do	4.32	357
18	do	7.64	3,520	27	A. B. Purton	3.83	129
23	do	6.95	2,510	July 2	J. L. McAllister[a]	3.76	95.6
Apr. 6	do	6.31	1,850	18	do	3.42	27.4
10	do	6.88	2,460	Aug. 3	do	3.40	24.2
16	do	6,77	2,400	Sept. 12	McAllister and Smith[a]	3.45	25.9

[a] Employee, Oregon State engineer.

Daily discharge, in second-feet, of Malheur River at Vale, Oreg., for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	103	133	167	244	333	3,210	1,080	882	372	87	24	27
2	103	133	167	244	287	3,090	996	809	333	87	24	27
3	103	150	167	244	204	2,270	1,080	774	392	82	21	27
4	103	150	54	244	204	1,960	1,330	739	358	82	21	27
5	103	150	54	244	204	1,960	1,560	706	333	95	21	27
6	103	150	54	266	204	2,960	1,850	739	333	70	18	34
7	133	167	103	266	204	3,090	2,380	706	358	204	18	27
8	133	167	103	287	.....	3,460	2,610	640	343	70	18	27
9	167	186	103	287	.....	3,590	2,500	578	343	59	18	27
10	167	186	133	244	.....	3,340	2,500	547	319	54	15	27
11	150	186	133	204	.....	3,090	2,380	578	305	48	14	27
12	150	186	133	204	.....	2,840	2,380	578	305	39	13	27
13	150	167	133	204	204	2,730	2,380	547	292	39	.....	27
14	150	167	167	186	204	2,840	2,170	547	283	39	.....	27
15	150	167	167	167	204	3,210	2,270	547	278	39	.....	27
16	150	167	167	204	204	3,340	2,380	547	270	31	10	27
17	150	167	167	244	167	3,460	2,500	578	257	31	10	27
18	150	167	153	244	167	3,460	2,610	608	236	31	10	27
19	133	180	150	244	204	3,340	2,170	608	197	31	10	34
20	133	192	167	244	204	3,340	1,960	547	160	31	10	34
21	133	204	167	244	767	2,840	1,850	489	140	24	10	34
22	133	186	167	339	1,640	2,840	1,750	518	124	24	20	34
23	133	167	167	434	965	2,500	1,750	578	109	24	20	34
24	133	167	156	739	767	2,380	1,510	547	95	24	20	34
25	133	186	144	882	1,020	2,170	1,470	608	124	24	20	43
26	133	204	133	1,200	1,280	1,960	1,370	608	150	24	27	43
27	133	186	133	1,040	1,060	1,660	1,240	608	136	24	27	43
28	133	167	167	608	1,710	1,500	1,200	547	136	24	27	43
29	133	167	167	489	.....	1,330	1,120	489	136	24	27	52
30	133	167	204	382	.....	1,200	996	392	115	24	27	52
31	133	.....	204	382	.....	1,120	.....	382	.....	24	27	.....

NOTE.—Discharge determined from several parallel rating curves fairly well defined. Discharge estimated Feb. 8–12 at 200 second-feet on account of ice; Aug. 13–15, estimated at 11 second-feet.

Monthly discharge of Malheur River at Vale, Oreg., for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	167	103	134	8,240	B.
November	204	133	171	10,200	B.
December	204	54	144	8,850	C.
January	1,200	167	369	22,700	C.
February	1,710	.....	479	26,600	C.
March	3,590	1,120	2,650	163,000	A.
April	2,610	996	1,840	109,000	A.
May	882	382	599	36,800	A.
June	392	95	244	14,500	A.
July	204	24	48.8	3,000	B.
August	27	10	18.1	1,110	C.
September	52	27	32.4	1,930	C.
The year	3,590	10	562	406,000	

SOUTH FORK OF MALHEUR RIVER AT RIVERSIDE, OREG.

Location.—In sec. 27, T. 23 S., R. 37 E., about three-fourths mile from Riverside post office, and 1,000 feet above the mouth.

Drainage area.—800 square miles. Approximate, as watershed is not well defined on existing maps.

Records available.—May 25, 1910, to August 16, 1913; December 14, 1913, to September 30, 1914.

Gage.—Inclined staff.

Discharge measurements.—Made from a cable and car near gage or by wading.

Channel and control.—Gravel and bowlders; free from vegetation and not likely to shift.

Extremes of discharge.—Maximum stage recorded during year, 4.6 feet February 21 and 28 (discharge, 808 second-feet); minimum discharge, zero, July 30 to August 1.

Winter flow.—Discharge relation affected by ice during severe winters. Ice jams occasionally form above the station.

Diversions.—Small undetermined amount of water is used for irrigation along the stream.

Accuracy.—Results fair except at extreme low water and during frozen season.

Discharge measurements of South Fork of Malheur River at Riverside, Oreg., during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Dec. 14	G. C. Baldwin	[a]1.96	18.7	May 1	J. L. McAllister[b]	1.76	16.8
Mar. 12	J. L. McAllister[b]	3.40	280	27	do	1.65	10.8
28	do	2.35	67.4	June 25	do	1.48	4.7
Apr. 25	do	1.87	20.5	Sept. 4	do	1.52	4.0

[a] Discharge relation affected by ice. [b] Employee, Oregon State engineer.

Daily discharge, in second-feet, of South Fork of Malheur River at Riverside, Oreg., for the year ending Sept. 30, 1914.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	.....	31	701	44	16	7.0	5.0	0	6.7
2	.....	44	307	47	13	5.3	5.0	.8	6.7
3	.....	.....	208	35	8.7	3.4	.4	.8	5.4
4	.....	.....	220	49	5.3	3.4	.4	2.0	4.0
5	.....	.....	378	54	5.3	4.0	5.0	2.0	.....
6	.....	.....	619	54	5.3	5.3	5.0	4.2	.....
7	.....	24	360	44	4.0	5.3	5.0	4.2	.....
8	.....	44	417	44	4.0	5.3	2.4	4.2	.....
9	.....	28	398	39	2.6	5.3	2.4	4.2	.....
10	.....	31	341	39	2.6	5.3	2.4	4.2	.....
11	.....	35	307	49	1.0	5.3	2.4	4.2	.....
12	.....	49	324	49	2.6	5.3	2.3	4.2	.....
13	.....	49	276	49	1.0	5.3	2.3	4.0	4.8
14	.....	39	341	54	1.0	24	1.5	4.0	4.8
15	.....	44	324	31	1.0	5.3	1.5	4.0	4.8
16	.....	39	307	31	1.0	5.3	1.5	7.0	4.8
17	.....	39	276	31	1.0	5.3	1.5	7.0	6.3
18	.....	44	701	31	1.0	2.6	1.5	7.0	6.3
19	.....	54	220	31	2.6	2.6	1.5	7.0	6.3
20	.....	220	208	31	2.6	2.6	2.3	7.0	6.3
21	.....	808	163	31	5.3	2.6	2.3	7.7	10
22	.....	195	134	21	13	4.0	2.3	7.7	10
23	.....	195	134	18	13	4.0	2.1	7.3	10
24	.....	116	125	23	13	4.0	2.1	7.3	10
25	378	324	85	23	13	5.0	2.1	7.3	10
26	247	125	66	23	12	5.3	2.1	6.7	10
27	108	153	60	18	11	5.3	2.1	6.7	10
28	113	808	70	18	8.7	5.3	.8	6.7	14
29	54	.....	39	18	8.7	5.3	.8	6.7	14
30	49	.....	39	18	8.7	5.3	0	6.7	17
31	49	.....	24	.....	8.7	.....	0	6.7	.....

NOTE.—Discharge determined from two fairly well-defined rating curves applicable Jan. 25 to June 30 and Sept. 4–30; shifting July 1 to Sept. 3. Discharge estimated on account of ice, as follows: Jan. 1–21, 40 second-feet; Jan. 22–24, 100 second-feet; Feb. 3–6, 34 second-feet. Discharge Sept. 5–12 estimated at 4.4 second-feet.

Monthly discharge of South Fork of Malheur River at Riverside, Oreg., for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
December 14-31	.....	.....	[a] 14.9	534	D.
January	378	.....	69.0	4,240	D.
February	808	.....	131	7,280	C.
March	701	24	265	16,300	A.
April	54	18	34.9	2,080	A.
May	16	1.0	6.35	390	B.
June	24	2.6	5.31	316	B.
July	5.0	0	2.19	135	C.
August	7.7	0	5.15	317	C.
September	17	4.0	7.25	431	C.
The period	.....	.....	.....	32,000	

[a] Estimated on account of ice.

NORTH FORK OF MALHEUR RIVER AT SCOTT'S RANCH, NEAR BEULAH, OREG.

Location.—In sec. 33, T. 18 S., R. 37 E., at M. W. Scott's ranch, just above Agency Valley, and about 3½ miles above Beulah. Warm Springs Creek is tributary in Agency Valley.

Drainage area.—Not measured.

Records available.—January 1 to September 30, 1914, when the station was discontinued.

Gage.—Vertical staff on left bank. New gage, at slightly different location, installed March 8.

Discharge measurements.—Made by wading or from a footbridge 35 feet above the gage.

Channel and control.—Gravel; shifting.

Extremes of discharge.—Maximum stage recorded during year, 4.8 feet at 6 p. m. April 15 (discharge, 866 second-feet); minimum stage recorded, 0.8 foot (on gage installed March 8) September 9, 12–14 (discharge, 40 second-feet).

Winter flow.—Discharge relation not seriously affected by ice.

Diversions.—None of importance above station except Scott ditch, which heads about 1 mile above station.

Accuracy.—Records only fair because of shifting control.

Discharge measurements of North Fork of Malheur River at Scott's ranch, near Beulah, Oreg., during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Oct. 3	McAllister and Ingram [b]	[a] 0.75	57.5	May 1	J. L. McAllister [b]	2.59	345
Mar. 8	McAllister and Purton.	2.06	224	23	.....do.....	2.80	393
26	J. L. McAllister [b]	2.75	354	29	.....do.....	2.17	262
Apr. 2	.....do.....	2.65	332	June 19	.....do.....	1.33	112
29	.....do.....	2.70	354	Aug. 20	.....do.....	.84	42.1

[a] Gage height read on old gage. [b] Employee, Oregon State engineer.

Daily discharge, in second-feet, of North Fork of Malheur River at Scott's ranch, near Beulah, Oreg., for the year ending Sept. 30, 1914.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	65	61	211	302	313	215	97	52	43
2	69	61	152	399	334	197	92	52	43
3	67	51	132	490	355	197	92	52	43
4	67	69	166	562	399	197	100	49	43
5	69	61	188	814	377	180	92	48	43
6	63	61	396	814	355	197	90	48	43
7	69	63	377	788	334	180	87	48	43
8	71	61	292	788	355	180	84	45	43
9	48	65	467	762	377	164	81	44	40
10	54	61	490	736	355	164	78	44	43
11	48	61	514	762	355	149	77	44	43
12	54	63	490	762	334	149	76	44	40
13	54	61	661	736	313	149	74	43	40
14	69	58	711	762	334	134	74	43	40
15	69	54	661	866	344	134	71	42	43
16	69	60	586	840	355	121	71	42	43
17	65	58	661	736	355	121	70	44	43
18	71	61	762	686	344	121	70	44	43
19	69	61	686	686	334	115	67	43	43
20	69	61	661	711	344	109	67	42	45
21	69	102	611	661	355	109	63	43	45
22	65	97	562	611	366	109	63	43	51
23	65	82	611	586	377	109	62	43	47
24	67	82	514	538	355	109	62	43	51
25	67	108	467	490	334	121	62	43	52
26	65	78	399	467	313	121	60	43	52
27	65	102	334	421	292	109	59	43	52
28	61	166	313	377	252	109	58	43	55
29	58	.....	302	334	242	97	56	43	55
30	58	.....	313	334	215	97	55	43	55
31	54	.....	302	.....	215	.....	55	43	.....

NOTE.—Discharge determined from 3 rather poorly defined rating curves.

Monthly discharge of North Fork of Malheur River at Scott's ranch, near Beulah, Oreg. for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
January	71	48	63.6	3,910	B.
February	166	51	72.5	4,030	C.
March	762	132	451	27,700	C.
April	866	302	627	37,300	C.
May	399	215	332	20,400	B.
June	215	97	142	8,450	B.
July	100	55	73.1	4,490	C.
August	52	42	44.7	2,750	C.
September	55	40	45.5	2,710	C.
The period	.....	.....	.....	112,000	

NORTH FORK OF MALHEUR RIVER AT FOLEY'S RANCH, NEAR BEULAH, OREG.

Location.—In sec. 22, T. 20 S., R. 37 E., at Michael Foley's ranch, below the Agency Valley reservoir site; about 7 miles below Beulah, and 7 miles above Juntura and the mouth.

Drainage area.—436 square miles. Approximate, as watershed is not well defined on available maps.

Records available.—March 21, 1909, to June 30, 1912; November 13, 1913, to July 25, 1914, when station was discontinued.

Gage.—Vertical staff on right bank. Chain gage about 300 feet upstream used March 21, 1909, to May 25, 1910.

Discharge measurements.—Made from cable and car 80 feet below the gage or by wading.

Channel and control.—Rough; large bowlders and gravel; fairly permanent.

Extremes of discharge.—Maximum stage recorded during year, 4.5 feet April 7 (discharge, 1,120 second-feet); minimum stage recorded, 1.6 feet December 3 (discharge, 27 second-feet).

Winter flow.—Discharge relation not seriously affected by ice, but there is considerable daily fluctuation.

Diversions.—Some water diverted for irrigation in vicinity of Beulah.

Accuracy.—Results fair except in winter months.

Discharge measurements of North Fork of Malheur River at Foley's ranch, near Beulah, Oreg., during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Oct. 4	McAllister and Ingram[a]	1.88	49.6	Apr. 28	J. L. McAllister[a]	3.20	429
Dec. 13	G. C. Baldwin	2.00	67.3	May 2	do	2.95	320
Mar. 12	Purton and McAllister[a]	3.15	411	28	do	2.83	262
Apr. 1	J. L. McAllister[a]	2.92	324	June 20	do	2.23	92.4
20	do	3.80	727	Aug. 25	do	1.91	43.9

[a] Employes, Oregon State engineer.

Daily discharge, in second-feet, of North Fork of Malheur River at Foley's ranch, near Beulah, Oreg., for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.
1			67	99	67	168	326	291	216	86	
2			67	99	67	197	498	291	210	83	
3			27	99	67	168	570	272	223	38	
4	52		67	99	54	168	570	377	234	106	
5			43	67	54	229	790	333	200	86	
6			43	67	43	302	1,010	333	184	78	
7			64	67	43	302	1,120	312	216	78	
8			67	43	82	621	835	312	210	72	
9			67	34	43	521	835	355	184	69	
10			54	34	67	570	780	333	170	69	
11			54	43	67	570	948	333	155	69	
12			54	43	67	428	835	312	155	55	
13		54	67	62	82	428	891	312	150	53	
14		54	67	82	82	835	891	291	142	49	
15		54	67	82	54	1,060	948	312	129	45	
16		54	34	82	54	1,060	891	355	118	45	
17		67	34	82	67	1,060	891	377	106	49	
18		67	34	82	67	1,060	835	400	96	45	
19		67	43	82	70	1,060	835	355	96	49	
20		67	54	67	70	835	780	355	90	45	
21		67	54	82	119	835	753	333	90	49	
22		67	54	82	119	702	726	333	90	49	
23		67	54	82	115	570	673	355	86	45	
24		67	54	82	119	570	621	355	96	43	
25		67	67	82	142	700	570	333	129	43	44
26		67	99	82	109	700	545	333	106		
27		67	99	82	142	700	471	291	106		
28		67	99	82	168	498	423	272	102		
29		67	99	64		420	377	245	90		
30		67	99	67		342	312	223	86		
31			99	67		334		216			

NOTE.—Discharge determined from two fairly well-defined rating curves, one applicable Nov. 13 to Apr. 20, and the other Apr. 21 to July 25.

Monthly discharge of North Fork of Malheur River at Foley's ranch, near Beulah, Oreg., for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
November 13-30	67	54	64.1	2,290	B.
December	99	27	62.9	3,870	C.
January	99	34	73.2	4,500	C.
February	168	43	82.1	4,560	C.
March	1,060	168	581	35,700	B.
April	1,120	312	718	42,700	A.
May	400	216	319	19,600	A.
June	234	86	142	8,450	B.
July 1-25	106	38	59.9	2,970	B.
The period				125,000	

BULLY CREEK NEAR WESTFALL, OREG.

Location.—In sec. 20, T. 18 S., R. 41 E., at the bridge at Jay Branson's ranch, on the Vale-Burns stage road, three-fourths mile southwest of Westfall post office, and just below Indian Creek.

Records available.—July 21 to July 29, 1911; January 1 to December 31, 1913, when station was discontinued.

Drainage area.—Not measured.

Gage.—Vertical staff installed February 11, 1912, about 200 feet above bridge on right bank. Originally a chain gage at the bridge.

Channel and control.—Bed of gravel and sand; probably shifting; one channel only.

Discharge measurements.—Made from the bridge or by wading.

Winter flow.—Discharge relation not affected by ice.

Diversions.—Water diverted both above and below station. Practically the only flow at the station during the summer is return water and seepage.

Accuracy.—Results rather poor.

Discharge measurements of Bully Creek near Westfall, Oreg., during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Dec. 16	G. C. Baldwin	2.44	4.6	Apr. 18	J. L. McAllister[a]	2.55	45.8
16	do	2.44	4.4	May 3	do	2.17	11.1
Mar. 6	Purton and McAllister[a]	4.38	307	22	do	1.95	4.7
13	do	3.34	164	30	do	2.00	5.6
25	J. L. McAllister[a]	2.87	91.4	June 16	do	1.86	2.8
Apr. 3	do	2.65	57.9	Aug. 15	do	1.79	.7

[a] Employee, Oregon State engineer.

Daily discharge, in second-feet, of Bully Creek near Westfall, Oreg., for the period Oct. 1 to Dec. 31, 1913.

Day.	Oct.	Nov.	Dec.	Day.	Oct.	Nov.	Dec.	Day.	Oct.	Nov.	Dec.
1	1.7	3.1	3.8	11	3.1	3.1	4.5	21	3.8	3.1	4.5
2	1.7	3.1	3.8	12	3.1	3.1	4.5	22	3.8	3.1	4.5
3	1.7	3.1	3.8	13	3.1	3.1	4.5	23	3.5	3.1	4.5
4	1.7	3.1	3.8	14	2.8	3.1	4.5	24	3.5	3.1	4.5
5	2.2	3.1	3.1	15	2.8	3.1	4.5	25	3.5	3.1	4.5
6	2.8	3.1	3.8	16	4.2	3.1	4.5	26	3.5	3.1	4.5
7	2.8	3.1	3.8	17	4.2	3.1	4.5	27	3.3	3.8	4.5
8	6.5	3.1	3.8	18	3.8	3.1	4.5	28	3.3	3.8	4.5
9	3.3	3.1	3.8	19	3.8	3.1	4.5	29	3.3	3.8	4.5
10	3.1	3.1	4.5	20	3.8	3.1	4.5	30	3.3	4.5	4.5
								31	3.3	.....	4.5

NOTE.—Discharge determined from a fairly well-defined curve and by the indirect method for shifting channels.

Monthly discharge of Bully Creek near Westfall, Oreg., for the period Oct. 1 to Dec. 31, 1913.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	6.5	1.7	3.24	199	D.
November	4.5	3.1	3.22	192	D.
December	4.5	3.1	4.27	263	B.
	.....	.....	.....	654	

BULLY CREEK AT WARMSPRINGS, NEAR VALE, OREG.

Location.—In sec. 4, T. 18 S., R. 43 E., about one-fourth mile below mouth of Cottonwood Creek, and the same distance below the Warmsprings stage station, on the road from Vale to Westfall; about 13 miles west of Vale.

Drainage area.—Not measured.

Records available.—August 11, 1903, to March 10, 1904; January 24, 1905, to March 31, 1907; January 1, 1911, to September 30, 1914. Records also available for a station about 12 miles below, April 8, 1904, to December 31, 1905.

Gage.—Staff gage on left bank; in two sections, one vertical and one inclined.

Discharge measurements.—Made from a cable or by wading.

Channel and control.—One channel only; bed, coarse gravel; control shifting.

Diversions.—Numerous ranch diversions above and below station.

Regulation.—The storage reservoir for Bully Creek project is about 3 miles above Warmsprings.

Extremes of discharge.—Maximum stage recorded during year, 3.7 feet at 8 a. m. March 9 (approximate discharge, 1,060 second-feet); minimum stage recorded, 0.55 foot October 5–7, October 23 to November 1, and November 14–22 (discharge, 2 second-feet); minimum discharge, 1 second-foot (gage height, 0.64 foot) August 14–23.

Winter flow.—Discharge relation not affected by ice.

Accuracy.—Estimates only approximate, owing to shifting control.

Discharge measurements of Bully Creek at Warmsprings, near Vale, Oreg., during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Dec. 9	G. C. Baldwin	0.74	8.8	May 4	J. L. McAllister[a]	1.14	31.5
Mar. 6	Purton and McAllister[a]	3.00	598	21	do	.88	11.3
14	do	3.45	837	30	do	.78	7.0
24	J. L. McAllister[a]	2.40	285	June 15	do	.80	6.9
Apr. 4	do	1.85	126	Aug. 14	do	.64	1.0
17	do	1.98	160				

[a] Employee, Oregon State engineer.

Daily discharge, in second-feet, of Bully Creek at Warmsprings, near Vale, Oreg., for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	3	2	.....	13	40	551	110	52	4	5	.....	2
2	3	3	.....	13	40	551	66	47	4	5	.....	2
3	3	3	.....	13	40	528	100	41	3	5	.....	2
4	3	3	.....	15	35	551	128	32	3	5	.....	2
5	2	3	.....	17	.....	484	162	27	3	5	.....	2
6	2	3	.....	17	.....	622	214	20	3	5	.....	2
7	2	3	.....	17	.....	672	214	19	3	5	.....	2
8	2	3	.....	17	.....	672	187	12	4	5	.....	2
9	2	3	9	30	.....	862	187	6	4	5	.....	2
10	3	3	8	17	.....	806	187	12	4	5	.....	2
11	3	3	10	17	.....	698	162	12	114	5	.....	2
12	3	30	10	17	.....	647	187	12	652	5	.....	2
13	3	3	10	13	10	647	187	12	5	5	.....	2
14	3	2	10	13	10	834	187	12	5	5	1	2
15	3	2	10	13	10	834	187	12	7	3	1	2
16	3	2	10	10	10	919	200	12	7	3	1	3
17	3	2	10	10	10	735	160	12	6	2	1	3
18	3	2	10	10	10	724	142	12	6	1	1	3
19	3	2	.....	10	10	662	120	12	4	1	1	3
20	3	2	.....	10	10	484	120	13	4	1	1	3
21	3	2	.....	13	59	455	84	11	4	1	1	3
22	3	2	.....	13	278	314	93	12	4	1	1	3
23	2	3	.....	100	204	325	86	20	4	1	1	3
24	2	3	.....	82	247	269	95	9	4	1	1	3
25	2	3	.....	82	247	266	87	13	82	1	1	3
26	2	3	.....	82	178	221	96	13	6	.....	1	3
27	2	3	.....	30	218	194	80	8	5	.....	1	5
28	2	3	.....	52	528	168	72	9	5	.....	1	5
29	2	3	.....	40	.....	156	72	4	5	.....	1	6
30	2	3	.....	40	.....	142	59	7	5	.....	1	6
31	2	.....	.....	40	.....	120	.....	5	.....	.....	1	.....

NOTE.—Discharge determined from several rating curves rather poorly defined on account of shifting control. Discharge Dec. 1–8 estimated at 8 second-feet on account of doubtful gage heights. Discharge estimated, on account of ice, as follows: Dec. 19–31, 10 second-feet; Feb. 5–12, 15 second-feet; discharge July 26 to Aug. 13 estimated at 1 second-foot; discharge June 12 doubtful.

Monthly discharge of Bully Creek at Warmsprings, near Vale, Oreg., for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	3	2	2.55	157	D.
November	30	2	3.57	212	D.
December	10	.....	9.39	577	C.
January	100	10	27.9	1,720	D.
February	528	10	82.6	4,590	C.
March	919	120	520	32,000	B.
April	214	59	134	7,970	B.
May	52	4	16.1	990	B.
June	652	3	32.3	1,920	C.
July	5	1	2.97	183	C.
August	1	1	1.00	61	D.
September	6	2	2.83	168	D.
The year	919	1	69.8	50,500	

WILLOW CREEK NEAR MALHEUR, OREG.

Location.—In sec. 6, T. 14 S., R. 41 E., at Morfitt's ranch, about half a mile above the flow line of reservoir No. 3 of the Willow River Land & Irrigation Co., about 2 miles south of Malheur.

Drainage area.—Not measured.

Records available.—March 27, 1912, to September 30, 1914. Records were also obtained in this vicinity November 20, 1904, to August 14, 1906, and March 19, 1910, to August 2, 1911.

Gage.—Barrett & Lawrence water-stage recorder on left bank; referred to vertical staff on right bank.

Discharge measurements.—Made by wading or from a bridge a short distance below gage.

Channel and control.—Stream is in artificial channel; control shifts somewhat at high water.

Extremes of discharge.—Maximum stage recorded during year (Barrett & Lawrence water-stage recorder), 5.42 feet at 8 a. m. March 16 (discharge, 209 second-feet); minimum stage recorded, 2.09 feet August 22 to September 2 (discharge, 0.1 second-foot).

Winter flow.—Discharge relation seriously affected by ice.

Diversions.—Summer flow almost entirely diverted above the station for irrigation.

Accuracy.—Records are rather poor on account of ice in winter and extremely low flow during greater part of summer.

Discharge measurements of Willow Creek near Malheur, Oreg., during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Mar. 17	A. B. Purton	5.14	179	June 28	A. B. Purton	2.79	8.7
Apr. 6	G. C. Baldwin	4.08	75.3	28	.....do	2.79	9.0

Daily discharge, in second-feet, of Willow Creek near Malheur, Oreg., for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Dec.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	5.6	12	8.7	.....	21	58	40	24	6.9	0.2	0.1
2	9.0	13	7.7	.....	23	55	36	24	7.4	.2	.1
3	10	13	.....	.....	24	52	25	21	6.5	.2	.1
4	10	13	.....	.....	27	51	26	18	16	.7	.1
5	10	14	.....	.....	32	56	25	15	14	.3	.1
6	11	15	.....	.....	51	69	25	15	14	.3	.1
7	13	15	.....	.....	66	76	24	21	11	.3	.1
8	14	15	.....	.....	76	75	20	23	5.1	.3	.1
9	14	16	.....	.....	82	76	15	22	3.8	.3	.2
10	13	16	.....	.....	100	81	15	23	3.2	.3	.2
11	13	17	.....	.....	115	79	16	22	3.5	.2	.2
12	13	17	.....	.....	144	90	15	19	3.2	.2	.2
13	12	16	.....	.....	165	79	15	21	3.0	.2	.5
14	12	16	.....	.....	186	75	13	24	3.0	.2	.6
15	12	15	.....	.....	194	76	11	20	3.2	.2	1.4
16	11	16	.....	.....	205	81	13	15	3.5	.2	1.7
17	12	16	.....	.....	195	84	14	12	1.9	.1	3.0
18	13	16	.....	.....	182	86	18	11	.6	.1	3.3
19	13	16	.....	.....	179	83	19	8.8	.6	.1	3.2
20	13	16	.....	.....	155	78	18	7.4	.5	.1	2.6
21	13	16	.....	.....	144	75	16	4.5	.6	.1	2.4
22	13	16	.....	.....	126	80	22	3.8	.2	.1	2.3
23	13	16	.....	.....	115	90	29	3.2	.2	.1	2.4
24	13	15	.....	17	105	79	34	2.7	.2	.1	2.4
25	13	15	.....	16	95	73	41	6.1	.3	.1	2.4
26	13	12	.....	15	87	69	40	9.0	.6	.1	2 2
27	13	10	.....	15	83	68	37	9.0	.2	.1	1 6
28	10	9.7	.....	16	74	60	34	9.0	.2	.1	1.6
29	10	10	.....	.....	69	58	31	10	.4	.1	1.6
30	12	9.2	.....	.....	68	51	26	10	1.1	.1	1.6
31	12	.....	.....	.....	63	.....	24	.....	.7	.1	.....

NOTE.—Discharge determined from two fairly well-defined curves and by the indirect method for shifting channels. Discharge estimated, on account of ice, Dec. 3–31, 6 second-feet; Feb. 1–23, 6.5 second-feet.

Monthly discharge of Willow Creek near Malheur, Oreg., for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	14	5.6	11.9	732	C.
November	17	9.2	14.4	857	C.
December	.....	.....	• 6.14	378	D.
January	.....	.....	[a]5.00	307	D.
February	.....	.....	8.16	453	D.
March	205	21	105	6,460	B.
April	90	51	72.1	4,290	B.
May	41	11	23.8	1,460	B.
June	24	2.7	14.4	857	B.
July	16	.2	3.73	229	C.
August	.7	.1	.187	11.5	
September	3.3	.1	1.28	76.2	D.
The year	205	.1	22.2	16,100	

[a] Estimated on account of ice.

WILLOW CREEK NEAR BROGAN, OREG.

Location.—In sec. 2, T. 15 S., R. 42 E., about 1½ miles below the diversion dam and heading of the High Line canal of Willow River Land & Irrigation Co.; about 4 miles northwest of Brogan. Mormon Basin Creek enters above station and Pole Creek below.

Drainage area.—Not measured.

Records available.—February 17, 1912, to September 30, 1914, at present location.
Gage.—Barrett & Lawrence water-stage recorder on right bank.
Discharge measurements.—Made by wading.
Channel and control.—Gravel and sand, with large bowlders; shifting.
Extremes of discharge.—Maximum stage recorded during year (Barrett & Lawrence water-stage recorder), 3.46 feet at 6 p. m. March 6 (discharge approximately 90 second-feet, as rating table does not extend to this point). Mean gage height March 6, 2.74 feet (mean estimated discharge, 44 second-feet). Minimum stage recorded, 0.94 foot October 1–6 (discharge, 0.1 second-foot).
Winter flow.—Discharge relation affected by ice.
Diversions.—Normal summer flow all diverted above and below station.
Regulation.—Flood water stored in reservoirs 1 and 3 of Willow River Land & Irrigation Co.
Accuracy.—Results poor, owing to poor measuring conditions and gage-height records and to the small quantity of water.

Discharge measurements of Willow Creek near Brogan, Oreg., during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Mar. 17	A. B. Purton	2.05	13.2	June 27	A. B. Purton	1.37	[a]0.2
Apr. 7	G. C. Baldwin	2.11	13.4				

[a] Estimated.

Daily discharge, in second-feet, of Willow Creek near Brogan, Oreg., for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.
1	0.1	0.2	.....	17	11	18	7.8	0.2	0.3
2	.1	.2	.....	17	7.6	19	7.8	.1	.3
3	.1	.2	.....	15	4.6	19	7.8	.2	6.1
4	.1	.2	.....	21	5.3	12	8.3	2.4	9.9
5	.1	.2	.....	26	7.2	9.9	8.3	2.4	.....
6	.1	.2	.....	44	13	12	5.8	.2	.....
7	.2	.2	.....	44	13	11	5.6	.1	.....
8	.2	.2	.....	44	13	9.9	5.4	.1	.....
9	.2	.2	.....	38	12	9.2	4.7	.3	.....
10	.2	.2	.....	32	11	8.5	4.7	.5	.....
11	.1	.2	.....	22	11	8.1	4.4	.6	.....
12	.1	.2	.....	17	11	7.2	7.0	.2	.....
13	.1	.2	.....	14	10	12	4.7	.2	.....
14	.1	.2	.....	13	10	13	4.1	.2	.....
15	.1	.2	.....	13	11	14	4.0	.2	.....
16	.2	.1	3.5	12	14	15	3.9	.2	.....
17	.2	.1	3.5	13	15	13	3.5	1.0	.....
18	.2	.1	3.5	13	16	11	3.1	2.7	.....
19	.2	.1	3.7	15	19	6.1	3.1	2.4	.....
20	.2	.2	3.7	15	21	5.2	2.8	2.3	.....
21	.2	.2	4.8	15	26	6.0	1.9	2.3	.....
22	.2	.2	5.8	14	28	5.8	2.4	2.2	.....
23	.2	.2	7.0	14	28	6.5	2.4	2.0	.....
24	.2	.2	7.8	13	21	6.5	1.8	1.9	.....
25	.2	.2	7.8	13	21	6.5	2.4	1.8	.....
26	.2	.2	6.9	12	17	5.8	4.7	1.6	.....
27	.2	.2	7.0	11	20	5.8	.2	1.5	.....
28	.2	.2	8.3	11	21	6.1	.2	1.5	.....
29	.2	.2	.....	11	19	8.7	.2	1.0	.....
30	.2	.2	.....	11	19	9.2	.2	.5	.....
31	.2	.....	.....	11	.....	8.5	.....	.3	.....

NOTE.—Discharge determined from three poorly defined rating curves and by the indirect method for shifting channels. Discharge Feb. 1–15 estimated on account of ice, at 2 second-feet. Discharge Aug. 5 to Sept. 30 estimated at 0.5 second-foot.

Monthly discharge of Willow Creek near Brogan, Oreg., for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	0.2	0.1	0.16	9.8	
November	.2	.1	.19	11.3	
December	.....	.....	[a]2.00	123	D.
January	.....	.....	[a]2.29	141	D.
February	8.3	.....	3.69	205	C.
March	44	11	18.7	1,150	C.
April	28	4.6	15.2	904	D.
May	19	5.2	9.95	612	D.
June	8.3	.2	4.11	245	D.
July	2.7	.1	1.07	65.8	D.
August	9.9	.....	.97	59.6	
September	.....	.....	.50	29.8	
The year	44	.1	4.91	3,560	

[a] Estimated on account of ice.

COW CREEK NEAR BROGAN, OREG.

Location.—In sec. 24, T. 14 S., R. 41 E., at road crossing about 300 yards above junction with Willow Creek, about 12 miles northwest of Brogan.

Drainage area.—Not measured.

Records available.—January 31, 1912, to September 30, 1914.

Gage.—Barrett & Lawrence water-stage recorder on right bank.

Discharge measurements.—Made by wading.

Channel and control.—Large bowlders; probably permanent.

Extremes of discharge.—Maximum stage recorded during year (Barrett & Lawrence water-stage recorder), 2.73 feet at 4 a. m. March 8 (discharge, approximately 12 second-feet); minimum stage recorded, 1.24 feet at 5.30 p. m. July 23, 5.45 p. m. July 27, and 6 p. m. August 2 (discharge, 0.1 second-foot).

Winter flow.—Discharge relation affected by ice.

Diversions.—Water is diverted for irrigation in Cow Valley.

Accuracy.—Results poor on account of exceedingly small flow.

Cooperation.—Gage-height record furnished by the Willow River Land & Irrigation Co.

Only monthly summaries published owing to small flow and probable inaccuracies of daily discharge estimates.

Discharge measurements of Cow Creek near Brogan, Oreg., during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Mar. 17	A. B. Purton	1.65	1.7	June 29	A. B. Purton	1.35	[a]0.25
Apr. 7	G. C. Baldwin	1.46	.6				

[a] Estimated.

Monthly discharge of Cow Creek near Brogan, Oreg., for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).
	Maximum.	Minimum.	Mean.	
October	0.5	0.4	0.47	28.9
November	.6	.4	.54	32.1
December	.5	.3	.37	22.8
January	.4	.3	.38	23.4
February	.8	.3	.44	24.4
March	[a] 11.0	.7	[a] 2.69	165
April	.6	.4	.53	31.5
May	.5	.3	.35	21.5
June	.4	.2	.32	19.0
July	.4	.2	.22	13.5
August	.2	.2	.20	12.3
September	.4	.2	.32	19.0
The year	[a] 11.0	.2	.57	413

[a] Estimated.

PAYETTE RIVER NEAR HORSESHOE BEND, IDAHO.

Location.—In sec. 14, T. 7 N., R. 2 E., about 3 miles above Horseshoe Bend post office; below the main tributaries. Shafer and Squaw creeks enter below the station.

Drainage area.—2,240 square miles at old site, which was 2 miles upstream; not measured for new site.

Records available.—May 3, 1912, to September 30, 1914, at present site. February 13, 1906, to November 22, 1912, at old site in sec. 2, T. 7 N., R. 2 E., 2 miles farther upstream. Two small creeks, both on the left side, enter between the two stations.

Gage.—Barrett & Lawrence water-stage recorder on right bank; inclined staff reference gage. Sloping gage on right bank at old site.

Discharge measuremets.—Made from cable.

Control.—Large gravel; rocky; permanent under ordinary conditions at both sites.

Extremes of discharge.—Maximum stage recorded during year, 7.1 feet, 10 a. m. to 2 p. m. May 23 and 4 a. m. to 8 a. m. May 24 (discharge, 12,900 second-feet); minimum stage recorded, 1.0 foot at 7 p. m. September 1 (discharge, 751 second-feet).

Winter flow.—Discharge relation affected at times by ice.

Diversions.—Few diversions above the station; practically all the low-water flow diverted about 2½ miles below station for Horseshoe Bend plant of Idaho-Oregon Light & Power Co.

Accuracy.—Records reliable.

Discharge measurements of Payette River near Horseshoe Bend, Idaho, during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Nov. 14	C. G. Paulsen	1.86	1,490	Apr. 20	A. W. Harrington	5.40	8,210
15	....do	1.73	1,330	July 4	L. W. Roush	3.27	3,760
Feb. 10	L. W. Roush	1.43	1,070	Aug. 26	....do	1.22	920

Daily discharge, in second-feet, of Payette River near Horseshoe Bend, Idaho, for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	1,040	1,050	1,230	1,170	1,100	1,450	2,300	6,050	10,000	4,160	1,340	801
2	998	1,170	1,040	1,220	1,040	1,450	2,300	6,520	10,300	4,060	1,340	808
3	943	1,250	920	1,240	928	1,420	2,600	7,240	10,800	3,860	1,330	814
4	943	1,170	898	1,210	936	1,490	3,020	7,970	10,800	3,660	1,320	814
5	943	1,180	1,010	1,180	1,050	1,490	2,520	7,970	10,300	3,860	1,290	808
6	950	1,530	982	1,160	966	1,470	6,050	7,720	9,480	3,760	1,280	814
7	1,120	1,640	1,080	1,150	920	1,530	6,520	7,720	8,720	3,470	1,240	808
8	1,360	1,470	1,060	1,210	1,100	1,620	6,520	8,220	7,970	3,290	1,200	814
9	1,330	1,370	1,010	1,190	1,080	1,760	6,760	8,970	7,240	3,110	1,200	828
10	1,240	1,350	966	1,050	1,060	1,880	7,240	9,480	6,760	3,020	1,190	828
11	1,150	1,950	1,040	1,060	1,120	2,010	7,720	9,480	6,280	3,020	1,170	821
12	1,210	2,080	1,130	998	1,110	2,080	8,620	9,480	5,930	2,850	1,160	876
13	1,270	1,760	1,060	1,130	1,120	2,220	9,510	9,480	6,050	2,680	1,120	966
14	1,300	1,490	1,130	1,150	1,080	2,370	10,400	9,740	6,160	2,600	1,120	950
15	1,220	1,380	1,140	1,140	1,080	2,680	11,300	10,000	6,160	2,520	1,100	1,120
16	1,130	1,380	1,020	1,120	1,060	2,850	11,300	10,800	6,280	2,370	1,070	1,270
17	1,130	1,380	936	1,050	1,100	3,020	10,300	11,300	6,520	2,300	1,040	1,300
18	1,110	1,390	982	1,140	1,140	3,380	8,720	11,600	6,760	2,150	982	1,320
19	1,120	1,420	1,050	1,160	1,170	3,660	7,720	11,800	7,000	2,080	1,020	1,300
20	1,130	1,450	990	1,140	1,210	3,570	7,970	11,800	7,000	2,010	1,020	1,240
21	1,150	1,410	958	1,090	1,410	3,570	8,220	11,800	6,760	2,010	1,010	1,220
22	1,150	1,290	958	1,150	1,640	3,660	7,720	12,100	6,520	2,010	990	1,140
23	1,130	1,320	1,120	1,200	1,530	3,760	7,480	12,600	6,050	1,880	974	1,070
24	1,120	1,300	1,130	1,150	1,500	3,570	7,720	12,900	5,580	1,820	943	1,040
25	1,120	1,130	1,140	1,210	1,540	3,200	7,480	12,600	5,350	1,640	936	1,020
26	1,120	1,290	1,150	1,220	1,460	2,930	7,240	12,100	5,350	1,590	906	1,010
27	1,120	1,460	1,120	1,220	1,410	2,760	7,000	11,800	5,120	1,510	890	1,010
28	1,120	1,500	1,040	1,190	1,410	2,600	6,520	11,300	4,900	1,500	883	990
29	1,070	1,390	1,060	1,120	.....	2,450	6,050	10,800	4,680	1,480	869	974
30	1,050	1,360	1,090	1,120	.....	2,450	5,810	10,300	4,470	1,420	855	958
31	1,050	.....	1,120	1,130	.....	2,370	.....	10,000	.....	1,390	828	.....

NOTE.—Discharge determined from a well-defined rating curve. Discharge estimated Dec. 2-3, Apr. 12-15, and July 25-26.

Monthly discharge of Payette River near Horseshoe Bend, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	1,360	943	1,120	68,900	A.
November	2,080	1,050	1,410	83,900	A.
December	1,230	898	1,050	64,600	B.
January	1,240	998	1,150	70,700	C.
February	1,640	920	1,190	66,100	B.
March	3,760	1,420	2,470	152,000	A.
April	11,300	2,300	7,020	418,000	A.
May	12,900	6,050	10,100	621,000	A.
June	10,800	4,470	7,040	419,000	A.
July	4,160	1,390	2,550	157,000	A.
August	1,340	828	1,080	66,400	A.
September	1,320	801	991	59,000	A.
The year	12,900	801	3,100	2,250,000	

NORTH FORK OF PAYETTE RIVER AT LARDO, IDAHO.

Location.—In sec. 8, T. 18 N., R. 3 E., about one-fourth mile below the outlet of Big Payette Lake, and about the same distance south of Lardo post office. No tributaries between the lake and the gage.

Drainage area.—Not measured.

Records available.—September 1, 1908, to September 30, 1914.

Gage.—Inclined staff on left bank installed July 25, 1911, 30 feet upstream from the vertical staff put in October 14, 1908; datum of inclined gage same as that of the previous gage. The original temporary gage, established August 25, 1908, was about 1¼ miles below the lake.

Discharge measurements.—Made by wading or from a cable about half a mile below the gage.

Channel and control.—Fairly large stones; fairly permanent.

Extremes of discharge.—Maximum stage recorded during year, 6.4 feet at 5 p. m. May 25 (discharge, 2,730 second-feet); minimum stage recorded, 1.6 feet October 9, 10, and November 8 (discharge, 24 second-feet).

Winter flow.—Discharge relation not affected by ice.

Accuracy.—Rating curve well defined; records good.

Discharge measurements of North Fork of Payette River at Lardo, Idaho, during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Oct. 26	C. G. Paulsen	1.68	29.5	June 30	L. W. Roush	3.93	729
Apr. 14	A. W. Harrington	3.20	346				

Daily discharge, in second-feet, of North Fork of Payette River at Lardo, Idaho, for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	35	30	65	60	86	81	102	762	1,840	641	102	45
2	34	30	65	65	86	86	102	826	1,840	613	102	45
3	32	30	65	65	81	86	102	928	1,840	585	102	43
4	30	30	65	65	81	86	102	1,110	1,670	532	96	43
5	28	29	65	65	81	86	110	1,110	1,510	532	96	41
6	27	27	65	65	81	86	110	1,110	1,510	482	93	41
7	27	25	65	65	78	86	130	1,110	1,340	458	90	39
8	26	24	65	65	78	86	153	1,180	1,180	435	86	39
9	24	27	65	65	78	86	178	1,340	1,110	390	81	39
10	24	29	63	65	78	86	206	1,510	963	348	81	37
11	26	30	63	65	78	86	237	1,590	893	328	78	37
12	28	31	63	65	78	81	271	1,670	826	308	78	37
13	28	34	60	68	78	81	308	1,760	826	271	75	36
14	28	36	60	68	78	81	369	1,840	826	254	75	36
15	28	37	60	72	78	81	435	2,010	860	237	72	37
16	27	39	60	72	78	81	558	2,010	860	237	72	41
17	27	41	60	72	78	81	641	2,190	860	206	68	41
18	27	43	60	72	78	81	585	2,190	893	178	65	45
19	27	45	60	75	78	86	613	2,100	893	178	63	45
20	27	47	56	75	78	86	641	2,100	963	178	63	45
21	27	50	56	78	78	86	641	2,100	1,040	166	60	45
22	27	52	56	78	78	86	670	2,280	1,110	153	60	45
23	27	54	56	78	78	90	731	2,370	1,040	142	56	45
24	27	54	54	81	81	90	794	2,550	1,040	135	54	45
25	27	56	54	81	81	93	794	2,730	963	130	54	45
26	29	60	54	86	81	93	762	2,550	963	126	52	45
27	30	60	54	86	81	93	762	2,460	963	120	52	45
28	30	63	54	86	81	93	700	2,370	860	114	52	45
29	30	65	54	86	.....	96	670	2,190	762	110	50	45
30	30	65	54	86	.....	102	700	2,010	700	107	47	45
31	30	.....	54	86	.....	102	.....	1,930	.....	107	47	.....

NOTE.—Discharge determined from a well-defined rating curve.

Monthly discharge of North Fork of Payette River at Lardo, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	35	24	28.2	1,730	A.
November	65	24	41.4	2,460	A.
December	65	54	59.7	3,670	A.
January	86	60	72.9	4,480	A.
February	86	78	79.5	4,420	A.
March	102	81	87.2	5,360	A.
April	794	102	439	26,100	A.
May	2,730	762	1,810	111,000	A.
June	1,840	700	1,100	65,500	A.
July	641	107	284	17,500	A.
August	102	47	71.7	4,410	B.
September	45	36	42.1	2,510	B.
The year	2,730	24	344	249,000	

NORTH FORK OF PAYETTE RIVER AT VAN WYCK, IDAHO.

Location.—In sec. 26, T. 14 N., R. 3 E., at the river bridge half a mile north of Van Wyck and 1½ miles west of Crawford. Willow Creek, a small stream, enters from the south half a mile below.

Drainage area.—Not measured.

Records available.—June 20, 1912, to September 30, 1914. Gage heights January 1 to August 7, 1912, have been derived from private records from comparative gage readings, but it has not been deemed advisable to attempt discharge estimates prior to June 20.

Gage.—Vertical staff on bridge pier.

Discharge measurements.—Made from bridge or by wading.

Channel and control.—Gravel and sand overlying rock; somewhat shifting. Discharge relation affected by some weed growth at times and temporary log jams.

Extremes of discharge.—Maximum stage recorded during year, 7.0 feet May 26–28 (discharge, 5,800 second-feet); minimum stage recorded, 1.6 feet October 1–4 and September 2–10 (discharge, 232 second-feet); minimum discharge during year estimated at 196 second-feet October 29; discharge relation affected by log jam.

Winter flow.—Discharge relation affected by ice.

Accuracy.—Records approximate at times, but on the whole reliable.

Cooperation.—Gage heights furnished by L. S. Kimball.

Discharge measurements of North Fork of Payette River at Van Wyck, Idaho, during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Oct. 29	C. G. Paulsen	[a] 2.08	196	July 3	L. W. Roush	3.52	1,270
Apr. 16	A. W. Harrington	5.80	4,080				

[a] Discharge relation affected by a log jam.

Daily discharge, in second-feet, of North Fork of Payette River at Van Wyck, Idaho, for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Dec.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	232	373	373	.....	954	1,970	4,510	1,410	414	248
2	232	414	414	.....	1,100	1,870	4,200	1,330	373	232
3	232	414	414	.....	1,170	1,870	4,050	1,250	373	232
4	232	457	457	.....	1,170	1,970	3,750	1,250	373	232
5	248	502	.....	.....	1,250	2,080	3,750	1,170	373	232
6	264	457	.....	.....	1,410	2,080	3,900	1,170	373	232
7	281	457	.....	.....	1,500	2,180	4,050	1,100	334	232
8	298	457	.....	.....	1,590	2,180	4,200	1,020	334	232
9	298	414	.....	.....	1,680	2,300	4,360	1,020	334	232
10	298	414	.....	.....	1,870	2,410	4,200	954	334	232
11	281	457	.....	.....	2,080	2,660	4,050	954	334	217
12	264	414	.....	.....	2,410	2,780	3,900	888	316	232
13	264	414	.....	765	2,530	2,910	3,600	825	316	248
14	264	373	.....	765	3,320	3,180	3,460	825	298	248
15	264	334	.....	825	3,750	3,320	3,460	765	298	264
16	264	334	.....	825	3,900	3,460	3,320	708	298	281
17	264	334	.....	888	3,460	3,750	3,180	653	298	298
18	281	334	.....	888	3,320	4,050	3,180	653	298	316
19	281	334	.....	954	3,040	4,200	3,040	653	298	334
20	264	373	.....	1,020	2,780	4,360	2,910	600	298	334
21	264	373	.....	1,020	2,530	4,670	2,780	600	281	334
22	264	373	.....	1,100	2,530	4,980	2,530	600	281	334
23	298	414	.....	1,100	2,410	5,310	2,410	600	281	334
24	250	373	.....	1,330	2,410	5,470	2,410	550	281	316
25	250	373	.....	1,330	2,300	5,630	2,300	550	281	316
26	225	373	.....	1,250	2,300	5,800	2,300	550	264	316
27	225	373	.....	1,170	2,300	5,800	2,180	502	264	316
28	200	373	.....	1,170	2,300	5,800	1,870	502	264	316
29	196	373	.....	1,100	2,180	5,470	1,680	457	248	316
30	250	373	.....	1,020	2,080	5,140	1,590	457	248	316
31	373	.....	.....	888	.....	4,830	.....	414	248	.....

NOTE.—Discharge determined from a fairly well-defined rating curve. Discharge Oct. 24–30 estimated on account of log jam. Discharge estimated on account of ice, as follows: Dec. 5–31, 350 second-feet; Mar. 1–6, 450 second-feet; 7–12, 600 second-feet.

Monthly discharge of North Fork of Payette River at Van Wyck, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	373	196	261	16,000	C.
November	502	334	394	23,400	B.
December	457	.....	358	22,000	D.
January	.....	.....	[a] 400	24,600	D.
February	.....	.....	[a] 410	22,800	D.
March	1,330	.....	829	51,000	C.
April	3,900	954	2,250	134,000	B.
May	5,800	1,870	3,690	227,000	B.
June	4,510	1,590	3,240	193,000	A.
July	1,410	414	806	49,600	A.
August	414	248	310	19,100	B.
September	334	217	277	16,500	C.
The year	5,800	196	1,100	799,000	

[a] Estimated on account of ice.

LAKE FORK OF PAYETTE RIVER NEAR McCALL, IDAHO.

Location.—In sec. 13, T. 18 N., R. 3 E., at the Waine ranch, about one-fourth mile below the outlet to Little Payette Lake, and about 3 miles east of McCall. No tributaries between lake and gage.

Drainage area.—Not measured.

Records available.—September 28, 1909, to September 30, 1914.

Gage.—Vertical staff on left bank.

Discharge measurements.—Made from cable about 200 feet below gage or by wading.

Channel and control.—Bed, fine gravel; control, a rough diversion dam and ditch head gates about one-fourth mile below.

Extremes of discharge.—Maximum stage recorded during year, 5.05 feet May 23 and 24 (discharge, 1,160 second-feet); minimum stage recorded, 0.6 foot September 5–7 and 11 (discharge, 11 second-feet).

Winter flow.—Discharge relation not affected by ice.

Diversions.—A ditch for irrigation in Long Valley diverts water about one-fourth mile below gage.

Accuracy.—Rating curve well defined; records good.

Discharge measurements of Lake Fork of Payette River near McCall, Idaho, during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Oct. 27	C. G. Paulsen	1.00	24.2	July 1	L. W. Roush	2.68	248
Apr. 14	A. W. Harrington	2.76	253				

Daily discharge, in second-feet, of Lake Fork of Payette River near McCall, Idaho, for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	21	25	30	26	24	35	54	262	810	257	28	16
2	20	25	30	26	24	35	50	250	858	235	34	14
3	19	26	30	29	24	35	50	441	908	224	38	14
4	18	26	30	29	24	35	54	471	858	235	28	16
5	20	30	30	30	24	35	67	441	722	235	28	11
6	22	30	30	30	24	29	101	441	531	257	34	11
7	24	32	30	30	24	35	128	413	407	246	28	11
8	24	32	26	29	24	35	143	471	435	194	34	16
9	24	30	26	29	24	35	161	654	380	166	28	14
10	24	31	26	29	24	35	179	654	354	140	28	13
11	26	32	26	26	24	35	198	619	328	148	34	11
12	26	32	26	26	24	29	229	545	328	125	28	14
13	26	31	26	26	24	29	239	549	435	111	28	14
14	27	31	26	26	24	29	250	662	497	98	23	18
15	27	32	26	24	29	42	309	747	531	92	18	23
16	26	32	26	24	29	42	441	839	531	86	18	28
17	26	31	26	24	29	42	413	844	604	80	18	34
18	26	32	26	24	29	42	285	844	604	75	21	34
19	26	32	26	24	29	50	285	801	642	65	18	34
20	24	32	26	24	35	50	333	801	604	75	23	34
21	25	31	26	24	35	58	333	805	531	65	18	38
22	25	31	26	26	35	58	333	903	465	60	18	34
23	24	31	26	26	29	58	359	1,130	380	56	16	41
24	26	31	26	26	29	67	359	1,130	328	52	14	44
25	26	30	26	26	29	67	359	1,070	380	48	14	41
26	24	31	26	24	29	67	333	908	407	52	16	34
27	24	31	26	24	29	58	309	858	380	48	14	34
28	24	31	26	24	29	58	285	810	328	41	14	38
29	24	30	26	24	.....	58	262	682	304	34	13	41
30	24	30	26	24	.....	58	239	682	280	38	14	41
31	24	.....	26	24	.....	54	.....	810	.....	34	14	.....

NOTE.—Discharge determined from three well-defined rating curves and by the indirect method for shifting channels.

Monthly discharge of Lake Fork of Payette River near McCall, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	27	18	24.1	1,480	B.
November	32	25	30.4	1,810	A.
December	30	26	26.9	1,650	A.
January	30	24	26.0	1,600	A.
February	35	24	27.1	1,510	A.
March	67	29	45.0	2,770	A.
April	441	50	238	14,200	B.
May	1,130	250	695	42,700	B.
June	908	280	505	30,000	B.
July	257	34	118	7,260	A.
August	38	13	22.6	1,390	B.
September	44	11	25.5	1,520	B.
The year	1,130	11	149	108,000	

WEISER RIVER NEAR WEISER, IDAHO.

Location.—In sec. 25, T. 11 N., R. 4 W., near mouth of the canyon about 10 miles above Weiser, about three-eighths mile above the point at which the new siphon of the Crane Creek Irrigation Co. crosses the river, and about three-fourths mile above the section house of the Pacific & Idaho Northern Railroad; approximately at same site as the station discontinued in 1904; below all main tributaries except Mann Creek, entering 5 miles below, and Monroe Creek, 10 miles below, both from the north.

Drainage area.—Not measured.

Records available.—December 6, 1894, to December 31, 1904; October 7, 1910, to September 30, 1914.

Gage.—Inclined staff on right bank installed December 12, 1911, and used since January 1, 1912; records in 1910 and 1911 obtained by means of a gage about 500 feet below the section house; datum of present gage entirely different from that of old gages.

Discharge measurements.—Made by wading or from the cable three-fourths mile below gage, at site of the gage used in 1911.

Channel and control.—Gravel; fairly permanent. During the construction of supports for the siphon trusses the discharge relation was somewhat affected by backwater.

Extremes of discharge.—Maximum stage recorded during year, 8.55 feet February 25 (discharge, 4,820 second-feet); minimum stage recorded, 4.45 feet August 15 and 19 (discharge, 34 second-feet).

Winter flow.—Affected by ice.

Diversions.—Station is above the Galloway ditch and other main diversions in the vicinity of Weiser. A small ditch diverts water around the station, probably less than 10 second-feet.

Accuracy.—Records reliable.

Discharge measurements of Weiser River near Weiser, Idaho, during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Oct. 20	C. G. Paulsen	5.00	212	Apr. 8	A. W. Harrington	[a] 7.48	2,750
Dec. 11	L. W. Jordan	5.30	281	June 26	L. W. Roush	5.82	801
Feb. 20	L. W. Roush	5.83	804	Aug. 20	....do	4.56	53

[a] Discharge relation affected by construction work.

NOTE.—Aug. 20 point of zero flow was determined to be at about gage height 3.94 feet.

Daily discharge, in second-feet, of Weiser River near Weiser, Idaho, for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	110	304	648	.....	1,250	2,880	1,250	1,820	1,550	465	51	57
2	120	304	565	.....	1,190	3,540	1,080	2,030	1,490	436	87	61
3	128	316	465	.....	1,080	3,370	1,170	2,250	1,420	394	120	57
4	120	316	367	.....	875	3,210	1,160	2,250	1,250	316	104	57
5	120	316	380	.....	525	3,370	1,750	2,250	1,300	525	120	57
6	128	690	380	.....	329	3,540	2,880	2,250	1,080	450	128	59
7	169	525	348	525	394	3,880	2,880	2,100	975	415	120	61
8	299	415	316	605	450	3,880	2,560	2,250	975	348	120	61
9	299	380	304	525	488	3,540	2,560	2,250	975	329	87	61
10	242	367	292	488	488	4,220	2,560	2,250	925	316	74	66
11	227	415	281	465	488	3,540	2,560	2,250	875	348	66	87
12	216	525	.....	436	465	3,880	2,880	2,170	780	258	51	94
13	216	450	.....	408	450	3,540	2,880	2,100	875	248	41	104
14	206	394	.....	380	450	3,210	2,710	2,030	975	206	41	113
15	206	380	.....	380	316	3,540	2,560	2,250	925	197	34	152
16	192	380	.....	465	361	3,540	2,880	2,250	875	169	41	183
17	192	367	.....	450	394	3,540	2,880	2,250	875	160	41	197
18	192	348	.....	450	502	3,540	2,880	2,400	780	152	41	258
19	178	380	.....	925	465	3,540	2,560	2,170	780	128	34	206
20	206	415	.....	975	690	3,210	2,880	2,250	735	120	57	169
21	232	525	.....	875	2,250	2,880	2,880	2,250	690	120	57	160
22	232	488	.....	1,250	3,880	2,880	2,560	2,250	605	128	57	152
23	232	450	.....	1,620	2,880	2,560	2,710	2,250	605	120	57	140
24	216	436	.....	1,820	4,560	2,250	2,560	2,250	690	104	57	128
25	216	394	.....	1,620	4,900	2,030	2,450	2,560	780	104	51	120
26	232	488	.....	2,170	3,880	1,750	2,340	2,250	780	87	51	120
27	270	1,080	.....	2,030	3,210	1,620	2,380	1,960	690	74	51	140
28	287	1,420	.....	1,680	3,040	1,550	1,980	1,820	565	61	45	183
29	287	875	.....	1,360	.....	1,420	1,820	1,680	525	61	51	258
30	287	780	.....	1,300	.....	1,360	1,790	1,680	510	61	51	258
31	287	.....	.....	1,250	.....	1,300	.....	1,620	.....	51	57	.....

NOTE.—Discharge determined from a well-defined rating curve, except as follows: Discharge estimated, on account of ice, Dec. 12–31, at 225 second-feet; Jan. 1–6, at 300 second-feet; by the indirect method for shifting channels Apr. 3–30 on account of construction work below the station.

Monthly discharge of Weiser River near Weiser, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	299	110	211	13,000	A.
November	1,420	304	497	29,600	A.
December	648	.....	285	17,500	C.
January	2,170	.....	847	52,100	B.
February	4,900	316	1,440	80,000	B.
March	4,220	1,300	2,970	183,000	B.
April	2,880	1,080	2,370	141,000	B.
May	2,560	1,620	2,140	132,000	B.
June	1,550	510	895	53,300	B.
July	465	51	224	13,800	A.
August	128	34	65.9	4,050	A.
September	258	57	127	7,560	A.
The year	4,900	34	1,000	727,000	

LOST CREEK NEAR TAMARACK, IDAHO.

Location.—In sec. 28, T. 19 N., R. 1 W., about a quarter of a mile below dam of Lost Valley reservoir, 6 miles southwest of Tamarack, and 20 miles north of Council.

Drainage area.—30 square miles.

Records available.—January 1, 1910, to August 21, 1914 (fragmentary).

Gage.—Barrett & Lawrence water-stage recorder on right bank, 1912 to 1914. Vertical staff on left bank during 1911.

Discharge measurements.—Made from a foot log.

Channel and control.—Rough; practically permanent.

Diversions.—None between dam and station.

Regulation.—Lost Valley reservoir, one-fourth mile above station, is reported to have an available capacity of 13,000 acre-feet. Flow at station is almost entirely controlled by regulation of gates at dam.

Accuracy.—Rating curve fairly well defined, but uncertainties in the gage-height record make estimates of discharge for 1914 only approximate.

Figures of daily discharge are open to so much uncertainty that they are not published.

Discharge measurements of Lost Creek near Tamarack, Idaho, during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Oct. 24	C. G. Paulsen	1.50	28.0	Oct. 25	C. G. Paulsen	2.17	109
25	do	1.28	13.8	Apr. 12	A. W. Harrington	2.10	94.2
25	do	1.67	43.5	12	do	1.60	34.8
25	do	1.85	62.7	12	do	.91	3.1
25	do	1.92	71.5	June 29	L. W. Roush	1.63	42.0

NOTE.—Gage heights refer to staff gage inside of well.

Monthly discharge of Lost Creek near Tamarack, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).
	Maximum.	Minimum.	Mean.	
October	116	26	45.4	2,790
April 11-30	.....	.....	158	6,270
May	.....	.....	148	9,100
June	.....	.....	12.6	750
July	43	37	40.2	2,470
August 1-21	37	35	36.4	1,520
September	.....	.....	.....	.....

NOTE.—Owing to uncertainties in the gage-height record the above figures are only approximate. No gage record was obtained Oct. 1-2, 30-31, Apr. 24 to May 7, or May 9 to June 27.

CRANE CREEK NEAR MIDVALE, IDAHO.

Location.—In sec. 19, T. 12 N., R. 2 W., about 300 feet below the dam of the Crane Creek Irrigation Co., about 12 miles southeast of Midvale. No tributaries between dam and station; Last Chance Creek enters a short distance below.

Drainage area.—269 square miles.

Records available.—October 30, 1910, to September 30, 1914.

Gage.—Vertical staff in three sections and an inclined section.

Discharge measurements.—Made by wading or from a cable.

Channel and control.—Rough and permanent. Conditions were changed, however, durng the winter of 1911 and 1912 by some work at the dam.

Extremes of discharge.—Maximum stage recorded during year, 5.2 feet February 25 to March 7, inclusive (discharge, 792 second-feet); gates of dam closed and no flow passing gage February 5-21, March 8-14, 23-28, April 27 to May 5.

Winter flow.—Subject to floods due to rains or chinook winds. Discharge relation at times affected by ice.

Diversions.—No diversions between dam and station.

Accuracy.—Records reliable.

Cooperation.—Gage-height record furnished by the Crane Creek Irrigation Co.

Discharge measurements of Crane Creek near Midvale, Idaho, during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Oct. 22	C. G. Paulsen	2.31	18.4	Apr. 10	A. W. Harrington	2.20	18.7
22	do	2.77	48.4	10	do	2.39	34.5
22	do	3.11	90.3	June 28	L. W. Roush	2.31	24.7

Daily discharge, in second-feet, of Crane Creek near Midvale, Idaho, for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	16	14	14	20	690	792	52	.....	15	20	20	25
2	16	14	14	20	690	792	52	.....	15	20	20	25
3	16	14	14	56	690	792	23	.....	15	20	20	25
4	16	14	14	116	690	792	23	.....	15	20	20	25
5	16	14	14	116	.....	792	52	.....	15	20	20	25
6	16	14	14	214	.....	792	52	9.5	15	20	20	25
7	16	14	19	214	.....	792	23	8	15	20	20	25
8	16	14	25	214	.....	.....	23	8	15	20	25	25
9	16	14	25	214	.....	.....	23	8	15	15	25	25
10	16	14	25	214	.....	.....	47	8	15	15	25	25
11	16	14	25	214	.....	.....	77	8	15	15	25	25
12	16	14	25	116	.....	.....	124	8	15	15	25	25
13	16	14	25	116	.....	.....	191	8	15	15	25	25
14	16	14	25	431	.....	.....	191	8	15	15	25	25
15	16	14	25	431	.....	52	191	8	15	15	25	25
16	16	14	25	431	.....	52	191	8	15	15	25	25
17	16	14	25	214	.....	52	191	8	15	15	25	25
18	16	14	25	214	.....	109	191	8	15	15	25	25
19	16	14	25	431	.....	109	191	8	15	15	25	25
20	16	14	21	431	.....	109	191	8	15	15	25	25
21	16	14	21	431	.....	109	191	8	15	15	25	25
22	25	14	20	431	83	109	191	8	15	15	25	25
23	20	14	20	431	116	.....	191	8	15	15	25	25
24	14	14	20	431	342	.....	191	8	15	15	25	25
25	14	14	20	552	792	.....	66	8	15	15	25	25
26	14	14	20	690	792	.....	66	8	15	15	25	25
27	14	14	20	690	792	.....	.....	8	15	15	25	25
28	14	14	20	690	792	.....	.....	8	20	62	25	25
29	14	14	20	690	.....	52	.....	8	20	38	25	25
30	14	14	20	690	.....	109	.....	8	20	38	25	25
31	14	.....	20	690	.....	109	.....	15	.....	38	25	.....

NOTE.—Discharge determined from several rating curves and by the indirect method for shifting channels. No flow Feb. 5–21, Mar. 8–14, 23–28, Apr. 27–May 5, as gates at the dam above were closed.

Monthly discharge of Crane Creek near Midvale, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	25	14	15.9	978	B.
November	14	14	14.0	833	C.
December	25	14	20.8	1,280	C.
January	690	20	350	21,500	B.
February	792	0	231	12,800	C.
March	792	0	210	12,900	C.
April	191	0	99.8	5,940	B.
May	15	0	6.98	429	B.
June	20	15	15.5	922	B.
July	62	15	20.0	1,230	B.
August	25	20	23.9	1,470	B.
September	25	25	25.0	1,490	B.
The year	792	0	85.4	61,800	

POWDER RIVER AT SALISBURY, OREG.

Location.—In the SW. ¼ sec. 30, T. 10 S., R. 39 E., at private road bridge three-fourths mile below Salisbury station on Sumpter Valley Railroad, 10 miles above Baker. Prior to March 1, 1912, one-half mile above present location.

Drainage area.—230 square miles.

Records available.—December 20, 1903, to August 1, 1914, when station was discontinued.

Gage.—Vertical staff on right bank 15 feet above bridge.

Discharge measurements.—Made from bridge or by wading.

Channel and control.—Gravel; somewhat shifting.

Extremes of discharge.—Maximum stage recorded during year, 5.6 feet at 7 a. m. April 16 (discharge, 940 second-feet); minimum stage recorded, 1.10 feet at 4 p. m. December 1 (discharge, 6 second-feet). These figures may not represent the absolute extremes for the year, as no record was obtained from January 1 to April 4 and August 2 to September 30.

Winter flow.—River freezes deeply three or four months each winter.

Diversions.—Most of the low-water flow is diverted for irrigating small tracts above the station.

Accuracy.—Results fair. Marked diurnal fluctuation during the spring, when the snow is melting.

Cooperation.—Gage height record furnished by State Water Board April to July, 1914.

Discharge measurements of Powder River at Salisbury, Oreg., during the period Oct. 1, 1913 to Oct. 9, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Nov. 26	J. E. Stewart	1.70	37.8	July 22	P. V. Hodges	1.49	39.4
Jan. 22	do	2.06	33.1	Oct. 9	C. G. Paulsen	1.26	20.4
Apr. 26	C. E. Stricklin	3.35	330	9	do	1.26	20.1

Daily discharge, in second-feet, of Powder River at Salisbury, Oreg., for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Apr.	May.	June.	July.	Aug.	Day.	Oct.	Nov.	Apr.	May.	June.	July.	Aug.
1	18	32	.....	281	313	92	23	16	34	40	940	498	191	38	.....
2	15	38	.....	324	324	86	.....	17	29	38	882	472	182	38	.....
3	13	30	.....	394	358	80	.....	18	32	40	498	446	165	38	.....
4	13	30	.....	446	302	68	.....	19	30	42	498	446	149	38	.....
5	13	31	714	420	260	68	.....	20	36	38	550	420	126	38	.....
6	16	52	714	370	239	68	.....	21	37	30	550	446	119	38	.....
7	40	32	630	346	239	74	.....	22	38	31	498	524	105	34	.....
8	47	30	550	370	219	68	.....	23	36	30	472	550	98	30	.....
9	32	47	524	394	200	62	.....	24	34	18	446	550	112	30	.....
10	29	45	602	382	182	57	.....	25	36	30	394	498	142	30	.....
11	30	49	602	370	174	47	.....	26	36	32	370	446	182	30	.....
12	35	49	550	346	219	47	.....	27	36	38	346	370	134	26	.....
13	34	45	498	346	219	47	.....	28	33	37	313	302	112	26	.....
14	36	47	550	394	200	42	.....	29	32	38	281	292	98	23	.....
15	34	30	602	420	191	38	.....	30	31	29	270	281	92	23	.....
								31	30	.....	.....	302	.....	23	.....

NOTE.—Discharge determined from two fairly well defined rating curves, one applicable Oct. 1 to Nov. 30, 1913, the other Apr. 5 to Aug. 1, 1914.

Monthly discharge of Powder River at Salisbury, Oreg., for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	47	13	30.5	1,880	B.
November	52	18	36.6	2,180	B.
December	.....	.....	[a]30	1,840	C.
April 5-30	940	270	532	27,400	B.
May	550	281	401	24,700	B.
June	358	92	188	11,200	B.
July	92	23	46.7	2,870	B.

[a] Estimated on account of ice.

POWDER RIVER AT BAKER, OREG.

Location.—In sec. 16, T. 9 S., R. 40 E., at the Washington Avenue Bridge in Baker.
Drainage area.—Not measured.
Records available.—May 7 to September 30, 1913; April 4 to July 31, 1914.
Gage.—Vertical staff.
Discharge measurements.—Made from the bridge.
Channel and control.—Gravel; may shift somewhat.
Extremes of discharge.—Maximum stage recorded during the period April 4 to July 31, 3.62 feet at 4 p. m. April 5 (discharge, 713 second-feet); minimum stage, 0.65 foot at 8.30 a. m. July 31 (discharge, 8 second-feet). These records do not give the extremes of discharge for the year.
Accuracy.—Results good.
Cooperation.—Record furnished by the Oregon State Water Board.

Discharge measurements of Powder River at Baker, Oreg., during the year ending Sept. 30, 1914.

[Made by C. E. Stricklin.]

Date.	Gage height.	Discharge.
	Feet.	*Sec. ft.*
April 27	2.48	292
June 19	1.42	110

Daily discharge of Powder River at Baker, Oreg., for the year ending Sept. 30, 1914.

Day.	Apr.	May.	June.	July.	Day.	Apr.	May.	June.	July.
1	.....	230	220	61	16	625	402	145	31
2	.....	240	220	54	17	545	370	137	21
3	.....	370	262	40	18	435	340	129	16
4	340	370	220	40	19	435	312	107	11
5	625	340	202	61	20	470	299	98	21
6	705	312	202	54	21	507	312	90	21
7	625	262	194	64	22	435	402	82	21
8	545	299	177	50	23	470	470	75	21
9	470	312	145	50	24	470	470	72	21
10	625	299	137	47	25	370	402	78	21
11	665	286	129	44	26	370	340	121	21
12	507	240	169	40	27	312	286	90	21
13	435	240	202	40	28	286	240	82	19
14	470	262	161	36	29	262	230	75	12
15	470	312	153	33	30	240	230	68	11
					31	.....	220	.....	8

NOTE.—Discharge determined from a fairly well defined rating curve.

Monthly discharge of Powder River at Baker, Oreg., for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
April 4–30	705	240	471	25,200	B.
May	470	220	313	19,200	B.
June	262	68	141	8,390	B.
July	64	8	32.6	2,000	B.
The period				54,800	

Total monthly discharge of Powder River at Baker, Oreg., for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
April 4–30	769	277	530	28,400	B.
May	574	276	385	23,600	B.
June	329	82	179	10,600	B.
July	78	12.7	38.4	2,350	B.
The period				65,000	

NOTE.—Figures include flow of Baldock Slough and Old Settlers Slough.

BALDOCK SLOUGH AT BAKER, OREG.

Location.—In sec. 16, T. 9 S., R. 40 E., at the bridge on Clark Street in Baker.
Records available.—May 22 to June 30, 1913; May 9 to July 31, 1914.
Gage.—Vertical staff.
Discharge measurements.—Made from bridge.
Channel and control.—Soil and gravel; will probably shift.
Extremes of discharge.—Maximum stage recorded during period May 9 to July 31, 1.75 feet at 6.30 p. m. May 16 (discharge, 22 second-feet); minimum stage recorded, 0.30 foot at 6 p. m. July 16 (discharge, 1.2 second-feet). These records are not the extremes for the year.
Regulation.—Inflow into the slough from Powder River is regulated by head gates.
Accuracy.—Results good; measurements of 1914 confirm curve for 1913.
Cooperation.—Records furnished by the Oregon State Water Board.

Discharge measurements of Baldock Slough at Baker, Oreg., during the year ending Sept. 30, 1914.

[Made by C. E. Stricklin.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*		*Feet.*	*Sec.-ft.*
May 10	1.15	13.2	July 20	1.10	10.0
May 17	1.50	16.9	Do	.85	7.0
July 14	.50	2.6			

Daily discharge, in second-feet, of Baldock Slough at Baker, Oreg., for the year ending Sept. 30, 1914.

Day.	May.	June.	July.	Day.	May.	June.	July.
1	.....	19	6.6	16	22	8.7	1.2
2	.....	20	6.3	17	17	8.4	2.5
3	.....	20	5.4	18	16.1	8.4	2.3
4	.....	11.8	5.8	19	18	7.4	1.9
5	.....	8.7	5.2	20	21	9	3.7
6	.....	8.7	5.4	21	18	8	4.2
7	.....	8.7	5.8	22	19	7.3	3.7
8	.....	8.7	4.8	23	19.4	3.7	3.2
9	8.4	8.3	3.9	24	15.6	5.4	3.9
10	11.0	7.4	5.0	25	16.6	8.4	3.2
11	11.0	7.6	4.2	26	17	6.6	3.2
12	9.0	9.4	4.2	27	18	6.0	3.2
13	11.8	9.4	4.2	28	17	5.4	3.2
14	17.4	9	2.3	29	18	5.4	4.2
15	16.6	8.7	1.9	30	19	4.8	3.7
				31	19.4	.....	3.7

NOTE.—Discharge determined from a well-defined rating curve.

Monthly discharge of Baldock Slough at Baker, Oreg., for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
May 9–31	22	8.4	16.4	748	B.
June	20	3.7	8.94	532	B.
July	6.6	1.2	3.94	242	B.

OLD SETTLERS SLOUGH AT BAKER, OREG.

Location.—In sec. 20, T. 9 S., R. 40 E., at the footbridge on Rose Street in Baker.

Records available.—May 5 to September 3, 1913; April 4 to July 31, 1914.

Gage.—Vertical staff.

Discharge measurements.—Made from the footbridge.

Channel and control.—Bottom of gravel; sides of board.

Extremes of discharge.—Maximum stage recorded during the period April 4 to July 31, 2.30 feet at 11.15 a. m. May 23 (discharge, 85 second-feet). No flow July 4–6 and 15–16.

Regulation.—The inflow into the slough from Powder River is regulated by head gates.

Accuracy.—Results excellent.

Cooperation.—Records furnished by the Oregon State Water Board.

Discharge measurements of Old Settlers Slough at Baker, Oreg., during the year ending Sept. 30, 1914.

[Made by C. E. Stricklin.]

Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*
Apr. 13	2.08	68.2
June 6	1.48	29.8

Daily discharge, in second-feet, of Old Settlers Slough at Baker, Oreg., for the year ending Sept. 30, 1914.

Day.	Apr.	May.	June.	July.	Day.	Apr.	May.	June.	July.
1	.....	39	38	5.6	16	72	71	30	0
2	.....	45	41	2.5	17	71	72	26	2.0
3	.....	66	47	2.0	18	66	68	23	1.0
4	45	58	38	0	19	64	68	23	1.0
5	95	57	35	0	20	71	64	17	3.0
6	64	50	30	0	21	71	68	16	2.0
7	41	49	28	8.0	22	66	65	15	2.5
8	38	64	27	4.0	23	67	85	14	2.5
9	47	65	44	2.8	24	65	74	14	2.5
10	50	64	41	2.5	25	57	63	41	1.8
11	44	63	35	1.0	26	52	54	44	1.5
12	74	61	12	.5	27	50	49	32	1.0
13	71	64	27	.5	28	44	44	24	2.2
14	71	74	39	.2	29	38	38	15	1.5
15	74	66	32	0	30	37	35	9.4	1.0
					31	.....	37	.....	1.0

NOTE.—Discharge determined from a rating curve well defined below 100 second-feet.

Monthly discharge of Old Settlers Slough at Baker, Oreg., for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
April 4–30	95	37	59.5	3,190	A.
May	85	35	59.4	3,650	A.
June	47	9.4	28.6	1,700	A.
July	8	0	1.81	111	A.
The period	.....	.....	.....	8,650	

POWDER RIVER NEAR NORTH POWDER, OREG.

Location.—In the NE. ¼ sec. 12, T. 6 S., R. 39 E., 3 miles northeast of North Powder; below all tributaries and return waters from irrigation in the North Powder Valley and above the backwater of the proposed Thief Valley reservoir.

Drainage area.—775 square miles; at lower end of Thief Valley, 826 square miles.

Records available.—May 20, 1913, to September 30, 1914. The records at this station are almost directly comparable with those at the station below Thief Valley, March 9, 1909, to June 30, 1912, as the inflow between the two points constitutes only a negligible percentage of the total.

Gage.—Vertical staff on left bank just below entrance to short canyon below North Powder Valley.

Discharge measurements.—Made from railway bridge one-fourth mile below gage or by wading.

Channel and control.—Rocks, with some sand; probably shifts slightly.

Extremes of discharge.—Maximum stage recorded during year, 4.94 feet at 5 p. m. May 24 (discharge, 1,600 second-feet); minimum stage recorded, 0.64 foot August 15–17, 20, and 21 (discharge, 13 second-feet).

Winter flow.—River freezes for two or three months each winter.

Accuracy.—Results good except those for winter, which are only approximate.

Discharge measurements of Powder River near North Powder, Oreg., during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Oct 14	C. E. Stricklin	1.55	92.6	May 5	C. E. Stricklin	3.26	602
Nov. 25	J. E. Stewart	1.68	104	July 21	P. V. Hodges	1.02	35.5
Jan. 21	.....do	[a]1.90	120				

[a] Discharge relation affected by ice.

Daily discharge, in second-feet, of Powder River near North Powder, Oreg., for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	25	111	96	.....	158	697	601	648	648	429	25	21
2	26	128	111	.....	138	672	556	556	697	354	22	22
3	26	120	111	.....	138	648	534	601	722	258	20	25
4	26	111	111	.....	.....	601	512	648	774	230	18	27
5	33	111	120	.....	.....	624	601	624	774	204	18	30
6	50	111	120	.....	.....	648	697	556	722	180	20	32
7	71	120	111	.....	.....	648	774	556	697	158	18	36
8	111	111	104	.....	.....	697	884	512	601	158	17	36
9	128	111	96	.....	.....	648	1,000	512	578	138	17	32
10	111	111	96	.....	.....	624	1,120	470	512	158	18	32
11	96	111	96	.....	.....	648	1,180	429	470	138	17	29
12	83	111	96	.....	.....	672	1,180	409	429	147	16	32
13	90	111	104	.....	.....	697	1,240	429	470	138	15	36
14	83	111	104	.....	.....	672	1,240	449	601	120	13	40
15	81	111	96	.....	.....	697	1,240	470	556	111	13	45
16	81	111	83	.....	.....	722	1,240	512	556	96	13	64
17	77	111	83	.....	.....	828	1,180	512	556	76	13	90
18	81	111	83	.....	.....	941	1,180	556	512	64	15	90
19	83	111	.....	.....	.....	941	1,240	512	470	64	13	76
20	83	111	.....	.....	390	1,000	1,180	429	429	62	13	64
21	83	104	.....	120	409	1,060	1,120	512	390	35	13	54
22	90	104	.....	.....	429	1,120	1,120	556	354	32	13	54
23	90	104	.....	.....	449	1,180	1,060	601	320	29	15	52
24	83	111	.....	.....	470	1,060	1,060	1,570	288	25	16	49
25	90	120	.....	.....	491	1,060	1,060	1,300	320	24	17	46
26	96	111	.....	.....	512	941	1,000	1,240	320	22	17	46
27	96	104	.....	.....	601	828	884	1,180	320	22	17	45
28	96	111	.....	180	648	774	722	1,060	258	20	16	45
29	96	104	.....	168	.....	722	722	941	556	17	17	46
30	104	104	.....	158	.....	672	697	828	470	20	20	45
31	104	.....	.....	168	.....	601	.....	722	.....	22	21	.....

NOTE.—Discharge determined from a rating curve well defined between 2 and 700 second-feet. Discharge estimated on account of ice as follows: Dec. 19–31, 90 second-feet; Jan. 1–20, 110 second-feet; Jan. 22–27, 130 secoud-feet; Feb. 4–19, 150 second-feet.

Monthly discharge of Powder River near North Powder, Oreg., for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	128	25	79.8	4,910	
November	128	104	111	6,600	A.
December	120	83	96.5	5,930	B.
January	180	.....	122	7,500	C.
February	648	.....	258	14,300	C.
March	1,180	601	785	48,300	B.
April	1,240	512	961	57,200	B.
May	1,570	409	674	41,400	B.
June	774	258	512	30,500	B.
July	429	17	115	7,070	A.
August	25	13	16.6	1,020	A.
September	90	21	44.7	2,660	A.
The year	1,570	13	314	227,000	

PINE CREEK NEAR BAKER, OREG.

Location.—In sec. 26, T. 8 S., R. 38 E., 300 feet above the intake of the Williams ditch, and about 10 miles west of Baker.

Drainage area.—7.7 square miles.

Records available.—May 12 to October 13, 1913; April 9 to July 31, 1914.

Gage.—Vertical staff gage used in 1914, 200 feet farther downstream than that used in preceding year; relation between gages not determined.

Discharge measurements.—Made from a plank at the gage.

Channel and control.—Rough and rocky; owing to extremely high velocities, not permanent.

Extremes of discharge.—Maximum stage recorded during the period April 9 to July 31, 2.9 feet at 5 p. m. May 22 and 23 (discharge, 130 second-feet); minimum stage recorded, 1.9 feet July 31 (discharge, 12 second-feet). This is not the minimum for the year.

Accuracy.—Results good.

Cooperation.—Records furnished by the Oregon State Water Board.

Discharge measurements of Pine Creek near Baker, Oreg., during the year ending Sept. 30, 1914.

[Made by C. E. Stricklin.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*		*Feet.*	*Sec.-ft.*		*Feet.*	*Sec.-ft.*
Oct. 13	[a] 1.05	6.6	Apr. 29	2.20	22.7	May 29	2.55	61.6
Apr. 9	2.00	15.7	May 16	2.65	81.9			

[a] Gage height refers to old gage.

Daily discharge, in second-feet, of Pine Creek near Baker, Oreg., for the year ending Sept. 30, 1914.

Day.	Oct.	Apr.	May.	June.	July.	Day.	Oct.	Apr.	May.	June.	July.
1	8		41	90	41	16		31	71	90	23
2	5		41	110	41	17		31	90	90	23
3	5		41	110	41	18		41	90	90	23
4	5		41	90	41	19		41	90	90	18
5	5		55	71	41	20		41	110	90	55
6	5		55	71	31	21		41	110	71	23
7	5		55	55	41	22		41	130	55	18
8	5		55	41	41	23		31	130	41	18
9	8	15	55	41	41	24		31	110	55	15
10	8	18	55	31	31	25		31	90	71	15
11	8	18	55	31	31	26		31	90	71	15
12	8	23	55	55	31	27		31	71	71	15
13	8	23	71	55	31	28		23	55	55	15
14		23	90	71	31	29		23	71	55	15
15		31	80	71	31	30		31	90	55	15
						31			90		12

NOTE.—Discharge determined from two rating curves fairly well defined between 15 and 100 second-feet.

Monthly discharge of Pine Creek near Baker, Oreg., for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October 1–13	8	5	6.4	165	B.
April 9–30	41	15	29.5	1,290	B.
May	130	41	75.3	4,630	B.
June	110	31	68.1	4,050	B.
July	55	12	27.8	1,710	B.

MILL CREEK NEAR BAKER, OREG.

Location.—In sec. 1, T. 9 S., R. 38 E., at the crossing of the Nelson ditch, about 9 miles west of Baker.

Drainage area.—4.5 square miles.

Records available.—May 10–18, 1913; June 12 to October 12, 1913; and April 14 to August 22, 1914.

Gage.—Vertical staff.

Discharge measurements.—Made from a plank laid across the flume.

Channel and control.—Station is located in a wooden flume.

Extremes of discharge.—Maximum stage recorded during the period April 14 to August 22, 1.50 feet at 1 p. m. May 18 and 19 (discharge, 38 second-feet); minimum stage recorded, 0.32 foot August 16 to 22 (discharge, 1.3 second-feet). These figures do not represent the extremes for the year.

Diversions.—The Lee-Polly ditch diverts water from Mill Creek above the station, using the discharge of North channel, on which records were kept in 1913.

Accuracy.—The flume is well rated and fair results have been secured. The total flow has been determined by adding the flow in the Lee-Polly ditch; total records good.

Cooperation.—Records furnished by the Oregon State Water Board.

Discharge measurements of Mill Creek near Baker, Oreg., during the year ending Sept. 30, 1914.

[Made by C. E. Stricklin.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*		*Feet.*	*Sec.-ft.*		*Feet.*	*Sec.-ft.*
Oct. 12	0.32	1.1	May 16	*a* .98	31.6	July 31	.42	2.8
Apr. 6	.80	12.6	22	1.45	35.6			
30	.62	8.4	23	1.48	35.4			

a Discharge relation affected by repair to flume below the station.

Daily discharge, in second-feet, of Mill Creek near Baker, Oreg., for the year ending Sept. 30, 1914.

Day.	Oct.	Apr.	May.	June.	July.	Aug.	Day.	Oct.	Apr.	May.	June.	July.	Aug.
1	1.0	.....	5	31	14	3.1	16	.....	7	25	25	6.0	1.3
2	1.0	.....	16	33	13	3.1	17	.....	5	33	22	6.0	1.3
3	1.0	.....	19	33	12	3.1	18	.....	7	38	22	6.0	1.3
4	1.0	.....	19	33	11	2.6	19	.....	10	38	22	6.0	1.3
5	1.0	.....	22	36	11	2.6	20	.....	10	33	22	6.0	1.3
6	1.0	13	22	36	10	2.6	21	.....	13	36	20	5.4	1.3
7	1.0	.....	19	33	10	2.6	22	.....	13	36	19	5.4	1.3
8	1.8	.....	19	29	8.5	2.3	23	.....	13	36	19	5.4	.....
9	1.8	.....	22	29	8.5	2.3	24	.....	13	33	16	5.4	.....
10	1.8	.....	19	24	7.0	2.3	25	.....	13	33	14	5.0	.....
11	2.6	.....	19	22	7.0	1.8	26	.....	16	33	19	5.4	.....
12	2.6	.....	22	19	7.0	1.8	27	.....	13	31	19	5.0	.....
13	.....	.....	22	16	6.0	1.8	28	.....	13	31	16	4.5	.....
14	.....	5	25	19	6.0	1.8	29	.....	10	29	16	3.8	.....
15	.....	5	25	22	6.0	1.8	30	.....	5	31	14	3.1	.....
							31	.....	.....	31	.....	3.1	.....

NOTE.—Discharge determined from a well-defined rating curve.

Monthly discharge of Mill Creek near Baker, Oreg., for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October 1–12	2.6	1.0	1.45	*a* 35.7	D.
April 14–30	16	5	10.1	341	C.
May	38	5	26.5	1,530	C.
June	36	14	23.3	1,390	C.
July	14	3.1	7.05	433	C.
August 1–22	3.1	1.3	2.03	89	D.

Accuracy rating reduced on account of inconsistencies found in the gage-height record.

Total monthly discharge of Mill Creek and Lee-Polly ditch near Baker, Oreg., for the year ending Sept. 30, 1914.

[Drainage area, 4.5 square miles.]

Month.	Discharge in second-feet.				Run-off.		Accuracy.
	Maximum.	Minimum.	Mean.	Per square mile.	Depth in inches on drainage area.	Total in acre-feet.	
October 1–11	2.7	1.1	1.46	0.324	0.13	32	D.
April 14–30	20	5	11.9	2.64	1.67	407	C.
May	46	10	32.2	7.16	8.26	1,980	C.
June	42	16	27.9	6.20	6.92	1,660	C.
July	17	3.1	7.34	1.63	1.88	451	C.
August 1–22	3.1	1.3	2.03	.451	.37	89	C.

LEE-POLLY DITCH NEAR BAKER, OREG.

This station was maintained from April 21 to July 4, 1914, in connection with station on Mill Creek near Baker, Oreg. See description of Mill Creek station.

Discharge measurements of Lee-Polly ditch near Baker Oreg., during the year ending Sept. 30, 1914.

[Made by C. E. Stricklin.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*		*Feet.*	*Sec.-ft.*
May 22	0.95	7.7	June 18	.90	6.9
June 1	.62	3.2			

Daily discharge, in second-feet, of Lee-Polly ditch near Baker, Oreg., for the year ending Sept. 30, 1914.

Day.	Apr.	May.	June.	July.	Day.	Apr.	May.	June.	July.
1		5.5	7.0	3.0	16		5.5	6.2	
2		.0	3.0	3.0	17		7.0	5.5	
3		.0	3.0	3.0	18		7.0	5.5	
4		.0	8.5	.0	19		8.5	7.0	
5		.0	4.0		20		7.0	7.0	
6		4.0	6.2		21	0.6	7.0	7.0	
7		5.5	7.0		22	0.6	7.8	5.5	
8		5.5	8.5		23	1.2	7.8	3.5	
9		5.5	8.5		24	1.2	7.0	2.2	
10		4.0	10.5		25	4.0	7.0	.6	
11		4.0	8.5		26	4.0	7.0	2.0	
12		5.5	.0		27	4.0	8.5	2.0	
13		5.5	.0		28	4.0	8.5	2.0	
14		7.0	.0		29	5.5	7.0	2.0	
15		7.0	3.0		30	7.0	7.0	3.0	
					31		7.0		

NOTE.—Daily discharge determined from well-defined rating curve.

Monthly discharge of Lee-Polly ditch near Baker, Oreg., for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
April 21–30	7.0	0.6	3.21	64	C.
May	8.5	.0	5.66	348	B.
June	10.5	.0	4.62	275	B.
July	3.0	.0	.29	18	C.
The period				705	

MARBLE CREEK NEAR BAKER, OREG.

Location.—In sec. 6, T. 8 S., R. 39 E., at the crossing of the Nelson ditch, about 8 miles west of Baker.

Drainage area.—2.8 square miles.

Records available.—May 16 to October 12, 1913; April 7 to July 31, 1914.

Gage.—Vertical staff (1914 gage) bears no determined relation to datum of 1913 gage.

Discharge measurements.—Made from footbridge at gage.

Channel and control.—Gravel and rock; probably permanent.

Extremes of discharge.—Maximum stage recorded during the period April 7 to July 31, 0.58 foot at 11 a. m. May 24 (discharge, 15 second-feet); minimum stage recorded, 0.22 foot at 1 p. m. July 30 (discharge, 3 second-feet). These figures do not represent the extremes for the year.

Accuracy.—Results rather poor, on acount of irregular gage reading.

Cooperation.—Station maintained by the Oregon State Water Board.

Discharge measurements of Marble Creek near Baker, Oreg., during the year ending Sept. 30, 1914.

[Made by C. E. Stricklin.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*		*Feet.*	*Sec.-ft.*
Apr. 9	0.40	6.56	May 16	0.50	11.2
25	.35	6.57			

Daily discharge, in second-feet, of Marble Creek near Baker, Oreg., for the year ending Sept. 30, 1914.

Day.	Oct.	Apr.	May.	June.	July.	Day.	Oct.	Apr.	May.	June.	July.
1	0.9		6.0	7.4	4.6	16		9.3	11.2	5.6	4.6
2	.9		6.0	7.4	4.6	17		8.2	9.3	5.8	4.3
3	.9		6.0	7.4	4.8	18		7.1	9.3	6.0	3.9
4	1.0		6.4	7.4	5.0	19		6.0	9.3	6.0	3.6
5	1.0		6.7	7.4	5.2	20		5.8	9.3	6.0	3.6
6	1.0		7.0	7.4	5.0	21		5.6	9.3	6.0	3.6
7	1.0	7.4	7.4	7.4	4.9	22		5.4	11.2	5.8	3.6
8	1.1	7.4	8.0	6.9	4.8	23		5.2	13.1	5.6	3.6
9	1.1	7.4	8.6	6.3	4.6	24		5.6	15.0	5.4	3.6
10	1.2	7.4	9.3	5.8	4.6	25		6.0	13.5	5.2	3.6
11	1.3	7.4	9.0	5.2	4.6	26		6.8	12.1	5.0	3.6
12	1.4	7.4	8.8	5.2	4.6	27		6.6	10.7	4.8	3.4
13		7.9	8.5	5.2	4.6	28		6.4	9.3	4.6	3.3
14		8.4	8.2	5.2	4.6	29		6.2	8.9	4.6	3.2
15		8.9	9.7	5.4	4.6	30		6.0	8.4	4.6	3.0
						31			7.9		3.0

NOTE.—Daily discharge determined from two fairly well-defined rating curves. Discharge interpolated for many days on which gage height was not recorded.

Monthly discharge of Marble Creek near Baker, Oreg., for the year ending Sept. 30, 1914.

[Drainage area, 2.8 square miles.]

Month.	Discharge in second-feet.				Run-off.		Accuracy.
	Maximum.	Minimum.	Mean.	Per square mile.	Depth in inches on drainage area.	Total in acre-feet.	
October 1–12	1.4	0.9	1.07	0.382	0.17	25.5	C.
April 7–30	9.3	5.2	6.91	2.47	2.20	329	C.
May	15	6.0	9.14	3.26	3.76	562	C.
June	7.4	4.6	5.93	2.12	2.36	353	C.
July	5.2	3.0	4.15	1.48	1.71	255	C.

SALMON CREEK NEAR BAKER, OREG.

Location.—In sec. 8, T. 9 S., R. 39 E., at the wagon bridge at the Carpenter stamp mill, about 8 miles west of Baker.

Drainage area.—Not measured.

Records available.—May 8 to September 30, 1913; April 25 to July 31, 1914.

Gage.—Vertical staff.

Discharge measurements.—Made from a plank at the gage.

Channel and control.—Rough and rocky.

Extremes of discharge.—Maximum stage recorded for the period April 25 to July 31, 0.98 foot May 15–17 and 22–24 (discharge, 13.2 second-feet); minimum stage recorded, 0.35 foot July 29–31 (discharge, 0.3 second-foot). These figures do not represent the extremes for the year.

Accuracy.—Results good.

Cooperation.—Records furnished by the Oregon State Water Board.

Discharge measurements of Salmon Creek near Baker, Oreg., during the year ending Sept. 30, 1914.

[Made by C. E. Stricklin.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*		*Feet.*	*Sec.-ft.*
Apr. 25	0.80	7.76	June 15[a]	0.65	3.37
May 21	.90	10.0			

[a] Weir measurement.

Daily discharge, in second-feet, of Salmon Creek near Baker, Oreg., for the year ending Sept. 30, 1914.

Day.	Apr.	May.	June.	July.	Day.	Apr.	May.	June.	July.
1		5	7	2.5	16		13.2	3.5	0.5
2		6.5	8.5	2.5	17		13.2	3.5	.5
3		7	7.6	2.5	18		12	3.5	.5
4		7.6	7.0	2.5	19		12	2.9	.4
5		4.5	6.5	2.5	20		10	2.9	.4
6		4.5	5	2.5	21		10	2.9	.4
7		4.5	5	2.2	22		13.2	2.9	.4
8		4.5	4.5	2.2	23		13.2	2.9	.4
9		6.5	4.5	2.2	24		13.2	2.9	.4
10		6.5	4.5	2.2	25	7	10.8	4.1	.4
11		5	4.5	2.2	26	7	9.4	3.5	.4
12		4.5	4.1	2.2	27	7	7.6	3.5	.4
13		4.5	3.5	2.2	28	6.5	7	2.9	.4
14		7	3.5	2.2	29	5	7	2.9	.3
15		13.2	3.5	1.8	30	5	6.5	2.5	.3
					31		6.5		.3

NOTE.—Discharge determined from a fairly well-defined rating curve.

Monthly discharge of Salmon Creek near Baker, Oreg., for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
April 25–30	7	5	6.25	74.4	B.
May	13.2	4.5	8.26	508	B.
June	8.5	2.5	4.22	251	B.
July	2.5	.3	1.32	81.2	B.
The period				915	

NORTH POWDER RIVER AT NORTH POWDER, OREG.

Location.—In sec. 22, T. 6 S., R. 39 E., at an abandoned bridge at the residence of I. L. Yankey, near the east boundary of the town of North Powder.

Drainage area.—Not measured.

Records available.—March 19 to November 30, 1912; May 20 to October 14, 1913; April 8 to July 31, 1914.

Gage.—Vertical staff.

Discharge measurements.—Made from downstream side of bridge.

Channel and control.—Sand and gravel; somewhat shifting.

Extremes of discharge.—Maximum stage recorded during the period April 8 to July 31, 3.4 feet at 6 p. m. May 23, 24, and 26 (discharge, 750 second-feet); minimum stage recorded, 0.20 foot July 26–31 (discharge, 0.1 second-foot). These figures probably represent the extremes for the year.

Diversions.—Practically all the summer flow used for irrigation above the station.

Accuracy.—Results unreliable, owing to changing conditions and infrequent measurements.

Cooperation.—Gage-height record furnished by the Oregon State Water Board.

Discharge measurements of North Powder River at North Powder, Oreg., during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*
Nov. 25	J. E. Stewart	1.18	31.4
July 21	P. V. Hodges	.41	1.3

Daily discharge, in second-feet, of North Powder River at North Powder, Oreg., for the year ending Sept. 30, 1914.

Day.	Oct.	Apr.	May.	June.	July.	Day.	Oct.	Apr.	May.	June.	July.
1	17	.....	76	460	9.4	16	.....	197	350	153	3.5
2	13	.....	76	520	13	17	.....	197	299	174	3.5
3	13	.....	87	590	13	18	.....	153	299	197	3.5
4	9.4	.....	117	405	13	19	.....	174	299	174	1.2
5	7.8	.....	117	224	9.4	20	.....	174	299	117	1.2
6	9.4	.....	87	134	9.4	21	.....	174	299	87	.5
7	33	.....	87	117	9.4	22	.....	174	460	87	.5
8	50	87	117	117	9.4	23	.....	174	750	39	.5
9	36	101	117	87	6.3	24	.....	153	750	55	.5
10	27	117	101	76	6.3	25	.....	153	670	22	.5
11	30	117	101	55	6.3	26	.....	117	750	55	.1
12	42	134	87	76	6.3	27	.....	101	460	55	.1
13	50	134	87	87	6.3	28	.....	101	224	13	.1
14	55	153	153	117	6.3	29	.....	101	224	13	.1
15	.....	174	224	134	6.3	30	.....	87	224	9.4	.1
						31	.....	.....	299	.....	.1

NOTE.—Discharge determined from a rating curve fairly well defined below 1,000 second-feet.

Monthly discharge of North Powder River at North Powder, Oreg., for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October 1–14	55	7.8	28.0	778	B.
April 8–30	197	87	141	6,430	B.
May	750	76	267	16,400	B.
June	590	9.4	148	8,810	A.
July	13	.1	4.71	290	B.

WOLF CREEK NEAR NORTH POWDER, OREG.

Location.—In sec. 3, T. 6 S., R. 38 E., at Bauer's ranch, about 6 miles west of North Powder.

Drainage area.—35 square miles.

Records available.—May 23 to October 31, 1913; April 9 to July 25, 1914.

Gage.—Vertical staff.

Discharge measurements.—Made from footbridge one-fourth mile below gage.

Channel and control.—Rocky; probably permanent.

Extremes of discharge.—Maximum stage recorded during the period April 9 to July 25, 2.70 feet at 7 p. m. April 14 (discharge, 260 second-feet); minimum stage recorded, 0.85 foot at 9 a. m. July 25 (discharge, 5.5 second-feet). These figures do not represent the extremes for the year.

Accuracy.—Records good.

Cooperation.—Field data furnished by the Oregon State Water Board.

Discharge measurements of Wolf Creek near North Powder, Oreg., during the year ending Sept. 30, 1914.

[Made by C. E. Stricklin.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*		*Feet.*	*Sec.-ft.*		*Feet.*	*Sec.-ft.*
Oct. 14	1.00	7.6	May 6	2.10	110	June 8	1.40	28.4
Apr. 9	2.35	169	May 14	1.98	99			

Daily discharge, in second-feet, of Wolf Creek near North Powder, Oreg., for the year ending Sept. 30, 1914.

Day.	Oct.	Apr.	May.	June.	July.	Day.	Oct.	Apr.	May.	June.	July.
1	6	.....	96	27	13	16	7	231	79	30	7.0
2	6	.....	114	26	12	17	6	205	72	26	6.5
3	5	.....	134	26	11	18	6	179	65	25	6.0
4	5	.....	155	26	11	19	7	179	58	24	6.0
5	6	.....	134	24	11	20	8	179	55	23	6.0
6	6	.....	114	23	11	21	10	179	52	22	6.0
7	8	.....	95	24	11	22	10	179	50	21	6.0
8	8	.....	104	26	11	23	10	179	47	20	6.0
9	7	179	114	26	11	24	10	156	45	22	5.8
10	7	205	104	26	9.5	25	10	134	44	23	5.5
11	8	231	95	30	8.0	26	10	124	42	20	.....
12	8	241	94	34	8.0	27	10	114	38	18	.....
13	8	250	93	38	8.0	28	10	102	33	16	.....
14	10	260	92	36	7.6	29	10	91	32	15	.....
15	7	246	86	33	7.3	30	10	79	30	14	.....
						31	8	.....	28	.....	.....

NOTE.—Daily discharge determined from well-defined rating curve.

Monthly discharge of Wolf Creek near North Powder, Oreg., for the year ending Sept. 30, 1914.

[Drainage area, 35 square miles.]

Month.	Discharge in second-feet.				Run-off.		Accuracy.
	Maximum.	Minimum.	Mean.	Per square mile.	Depth in inches on drainage area.	Total in acre-feet.	
October	10	5	8.0	0.229	0.26	492	C.
April 9–30	260	79	178	5.09	4.16	7,780	B.
May	155	28	77.2	2.21	2.55	4,750	B.
June	38	14	24.8	.709	.79	1,480	B.
July 1–25	13	5.5	8.45	.241	.22	419	B.

BIG CREEK NEAR MEDICAL SPRINGS, OREG.

Location.—In sec. 31, T. 6 S., R. 42 E., at a wagon bridge at Gardner's ranch, 1½ miles above Medical Springs.

Drainage area.—Not measured.

Records available.—May 29 to October 14, 1913; April 10 to August 9, 1914.

Gage.—Vertical staff.

Discharge measurements.—Made from wagon bridge.

Channel and control.—Solid rock; discharge relation affected by dams placed in channel in June, July, and August, 1914.

Extremes of discharge.—Maximum stage recorded for the period April 10 to August 9, 3.10 feet at 6 p. m. April 15 (discharge, 435 second-feet); minimum stage recorded, 1.42 feet at 2 p. m. May 30 (discharge, 0.2 second-foot).

Diversions.—Most of the low-water flow is diverted above the station for irrigation.

Accuracy.—Results good prior to June 1; no estimate possible thereafter.

Cooperation.—Field data furnished by the Oregon State Water Board.

Discharge measurements of Big Creek near Medical Springs, Oreg., during the year ending Sept. 30, 1914.

[Made by C. E. Stricklin.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*		*Feet.*	*Sec.-ft.*
Oct. 15	1.60	5.2	May 5	2.08	73.5
Apr. 10	2.35	147			

Daily discharge, in second-feet, of Big Creek near Medical Springs, Oreg., for the year ending Sept. 30, 1914.

Day.	Oct.	Apr.	May.	Day.	Oct.	Apr.	May.
1	6.6		63	16		278	28
2	6 6		78	17		148	22
3	6.6		90	18		132	15
4	6.6		90	19		132	8.1
5	8.6		78	20		175	7.2
6	8.6		68	21		164	5.2
7	12		61	22		142	5.2
8	12		61	23		182	5.2
9	12		63	24		132	5.2
10	12	148	59	25		111	15.0
11	12	148	48	26		90	2.1
12	14	164	43	27		83	1.7
13	14	164	32	28		78	.8
14	14	219	28	29		68	.2
15		435	28	30		63	.2
				31			.4

NOTE.—Daily discharge determined from a well-defined rating curve. Discharge relation affected by operation of dams after June 1, and discharge was not determined.

Monthly discharge of Big Creek near Medical Springs, Oreg., for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October 1–14	14	6.6	10.4	289	C.
April 10–30	435	63	155	6,460	B.
May	90	.2	32.6	2,000	B.

GOOSE CREEK NEAR KEATING, OREG.

Location.—In sec. 8, T. 8 S., R. 43 E., at Pennoyer's ranch, about 4 miles northeast of Keating.

Drainage area.—Not measured.

Records available.—May 28 to October 16, 1913; April 10 to August 9, 1914, when station was discontinued.

Gage.—Vertical staff.

Discharge measurements.—Made by wading.

Channel and control.—Rocky; probably permanent.

Extremes of discharge.—Maximum stage recorded during the period April 10 to August 9, 2.70 feet at 6 p. m. April 15 (discharge, 164 second-feet); minimum stage recorded, 0.52 foot at 7 a. m. August 9 (discharge estimated, 0).

Accuracy.—High-water record good; low water uncertain on account of lack of measurements.

Cooperation.—Field data furnished by the Oregon State Water Board.

Discharge measurements of Goose Creek near Keating, Oreg., during the year ending Sept. 30, 1914.

[Made by C. E. Stricklin.]

Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*
Oct. 16	0.92	3.2
Apr. 10	2.40	125

Daily discharge, in second-feet, of Goose Creek near Keating, Oreg., for the year ending Sept. 30, 1914.

Day.	Oct.	Apr.	May.	June.	July.	Aug.	Day.	Oct.	Apr.	May.	June.	July.	Aug
1	4.1	.....	32.1	4.2	3.0	0.6	16	5.3	138	12.0	4.2	1.2	.....
2	4.1	.....	28.2	4.2	3.0	.6	17	.....	112	11.2	3.0	.8	.....
3	4.1	.....	28.2	4.2	2.7	.4	18	.....	100	9.0	2.7	.8	.....
4	4.1	.....	26.9	5.3	2.7	.4	19	.....	100	8.2	2.7	.6	.....
5	2.6	.....	26.9	5.3	4.8	.4	20	.....	100	8.2	2.7	.6	.....
6	1.8	.....	25.0	5.3	4.8	.2	21	.....	76	7.6	2.7	.6	.....
7	5.6	.....	23.1	6.8	4.8	.2	22	.....	76	12.9	2.7	.6	.....
8	5.6	.....	21.8	5.3	3.5	.0	23	.....	74	11.2	2.2	.6	.....
9	5.6	.....	17.4	5.3	3.0	.0	24	.....	70	11.2	2.2	4.8	.....
10	5.6	151	16.3	4.8	2.7	.....	25	.....	63	9.0	8.2	2.7	.....
11	5.6	151	16.3	4.8	2.2	.....	26	.....	47	7.6	13.7	3.0	.....
12	5.6	138	15.4	4.8	1.7	.....	27	.....	45	7.6	7.6	4.8	.....
13	5.6	144	12.9	4.2	1.4	.....	28	.....	40	5.9	4.8	3.5	.....
14	5.6	151	12.0	4.8	1.4	.....	29	.....	36	4.8	4.2	3.0	.....
15	5.3	164	12.0	4.8	1.4	.....	30	.....	34	4.8	3.5	2.7	.....
							31	.....	.....	4.2	.....	1.0	.....

NOTE.—Daily discharge determined from a rating curve fairly well defined except at extremely low water.

Monthly discharge of Goose Creek near Keating, Oreg., for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October 1–16	5.6	1.8	4.76	151	C.
April 10–30	164	34	95.7	3,990	B.
May	32.1	4.2	14.5	892	B.
June	13.7	2.2	4.71	280	B.
July	4.8	.6	2.40	148	C.
August 1–9	.6	.0	.31	5.5	C.

EAGLE CREEK NEAR NEWBRIDGE, OREG.

Location.—In sec. 20, T. 8 S., R. 45 E., at Gover's ranch, about 5 miles above Newbridge, 3 miles above gaging station maintained in 1913 at Wright's ranch; below all tributaries.

Drainage area.—Not measured.

Records available.—May 5, 1910, to December 31, 1911; February 1 to May 31, 1914; also May 27 to August 10, 1913, at lower station. No estimates of discharge published for 1913 as the gage-height record was unreliable.

Gage.—Vertical staff spiked to log; installed January 25, 1914. Gage used in 1910–11 was close to the new gage, but data bear no determined relation.

Discharge measurements.—Made by wading.

Channel and control.—Gravel and bowlders; fairly permanent.

Extremes of discharge.—Maximum stage recorded for the period February 1 to May 31, 1914, 3.80 feet May 23 (discharge, 1,620 second-feet); minimum stage recorded, 0.20 foot at 6 a. m. February 6 (discharge, 55 second-feet).

Diversions.—Sparta ditch and another small ditch divert water for irrigation above station.

Accuracy.—Results only fair; those for low water for 1911 are approximate on account of lack of measurements.

Discharge measurements of Eagle Creek near Newbridge, Oreg., during the years ending Sept. 30, 1910 and 1914.

Date.	Made by—	Gage height.		Discharge.
		At Wright's ranch.	At Gover's ranch.	
		Feet.	*Feet.*	*Sec.-ft.*
May 5, 1910	O. C. Fincklenburg	.....	3.60	985
July 31, 1910	E. M. Wiseman	.....	2.05	252
Oct. 17, 1913	C. E. Stricklin	0.60	.....	99.0
Jan. 25, 1914	J. E. Stewart	.....	0.58	96.2
July 23, 1914	P. V. Hodges	.86	1.03	202

Daily discharge, in second-feet, of Eagle Creek near Newbridge, Oreg., for the years ending Sept. 30, 1910–1912 and 1914.

Day.	May.	June.	July.	Aug.	Sept.	Day.	May.	June.	July.	Aug.	Sept.
1910.						1910.					
1	.....	1,460	600	252	180	16	1,130	860	415	205	1,160
2	.....	1,370	575	235	180	17	1,160	860	415	205	322
3	.....	1,130	575	235	180	18	1,160	800	395	192	270
4	.....	1,100	550	235	180	19	1,220	750	375	192	235
5	980	1,100	528	235	180	20	1,100	675	358	192	220
6	950	1,070	482	235	180	21	1,160	675	340	192	205
7	1,040	1,010	460	235	180	22	1,190	650	375	192	205
8	1,160	950	438	235	180	23	1,280	600	358	192	205
9	1,280	920	438	235	180	24	1,340	575	322	180	192
10	1,640	980	438	220	180	25	1,520	575	322	180	192
11	1,340	1,040	415	220	168	26	1,220	650	322	180	192
12	1,280	1,160	415	220	168	27	1,220	650	305	180	192
13	1,370	980	415	205	168	28	1,130	675	298	180	192
14	1,310	980	415	205	168	29	1,130	675	270	180	192
15	1,250	890	415	205	168	30	1,250	600	252	180	180
						31	1,340	.....	252	180	.....

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1910–11.												
1	180	235	270	220	235	180	800	775	1,100	650	205	130
2	180	235	270	205	205	180	980	830	1,460	625	205	142
3	180	235	305	192	192	180	860	860	1,400	650	192	142
4	180	235	340	205	192	180	650	860	1,280	650	192	142
5	205	235	305	235	205	192	460	1,100	1,220	625	192	142
6	220	235	288	235	205	192	415	1,010	1,220	625	192	155
7	220	235	288	235	205	205	415	920	1,400	625	192	155
8	220	235	270	235	205	205	460	800	1,280	550	180	155
9	220	252	270	235	205	192	415	775	1,160	528	180	168
10	220	252	270	235	192	205	395	750	1,040	505	180	168
11	220	600	270	235	192	205	375	725	1,220	505	180	155
12	220	415	270	235	192	205	375	700	1,400	505	168	155
13	220	305	270	235	192	205	395	650	1,580	482	168	142
14	220	305	270	235	192	205	395	650	1,520	460	168	142
15	220	288	270	235	205	220	395	675	1,460	438	180	142
16	220	288	270	220	205	252	415	650	1,400	415	180	130
17	220	288	270	205	205	288	395	650	1,400	415	168	130
18	252	288	252	235	205	305	460	650	1,340	395	168	130
19	220	288	252	235	205	358	505	700	1,220	375	168	130
20	220	288	235	235	205	395	482	700	1,400	358	155	130
21	220	800	235	220	205	460	460	725	1,220	340	155	130
22	220	305	235	220	192	505	505	725	1,160	322	155	130
23	220	288	235	205	180	600	600	750	1,040	235	155	120
24	220	288	235	205	180	528	775	750	920	288	155	120
25	220	288	235	205	180	482	920	750	980	270	155	120
26	235	288	235	235	180	415	920	750	920	252	142	120
27	235	288	235	235	180	375	980	750	920	252	142	120
28	235	288	235	235	192	375	830	725	860	235	142	110
29	235	288	235	205	.....	375	800	725	800	235	130	110
30	235	288	235	235	.....	505	775	800	700	220	130	110
31	235	.....	235	252	.....	800	.....	920	.....	205	130	.....

Daily discharge, in second-feet, of Eagle Creek near Newbridge, Oreg., for the years ending Sept. 30, 1910–1912 and 1914—Continued.

Day.	Oct.	Nov.	Dec.	Day.	Oct.	Nov.	Dec.
1911.				1911.			
1	110	155	180	16	142	168	155
2	130	155	180	17	142	168	155
3	130	155	180	18	142	168	155
4	120	155	180	19	142	192	155
5	120	155	168	20	142	192	155
6	120	155	168	21	142	180	155
7	120	155	168	22	142	180	155
8	120	155	168	23	142	180	155
9	130	155	168	24	142	155	155
10	130	155	168	25	142	155	155
11	130	155	155	26	142	155	155
12	130	155	155	27	142	155	155
13	130	155	155	28	142	168	155
14	130	155	168	29	142	168	155
15	142	180	168	30	155	168	155
				31	155	.....	168

Day.	Feb.	Mar.	Apr.	May.	Day.	Feb.	Mar.	Apr.	May.
1914.					1914.				
1	65	124	214	570	16	80	348	685	1,310
2	65	136	220	705	17	75	375	680	1,280
3	60	130	268	888	18	78	387	590	1,260
4	80	124	338	930	19	90	387	672	1,220
5	78	124	521	1,000	20	96	375	755	1,190
6	55	136	570	1,070	21	130	363	718	1,340
7	70	152	494	1,010	22	136	355	680	1,500
8	80	170	485	948	23	136	338	692	1,620
9	78	196	494	912	24	136	313	705	1,400
10	110	205	508	870	25	130	292	630	1,170
11	100	205	555	912	26	116	268	620	1,050
12	84	226	508	996	27	116	244	570	960
13	84	250	570	1,080	28	110	220	521	870
14	78	292	755	1,160	29	.....	220	503	870
15	78	302	690	1,230	30	.....	220	485	948
					31	.....	214	.....	948

NOTE.—Daily discharge for 1910–11 determined from rating curve fairly well defined for 1910 but poorly defined for 1911; for 1914 from curve well defined below 250 second-feet. Discharge estimates for early part of February, 1914, very uncertain.

Monthly discharge of Eagle Creek near Newbridge, Oreg., for the years ending Sept. 30, 1910–1912 and 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
1910.					
May 5–31	1,640	950	1,230	65,900	B.
June	1,460	575	880	52,400	B.
July	600	252	404	24,800	B.
August	252	180	207	12,700	B.
September	1,160	168	226	13,400	B.
The period				169,000	
1910–11.					
October	252	180	218	13,400	B.
November	800	235	305	18,100	B.
December	340	235	261	16,000	B.
January	252	192	225	13,800	B.
February	235	180	197	10,900	B.
March	800	180	322	19,800	B.
April	980	375	587	34,900	C.
May	1,100	650	768	47,200	C.
June	1,580	700	1,200	71,400	C.
July	650	205	427	26,300	C.
August	205	130	168	10,300	C.
September	168	110	136	8,090	C.
The year	1,580	110	401	290,000	
1911.					
October	155	110	135	8,300	C.
November	192	155	163	9,700	C.
December	180	155	162	9,960	C.
The period				28,000	
1914.					
February	136	55	92.6	5,140	C.
March	387	124	248	15,200	B.
April	755	214	557	33,100	D.
May	1,620	570	1,070	65,800	D.
The period				119,000	

SALMON RIVER NEAR PIERSON, IDAHO.

Location.—In sec. 1, T. 8 N., R. 13 E., about 4½ miles below Pierson post office, and about 20 miles above Stanley post office, Idaho; half a mile below the mouth of Fourth of July Creek.

Records available.—December 23, 1910, to November 3, 1913, when the station was discontinued. No discharge estimates prior to September 24, 1911.

Drainage area.—Not measured.

Gage.—Inclined staff installed August 4, 1911, on right bank to replace temporary vertical staff washed out June 5.

Control.—Rocky; probably permanent.

Discharge measurements.—Made from cable and car.

Winter flow.—Apparently not seriously affected by ice.

Diversions.—None near station.

Accuracy.—Rating curves fairly well defined; records should be reliable.

No discharge measurements made subsequent to September 20, 1913.

Daily discharge, in second-feet, of Salmon River near Pierson, Idaho, for the period Oct. 1 to Nov. 3, 1913.

Day.	Oct.	Nov.	Day.	Oct.	Nov.	Day.	Oct.	Nov.
1	184	184	11	204	.....	21	196	.....
2	184	184	12	198	.....	22	193	.....
3	184	184	13	198	.....	23	191	.....
4	184	.....	14	198	.....	24	189	.....
5	184	.....	15	214	.....	25	186	.....
6	184	.....	16	198	.....	26	184	.....
7	184	.....	17	198	.....	27	184	.....
8	198	.....	18	184	.....	28	184	.....
9	214	.....	19	191	.....	29	198	.....
10	214	.....	20	198	.....	30	214	.....
						31	198	.....

NOTE.—Discharge determined from a fairly well-defined curve. Mean discharge for October, 194 second-feet (11,900 acre-feet).

SALMON RIVER AT SALMON, IDAHO.

Location.—In sec. 6, T. 21 N., R. 22 E., at the rear of Shoup's ranch buildings, about 300 feet below the island, just above Lemhi River, and about one-fourth mile below the highway bridge at Salmon.

Drainage area.—3,600 square miles (Forest Service records).

Records available.—April 25, 1912, to September 30, 1914.

Gage.—Inclined staff on left bank.

Discharge measurements.—Made from cable 700 feet below gage.

Channel and control.—Rocky; practically permanent.

Extremes of discharge.—Maximum stage recorded during year, 6.5 feet at 5.15 p. m. June 4 (discharge, 8,420 second-feet); minimum stage recorded, 2.05 feet January 12, during period when discharge relation was affected by ice; mean daily discharge January 1 to 13 estimated at 1,100 second-feet; however, mean daily estimates as low as 1,050 second-feet were made for periods during winter season, and it is probable that flow for a single day was less than this.

Winter flow.—Discharge relation slightly affected by ice.

Diversions.—A small ditch takes water from left side between bridge and the gage but capacity is less than 1 per cent of low-water flow.

Accuracy.—Records fair except those for high water.

Discharge measurements of Salmon River at Salmon, Idaho, during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Oct. 14	Pierce and Merritt [a]	2.68	1,440	Jan. 14	A. C. Merritt [a]	2.46	1,110
14	R. C. Pierce	2.68	1,420				

[a] Private engineer.

Daily discharge, in second-feet, of Salmon River at Salmon, Idaho, for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Dec.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	1,310	1,410	1,220	.....	1,220	1,130	1,950	6,480	3,720	1,720	1,220
2	1,310	1,410	1,220	.....	1,220	1,130	2,330	7,470	3,550	1,660	1,180
3	1,310	1,410	1,130	.....	1,220	1,130	2,900	7,940	3,550	1,610	1,220
4	1,310	1,410	1,090	.....	1,220	1,130	3,210	8,420	3,720	1,830	1,220
5	1,310	1,410	1,050	.....	1,220	1,220	2,900	8,180	3,900	1,830	1,180
6	1,310	1,410	.....	.....	1,220	1,310	2,900	7,700	4,080	1,720	1,180
7	1,410	1,500	.....	.....	1,220	1,410	2,750	6,700	3,550	1,610	1,180
8	1,410	1,410	.....	.....	1,200	1,410	2,610	5,700	3,550	1,610	1,180
9	1,410	1,410	.....	.....	1,180	1,410	3,210	4,860	3,210	1,560	1,180
10	1,410	1,410	.....	.....	1,180	1,410	3,740	4,470	3,210	1,500	1,180
11	1,410	1,500	.....	.....	1,180	1,500	4,270	4,080	3,720	1,500	1,180
12	1,410	1,500	.....	.....	1,130	1,610	4,080	3,900	4,470	1,410	1,220
13	1,410	1,500	.....	.....	1,130	1,610	3,900	4,270	3,210	1,410	1,310
14	1,410	1,310	.....	.....	1,180	1,610	3,900	4,080	3,050	1,410	1,410
15	1,410	1,360	.....	.....	1,180	1,720	3,900	4,270	2,900	1,410	1,410
16	1,410	1,410	.....	.....	1,180	2,080	5,070	4,270	2,750	1,310	1,500
17	1,410	1,410	.....	.....	1,180	1,960	5,910	4,660	2,610	1,310	1,610
18	1,410	1,410	.....	.....	1,180	1,830	6,130	5,070	2,510	1,310	1,610
19	1,410	1,410	.....	.....	1,220	1,960	6,130	5,380	2,420	1,310	1,610
20	1,410	1,310	.....	.....	1,220	2,080	6,350	5,700	2,330	1,310	1,610
21	1,410	1,310	.....	1,220	1,220	2,610	6,350	5,490	2,330	1,310	1,610
22	1,410	1,220	.....	1,240	1,220	2,330	6,570	5,490	2,330	1,310	1,610
23	1,410	1,270	.....	1,270	1,220	2,330	7,940	4,660	2,330	1,290	1,610
24	1,410	1,310	.....	1,240	1,220	2,330	8,180	4,270	2,200	1,270	1,610
25	1,410	1,310	.....	1,220	1,220	2,330	7,480	4,080	2,200	1,270	1,500
26	1,410	1,270	.....	1,220	1,220	2,330	6,790	3,900	2,080	1,220	1,500
27	1,410	1,270	.....	1,220	1,180	2,330	6,350	3,900	1,830	1,220	1,500
28	1,410	1,310	.....	1,220	1,180	2,080	5,910	3,720	1,830	1,220	1,500
29	1,410	1,270	.....	.....	1,130	2,080	5,490	3,550	1,830	1,270	1,500
30	1,310	1,220	.....	.....	1,130	1,830	5,490	3,550	1,830	1,240	1,500
31	1,410	.....	.....	.....	1,130	.....	5,490	.....	1,720	1,220	.....

NOTE.—Rating curve well defined below 3,000 second-feet, but poorly defined above that point.
Discharge estimates, on account of ice, follow: Dec. 6–31, 1,050 second-feet; Jan. 1–14, 1,100 second-feet; 15–31, 1,200 second-feet; Feb. 1–20, 1,150 second-feet.

Monthly discharge of Salmon River at Salmon, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	1,410	1,310	1,390	85,500	A.
November	1,500	1,220	1,370	81,500	A.
December	1,220	.....	1,060	65,200	C.
January	.....	.....	1,160	71,300	C.
February	1,270	.....	1,170	65,000	C.
March	1,220	1,130	1,190	73,200	B.
April	2,610	1,130	1,770	105,000	B.
May	8,180	1,950	4,840	298,000	C.
June	8,420	3,550	5,210	310,000	C.
July	4,470	1,720	2,860	176,000	C.
August	1,830	1,220	1,430	87,900	B.
September	1,610	1,180	1,390	82,700	B.
The year	8,420	.....	2,070	1,500,000	

SALMON RIVER AT WHITEBIRD, IDAHO.

Location.—In sec. 22, T. 28 N., R. 1 E., at the Canfield ferry at Whitebird, about 18 miles southwest of Grangeville, and below all important tributaries.

Drainage area.—13,600 square miles (measured on General Land Office map, 1909).

Records available.—August 18, 1910, to September 30, 1914.

Gage.—Inclined staff in two sections, lower on right and upper on left side of river.

Discharge measurements.—Made from standard gaging car suspended from ferry cable.

Channel and control.—Rocky; practically permanent.

Extremes of discharge.—Maximum stage recorded during year, 14.0 feet at 8 a. m. May 24 (discharge, 51,500 second-feet); minimum stage recorded, 1.6 feet December 6 and 22 and February 6 and 8 (discharge, 3,430 second-feet); maximum stage recorded 1910–1914, 19.7 feet at 7 a. m. May 28, 1913 (discharge, 81,200 second-feet); minimum stage recorded, 1.05 feet at 7 a. m. January 9, 1913 (discharge, 2,720 second-feet).

Winter flow.—Discharge relation not affected by ice.

Accuracy.—Results good.

Discharge measurements of Salmon River at Whitebird, Idaho, during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Oct. 3	Parker and Baldwin	2.43	4,540	May 21	C. O. Brown	12.2	41,500
May 20	C. O. Brown	12.2	41,900	July 25	J. W. Strohecker	3.66	6,990

Daily discharge, in second-feet, of Salmon River at Whitebird, Idaho, for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	4,800	4,980	4,980	4,000	4,000	4,310	5,370	12,900	39,000	15,300	6,240	3,850
2	4,800	5,170	4,800	4,150	4,000	4,630	5,370	14,200	41,000	14,900	5,800	3,710
3	4,630	5,370	4,630	4,470	4,000	4,630	5,370	17,500	45,200	14,600	5,800	3,710
4	4,630	5,370	4,000	4,310	4,000	4,630	5,800	19,900	46,200	14,600	5,800	3,710
5	4,630	5,370	3,570	4,310	3,570	4,630	6,690	19,100	43,100	14,600	5,800	3,710
6	4,630	5,370	3,430	4,470	3,430	4,630	8,350	19,900	38,400	14,900	5,800	3,710
7	4,630	5,370	3,710	4,310	3,710	4,630	9,630	19,100	34,900	14,600	5,580	3,710
8	4,800	5,580	3,710	4,470	3,430	4,630	10,400	19,100	30,800	13,900	5,370	3,710
9	4,980	5,370	3,850	4,310	3,710	4,800	10,700	19,900	28,400	12,500	5,170	3,850
10	4,980	5,170	3,710	4,310	3,850	4,980	10,700	28,400	26,100	11,900	4,980	4,000
11	4,980	5,580	3,710	4,310	4,310	4,980	10,700	30,800	24,300	11,900	4,980	3,850
12	4,980	7,150	4,000	3,850	4,310	4,980	10,700	29,800	22,900	11,900	4,800	4,000
13	5,170	6,920	4,000	3,710	4,150	4,980	11,300	28,400	24,300	11,300	4,800	4,150
14	5,370	6,240	4,310	3,570	4,150	5,170	11,900	29,300	26,100	10,700	4,630	4,470
15	5,370	5,580	4,470	3,710	4,150	5,370	13,600	32,300	26,100	10,200	4,470	4,630
16	4,980	5,370	4,310	4,310	4,000	5,800	16,400	37,900	26,100	9,630	4,470	5,170
17	4,980	5,170	4,150	4,150	3,850	6,690	16,700	41,000	27,500	9,110	4,310	5,800
18	4,800	5,370	4,000	4,310	3,850	6,690	14,900	41,000	27,900	8,850	4,310	6,460
19	4,980	5,370	4,000	4,310	4,000	6,920	13,900	42,000	28,400	8,350	4,310	6,690
20	5,170	5,370	3,710	4,310	4,150	7,150	15,300	42,000	27,900	8,100	4,310	6,690
21	5,370	5,370	3,570	4,310	4,310	7,150	16,400	42,000	27,900	8,100	4,310	6,240
22	5,370	5,170	3,430	4,150	4,470	6,920	16,400	42,600	27,500	8,850	4,150	6,020
23	5,370	4,980	3,570	4,310	4,630	6,920	16,000	47,800	24,300	8,100	4,150	5,580
24	5,170	4,980	3,710	4,310	4,630	6,920	15,600	51,500	21,600	7,860	4,000	5,370
25	5,370	4,980	3,710	4,310	4,470	6,690	15,300	50,400	20,300	7,380	4,000	5,170
26	5,370	4,630	4,000	4,310	4,470	6,460	16,000	47,300	20,700	7,150	4,000	4,980
27	5,370	4,980	4,000	4,310	4,470	6,240	16,000	43,600	18,700	7,150	4,000	4,980
28	5,370	5,370	4,150	4,310	4,470	5,800	14,900	39,000	16,400	6,690	4,000	4,980
29	4,980	5,170	4,000	4,150	.....	5,580	13,900	38,400	15,600	6,690	4,000	4,630
30	4,980	4,980	4,000	4,000	.....	5,580	12,900	35,900	16,000	6,240	3,850	4,630
31	4,980	.....	4,000	3,850	.....	5,580	.....	35,900	.....	6,240	4,000	.....

NOTE.—Discharge determined from a rating curve, very well defined between 3,500 and 30,000 second-feet.

Monthly discharge of Salmon River at Whitebird, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	5,370	4,630	5,030	309,000	A.
November	7,150	4,630	5,400	321,000	A.
December	4,980	3,430	3,970	244,000	A.
January	4,470	3,570	4,190	258,000	A.
February	4,630	3,430	4,090	227,000	A.
March	7,150	4,310	5,650	347,000	A.
April	16,700	5,370	12,200	726,000	A.
May	51,500	12,900	32,900	2,020,000	B.
June	46,200	15,600	28,100	1,670,000	B.
July	15,300	6,240	10,400	640,000	B.
August	6,240	3,850	4,720	290,000	A.
September	6,690	3,710	4,740	282,000	A.
The year	51,500	3,430	10,100	7,330,000	

VALLEY CREEK NEAR STANLEY, IDAHO.

Location.—In sec. 10 (approximate), T. 10 N., R. 13 E., at Benner's ranch; about 500 feet from the house; about half a mile above the mouth; below all tributaries, and about 2 miles from Stanley post office.

Drainage area.—Not measured.

Records available.—December 21, 1910, to October 31, 1913.

Gage.—Present gage, a vertical staff on right bank, installed May 28, 1911. Original gage, washed out May 5, 1911, was located in the forest ranger's pasture, about half a mile below the present gage, at the present site of the cable and auxiliary gage. Relation between the first and second gages not determined. The datum of the gage installed May 28, 1911, was lowered 0.4 foot on September 12, 1912.

Discharge measurements.—Made from a bridge at Benner's ranch, from the cable, or by wading.

Channel and control.—Gravel; probably shifting. Two channels at present gage during extreme high water.

Winter flow.—Discharge relation seriously affected by ice and snow.

Accuracy.—Results fair.

Daily discharge, in second-feet, of Valley Creek near Stanley, Idaho, for the period Oct. 1–31, 1913.

Day.	Oct.	Day.	Oct.	Day.	Oct.
1	90	11	90	21	87
2	90	12	90	22	87
3	94	13	90	23	87
4	90	14	90	24	87
5	90	15	90	25	87
6	90	16	90	26	87
7	90	17	90	27	87
8	90	18	90	28	87
9	90	19	90	29	87
10	90	20	87	30	87
				31	87

NOTE.—Discharges determined from a fairly well defined curve. Mean discharge for month 89.0 second-feet (5,470 acre-feet).

GRANDE RONDE RIVER AT HILGARD, OREG.

Location.—In sec. 32, T. 2 S., R. 37 E., about half a mile east of Hilgard, at the county highway bridge just below Five Points Creek, about 8 miles above head of Grande Ronde Valley.

Drainage area.—660 square miles.

Records available.—November 6, 1903, to March 3, 1910; October 1, 1910, to September 30, 1914.

Gage.—Vertical staff nailed to right bridge abutment used since 1910.

Discharge measurements.—Made from bridge or by wading.

Channel and control.—Sand and gravel; fairly permanent. The use of the stream for log driving formerly affected the discharge relation, especially for about two months in early summer; no logs have been driven since about 1910.

Extremes of discharge.—Maximum stage recorded during the year: 3.9 feet at 8.30 a. m. and 5.30 p. m., March 17; discharge, 2,210 second-feet. Minimum stage recorded: 0.62 foot, August 27 to September 4; discharge, 15 second-feet.

Winter flow.—Discharge relation severely affected by ice from one to two months.

Regulation.—Some storage developed for flooding logs.

Accuracy.—Results good.

Discharge measurements of Grande Ronde River at Hilgard, Oreg., during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*
Jan. 21	J. E. Stewart	1.21	99.0
July 21	P. V. Hodges	1.00	67.4

Daily discharge, in second-feet, of Grande Ronde River at Hilgard, Oreg., for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	46	126	140	126	140	546	685	685	375	205	22	15
2	38	100	140	126	149	723	685	840	375	172	33	15
3	32	100	76	126	158	723	685	840	490	172	33	15
4	32	100	113	126	167	723	685	840	430	172	33	15
5	32	105	126	126	176	980	1,380	760	350	172	33	18
6	41	126	126	126	185	1,230	1,900	685	325	172	33	18
7	121	126	100	126	154	1,670	1,780	760	325	172	33	18
8	140	126	126	126	154	1,730	1,660	840	350	172	33	22
9	140	126	100	126	185	1,670	1,440	840	375	172	33	23
10	140	126	100	126	219	1,440	1,660	840	375	142	28	22
11	88	126	100	126	219	1,390	1,660	760	375	115	28	20
12	105	126	100	126	219	1,390	1,500	760	402	115	24	20
13	113	126	100	140	219	1,440	1,440	760	582	102	22	20
14	113	126	100	154	219	1,500	1,550	760	800	102	22	31
15	113	100	100	154	170	1,670	1,900	840	615	90	22	48
16	113	88	100	154	154	1,850	2,140	840	550	90	22	58
17	76	100	76	154	154	2,210	1,900	760	520	90	22	50
18	76	126	76	126	154	2,140	1,600	685	490	67	22	50
19	76	100	76	126	154	2,020	1,550	615	430	67	22	50
20	76	113	76	113	154	1,900	1,600	550	375	67	20	36
21	76	95	76	100	372	1,780	1,550	550	325	67	18	40
22	76	88	100	126	324	1,660	1,500	550	325	67	18	40
23	76	88	100	160	300	1,550	1,380	615	272	67	18	34
25	81	88	100	185	300	1,380	1,220	615	280	67	18	31
25	140	88	100	154	324	1,170	1,120	582	302	67	18	31
26	126	100	100	126	347	975	1,020	550	280	48	18	31
27	100	140	100	126	372	800	930	490	240	48	15	31
28	100	154	100	126	454	760	722	442	240	48	15	31
29	100	154	100	126	.....	685	685	430	222	48	15	28
30	100	154	126	126	.....	615	685	375	205	33	15	24
31	100	.....	126	126	.....	550	.....	325	.....	22	15	.....

NOTE.—Discharge determined from two fairly well defined rating curves applicable as follows: Oct. 1, 1913, to Mar. 17, 1914, and Mar. 18 to Sept. 30, 1914. Discharge estimated Feb. 2–5 on account of ice.

Monthly discharge of Grande Ronde River at Hilgard, Oreg., for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	140	32	89.9	5,530	B.
November	154	88	115	6,840	B.
December	140	76	103	6,330	B.
January	185	100	133	8,180	B.
February	454	140	225	12,500	B.
March	2,210	546	1,320	81,200	B.
April	2,140	685	1,340	79,700	B.
May	840	325	670	41,200	B.
June	800	205	387	23,000	B.
July	205	22	104	6,400	B.
August	33	15	23.3	1,430	B.
September	58	15	29.5	1,760	B.
The year	2,210	15	378	274,000	

MILL CREEK NEAR SUMMERVILLE, OREG.

Location.—In the NE. ¼ sec. 35, T. 1 N., R. 38 E., about 2¼ miles north of Summerville.

Drainage area.—Indeterminate; practically all the flow of the creek comes from springs.

Records available.—July 11 to September 30, 1914.

Gage.—Vertical staff on the supports of a flume.

Discharge measurements.—Made by wading.

Channel and control.—Gravel; fairly permanent.

Cooperation.—Station maintained by State Water Board.

Estimates withheld for additional data.

The following measurement was made by C. E. Stricklin:

July 25, 1914: Gage height, 0.55 foot; discharge, 12.4 second-feet.

Daily gage height, in feet, of Mill Creek near Summerville, Oreg., for the year ending Sept. 30, 1914.

Day.	July.	Aug.	Sept.	Day.	July.	Aug.	Sept.	Day.	July.	Aug.	Sept.
1	.....	.....	0.55	11	0.50	.....	0.55	21	.....	0.55	0.55
2	.....	.....	.50	12	.....	.....	.55	22	.....	.55	.55
3	.....	.....	.55	13	.....	.....	.55	23	.....	.55	.55
4	.....	.....	.55	14	.....	.....	.55	24	.....	.55	.55
5	.....	.....	.55	15	.....	.....	.55	25	.....	.55	.55
6	.....	.....	.55	16	.....	0.55	.55	26	0.55	.55	.55
7	.....	.....	.55	17	.....	.55	.55	27	.....	.50	.55
8	.....	.....	.55	18	.....	.55	.55	28	.....	.50	.55
9	.....	.....	.55	19	.....	.55	.55	29	.....	.50	.55
10	.....	.....	.55	20	.....	.55	.55	30	.....	.50	.55
								31	.....	.50	.....

WALLOWA LAKE NEAR JOSEPH, OREG.

Location.—In sec. 5, T. 3 S., R. 45 E., near outlet of Wallowa Lake, about 1 mile above Joseph.

Records available.—July 15, 1905, to July 28, 1906; January 13, 1912, to September 30, 1914.

Lake area.—1,528 acres at low water and 1,548 acres at high water according to survey made for the State Water Board in 1915.

Gage.—Vertical staff spiked to shore side of pile supporting boathouse some distance above dam at outlet. The gage used in 1905–6 was placed on upstream side of dam at outlet. Its datum was the floor of the sluiceway. No determined relation between the gage used in 1905–6 and present gage.

Storage.—Wallowa Lake reservoir is operated for the benefit of four ditches which divert between the lake and Joseph. The reservoir is allowed to remain practically empty during the winter and is filled during the flood run-off in May and June and emptied during August and September. The usual variation in level has been about 6.5 feet.

Daily gage height, in feet, of Wallowa Lake near Joseph, Oreg., for the year ending Sept. 30, 1914.

[J. W. Winston, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
1		2.35					16						
2							17				1.70		
3				1.88			18	2.35					
4	2.55						19						
5							20			1.95			
6			2.18				21					1.90	1.58
7					1.90	1.75	22		2.28				
8		2.35					23						
9							24				1.82		
10				1.70			25	2.35					
11	2.40						26						
12							27			1.80			
13			2.00				28					1.85	1.40
14					1.90	1.55	29		2.25				
15		2.25					30						
							31				1.85		1.42

WALLOWA RIVER AT JOSEPH, OREG.

Location.—In sec. 5, T. 3 S., R. 45 E., about 300 feet below the regulating dam at the outlet of Wallowa Lake, and 50 feet above footbridge; half a mile above Joseph, above the head gates of four irrigating ditches, the first taking out 125 feet below the gage.

Drainage area.—52 square miles.

Records available.—November 12, 1903, to March 31, 1914.

Gage.—Vertical staff bolted to a large bowlder on right bank.

Discharge measurements.—Made by wading at low water, formerly from footbridge.

Channel and control.—Bowlders; practically permanent; banks seldom overflow; current swift and velocities uneven across section.

Winter flow.—Discharge relation unaffected by ice on account of proximity to the lake outlet.

Regulation.—About 10,000 acre-feet of storage has been developed in Wallowa Lake; used since 1905.

Accuracy.—Results good, except November to January, when gage heights were uncertain.

The following measurement was made by J. E. Stewart:

January 17, 1914: Gage height, 1.95 feet; discharge, 49 second-feet.

Daily discharge of Wallowa River at Joseph, Oreg., for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Jan.	Feb.	Mar.	Day.	Oct.	Nov.	Jan.	Feb.	Mar.
1	80	60	.....	50	60	16	60	.....	.....	45	45
2	80	60	.....	50	60	17	60	.....	50	45	45
3	92	60	.....	56	60	18	60	.....	48	45	45
4	92	60	.....	56	56	19	60	.....	45	45	45
5	92	60	.....	56	56	20	60	.....	41	45	45
6	92	60	.....	50	56	21	60	.....	45	45	45
7	92	60	.....	50	50	22	60	.....	50	52	45
8	92	60	.....	50	50	23	60	.....	50	60	45
9	100	60	.....	50	50	24	60	.....	50	70	45
10	100	60	.....	50	50	25	60	.....	50	64	50
11	100	60	.....	50	45	26	60	.....	50	64	50
12	100	.....	.....	45	45	27	60	.....	50	60	50
13	100	.....	.....	45	41	28	60	.....	50	60	50
14	100	.....	.....	45	41	29	60	.....	50	.....	50
15	60	.....	.....	45	43	30	60	.....	50	.....	50
						31	60	.....	50	.....	50

NOTE.—Discharge determined from a fairly well-defined rating curve. Discharge Nov. 12 to Jan. 16 estimated at 50 second-feet on account of unreliable gage-height record.

Monthly discharge of Wallowa River at Joseph, Oreg., for period ending Mar. 31, 1914.

Month.	Discharge (in second-feet).			Run-off (total in acre-feet).			Discharge without storage (in second-feet).	Accuracy.
	Maximum.	Minimum.	Mean.	Observed.	Stored.	Without storage.	Mean.	
October	100	60	75.2	4,620	− 294	4,330	70.4	B.
November	.....	.....	53.7	3,200	− 147	3,050	51.3	C.
December	.....	.....	[a]50.0	3,070	− 588	2,480	40.3	C.
January	.....	.....	49.3	3,030	0	3,030	49.3	C.
February	70	45	51.7	2,870	0	2,870	51.7	B.
March	60	41	49.0	3,010	− 632	2,380	38.7	B.
The period	.....	.....	.....	19,800	−1,660	18,100	.....	

[a] Estimated.

WALLOWA RIVER AT MINAM, OREG.

Location.—In sec. 29, T. 2 N., R. 41 E., 1,000 feet below the new county highway bridge at Minam, and about the same distance below the mouth of Minam River, 12 miles from Elgin, and 9 miles below Wallowa Valley.

Drainage area.—870 square miles.

Records available.—November 18, 1903, to September 28, 1907; November 16, 1908, to March 31, 1914, when station was discontinued.

Gage.—Vertical staff with inclined lower section on left bank. At site of old highway bridge, which collapsed in 1905.

Discharge measurements.—Made from new bridge, 1,000 feet above gage.

Channel and control.—Gravel and bowlders; fairly permanent; one channel at all stages.

Extremes of discharge.—Maximum stage recorded during the period October 1 to March 31, 3.80 feet March 16 to 19 (discharge, 1,900 second-feet); minimum stage recorded, 2.49 feet at 12 m. January 20 (discharge, 409 second-feet). These figures do not represent the extremes for the year.

Winter flow.—Discharge relation materially affected by ice and ice jams during severe winter weather.

Diversions.—A large number of ditches divert from Wallowa River and its western tributaries for irrigation in the Wallowa Valley above the station.

Accuracy.—Results good except during ice periods and extreme high water.

The following measurement was made by J. E. Stewart:

January 20, 1914: Gage height, 2.49 feet; discharge, 424 second-feet.

Daily discharge, in second-feet, of Wallowa River at Minam, Oreg., for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
1	415	485	564	415	450	1,080	16	485	564	415	485	415	1,900
2	415	485	524	415	450	1,080	17	485	564	415	485	415	1,900
3	415	485	485	415	485	1,020	18	471	564	415	460	415	1,900
4	415	485	485	415	485	1,140	19	471	564	415	434	415	1,900
5	415	485	485	748	485	1,080	20	471	564	415	409	415	1,610
6	415	564	485	700	524	1,080	21	485	564	485	564	450	1,610
7	485	564	485	700	524	1,470	22	485	564	485	748	485	1,470
8	485	485	485	700	524	1,470	23	485	524	415	748	524	1,470
9	485	485	485	564	524	1,610	24	485	564	415	564	564	1,340
10	485	485	485	485	485	1,610	25	564	564	415	564	652	1,210
11	485	652	485	485	485	1,540	26	564	564	415	564	608	1,080
12	485	652	415	485	415	1,340	27	564	564	415	564	652	964
13	501	564	415	485	415	1,340	28	485	564	415	564	748	852
14	485	564	415	485	415	1,340	29	485	564	415	524	.....	852
15	485	564	415	485	415	1,470	30	485	564	415	524	.....	964
							31	485	.....	415	485	.....	964

NOTE.—Discharge determined from a rating curve well defined between 300 and 2,500 second-feet.

Monthly discharge of Wallowa River at Minam, Oreg., for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	564	415	478	29,400	A.
November	652	485	547	32,500	A.
December	564	415	448	27,500	A.
January	748	409	538	33,100	B.
February	748	415	494	27,400	A.
March	1,900	852	1,340	82,400	A.
The period	.....	.....	.....	232,000	

LOSTINE RIVER [1] NEAR LOSTINE, OREG.

Location.—In the NW. ¼ sec. 34, T. 1 S., R. 43 E., about 10 miles above the mouth of the stream, and below all tributaries; about 4 miles south of Lostine.

Drainage area.—Not measured.

Records available.—August 24, 1912, to March 31, 1914.

Gage.—Vertical staff on right bank.

Discharge measurements.—Made from wagon bridge 500 feet below gage or by wading.

Channel and control.—Gravel, sand, and bowlders; may shift slightly; left bank likely to overflow.

Extremes of discharge.—Maximum stage recorded during the period October 1, 1913, to March 31, 1914, 0.64 foot at 9 p. m. March 24 (discharge, 83 second-feet); minimum stage recorded, 0.08 foot at 8 a. m. February 5 (discharge, 22 second-feet).

[1] Formerly called South Fork of Wallowa River.

Winter flow.—Discharge relation affected by ice during short periods of extreme cold.
Diversions.—Above all diversions.
Accuracy.—Results good except for extreme high water, which is not covered by measurements.

The following measurement was made by J. E. Stewart:
January 19, 1914: Gage height, 0.21 foot; discharge, 30.7 second-feet.

Daily discharge, in second-feet, of Lostine River near Lostine, Oreg., for the years ending Sept. 30, 1912–1914.

Day.	Aug.	Sept.	Day.	Aug.	Sept.	Day.	Aug.	Sept.
1912.			1912.			1912.		
1		170	11		121	21		77
2		137	12		115	22		75
3		125	13		107	23		78
4		125	14		106	24		77
5		123	15		104	25		72
6		117	16		92	26		72
7		126	17		89	27	115	69
8		136	18		85	28	109	64
9		133	19		78	29	120	64
10		123	20		78	30	101	63
						31	115	

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1912-13.												
1	77	54	44	50	35	32	58	208	2,060	820	190	54
2	77	53	45	49	35	32	50	199	2,180	700	174	52
3	77	53	46	49	37	32	45	194	2,060	660	180	50
4	78	53	48	46	37	32	45	188	2,180	632	170	50
5	78	53	49	49	36	34	.....	201	1,880	780	160	52
6	75	52	50	53	34	32	.....	238	1,650	960	160	52
7	75	55	52	53	31	32	.....	407	1,700	1,300	140	46
8	75	53	53	53	31	32	.....	494	2,320	900	140	52
9	75	78	53	53	31	32	.....	864	2,180	868	124	47
10	73	85	53	53	28	32	.....	1,000	2,120	660	109	46
11	73	68	52	53	26	33	.....	828	1,580	560	106	40
12	72	77	53	50	26	33	.....	640	1,600	476	122	40
13	69	77	59	47	26	32	.....	530	1,600	410	122	39
14	69	72	59	45	28	30	.....	446	1,570	332	84	39
15	53	77	55	42	32	27	.....	410	1,010	310	80	38
16	53	72	55	42	34	33	.....	380	820	308	80	38
17	53	68	53	42	35	41	.....	355	1,000	308	77	38
18	53	64	53	41	36	41	.....	332	820	330	77	32
19	54	64	53	41	35	40	.....	325	1,660	332	70	50
20	53	65	55	41	35	35	254	321	1,000	339	70	50
21	53	55	55	42	34	32	272	314	900	380	68	50
22	65	59	55	42	32	41	278	500	1,330	378	70	50
23	65	58	54	42	32	35	268	632	1,760	355	64	50
24	65	53	54	41	32	33	228	860	1,350	308	70	40
25	59	52	53	41	31	32	236	1,300	945	313	69	40
26	63	41	53	42	32	32	341	2,280	740	332	67	38
27	54	42	52	42	33	31	410	2,540	715	275	64	35
28	54	43	52	41	32	32	310	2,000	685	220	62	34
29	54	41	51	41	.....	34	268	1,870	660	224	62	40
30	54	42	51	38	.....	45	232	1,820	740	200	62	42
31	54	.....	50	36	.....	50	.....	1,830	.....	200	59	.....

Daily discharge, in second-feet, of Lostine River near Lostine, Oreg., for the year ending Sept. 30, 1912–1914—Continued.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
1913–14.							1913–14.						
1	40	52	40	32	30	38	16	50	54	34	32	24	62
2	36	62	30	32	26	34	17	45	57	33	33	26	64
3	35	62	30	33	27	33	18	42	54	32	33	28	69
4	32	62	30	37	28	34	19	46	54	31	31	27	72
5	35	64	29	57	28	34	20	50	54	22	29	27	74
6	33	62	38	45	28	36	21	52	51	26	32	28	77
7	46	56	38	41	28	37	22	52	50	31	37	29	80
8	40	54	29	40	29	39	23	52	50	34	36	29	81
9	42	56	27	36	30	42	24	62	50	33	35	28	83
10	40	59	26	26	30	42	25	70	50	32	33	31	80
11	50	77	30	26	30	44	26	62	52	33	32	28	74
12	52	64	31	25	30	45	27	62	53	53	31	29	72
13	58	52	32	33	30	46	28	54	50	31	26	32	69
14	52	52	34	35	26	53	29	54	46	31	30	.....	68
15	46	52	35	34	22	57	30	52	42	31	32	.....	67
							31	52	.....	32	32	.....	67

NOTE.—Discharge determined from two fairly well defined rating curves applicable as follows: 1912 to May 27, 1913; May 28, 1913, to Mar. 31, 1914. Discharge interpolated for several short periods for which gage heights are not recorded. Apr. 5 to 19, 1913, discharge estimated as 150 second-feet from comparison with stations at Minam and Joseph. Discharge estimated on account of ice Feb. 3 and 4, 6 and 7, 9 and 16, 1914.

Monthly discharge of Lostine River near Lostine, Oreg., for the years ending Sept. 30, 1912–1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
1912.					
August 27–31	120	101	112	1,110	A.
September	170	63	100	5,950	A.
The period	.....	.....	.....	7,060	
1912–13.					
October	78	53	64.6	3,970	B.
November	85	41	59.3	3,530	B.
December	59	44	52.3	3,220	B.
January	53	36	45.2	2,780	B.
February	37	26	32.4	1,800	B.
March	50	27	34.3	2,110	B.
April	410	45	185	11,000	C.
May	2,540	188	791	48,600	C.
June	2,320	660	1,430	85,100	C.
July	1,300	200	489	30,100	B.
August	190	59	102	6,270	B.
September	54	32	44.1	2,620	B.
The year	2,540	26	277	201,000	
1913–14.					
October	70	32	48.2	2,960	B.
November	77	42	55.1	3,280	B.
December	53	22	32.2	1,980	B.
January	57	26	33.7	2,070	B.
February	32	22	28.1	1,560	B.
March	83	33	57.2	3,520	B.
The period	.....	.....	.....	15,400	

MINAM RIVER AT MINAM, OREG.

Location.—In the NE. ¼ sec. 31, T. 2 N., R. 14 E., at Minam, one-fourth mile above mouth of stream.

Drainage area.—Not measured.

Records available.—July 19, 1912, to March 31, 1914.

Gage.—Vertical staff on left bank.

Discharge measurements.—At high stages the discharge of Minam River is determined by measuring Wallowa River at the bridges above and below its mouth; stream may be waded at low water.

Channel and control.—Gravel and bowlders; probably permanent.

Extremes of discharge.—Maximum stage recorded during the period October 1 to March 31, 1914, 4.90 feet, March 9, 10, 17–19 (discharge, 620 second-feet); minimum stage recorded: 4.30 feet, October 1–6; discharge, 122 second-feet.

Winter flow.—Ice forms each winter and may remain two or three months and materially affect the discharge relation.

Accuracy.—Results good, except during periods when ice is present.

The following measurement was made by J. E. Stewart:

January 19, 1914: Gage height, 4.33 feet; discharge, 138 second-feet.

Daily discharge, in second-feet, of Minam River at Minam, Oreg., for the years ending Sept. 30, 1912–1914.

Day.	June.	July.	Aug.	Sept.	Day.	June.	July.	Aug.	Sept.
1912.					1912.				
1	.....	1,200	472	195	16	.....	835	271	151
2	.....	1,100	472	195	17	.....	892	255	151
3	.....	1,070	425	180	18	.....	892	240	134
4	.....	950	570	180	19	1,770	835	240	134
5	.....	950	472	180	20	2,200	835	218	122
6	.....	950	472	180	21	2,450	950	180	122
7	.....	950	380	180	22	1,800	950	180	122
8	.....	892	335	255	23	2,450	892	180	122
9	.....	835	335	180	24	2,120	620	180	122
10	.....	835	295	180	25	2,450	620	168	122
11	.....	950	255	180	26	2,480	620	151	122
12	.....	1,010	255	180	27	2,280	704	151	122
13	.....	950	255	151	28	1,800	672	151	122
14	.....	835	255	180	29	1,560	620	180	122
15	.....	835	255	180	30	1,490	520	151	122
					31	.....	520	168	.....

Daily discharge, in second-feet, of Minam River at Minam, Oreg., for the years ending Sept. 30, 1912–1914—Continued.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1912–13.												
1	122	100	135	122	122	250	950	725	3,330	1,490	335	122
2	122	100	135	122	122	620	725	725	3,330	1,490	335	122
3	122	100	135	122	122	520	520	725	3,330	1,490	335	122
4	122	100	135	122	122	472	520	725	3,150	1,490	335	122
5	122	100	151	122	122	1,070	520	725	2,970	1,340	335	122
6	122	100	135	122	122	835	520	725	2,970	1,490	335	122
7	122	113	135	122	151	520	501	1,490	2,970	1,560	335	122
8	122	113	135	122	151	255	501	1,960	3,150	1,420	255	100
9	122	122	135	132	180	255	472	2,360	3,520	1,200	255	100
10	122	180	135	141	150	255	472	2,450	3,150	1,070	255	122
11	122	180	135	151	122	255	620	2,120	2,790	950	255	122
12	122	180	135	161	151	180	950	1,960	2,540	950	255	122
13	122	180	122	170	151	180	1,070	1,800	2,540	835	335	122
14	100	180	122	180	151	180	1,200	1,560	2,280	725	255	122
15	100	180	122	122	180	180	1,340	1,420	1,960	620	218	122
16	100	180	122	151	180	168	1,200	1,490	1,720	620	218	100
17	100	180	122	151	180	255	950	1,490	1,800	620	218	100
18	100	151	122	122	180	425	950	1,490	1,800	620	180	100
19	100	151	122	122	180	425	950	1,340	2,120	570	180	100
20	100	168	122	.....	180	425	950	1,270	1,800	570	180	100
21	100	151	122	.....	151	335	950	1,200	1,720	725	180	100
22	100	151	122	.....	472	335	1,070	1,560	2,280	620	180	100
23	100	134	122	.....	.....	335	950	2,120	2,450	570	180	100
24	100	134	122	.....	.....	255	892	2,540	2,120	570	180	122
25	100	134	122	.....	.....	218	950	2,540	1,800	570	122	122
26	113	134	122	.....	.....	180	1,200	2,880	1,490	620	122	122
27	100	134	122	.....	.....	180	1,420	4,300	1,490	520	122	100
28	100	135	122	.....	.....	218	1,340	4,500	1,640	425	122	100
29	100	135	122	.....	.....	380	1,140	3,520	1,490	335	122	100
30	100	135	122	.....	.....	1,140	835	3,330	1,490	335	122	122
31	100	.....	122	.....	.....	950	.....	3,330	.....	335	122	.....

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
1913–14.													
1	122	180	218	.....	134	425	16	180	255	180	180	180	570
2	122	180	180	.....	134	425	17	180	255	180	180	180	620
3	122	180	180	.....	180	380	18	151	255	180	199	180	620
4	122	180	180	.....	180	380	19	151	255	180	217	180	620
5	122	180	180	335	180	353	20	151	255	180	236	180	520
6	122	255	180	335	180	353	21	180	255	180	255	180	520
7	151	255	180	335	180	425	22	180	255	180	295	195	520
8	151	180	180	335	.....	520	23	180	218	180	295	255	520
9	151	180	180	380	.....	620	24	180	218	200	218	255	472
10	151	180	180	255	.....	620	25	255	218	200	180	271	335
11	151	295	180	255	.....	425	26	255	218	200	218	295	335
12	151	295	180	255	.....	380	27	255	218	200	218	335	335
13	180	255	180	255	.....	425	28	180	218	200	180	380	255
14	180	255	180	255	.....	425	29	180	218	200	151	.....	255
15	180	255	180	218	180	520	30	180	218	200	151	.....	295
							31	180	.....	200	151	.....	295

NOTE.—Discharge determined from a rating curve well defined up to 3,000 second-feet. Discharge estimated on account of ice as follows: Nov. 28 to Dec. 4, 1912; Dec. 6–12, 1912; Dec. 21–28, 1912; Jan. 5–8 and 19–31, 1913; Feb. 10; Feb. 23–Mar. 1, 1913; Dec. 6–11, 16–22, 24–31, 1913; Jan. 1–4, 1914; and Feb. 8–14, 1914.

Monthly discharge of Minam River at Minam, Oreg., for the years ending Sept. 30, 1912–1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
1912.					
June 19–30	2,480	1,490	2,070	49,200	A.
July	1,200	520	848	52,100	A.
August	570	151	276	17,000	A.
September	255	122	156	9,280	A.
The period				128,000	
1912–13.					
October	122	100	110	6,760	A.
November	180	100	141	8,390	A.
December	151	122	128	7,870	C.
January	180		130	7,990	C.
February	472	122	184	10,200	B.
March	1,140	168	395	24,300	A.
April	1,420	472	888	52,800	A.
May	4,500	725	1,950	120,000	A.
June	3,520	1,490	2,370	141,000	A.
July	1,560	335	863	53,100	A.
August	335	122	225	13,800	A.
September	122	100	112	6,660	A.
The year	4,500	100	625	453,000	
1913–14.					
October	255	122	168	10,300	A.
November	295	180	228	13,600	A.
December	218	180	186	11,400	C.
January	380	151	237	14,600	B.
February	380	134	203	11,300	B.
March	620	255	444	27,300	A.
The period				88,500	

CLEARWATER RIVER AT KAMIAH, IDAHO.

Location.—In sec. 1, T. 33 N., R. 3 E., at the toll bridge at Kamiah, about 6 miles below mouth of South Fork.

Drainage area.—4,850 square miles (measured on General Land Office map, 1909).

Records available.—August 21, 1910, to September 30, 1914.

Gage.—Chain gage installed May 30, 1911; previous to that date a gage painted on lower steel caisson of first pier from left abutment. Datum of present gage 0.06 foot higher than that of old gage.

Discharge measurements.—Made from bridge.

Channel and control.—Gravel; rather rough; two channels for stages between 5 and 8 feet. Control practically permanent.

Extremes of discharge.—Maximum stage recorded during year, 11.9 feet May 18 (discharge, 42,200 second-feet); minimum stage recorded, 2.0 feet December 5 and 6 (discharge, 950 second-feet).

1910–1914: Maximum stage recorded, 16.1 feet May 26, 1913 (discharge, 76,600 second-feet; minimum stage recorded, 2.0 feet December 5 and 6, 1913 (discharge, 950 second-feet).

Winter flow.—Discharge relation not affected by ice.

Accuracy.—Results good.

Cooperation.—Gage heights furnished by United States Weather Bureau.

Discharge measurements of Clearwater River at Kamiah, Idaho, during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Oct. 6	G. L. Parker	2.65	1,620	May 23	Brown & Maguire	11.54	42,100
Jan. 28	L. W. Jordan	3.35	2,420	24	C. O. Brown	11.54	40,700

Daily discharge, in second-feet, of Clearwater River at Kamiah, Idaho, for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	1,660	2,860	2,860	2,050	2,350	4,750	5,250	16,100	26,900	7,760	2,050	1,220
2	1,540	3,230	2,680	2,200	2,350	5,510	5,510	18,500	28,800	7,160	1,910	1,220
3	1,540	3,840	2,350	2,050	1,910	5,000	6,040	22,200	30,700	7,160	1,780	1,220
4	1,660	3,430	1,130	2,200	1,780	4,750	6,870	24,000	25,700	6,310	1,660	1,220
5	1,540	3,040	950	3,430	1,910	5,000	8,720	21,700	22,200	7,160	1,540	1,220
6	1,540	3,430	950	5,000	1,540	5,000	13,400	19,500	19,500	7,760	1,910	1,220
7	1,660	4,060	1,130	3,840	1,430	5,250	14,300	19,500	17,500	6,590	1,780	1,220
8	2,200	3,230	1,660	4,060	1,780	5,510	13,800	22,200	16,600	6,310	1,540	1,320
9	2,200	3,430	1,780	3,430	2,350	5,770	13,000	27,600	15,200	6,040	1,430	1,540
10	2,350	3,040	1,430	3,230	2,200	6,040	13,000	28,200	14,300	5,510	1,430	1,780
11	2,350	3,430	1,540	2,680	2,350	5,770	13,400	30,700	13,400	5,250	1,540	1,660
12	3,230	4,510	2,200	2,350	2,350	5,770	13,800	28,200	13,000	5,250	1,320	2,050
13	3,230	4,060	2,200	2,350	2,510	5,510	14,300	28,200	14,300	4,750	1,320	1,910
14	3,430	3,430	2,510	2,050	2,350	6,040	17,000	29,400	19,000	4,750	1,320	1,910
15	3,040	3,040	2,510	2,200	2,200	6,310	19,000	33,200	17,500	4,510	1,220	2,050
16	2,510	3,040	2,350	2,510	2,200	7,760	22,200	35,900	16,600	4,060	1,220	2,860
17	2,350	3,430	1,780	2,350	2,350	8,390	19,500	37,300	15,600	3,840	1,220	2,510
18	2,200	3,430	1,660	2,200	2,510	9,060	17,000	42,200	14,700	3,430	1,220	3,630
19	2,350	3,430	2,050	2,350	2,510	9,410	17,000	31,300	14,300	3,430	1,130	3,040
20	3,040	3,430	1,910	2,510	2,510	8,720	23,400	31,300	13,400	3,230	1,130	3,230
21	2,860	3,430	1,320	2,350	3,430	8,070	21,700	31,900	12,500	3,430	1,220	2,510
22	2,860	3,040	1,040	2,350	4,510	7,760	20,000	31,300	13,000	3,430	1,320	2,510
23	3,040	2,860	1,780	2,860	4,280	8,070	22,200	41,500	10,900	3,040	1,320	2,200
24	2,860	3,430	2,350	2,860	4,280	7,460	22,200	40,000	10,100	2,860	1,430	2,050
25	5,250	3,040	2,200	2,860	4,750	7,160	20,600	35,200	9,770	2,860	1,320	1,910
26	5,000	2,680	2,350	2,510	4,280	6,590	19,000	32,600	11,300	2,680	1,320	1,910
27	3,630	2,860	2,050	2,860	4,750	6,040	19,000	28,800	10,100	2,510	1,320	1,910
28	3,430	3,230	1,910	2,510	4,750	5,770	17,500	26,300	9,410	2,350	1,320	1,910
29	3,230	2,860	1,910	2,350	.....	5,250	15,200	23,400	9,060	2,350	1,320	1,780
30	3,040	2,680	1,910	2,510	.....	5,510	15,200	28,200	8,390	2,200	1,220	1,780
31	2,860	.....	2,050	2,510	.....	5,510	.....	23,400	.....	2,050	1,220	.....

NOTE.—Discharge determined from a well-defined rating curve.

Monthly discharge of Clearwater River at Kamiah, Idaho, for the year ending Sept. 30, 1914.

[Drainage area, 4,850 square miles.]

Month.	Discharge in second-feet.				Run-off.		Accuracy.
	Maximum.	Minimum.	Mean.	Per square mile.	Depth in inches on drainage area.	Total in acre-feet.	
October	5,250	1,540	2,700	0.557	0.64	166,000	A.
November	4,510	2,680	3,300	.680	.76	196,000	A.
December	2,860	950	1,890	.390	.45	116,000	B.
January	5,000	2,050	2,690	.555	.64	165,000	B.
February	4,750	1,430	2,800	.577	.60	156,000	A.
March	9,410	4,750	6,400	1.32	1.52	394,000	A.
April	23,400	5,250	15,600	3.22	3.59	928,000	A.
May	42,200	16,100	28,700	5.92	6.82	1,760,000	A.
June	30,700	8,390	15,800	3.26	3.64	940,000	A.
July	7,760	2,050	4,520	.932	1.07	278,000	A.
August	2,050	1,130	1,420	.293	.34	87,300	A.
September	3,630	1,220	1,950	.402	.45	116,000	A.
The year	42,200	950	7,330	1.51	20.52	5,300,000	

CLEARWATER RIVER NEAR LEWISTON, IDAHO.

Location.—In sec. 28, T. 36 N., R. 5 W., 3 miles above Lewiston, and 4 miles above mouth of river.

Drainage area.—9,640 square miles.

Records available.—August 23, 1910, to October 31, 1913, when station was discontinued.

Gage.—In five vertical sections, reading from 0.0 to 15 feet.

Discharge measurements.—Standard gaging car suspended from central ferry cable; also a cable and car across high-water channel.

Channel and control.—Bowlders and gravel; likely to shift during high water. Two channels at high water.

Winter flow.—Some floating ice, but discharge relation is probably not affected.

Diversions.—None.

Accuracy.—Rating curve well defined. Records doubtful, owing to frequent changes in gage datum and the possibility of backwater from Snake River.

The following discharge measurement was made by G. L. Parker:
October 7, 1913: Gage height, 1.58 feet; discharge, 3,340 second-feet.

Daily discharge, in second-feet, of Clearwater River at Lewiston, Idaho, for the period Oct. 1–31, 1913.

Day.	Oct.	Day.	Oct.	Day.	Oct.
1	3,060	11	5,050	21	4,420
2	3,060	12	5,500	22	5,500
3	3,060	13	5,970	23	5,730
4	3,060	14	5,270	24	5,730
5	3,060	15	4,830	25	5,970
6	3,060	16	4,420	26	8,170
7	3,370	17	4,620	27	6,720
8	3,210	18	4,050	28	5,730
9	3,700	19	3,870	29	5,500
10	4,420	20	3,700	30	5,500
				31	5,970

NOTE.—Discharge determined from a well-defined curve. Mean discharge for month, 4,690 second-feet (288,000 acre-feet).

SOUTH FORK OF CLEARWATER RIVER NEAR GRANGEVILLE, IDAHO.

Location.—In sec. 30, T. 30 N., R. 4 E., just below the power plant of the Grangeville Electric Light & Power Co., about 6 miles east of Mount Idaho post office; 10 miles southeast of Grangeville, and about 19 miles above the mouth.

Drainage area.—940 square miles (measured on General Land Office map, 1909.)

Records available.—November 14, 1910, to July 31, 1911; October 9 to November 18, 1911; January 4, 1912, to September 30, 1914.

Gage.—Vertical staff about 75 feet below the power plant. Datum is 1.2 feet lower than datum used prior to 1912.

Discharge measurements.—Made from a cable above the power plant; discharge of canal added to give total discharge at the gage.

Channel and control.—Rocky; may shift during high stages.

Extremes of discharge.—Maximum stage recorded during year, 6.8 feet at 7 a. m. April 20 (discharge, 4,270 second-feet); minimum stage recorded, 2.00 feet August 27 to September 8 (discharge, 144 second-feet).

1910–1914: Maximum stage recorded, 9.7 feet at 5 a. m. May 30, 1912 (discharge, 9,830 second-feet); minimum stage recorded, 2.05 feet (discharge relation affected by ice), January 4, 1912 (discharge, 126 second-feet).

Winter flow.—Discharge relation affected by ice.

Regulation.—Records may be somewhat affected by artificial control at the power plant.

Accuracy.—Records fair.

Cooperation.—Gage-height record furnished by Grangeville Electric Light & Power Co.

Discharge measurements of South Fork of Clearwater River near Grangeville, Idaho, during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Oct. 1	Baldwin and Parker	2.26	[a] 238	Jan. 30	L. W. Jordan	2.30	[c] 263
4	G. L. Parker	2.20	[b] 212	Feb. 27	E. D. Gardner	2.45	[d] 329

[a] Includes 110 second-feet carried by canal.
[b] Includes 107 second-feet carried by canal.
[c] Includes 155 second-feet carried by canal.
[d] Includes 141 second-feet carried by canal.

Daily discharge, in second-feet, of South Fork of Clearwater River near Grangeville, Idaho, for the year ending Sept. 30, 1914.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	232	387	339	252	252	387	715	2,240	2,140	905	294	144
2	195	518	294	232	252	387	775	2,340	2,550	905	273	144
3	195	490	213	252	213	387	975	2,550	2,550	840	273	144
4	177	412	213	252	252	339	1,120	2,660	2,140	840	339	144
5	213	387	195	294	213	387	1,940	2,550	1,940	1,120	294	144
6	177	387	213	387	177	412	2,340	2,340	1,850	905	252	144
7	213	412	195	339	195	437	2,340	2,140	1,760	775	232	144
8	232	387	195	387	213	490	2,340	2,550	1,850	775	213	144
9	294	363	195	339	232	572	2,240	2,770	1,850	715	213	177
10	294	387	195	339	252	545	2,140	2,660	1,850	655	213	195
11	316	490	213	316	252	545	2,140	2,880	1,670	715	213	177
12	387	545	195	252	232	545	2,770	2,660	1,580	600	213	387
13	545	412	232	294	252	655	2,770	2,660	2,550	600	195	339
14	545	387	232	252	252	685	3,230	2,660	2,340	600	195	339
15	437	339	232	252	252	775	3,710	2,770	2,140	545	177	490
16	339	387	195	252	252	840	3,990	3,470	1,940	518	177	490
17	339	387	177	252	252	1,260	3,230	2,990	1,760	490	177	490
18	387	387	195	252	252	1,260	2,770	2,770	1,760	437	177	490
19	387	387	213	213	252	1,340	3,230	2,660	1,580	437	177	437
20	339	387	195	232	273	1,260	4,130	2,550	1,580	412	177	363
21	387	387	177	252	273	1,190	3,590	2,550	1,580	490	177	363
22	437	339	195	252	315	1,120	3,470	2,550	1,580	437	177	316
23	387	387	213	252	339	1,260	3,470	2,880	1,420	412	177	294
24	387	363	195	252	316	1,040	3,470	2,880	1,260	387	160	252
25	840	363	213	252	339	975	2,990	3,110	1,420	363	160	252
26	518	387	232	273	316	808	2,990	3,230	1,420	339	160	252
27	490	339	232	252	316	808	2,770	2,770	1,260	316	144	213
28	437	339	232	232	339	715	2,440	2,440	1,120	316	144	232
29	387	363	213	252	.....	600	2,240	2,340	1,040	294	144	213
30	387	387	232	252	.....	775	2,140	2,140	975	294	144	213
31	363	.....	252	252	.....	745	.....	2,140	.....	273	144	.....

NOTE.—Discharge determined from a rating curve well defined below 600 second-feet and fairly well-defined above 600 second-feet. Discharge Dec. 7, 1913, to Jan. 3, 1914, and Feb. 5–9, 1914, estimated because of ice by graphic method described in Water-Supply Paper 337, p. 52.

Monthly discharge of South Fork of Clearwater River near Grangeville, Idaho, for the year ending Sept. 30, 1914.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
October	840	177	363	22,300	A.
November	545	339	396	23,600	A.
December	339	177	217	13,300	C.
January	387	213	271	16,700	B.
February	339	177	262	14,600	B.
March	1,340	339	759	46,700	B.
April	4,130	715	2,620	156,000	B.
May	3,470	2,140	2,640	162,000	B.
June	2,550	975	1,750	104,000	B.
July	1,120	273	571	35,100	B.
August	339	144	200	12,300	B.
September	490	144	271	16,100	B.
The year	4,130	144	860	623,000	

TUCANNON RIVER NEAR POMEROY, WASH.

Location.—In sec. 13, T. 11 N., R. 40 E., at a highway bridge at the abandoned post office of Marengo, 9 miles southwest of Pomeroy, 17½ miles north of Dayton, and 14 miles above Petaha Creek.

Drainage area.—Not measured.

Records available.—August 31, 1913, to September 30, 1914.

Gage.—Vertical staff in two sections attached to left abutment of bridge.

Discharge measurements.—Made from a bridge one-half mile upstream or by wading.

Channel and control.—Composed of small cobblestones; somewhat shifting.

Extremes of discharge.—Maximum stage recorded during the period August 31, 1913, to September 30, 1914, 2.55 feet at 4.40 p. m. April 15, 1914 (discharge, 307 second-feet); minimum stage recorded, 1.40 feet at 4.45 p. m. August 25, 1914 (discharge, 55 second-feet).

Winter flow.—Discharge relation at times affected by ice.

Diversions.—Several small diversions for irrigation above station.

Accuracy.—Records September, 1913, to June, 1914, good; thereafter somewhat uncertain on account of shifting control.

Discharge measurements of Tucannon River near Pomeroy, Wash., during the period Aug. 31, 1913, to Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
1913.		*Feet.*	*Sec.-ft.*	1914.		*Feet.*	*Sec.-ft.*
Aug. 31	F. B. Storey	1.46	71.1	Feb. 2	L. W. Jordan	1.65	107
Oct. 20	do	1.50	78.5	May 24	G. L. Parker	2.17	214

Daily discharge, in second-feet, of Tucannon River near Pomeroy, Wash., for the years ending Sept. 30, 1913–14.

Day.	Aug.	Sept.	Day.	Aug.	Sept.	Day.	Aug.	Sept.
1913.			1913.			1913.		
1		72	11		72	21		79
2		72	12		72	22		87
3		72	13		72	23		87
4		82	14		72	24		79
5		76	15		72	25		72
6		72	16		72	26		72
7		72	17		72	27		72
8		79	18		72	28		72
9		72	19		72	29		95
10		72	20		79	30		99
						31	73	

Daily discharge, in second-feet, of Tucannon River near Pomeroy, Wash., for the years ending Sept. 30, 1913–14—Continued.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1913–14.												
1	79	99	79	95	96	210	133	176	154	97	66	65
2	72	95	79	95	104	232	133	198	154	95	66	64
3	72	95	79	95	92	221	133	198	176	93	65	65
4	79	95	79	87	109	198	165	210	154	111	66	64
5	79	87	79	87	95	176	198	198	154	109	66	65
6	79	79	79	87	78	176	244	198	154	99	65	66
7	95	79	79	87	109	176	232	187	154	99	65	71
8	104	79	79	87	97	176	221	221	144	106	65	76
9	104	79	79	87	92	187	221	232	144	92	66	76
10	79	79	79	79	95	210	221	232	144	92	65	71
11	79	79	79	79	95	198	210	221	133	89	65	76
12	87	79	79	79	97	176	221	210	133	87	66	76
13	79	79	79	79	99	176	232	221	133	92	65	76
14	82	79	79	79	99	176	256	294	130	92	64	76
15	79	79	79	79	109	198	294	256	128	78	64	89
16	79	79	79	87	106	210	294	256	126	77	65	89
17	79	79	79	79	109	198	256	244	123	76	65	89
18	79	79	79	79	106	198	244	244	113	73	65	91
19	72	79	79	79	111	198	244	221	113	68	66	85
20	72	79	79	87	113	198	268	210	109	68	66	89
21	72	79	79	82	123	187	244	198	109	67	65	78
22	72	79	79	87	154	176	232	210	111	66	64	65
23	79	79	79	95	176	176	221	221	104	66	64	72
24	79	79	79	95	176	176	221	210	104	66	65	71
25	79	79	79	87	198	165	198	198	111	66	59	71
26	95	79	79	87	187	154	198	198	123	65	64	71
27	95	79	79	87	176	144	187	187	113	66	64	76
28	87	79	79	87	187	133	176	176	113	66	65	76
29	87	79	79	87	.....	133	176	165	109	66	65	76
30	95	79	87	87	.....	133	165	154	106	65	65	76
31	104	.....	95	87	.....	133	.....	154	.....	66	65	.....

NOTE.—Discharge determined as follows: Aug. 31, 1913, to July 3, 1914, from a well-defined rating curve; July 4 to Sept. 30, 1914, from a poorly-defined rating curve. Discharge interpolated Feb. 1 and June 14–16.

Monthly discharge of Tucannon River near Pomeroy, Wash., for 1913–14.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accuracy.
	Maximum.	Minimum.	Mean.		
September	99	72	76.1	4,530	A.
October	104	72	83.0	5,100	A.
November	99	79	81.5	4,850	A.
December	95	79	79.8	4,910	A.
January	95	79	85.8	5,280	A.
February	198	78	121	6,720	A.
March	232	133	181	11,100	A.
April	294	133	215	12,800	A.
May	294	154	210	12,900	A.
June	176	104	129	7,680	A.
July	111	65	81.1	4,990	B.
August	66	59	64.9	3,990	C.
September	91	64	75.0	4,460	C.
The year	294	59	117	84,800	

PALOUSE RIVER AT HOOPER, WASH.

Location.—In sec. 25, T. 15 N., R. 38 E., 1 mile east of Hooper, and 2 miles above Cow Creek.

Drainage area.—2,210 square miles.

Records available.—April 1, 1897, to December 31, 1899; April 1, 1900, to April 21, 1907; June 14, 1908, to July 31, 1912; March 7, 1913, to September 30, 1914.

Gage.—Vertical and inclined staff in four sections on right bank.

Discharge measurements.—Made by wading.

Channel and control.—Rocks and gravel; shifting in floods.

Extremes of discharge.—Maximum stage recorded during year, 8.7 feet at 3 p.m. February 26 (discharge not determined); minimum stage recorded, 0.39 foot at 3 p. m. August 15 (discharge not determined).

1897–1914: Maximum stage recorded, 21.0 feet March 2, 1910 (discharge, 27,800 second-feet); minimum stage recorded, 0.25 foot June 25, 1910 (practically no flow).

Winter flow.—Discharge relation not seriously affected by ice.

Diversions.—A considerable amount of diversion for irrigation above the gage. Palouse Irrigation & Power Co.'s canal diverts about 2 miles above the station and Huffman ditch about 1 mile above.

Estimates withheld for additional data.

Discharge measurements of Palouse River near Hooper, Wash., during the year ending Sept. 30, 1914.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
May 29	Parker and Brown	1.90	159	Sept. 5	C. O. Brown	0.49	6.1
29	do	1.89	154				

NOTE.—On May 30 Palouse Irrigation & Power Co.'s canal carried about 10 second-feet, and on Sept. 5, 5.2 second-feet. On Sept. 5 Huffman ditch carried 0.7 second-foot.

Daily gage height, in feet, of Palouse River near Hooper, Wash., for the year ending Sept. 30, 1914.

[Mrs. L. C. Huffman, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	0.90	1.35	2.25	1.65	3.6	6.8	3.4	2.75	1.89	1.19	0.52	0.50
2	.90	1.40	2.25	1.65	3.5	7.1	3.6	2.75	1.89	1.19	.52	.50
3	.90	1.35	2.15	1.70	3.2	6.1	3.6	2.75	1.87	1.14	.48	.49
4	1.00	1.35	1.85	2.2	3.0	6.1	3.6	2.7	1.69	1.04	.46	.49
5	1.00	1.40	1.68	4.4	2.7	5.4	3.8	2.75	1.64	1.04	.44	.49
6	1.01	1.60	1.85	4.5	2.7	5.2	4.2	2.75	1.64	1.04	.46	.49
7	1.01	1.50	1.90	4.0	2.5	4.9	4.7	2.75	1.59	.99	.45	.49
8	1.01	1.35	1.80	3.9	2.5	4.6	5.2	2.85	1.59	.99	.45	.51
9	1.10	1.40	1.80	3.7	2.7	4.6	5.4	2.8	1.59	.96	.47	.51
10	1.10	1.50	1.65	3.7	2.8	4.6	5.2	2.65	1.59	1.02	.46	.51
11	1.10	1.60	1.60	3.6	2.9	4.7	4.9	2.55	1.59	.99	.44	.51
12	1.10	1.75	1.60	3.2	3.0	4.6	4.5	2.45	1.54	.96	.44	.51
13	1.15	1.60	1.65	2.6	3.2	4.6	4.3	2.45	1.49	.99	.44	.52
14	1.15	1.50	1.60	2.7	3.4	4.6	4.2	2.4	1.49	1.02	.44	.52
15	1.15	1.50	1.60	2.7	3.5	4.6	4.2	2.4	1.39	1.04	.39	.52
16	1.15	1.50	1.60	2.7	3.4	4.5	4.3	2.45	1.39	1.04	.49	.44
17	1.20	1.50	1.60	2.7	3.6	4.5	4.4	2.45	1.69	.94	.44	.44
18	1.25	1.45	1.50	2.7	3.5	4.5	4.2	2.45	1.54	.94	.44	.82
19	1.35	1.40	1.60	2.8	3.5	4.5	4.0	2.5	1.44	.89	.44	.82
20	1.40	1.40	1.50	2.8	3.5	4.5	3.8	2.4	1.29	.89	.45	.81
21	1.35	1.50	1.45	2.8	4.1	4.4	3.8	2.35	1.24	.79	.46	.82
22	1.30	1.60	1.50	2.8	5.0	4.4	3.6	2.2	1.14	.74	.01	.76
23	1.30	1.90	1.50	4.6	7.2	4.3	3.6	2.2	1.12	.74	.52	.78
24	1.30	1.90	1.50	4.3	6.1	4.3	3.4	2.1	1.09	.59	.49	.78
25	1.30	1.90	1.50	4.5	6.5	3.8	3.2	2.1	1.04	.59	.49	.79
26	1.30	1.90	1.55	4.2	8.7	3.8	3.1	1.94	1.04	.62	.49	.79
27	1.30	1.95	1.60	4.7	8.1	3.8	2.95	1.99	1.14	.59	.49	.79
28	1.30	1.90	1.60	4.3	7.5	3.6	2.9	1.97	1.14	.59	.49	.79
29	1.30	1.90	1.60	4.6	.....	3.6	2.8	1.90	1.24	.59	.49	.77
30	1.30	2.30	1.65	3.8	.....	3.4	2.75	1.89	1.24	.57	.49	.76
31	1.30	.....	1.65	3.6	.....	3.4	.....	1.89	.....	.54	.51	.....

MISCELLANEOUS MEASUREMENTS.

The results of measurements of discharge made in Snake River basin in the year ending September 30, 1914, at points other than regular gaging stations are presented in the following table:

Miscellaneous measurements in Snake River basin during the year ending Sept. 30, 1914.

Date.	Stream.	Tributary to or diverting from—	Locality.	Gage height.	Discharge.
				Feet.	*Sec.-ft.*
Sept. 28	Snake River	Columbia River	Woodville bridge, about 6 miles below Idaho Falls.		5,470
28	do	do	Shelley bridge, about 1½ miles west of Shelley, Idaho.		5,310
Aug. 10	do	do	Wagon bridge near Firth, Idaho.		5,120
12	do	do	do		5,010
10	do	do	Porterville bridge, near Blackfoot, Idaho.		3,890
12	do	do	do		3,580
13	do	do	do		3,570
13	do	do	Oregon Short Line Railroad bridge, a mile west of Blackfoot, Idaho.		3,420
Dec. 5	do	do	Crane Falls, Idaho		13,900
Aug. 12	Lavaside Spillway	Snake River	One-eighth mile above Porterville bridge, near Blackfoot, Idaho.		20.3
Mar. 24	Warm Springs	Little Blackfoot	Near Henry, Idaho		.6
Apr. 17	do	do	do		1.0
May 2	do	do	do		1.2
June 26	do	do	do		1.4
Aug. 6	do	do	do		1.1
Mar. 24	Winchell ditch	do	do		.6
Apr. 17	do	do	do		.6
17	do	do	do		2.9
May 2	do	do	do		.6
Aug. 6	do	do	do		.7
20	Upper Fort Hall canal	Blackfoot River	Above Siphon, Ross Fork.		169
20	do	do	Below Siphon, Ross Fork		149
Mar. 22	Big Lost River	Snake River	2 miles above Mackay dam.		160
25	do	do	do		158
22	do	do	Intake tunnel, Mackay dam.		144
22	do	do	1,000 feet below Mackay dam.		139
25	do	do	do		133
25	do	do	Narrows, below Mackay dam.		143
Oct. 7	Cedar Creek	Big Lost River	Above Forks, Mackay, Idaho.		2.0
Jan. 1	do	do	do		.8
Mar. 26	do	do	do		.9
May 9	do	do	do		12.6
July 28	do	do	do		5.0
Jan. 26	do	do	Below Forks, Mackay, Idaho.		5.3
Mar. 26	do	do	do		2.5
May 9	do	do	do		30.8
July 28	do	do	do		29.1
June 14	Little Lost River	do	Near Clyde, Idaho		142
24	do	do	do		102
July 2	do	do	do		89.6
16	Dry Creek	Little Lost River	do		37.9
14	do	do	do		48.7
June 30	do	do	do		65.9
24	do	do	do		47.3
16	do	do	do		64.4
Mar. 11	Cassia Creek	Raft River	Near Conant, Idaho		68.2
May 6	do	do	do		120
June 16	do	do	do		70.8
May 6	Marsh Creek	Snake River	Albion, Idaho		17.4
Aug. 6	Outlet of Blue Lakes	do	Perrineranch, near Twin Falls, Idaho.		199

Miscellaneous measurements in Snake River basin during the year ending Sept. 30, 1914—Continued.

Date.	Stream.	Tributary to or diverting from—	Locality.	Gage height.	Discharge.
				Feet.	*Sec.-ft.*
Jan. 16	Salmon Falls Creek	Snake River	Castleford Crosssing		35.4
May 24	Knoll Creek	Jakes Creek	Near Contact, Nev.		.9
June 12	do	do	do		1.0
22	do	do	do		.5
July 8	do	do	do		.2
16	do	do	do		.2
June 9	Meadow Creek	Salmon Falls Creek	do		.3
17	Birds Nest ditch	do	do		34.3
May 15	High-line canal	do	Trout Creek flume near San Jacinto, Nev.		15.8
July 3	do	do	do		19.5
13	do	do	do		11.7
May 27	San Jacinto ditch	do	Near San Jacinto, Nev.		2.1
June 3	do	do	do		7.5
May 27	Warm Springs Creek	do	do		2.4
Aug. 13	do	do	do		1.0
Sept. 5	do	do	do		1.8
May 27	Warm Springs ditch	Warm Springs Creek	do		2.6
Aug. 13	do	do	do		2.6
July 3	Trout Creek	Salmon Falls Creek	Mouth, near San Jacinto, Nev.		2.0
18	Cow Creek ditch	Cow Creek	Near San Jacinto, Nev.		.3
21	do	do	do		.3
27	do	do	do		.3
Aug. 14	do	do	do		.1
24	do	do	do		.1
Sept. 7	do	do	do		.2
30	do	do	do		.3
May 28	Shoshone Creek	Salmon Falls Creek	Above Big Creek, near San Jacinto, Nev.		32.6
July 1	do	do	Below Hot Creek, near San Jacinto, Nev.		15.4
Jan. 21	do	do	Mouth, near San Jacinto, Nev.		21.8
June 8	do	do	do		45.7
July 21	do	do	do		13.3
Aug. 17	do	do	do		4.9
May 28	Big Creek	Shoshone Creek	do		12.7
July 13[a]	Bruneau River	Snake River	4 miles northwest of Graham's ranch, near Charleston, Nev.		14.2
15[a]	Meadow Creek	Bruneau River	Sec. 30, T. 46 N., R. 56 E., near Rowland, Nev.		2.6
15[a]	Macdonald Creek	do	Mouth, near Rowland, Nev.		5.3
11[a]	Jarbridge River	do	Sec. 33, T. 47 N., R. 58 E., 3 miles north of Jarbridge, Nev.		62
11[a]	East Fork of Jarbridge River.	Jarbridge River	Sec. 20, T. 47 N., R. 59 E., 10 miles northeast of Jarbridge, Nev.		93
Jan. 24	Draw Creek	Cherry Creek	Near Three Creek, Idaho.		9.1
21	Moores Creek	Boise River	Near Highland, Idaho.		135
Sept. 19	do	do	do		64
Feb. 25	Sand Creek	do	Near Boise, Idaho		12.3
25	do	do	do		13.0
25	do	do	do		14.0
July 19[a]	Mill Creek	Owyhee River	Sec. 16, T. 42 N., R. 53 E., at intake of Tuscarora-Nevada Mines Co. power plant, near Aura, Nev.		10.3
19[a]	Chicken Creek	do	Sec. 17, T. 42 N., R. 53 E., above intake of Tuscarora-Nevada Mines Co. power plant, near Aura, Nev.		4.3
19[a]	Deep Creek	do	Road crossing 8 miles northwest of Aura, Nev.		.8
10[a]	Bull Run Creek	do	Road crossing 3 miles northwest of Aura, Nev.		12.2
Apr. 17	Slough	Upper Cow Lake	Cow Creek "delta," near Jordan Valley, Oreg.		1.2
21	Beers Spring	Cow Creek	Beers ranch, near Jordan Valley, Oreg.		.6

[a] Measurement reported by J. P. Martin, district engineer, United States Forest Service.

Miscellaneous measurements in Snake River basin during the year ending Sept. 30, 1914—Continued.

Date.	Stream.	Tributary to or diverting from—	Locality.	Gage height.	Discharge.
				Feet.	*Sec.-ft.*
Mar. 8	Warm Springs Creek	North Fork of Malheur River.	Schoolhouse in Agency Valley above Beulah, Oreg.	[a] 7.95	89.5
26	do	do	do	[a] 8.50	50.8
Apr. 2	do	do	do	[a] 8.61	42.6
20	do	do	do	[a] 8.75	31.9
29	do	do	do	[a] 8.90	17.0
May 2	do	do	do	[a] 8.93	11.4
23	do	do	do	[a] 9.04	6.0
29	do	do	do	[a] 8.98	6.0
June 18	do	do	do	[a] 9.15	2.6
Aug. 21	do	do	do	[a] 9.13	3.2
Mar. 7	Cottonwood Creek	Bully Creek	About 5 miles west of Westfall, Oreg., at Jay Branson's ranch.		120
13	do	do	do		62.8
25	do	do	do		27.4
Apr. 3	do	do	do		15.6
18	do	do	do		19.6
May 3	do	do	do		5.7
22	do	do	do		.8
30	do	do	do		3.5
June 16	do	do	do		.7
Aug. 15	do	do	do		0
Mar. 14	Clover Creek	do	Vale-Burns road crossing just east of Westfall, Oreg.	[a] 5.95	144
24	do	do	do	[a] 6.84	81.4
Apr. 4	do	do	do	[a] 7.24	44.5
18	do	do	do	[a] 7.66	43.6
May 4	do	do	do	[a] 8.33	9.5
21	do	do	do	[a] 9.13	.2
30	do	do	do		[b] .2
June 16	do	do	do		.6
Aug. 14	do	do	do		[b] .5
Mar. 14	Cottonwood Creek	do	Mouth, near warm-springs stage station, about 10 miles east of Westfall, Oreg.		49.1
24	do	do	do		24.0
Apr. 4	do	do	do		6.9
17	do	do	do		11.0
May 4	do	do	do		.9
21	do	do	do		1.4
30	do	do	do		1.5
June 15	do	do	do		1.4
Aug. 14	do	do	do		0
Mar. 16	Willow Creek	Malheur River	Bridge over new channel east of Brogan.	1.07	10.6
June 27	Mormon Basin Creek	Willow Creek	Mouth	.99	3.3
Mar. 16	Pole Creek	do	Crossing of high-line canal of W. R. L. & I. Co.	−.23	12.0
Apr. 6	do	do	do	−.38	6.9
June 29	do	do	do	−.48	.8
Oct. 30	North Fork Payette	Payette River	Smiths Ferry, Idaho		289
29	Willow Creek	North Fork Payette River.	Van Wyck, Idaho		5.2
Aug. 26	I. O. P. Co. canal	Payette River	Horseshoe Bend, Idaho		848
May 14 [c]	South Fork of Payette River.	do	Near Garden Valley, Idaho.	7.42	3,640
Apr. 13	Weiser River	Snake River	Near Tamarack, Idaho		310
Oct. 23	do	do	Below dam, 2 miles above Cambridge, Idaho.		74.2
23	Salubria Power & Milling Co. canal.	Weiser River	Head, Cambridge, Idaho		68.0
29	Powder River	Snake River	Haines, Oreg.	5.00	330
June 8	do	do	do	4.60	289
16	do	do	do	3.90	218
July 7	do	do	do	2.32	60.6

[a] Gage height refers to distance below a reference point.
[b] Estimated.
[c] Measurement reported by J. P. Martin, district engineer, United States Forest Service.

Miscellaneous measurements in Snake River basin during the year ending Sept. 30, 1914—Continued.

Date.	Stream.	Tributary to or diverting from—	Locality.	Gage height.	Discharge.
				Feet.	*Sec.-ft.*
Oct. 13	Rock Creek	Powder River	Sec. 33, T. 7 S., R. 38 E., near Haines, Oreg.	0.85	14
Dec. 5	Hawley Creek	Lemhi River	Leadore, Idaho		17.5
Oct. 22	Eightmile Creek	do	do	2.38	11.8
21	Timber Creek	do	do	1.64	22.8
21	do	do	do	1.64	22.3
22	West Fork Timber Creek	Timber Creek	do	.20	7.6
Mar. 2	Selway Fork	Clearwater River	O'Hara Bar, near Lowell, Idaho.	[a] 1.2	1,810
2	Lochsa Fork	do	Near Lowell, Idaho	2.55	1,410
June 16	Palouse River	Snake River	Kennedy Ford, Idaho	1.06	7.4
20	do	do	Below South Fork Palouse River at Colfax, Wash.	2.76	37.0
17	do	do	Above Rock Creek, near Winona, Wash.	2.96	74.8
17	do	do	Below Rork Creek, near Winona, Wash.	5.79	102
May 29	Washington Development Co. canal.	Palouse River	Hooper, Wash		[b] 9.7
Sept. 5	do	do	do		5.2
5	Huffman ditch	do	Huffman's ranch, near Hooper, Wash.		0.7
June 20	South Fork	do	Colfax, Wash	3.11	2.7
17	Rock Creek	do	Outlet, Rock Lake	1.04	15.8
17	do	do	Mouth		27.0

[a] Gage reading uncertain. Observer's reading, 7.4 feet on same day.
[b] Estimated roughly by cross-section and float.

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