UNITED STATES DEPARTMENT OF THE INTERIOR
Ray Lyman Wilbur, Secretary

U. S. GEOLOGICAL SURVEY
George Otis Smith, Director

Water-Supply Paper 606

SURFACE WATER SUPPLY OF THE UNITED STATES

1925

PART VI. MISSOURI RIVER BASIN

NATHAN C. GROVER, Chief Hydraulic Engineer
W. A. LAMB, C. G. PAULSEN, ROBERT FOLLANSBEE, J. B. SPIEGEL.
H. B. KINNISON, and H. C. BECKMAN
District Engineers

Prepared in cooperation with the
STATES OF MONTANA, WYOMING, COLORADO, IOWA
KANSAS, AND MISSOURI

UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON : 1930

For sale by the Superintendent of Documents, Washington, D. C. - - - Price 30 cents

CONTENTS

	Page
Authorization and scope of work	1
Definition of terms	2
Explanation of data	3
Accuracy of field data and computed results	4
Publications	5
Cooperation	10
Division of work	11
Gaging-station records	11
Missouri River proper	11
Red Rock River at Metzel Ford, near Monida, Mont	11
Red Rock River below Red Rock Reservoir, near Monida, Mont	13
Beaverhead River at Barratts, Mont	14
Jefferson River near Silverstar, Mont	15
Missouri River below Hauser Lake Dam, near Helena, Mont	17
Missouri River at Fort Benton, Mont	18
Missouri River at Leavenworth, Kans	20
Grasshopper Creek Basin	21
Grasshopper Creek near Dillon, Mont	21
Big Hole River Basin	23
Big Hole River near Melrose, Mont	23
Willow Creek Basin	24
Willow Creek near Willow Creek, Mont	24
Madison River Basin	26
Madison River near West Yellowstone, Mont	26
Crow Creek Basin	28
Crow Creek near Radersburg, Mont	28
Prickly Pear Creek Basin	30
Prickly Pear Creek near Clancy, Mont	30
Tenmile Creek near Rimini, Mont	31
Tenmile Creek near Helena, Mont	33
Little Prickly Pear Creek Basin	34
Little Prickly Pear Creek near Marysville, Mont	34
Smith River Basin	36
Smith River near White Sulphur Springs, Mont	36
Sun River Basin	37
North Fork of Sun River near Augusta, Mont	37
Sun River at Fort Shaw, Mont	40
Willow Creek near Augusta, Mont	41
Muddy Creek at Vaughn, Mont	43
Marias River Basin	44
Marias River near Shelby, Mont	44
Marias River near Brinkman, Mont	46
Birch Creek at Swift Dam, near Dupuyer, Mont	47
Birch Creek near Dupuyer, Mont	49
Dupuyer Creek near Valier, Mont	51
Dry Fork of Marias River at Fowler, Mont	53
Willow Creek near Devon, Mont	54
Teton River at Strabane, Mont	55

Gaging-station records—Continued. Page
Judith River Basin 57
Judith River near Utica, Mont 57
Wolf Creek near Stanford, Mont 58
Musselshell River Basin 59
North Fork of Musselshell River at Delpine, Mont 59
Musselshell River at Harlowton, Mont 61
Checkerboard Creek at Delpine, Mont 62
American Fork near Harlowton, Mont 64
Lebo Creek near Harlowton, Mont 65
Flatwillow Creek near Flatwillow, Mont 67
Flatwillow Creek at Petrolia, Mont 68
Milk River Basin 70
South Fork of Milk River near international boundary 70
Milk River at Milk River, Alberta 71
Milk River at eastern crossing of international boundary 73
Milk River at Lohman, Mont 75
North Fork of Milk River above St. Mary Canal, near Browning, Mont 77
North Fork of Milk River near international boundary 78
Lodge Creek at international boundary 80
Battle Creek at international boundary 81
Frenchman River at international boundary 82
Yellowstone River Basin 84
Yellowstone Lake at Lake Hotel, Yellowstone National Park 84
Yellowstone River at Yellowstone Lake outlet, Yellowstone National Park 85
Yellowstone River near Canyon Hotel, Yellowstone National Park 86
Yellowstone River at Corwin Springs, Mont 88
Yellowstone River at Intake, Mont 89
Tower Creek at Tower Falls, Yellowstone National Park 91
Lamar River near Tower Falls ranger station, Yellowstone National Park 93
Gardiner River at Mammoth Hotel, Yellowstone National Park 94
Stillwater River near Nye, Mont 96
Woodbine Creek near Nye, Mont 97
Clark Fork at Chance, Mont 99
Clark Fork at Edgar, Mont 100
Wind River at Riverton, Wyo 102
Big Horn River at Thermopolis, Wyo 103
Big Horn River near Hardin, Mont 105
Dinwoody Creek near Burris, Wyo 107
Dry Creek near Burris, Wyo 109
Willow Creek near Crowheart, Wyo 110
Bull Lake Creek near Lenore, Wyo 111
Little Wind River near Fort Washakie, Wyo 113
North Fork of Little Wind River at Fort Washakie, Wyo 114
Nowood Creek at Bonanza, Wyo 116
Paintrock Creek near Hyattville, Wyo 117
Greybull River at Meeteetse, Wyo 119
Shoshone River above Shoshone Reservoir, Wyo 120
Shoshone River at Corbett Dam, Wyo 121
North Fork of Shoshone River near Wapiti, Wyo 123

Gaging-station records—Continued.
Yellowstone River Basin—Continued. Page
Tongue River near Dayton, Wyo 124
Powder River at Arvada, Wyo 126
Clear Creek near Buffalo, Wyo 127
Little Missouri River Basin 130
Little Missouri River near Alzada, Mont 130
Cheyenne River Basin 131
Belle Fourche River near Moorcroft, Wyo 131
Belle Fourche River near Belle Fourche, S. Dak 132
Little Sioux River Basin 134
Little Sioux River at Correctionville, Iowa 134
Boyer River Basin 135
Boyer River at Logan, Iowa 135
Platte River Basin 137
North Platte River near Walden, Colo 137
North Platte River near Northgate, Colo 138
North Platte River at Saratoga, Wyo 140
North Platte River above Pathfinder Reservoir, Wyo 141
North Platte River below Pathfinder Reservoir, Wyo 143
North Platte River above and below Whalen, Wyo 144
North Fork of North Platte River near Walden, Colo 147
Roaring Fork near Walden, Colo 148
Michigan Creek at Walden, Colo 150
Illinois Creek at Walden, Colo 151
Sage Creek above Pathfinder, Wyo 153
La Prele Creek near Douglas, Wyo 154
Laramie River near Glendevey, Colo 156
Laramie River near Jelm, Wyo 157
Laramie River at Two Rivers, Wyo 159
Laramie River at Fort Laramie, Wyo 160
Little Laramie River near Filmore, Wyo 161
Little Laramie River at Two Rivers, Wyo 163
South Platte River at South Platte, Colo 164
North Fork of South Platte River at South Platte, Colo 166
Clear Creek near Golden, Colo 168
North Boulder Creek at Silver Lake, Colo 169
Thompson River near Drake, Colo 170
Nishnabotna River Basin 172
East Nishnabotna River at Red Oak, Iowa 172
Tarkio River Basin 174
Tarkio River at Fairfax, Mo 174
Nodaway River Basin 175
Nodaway River at Clarinda, Iowa 175
Nodaway River near Burlington Junction, Mo 177
West Nodaway River at Villisca, Iowa 179
Platte River Basin (Iowa-Mo.) 180
Platte River at Conception Junction, Mo 180
Platte River at Agency, Mo 181
Kansas River Basin 183
Republican River at Scandia, Kans 183
Republican River at Wakefield, Kans 184
Kansas River at Ogden, Kans 186
Kansas River at Wamego, Kans 187

Gaging-station records—Continued.
Kansas River Basin—Continued. Page
Kansas River at Topeka, Kans 189
Kansas River at Bonner Springs, Kans 191
Smoky Hill River at Ellsworth, Kans 192
Smoky Hill River near Mentor, Kans 194
Smoky Hill River at Solomon, Kans 195
Saline River at Tescott, Kans 197
South Fork of Solomon River at Alton, Kans 198
Solomon River at Niles, Kans 200
North Fork of Solomon River at Kirwin, Kans 201
Big Blue River at Hull, Kans 203
Big Blue River at Randolph, Kans 204
Little Blue River at Waterville, Kans 206
Delaware River at Valley Falls, Kans 207
Grand River Basin 209
Grand River near Gallatin, Mo 209
Grand River near Summer, Mo 210
Thompson River at Davis City, Iowa 212
Medicine Creek near Galt, Mo 213
Locust Creek near Milan, Mo 215
Chariton River Basin 217
Chariton River at Elmer, Mo 217
Lamine River Basin 219
Lamine River at Clifton City, Mo 219
Blackwater River at Blue Lick, Mo 221
Osage (Marais des Cygnes) River Basin 222
Osage River near Quenemo, Kans 222
Osage River near Ottawa, Kans 224
Osage River at Osceola, Mo 225
Osage River near Bagnell, Mo 227
Marmaton River near Fort Scott, Kans 228
Sac River near Stockton, Mo 230
Sac River near Collins, Mo 231
Cedar Creek near Pleasant View, Mo 233
Pomme de Terre River at Hermitage, Mo 234
South Grand River near Brownington, Mo 236
Niangua River near Roach, Mo 237
Hahatonka Spring at Hahatonka, Mo 239
Gasconade River Basin 240
Gasconade River near Waynesville, Mo 240
Gasconade River at Jerome, Mo 242
Gasconade River near Rich Fountain, Mo 244
Piney Creek near Big Piney, Mo 245
Miscellaneous discharge measurements 247
Index 249

ILLUSTRATION

Page
FIGURE 1. Typical gaging station 3

SURFACE WATER SUPPLY OF MISSOURI RIVER BASIN, 1925

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 years ending September 30, 1925.

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 West. Since the fiscal year ending June 30, 1895, successive appropriation bills passed by Congress have carried the following items:

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

Annual appropriations for the fiscal years ending June 30, 1895–1926

1895	$12,500.00	1911–1917	$150,000.00
1896	24,500.00	1918	175,000.00
1897–1899	50,000.00	1919	148,244.10
1900	70,000.00	1920	175,000.00
1901–1902	100,000.00	1921–1923	180,000.00
1903–1906	200,000.00	1924–25	170,000.00
1907	150,000.00	1926	165,000.00
1908–1910	100,000.00		

In the execution of the work many private and State organizations have cooperated either by furnishing data or by assisting in collecting data. Acknowledgments for cooperation of the first kind are made in connection with the description of each station affected; cooperation of the second kind is acknowledged on page 10.

Measurements of stream flow have been made at about 5,120 points in the United States and also at many points in Alaska and

the Hawaiian Islands. In July, 1925, 1,710 gaging stations were being maintained by the Geological Survey and the cooperating organizations. Many miscellaneous discharge measurements are made at other points. In connection with this work data were also collected in regard to precipitation, evaporation, storage reservoirs, river profiles, and water power in many sections of the country and will be made available in water-supply papers from time to time.

DEFINITION OF TERMS

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

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

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

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

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

The following terms not in common use are here defined:

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

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

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

EXPLANATION OF DATA

The data presented in this report cover the year beginning October 1, 1924, and ending September 30, 1925. At the beginning of January in most parts of the United States much of the precipitation in the preceding three months is stored in the form of snow or ice, or in ponds, lakes, and swamps, or as ground water, and this stored water passes off in the streams during the spring break-up. At the end of September, on the other hand, the only stored water available for run-off is possibly a small quantity in the ground; therefore the run-off for the year beginning October 1 is practically all derived from precipitation within that year.

The base data collected at gaging stations consist of records of stage, measurements of discharge, and general information used to supplement the gage heights and discharge measurements in deter-

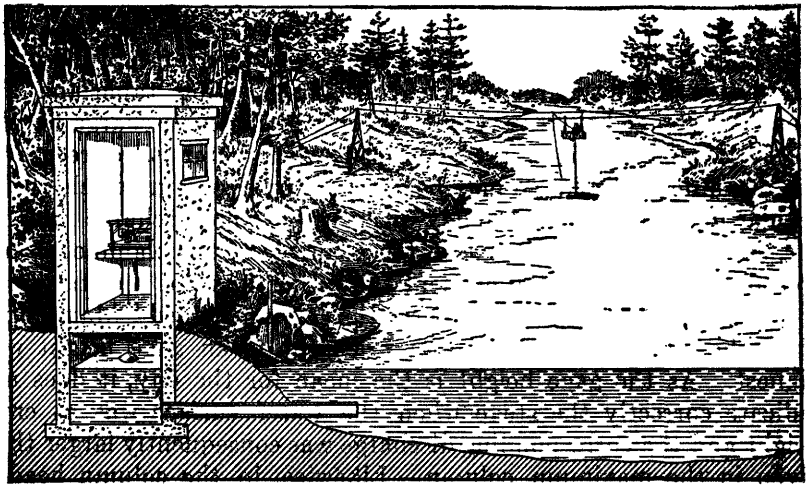

FIGURE 1.—Typical gaging station

mining the daily flow. The records of stage are obtained either from direct readings on a staff or chain gage or from a water-stage recorder that gives a continuous record of the fluctuations. Measurements of discharge are made with a current meter by the general methods outlined in standard textbooks on the measurement of river discharge. A typical gaging station, equipped with water-stage recorder and measuring cable and car is shown in Figure 1.

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

The data presented for each gaging station in the area covered by this report comprise a description of the station, a table giving

results of discharge measurements, a table showing the daily discharge of the stream, and a table of monthly and yearly discharge and run-off.

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

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

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

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

ACCURACY OF FIELD DATA AND COMPUTED RESULTS

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

A paragraph in the description of the station gives information regarding the (1) permanence of the stage-discharge relation, (2) precision with which the discharge rating curve is defined, (3) refinement

of gage readings, (4) frequency of gage readings, and (5) methods of applying daily gage height to the rating table to obtain the daily discharge.

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

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

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

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

PUBLICATIONS

Investigation of water resources by the United States Geological Survey has consisted in large part of measurements of the volume of flow of streams and studies of the conditions affecting that flow, but it has comprised also investigation of such closely allied subjects as irrigation, water storage, water powers, underground waters, and quality of waters. Most of the results of these investigations have

been published in the series of water-supply papers, but some have appeared in the bulletins, professional papers, monographs, and annual reports.

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

PART I. North Atlantic slope basins (St. John River to York River).
II. South Atlantic slope and eastern Gulf of Mexico Basins (James River to the Mississippi).
III. Ohio River Basin.
IV. St. Lawrence River Basin.
V. Upper Mississippi River and Hudson Bay Basins.
VI. Missouri River Basin.
VII. Lower Mississippi River Basin.
VIII. Western Gulf of Mexico Basins.
IX. Colorado River Basin.
X. Great Basin.
XI. Pacific slope basins in California.
XII. North Pacific slope basins, in three parts:
A, Pacific slope basins in Washington and upper Columbia River Basin.
B, Snake River Basin.
C, Pacific slope basins in Oregon and lower Columbia River Basin.

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

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

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

3. Sets are available for consultation in the local offices of the water-resources branch of the Geological Survey as follows:

Augusta, Me., Statehouse.
Boston, Mass., 2500 Customhouse.
Albany, N. Y., 904 Home Savings Bank Building.
Hartford, Conn., 64 State Capitol.
Trenton, N. J., 423 Statehouse Annex.
Charlottesville, Va., Brooks Museum, University of Virginia.
Asheville, N. C., 608 City Hall.
Tuscaloosa, Ala., Post Office Building.
Chattanooga, Tenn., 630 Power Building.
South Charleston, W. Va., Naval Ordnance Plant.
Columbus, Ohio, Engineering Experiment Station, Ohio State University.
Chicago, Ill., 1510 Consumers Building.
Thief River Falls, Minn., 618 Knight Avenue, North.

Madison, Wis., care of Railroad Commission of Wisconsin.
Rolla, Mo., Rolla Building, School of Mines and Metallurgy.
Fort Smith, Ark., Post Office Building.
Topeka, Kans., 23 Federal Building.
Helena, Mont., 45–46 Federal Building.
Denver, Colo., 403 Post Office Building.
Salt Lake City, Utah, 313 Federal Building.
Idaho Falls, Idaho, 228 Federal Building.
Boise, Idaho, Federal Building.
Tacoma, Wash., 404 Federal Building.
Portland, Oreg., 606 Post Office Building.
San Francisco, Calif., 303 Customhouse.
Los Angeles, Calif., 600 Federal Building.
Tucson, Ariz., 106 College of Law Building, University of Arizona.
Austin, Tex., Capitol Building.
Honolulu, Hawaii, Territorial Office Building.

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

Stream-flow records have been obtained at about 5,120 points in the United States, and the data obtained have been published in the reports tabulated below:

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

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

Report	Character of data	Year
10th A, pt. 2	Descriptive information only	
11th A, pt. 2	Monthly discharge and descriptive information	1884 to September, 1890.
12th A, pt. 2	do	1884 to June 30, 1891.
13th A, pt. 3	Mean discharge in second-feet	1884 to Dec. 31, 1892.
14th A, pt. 2	Monthly discharge (long-time records, 1871 to 1893)	1888 to Dec. 31, 1893.
B 131	Descriptions, measurements, gage heights, and ratings	1893 and 1894.
16th A, pt. 2	Descriptive information only	
B 140	Descriptions, measurements, gage heights, ratings, and monthly discharge (also many data covering earlier years).	1895.
W 11	Gage heights (also gage heights for earlier years)	1896.
18th A, pt. 4	Descriptions, measurements, ratings, and monthly discharge (also similar data for some earlier years).	1895 and 1896.
W 15	Descriptions, measurements, and gage heights, eastern United States, eastern Mississippi River, and Missouri River above junction with Kansas.	1897.
W 16	Descriptions, measurements, and gage heights, western Mississippi River below junction of Missouri and Platte, and western United States.	1897.
19th A, pt. 4	Descriptions, measurements, ratings, and monthly discharge (also some long-time records).	1897.
W 27	Measurements, ratings, and gage heights, eastern United States, eastern Mississippi River, and Missouri River.	1898.
W 28	Measurements, ratings and gage heights, Arkansas River and western United States.	1898.
20th A, pt. 4	Monthly discharge (also for many earlier years)	1898.
W 35 to 39	Descriptions, measurements, gage heights, and ratings	1899.
21st A, pt. 4	Monthly discharge	1899.
W 47 to 52	Descriptions, measurements, gage heights, and ratings	1900.
22d A, pt. 4	Monthly discharge	1900.
W 65, 66	Descriptions, measurements, gage heights, and ratings	1901.
W 75	Monthly discharge	1901.

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

Report	Character of data	Year
W 82 to 85	Complete data	1902.
W 97 to 100	do	1903.
W 124 to 135	do	1904.
W 165 to 178	do	1905.
W 201 to 214	do	1906.
W 241 to 252	do	1907–8.
W 261 to 272	do	1909.
W 281 to 292	do	1910.
W 301 to 312	do	1911.
W 321 to 332	do	1912.
W 351 to 362	do	1913.
W 381 to 394	do	1914.
W 401 to 414	do	1915.
W 431 to 444	do	1916.
W 451 to 464	do	1917.
W 471 to 484	do	1918.
W 501 to 514	do	1919–20.
W 521 to 534	do	1921.
W 541 to 554	do	1922.
W 561 to 574	do	1923.
W 581 to 594	do	1924.
W 601 to 614	do	1925.

NOTE.—No data regarding stream flow are given in the Fifteenth and Seventeenth Annual Reports.

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

The following table gives, by years and drainage basins, the numbers of the papers on surface-water supply published from 1899 to 1925. The data for any particular station will be found in the reports covering the years during which the station was maintained. For example, data for Machias River at Whitneyville, Me., 1903 to 1921, are published in Water-Supply Papers 97, 124, 165, 201, 241, 261, 281, 301, 321, 351, 381, 401, 431, 451, 471, 501, and 521, which contain records for the New England streams from 1903 to 1921. Results of miscellaneous measurements are published by drainage basins.

Numbers of water-supply papers containing results of stream measurements, 1899–1925

[For basins included see pp. 6 and 7

Year	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII		
												A	B	C
1899 [a]	35	[b] 35, 36	36	36	36	[c] 36, 37	37	37	[d] 37, 38	38, [e] 39	38, [f] 39	38	38	38
1900 [g]	47, [h] 48	48	48, [i] 49	49	49	49, [j] 50	50	50	50	51	51	51	51	51
1901	65, 75	65, 75	65, 75	65, 75	[k] 65, 66, 75	66, 75	[k] 65, 66, 75	66, 75	66, 75	66, 75	66, 75	66, 75	66, 75	66, 75
1902	82	[b] 82, 83	83	[l] 82, 83	[k] 83, 85	84	[k] 83, 84	84	85	85	85	85	85	85
1903	97	[b] 97, 98	98	97	[k] 98, 99, [m] 100	99	[k] 98, 99	99	100	100	100	100	100	100
1904	[n] 124, [o] 125 [p] 126	[p] 126, 127	128	129	[k] 128, 130	130, [q] 131	[k] 128, 131	132	133	133, [r] 134	134	135	135	135
1905	[n] 165, [o] 166 [p] 167	[p] 167, 168	169	170	171	172	[k] 169, 173	174	175, [s] 177	176, [r] 177	177	178	178	[t] 177, 178
1906	[n] 201, [o] 202 [p] 203	[p] 203, 204	205	206	207	208	[k] 205, 209	210	211	212, [r] 213	213	214	214	214
1907–8	241	242	243	244	245	246	247	248	249	250, [r] 251	251	252	252	252
1909	261	262	263	264	265	266	267	268	269	270, [r] 271	271	272	272	272
1910	281	282	283	284	285	286	287	288	289	290	291	292	292	292
1911	301	302	303	304	305	306	307	308	309	310	311	312	312	312
1912	321	322	323	324	325	326	327	328	329	330	331	332–A	332–B	332–C
1913	351	352	353	354	355	356	357	358	359	360	361	362–A	362–B	362–C
1914	381	382	383	384	385	386	387	388	389	390	391	392	393	394
1915	401	402	403	404	405	406	407	408	409	410	411	412	413	414
1916	431	432	433	434	435	436	437	438	439	440	441	442	443	444
1917	451	452	453	454	455	456	457	458	459	460	461	462	463	464
1918	471	472	473	474	475	476	477	478	479	480	481	482	483	484
1919–20	501	502	503	504	505	506	507	508	509	510	511	512	513	514
1921	521	522	523	524	525	526	527	528	529	530	531	532	533	534
1922	541	542	543	544	545	546	547	548	549	550	551	552	553	554
1923	561	562	563	564	565	566	567	568	569	570	571	572	573	574
1924	581	582	583	584	585	586	587	588	589	590	591	592	593	594
1925	601	602	603	604	605	606	607	608	609	610	611	612	613	614

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

COOPERATION

Part of the work in Montana has been carried on under cooperative agreement with the United States Bureau of Reclamation, the work being done by the Geological Survey and the expense borne by the Bureau of Reclamation. The Legislature of the State of Montana made an appropriation for stream-gaging work, which was expended by the State engineer, as provided in the act, in accordance with paragraph 3, section 2244, of the Revised Codes of 1907 of the State of Montana, which reads as follows:

> The State engineer shall become conversant with the waterways of the State and the needs of the State as to irrigation matters, shall make, or cause to be made, measurements and calculations of the ordinary and flood discharge of streams, cooperating in this work as much as possible with the United States Geological Survey and the Montana Experiment Station; such measurements to be made on streams in order of their importance, provided that measurements already made, if deemed reliable, may be adopted.

This fund was expended largely on work in connection with several Carey Act projects and irrigation districts in Montana.

South Bench Irrigation District paid observer for station on Willow Creek near Willow Creek. The stations on Woodbine Creek near Nye and Stillwater River near Nye were maintained in cooperation with the Mineral Range Power Co.

Officials of the Yellowstone National Park have furnished observers and paid for a part of the work performed in the park.

All stations in Wyoming were maintained in cooperation with the State through Frank C. Emerson, State engineer.

The United States Bureau of Reclamation paid for the maintenance of North Platte River above Pathfinder Reservoir and Bull Lake Creek near Lenore.

The United States Indian Service paid part of the cost of maintaining the following stations: North Fork of Little Wind River at Fort Washakie, Little Wind River near Fort Washakie, Dry Creek near Burris, Dinwoody Creek near Burris, and Willow Creek near Crowheart.

In Colorado the State engineer, M. C. Hinderlider, paid most of the expense of maintaining the following stations: North Platte River near Walden, North Fork of North Platte River near Walden, Roaring Fork near Walden, Michigan Creek at Walden, Illinois Creek at Walden, South Platte River at South Platte, and North Fork of South Platte River at South Platte.

In Iowa the work was carried on in cooperation with the Iowa Highway Commission, F. R. White, chief engineer.

In Kansas the work was done in cooperation with the Kansas Water Commission, Gov. Ben. S. Paulen, chairman; H. A. Rice, secretary; and H. B. Walker. The station on Kansas River at Topeka was

maintained in cooperation with the United States Weather Bureau. J. M. Piazzek read the gage on Delaware River at Valley Falls without charge.

The work in Missouri and on Missouri River at Leavenworth, Kans., was done in cooperation with the Missouri Bureau of Geology and Mines, H. A. Buehler, State geologist. Financial assistance was rendered by the Chicago Great Western Railroad Co., Central Missouri Power & Water Co., Missouri Hydro-Electric Power Co., and Ozark Utilities Co.

DIVISION OF WORK

Data for stations in the upper Missouri River Basin were collected and prepared for publication under the direction of W. A. Lamb, district engineer, assisted by A. H. Tuttle and Miss G. B. McDonough.

Data for seven stations in Yellowstone National Park were collected and prepared for publication under the direction of C. G. Paulsen, district engineer, assisted by Berkeley Johnson, F. M. Veatch, and Miss E. H. Haugse.

Data for stations in Colorado and Wyoming were collected and prepared for publication under the direction of Robert Follansbee, district engineer, assisted by P. V. Hodges and Mrs. Florence H. Scott.

Data for stations in Iowa were collected by J. B. Spiegel, district engineer, and prepared for publication by J. B. Spiegel, district engineer, assisted by Karl Jetter.

Data for gaging stations in Kansas were collected by H. B. Kinnison, district engineer, assisted by J. H. Hofmann and C. P. Heartburg, and were prepared for publication under the direction of H. B. Kinnison and J. B. Spiegel, district engineers.

Data for stations in Missouri were collected and prepared for publication under the direction of H. C. Beckman, district engineer, assisted by V. L. Austin, W. S. Frame, W. A. Werner, and E. C. Biffle.

The records were reviewed and manuscript assembled by H. C. Troxell and F. C. Christopherson.

GAGING-STATION RECORDS

MISSOURI RIVER PROPER

RED ROCK RIVER AT METZEL FORD, NEAR MONIDA, MONT.

LOCATION.—Near center of north line of sec. 34, T. 13 S., R. 3 W., at private bridge at Schultz ranch 1 mile below Metzel Ford and 20 miles east of Monida, Beaverhead County.

DRAINAGE AREA.—Not measured.

RECORDS AVAILABLE.—April 30 to September 18, 1925.

GAGE.—Au continuous water-stage recorder installed on downstream side of center pier of bridge on July 27, 1925, and referred to staff gage on downstream side of pier which was read by C. J. Morrison from April 30 to July 26.

DISCHARGE MEASUREMENTS.—Made from bridge or by wading.

CHANNEL AND CONTROL.—Channel composed of clay. Banks subject to overflow at high stages. Control poorly defined. Considerable moss in channel during summer.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 3.60 feet at 4 p. m. April 30 (discharge, 384 second-feet); minimum stage, 2.49 feet at 11.30 p. m. August 14 (discharge, 31 second-feet).

ICE.—Stage-discharge relation affected by ice.

DIVERSIONS.—None.

REGULATION.—Natural storage in Red Rock Lakes.

ACCURACY.—Stage-discharge relation not permanent; affected by moss. Two rating curves, one applicable April 30 to June 23 and the other applicable June 28 to September 18 when stage-discharge relation was affected by moss, are both fairly well defined. Operation of water-stage recorder satisfactory July 27 to September 18. Daily discharge ascertained by applying to rating table mean daily gage height obtained by inspection of recorder graph. Shifting-control method used June 9–23. Records fair.

The following discharge measurements were made:

May 1, 1925: Gage height, 3.51 feet; discharge, 356 second-feet.

June 10, 1925: Gage height, 3.26 feet; discharge, 284 second-feet.

July 27, 1925: Gage height, 2.70 feet; discharge, 89 second-feet.

Daily discharge, in second-feet, of Red Rock River at Metzel Ford, near Monida, Mont., for the year ending September 30, 1925

Day	Apr.	May	June	July	Aug.	Sept.	Day	Apr.	May	June	July	Aug.	Sept.
1	------	353	273	123	93	93	16	------	240	186	122	94	83
2	------	311	286	133	94	90	17	------	209	170	118	100	81
3	------	286	273	133	94	93	18	------	219	156	114	101	84
4	------	311	298	133	95	93	19	------	209	143	110	102	------
5	------	250	338	133	95	91	20	------	240	145	107	99	------
6	------	240	325	148	97	90	21	------	219	126	104	97	------
7	------	286	312	133	100	84	22	------	209	109	101	94	------
8	------	219	300	133	102	81	23	------	250	104	98	96	------
9	------	234	288	126	103	85	24	------	262	102	95	97	------
10	------	250	266	126	101	88	25	------	286	100	92	106	------
11	------	240	225	140	101	90	26	------	273	98	89	103	------
12	------	209	217	140	102	93	27	------	273	96	88	97	------
13	------	229	209	133	103	90	28	------	262	95	90	88	------
14	------	172	201	126	82	86	29	------	250	104	89	90	------
15	------	250	194	126	89	82	30	384	273	113	91	100	------
							31	------	250	------	90	100	------

NOTE.—Gage-height record missing; discharge interpolated May 9, June 6–8, 24–27, June 29 to July 1, July 3, 4, and 16–25.

Monthly discharge of Red Rock River at Metzel Ford, near Monida, Mont., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
May	353	172	250	15,400
June	338	95	195	11,600
July	148	88	116	7,130
August	106	82	97.3	5,980
September 1–18	93	81	87.6	3,130
The period				43,200

RED ROCK RIVER BELOW RED ROCK RESERVOIR, NEAR MONIDA, MONT.

LOCATION.—In SW. ¼ sec. 32, T. 13 S., R. 6 W., just below Red Rock Reservoir, 8 miles northwest of Monida, and 15 miles east of Lima, in Beaverhead County.

RECORDS AVAILABLE.—July 22, 1911, to September 30, 1918, and May 1 to September 30, 1925.

GAGE.—Stage determined by measuring with graduated rod the depth on a peg set in concrete well with its top at elevation of crest of weir; read by P. V. Maxwell. Gage height indicates head on 40-foot weir, located 150 yards below dam.

DISCHARGE MEASUREMENTS.—Made from footbridge 40 feet above weir or by wading.

CHANNEL AND CONTROL.—Channel composed of coarse gravel and boulders. Banks high. Current very swift at high stages causing considerable velocity of approach at weir. Control is concrete weir; subject to shift due to débris washed in above.

EXTREMES OF DISCHARGE.—Maximum stage recorded during the period May 1 to September 30, 1925, 2.40 feet at 6 p. m. June 9 (discharge, 706 second-feet); minimum stage, 0.78 foot September 12 and 13 (discharge, 109 second-feet).

1911–1918; 1925: Maximum stage recorded, 3.2 feet April 28, 1914 (discharge, 1,220 second-feet); minimum stage recorded, 0.10 foot January 1 to April 10, 1913 (discharge, 5 second-feet).

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

DIVERSIONS.—None.

REGULATION.—Flood water stored in reservoir and released from reservoir as required for irrigation during growing season.

ACCURACY.—Stage-discharge relation permanent during year. Rating curve well defined between 50 and 500 second-feet. Gage read to hundredths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table. Records good.

COOPERATION.—Gage heights furnished by Red Rock Reservoir & Irrigation Co.

The following discharge measurements were made:

July 27, 1925: Gage height, 1.32 feet; discharge, 247 second-feet.

July 28, 1925: Gage height, 1.86 feet; discharge, 460 second-feet.

Daily discharge, in second-feet, of Red Rock River below Red Rock Reservoir, near Monida, Mont., for the year ending September 30, 1925

Day	May	June	July	Aug.	Sept.	Day	May	June	July	Aug.	Sept.
1	414	353	299	237	182	16	337	457	257	214	151
2	401	353	284	237	169	17	326	439	253	211	151
3	410	361	284	237	138	18	314	427	257	211	151
4	410	422	288	237	138	19	314	414	257	211	151
5	418	519	288	237	138	20	314	406	260	211	151
6	401	573	284	237	138	21	314	389	260	211	154
7	353	614	284	237	127	22	318	377	260	211	156
8	337	646	277	237	117	23	318	377	257	182	156
9	345	678	277	237	117	24	322	377	257	182	156
10	345	692	277	233	117	25	322	373	253	182	156
11	345	678	277	224	113	26	326	369	257	182	156
12	341	678	270	217	109	27	330	369	253	182	156
13	337	591	267	217	109	28	334	345	277	182	156
14	341	488	265	217	129	29	337	322	243	182	156
15	337	461	260	217	151	30	337	322	237	182	156
						31	341	------	237	182	------

Monthly discharge of Red Rock River below Red Rock Reservoir, near Monida, Mont., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
May	418	314	346	21,300
June	692	322	462	27,500
July	299	237	266	16,400
August	237	182	212	13,000
September	182	109	144	8,570

BEAVERHEAD RIVER AT BARRATTS, MONT.

LOCATION.—In SW. ¼ SW. ¼ sec. 20, T. 8 S., R. 9 W., on highway bridge at point where highway crosses railroad, 1 mile above Barratts, Beaverhead County, 2 miles below mouth of Grasshopper Creek, and 10 miles southwest of Dillon.

DRAINAGE AREA.—2,850 square miles (measured on county map).

RECORDS AVAILABLE.—August 12, 1907, to September 30, 1925.

GAGE.—Standard chain gage on downstream side of bridge; read by Jentaro Neishi.

DISCHARGE MEASUREMEMTS.—Made from downstream side of bridge.

CHANNEL AND CONTROL.—Banks high, covered with brush, and not subject to overflow. Stream bed clean and rocky. Two channels at low and medium stages.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 3.50 feet June 5 (discharge, 1,670 second-feet); minimum stage, 0.67 foot October 1 (discharge, 185 second-feet).

1907–1925: Maximum stage recorded, 6.0 feet June 19 and 20, 1908 (discharge, 3,640 second-feet); minimum stage recorded, 0.50 foot July 28, 29, August 19–31, September 1, 10–17, 1919 (discharge, 106 second-feet).

ICE.—Warm springs enter about half a mile above, so river seldom freezes at station.

DIVERSIONS.—Numerous diversions above station.

REGULATION.—Storage and release of flood waters of Red Rock River near Monida has some effect on flow at this station.

ACCURACY.—Stage-discharge relation not permanent, affected by shifting control. Two rating curves used; curve applicable October 1 to December 31 is well defined between 160 and 2,000 second-feet, the other, applicable after March 21, is well defined between 400 and 1,400 second-feet. Gage read to hundredths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table. Records good.

The following discharge measurements were made:

April 29, 1925: Gage height, 1.97 feet; discharge, 760 second-feet.

June 9, 1925: Gage height, 2.44 feet; discharge, 1,050 second-feet.

July 29, 1925: Gage height, 1.46 feet; discharge, 517 second-feet.

Daily discharge, in second-feet, of Beaverhead River at Barratts, Mont., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	185	253	283	------	731	615	981	748	470	293
2	190	253	283	------	548	538	1,240	737	470	315
3	196	259	283	------	599	499	1,350	688	470	300
4	201	271	283	------	677	470	1,600	667	470	300
5	201	265	271	------	758	451	1,670	641	470	379
6	201	265	259	------	677	432	1,610	672	442	397
7	213	265	271	------	625	432	1,310	630	451	423
8	218	265	271	------	677	543	1,170	620	451	423
9	218	265	271	------	731	599	998	610	423	379
10	218	265	271	------	819	568	1,150	599	405	354
11	218	259	283	------	842	538	1,230	599	354	338
12	218	296	290	------	1,080	662	1,150	553	397	338
13	224	296	290	------	1,110	630	1,030	523	432	338
14	218	296	290	------	1,140	604	987	499	442	354
15	213	322	290	------	1,080	578	917	470	423	363
16	213	322	290	------	1,020	578	1,390	451	432	363
17	207	322	290	------	1,040	578	1,580	432	397	363
18	213	322	290	------	1,080	578	1,530	423	379	379
19	213	322	302	------	993	578	987	423	363	379
20	218	336	322	------	958	589	906	423	338	379
21	218	322	290	------	900	726	894	423	338	379
22	218	322	265	523	935	859	1,130	423	338	379
23	224	322	230	523	993	871	1,160	456	338	379
24	224	322	230	397	958	871	993	465	323	379
25	224	309	230	383	958	871	865	480	300	379
26	224	296	236	363	946	802	780	461	293	379
27	224	290	241	354	888	780	589	442	315	379
28	230	286	241	405	808	694	620	451	300	397
29	241	283	241	508	742	672	737	480	286	397
30	256	283	241	742	677	672	748	461	286	397
31	259	------	241	786	------	758	------	465	286	------

Monthly discharge of Beaverhead River at Barratts, Mont., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	259	185	217	13,300
November	336	253	292	17,400
December	322	230	270	16,600
March 22-31	786	354	498	9,880
April	1,140	543	866	51,500
May	871	432	633	38,900
June	1,670	589	1,110	66,000
July	748	423	529	32,500
August	470	286	383	23,600
September	423	293	367	21,800

JEFFERSON RIVER NEAR SILVERSTAR, MONT.

LOCATION.—In SE. ¼ sec. 23, T. 2 S., R. 6 W., at highway bridge at Cornforth ranch, 5 miles southwest of Silverstar on road between Silverstar and Ironrod, in Madison County, and 5 miles below junction of Beaverhead and Big Hole Rivers.

DRAINAGE AREA.—7,840 square miles (measured on General Land Office map).

RECORDS AVAILABLE.—August 11, 1910, to September 30, 1916; July 22, 1920, to September 30, 1925.

GAGE.—Chain gage on downstream guard rail of bridge; read by Grace Thomas.

DISCHARGE MEASUREMENTS.—Made from downstream side of bridge.

CHANNEL AND CONTROL.—Bed composed of gravel; fairly permanent. Left bank high and clean; right bank covered with brush and subject to overflow during extreme floods. No definite control.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 6.20 feet at 6.35 p. m. June 6 (discharge, 8,890 second-feet); minimum stage, 2.18 feet October 1–3 (discharge, 647 second-feet).

1910–1916; 1920–1925: Maximum stage recorded, 8.8 feet June 15, 1913 (discharge, 16,500 second-feet); minimum stage recorded, 1.36 feet August 30 and 31, 1924 (discharge, 129 second-feet).

ICE.—Stage-discharge relation affected by ice.

DIVERSIONS.—Numerous irrigating ditches divert water above and below station.

REGULATION.—Flow partly regulated by two reservoirs; one on Red Rock Creek near Monida stores water for irrigation and one on Big Hole River near Divide is used for power.

ACCURACY.—Stage-discharge relation permanent except as affected by ice. Rating curve well defined between 200 and 12,000 second-feet. Gage read to hundredths once daily. Daily discharge ascertained by applying daily gage height to rating table. Record for open channel good prior to July 15; fair thereafter.

The following discharge measurements were made:

May 3, 1925: Gage height, 3.30 feet; discharge, 2,130 second-feet.

June 11, 1925: Gage height, 5.25 feet; discharge, 6,560 second-feet.

July 29, 1925: Gage height, 2.82 feet; discharge, 1,230 second-feet.

Daily discharge, in second-feet, of Jefferson River near Silverstar, Mont., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	647	840	1,180	741	-------	1,060	2,360	2,110	6,990	4,370	1,430	1,330
2	647	840	1,150	741	-------	1,080	2,410	2,050	7,260	4,160	1,430	1,400
3	647	926	1,180	741	-------	1,060	2,500	2,100	7,530	3,860	1,440	1,390
4	684	948	1,180	-------	-------	1,060	2,600	2,130	7,940	3,570	1,400	1,360
5	722	948	1,150	-------	-------	1,080	2,800	2,210	8,480	3,420	1,330	1,440
6	780	970	1,150	-------	-------	1,080	2,700	2,490	8,890	3,570	1,260	1,590
7	820	992	1,150	-------	1,300	1,230	2,600	2,450	7,660	3,400	1,200	1,800
8	800	992	1,150	-------	1,200	1,250	2,680	2,960	7,530	3,250	1,130	2,020
9	780	1,060	1,150	-------	1,200	1,250	2,760	3,080	6,860	2,860	1,050	1,950
10	800	1,130	1,150	-------	1,180	1,230	2,840	3,420	6,600	2,560	1,120	1,890
11	820	1,150	1,280	-------	1,180	1,200	2,960	3,750	6,220	2,320	1,080	1,830
12	904	1,150	1,250	-------	1,150	1,180	3,020	3,980	5,970	2,240	1,060	1,740
13	904		1,280	-------	1,150	1,150	3,060	4,200	5,600	2,110	1,050	1,680
14	926		1,280	-------	1,130	1,130	3,100	4,440	5,360	2,020	1,180	1,620
15	926	1,100	1,260	-------	1,100	1,130	3,150	4,550	4,900	1,650	1,460	1,620
16	904		1,200	-------	1,130	1,130	3,170	4,830	5,240	1,740	1,480	1,600
17	904	1,250	1,150	-------	1,130	1,100	3,210	5,080	5,430	1,560	1,530	1,590
18	882	1,230	1,100	-------	1,100	1,100	3,210	5,170	5,840	1,460	1,400	1,580
19	860	1,250	1,080	-------	1,100	1,130	3,420	5,480	5,670	1,390	1,360	1,680
20	860	1,280	1,080	-------	1,080	1,130	3,100	5,840	6,100	1,320	1,300	1,770
21	860	1,300	1,080	-------	1,080	1,150	2,800	6,400	6,020	1,250	1,250	1,740
22	860	1,300	1,040	-------	1,080	1,180	2,700	6,810	6,220	1,200	1,200	1,710
23	840	1,280	1,000	-------	1,080	1,230	2,900	7,120	6,650	1,360	1,180	1,680
24	860	1,230	990	-------	1,100	1,280	2,860	7,210	6,220	1,440	1,130	1,650
25	860	1,250	980	-------	1,100	1,330	2,840	6,860	5,600	1,470	1,080	1,620
26	860	1,230	960	-------	1,080	1,360	2,800	6,340	4,830	1,540	1,060	1,590
27	860	1,230	948	-------	1,060	1,410	2,600	6,040	4,200	1,540	1,010	1,560
28	860	1,250	882	-------	1,060	1,440	2,560	5,530	3,930	1,440	1,200	1,620
29	860	1,230	724	-------	-------	1,620	2,800	5,360	4,160	1,370	1,300	1,710
30	860	1,180	780	-------	-------	2,080	2,080	5,480	4,550	1,410	1,300	1,760
31	860	-------	760	-------	-------	2,320	-------	6,400	-------	1,430	1,330	-------

NOTE.—Braced figures represent estimated mean discharge for period indicated. Discharge estimated Dec. 8–10 and 15–26 on account of ice.

Monthly discharge of Jefferson River near Silverstar, Mont., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	926	647	828	50,900
November	1,300	840	1,130	67,200
December	1,280	724	1,090	67,000
February 7–28	1,300	1,060	1,130	49,300
March	2,320	1,060	1,260	77,500
April	3,420	2,080	2,820	168,000
May	7,210	2,050	4,580	282,000
June	8,890	3,930	6,150	366,000
July	4,370	1,200	2,200	135,000
August	1,530	1,010	1,250	76,900
September	2,020	1,330	1,650	98,200

MISSOURI RIVER BELOW HAUSER LAKE DAM, NEAR HELENA, MONT.

LOCATION.—In SW. ¼ sec. 29, T. 12 N., R. 2 W., at Hauser Lake power plant 15 miles northeast of Helena, Lewis and Clark County.

DRAINAGE AREA.—Not measured.

RECORDS AVAILABLE.—December 27, 1922, to September 30, 1925.

GAGE.—Stevens continuous water-stage recorder installed on operating platform of the power plant and connected to the float in the stilling well in exciter tailrace; inspected by employees in power plant.

DISCHARGE MEASUREMENTS.—Made from cable three-fourths mile below dam.

CHANNEL AND CONTROL.—Channel composed of heavy boulders and gravel. Control is heavy gravel bar about 1,200 feet below power house, not subject to shift.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 75.85 feet at 3.15 p. m. May 22 (discharge, 22,400 second-feet); minimum stage, 65.41 feet at 1 p. m. October 5 (discharge, 504 second-feet).

1922–1925: Maximum stage recorded that of May 22, 1925; minimum stage, 65.40 feet at 7 p. m. September 14, 1924 (discharge, 500 second-feet).

ICE.—Not seriously affected by ice.

DIVERSIONS.—Numerous diversions from river and tributaries above station and two pumping plants located on Lake Helena.

REGULATION.—Operation of power plants above station controls low-water flow and partly regulates the flow at higher stages. Storage in Hebgen Reservoir controls flow of Madison River.

ACCURACY.—Stage-discharge relation permanent during year. Rating curve well defined between 500 and 14,500 second-feet and fairly well defined above. Daily discharge determined from graph by use of discharge integrator January 1 to September 30, 1925; by hourly discharge from October 1 to December 31, 1924. Records good.

COOPERATION.—Gage-height records furnished by Montana Power Co.

The following discharge measurements were made:

May 27, 1925: Gage height, 73.68 feet; discharge, 16,300 second-feet.
May 30, 1925: Gage height, 72.38 feet; discharge, 12,900 second-feet.
June 18, 1925: Gage height, 71.86 feet; discharge, 11,000 second-feet.

Daily discharge, in second-feet, of Missouri River below Hauser Lake Dam, near Helena Mont., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,470	3,030	4,140	1,650	865	995	3,680	5,860	13,900	11,700	3,160	4,040
2	1,610	2,030	4,330	2,420	4,190	3,150	4,900	5,380	14,500	12,400	3,120	3,660
3	3,660	2,560	3,850	3,050	4,360	4,050	5,340	5,550	14,600	12,400	2,970	3,410
4	2,790	2,700	4,050	1,940	3,740	4,230	5,140	5,960	14,800	11,300	3,660	4,390
5	1,480	3,240	3,560	3,100	4,400	4,070	5,050	5,860	14,500	10,700	4,100	3,500
6	1,470	3,730	2,970	3,800	5,220	3,510	5,050	7,300	14,500	11,800	3,220	2,280
7	1,660	3,920	3,530	3,100	6,490	2,710	5,360	7,920	13,900	9,660	2,520	1,050
8	2,260	3,110	4,600	3,660	5,610	2,330	5,480	7,780	15,300	8,260	3,080	3,800
9	3,450	1,510	4,840	3,720	4,580	2,620	5,980	7,710	15,400	8,000	2,900	4,510
10	3,990	2,910	2,900	4,210	4,190	4,250	5,610	7,230	14,600	7,750	3,980	4,920
11	3,880	3,020	2,260	2,320	3,810	4,280	5,440	8,250	13,700	6,860	3,570	4,890
12	3,380	3,950	2,320	3,100	3,260	4,180	5,130	9,890	13,100	5,900	2,770	4,270
13	2,790	3,240	1,920	3,430	3,030	4,410	6,810	9,310	12,700	4,770	2,870	4,790
14	3,000	3,060	3,920	3,030	3,110	3,850	7,400	9,610	10,900	4,470	3,690	6,080
15	3,460	1,690	5,450	3,830	3,620	1,500	8,340	11,200	8,280	4,390	3,480	5,080
16	3,870	1,180	5,370	3,040	4,190	1,770	8,360	11,200	5,140	4,140	2,700	5,070
17	3,580	1,720	4,190	3,120	4,610	3,189	7,630	10,200	7,350	4,340	2,660	4,020
18	3,400	2,920	3,760	1,470	3,770	4,110	8,000	12,200	11,100	4,000	3,560	3,830
19	3,000	2,850	3,320	1,950	2,730	4,100	7,230	13,200	12,100	3,960	3,600	4,130
20	2,280	2,780	3,560	2,900	2,240	4,070	8,930	14,600	12,800	3,860	3,200	3,790
21	3,370	2,390	3,490	3,220	2,480	4,030	9,820	15,500	12,400	4,520	3,860	4,890
22	3,240	2,140	3,750	3,490	1,440	3,980	8,270	16,500	12,900	3,520	3,930	4,930
23	3,350	1,530	2,430	3,890	3,140	3,560	6,650	19,700	13,900	3,610	2,360	4,940
24	3,350	2,290	2,400	3,640	3,980	3,730	8,900	19,200	14,800	3,770	3,380	5,830
25	3,350	3,400	783	3,340	4,610	3,790	8,050	19,200	15,500	2,930	3,900	7,020
26	2,460	3,710	1,980	3,680	4,370	3,100	7,420	17,500	15,900	1,850	3,470	6,680
27	2,960	3,490	3,330	4,290	4,320	3,550	7,250	16,400	15,400	3,360	3,100	5,690
28	3,330	3,190	2,120	4,960	2,020	4,020	7,120	15,500	13,300	3,690	3,910	6,200
29	3,290	3,160	2,250	4,700	-------	3,280	6,290	13,500	11,800	4,330	3,240	6,040
30	2,640	3,730	2,260	4,530	-------	3,456	6,350	12,700	11,200	3,560	2,550	5,130
31	3,080	-------	1,990	2,960	-------	3,590	-----	12,800	-------	3,290	2,950	-----

Monthly discharge of Missouri River below Hauser Lake Dam, near Helena, Mont., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	3,990	1,470	2,930	180,000
November	3,950	1,180	2,810	167,000
December	5,450	783	3,280	202,000
January	4,960	1,470	3,280	202,000
February	6,490	865	3,730	207,000
March	4,410	995	3,470	213,000
April	9,820	3,680	6,700	399,000
May	19,700	5,380	11,400	701,000
June	15,900	5,140	13,000	774,000
July	12,400	1,850	6,080	374,000
August	4,110	2,360	3,270	201,000
September	7,020	1,050	4,620	275,000
The year	19,700	783	5,389	3,900,000

MISSOURI RIVER AT FORT BENTON, MONT.

LOCATION.—In NE. ¼ sec. 26, T. 24 N., R. 8 E., on highway bridge at Fort Benton, Chouteau County.

DRAINAGE AREA.—24,600 square miles.

RECORDS AVAILABLE.—July 16, 1881, to November 14, 1891, and July 1, 1902, to September 30, 1925.

GAGE.—Stevens continuous water-stage recorder on left bank, just below abutment, and a standard chain gage on upstream side of bridge. Both gages, set to same datum.

CHANNEL AND CONTROL.—Channel composed of coarse gravel and sand. Control is rock ledge covered with heavy boulders, 1,000 feet below gage; practically permanent.

EXTREMES OF DISCHARGE.—Maximum stage recorded, 7.05 feet at 3 p. m. May 25 (discharge, 29,800 second-feet); minimum stage 0.38 foot (chain gage) at 3 p. m. December 3 (discharge, 1,430 second-feet).

1881–1891; 1902–1925: Maximum stage recorded, 16.3 feet June 7, 1908 (discharge, 107,000 second-feet); minimum discharge, 1,420 second-feet August 17, 1919.

Prior to 1918 open-season records only; discharge may have been less during winter.

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

DIVERSIONS.—Numerous diversions from tributaries.

REGULATION.—Flow partly regulated by operation of storage reservoirs and power plants of Montana Power Co. above station.

ACCURACY.—Stage-discharge relation permanent except during period affected by ice. Rating curves well defined between 3,000 and 16,000 second-feet for water-stage recorder and between 2,500 and 50,000 second-feet for chain gage. Mean daily gage height determined by inspection of recorder graph. Chain gage read to hundredths once daily, and records used to fill in gaps in water-stage records. Daily discharge ascertained by applying mean daily gage height to rating table except during periods affected by ice. Open-water records good; winter records fair.

The following discharge measurement was made:

April 21, 1925: Gage height, 3.86 feet; discharge, 12,300 second-feet.

Daily discharge, in second-feet, of Missouri River at Fort Benton, Mont., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3,540	4,470	3,480			4,850	9,470	11,100	21,600	18,300	4,700	4,220
2	3,750	4,340	4,130			5,150	9,470	11,500	18,300	16,900	4,560	4,340
3	3,640	4,470	2,100		4,120	3,220	9,470	11,300	18,000	16,900	4,410	4,600
4	3,640	4,470	3,100			4,000	9,470	11,300	19,400	16,400	4,410	4,340
5	3,640	4,220	4,000			4,000	8,720	11,100	24,100	15,600	3,480	4,600
6	3,980	4,100	4,850		5,460	4,000	7,640	11,500	24,100	15,400	2,860	5,000
7	4,100	4,340	5,150		4,850	3,730	7,460	11,900	23,000	15,100	4,410	4,340
8	3,980	4,340	4,130		4,850	3,730	7,280	12,300	22,400	14,900	4,560	3,860
9	4,100	4,860	4,270			3,860	6,930	12,600	21,600	13,000	4,700	4,220
10	3,860	4,860	3,860	4,070		4,130	7,100	12,300	22,100	12,300	4,700	3,860
11	3,750	5,000	6,430		6,890	4,850	6,760	11,500	23,000	7,360	3,860	3,750
12	3,860	4,860	6,100			3,860	6,420	11,300	23,200	7,660	3,100	4,470
13	4,100	4,340	5,980			4,850	6,590	13,900	23,500	8,600	4,560	4,600
14	4,100	4,470	4,130			4,560	7,460	15,600	13,200	7,300	5,000	4,600
15	4,340	4,600	3,350		3,730	4,850	8,300	16,900	18,300	5,440	4,000	5,290
16	4,100	4,340			3,730	6,100	10,300	18,800	20,800	5,000	3,480	6,760
17	3,640	3,540			3,730	6,780	10,900	16,400	15,900	5,000	4,700	7,100
18	4,220	3,980		3,350	2,980	3,860	11,500	15,400	15,900	4,730	6,260	7,100
19	3,860	4,100		4,270	6,600	3,480	11,900	18,600	12,600	4,470	4,270	7,620
20	3,980	3,860		4,850	4,000	4,600	12,300	21,800	16,400	5,600	4,700	7,280
21	3,980	4,100		5,150	4,850	4,130	12,600	13,900	19,900	5,140	4,850	6,760
22	3,980	4,100		5,460	4,850	5,000	13,200	22,400	21,300	5,290	4,560	6,250
23	4,340	3,980		5,460	4,470	5,300	13,400	26,500	20,200	5,290	4,410	5,290
24	4,100	4,220	4,050	5,460	4,560	5,930	14,400	27,700	19,600	5,140	3,480	5,000
25	4,340	3,750			4,410	7,120	13,700	29,500	20,200	4,730	3,350	4,600
26	3,640	4,220			3,730	7,460	13,200	28,900	19,100	5,920	3,480	5,600
27	3,980	3,860			2,860	7,640	13,000	28,300	19,100	5,920	4,600	6,980
28	4,220	4,270		4,120	5,150	8,540	12,300	25,300	19,100	5,000	4,470	7,280
29	4,220	5,000			-------	9,090	11,700	24,400	19,600	4,220	4,600	7,100
30	4,100	3,100			-------	10,500	11,300	23,800	18,600	4,700	4,220	7,460
31	4,220	-------			-------	9,470	-------	28,900	-------	4,700	4,600	-------

NOTE.—Braced figures represent mean discharge for periods indicated and are derived from flow at Volta plant near Great Falls, Mont.

Monthly discharge of Missouri River at Fort Benton, Mont., for the year ending, September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	4,340	3,540	3,980	245,000
November	5,000	3,100	4,220	254,000
December	6,430	2,100	4,190	258,000
January	5,460	3,350	4,260	262,000
February	6,890	2,880	4,880	271,000
March	10,500	3,220	5,420	333,000
April	14,400	6,420	10,100	601,000
May	29,500	11,100	18,000	1,110,000
June	24,100	12,600	19,800	1,180,000
July	18,300	4,220	8,770	539,000
August	6,260	2,860	4,300	264,000
September	7,460	3,750	5,470	325,000
The year	29,500	2,100	7,790	5,640,000

MISSOURI RIVER AT LEAVENWORTH, KANS.

LOCATION.—In NE. ¼ sec. 36, T. 8 S., R. 22 E., at Leavenworth Terminal Railway & Bridge Co.'s bridge in Leavenworth, Leavenworth County, 4½ miles below Bee Creek and 6 miles above Platte River.

DRAINAGE AREA.—428,000 square miles.

RECORDS AVAILABLE.—April 1, 1922, to September 30, 1925. The Leavenworth Terminal Railway & Bridge Co. has obtained records of stage since 1878.

GAGE.—Chain gage on upstream handrail of bridge; read by Grant Parker. Zero of gage is 300 feet above St. Louis city datum.

DISCHARGE MEASUREMENTS.—Made from downstream side of bridge.

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

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 47.7 feet June 16 (discharge, 235,000 second-feet); minimum discharge, 3,450 second-feet December 21.

1922–1925: Maximum discharge, 344,000 second-feet July 7 and 8, 1923; minimum discharge, that of December 21, 1924.

1878–1899: The Missouri River Commission published a maximum stage of 53.06 feet for the flood of April 29-30, 1881, and a minimum stage of 30.68 feet December 26, 1883.

ACCURACY.—Stage-discharge relation permanent during the year except as affected by ice. Rating curve fairly well defined above 16,000 second-feet. Gage read to tenths once daily. Daily discharge ascertained by applying daily gage height to rating table. Open-water records good; winter records poor.

Discharge measurements of Missouri River at Leavenworth, Kans., during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 10	37.82	22,800	Mar. 31	41.26	52,000	June 20	44.83	112,000
Dec. 22*	35.00	3,450	May 5	41.54	49,400	Aug. 24	39.68	34,400
Jan. 17*	38.42	13,100	June 5	45.12	136,600	Sept. 29	37.60	22,400

*Stage-discharge relation affected by ice.

Daily discharge, in second-feet, of Missouri River at Leavenworth, Kans., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	27,600	34,900	23,500	8,300	15,100	40,000	48,000	53,200	88,500	93,500	50,000	27,000
2	25,200	33,500	22,000	8,600	15,900	34,100	50,000	54,400	124,000	112,000	48,000	27,600
3	24,000	32,100	22,500	8,600	16,300	28,200	37,200	50,000	112,000	124,000	47,000	25,800
4	24,600	32,100	23,000	8,900	17,100	29,400	34,200	51,000	106,000	124,000	45,000	25,200
5	23,000	31,400	25,200	9,500	18,000	40,000	112,000	53,200	101,000	124,000	44,000	24,600
6	23,000	31,400	24,600	9,850	19,500	40,000	142,000	53,200	124,000	118,000	42,000	24,000
7	22,500	30,000	22,500	10,200	21,500	37,200	164,000	52,000	109,000	118,000	42,000	24,000
8	23,000	30,000	22,000	10,200	23,500	48,000	128,000	49,000	91,000	112,000	42,000	24,000
9	23,000	27,600	27,000	10,600	24,600	80,000	115,000	49,000	112,000	112,000	51,000	24,000
10	23,000	27,600	24,000	10,600	25,200	109,000	80,000	37,200	124,000	115,000	42,000	26,400
11	23,500	26,400	23,500	10,900	27,600	70,000	74,000	46,000	109,000	131,000	41,000	27,600
12	24,000	27,600	12,700	11,200	27,600	62,500	72,000	45,000	160,000	124,000	42,000	34,200
13	25,200	27,600	13,100	11,200	32,100	52,000	68,500	48,000	203,000	131,000	58,000	28,800
14	24,600	28,800	12,300	11,600	30,700	47,000	62,500	47,000	212,000	131,000	42,000	26,400
15	24,000	28,200	14,700	11,600	30,000	46,000	58,000	46,000	194,000	138,000	41,000	24,600
16	24,000	28,200	14,300	12,300	30,000	42,000	58,000	51,000	235,000	121,000	41,000	23,500
17	24,000	27,000	13,900	12,700	30,700	35,600	54,400	46,000	190,000	101,000	41,000	22,500
18	23,500	26,400	12,000	13,500	31,400	34,200	53,200	45,000	185,000	88,500	62,500	21,500
19	23,500	26,400	6,100	14,300	32,100	39,000	51,000	47,000	124,000	86,000	56,800	21,000
20	24,000	25,800	4,650	15,500	34,200	46,000	51,000	47,000	121,000	88,500	41,000	21,500
21	24,000	25,800	3,650	16,300	42,000	44,000	48,000	46,000	98,500	88,500	46,000	22,000
22	24,000	26,400	3,500	17,500	45,000	42,000	70,000	45,000	86,000	82,000	51,000	24,000
23	24,000	26,400	3,500	19,000	45,000	44,000	58,000	43,000	84,000	74,000	38,000	24,600
24	24,600	25,800	3,650	21,000	56,800	43,000	68,500	43,000	106,000	70,000	34,900	24,600
25	24,600	25,800	3,850	22,500	61,000	42,000	59,500	44,000	115,000	64,000	34,200	24,600
26	28,200	24,600	4,250	20,000	72,000	46,000	58,000	46,000	106,000	61,000	32,800	25,800
27	29,400	24,000	4,650	18,000	61,000	54,400	53,200	53,200	142,000	59,500	30,700	22,000
28	28,200	23,500	5,100	16,300	46,000	38,000	51,000	52,000	185,000	56,800	24,600	22,000
29	27,600	23,500	5,850	15,100	-------	49,000	49,000	47,000	142,000	56,800	28,200	22,000
30	27,000	23,000	6,600	14,700	-------	49,000	49,000	49,000	106,000	55,600	27,600	22,000
31	38,000	-------	7,400	15,100	-------	50,000	-------	68,500	-------	53,200	27,000	-------

NOTE.—Stage-discharge relation affected by ice Dec. 20 to Feb. 7; daily discharge ascertained by applying to rating table daily gage height corrected for ice effect by means of two discharge measurements, observer's notes, and weather records. No record Mar. 1 and 2; discharge interpolated.

Monthly discharge of Missouri River at Leavenworth, Kans., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	38,000	22,500	25,100	1,540,000
November	34,900	23,000	27,700	1,650,000
December	27,000	3,500	13,400	824,000
January	22,500	8,300	13,400	824,000
February	72,000	15,100	33,300	1,850,000
March	109,000	28,200	47,100	2,900,000
April	164,000	34,200	69,200	4,120,000
May	68,500	37,200	48,600	2,990,000
June	235,000	84,000	133,000	7,910,000
July	138,000	53,200	97,200	5,980,000
August	62,500	24,600	41,800	2,570,000
September	34,200	21,000	24,600	1,460,000
The year	235,000	3,500	47,800	34,600,000

GRASSHOPPER CREEK BASIN

GRASSHOPPER CREEK NEAR DILLON, MONT.

LOCATION.—In NW. ¼ sec. 26, T. 8 S., R. 10 W., 5 miles above Barratts and 14 miles above Dillon, Beaverhead County.

DRAINAGE AREA.—360 square miles (measured on Forest Service map of Beaverhead National Forest).

RECORDS AVAILABLE.—March 10, 1921, to September 30, 1925.

GAGE.—Vertical staff; read by Mrs. Laura Anderson.

DISCHARGE MEASUREMENTS.—Made by wading or from bridge one-eighth mile above.

CHANNEL AND CONTROL.—Banks high and covered with brush. Stream bed composed of boulders and coarse gravel; subject to shifts.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 6.52 feet at 8 a. m. June 5 (discharge, 557 second-feet); minimum stage, 4.20 feet December 29–31 (discharge, 13 second-feet).

1921–1925: Maximum stage recorded, that of June 5, 1925; minimum stage, 3.85 feet August 28 to September 3, 1924 (discharge, 0.5 second-foot).

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

DIVERSIONS.—Considerable water diverted for irrigation above gage.

REGULATION.—None.

ACCURACY.—Stage-discharge relation not permanent; affected by ice and by shifting control. Two rating curves were used; one well defined between 10 and 61 second-feet used October 1 to December 31, and the other fairly well defined between 25 and 400 second-feet used May 2 to September 30. Gage read to nearest half-tenth or even hundredth usually once daily or twice daily during May and June. Daily discharge ascertained by applying mean daily gage height to rating table except as indicated in footnotes to daily-discharge table. Records fair.

The following discharge measurements were made:

May 2, 1925: Gage height, 4.56 feet; discharge, 33.6 second-feet.

June 9, 1925: Gage height, 5.42 feet; discharge, 208 second-feet.

July 28, 1925: Gage height, 4.68 feet; discharge, 51 second-feet.

Daily discharge, in second-feet, of Grasshopper Creek near Dillon, Mont., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	May	June	July	Aug.	Sept.
1	16	37	32	37	289	192	65	31
2	16	37	28	37	507	155	57	31
3	16	37	42	37	442	143	65	31
4	16	37	54	26	474	132	57	31
5	16	37	61	31	491	122	50	37
6	20	37	84	37	408	111	44	37
7	20	37		50	311	101	44	37
8	16	37		115	295	92	44	50
9	16	37		137	234	74	37	50
10	16	37	75	122	280	65	37	44
11	28	37		96	311	65	44	44
12	24	32		143	264	65	44	44
13	24	37	68	143	220	65	44	44
14	28	48	37	132	179	57	57	44
15	32	37	37	132	192	50	65	50
16	32	42		155	342	50	57	50
17	32	37		167	392	50	50	50
18	32	37		167	234	50	44	44
19	32	32		167	184	44	44	44
20	32	32	35	174	179	44	44	44
21	32	48		206	179	37	44	44
22	32	42		234	280	44	44	44
23	32	48		220	375	57	37	44
24	32	45		192	234	57	37	44
25	32	42	37	192	167	57	37	44
26	32	42	28	192	150	65	37	44
27	32	48	24	192	137	57	37	44
28	32	42	20	167	150	50	37	50
29	32	37	13	167	179	37	37	50
30	32	32	13	167	200	57	31	50
31	37	------	13	206	------	65	31	------

NOTE.—Braced figures represent estimated mean discharge for periods indicated. Discharge interpolated Nov. 8–10 and 24, on account of ice on control. No record May 1; discharge estimated.

Monthly discharge of Grasshopper Creek near Dillon, Mont., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	37	16	26.2	1,610
November	48	32	38.9	2,310
December	84	13	43.7	2,690
May	234	26	137	8,420
June	507	137	276	16,400
July	192	37	74.5	4,580
August	65	31	45.2	2,780
September	50	31	43.2	2,570

BIG HOLE RIVER BASIN

BIG HOLE RIVER NEAR MELROSE, MONT.

LOCATION.—In SE. ¼ sec. 27, T. 3 S., R. 9 W., at highway bridge at Browns Siding on Oregon Short Line 8 miles south of Melrose, Silver Bow County.

DRAINAGE AREA.—Not measured.

RECORDS AVAILABLE.—March 16, 1924, to September 30, 1925. Winter records fragmentary.

GAGE.—Stevens continuous water-stage recorder in wooden shelter on left bank.

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

CHANNEL AND CONTROL.—Channel composed of heavy gravel and sand between large boulders. Control is riffle of same material about 400 feet below gage and subject to change due to the movement of sand and gravel between the boulders.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 7.05 feet at 6.30 p. m. June 5 (discharge, 6,960 second-feet); minimum stage, 1.62 feet at 7 a. m. January 25 (discharge, 343 second-feet).

1924–1925: Maximum stage recorded that of June 5, 1925; minimum stage, 1.02 feet at 11.30 p. m. September 3, 1924 (discharge, 228 second-feet).

ICE.—Stage-discharge relation affected by ice.

DIVERSIONS.—Several small diversions for irrigation above station.

REGULATION.—Operation of power plant above station causes some fluctuation in stage.

ACCURACY.—Stage-discharge relation permanent, except when affected by ice. Rating curve well defined between 300 and 5,000 second-feet. Daily discharge ascertained by applying to rating table mean daily gage height obtained by inspection of recorder graph except as indicated in footnote to daily-discharge table. Records good.

Discharge measurements of Big Hole River near Melrose, Mont., during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Dec. 15	2.18	531	Apr. 29	3.08	1,120	July 25	3.02	1,000
Mar. 29	2.60	612	June 9	5.92	4,780			

Daily discharge, in second-feet, of Big Hole River near Melrose, Mont., for the year ending September 30, 1925

Day	Dec.	Jan.	Mar.	Apr.	May	June	July	Aug.	Sept.
1				995	1,030	5,820	3,180	832	51
2				1,040	1,090	5,980	3,110	794	48
3				1,310	1,220	5,380	2,830	788	46
4				1,540	1,360	5,820	2,530	820	45
5				1,730	1,510	6,460	2,400	740	47
6				1,760	1,660	6,260	2,220	702	55
7				1,340	1,920	5,630	2,020	652	70
8				1,330	2,210	5,110	1,840	620	77
9				1,610	2,510	4,710	1,710	595	78
10				1,820	2,650	4,400	1,610	610	71
11				1,970	2,940	4,170	1,520	636	64
12				2,080	3,180	4,020	1,480	652	60
13				2,180	3,340	3,720	1,400	620	56
14				2,140	3,610	3,430	1,290	690	54
15	475			1,930	3,680	3,280	1,200	764	540
16	448			2,020	3,840	3,360	1,140	832	553
17	444			2,200	3,990	3,540	1,140	794	562
18	444			2,330	4,120	3,680	1,120	729	544
19				2,160	4,330	3,610	1,030	668	548
20				1,810	4,750	3,670	972	595	576
21		405		1,540	5,150	3,910	928	548	56
22		385		1,360	5,480	4,230	928	527	59
23		363		1,470	5,580	4,660	935	495	57
24		394		1,470	5,420	4,480	1,020	479	548
25		350		1,500	5,160	3,910	1,030	463	540
26		479		1,410	5,000	3,390	1,030	455	
27		890		1,270	4,710	3,110	995	475	
28		605		1,140	4,470	3,140	907	515	
29		507	615	1,060	4,330	3,250	893	527	
30		483	730	1,010	4,750	3,350	914	523	
31		479	850		5,250		893	507	

NOTE.—Daily discharge Jan. 26 and 27 and Sept. 1 computed by hourly-discharge method. Discharge affected by ice Mar. 29–31, estimate based on measurement of Mar. 29.

Monthly discharge of Big Hole River near Melrose, Mont., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
January 21–31	890	350	485	10,600
April	2,330	995	1,620	96,400
May	5,580	1,030	3,560	219,000
June	6,460	3,110	4,320	257,000
July	3,180	893	1,490	91,600
August	832	455	634	39,000
September 1–25	788	455	577	28,600

WILLOW CREEK BASIN

WILLOW CREEK NEAR WILLOW CREEK, MONT.

LOCATION.—In sec. 18, T. 1 S., R. 1 E., at highway bridge at Harwood ranch, 7 miles south of Willow Creek, Gallatin County.

DRAINAGE AREA.—164 square miles (measured on topographic maps).

RECORDS AVAILABLE.—September 5, 1919, to September 30, 1925.

GAGE.—Standard cable gage on upper handrail of bridge; read by Lou V Harwood.

DISCHARGE MEASUREMENTS.—Made from bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of sand and gravel; shifting. Banks low and covered with brush.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 2.54 feet at 2.45 p. m. June 22 (discharge, 247 second-feet); minimum stage, 1.18 feet August 24 and 25 (discharge, 26 second-feet).

1919–1925: Maximum stage recorded, 3.40 feet June 21 and 22, 1922 (discharge, 456 second-feet); minimum stage, 0.82 foot September 6, 1919 (discharge, 5.5 second-feet).

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

DIVERSIONS.—Numerous diversions for irrigation both above and below gage.

REGULATION.—None.

ACCURACY.—Stage-discharge relation affected by ice and by shifting control. Two rating curves well defined between 15 and 75 second-feet used during year, one applicable October 1 to December 27 and the other February 8 to September 30. Gage read to hundredths once daily. Daily discharge ascertained by applying daily gage height to rating table. Records good.

The following discharge measurements were made:

May 4, 1925: Gage height, 1.44 feet; discharge, 46.5 second-feet.

July 30, 1925: Gage height, 1.54 feet; discharge, 58 second-feet.

Daily discharge, in second-feet, of Willow Creek near Willow Creek, Mont., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	33	40	66		44	52	48	110	170	50	33
2	33	42	64		40	46	48	96	161	45	30
3	33	38	60		42	44	48	90	145	40	29
4	33	34	61		42	42	47	90	122	35	29
5	33	36	56		50	52	44	77	133	33	32
6	31	38	51			64	44	80	149	32	32
7	29	40	59			66	46	83	141	28	44
8	29	38	59	93		69	46	77	125	28	52
9	31	38	61	66		72	48	74	114	30	48
10	27	38	66	54		74	49	72	107	28	40
11	29	41	42	133		74	50	67	101	46	39
12	33	42	74	220		72	54	66	94	37	37
13	33	47	80	216		69	96	64	98	37	35
14	31	48	89	212		66	110	59	77	39	36
15	34	47	92	166		67	114	61	66	40	37
16	33	49		133		72	107	61	55	35	35
17	33	49		124		69	103	64	52	33	35
18	33	47		114		66	85	64	46	32	33
19	34	54		83		66	80	141	44	32	35
20	34	61		77		61	77	191	42	32	39
21	36	77		77		54	74	216	39	30	39
22	36	80		66	40	56	72	247	39	27	42
23	34	77		54	42	59	72	238	35	27	45
24	34	66		48	42	59	72	216	34	26	48
25	36	47		44	44	59	72	208	33	26	48
26	37	49		40	46	55	77	199	37	27	47
27	38	55		40	48	52	80	193	40	27	46
28	38	64		43	50	50	85	178	40	29	48
29	36	69			50	52	100	170	44	27	50
30	38	69			49	50	103	174	59	30	50
31	40				52		107		54	32	

NOTE.—No record Oct. 1–4; discharge interpolated. Stage-discharge relation affected by ice Dec. 16–Feb. 7 and Mar. 6–21; discharge not computed.

Monthly discharge of Willow Creek near Willow Creek, Mont., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	40	27	33.6	2,070
November	80	34	50.7	3,020
December 1-15	92	42	65.3	1,940
February 8-28	220	40	100	4,170
March 1-5, 22-31	52	40	45.4	1,350
April	74	42	60.3	3,590
May	114	44	72.8	4,480
June	247	59	124	7,380
July	170	33	80.5	4,950
August	50	26	32.9	2,020
September	52	29	39.8	2,370

MADISON RIVER BASIN

MADISON RIVER NEAR WEST YELLOWSTONE,[1] MONT.

LOCATION.—250 feet upstream from old footbridge at fording place of old Gallatin trail, just north of highway to West Yellowstone, 4 miles east of West Yellowstone and west boundary of Yellowstone National Park. Gibbon and Firehole Rivers unite to form Madison River 9 miles upstream.

DRAINAGE AREA.—410 square miles (measured on topographic maps).

RECORDS AVAILABLE.—June 16, 1913, to September 30, 1925.

GAGE.—Friez water-stage recorder on left bank; inspected by park rangers attached to Riverside ranger station. On account of unfavorable conditions caused by ice and snow near the recording gage an old staff gage, located on left bank 500 feet below recorder, has been used at times during winter.

DISCHARGE MEASUREMENTS.—Made from cable two-thirds mile below gage or by wading.

CHANNEL AND CONTROL.—Bed composed of gravel and boulders; somewhat rough; control practically permanent. One channel at all stages. Aquatic growth is present during greater part of year and at times causes backwater.

EXTREMES OF DISCHARGE.—Maximum stage recorded, 2.07 feet (old vertical staff) January 3 (discharge, 1,220 second-feet); minimum discharge estimated, 300 second-feet December 16–27.

1913–1925: Maximum discharge recorded, 1,950 second-feet June 10, 1917; minimum discharge recorded, 284 second-feet February 2, 1924.

ICE.—Stage-discharge relation seldom seriously affected by ice. Temperature of water during extremely cold weather kept above freezing point, except for short periods, by numerous hot springs and geysers.

DIVERSIONS.—None above station.

REGULATION.—None.

ACCURACY.—Stage-discharge relation slightly affected at times by aquatic growth. Two well defined rating curves were used during year. Operation of water-stage recorder satisfactory prior to November 13 and after June 17. From November 15 to May 9 staff gage was read to hundredths about once a week. Daily discharge ascertained by applying daily gage height to rating table except as indicated in footnote to table of daily discharge. Records good for periods when water-stage recorder was in operation; others fair except for estimated periods for which they are poor.

[1] Formerly called Madison River near Yellowstone, Mont.

Discharge measurements of Madison River near West Yellowstone, Mont., during the year ending September 30, 1925

Date	Gage height in feet		Discharge	Date	Gage height in feet		Discharge
	Staff gage	Recording gage			Staff gage	Recording gage	
			Sec.-ft.				*Sec.-ft.*
June 20	----------	4.17	902	Aug. 21	1.33	3.80	457
June 27	1.65	4.08	766	Sept. 20	1.42	3.87	561
July 21	1.35	3.85	508				

Daily discharge, in second-feet, of Madison River near West Yellowstone, Mont., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	336	370	366	600	344	366	602	640	870	799	480	462
2	361	370	369	600	348	363	645	645	870	711	490	442
3	361	370	372	1,220	353	360	688	650	870	689	490	442
4	378	370	375	1,220	353	358	730	654	870	711	510	442
5	352	386	378	1,220	353	356	730	659	870	722	471	490
6	344	370	381	500	353	353	730	664	870	894	462	560
7	352	352	384	500	353	354	730	669	870	733	442	580
8	370	352	384	500	353	355	730	673	870	656	433	540
9	370	378	384	500	353	356	730	678	870	612	433	560
10	395	404	384	500	383	356	730	678	870	580	480	510
11	404	378	400	500	381	358	730	678	870	560	490	490
12	395	370	400	500	380	361	730	678	870	570	480	471
13	386	372	400	500	379	363	730	678	870	540	471	490
14	395	374	400	500	377	366	730	678	870	520	510	530
15	395	376	400	500	376	368	358	623	750	510	480	540
16	404	376	400	500	379	371	356	671	750	500	462	500
17	414	376	400	500	383	374	354	718	750	500	452	490
18	442	376	400	500	386	376	352	766	906	500	442	480
19	480	376	400	500	390	379	350	744	882	500	452	570
20	433	376	400	500	393	381	348	722	870	510	452	540
21	404	376	300	500	397	384	346	700	858	520	462	520
22	395	376	300	500	400	382	344	678	834	560	442	540
23	378	374	300	500	393	379	342	656	894	540	442	500
24	370	371	300	500	387	377	340	634	834	500	433	480
25	361	369	300	500	380	375	338	612	777	490	433	480
26	370	367	300	500	373	373	336	617	755	480	433	471
27	370	365	300	500	366	370	334	621	733	471	471	471
28	370	362	300	500	359	368	432	626	744	471	490	462
29	370	360	300	450	353	-------	475	631	722	490	471	520
30	370	363	300	450	346	-------	517	636	766	530	462	540
31	370	-------	300	450	339	-------	560	-------	-------	490	452	-------

NOTE.—Braced figures show the estimated mean discharge for the periods indicated. Discharge interpolated Oct. 12, 27–31, Nov. 13, 14, 16–21, 23–28, 30, Dec. 1–6, Jan. 10–14, 16–21, 23–30, Feb. 1, 2, 4–8, 10–20, 22–27, Mar. 1–5, 7–13, 15–20, 22–24, 29–31, Apr. 1–3, 16, 17, 19–24, 26–30, and May 1–8.

Monthly discharge of Madison River near West Yellowstone, Mont., for the year ending September 30, 1925

[Drainage area, 410 square miles]

Month	Discharge in second-feet				Run-off	
	Maximum	Minimum	Mean	Per square mile	Inches	Acre-feet
October	480	336	384	0.937	1.08	23,600
November	404	352	372	.907	1.01	22,100
December			362	.883	1.02	22,300
January	1,220	339	439	1.07	1.23	27,000
February	384	344	365	.890	.93	20,300
March	560	334	371	.905	1.04	22,800
April	766	602	671	1.64	1.83	39,900
May			759	1.85	2.13	46,700
June			804	1.96	2.19	47,800
July	894	471	576	1.40	1.61	35,400
August	510	433	464	1.13	1.30	28,500
September	580	442	504	1.23	1.37	30,000
The year	1,220		506	1.23	16.74	366,000

CROW CREEK BASIN

CROW CREEK NEAR RADERSBURG, MONT.

LOCATION.—In NE. ¼ sec. 23, T. 6 N., R. 1 W., at Glendale ranger station in Jefferson National Forest, 1 mile above mouth of Slim Sam Creek and 6 miles northwest of Radersburg, Broadwater County.

DRAINAGE AREA.—Not measured.

RECORDS AVAILABLE.—April 17, 1924, to September 30, 1925. May 26, 1919, to September 30, 1922, at old location 600 feet below mouth of Slim Sam Creek. Records comparable except during short periods in spring when discharge of Slim Sam Creek may be an appreciable percentage of flow in Crow Creek.

GAGE.—Stevens continuous water-stage recorder in wooden shelter on left bank; inspected by M. J. Steere.

DISCHARGE MEASUREMENTS.—Made from bridge below Slim Sam Creek or by wading.

CHANNEL AND CONTROL.—Channel composed of gravel and heavy boulders. No well defined control. Banks high and covered with brush, not subject to overflow.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 2.92 feet at 4.15 a. m. May 21 (discharge, 340 second-feet); minimum stage, 0.73 foot at 6.45 p. m. December 13 (discharge, 2.1 second-feet).

1919–1922; 1924–25: Maximum stage recorded, 3.20 feet at 6 a. m. June 8, 1920 (discharge, 817 second-feet); minimum stage, 0.73 foot at 6.45 p. m. December 13, 1924 (discharge, 2.1 second-feet).

ICE.—Stage-discharge relation affected by ice.

DIVERSIONS.—None above station but all of normal flow is used below.

REGULATION.—None.

ACCURACY.—Stage-discharge relation permanent except as affected by ice Rating curve well defined between 9 and 500 second-feet. Daily discharge ascertained by applying to rating table mean daily gage height determined by inspection of recorder graph. Records good.

COOPERATION.—Gage heights furnished by Gerharz-Jaqueth Engineering Co.

Discharge measurements of Crow Creek near Radersburg, Mont., during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 9	1.18	15.4	May 4	1.80	78
Apr. 21	1.60	53	July 30	1.38	28.4

Daily discharge, in second-feet, of Crow Creek near Radersburg, Mont., for the yea ending September 30, 1925

Day	Oct.	Nov.	Dec.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	15.8	16.4	24.0		9.0	15.8	62	178	104	27	19.2
2	15.2	15.8	28.0		9.0	16.9	68	159	94	26	18.6
3	16.9	15.8	15.8		9.0	19.2	80	153	82	25	17.4
4	18.0	15.8	15.2		13.6	22	75	173	74	25	16.9
5	19.2	15.8	14.7		14.2	24	76	159	68	23	18.6
6	19.8	12.2	13.0		11.4	20	82	151	67	23	25
7	18.6	12.5	14.7		10.8	19.8	92	146	62	22	28
8	18.6	13.0	14.7		10.8	23	86	140	57	22	22
9	17.4	13.6	15.2		10.8	29	81	136	54	21	20
10	17.4	14.2	15.8		10.4	37	82	144	50	22	20
11	17.4	12.5	15.8		10.4	47	89	144	48	22	19.2
12	16.9	22.0	11.8		10.4	67	140	140	47	20	18.0
13	18.0	37.0	2.7		10.4	68	153	131	44	20	18.0
14	18.6	50.0	2.9		10.4	62	185	119	42	22	16.9
15	19.2	28.0	2.5		10.0	57	224	127	39	25	16.9
16	19.2	11.8			10.4	64	195	134	37	21	16.9
17	19.8	12.5			10.4	75	198	131	37	19.8	19.8
18	18.6	14.7			10.4	67	203	131	36	19.2	18
19	18.0	14.2			10.8	56	224	125	34	19.2	21
20	18.0	14.2			10.0	51	260	119	33	18.0	22
21	18.0	13.6		9.0	11.4	47	314	117	33	17.5	23
22	17.4	15.2		8.7	13.6	47	301	112	37	16.9	23
23	16.9	14.7		8.4	13.0	46	249	101	43	16.4	24
24	16.4	14.2		8.4	11.8	44	211	94	36	16.9	23
25	16.4	15.2		8.7	10.8	43	195	84	35	17.5	21
26	15.8	23.0		8.7	12.2	41	185	78	32	17.5	19.8
27	15.8	25.0		8.7	13.0	41	151	75	30	20	21
28	16.4	18.0		8.7	13.6	37	140	74	30	30	22
29	18.6	18.0			16.4	39	138	78	30	25	23
30	17.4	20.0			14.7	46	176	97	30	22	23
31	15.8				17.4		206		29	20	

Monthly discharge of Crow Creek near Radersburg, Mont., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	19.8	15.2	17.6	1,080
November	50	12.2	18.0	1,070
December 1–15	28	2.5	13.8	411
February 21–28	9.0	8.4	8.66	137
March	17.4	9.0	11.6	713
April	75	15.8	42.4	2,520
May	314	62	159	9,780
June	178	74	125	7,440
July	104	29	47.5	2,920
August	30	16.4	21.4	1,320
September	28	16.9	20.5	1,220

PRICKLY PEAR CREEK BASIN

PRICKLY PEAR CREEK NEAR CLANCY, MONT.

LOCATION.—In S. ½ sec. 34, T. 9 N., R. 3 W., at private bridge on Haab ranch one-fourth mile below mouth of Lump Gulch Creek and 1¼ miles north of Clancy, Jefferson County.

DRAINAGE AREA.—178 square miles (measured on topographic map).

RECORDS AVAILABLE.—July 12, 1910, to September 30, 1916; July 28, 1921, to September 30, 1925. July 15, 1908, to June 30, 1909, at old site 1 mile below.

GAGE.—Vertical staff on downstream side of right abutment of private bridge; read by Fred E. Haab

DISCHARGE MEASUREMENTS.—Made by wading or from bridge

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 2.21 feet at 5.40 p. m. June 1 (discharge, 164 second-feet); minimum stage, 0.85 foot October 1 (discharge, 14.0 second-feet).

1909–1916; 1921–1925: Maximum stage recorded, 4.0 feet June 17, 1915 (discharge, 465 second-feet); minimum stage, 0.71 foot September 9, 1924 (discharge, 9.3 second-feet).

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

DIVERSIONS.—Several small diversions from main stream and tributaries above gage; practically all water is appropriated and used for irrigation below station.

REGULATION—None.

ACCURACY.—Stage-discharge relation not permanent; affected by shifting control and by ice. Two rating curves used during year, one well defined between 12 and 150 second-feet used October 1 to May 12 and the other fairly well defined between 30 and 100 second-feet used May 28 to September 30. Gage read to hundredths twice daily. Daily discharge ascertained by applying mean daily gage heights to rating table except May 13–27 when shifting-control method was used and June 3–13 when discharge was interpolated. Prior to May 12 records good, thereafter fair.

Discharge measurements of Prickly Pear Creek near Clancy, Mont., during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 25	0.97	20.1	May 28	1.63	83
May 12	1.68	80	July 23	1.09	34.3

Daily discharge, in second-feet, of Prickly Pear Creek near Clancy, Mont., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	14.4	19.5	31		32	38	162	83	30	21.5
2	15.6	20.5	37		35	35	154	70	30	21.5
3	14.8	21.6	36		39	36	147	69	28	21.5
4	15.6	22.8	30		39	36	140	70	25	21.5
5	16.5	22.2	26		39	38	133	55	23	21.5
6	17.5	21.6	25		40	41	126	54	22.5	30
7	17.0	22.8	22.8		39	45	119	50	21.5	34
8	18.0	24	26		40	46	112	48	21.5	27
9	19.5	25	34		45	46	106	41	21.5	25
10	18.0	28	31		45	47	100	37	21.5	23

Daily discharge, in second-feet, of Prickly Pear Creek near Clancy, Mont., for the year ending September 30, 1925—Continued

Day	Oct.	Nov.	Dec.	Mar.	Apr.	May	June	July	Aug.	Sept.
11	18.5	38	29		48	53	94	35	21.5	23
12	19.0	46	24		50	89	88	34	21.5	23.6
13	20.0	33	22.8		60	60	82	33	21.5	22.5
14	21.0	31	25		51	95	76	31	22.0	21.5
15	24.0	25			56	99	79	31	23.6	21.5
16	24.6	22.2			63	93	76	31	22.5	21.5
17	24.0	22.2			50	91	78	29	22.5	21.5
18	22.8	20.5			51	96	76	30	21.5	21.5
19	20.5	22.2			38	99	77	27	21.5	33
20	19.5	24.0			40	100	75	28	21.5	32
21	19.5	24.6			46	100	86	28	21.5	32
22	19.5	25		28	58	96	85	30	21.5	32
23	20.0	26		29	60	98	89	36	21.5	32
24	19.5	29		22.2	56	99	77	31	21.5	33
25	20.0	31		26	53	91	71	32	21.5	33
26	20.0	30		26	51	93	48	31	21.5	32
27	21.0	28		24.6	50	83	59	30	29.0	34
28	21.6	26		25	51	87	58	28	32.0	36
29	20.5	30		32	44	94	64	29	27.0	38
30	20.5	30		32	38	115	75	31	21.5	39
31	19.5			33		156		30	21.5	

Monthly discharge of Prickly Pear Creek near Clancy, Mont., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	24.6	14.4	19.4	1,190
November	46	19.5	26.4	1,570
December 1-14	37	22.8	28.5	791
March 22-31	33	22.2	27.8	551
April	63	32	46.9	2,790
May	156	35	77.5	4,770
June	162	58	93.7	5,580
July	83	27	39.4	2,420
August	32	21.5	23.4	1,440
September	39	21.5	27.6	1,640

TENMILE CREEK NEAR RIMINI, MONT.

LOCATION.—In NE. ¼ sec. 20, T. 9 N., R. 5 W., opposite Moose Creek ranger station, 500 feet above mouth of Moose Creek, and 3 miles north of Rimini, Lewis and Clark County.

DRAINAGE AREA.—34 square miles (measured on topographic maps).

RECORDS AVAILABLE.—March 13, 1915, to September 30, 1925.

GAGE.—Friez water-stage recorder on left bank opposite ranger station; inspected by D. H. Lewis, forest ranger.

DISCHARGE MEASUREMENTS.—Made from footbridge 75 feet above gage or by wading.

CHANNEL AND CONTROL.—Concrete control was constructed March 4, 1917. Left bank high and steep; composed of loose material; not subject to overflow. Right bank sloping and subject to overflow.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 1.76 feet at 6 a. m. May 18 (discharge, 173 second-feet); minimum stage, 0.10 foot March 28 (discharge, 0.4 second-foot).

1915–1925: Maximum stage, 4.87 feet May 15, 1917 (discharge, 948 second-feet); minimum stage, that of March 28, 1925.

ICE.—Stage-discharge relation seriously affected by ice; records discontinued November 12 to March 20.

DIVERSIONS.—Some water is diverted above station for part of the water supply of Helena.

REGULATION.—Small reservoir of water-supply system of Helena is above station.

ACCURACY.—Stage-discharge relation permanent except as affected by ice. Rating curve well defined between 2 and 200 second-feet. Daily discharge ascertained by applying to rating table mean daily gage height obtained by inspection of recorder graph except as indicated in footnote to daily-discharge table. Records good.

Discharge measurements of Tenmile Creek near Rimini, Mont., during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 24	0.19	0.8	May 28	1.23	48.5
Mar. 21	.34	3.7	June 18	1.32	59
May 19	1.71	164			

Daily discharge, in second-feet, of Tenmile Creek near Rimini, Mont., for the year ending September 30, 1925

Day	Oct.	Nov.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		1.0		4.2	32	79	20		1.8
2		1.0		4.7	41	75	27		1.6
3		1.0		5.3	43	145	21		1.4
4		1.0		5.6	39	124	15.7		1.2
5		.9		7.2	43	119	14.1		1.0
6		.8		5.3	55	124	14.1		3.3
7		.7		6.0	54	130	14.5		3.3
8		1.2		9.4	41	124	12.9		4.0
9		1.3		12.5	52	121	10.8		3.3
10		1.3		15.3	46	133	14.5	1.3	2.7
11		1.4		24	72	116	9.7	1.0	1.9
12				29	97	102	8.7	.9	1.6
13				27	100	86	8.7	.9	1.4
14				24	121	72	8.1	.9	1.4
15				23	133	70	7.5	1.0	1.5
16				27	139	66	6.3	1.2	1.6
17				29	139	54	4.9	1.1	1.7
18				25	145	45	5.3	1.0	1.8
19				23	164	39	5.7	1.0	1.9
20				21	148	42	6.1	.9	1.9
21			3.7	19.2	157	45	6.5	.9	3.3
22			3.2	22.0	157	45	6.9	.9	2.9
23			2.7	18.8	139	35	7.3	.9	2.5
24			2.3	15.3	132	29	7.7	.9	2.1
25	0.9		1.9	17.0	125	19.2	8.1	.9	1.7
26	.9		1.5	17.8	118	17.4	5.6	.9	1.3
27	1.2		1.1	18.3	111	17	4.9	2.4	1.3
28	1.5		.7	17.0	104	18.3	4.5	2.9	1.3
29	1.5		1.1	20.0	98	24	4.5	2.6	1.4
30	1.2		1.1	26.0	92	21	4.5	2.3	1.5
31	1.0		1.3		86		4.5	2.0	

NOTE.—No record May 24-30, July 18-24, 30, Aug. 15, 29-31, Sept. 1-4, 12, 14-18, and 22-25; discharge interpolated. Discharge estimated Mar. 21-27 on account of ice.

Monthly discharge of Tenmile Creek near Rimini, Mont., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October 25–31	1.5	0.9	1.17	16.2
November 1–11	1.4	.7	1.05	22.9
March 21–31	3.7	.7	1.87	40.8
April	29	4.2	17.3	1,030
May	157	32	97.5	6,000
June	145	17.0	71.2	4,240
July	27	4.5	9.70	596
August 10–31	2.9	.9	1.31	57.2
September	4.0	1.0	1.99	118

TENMILE CREEK NEAR HELENA, MONT.

LOCATION.—In SW. ¼ SE. ¼ sec. 22, T. 10 N., R. 4 W., opposite Broadwater Hotel, near Helena, Lewis and Clark County.

DRAINAGE AREA.—103 square miles (measured on topographic maps).

RECORDS AVAILABLE.—July 8, 1908, to September 30, 1925,

GAGE.—Stevens continuous water-stage recorder installed September 18, 1925, in wooden shelter at same location and datum as former staff gage; read by Henry Johnson.

DISCHARGE MEASUREMENTS.—Made by wading or from highway bridge 500 feet below gage.

CHANNEL AND CONTROL.—Bed of stream coarse gravel and boulders; shifting occasionally.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 3.60 feet at 7 a. m. June 10 (discharge, 165 second-feet); minimum stage, 1.50 feet July 28–30 (discharge, 0.5 second-foot).

1908–1925: Maximum stage recorded, 5.60 feet May 28, 1917 (discharge, 865 second-feet); minimum stage, no flow afternoon of July 10, 1918, June 26 to September 30, 1919, and July 31 to September 16, 1921.

ICE.—Stage-discharge relation affected by ice during extremely cold weather.

DIVERSIONS.—Part of the water supply for the city of Helena is taken from Tenmile Creek above station. Two irrigation ditches also take water from the creek above gage.

REGULATION.—None

ACCURACY.—Stage-discharge relation permanent during year. Rating curve well defined between 2 and 300 second-feet. Gage read to half-tenths once daily prior to September 18. Daily gage heights from recorder graph September 18–30. Daily discharge ascertained by applying daily gage height to rating table. Records good except for very low discharges and during winter.

The following discharge measurements were made:

October 24, 1924: Gage height, 1.88 feet; discharge, 3.1 second-feet.

May 19, 1925: Gage height, 3.38 feet; discharge, 124 second-feet.

May 28, 1925: Gage height, 2.76 feet; discharge, 50 second-feet.

Daily discharge, in second-feet, of Tenmile Creek near Helena, Mont., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.6	2.5	4.5	-------	14.2	37	63	17.0	0.6	0.6
2	.6	2.5	4.5	-------	17.0	45	68	20.0	.6	.6
3	.6	2.5	3.5	-------	14.2	54	73	23.0	.6	.6
4	.6	3.5	3.5	-------	14.2	54	111	17.0	.6	.6
5	.6	2.5	3.5	-------	23	54	127	14.2	.6	.6
6	.6	2.0	2.5	-------	20	58	127	11.5	.6	.7
7	.6	2.0	2.5	-------	17	58	119	11.5	.6	1.0
8	.6	2.0	2.0	-------	17	54	127	9.5	.6	1.2
9	.6	2.5	2.5	-------	23	50	145	9.5	.6	1.2
10	.6	2.5	2.5	-------	37	58	165	7.5	.6	1.0
11	.6	2.5	3.5	-------	45	68	136	6.0	.6	1.0
12	1.0	2.0	7.5	-------	54	84	119	4.5	.6	1.0
13	1.0	2.0	6.0	-------	41	90	104	2.5	.6	1.0
14	1.0	2.5	6.0	-------	37	84	97	2.5	.6	1.0
15	1.0	3.5	3.5	-------	37	136	90	2.0	.6	1.2
16	1.2	3.5	2.5	-------	45	97	84	1.0	.6	1.2
17	2.0	3.5	2.5	-------	45	111	73	1.0	.6	1.2
18	2.5	3.5	2.5	-------	45	119	63	.8	.6	1.2
19	2.5	3.5	2.0	-------	41	119	54	.8	.6	2.0
20	3.5	2.5	2.0	-------	37	127	45	.7	.6	2.1
21	3.5	2.5	2.0	-------	30	136	45	.7	.6	2.1
22	3.5	2.5	2.0	2.5	26	127	58	.7	.6	2.1
23	3.5	3.5	1.5	3.5	45	111	54	.6	.6	2.2
24	4.5	3.5	1.5	3.5	41	78	45	.6	.6	2.5
25	4.5	2.5	1.5	3.5	34	73	34	.7	.6	2.5
26	3.5	2.5	1.5	3.5	30	68	30	.6	.6	2.3
27	3.5	2.5	1.5	3.5	26	63	26	.6	.6	2.7
28	2.5	2.5	1.5	4.5	23	52	20	.5	.7	5.4
29	2.5	2.5	2.0	9.5	30	45	17	.5	.7	5.7
30	2.5	3.5	2.0	9.5	30	54	20	.5	.6	5.7
31	2.5	-------	2.0	14.2	-------	58	-------	.6	.6	-------

Monthly discharge of Tenmile Creek near Helena, Mont., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	4.5	0.6	1.90	117
November	3.5	2.0	2.72	162
December	7.5	1.5	2.85	175
March 22–31	14.2	2.5	5.77	114
April	54	14.2	31.3	1,860
May	136	37	78.1	4,800
June	165	17	78.0	4,640
July	23	.5	5.45	335
August	.7	.6	.61	37.5
September	5.7	.6	1.81	108

LITTLE PRICKLY PEAR CREEK BASIN

LITTLE PRICKLY PEAR CREEK NEAR MARYSVILLE, MONT.

LOCATION.—In SW. ¼ sec. 18, T. 12 N., R. 6 W., at highway bridge on ranch of Casper Traufer, one-fourth mile below mouth of Deadman Creek and 6 miles northwest of Marysville, Lewis and Clark County.

DRAINAGE AREA.—69 square miles (measured on topographic map of Helena quadrangle).

RECORDS AVAILABLE.—May 24, 1913, to September 30, 1925, at present site; April 12 to May 23, 1913, about one-fourth mile above present site; May 18, 1909, to December 31, 1911, at station above mouth of Deadman Creek.

GAGE.—Vertical staff spiked to upstream side of left abutment of highway bridge; read by Casper Traufer.

DISCHARGE MEASUREMENTS.—Made from bridge or by wading.

CHANNEL AND CONTROL.—Sand and gravel; shifts slightly.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 1.70 feet May 20 and 21 (discharge, 114 second-feet); minimum stage, 0.68 foot December 8–10 (discharge, 7.0 second-feet).

1909–1911; 1913–1925: Maximum stage recorded, 3.8 feet May 25 and 26, 1917 (discharge, 454 second-feet); minimum discharge, 1.2 second-feet March 7–13, 1911.

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

DIVERSIONS.—Two or three small ditches take water from the stream above station.

REGULATION.—None.

ACCURACY.—Stage-discharge relation affected by ice and by leaves on control, otherwise permanent. Rating curve well defined between 10 and 250 second-feet. Gage read to hundredths twice daily April 10 to July 3 and once daily during remainder of year. Daily discharge ascertained by applying mean daily gage height to rating table except October 3 to December 10, when shifting-control method was used. Records good.

The following discharge measurements were made:

October 24, 1925: Gage height, 0.73 foot; discharge, 8.9 second-feet.

April 20, 1925: Gage height, 1.45 feet; discharge, 72 second-feet.

July 18, 1925: Gage height, 0.96 foot; discharge, 20.8 second-feet.

Daily discharge, in second-feet, of Little Prickly Pear Creek near Marysville, Mont., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	12	8.8	7.6		13	38	65	35	21	16
2	12	8.8	7.6		14	44	61	35	21	16
3	12	8.8	7.6		15	48	57	35	21	16
4	12	8.8	7.6		15	54	62	35	21	16
5	11	8.8	7.6		16	57	62	35	20	16
6	11	8.8	7.6		16	58	62	34	20	18
7	11	8.8	7.6		16	62	62	34	20	17
8	10	8.8	7.0		18	62	62	33	19	17
9	10	8.8	7.0		20	62	62	32	19	17
10	10	8.8	7.0		24	62	66	29	18	16
11	10.	8.8			31	59	68	27	18	16
12	10.	8.8			47	65	68	27	18	16
13	9.7	8.2			61	79	68	27	18	16
14	9.7	8.2			61	98	68	27	18	16
15	9.7	8.2			54	110	66	26	18	16
16	9.4	8.2			65	110	64	24	18	16
17	9.4	8.2			74	102	61	23	18	16
18	9.1	8.2			84	102	57	22	18	16
19	9.1	8.2			80	110	52	22	18	16
20	9.1	8.2			68	114	48	22	17	16
21	8.8	8.2			59	114	47	22	17	16
22	8.8	8.2		12	57	112	49	22	17	16
23	8.8	8.2		12	57	106	48	23	17	16
24	8.8	7.6		12	49	96	45	23	17	16
25	8.8	7.6		12	46	91	45	22	17	16
26	8.8	7.6		12	43	82	43	22	17	16
27	8.8	7.6		12	41	76	39	22	16	16
28	8.8	7.6		12	39	72	39	21	16	16
29	8.8	7.6		12	38	70	38	25	16	16
30	8.8	7.6		12	37	66	37	23	16	16
31	8.8			12		65		22	16	

Monthly discharge of Little Prickly Pear Creek near Marysville, Mont., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	12	8.8	9.77	601
November	8.8	7.6	8.30	494
December 1–10	7.6	7.0	7.42	147
March 22–31	12	12	12.0	238
April	84	13	41.9	2,490
May	114	38	78.9	4,850
June	68	37	55.7	3,310
July	35	21	26.8	1,650
August	21	16	18.1	1,110
September	18	16	16.2	964

SMITH RIVER BASIN

SMITH RIVER NEAR WHITE SULPHUR SPRINGS, MONT.

LOCATION.—In SE. ¼ SW. ¼ sec. 33, T. 11 N., R. 8 E., at Meachem ranch, 14 miles northeast of White Sulphur Springs, Meagher County, and 32 miles northwest of Martinsdale.

DRAINAGE AREA.—Not measured.

RECORDS AVAILABLE.—September 20, 1922, to September 30, 1925.

GAGE.—Vertical staff on right bank 500 feet west of ranch house; read by Mrs. Florence Meachem.

DISCHARGE MEASUREMENTS.—Made by wading.

CHANNEL AND CONTROL.—Channel composed of coarse gravel. Banks low and subject to overflow at high water. Control is a gravel bar about 30 feet below gage.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 2.63 feet at 7 a. m. June 16 (discharge, 172 second-feet); minimum stage, 0.42 foot December 19 (discharge, 3.4 second-feet).

1922–1925: Maximum stage recorded, 3.05 feet June 21, 1923 (discharge, 224 second-feet); minimum discharge, 3.1 second-feet at time of discharge measurement of March 8, 1923.

ICE.—Stage-discharge relation affected by ice.

DIVERSIONS.—One or two small diversions for irrigation above this station.

REGULATION.—None.

ACCURACY.—Stage-discharge relation permanent except when affected by ice. Rating curve well defined between 5 and 160 second-feet. Gage read to hundredths twice daily. Discharge obtained by applying mean daily gage height to rating table. Records good.

The following discharge measurements were made:

April 18, 1925: Gage height, 1.28 feet; discharge, 43.3 second-feet.

July 13, 1925: Gage height, 0.86 foot; discharge, 19.2 second-feet.

September 22, 1925: Gage height, 0.76 foot; discharge, 14.6 second-feet.

Daily discharge, in second-feet, of Smith River near White Sulphur Springs, Mont., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Apr.	May	June	July	Aug.	Sept.
1	6.8	9.2	8.8	40	34	89	56	18	8.4
2	6.8	8.4	8.8	40	33	83	60	21	8.4
3	11.6	8.4	8.8	45	37	90	58	20	8.4
4	9.2	9.2	7.7	54	39	90	49	20	9.2
5	10.4	9.2	8	127	44	77	42	20	9.2
6	10	10.4	8	122	46	81	39	22	12
7	9.2	9.8	}	122	47	72	39	20	10.4
8	9.2	9.3	} 10	90	47	67	33	24	9.2
9	9.2	8.8	}	73	54	68	28	20	10
10	10	10.8	}	77	42	84	30	22	12
11	9.2	}	24	54	50	108	28	22	11.6
12	11.6	}	27	65	56	86	25	21	10.4
13	10.4	} 10	17	58	62	76	22	20	13
14	10	}	9.6	60	73	81	17	25	11.6
15	9.2	}	7.7	56	83	86	16	23	11.6
16	9.2	10.4	6	53	89	149	18	20	10
17	9.2	10.4	4.4	52	91	100	20	19	11.6
18	8.4	10.4	3.6	46	91	102	17	20	11.2
19	8.8	8.8	3.6	39	92	102	17	16	14
20	8.8	15	5.6	44	99	98	22	16	13
21	8.4	9.2	5.3	44	101	87	22	16	16
22	8.4	9.2	5.3	51	104	84	27	15	15
23	8.4	9.2	5	54	104	80	27	15	14
24	8.4	11.2	3.6	51	97	72	24	14	14
25	8.4	11.2	4.2	55	104	68	27	14	14
26	8.4	8.8	4.2	46	94	64	22	14	14
27	8.8	8.4	5.6	43	88	64	17	14	15
28	9.6	10.4	5.3	36	83	61	18	14	15
29	9.6	9.2	5.3	34	80	58	25	12	16
30	9.2	8	5.6	34	86	56	23	9.2	16
31	9.2	------	5	------	104	------	20	8.4	------

NOTE.—Braced figures show estimated mean discharge for periods indicated. Stage-discharge relation affected by ice Nov. 7, 8, 21–23, and Dec. 31; discharge estimated. No record Dec. 16, June 22, and Sept. 24; discharge interpolated. No record Jan. 1 to Mar. 31.

Monthly discharge of Smith River near White Sulphur Springs, Mont., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	11.6	6.8	9.16	563
November	15	8	9.78	582
December	27	3.6	8.16	502
April	127	34	58.8	3,500
May	104	33	72.7	4,470
June	149	56	82.8	4,930
July	60	16	28.6	1,760
August	25	8.4	17.9	1,100
September	16	8.4	12.1	720

SUN RIVER BASIN

NORTH FORK OF SUN RIVER NEAR AUGUSTA, MONT.

LOCATION.—In unsurveyed tract at Sun River diversion dam, 18 miles northwest of Augusta, Lewis and Clark County.

DRAINAGE AREA.—596 square miles (measured by United States Bureau of Reclamation).

RECORDS AVAILABLE.—January 1, 1916, to September 30, 1925, at the present site. From August 5, 1889, to December 31, 1890, and October 31, 1903, to December 31, 1915, a station was located in sec. 33, T. 22 N., R. 7 W., at the Henningson ranch, about 8 miles downstream from the present site. The flow of the stream is practically the same at both points, as there are no diversions or tributaries.

GAGE.—A sloping staff gage on the right abutment of Sun River diversion dam; read by employees of the Bureau of Reclamation.

DISCHARGE MEASUREMENTS.—Made from a highway bridge about half a mile below gage or by wading.

CHANNEL AND CONTROL.—Control is crest of the Sun River diversion dam, which is a concrete structure with an arch section 153.3 feet in length, and a gravity section 59.2 feet in length, separated by a pier.

EXTREMES OF DISCHARGE.—Maximum discharge during year, 7,920 second-feet May 20 (canal carrying 370 second-feet); minimum discharge, 95 second-feet January 1–5.

1889–1925: Maximum stage recorded, 11.4 feet at 2 a. m. June 21, 1916 (discharge, 32,300 second-feet); minimum stage recorded, 0.0 foot April 7 and 8, 1915 (discharge, 15 second-feet).

ICE.—Stage-discharge relation affected by ice.

DIVERSIONS.—The intake of the Pishkun Canal of United States Bureau of Reclamation is at the diversion dam. A total of 71,700 acre-feet was diverted during year.

REGULATION.—None.

ACCURACY.—Stage-discharge relation permanent. Rating curve well defined and based on formula $Q=3.1\ LH^{1.6}$, which was closely checked by five discharge measurements. Gage readings were obtained to half-tenths once daily October 1 to November 30 and January 1 to September 30. Daily discharge ascertained by applying daily gage height to rating table and adding flow of canal. Records good.

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

Daily discharge, in second-feet, of North Fork of Sun River near Augusta, Mont., for the year ending September 30, 1925

Day	Oct.	Nov.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	96	261	95	122	135	290	1,930	4,200	1,310	175	250
2	124	261	95	122	135	370	2,310	3,800	1,190	172	250
3	124	261	95	122	138	460	2,500	3,600	1,090	172	250
4	124	217	95	122	138	555	2,950	2,850	1,020	172	250
5	124	217	95	122	145	650	3,300	2,650	985	172	250
6	124	217	100	127	150	460	3,600	2,650	900	150	250
7	124	217	100	127	150	460	3,000	2,150	810	172	250
8	152	217	100	127	155	600	2,750	2,000	724	172	250
9	152	204	105	127	155	600	2,750	1,900	690	510	250
10	152	204	105	127	160	880	3,000	1,900	620	510	250
11	152	204	105	127	160	1,320	3,600	2,000	560	510	400
12	254	204	105	135	155	1,700	4,200	2,000	535	510	400
13	254	204	105	135	155	2,310	4,700	2,300	965	510	400
14	254	204	105	135	150	2,060	4,700	2,300	925	470	400
15	254	204	110	135	150	2,000	4,800	2,300	910	450	400
16	254	204	110	135	150	1,900	4,700	2,300	750	480	400
17	254	184	110	135	150	1,840	4,800	2,500	520	480	400
18	254	184	110	135	150	1,840	6,520	2,850	335	470	400
19	254	184	110	138	150	1,750	7,200	3,800	300	470	400
20	254	184	116	138	150	1,750	7,550	4,200	260	450	400
21	254	184	116	138	155	1,600	7,300	3,600	220	450	400
22	254	184	116	145	160	1,600	6,800	3,450	220	450	400
23	261	184	116	150	170	1,400	6,520	3,200	250	440	400
24	261	184	116	150	175	1,330	6,100	3,000	250	440	450
25	261	165	122	150	182	1,120	5,600	2,850	245	440	450
26	261	165	122	145	188	1,120	4,700	2,310	230	420	500
27	261	165	122	138	195	1,180	4,900	1,930	200	420	500
28	261	165	122	135	205	1,480	4,700	1,840	180	410	500
29	261	165	122	-------	210	1,470	4,550	2,000	175	400	500
30	261	165	122	-------	215	1,680	4,700	1,400	175	400	500
31	261	-------	122	-------	220	-------	4,550	-------	175	400	-------

Monthly discharge of North Fork of Sun River near Augusta, Mont., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	261	96	213	13,100
November	261	165	199	11,800
January	122	95	109	6,700
February	150	122	134	7,440
March	220	135	163	10,000
April	2,310	290	1,260	75,000
May	7,550	1,930	4,560	280,000
June	4,200	1,400	2,640	157,000
July	1,310	175	572	35,200
August	510	150	382	23,500
September	500	250	370	22,000

Combined daily discharge, in second-feet, of North Fork of Sun River and Pishkun Canal near Augusta, Mont., for the year ending September 30, 1925

Day	Oct.	Nov.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	286	261	95	122	135	290	1,930	4,780	1,840	530	400
2	314	261	95	122	135	370	2,310	4,350	1,690	527	400
3	314	261	95	122	138	460	2,500	3,550	1,590	527	400
4	314	217	95	122	138	555	2,950	3,200	1,520	472	400
5	314	217	95	122	145	650	3,300	2,750	1,480	472	400
6	314	217	100	127	150	545	3,600	2,750	1,400	450	400
7	298	217	100	127	150	740	3,000	2,250	1,320	472	400
8	152	217	100	127	155	1,010	2,750	2,100	1,240	322	400
9	152	204	105	127	155	1,010	2,750	2,000	1,200	510	400
10	152	204	105	127	160	1,290	3,000	2,000	1,140	510	400
11	152	204	105	127	160	1,730	3,600	2,100	1,080	510	400
12	254	204	105	135	155	2,110	4,200	2,100	1,060	510	400
13	254	204	105	135	155	2,520	4,700	2,400	1,040	510	400
14	254	204	105	135	150	2,060	4,700	2,400	1,000	470	400
15	254	204	110	135	150	2,000	4,800	2,400	985	450	400
16	254	204	110	135	150	1,900	4,700	2,420	960	480	400
17	254	184	110	135	150	1,840	4,800	2,620	920	480	400
18	254	184	110	135	150	1,840	6,520	2,970	765	470	400
19	254	184	110	138	150	1,750	7,390	4,030	755	470	400
20	254	184	116	138	150	1,750	7,920	4,430	715	450	400
21	254	184	116	138	155	1,600	7,800	3,830	790	450	400
22	254	184	116	145	160	1,600	7,350	3,680	790	450	400
23	261	184	116	150	170	1,400	7,070	3,510	820	440	400
24	261	184	116	150	175	1,330	6,660	3,360	790	440	450
25	261	165	122	150	182	1,120	6,160	3,210	785	440	450
26	261	165	122	145	188	1,120	5,260	2,730	745	420	500
27	261	165	122	138	195	1,180	5,460	2,420	630	420	500
28	261	165	122	135	205	1,480	5,280	2,400	610	410	500
29	261	165	122	------	210	1,470	5,130	2,560	530	400	500
30	261	165	122	------	215	1,680	5,280	1,960	530	400	500
31	261	------	122	------	220	------	5,130	------	530	400	------

Combined monthly discharge of North Fork of Sun River and Pishkun Canal near Augusta, Mont., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	314	152	255	15,700
November	261	165	199	11,800
January	122	95	109	6,700
February	150	122	134	7,440
March	220	135	163	10,000
April	2,520	290	1,350	80,300
May	7,920	1,930	4,770	293,000
June	4,780	1,960	2,910	173,000
July	1,840	530	1,010	62,100
August	530	322	460	28,300
September	500	400	420	25,000

SUN RIVER AT FORT SHAW, MONT.

LOCATION.—In SW. ¼ sec. 1, T. 20 N., R. 2 W., at highway bridge at Fort Shaw, Cascade County.

DRAINAGE AREA.—1,475 square miles (measured by United States Bureau of Reclamation).

RECORDS AVAILABLE.—May 16, 1912, to September 30, 1925. A station on Sun River at Sun River, maintained July 31, 1905, to October 5, 1912, gave records for practically the same drainage area.

GAGE.—Standard chain gage on highway bridge read by Arthur Woods, employee of the United States Bureau of Reclamation until May 19, 1925. Stevens continuous water-stage recorder installed May 20, 1925, in shelter on left bank under bridge. Datum not changed.

DISCHARGE MEASUREMENTS.—Made from cable 500 feet below gage or by wading.

CHANNEL AND CONTROL.—Bed composed of gravel and rocks; fairly permanent, but shifting occasionally.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 8.82 feet May 20 (discharge, 6,490 second-feet); minimum stage, 3.3 feet October 1 (discharge, 89 second-feet).

1905–1925: Maximum stage recorded, 13.4 feet June 7, 1908 (discharge, 18,400 second-feet); minimum stage, 2.99 feet November 8, 11, and 12, 1919 (discharge, 49 second-feet).

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

DIVERSIONS.—There are adjudicated rights for diverting 248 second-feet from Sun River direct and 664 second-feet from tributaries above this station. In addition there are the Fort Shaw and Pishkun Canals of the United States Bureau of Reclamation and a few small ditches constructed since the adjudication.

REGULATION.—Willow Creek Reservoir has a capacity of 16,600 acre-feet.

ACCURACY.—Stage-discharge relation permanent for year except as affected by ice. Rating curve well defined between 80 and 5,400 second-feet. Chain gage read to half-tenths once daily October 1 to May 19; staff readings or recorder record subsequent to May 19. Daily discharge ascertained by applying mean daily gage height to rating table except as indicated in footnote to table of daily discharge. Records good, except for estimated periods, for which they are fair.

Discharge measurements of Sun River at Fort Shaw, Mont., during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 1	3.29	89	May 21	8.52	5,980	July 15	4.55	550
Apr. 21	5.74	1,540	June 4	7.00	3,540	Aug. 27	4.00	293

Daily discharge, in second-feet, of Sun River at Fort Shaw, Mont., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	89	251	291		200	215	291	1,180	2,560	1,480	291	291
2	108	251	251		215	215	313	1,530	2,400	1,230	215	251
3	108	251	251		251	215	335	2,180	2,610	1,100	215	193
4	130	251	215		291	215	435	2,030	3,120	975	199	185
5	130	251	215		251	215	491	1,890	3,200	944	169	177
6	130	251	183		215	215	645	2,030	2,960	844	177	169
7	130	251	183		215	215	491	2,180	2,560	748	199	209
8	130	251	215		215	215	491	2,180	2,270	674	189	250
9	155	251	215		183	215	612	2,030	2,180	600	233	291
10	155	251	251		183	215	821	1,890	2,180	550	435	325
11	155	251	291	200	183	183	1,140	2,030	2,480	469	359	359
12	183	251	291		155	155	1,760	2,100	2,960	383	259	353
13	183	251	291		155	108	1,760	2,640	2,880	569	202	347
14	183	251	251		155	155	2,180	3,600	2,640	581	219	341
15	183	251			183	215	1,890	4,080	2,480	581	251	335
16	183	251			183	251	1,530	3,920	2,400	538	283	355
17	199	251			215	251	1,890	3,920	2,330	345	349	375
18	199	251			215	291	1,760	4,590	2,560	267	313	395
19	215	251			215	291	1,640	5,100	2,800	295	275	415
20	215	291			215	215	1,640	6,040	3,120	313	251	436
21	215	291			215	215	1,530	5,920	3,360	267	233	457
22	215	291		251	215	233	1,530	5,810	3,280	295	229	454
23	215	291	175	251	215	251	1,530	5,100	3,200	373	233	450
24	215	291		251	215	251	1,530	4,500	3,040	469	283	446
25	215	291		215	215	251	1,230	4,220	2,720	414	349	450
26	215	251		215	215	313	1,140	3,600	2,400	247	354	454
27	215	251		215	183	291	1,140	3,280	2,260	209	291	458
28	215	251		215	183	271	1,060	3,520	2,100	219	359	463
29	215	251		215	-------	271	1,060	3,920	1,890	251	359	463
30	251	291		200	-------	291	1,020	3,840	1,820	251	335	463
31	251	-------		200	-------	291	-------	3,360	-------	335	335	-------

NOTE.—Stage-discharge relation affected by ice Dec. 15 to Jan. 21 and Jan. 30 to Feb. 1. Braced figures represent estimated mean discharge for periods indicated. No record July 8, September 4, 5, 7 8, 10, 12-14, 16-20, 22-23, 25-27, and 29; discharge interpolated.

Monthly discharge of Sun River at Fort Shaw, Mont., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	251	89	181	11,100
November	291	251	260	15,500
December	291	175	205	12,600
January	251	200	207	12,700
February	291	155	205	11,400
March	313	108	232	14,300
April	2,180	291	1,160	69,000
May	6,040	1,180	3,360	207,000
June	3,360	1,820	2,630	156,000
July	1,480	209	542	33,300
August	435	169	272	16,700
September	463	169	354	21,100
The year	6,040	89	802	581,000

WILLOW CREEK NEAR AUGUSTA, MONT.

LOCATION.—In NW. ¼ SW. ¼ sec. 26, T. 21 N., R. 7 W., at Clark Co. ranch just below mouth of Little Willow Creek and 7 miles northwest of Augusta, Lewis and Clark County.

DRAINAGE AREA.—Not measured.

RECORDS AVAILABLE.—June 8, 1905, to May 14, 1911; April 1, 1912, to September 30, 1925, when station was discontinued.

GAGE.—Standard chain on right bank, 300 feet back of Thomas Clark's house; read by Thomas Clark.

DISCHARGE MEASUREMENTS.—Made by wading or from bridge 1,000 feet below gage.

CHANNEL AND CONTROL.—An old dam of timber and rock 20 feet below gage forms the principal control.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 1.37 feet at 11 a. m. June 4 (discharge, 50 second-feet); minimum stage, 0.13 foot August 21–25 (discharge, 2.1 second-feet).

1905–1911; 1912–1925: Maximum stage recorded, 10.8 feet June 23, 1916 (discharge, 1,150 second-feet); minimum discharge, dry July 17, 1910.

ICE.—Creek is fed by springs and is not seriously affected by ice.

DIVERSIONS.—Adjudicated water rights above station amount to 36.2 second-feet from Willow Creek and 42.26 second-feet from tributaries.

REGULATION.—None. Willow Creek Dam, about 2 miles below station, forms a reservoir having a capacity of 16,640 acre-feet; water used on the Fort Shaw unit of the Sun River project.

ACCURACY.—Stage-discharge relation not permanent; affected by shifting control April 6 to June 25. Rating curve well defined between 2 and 200 second-feet. Gage read to hundredths once and occasionally twice daily. Daily discharge determined by applying daily gage height to rating table except April 6 to June 25 when shifting-control method was used. Records fair.

The following discharge measurements were made:

October 18, 1924: Gage height, 0.25 foot; discharge, 4.0 second-feet.

April 21, 1925: Gage height, 0.95 foot; discharge, 23.2 second-feet.

June 4, 1925: Gage height, 1.37 feet; discharge, 50.0 second-feet.

Daily discharge, in second-feet, of Willow Creek near Augusta, Mont., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5.0	4.7	9.0	------	13	25	27	7.2	2.4	2.4
2	5.0	4.7	8.5	------	13	25	26	7.2	2.4	2.4
3	5.0	4.7	8.5	------	14	26	26	6.8	2.4	2.4
4	5.0	4.7	8.0	------	14	26	49	6.8	2.4	2.4
5	5.0	4.7	7.0	------	14	26	46	6.8	2.4	2.4
6	5.0	4.7	6.0	------	14	27	43	6.2	2.4	2.8
7	5.0	4.7	------	------	14	28	35	5.8	2.4	2.8
8	5.0	4.7	------	------	14	28	34	5.8	2.4	3.8
9	5.0	4.7	------	------	20	27	36	5.2	2.4	4.2
10	5.0	4.7	------	------	20	26	34	4.8	2.8	4.2
11	5.0	4.7	------	------	20	26	33	4.5	2.8	4.2
12	5.0	4.7	------	------	21	29	32	4.5	2.8	4.2
13	5.0	4.7	------	------	21	30	32	3.8	2.8	4.2
14	5.0	4.7	------	------	21	34	32	3.5	2.8	4.2
15	5.0	4.7	------	------	21	35	31	3.5	2.8	4.2
16	5.0	4.7	------	------	21	35	30	3.1	2.8	4.2
17	4.7	5.0	------	------	21	36	27	2.8	2.8	4.2
18	4.7	5.0	------	------	20	38	23	2.8	2.8	4.2
19	4.7	5.5	------	------	20	40	22	2.4	2.4	4.2
20	4.7	6.0	------	------	19	42	19	2.4	2.4	6.2
21	4.7	6.0	------	------	22	43	17	2.4	2.1	6.2
22	4.7	6.5	------	------	22	44	17	2.4	2.1	6.2
23	4.7	7.5	------	------	31	44	13	2.8	2.1	6.2
24	4.7	7.5	------	------	25	42	12	2.8	2.1	6.2
25	4.7	7.5	------	------	24	40	9.8	2.8	2.1	6.2
26	4.7	8.0	------	------	24	39	8.8	2.4	2.4	6.2
27	4.7	8.5	------	------	25	32	7.8	2.4	2.4	6.2
28	4.7	8.5	------	------	26	30	8.2	2.4	2.4	6.8
29	4.7	9.0	------	14	26	29	7.8	2.4	2.4	6.8
30	4.7	9.0	------	14	26	29	7.8	2.4	2.4	6.8
31	4.7	------	------	13	------	28	------	2.4	2.4	------

Monthly discharge of Willow Creek near Augusta, Mont., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	5.0	4.7	4.85	298
November	9.0	4.7	5.82	346
December 1–6	9.0	6.0	7.83	93.2
March 29–31	14	13	13.7	81.5
April	31	13	20.2	1,200
May	44	25	32.5	2,000
June	49	7.8	23.9	1,420
July	7.2	2.4	3.98	245
August	2.8	2.1	2.47	152
September	6.8	2.4	4.59	273

MUDDY CREEK AT VAUGHN, MONT.

LOCATION.—In SE. ¼ sec. 24, T. 21 N., R. 1 E., at Great Northern Railway bridge at Vaughn, Cascade County.

DRAINAGE AREA.—Not measured.

RECORDS AVAILABLE.—May 21 to September 30, 1925.

GAGE.—Vertical staff on upstream pile of bent of bridge at right bank.

DISCHARGE MEASUREMENTS.—Made from highway bridge 500 feet above gage or by wading.

CHANNEL AND CONTROL.—Channel composed of clay and gravel. Control is gravel riffle just below bridge. Banks high, covered with grass and bushes. Not subject to overflow.

EXTREMES OF DISCHARGE.—Maximum stage recorded during period, 8.90 feet at 7.30 a. m. June 5 (discharge, 602 second-feet); minimum stage, 1.07 feet at 1.30 p. m. July 21 (discharge, 8.1 second-feet).

ICE.—None during period of record.

DIVERSIONS.—None.

REGULATION.—A small amount of waste water from Sun River Canal flows into Muddy Creek above gage.

ACCURACY.—Stage-discharge relation permanent during period. Rating curve well defined between 10 and 600 second-feet. Gage read to hundredths once daily. Daily discharge ascertained by applying daily gage height to rating table. Records good.

Discharge measurements of Muddy Creek at Vaughn, Mont., during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
May 21	1.23	13.2	June 5	8.85	580	July 21	1.07	8.2
June 4	5.40	303	July 15	1.23	13.8	Aug. 27	1.43	22.6

Daily discharge, in second-feet, of Muddy Creek at Vaughn, Mont., for the year ending September 30, 1925

Day	May	June	July	Aug.	Sept.	Day	May	June	July	Aug.	Sept.
1		52	66	83	24	16		84	11	24	45
2		100	78	104	21	17		81	10	24	44
3		184	103	111	19	18		71	52	24	25
4		258	110	122	15	19		56	24	25	51
5		601	121	142	18	20		60	13	24	74
6		214	124	70	16	21	13	60	8.7	24	52
7		78	104	62	18	22	14	47	8.4	20	122
8		104	66	38	29	23	14	59	14	20	91
9		101	36	33	25	24	13	54	16	78	77
10		86	43	29	22	25	11	36	21	27	67
11		122	29	33	23	26	21	38	61	25	58
12		114	15	32	23	27	16	26	100	22	54
13		108	12	28	23	28	18	48	100	23	30
14		97	21	21	22	29	22	44	83	24	54
15		87	14	23	22	30	33	42	82	24	43
						31	45		70	24	

Monthly discharge of Muddy Creek at Vaughn, Mont., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
May 21-31	45	11	20.0	436
June	601	26	104	6,190
July	124	8.4	52.1	3,200
August	142	20	44.0	2,730
September	122	15	40.2	2,390
The period				14,900

MARIAS RIVER BASIN

MARIAS RIVER NEAR SHELBY, MONT.

LOCATION.—In sec. 20, T. 31 N., R. 2 W., at highway bridge 7 miles south of Shelby, Toole County.

DRAINAGE AREA.—2,610 square miles.

RECORDS AVAILABLE.—April 4, 1902, to January 12, 1908; April 23, 1911, to September 30, 1922, and March 26, 1923, to September 30, 1925.

GAGES.—Stevens water-stage recorder installed March 21, 1923, on downstream side of pier on left bank; datum not changed.

DISCHARGE MEASUREMENTS.—Made from downstream side of highway bridge or by wading.

CHANNEL AND CONTROL.—Gravel and boulders; control shifts occasionally. Left bank steep and high; not subject to overflow. Right, bank gently sloping; is overflowed at extreme stages.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 7.35 feet at 10 p. m. May 21 (discharge, 7,680 second-feet); minimum stage, 2.37 feet October 2 (discharge, 230 second-feet).

1902–1907; 1911–1925: Maximum stage recorded, 14.9 feet June 24, 1907 (discharge, 29,500 second-feet); minimum stage, 1.5 feet August 20, 1919 (discharge, 10 second-feet).

ICE.—Stage-discharge relation affected by ice.

DIVERSIONS.—The Valier-Montana Land & Water Co.'s Carey Act project and the Blackfeet project of the United States Bureau of Reclamation divert water from the principal tributaries above this station; also a number of smaller private diversions.

REGULATION.—Water is stored in reservoirs on tributaries above station, the principal ones being Two Medicine River, Four Horns on Badger Creek; Swift Dam on Birch Creek and Lake Francis on Dupuyer Creek.

ACCURACY.—Stage-discharge relation affected by ice and by shifting control. Three rating curves used during year; one, applicable October 1–18, well defined below 5,380 second-feet; the second, applicable October 19 to April 26, well defined between 250 and 5,380 second-feet; the third, applicable May 3 to September 30, is well-defined between 240 and 7,750 second-feet. Daily discharge ascertained by applying to rating table mean daily gage height determined by inspection of recorder graph except as indicated in footnote to daily-discharge table. Records good except for estimated periods.

Discharge measurements of Marias River near Shelby, Mont., during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 19	2.55	258	May 21	7.15	7,320	July 15	3.37	839
Apr. 10	5.22	2,740	June 5	5.56	3,600	Aug. 13	2.78	374
May 3	5.85	4,170	June 25	5.18	2,940			

Daily discharge, in second-feet, of Marias River near Shelby, Mont., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Apr.	May	June	July	Aug.	Sept.
1	241	243	399		3,300	4,180	2,110	560	268
2	234	258	361		4,250	3,600	2,020	530	254
3	241	274	343		4,600	3,250	1,930	516	240
4	264	295	325		4,500	3,150	1,840	489	272
5	284	348	299		4,080	3,600	1,670	468	268
6	305	338	330		4,180	3,290	1,580	442	268
7	309	308	316		4,440	2,900	1,480	423	281
8	300	325	316		4,210	2,620	1,380	404	295
9	292		320		3,650	2,580	1,260	398	301
10	296		325	2,870	3,300	2,690	1,130	386	296
11	313		506	3,320	3,120	2,870	1,060	381	287
12	313	300	529	3,990	3,390	2,870	978	386	282
13	296		682	4,860	4,180	2,920	922	386	282
14	280		715	4,150	5,150	3,060	868	375	278
15	272			3,320	5,830	3,060	816	375	273
16	264	371		2,900	6,060	2,950	799	436	264
17	260	385		3,140	5,880	2,980	782	461	256
18	253	440		3,580	5,940	3,130	741	455	344
19	247	451		3,200	6,430	3,200	717	417	425
20	247	483		2,950	6,890	3,390	709	392	456
21	243	435		2,900	7,200	3,460	701	363	456
22	243	451		2,800	7,130	3,600	669	308	425
23	239	399		3,490	6,890	3,690	701	308	393
24	235	366		3,670	6,530	3,390	693	398	369
25	235	375		2,820	5,940	3,060	693	448	318
[illegible]	235	380		2,360	5,370	2,770	717	417	318
[illegible]	231	316		2,250	4,930	2,580	653	369	318
[illegible]	235	325		2,100	4,600	2,430	629	340	375
[illegible]	235	395		2,100	4,840	2,370	568	308	425
30	239	375		2,800	5,020	2,140	605	298	480
31	239				4,890		598	282	

NOTE.—Shifting-control method used Oct. 7–18. Discharge estimated on account of ice Nov. 9–15. Discharge computed by comparison with flow of Marias River near Brinkman Apr. 26 to May 2 and Sept. 4–30.

Monthly discharge of Marias River near Shelby, Mont., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	313	231	262	16,100
November	483	243	348	20,700
December 1–14	715	299	412	11,400
April 10–30	4,860	2,100	3,120	130,000
May	7,200	3,120	5,060	311,000
June	4,180	2,140	3,060	182,000
July	2,110	568	1,030	63,300
August	560	282	404	24,800
September	480	240	326	19,400

MARIAS RIVER NEAR BRINKMAN, MONT.

LOCATION.—In NW. ¼ sec. 21, T. 29 N., R. 8 E., at Brinkman ranch, 21 miles south of Inverness on Great Northern Railway and 4 miles from Brinkman post office, Hill County.

DRAINAGE AREA.—Not measured.

RECORDS AVAILABLE.—October 6, 1921, to September 30, 1925.

GAGE.—Overhanging chain gage on right bank about 500 feet downstream from ranch house; read by C. H. Brinkman.

DISCHARGE MEASUREMENTS.—Made from cable or by wading.

CHANNEL AND CONTROL.—Bed composed of gravel and small boulders. Gage is over a pond behind a sand bar, connected to a riffle below. Left bank high and clean. Right bank clean and is overflowed only at extremely high stage.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 5.65 feet at 7 p. m. May 23 (discharge, 6,480 second-feet); minimum stage, 1.08 feet October 1–7 (discharge, 231 second-feet).

1921–1925: Maximum stage recorded during period, that of May 23, 1925; minimum stage, 0.90 foot October 9–12, 1921, and November 14, 1922 (discharge, 165 second-feet).

ICE.—Stage-discharge relation affected by ice.

DIVERSIONS.—Numerous diversions are made for irrigation from tributaries above this station, the principal ones being those for the Blackfeet project, and for the Valier Carey Act project.

REGULATION.—The principal storage reservoirs are Two Medicine Reservoir on Two Medicine River, Four Horns Reservoir on Badger Creek, Swift Reservoir on Birch Creek, and Lake Francis Reservoir on Dupuyer Creek.

ACCURACY.—Stage-discharge relation permanent except when affected by ice. Rating curve well defined between 150 and 6,000 second-feet. Gage read to hundredths twice daily. Daily discharge determined by applying mean daily gage height to rating table except during ice-affected periods. Records good.

The following discharge measurements were made:

April 10, 1925: Gage height, 3.20 feet; discharge, 2,270 second-feet.

April 24, 1925: Gage height, 4.35 feet; discharge, 4,090 second-feet.

Daily discharge, in second-feet, of Marias River near Brinkman, Mont., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	231	248	505		2,310	2,590	4,500	2,170	580	315
2	231	248	505		2,030	3,190	4,150	2,170	542	296
3	231	256	505		1,770	3,820	3,820	2,030	542	282
4	231	269	505		1,640	4,320	3,500	1,900	505	282
5	231	250	542		1,520	4,150	3,190	1,770	472	278
6	231	250	580		1,770	3,820	3,500	1,770	472	273
7	231	250	580		2,030	3,820	3,500	1,520	438	273
8	252	306	580		2,030	3,980	3,040	1,400	409	287
9	273	438	580		2,310	4,150	2,890	1,290	409	306
10	273	329	542		2,310	3,820	2,890	1,180	409	310
11	273	265	472		2,740	3,500	3,040	1,120	409	301
12	273	265	505		3,500	3,340	3,040	960	409	296
13	282	354	580		3,980	3,500	3,040	908	409	291
14	301	329	580		4,680	4,150	3,040	855	409	291
15	301	329			4,150	4,680	3,190	855	409	287
16	291	354			3,500	5,240	3,190	855	409	282
17	278	354			3,190	5,240	3,040	855	409	273
18	282	380			3,500	5,240	3,040	805	409	265
19	282	505			3,660	5,430	3,190	755	438	354
20	282	505			3,500	5,810	3,190	710	409	438
21	273	580			3,340	6,190	3,340	710	409	472
22	265	622			3,340	6,380	3,500	710	380	472
23	256	622			3,500	6,380	3,500	710	354	438
24	239	622			3,980	6,190	3,500	710	380	409
25	256	580			4,150	6,000	3,340	710	380	380
26	252	542		3,040	3,340	5,240	3,190	710	380	329
27	248	542		5,240	2,890	4,860	2,890	665	380	329
28	243	542		2,890	2,740	4,500	2,590	622	354	329
29	239	505		2,590	2,740	4,320	2,450	622	354	380
30	239	505		2,740	2,590	4,500	2,310	580	329	438
31	239			2,890		4,680		580	329	

NOTE.—Discharge estimated Nov. 5-7 on account of slush ice in river.

Monthly discharge of Marias River near Brinkman, Mont., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	301	231	258	15,900
November	622	248	405	24,100
December 1-14	580	472	540	15,000
March 26-31	5,240	2,590	3,230	38,400
April	4,680	1,520	2,960	176,000
May	6,380	2,590	4,610	283,000
June	4,500	2,310	3,220	192,000
July	2,170	580	1,070	65,800
August	580	329	417	25,600
September	472	265	332	19,800

BIRCH CREEK AT SWIFT DAM, NEAR DUPUYER, MONT.

LOCATION.—Near southwest corner of sec. 23, T. 28 N., R. 10 W., just below Swift Dam, 20 miles west of Dupuyer, Pondera County, and 34 miles southwest of Valier.

DRAINAGE AREA.—75 square miles (measured on topographic maps).

RECORDS AVAILABLE.—March 26, 1913, to September 30, 1925.

GAGE.—Vertical iron gage on right bank 800 feet below dam; read by E. G. LaGrande. Overflow from spillway is referred to staff gage set vertically in concrete stilling box at west end of spillway crest. Zero of gage at elevation of spillway crest, 4,947.00 feet sea-level datum.

DISCHARGE MEASUREMENTS.—Made from footbridge 300 feet above gage or by wading.

CHANNEL AND CONTROL.—Channel composed of clean coarse gravel and boulders. Banks high at gage, not subject to overflow. Spillway is a concrete crest 2.0 feet wide and 379 feet long with channel leading from it cut in rock through a small pass north of dam.

EXTREMES OF DISCHARGE.—Maximum discharge, 1,030 second-feet May 21; minimum discharge, 4 second-feet October 21.

1913–1925: Maximum discharge, 5,275 second-feet June 21, 1916; no flow October 2, 1918, and January 2 and 3, 1920.

ICE.—Stage-discharge relation affected by ice.

DIVERSIONS.—Two small ditches divert water just below dam and above gage; known as Cote ditch and Jones ditch.

REGULATION.—Flow is regulated by operation of gates at dam, except during periods of high stages when water flows in overflow channel.

ACCURACY.—Stage-discharge relation permanent during year. Rating curves are well defined. Gage heights are mean of two readings daily to hundredths. Daily discharge determined by applying mean daily gage height to rating table and adding the flow in the spillway channel. Records good, except during winter.

COOPERATION.—Complete data furnished by the Valier-Montana Land & Water Co.

Discharge measurements of Birch Creek at Swift Dam, near Dupuyer, Mont., during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 14	2.75	166	Aug. 1	3.36	429	Aug. 21	3.22	371
Feb. 8	1.72	6.2	Aug. 8	3.33	419			
July 25	3.42	552	Aug. 21	3.22	371			

Daily discharge, in second-feet, of Birch Creek at Swift Dam, near Dupuyer, Mont., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Apr.	May	June	July	Aug.	Sept.
1	98	6	8	9	343	396	237	470	90
2	98	6	8	9	396	369	227	470	88
3	98	6	8	9	423	343	208	470	86
4	98	6	8	9	369	423	189	470	86
5	98	6	8	9	369	343	199	464	92
6	98	6	8	9	369	318	189	458	90
7	98	6	8	9	423	318	181	458	90
8	98	6	8	9	355	318	173	445	86
9	138	6	8	9	293	330	234	438	86
10	166	6	8	8	270	369	373	432	86
11	166	8	8	8	293	369	392	432	82
12	166	8	7	9	355	343	391	432	82
13	166	8	7	10	513	343	398	432	82
14	166	8	7	12	583	369	382	420	82
15	199	8	7	206	625	369	483	420	78
16	238	8	7	246	548	382	483	414	82
17	238	8	7	318	625	396	484	408	82
18	238	8	7	282	710	423	511	408	86
19	238	8	7	247	847	423	511	402	82
20	198	8	7	282	894	438	511	396	86

Daily discharge, in second-feet, of Birch Creek at Swift Dam, near Dupuyer, Mont., for the year ending September 30, 1925—Continued

Day	Oct.	Nov.	Dec.	Apr.	May	June	July	Aug.	Sept.
21	4	8	7	217	940	423	511	384	82
22	6	8	7	217	940	452	503	372	82
23	6	8	7	226	733	382	503	361	84
24	6	8	7	156	646	356	503	350	84
25	6	8	7	156	583	344	496	339	82
26	6	8	7	156	496	319	496	317	80
27	6	8	7	156	481	294	496	296	54
28	6	8	7	164	566	271	496	275	97
29	6	8	7	180	583	271	490	229	86
30	6	8	7	247	548	248	483	122	31
31	6		7		438		483	94	

Monthly discharge of Birch Creek at Swift Dam, near Dupuyer, Mont., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	238	4	102	6,270
November	8	6	7.3	434
December	8	7	7.4	455
January			7.0	430
February			7.0	389
March			7.0	430
April	318	8	119	7,080
May	940	270	534	32,800
June	452	248	358	21,300
July	511	173	394	24,200
August	470	94	383	23,600
September	97	31	82.2	4,890
The year	940	4	169	122,000

BIRCH CREEK NEAR DUPUYER, MONT.

LOCATION.—In sec. 28, T. 29 N., R. 8 W., at Kepple ranch, half a mile above headworks of B Canal of Valier-Montana Land & Water Co., 12 miles northwest of Dupuyer, Pondera County, and 20 miles above mouth of Dupuyer Creek.

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

RECORDS AVAILABLE.—July 25, 1907, to September 30. 1925.

GAGE.—1 inch square steel bar graduated to tenths and driven into bed of stream; also a gage in well on bank at same section; read by Wade Starleigh.

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

CHANNEL AND CONTROL.—Channel composed of clean gravel; control is gravel bar 250 feet below gage, slightly shifting. Banks of medium height covered with brush and subject to overflow.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 7.05 feet at 8 a. m. May 22 (discharge, 982 second-feet); minimum stage, 3.89 feet November 2 and 3 (discharge, 3.6 second-feet).

1907–1925: Maximum stage recorded, 10.0 feet June 21, 1916 (discharge estimated, 5,000 second-feet); minimum discharge, 3 second-feet April 7, 1921.

ICE.—Stage-discharge relation affected by ice.

DIVERSIONS.—Two or three small ditches divert above station.

REGULATION.—The flow is largely controlled by operation of gates at Swift Dam, at Birch Creek Reservoir, 12 miles upstream, total storage capacity being 30,000 acre-feet.

ACCURACY.—Stage-discharge relation not permanent; affected by ice and by shifting control. Two fairly well defined rating curves used during year, one applicable October 1 to May 24, and the other May 25 to September 30. Gage read to hundredths once or twice daily. Daily discharge ascertained by applying daily gage height to rating table except as indicated in footnote to table of daily discharge. Open-water records good; others fair.

COOPERATION.—Complete data furnished by Valier-Montana Land & Water Co. Data slightly revised to conform to the computations rules used by the Geological Survey.

Discharge measurements of Birch Creek near Dupuyer, Mont., during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 13	4.99	178	May 6	5.84	473	June 30	5.62	292
Nov. 21	[a] 2.03	16.7	May 18	6.57	771	July 17	6.1	476
Jan. 1	[a] 2.7	10.8	May 27	6.27	560	Aug. 11	5.99	419
Feb. 2	[a] 1.92	14.4	June 1	6.02	444	Sept. 2	4.9	101
May 1	5.65	404	June 20	6.09	511			

[a] Gage heights referred to the winter gage.

Daily discharge, in second-feet, of Birch Creek near Dupuyer, Mont., for the year ending September 30, 1925

Day	Oct.	Nov.	Apr.	May	June	July	Aug.	Sept.
1	121	4		404	442	272	497	108
2	119	4		455	434	265	497	102
3	123	4		491	413	252	493	97
4	121	12		464	545	227	489	95
5	117			438	421	215	472	94
6	113			473	373	215	459	92
7	111		30	486	357	201	451	88
8	108			438	373	196	446	90
9	108			389	373	185	442	84
10	173			368	430	361	438	84
11	175	14		348	438	373	434	84
12	175			396	400	365	425	84
13	178			546	392	365	421	80
14	178			659	413	365	417	78
15	178		40	705	417	463	421	73
16	228		209	659	434	476	409	82
17	228		302	705	445	476	409	79
18	228		312	774	456	519	409	76
19	231		312	936	468	519	396	90
20	231		312	936	480	519	388	79
21	59		254	959	489	523	373	84
22	48		228	982	519	549	365	80
23	36		273	818	472	523	357	78
24	25	17	243	753	417	519	353	73
25	13		190	682	380	523	342	74
26	8		192	549	365	523	327	76
27	6		209	549	350	519	299	64
28	6		199	608	327	514	275	50
29	5		212	691	313	514	232	125
30	5		279	644	296	497	190	84
31	5			514		497	123	

NOTE.—No record May 10, June 17–19, Aug. 29, and Sept. 5 and 17; discharge interpolated. Braced figures represent mean discharge for periods indicated. Shifting-control method used Apr. 24 to May 4 and May 10–24.

Monthly discharge of Birch Creek near Dupuyer, Mont., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	231	5	112	6,890
November		4	14.2	845
December			*14	861
January			*11	676
February			*14	778
March			*20	1,230
April	312	30	140	8,330
May	982	348	607	37,300
June	545	296	414	24,600
July	549	185	404	24,800
August	497	123	389	23,900
September	125	50	84.2	5,010
The year	982	4	187	135,000

*Estimated from measurements and flow at Swift Dam.

DUPUYER CREEK NEAR VALIER, MONT.

LOCATION.—In NE. ¼ NW. ¼ sec. 33, T. 29 N., R. 6 W. at Cowell ranch, 1,000 feet above diversion dam at head of D Canal from Dupuyer Creek to Lake Francis Reservoir and outlet of B Canal, which diverts water from Birch Creek to Dupuyer Creek, 6 miles below mouth of Sheep Creek, and 11 miles southwest of Valier, Pondera County.

DRAINAGE AREA.—111 square miles (measured by Valier-Montana Land & Water Co.).

RECORDS AVAILABLE.—July 17, 1912, to September 30, 1925.

GAGE.—Stevens continuous water-stage recorder in wooden shelter on right bank; inspected by C. S. Mendenhall.

DISCHARGE MEASUREMENTS.—Made by wading or from cable 1,400 feet above gage or from bridge 5 miles below gage.

CHANNEL AND CONTROL.—Channel composed of gravel. Right bank high; left bank slopes gradually and is subject to overflow at extremely high stage. Control is bar or ledge that produces a riffle 400 feet below gage. Shifts occasionally.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 3.9 feet at 4.30 a. m. April 23 (discharge, 222 second-feet); minimum stage, 2.84 feet at 6 p. m. September 4 (discharge, 5.8 second-feet).

1912–1925: Maximum stage recorded, 6.5 feet June 21, 1916, determined by level from floodmarks (discharge, 2,180 second-feet); minimum discharge, no flow September 19, 1919.

ICE.—Stage-discharge relation affected by ice.

DIVERSIONS.—A number of small ditches divert water for irrigation from Dupuyer Creek and tributaries. Many of the water-right filings have been perfected by use.

REGULATION.—None.

ACCURACY.—Stage-discharge relation not permanent; affected by ice and by shifting control. Two rating curves, both well defined, used during year. Water-stage recorder operated October 1 to November 4 and April 10 to September 30; gage read to hundredths twice daily for the remainder of year. Daily discharge ascertained by applying mean daily gage height to rating table except as indicated in footnote to table of daily discharge. Open-water record good; winter record fair.

COOPERATION.—Complete data furnished by Valier-Montana Land & Water Co.

Discharge measurements of Dupuyer Creek near Valier, Mont., during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 10	2.93	12.4	Mar. 23	[a]3.96	103	June 19	3.35	76
Nov. 22	[a]3.14	30.1	Apr. 6	3.4	89	June 26	3.19	47.9
Jan. 14	[a]3.9	23.1	Apr. 11	3.63	343	July 27	2.98	18.6
Feb. 4	[a]4.03	27	May 23	3.68	159	Aug. 26	3	19.3

[a] Stage-discharge relation affected by ice.

Daily discharge, in second-feet, of Dupuyer Creek near Valier, Mont., for the year ending September 30, 1925

Day	Oct.	Nov.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	9	14		81	142	69	36	19	10
2	10	16		77	156	66	35	16	9
3	12	16		71	156	64	36	14	7
4	16	21		73	150	89	35	14	6
5	15		20	98	140	107	34	13	9
6	14			85	140	87	32	12	13
7	13			87	145	77	32	12	13
8	12			94	140	75	34	12	16
9	12			98	134	69	30	12	12
10	12	15	15	107	124	79	28	11	12
11	12			145	120	81	25	12	13
12	12			153	120	83	24	12	12
13	12			170	127	81	22	12	12
14	13			150	145	98	21	12	11
15	13			122	156	105	18	16	10
16	13	20		117	159	94	18	18	12
17	12		25	117	153	94	14	16	12
18	12			117	153	85	14	16	12
19	12			103	156	77	12	16	18
20	13			112	161	69	10	13	20
21	12			114	164	66	10	12	22
22	12			137	164	67	11	11	24
23	13			207	159	62	14	13	20
24	12	30	100	161	145	57	16	29	16
25	12			147	124	51	18	21	16
26	12			134	114	47	16	16	17
27	12			134	103	44	14	15	20
28	12		94	132	94	43	12	14	24
29	12		85	124	83	40	18	14	29
30	12		94	130	75	40	25	12	28
31	12		85		73		22	11	

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

Monthly discharge of Dupuyer Creek near Valier, Mont., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	16	9	12.3	756
November			21.4	1,270
December			[a]15	922
January			[a]18	1,110
February			[a]25	1,390
March			45.0	2,770
April	207	71	120	7,140
May	164	73	135	8,300
June	107	40	72.2	4,300
July	36	10	22.1	1,360
August	29	11	14.4	885
September	29	6	15.2	904
The year	207	6	42.9	31,100

[a] Estimated.

DRY FORK OF MARIAS RIVER AT FOWLER, MONT.

LOCATION.—Near center sec. 31, T. 30 N., R. 1 W., on highway bridge about one-fourth mile northeast of railway depot at Fowler, Pondera County.

DRAINAGE AREA.—Not measured.

RECORDS AVAILABLE.—March 25, 1920, to August 14, 1920 (fragmentary) and March 2, 1921, to September 30, 1925.

GAGE.—Cable gage installed March 2, 1921, on downstream guard rail of new highway bridge situated about one-fourth mile above old bridge used in 1920; read by Harry Kendall.

DISCHARGE MEASUREMENTS.—Made from bridge or by wading.

CHANNEL AND CONTROL.—Bed of stream composed of gravel. Control not well defined; shifting.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 1.44 feet at 7 p. m. June 14 (discharge, 95 second-feet); minimum discharge, no flow during winter.

1920–1925: Maximum discharge recorded, 1,220 second-feet at 8 a. m. April 14, 1920; no flow during each winter.

ICE.—Stage-discharge relation affected by ice.

DIVERSIONS.—Practically entire normal flow diverted for irrigation.

REGULATION.—Water passing this station is largely seepage and waste from Valier-Montana Land & Water Co.'s irrigation project.

ACCURACY.—Stage-discharge relation affected by ice; otherwise permanent during year. Rating curve well defined between 3 and 30 second-feet and fairly well defined to 120 second-feet. Gage read to hundredths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table. Records good.

The following discharge measurements were made:

May 3, 1925: Gage height, 0.84 foot; discharge, 25.1 second-feet.

May 21, 1925: Gage height, 0.38 foot; discharge, 1.9 second-feet.

Daily discharge, in second-feet, of Dry Fork of Marias River at Fowler, Mont., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	May	June	July	Aug.	Sept.
1	4.0	2.6	2.6	-------	8.1	10.1	31	1.6
2	4.7	4.0	3.6	-------	17.2	6.7	26	1.3
3	6.1	3.8	4.0	23	17.9	6.1	33	1.1
4	7.4	2.0	2.0	22	51	7.4	27	1.1
5	6.7	1.8	2.0	21	77	8.6	27	1.3
6	5.7	1.8	2.3	22	42	11.5	30	2.0
7	7.4	1.8	.7	19.3	25	15.8	21	2.6
8	7.1	3.1	.4	19.3	22	39	22	3.3
9	7.1	2.6	.1	17.2	35	12.5	25	2.4
10	7.1	-------	.5	16.5	31	11.5	28	2.1
11	6.1	-------	.5	13.7	51	10.1	28	2.4
12	6.1	-------	6.1	13.7	32	10.1	23	2.3
13	8.1	-------	8.6	12.5	30	11.5	20	1.6
14	7.8	.5	6.7	9.1	78	13.7	15.8	2.1
15	10.1	.6	-------	7.8	62	12.0	32	1.6
16	8.1	.5	-------	6.1	38	15.1	28	1.4
17	11.0	.6	-------	5.0	28	20	17.9	1.4
18	8.1	1.7	-------	3.6	17.9	22	8.1	1.3
19	6.4	2.6	-------	2.6	11.5	22	5.7	8.1
20	6.4	5.0	-------	2.6	8.1	29	5.7	20.

Daily discharge, in second-feet, of Dry Fork of Marias River at Fowler, Mont., for the year ending September 30, 1925—Continued

Day	Oct.	Nov.	Dec.	May	June	July	Aug.	Sept.
21	6.1	2.6	-------	2.1	6.1	32	4.7	12.5
22	4.7	4.0	-------	2.1	7.1	30	6.4	7.4
23	3.3	6.1	-------	3.6	10.1	35	5.7	4.5
24	3.6	3.6	-------	4.0	6.4	35	15.8	4.5
25	3.3	3.3	-------	3.3	4.7	34	7.1	3.8
26	3.8	3.1	-------	7.1	3.6	31	4.7	7.4
27	3.6	3.6	-------	5.4	4.2	44	3.1	8.6
28	3.8	3.1	-------	6.1	5.4	30	3.1	14.4
29	3.1	5.4	-------	5.4	7.4	27	2.9	21.0
30	3.6	3.7	-------	5.4	9.1	34	2.3	18.6
31	3.1	-------	-------	5.7	-------	31	1.7	-------

NOTE.—No flow Nov. 10-13 and Dec. 15-31; river frozen solid. No record Jan. 1 to May 2.

Monthly discharge of Dry Fork of Marias River at Fowler, Mont., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	11.0	3.1	5.92	364
November	6.1	.0	2.45	146
December	8.6	.0	1.29	79
May 3-31	23	2.1	9.90	569
June	78	3.6	24.9	1,480
July	44	6.1	21.2	1,300
August	33	1.7	16.5	1,010
September	21	1.1	5.46	325

WILLOW CREEK NEAR DEVON, MONT.

LOCATION.—In NW. ¼ NW. ¼ sec. 10, T. 33 N., R. 2 E., on highway bridge 12 miles north of Devon, Toole County.

DRAINAGE AREA.—Not measured.

RECORDS AVAILABLE.—April 18, 1921, to September 30, 1925, when station was discontinued.

GAGE.—Staff gage set on piling under bridge; read by Mrs. Frank Saskat.

DISCHARGE MEASUREMENTS.—Made by wading or from bridge.

CHANNEL AND CONTROL.—Riffle of boulders and gravel 75 feet below gage forms control. One channel at all stages.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 3.30 feet at 7 a. m. March 23 (discharge, 177 second-feet); minimum discharge, no flow October 1 to December 31 and July 16 to September 30.

1921–1925: Maximum stage recorded, 5.5 feet July 14, 1921 (discharge estimated, 430 second-feet); minimum discharge, no flow at frequent intervals.

ICE.—Stage-discharge relation affected by ice.

DIVERSIONS.—No data.

REGULATION.—None.

ACCURACY.—Stage-discharge relation permanent during year. Rating curve well defined below 100 second-feet. Gage read to hundredths twice daily. Daily discharge ascertained by applying mean daily gage heights to rating table. Records good.

The following discharge measurement was made:

May 10, 1925: Gage height, 0.40 foot; discharge, 6.2 second-feet.

Daily discharge, in second-feet, of Willow Creek near Devon, Mont., for the year ending September 30, 1925

Day	Mar.	Apr.	May	June	July	Day	Mar.	Apr.	May	June	July
1	------	25.0	6.6	0.3	0.2	16	------	6.1	1.5	20.3	------
2	------	21.0	5.9	.3	.1	17	------	5.4	1.3	13.6	------
3	------	19.6	5.9	.2	.1	18	------	4.7	1.1	8.5	------
4	------	15.0	6.8	.2	.1	19	------	5.6	1.0	5.6	------
5	------	15.0	6.6	.2	.1	20	------	5.1	.8	3.5	------
6	------	25.0	6.1	.2	.1	21	------	6.3	.5	1.7	------
7	------	22.0	5.6	.2	.1	22	38	11.3	.3	1.4	------
8	------	18.4	4.9	.2	.1	23	157	29	.3	.5	------
9	------	17.7	4.4	.2	.1	24	87	71	.3	.3	------
10	------	15.9	5.9	.2	.1	25	108	48	.3	.2	------
11	------	13.6	3.7	.2	.1	26	60	23	.3	.3	------
12	------	11.8	3.3	3.7	.1	27	50	15.9	.3	.2	------
13	------	10.0	3.0	7.8	.1	28	39	12.3	.3	.2	------
14	------	9.5	2.6	7.5	.1	29	55	10.0	.3	.2	------
15	------	7.8	1.9	6.1	.1	30	58	8.3	.3	.2	------
						31	35	------	.3	------	------

NOTE.—No record Jan. 1 to Mar. 22.

Monthly discharge of Willow Creek near Devon, Mont., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
March 22-31	157	35	68.7	1,360
April	71	4.7	17.0	1,010
May	6.8	.3	2.66	164
June	20.3	.2	2.81	167
July	.2	.0	.05	3.1

NOTE.—Dry during months of October, November, December, August, and September.

TETON RIVER AT STRABANE, MONT.

LOCATION.—In SE. ¼ NE. ¼ sec. 35, T. 25 N., R. 7 W., at highway bridge on Peebles ranch at Strabane, Teton County, and 16 miles above Choteau.

DRAINAGE AREA.—170 square miles (measured on county map).

RECORDS AVAILABLE.—November 26, 1904, to December 31, 1906; June 1, 1908, to September 30, 1925, when the station was discontinued.

GAGE.—Chain gage on upstream side of highway bridge; read by James Peebles.

DISCHARGE MEASUREMENTS.—Made by wading or from bridge.

CHANNEL AND CONTROL.—Bed composed of coarse gravel; subject to shift. Several channels at all stages.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 4.06 feet at 11 a. m. May 21 (discharge, 642 second-feet); minimum stage, 1.30 feet December 16–23 (discharge, 1.0 second-foot).

1908–1925: Maximum stage recorded, 7.8 feet June 21, 1916 (discharge, 3810 second-feet); minimum discharge, no flow December 20, 1920, to January 9, 1921.

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

DIVERSIONS.—Several canals head above station, the largest being the Teton Cooperative Reservoir Co.'s canal, which diverts water about 1½ miles above gage.

REGULATION.—None.

ACCURACY.—Stage-discharge relation not permanent. Rating curve well defined between 40 and 150 second-feet and fairly well defined to 600 second-feet. Gage read to hundredths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table except for the period May 22 to July 31, when shifting-control method was used. Records fair.

Discharge measurements of Teton River at Strabane, Mont., during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Apr. 25	2.32	59	June 6	3.45	293	July 15	2.72	143
May 20	3.88	571	June 20	3.75	493	Aug. 31	2.42	82

Daily discharge, in second-feet, of Teton River at Strabane, Mont., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	74	72	1.4		1.8	95	393	319	111	72
2	74	72	1.6		1.8	140	337	277	109	59
3	74	46	1.6		1.8	157	305	246	102	55
4	74	25	1.6		1.8	154	355	220	102	55
5	74	24	1.6		1.8	148	319	240	97	59
6	82	24	1.6		1.8	148	291	236	97	59
7	78	23	1.4		5.7	143	263	207	97	57
8	78	23	1.4		5.7	140	277	197	93	77
9	74	24	1.4		5.7	129	302	184	95	50
10	74	26	1.2		5.7	114	326	188	97	04
11	82	26	1.2		6.8	119	385	191	95	63
12	74	26	1.2		9.6	145	378	160	99	59
13	78	26	1.2		11.2	175	385	134	102	55
14	74	25	1.2		11.2	213	393	134	99	55
15	74	24	1.1		34	288	404	132	99	59
16	74	24	1.0		80	288	419	126	99	66
17	74	24	1.0		86	302	431	132	99	66
18	74	6.8	1.0		80	341	431	109	99	66
19	74	2.0	1.0		80	508	477	104	95	66
20	74	2.0	1.0		80	562	477	121	91	68
21	74	2.0	1.0		76	638	520	121	91	82
22	40	2.0	1.0	2.2	70	606	488	140	91	74
23	40	1.8	1.0	2.2	65	578	473	140	91	74
24	40	1.8	1.2	2.0	61	477	442	137	91	74
25	40	1.6	1.2	2.0	61	434	442	137	86	74
26	40	1.6	1.2	2.0	61	363	431	126	86	72
27	52	1.4	1.2	1.8	61	370	370	124	82	72
28	66	1.4	1.2	1.8	59	535	348	119	82	78
29	66	1.4	1.2	1.8	57	558	366	114	86	76
30	70	1.4	1.2	1.8	57	512	341	114	82	76
31	70		1.2	1.8		438		116	78	

NOTE.—No record Jan. 1 to Mar. 21.

Monthly discharge of Teton River at Strabane, Mont., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	82	40	67.9	4,180
November	72	1.4	18.7	1,110
December	1.6	1.0	1.24	76.2
March 22-31	2.2	1.8	1.94	38.5
April	86	1.8	38.0	2,260
May	638	95	317	19,500
June	520	263	386	23,000
July	319	104	163	10,000
August	111	78	94.3	5,800
September	82	55	66.8	3,970

JUDITH RIVER BASIN

JUDITH RIVER NEAR UTICA, MONT.

LOCATION.—In NW. ¼ sec. 17, T. 13 N., R. 12 E., at private wagon bridge on Noel ranch, 10 miles above Utica, Judith Basin County, and 20 miles from Hobson, the nearest railway station.

DRAINAGE AREA.—326 square miles (measured on topographic maps).

RECORDS AVAILABLE.—October 1, 1919, to September 30, 1925.

GAGE.—Wire gage fastened to downstream handrail of bridge; read by Helen Noel.

DISCHARGE MEASUREMENTS.—Made from bridge or by wading.

CHANNEL AND CONTROL.—Gravel bar forms low-water control; shifts. One channel at all stages. Banks are low, wooded, and subject to overflow.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 3.95 feet May 22 (discharge, 398 second-feet); minimum stage, 1.35 feet March 28 (discharge, 6.8 second-feet).

1919–1925: Maximum stage recorded, 4.60 feet June 9, 1922 (discharge, 568 second-feet); minimum stage, 1.00 foot November 16 to December 1, 1919, and March 31 to April 20, 1922 (discharge, 0.5 second-foot).

ICE.—Stage-discharge relation affected by ice.

DIVERSIONS.—Several ditches divert water above station for irrigation.

REGULATION.—None.

ACCURACY.—Stage-discharge relation not permanent; affected by shifting control and by ice. Two rating curves used during the year, one well defined below 450 second-feet applicable October 1 to June 20, and the other fairly well defined below 115 second-feet applicable June 21 to September 30. Gage read to hundredths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table except for period March 22 to June 20 when shifting-control method was used. Records fair.

The following discharge measurements were made:

April 17, 1925: Gage height, 2.61 feet; discharge, 115 second-feet.

July 8, 1925: Gage height, 2.59 feet; discharge, 100 second-feet.

September 23, 1925: Gage height, 1.81 feet; discharge, 20 second-feet.

Daily discharge, in second-feet, of Judith River near Utica, Mont., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	16.6	17.6	11.7		7.1	122	294	167	40	18.4
2	16.6	17	11.7		12.7	126	282	158	39	19
3	17.6	16.6	11.4		14.2	134	277	131	36	18.4
4	18.8	16.6	11.7		21	138	342	115	33	19
5	20	16.6	11.7		32	151	330	115	32	19.7
6	19.4	15.8	11.7		28	160	318	123	31	17.2
7	19.4	15	11.7		22	163	306	108	30	18.4
8	18.8	15	11.1		20	173	282	94	28	16.6
9	20	15	11.1		18.2	169	270	76	31	16
10	21	15	9.5		24	154	277	76	30	17.2
11	22	15.4	10.4		36	158	280	76	29	16
12	22	15.8	9.2		57	182	270	76	31	16
13	22	15	10.4		81	198	268	76	32	16.6
14	22	15	10.8		69	254	277	70	32	17.2
15	21	15	11.1		81	318	282	70	31	16
16	18.8	14.2	11.1		81	294	318	65	27	16.6
17	18.2	14.2	11.1		96	263	318	64	27	16
18	17.6	15	11.1		106	306	306	62	26	16
19	17.6	14.2	11.1		124	340	294	60	25	27
20	18.2	15	11.1		117	354	292	57	25	28

Daily discharge, in second-feet, of Judith River near Utica, Mont., for the year ending September 30, 1925—Continued

Day	Oct.	Nov.	Dec.	Mar.	Apr.	May	June	July	Aug.	Sept.
21	17.6	14.2	11.1	--------	126	380	262	54	24	27
22	17.6	13.4	11.1	22	142	393	262	55	24	24
23	17.6	13.4	11.1	22	151	380	240	58	23	19
24	17.6	12.7	11.1	22	136	342	218	56	22	19.7
25	16.6	12	11.7	17	131	367	208	54	21	19.7
26	16.6	12	11.7	7.4	124	342	187	51	22	21
27	16.6	12	11.1	7.4	117	289	177	48	22	22
28	16.6	11.1	10.4	6.8	119	275	158	47	20	22
29	16.6	11.4	9.2	7.1	127	270	158	44	20	22
30	16.6	10.8	9.2	8	124	294	167	42	20	22
31	16.6	--------	8	8	--------	294	--------	41	20	--------

NOTE.—No record Jan. 1 to Mar. 21.

Monthly discharge of Judith River near Utica, Mont., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	22	16.6	18.5	1,140
November	17.6	10.8	14.4	857
December	11.7	8	10.9	670
March 22-31	22	6.8	12.8	254
April	151	7.1	78.1	4,650
May	393	122	251	15,400
June	342	158	264	15,700
July	167	41	77.1	4,740
August	40	20	27.5	1,690
September	28	16	19.5	1,160

WOLF CREEK NEAR STANFORD, MONT.

LOCATION.—In SE. ¼ sec. 26, T. 16 N., R. 11 E., at buildings on ranch of A. K. Neubert, 6 miles southwest of Stanford, Judith Basin County.

DRAINAGE AREA.—120 square miles (measured on topographic map).

RECORDS AVAILABLE.—March 16, 1920, to September 30, 1925.

GAGE.—Cantilever chain gage; read by Armin K. Neubert.

DISCHARGE MEASUREMENTS.—Made from bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of sand and gravel. Banks clean and are overflowed only at extreme stages.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 1.91 feet at 7.15 a. m. June 16 (discharge, 63 second-feet); minimum stage, 1.17 feet at 5 p. m. April 7 (discharge, 3.7 second-feet).

1920–1925: Maximum stage recorded, 3.35 feet June 16, 1920 (discharge, 322 second-feet); minimum discharge, no flow July 26 to September 30, 1921.

ICE.—Stage-discharge relation affected by ice.

DIVERSIONS.—Numerous small diversions for irrigation above station.

REGULATION.—None.

ACCURACY.—Stage-discharge relation affected by ice and by shift of control. Two rating curves used during the year, one well defined below 100 second-feet applicable October 1–17 and the other well defined between 3 and 16 second-feet and poorly defined beyond this limit applicable March 22 to September 30. Gage read to hundredths usually 3 or 4 times a week and occasionally two readings a day. Daily discharge ascertained by applying daily gage height to rating table and interpolating for days of missing gage heights. Records fair.

The following discharge measurements were made:

July 8, 1925: Gage height, 1.41 feet; discharge, 11.0 second-feet.

September 23, 1925: Gage height, 1.22 feet; discharge, 4.9 second-feet.

Daily discharge, in second-feet, of Wolf Creek near Stanford, Mont., for the year ending September 30, 1925

Day	Oct.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	12		5.1	5.1	12	22	6.2	5.6
2	12		5.1	5.1	14	18	6.2	5.6
3	12		4.6	5.1	18	18	6.2	5.6
4	12		4.6	5.6	21	17	6.2	5.6
5	12		4.1	5.6	46	14	6.0	5.6
6	11		4.1	5.6	54	12	5.9	5.6
7	10		3.7	5.6	50	12	5.8	5.6
8	10		3.8	5.6	48	12	5.6	5.6
9	10		4.0	5.6	42	12	5.6	5.6
10	10		4.0	5.6	45	11	5.6	5.6
11	10		4.2	5.6	44	11	5.6	5.4
12	10		4.4	5.6	42	10	5.4	5.1
13	10		4.6	5.6	37	9.8	5.1	5.1
14	10		4.6	5.6	33	9	5.1	5.1
15	10		4.6	5.6	50	8.2	5.1	5.1
16	10		4.6	5.6	63	7.8	5.1	5.1
17	9.4		4.8	5.6	60	7.4	5.1	5.1
18			5.1	5.6	54	7.4	5.1	5.1
19			5.1	5.9	50	7.4	5.3	5.1
20			5.1	6.2	45	7.4	5.4	5.1
21			5.1	11	44	7.0	5.6	5.1
22		6.7	5.6	16	42	6.7	5.6	5.0
23		6.7	5.4	22	42	6.7	5.6	4.8
24		6.2	5.1	20	42	6.7	5.6	5.1
25		6.2	5.1	20	40	6.7	5.6	5.4
26		6.2	5.1	17	39	6.7	5.6	5.6
27		6.2	5.1	16	37	6.7	5.6	5.6
28		6.2	5.1	14	34	6.7	5.6	5.6
29		6.2	5.1	12	31	6.4	5.6	5.9
30		5.6	5.1	9.8	28	6.2	5.6	6.2
31		5.1		11		6.2	5.6	

NOTE.—No record Oct. 18 to Mar. 21.

Monthly discharge of Wolf Creek near Stanford, Mont., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October 1-17	12	9.4	10.6	357
March 22-31	6.7	5.1	6.13	122
April	5.6	3.7	4.74	282
May	22	5.1	9.04	556
June	63	12	40.2	2,390
July	22	6.2	9.87	607
August	6.2	5.1	5.59	344
September	6.2	4.8	5.39	321

MUSSELSHELL RIVER BASIN

NORTH FORK OF MUSSELSHELL RIVER AT DELPINE, MONT.

LOCATION.—Near south quarter-section corner of sec. 35, T. 10 N., R. 9 E., at Delpine, Meagher County.

DRAINAGE AREA.—48 square miles (measured on topographic map).

RECORDS AVAILABLE.—May 1, 1909, to December 31, 1911, and March 22, 1922, to September 30, 1925.

GAGE.—Vertical staff on left bank; read by C. F. Roman.

DISCHARGE MEASUREMENTS.—Made by wading.

CHANNEL AND CONTROL.—Channel composed of gravel and small boulders. Control a riffle of same material about 20 feet below gage. Banks are low at gage and covered with overhanging brush.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 6.22 feet at 6.30 p. m. March 22 (discharge, determined by applying extension of curve, 320 second-feet); minimum stage, 1.88 feet September 4 and 10–13 (discharge, 6.9 second-feet).

1909–1911; 1922–1925: Maximum discharge recorded, 545 second-feet July 21, 1923; minimum discharge, 2.2 second-feet December 15–17, 1922.

ICE.—Stage-discharge relation affected by ice.

DIVERSIONS.—None.

REGULATION.—None.

ACCURACY.—Stage-discharge relation not permanent; affected by ice and by change in control. Two fairly well defined rating curves used during year, one applicable October 1 to December 21 and the other March 22 to September 30. Gage read to hundredths twice daily. Daily discharge ascertained by applying daily gage height to rating table except for the periods October 1 to December 21 and March 22 to April 30 when shifting-control method was used. Records fair.

The following discharge measurements were made.

April 18, 1925: Gage height, 2.76 feet (stage-discharge relation affected by débris on control); discharge, 31.2 second-feet.

July 13, 1925: Gage height, 2.36 feet; discharge, 19.3 second-feet.

September 22, 1925: Gage height, 1.97 feet; discharge, 8.9 second-feet.

Daily discharge, in second-feet, of North Fork of Musselshell River at Delpine, Mont., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	13.1	15.4	23.1	-------	63	37	50	31	13.3	8.1
2	11.6	16.2	23.1	-------	75	37	48	35	12.7	8.1
3	12.4	16.2	24	-------	108	37	46	35	12.2	7.7
4	12.4	17.1	25	-------	94	39	46	31	11.7	6.9
5	13.1	17.1	28	-------	75	41	48	31	11.2	7.3
6	13.1	15.4	25	-------	63	41	46	29	11.2	8.1
7	13.1	17.1	25	-------	43	39	43	28	10.8	7.7
8	14.6	19.6	20.5	-------	35	37	37	26	10.3	7.3
9	14.6	19.6	19.6	-------	31	35	39	24	9.9	7.3
10	15.4	19.6	38	-------	37	35	41	22.6	9.9	6.9
11	15.4	19.6	38	-------	39	37	50	23.3	10.3	6.9
12	16.2	17.9	38	-------	39	39	46	19.8	10.3	6.9
13	17.1	18.8	28	-------	41	39	41	19.2	9.9	6.9
14	16.2	18.8	28	-------	41	41	43	18.5	9.9	7.3
15	15.4	18.8	19.6	-------	39	41	43	17.2	11.7	7.7
16	15.4	19.6	15.4	-------	37	46	46	15.5	11.7	7.7
17	15.4	19.6	11.6	-------	37	46	41	14.3	13.8	7.7
18	15.4	19.6	8.2	-------	33	46	39	13.3	10.8	7.3
19	16.2	19.6	8.2	-------	35	46	37	13.3	10.3	9.0
20	16.2	19.6	8.2	-------	37	46	35	12.7	10.8	8.6
21	15.4	21.4	11.6	-------	37	46	33	12.7	10.3	8.1
22	17.1	21.4	-------	320	41	48	31	12.2	10.3	8.6
23	17.1	21.4	-------	202	37	50	28	11.7	9.9	7.3
24	17.1	20.5	-------	53	43	50	28	11.7	10.3	7.3
25	16.2	20.5	-------	48	41	56	26	12.7	10.8	7.7
26	16.2	20.5	-------	35	39	66	26	15.5	10.3	8.1
27	13.1	20.5	-------	31	39	56	26	14.9	9.4	8.1
28	17.1	19.6	-------	101	39	69	26	14.9	9.0	8.6
29	16.2	21.4	-------	43	39	66	50	14.3	8.6	8.6
30	16.2	22.2	-------	94	39	78	37	13.8	8.6	9.0
31	13.1	-------	-------	48	-------	81	-------	13.3	8.6	-------

Monthly discharge of North Fork of Musselshell River at Delpine, Mont., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	17.1	11.6	15.1	928
November	22.2	15.4	19.2	1,140
December 1-21	38	8.2	22.2	925
March 22-31	320	31	97.5	1,930
April	108	31	46.5	2,770
May	81	35	47.5	2,920
June	50	26	39.2	2,330
July	35	11.7	19.6	1,210
August	13.8	8.6	10.6	652
September	9.0	6.9	7.76	462

MUSSELSHELL RIVER AT HARLOWTON, MONT.

LOCATION.—In sec. 26, T. 8 N., R. 15 E., at highway bridge 1 mile south of Harlowton, Wheatland County.

DRAINAGE AREA.—1,130 square miles (measured on topographic map).

RECORDS AVAILABLE.—July 11, 1907, to September 30, 1925.

GAGES.—Chain gage on upstream side of public highway bridge; read by Athan J. Sackopoulos.

DISCHARGE MEASUREMENTS.—Made from bridge or by wading.

CHANNEL AND CONTROL.—Stream bed composed of sand and gravel. Control is bar across stream about 75 feet below gage; shifts. Banks fairly high; subject to overflow at high stage. Water confined to one channel under bridge.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 5.40 feet at 10.10 p. m. July 24 (discharge, 1,960 second-feet); minimum stage recorded, 2.32 feet August 22 (discharge, 12 second-feet).

1907–1925: Maximum stage recorded, 6.3 feet May 27, 1917 (discharge, 4,020 second-feet); minimum stage recorded, dry August 4–11, 1910, and September 11–15, 1919.

ICE.—Stage-discharge relation affected by ice.

DIVERSIONS.—Numerous ditches divert from tributaries and from Musselshell River above station.

REGULATION.—None.

ACCURACY.—Stage-discharge relation affected by ice and by shifting control. Rating curve fairly well defined between 16 and 1,600 second-feet. Gage read to hundredths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table except for period of shifting control, June 16 to September 30. Records fair.

The following discharge measurements were made:

April 19, 1925: Gage height, 4.03 feet; discharge, 488 second-feet.

July 12, 1925: Gage height, 2.94 feet; discharge, 77 second-feet.

September 23, 1925: Gage height, 2.92 feet; discharge, 55 second-feet.

Daily discharge, in second-feet, of Musselshell River at Harlowton, Mont., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	22	65	55		330	292	575	280	31	13
2	22	65			313	338	528	298	27	19
3	23	65	72		356	373	480	206	28	20
4	28	65	65		390	435	480	192	28	15
5	35	67	64		480	373	480	171	25	20
6	33	55	64		480	364	528	162	20	23
7	33	59			435	381	390	154	18	27
8	35	62			390	435	435	154	18	35
9	35		60		338	435	373	122	16	35
10	41				390	373	435	104	16	38
11	45				480	330	528	90	14	36
12	47		96		528	321	528	77	14	39
13	52		86		622	435	528	69	16	46
14	54		79		622	575	480	62	16	48
15	54	50			528	622	575	52	16	45
16	55				480	855	715	44	18	44
17	54				435	715	670	38	17	44
18	52				528	670	622	35	17	42
19	52				480	670	622	27	20	48
20	52				435	855	622	22	14	59
21	51	83			390	808	575	20	13	62
22	51	79		96	435	808	528	20	12	57
23	54	75		158	575	760	528	19	14	55
24	58	64		330	622	715	480	188	14	53
25	58			286	480	670	435	90	14	48
26	59			225	435	760	356	75	12	46
27	62	55		167	435	575	280	45	14	53
28	65			183	390	528	250	39	14	59
29	65			256	338	435	215	49	14	70
30	65			435	304	435	234	41	14	72
31	65			435		480		33	15	

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

Monthly discharge of Musselshell River at Harlowton, Mont., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	65	22	47.6	2,930
November	83		57.8	3,440
December 1-14	96		66.9	1,860
March 22-31	435	96	257	5,100
April	622	304	448	26,700
May	855	292	543	33,400
June	715	215	482	28,700
July	298	19	96.1	5,910
August	31	12	17.4	1,070
September	72	13	42.4	2,520

CHECKERBOARD CREEK AT DELPINE, MONT.

LOCATION.—In NE. ¼ sec. 2, T. 9 N., R. 9 E., at highway bridge one-fourth mile southeast of Delpine, Meagher County, and half a mile above its confluence with the North Fork of Musselshell River, 15 miles northwest of Martinsdale.

DRAINAGE AREA.—24.3 square miles (measured on topographic map).

RECORDS AVAILABLE.—March 22, 1922, to September 30, 1925. May 26, 1909, to December 31, 1911, and May 21, 1913, to December 31, 1914, at ranch formerly owned by J. A. Porter, 2 miles above present station, where drainage area is 21.3 square miles.

GAGE.—Vertical staff fastened to upper left-hand corner of bridge; read by C. F. Roman.

DISCHARGE MEASUREMENTS.—Made by wading.

CHANNEL AND CONTROL.—Channel composed chiefly of fine sand. Control formed by boulders at downstream side of bridge; subject to shift. Banks low and covered with overhanging brush, but highway grades at both ends of bridge confine all water to one channel at gage.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 2.40 feet at 4 p. m. May 29 (discharge, 49 second-feet); minimum stage, 0.58 foot October 1–3 (discharge, 2.4 second-feet).

1909–1911; 1913–1914; 1922–1925: Maximum stage recorded, 3.1 feet at 5.30 p. m. July 16, 1923 (discharge, 167 second-feet); minimum stage, 0.38 foot September 10, 1924 (discharge, 0.7 second-foot).

ICE.—Stage-discharge relation affected by ice.

DIVERSIONS.—No data.

REGULATION.—None.

ACCURACY.—Stage-discharge relation affected by ice and by shifting control. Two rating curves, fairly well defined below 60 second-feet, used during year; one applicable October 1 to December 31 and the other March 22 to September 30. Gage read to even hundredths once daily. Daily discharge ascertained by applying gage height to rating table. Records good.

The following discharge measurements were made:

April 18, 1925: Gage height, 1.75 feet; discharge, 18.3 second-feet.

July 13, 1925: Gage height, 1.18 feet; discharge, 7.0 second-feet.

September 22, 1925: Gage height, 0.80 foot; discharge, 2.5 second-feet.

Daily discharge, in second-feet, of Checkerboard Creek at Delpine, Mont., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.4	2.6	5.4	------	11	18	27	12	5.8	3.6
2	2.4	2.6	5.4	------	12	17	22	11	5.8	3.2
3	2.4	2.6	5.7	------	14	18	18	11	5.3	3.0
4	2.6	3.0	5.7	------	16	18	17	11	5.0	2.9
5	2.8	3.0	5.9	------	16	18	19	10	5.5	3.0
6	2.8	3.0	5.4	------	15	17	19	8.9	5.0	3.0
7	2.8	3.0	5.2	------	15	17	19	8.3	4.8	2.9
8	3.0	3.6	5.2	------	16	16	19	7.3	5.8	2.9
9	3.4	3.6	4.7	------	14	16	21	7.0	5.5	2.7
10	3.4	3.6	5.7	------	15	16	19	6.7	5.5	2.7
11	3.6	4.3	6.2	------	15	16	19	6.4	5.5	2.7
12	3.8	4.3	6.9	------	16	16	22	6.4	5.3	2.5
13	4.0	4.5	7.2	------	14	16	21	7.0	5.3	2.7
14	4.0	4.5	5.9	------	15	17	21	6.7	5.0	2.5
15	4.3	4.5	5.2	------	16	20	21	6.4	5.8	2.5
16	4.3	4.5	4.7	------	16	21	21	6.1	5.8	2.5
17	4.0	4.5	4.5	------	16	21	20	6.1	6.1	2.7
18	4.0	4.5	3.6	------	17	21	19	5.8	5.8	2.7
19	3.8	4.5	3.6	------	15	21	18	5.5	5.8	3.4
20	3.8	4.5	3.6	------	16	22	16	5.5	5.5	3.4
21	3.4	4.5	4.7	------	16	22	15	5.3	5.5	3.0
22	3.4	4.7	5.7	20	17	22	14	5.0	5.3	2.6
23	3.4	4.7	5.2	21	18	22	14	4.8	5.5	2.9
24	3.0	4.5	4.9	20	18	22	14	4.5	5.8	2.9
25	2.8	4.5	4.7	17	17	32	13	4.3	5.5	3.0
26	2.6	4.5	4.7	18	16	37	12	4.3	5.5	3.0
27	2.6	4.5	4.7	19	16	35	12	4.3	5.3	3.2
28	2.8	4.7	5.2	20	17	37	12	5.0	4.8	3.2
29	2.8	4.9	5.2	21	18	49	12	4.8	4.5	3.2
30	2.6	5.2	4.9	21	17	38	20	6.1	4.1	3.2
31	2.6	------	5.2	16	------	36	------	5.8	3.8	------

Monthly discharge of Checkerboard Creek at Delpine, Mont., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	4.3	2.4	3.21	197
November	5.2	2.6	4.06	242
December	7.2	3.6	5.19	319
March 22-31	21	16	19.3	383
April	18	11	15.7	934
May	49	16	23.0	1,410
June	27	12	17.9	1,070
July	12	4.3	6.75	415
August	6.1	3.8	5.34	328
September	3.6	2.5	2.92	174

AMERICAN FORK NEAR HARLOWTON, MONT.

LOCATION.—In SW. ¼ sec. 12, T. 7 N., R. 15 E., on George Glennie's ranch, half a mile above junction of American Fork and Lebo Creek and 5 miles southeast of Harlowton, Wheatland County.

DRAINAGE AREA.—Not measured.

RECORDS AVAILABLE.—July 28, 1907, to December 31, 1911; May 19, 1913, to December 31, 1913; and May 3, 1924, to September 30, 1925.

GAGE.—Chain gage on downstream side of private bridge about one-fourth mile from observer's house; read by Marie Glennie.

DISCHARGE MEASUREMENTS.—Made by wading about 150 feet above gage or from bridge.

CHANNEL AND CONTROL.—Bed composed of gravel and clay; subject to shift. Banks high, not subject to overflow.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 2.78 feet at 7 a. m. May 24 (discharge, 191 second-feet); minimum discharge, no flow July 14 to September 10.

1907–1911; 1913; 1924–25: Maximum stage, 4.40 feet June 1, 1908 (discharge, 870 second-feet); minimum stage, river dry at various times.

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

DIVERSIONS.—Some diversions for irrigation above gage.

REGULATIONS.—None.

ACCURACY.—Stage-discharge relation affected by slight change in channel during winter. Two fairly well defined rating curves used during year. Gage read to hundredths once daily. Daily discharge ascertained by applying daily gage reading to rating table. Records good.

The following discharge measurements were made:

April 19, 1925: Gage height, 1.54 feet; discharge, 27.8 second-feet.

July 12, 1925: Gage height, 0.64 foot; discharge, 0.8 second-foot.

September 23, 1925: Gage height, 0.78 foot; discharge, 1.6 second-feet.

Daily discharge, in second-feet, of American Fork near Harlowton, Mont., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Mar.	Apr.	May	June	July	Sept.
1	3.0	3.6	4.0		21	14	84	17.0	0.0
2	3.0	3.4	4.0		21	14	79	18.0	.0
3	3.2	3.4	4.4		21	15	59	13.0	.0
4	3.2	3.6	4.4		20	15	84	9.2	.0
5	3.2	3.6	4.4		23	17	77	6.5	.0
6	3.0	3.6	4.8		26	14	73	6.0	.0
7	3.2	3.6	4.8		24	12	57	6.5	.0
8	3.2	3.6	4.8		21	10	43	.8	.0
9	4.0	3.8	5.2		17	9.2	40	.4	.0
10	4.0	3.8	5.2		13	9.2	53	.4	.0
11	3.8	4.0	5.2		14	8.6	51	.4	.6
12	4.4	3.9	4.8		13	7.5	51	.8	.7
13	3.8	3.9	4.0		13	7.5	51	.4	.8
14	3.8	3.9	4.0		16	13	55	.0	.8
15	3.8	3.8			17	33	57	.0	.8
16	3.6	3.8			18	43	77	.0	.8
17	3.6	3.8			20	53	73	.0	.8
18	3.6	3.6			14	53	77	.0	.8
19	3.6	3.6			14	59	79	.0	.8
20	3.8	3.8			15	84	79	.0	2.3
21	3.6	3.8			17	86	69	.0	2.0
22	3.6	3.8			24	111	59	.0	1.8
23	3.6	3.8			51	169	49	.0	1.7
24	3.6	3.8		19	49	191	40	.0	1.5
25	3.6	4.0		20	43	88	40	.0	2.0
26	3.6	4.0		20	29	91	33	.0	2.0
27	3.4	4.0		21	26	73	29	.0	2.6
28	3.6	3.8		21	17	69	26	.0	2.9
29	3.6	4.0		19	17	59	21	.0	3.2
30	3.6	4.4		15	14	69	17	.0	3.5
31	3.6			20		79		.0	

Monthly discharge of American Fork near Harlowton, Mont., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	4.4	3.0	3.55	218
November	4.4	3.4	3.78	225
December 1-14	5.2	4.0	4.57	127
March 24-31	21	15	19.4	308
April	51	13	21.6	1,290
May	191	7.5	50.8	3,120
June	84	17	56.1	3,340
July	18	.0	2.56	157
August	.0	.0	.00	0
September	3.5	.0	1.08	64

LEBO CREEK NEAR HARLOWTON, MONT.

LOCATION.—In SW. ¼ sec. 12, T. 7 N., R. 15 E., at farm bridge on the Glennie ranch, half a mile above junction with American Fork and 5 miles southeast of Harlowton, Wheatland County.

DRAINAGE AREA.—48 square miles.

RECORDS AVAILABLE.—July 28, 1907, to December 31, 1911; May 19 to November 22, 1913; and May 3, 1924, to September 30, 1925.

GAGE.—Vertical staff on right bank at farm bridge; read by Marie Glennie. Datum 0.71 foot lower than gage used during 1907–1913.

DISCHARGE MEASUREMENTS.—Made from bridge or by wading.

CHANNEL AND CONTROL.—Channel composed of clay with gravel and sand. Control is gravel bar about 100 feet below gage.

EXTREMES OF STAGE.—Maximum stage recorded during year, 2.38 feet at 6 p. m. May 29 (discharge, 34 second-feet); minimum stage, 1.50 feet at 7 a. m. July 19 (discharge, 2.4 second-feet).

1907–1911; 1913; 1924–1925: Maximum discharge recorded, 270 second-feet May 31, 1908; minimum discharge, 0.4 second-foot July 23–25, 1910.

ICE.—Stage-discharge relation affected by ice.

DIVERSIONS.—Numerous ditches divert water for irrigation above station.

REGULATION.—Operation of small storage reservoir at headwater of creek affects flow.

ACCURACY.—Stage-discharge relation permanent during year except when affected by ice. Rating curve well defined below 30 second-feet. Gage read to half-tenths or hundredths once and occasionally twice daily. Daily discharge ascertained by applying daily gage height to rating table. Records good.

The following discharge measurements were made:

April 19, 1925: Gage height, 2.10 feet; discharge, 19.5 second-feet.

July 12, 1925: Gage height, 1.75 feet; discharge, 6.8 second-feet.

September 23, 1925: Gage height, 1.95 feet; discharge, 12.7 second-feet.

Daily discharge, in second-feet, of Lebo Creek near Harlowton, Mont., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Apr.	May	June	July	Aug.	Sept.
1	6.1	13	25	-------	13	32	3.1	9.6	13
2	6.1	13	25	-------	13	22	3.1	9.6	13
3	5.6	14	26	-------	13	18	13	6.8	13
4	5.6	14	26	-------	13	32	9.6	13	13
5	6.1	14	28	-------	13	32	6.8	9.6	13
6	6.1	14	28	-------	13	22	6.8	6.8	13
7	6.6	14	-------	-------	13	18	9.6	6.8	13
8	6.6	14	-------	-------	13	18	6.8	6.8	13
9	7.0	15	-------	-------	13	18	6.8	6.8	13
10	8.6	17	-------	-------	13	30	6.8	9.6	13
11	9.9	18	-------	-------	13	22	6.8	9.6	13
12	16	18	-------	-------	13	22	6.8	9.6	13
13	15	19	-------	-------	13	28	4.7	9.6	13
14	17	20	-------	-------	18	28	4.7	9.6	13
15	14	21	-------	-------	18	32	4.7	9.6	13
16	13	21	-------	-------	28	32	6.8	9.6	13
17	13	21	-------	-------	32	28	4.7	9.6	13
18	13	22	-------	13	28	28	3.1	13	13
19	13	22	-------	15	28	32	3.1	18	13
20	13	22	-------	13	13	32	3.1	13	13
21	13	23	-------	18	18	13	3.1	18	13
22	13	23	-------	22	9.6	13	3.8	18	13
23	13	23	-------	28	9.6	9.6	3.8	18	13
24	13	23	-------	28	6.8	13	4.7	13	13
25	13	24	-------	32	6.8	9.6	6.8	13	9.6
26	14	24	-------	22	9.6	9.6	6.8	9.6	9.6
27	14	24	-------	22	13	6.8	3.1	9.6	18
28	14	24	-------	13	28	4.7	3.1	9.6	18
29	13	24	-------	13	32	3.1	3.1	13	18
30	13	25	-------	13	32	3.1	4.7	13	13
31	13	-------	-------	-------	32	-------	6.8	13	-------

Monthly discharge of Lebo Creek near Harlowton, Mont., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	17	5.6	11.2	689
November	25	13	19.4	1,150
December 1–6	28	25	26.3	312
April 18–30	32	13	19.4	500
May	32	6.8	17.1	1,070
June	32	3.1	20.4	1,210
July	13	3.1	5.51	339
August	18	6.8	11.1	682
September	18	9.6	13.3	791

FLATWILLOW CREEK NEAR FLATWILLOW, MONT.

LOCATION.—In NE. ¼ sec. 19, T. 12 N., R. 25 E., at private wagon bridge on Flatwillow Land & Livestock Co.'s ranch, 12 miles above Flatwillow, Petroleum County, and 30 miles north of Roundup.

DRAINAGE AREA.—About 195 square miles (measured on 1916 map of Fergus County).

RECORDS AVAILABLE.—April 17, 1918, to September 30, 1925. May 1, 1911, to April 17, 1918, records were kept at the former station in sec. 23, T. 12 N., R. 25 E., about 4 miles downstream, and below the headworks of the canal of the Flatwillow Carey Act project.

GAGE.—Overhanging chain gage on left bank 300 feet above bridge installed April 16, 1925. Prior to that date vertical staff on right bank 4 feet above the private wagon bridge. Gages set to read same but are at independent datum. Read by Percy Koerner.

DISCHARGE MEASUREMENTS.—Made from bridge or by wading.

CHANNEL AND CONTROL.—Banks fairly high and overgrown with willows. Channel composed of adobe and gravel. Low-water control is a gravel riffle, shifting occasionally.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 2.5 feet at 6.20 p. m. April 3 (discharge, 98 second-feet); minimum discharge, no flow, July 14–16.

1911–1925: Maximum discharge recorded, 954 second-feet June 4–10, 1917; minimum discharge, that of July 14–16, 1925.

ICE.—Stage-discharge relation affected by ice.

DIVERSIONS.—Several small diversions above station which may occasionally divert all the water.

REGULATION.—None.

ACCURACY.—Stage-discharge relation affected by ice; otherwise permanent during year. Two fairly well defined rating curves used during the year. Gage read to hundredths once daily. Daily discharge ascertained by applying daily gage height to rating table. Records fair.

The following discharge measurements were made:

April 16, 1925: Gage height, 1.69 feet; discharge, 50 second-feet.

July 9, 1925: Gage height, 0.88 foot; discharge, 2.8 second-feet.

September 24, 1925: Gage height, 0.92 foot; discharge, 2.5 second-feet.

Daily discharge, in second-feet, of Flatwillow Creek near Flatwillow, Mont., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	23	32	33		66	38	10	10.0	2.2	1.9
2	24	33	34		80	36	9	9.5	2.2	1.9
3	24	33	35		98	34	10	8.5	1.9	2.2
4	24	32	35		86	33	16	7.5	1.9	2.0
5	26	32	33		73	31	14	7.5	2.5	2.0
6	30	31	34		72	29	12	7.0	4.0	2.2
7	29	30	36		69	26	12	9.5	3.5	2.2
8	29	30	38		67	25	18	2.4	2.5	2.5
9	31	30	35		64	28	20	2.0	2.5	2.5
10	35	31	35		62	25	25	1.8	2.5	2.5
11	39	33	35		61	24	25	1.2	3.5	2.5
12	36	36	35		61	24	26	.6	4.0	2.2
13	36	35	39		61	23	26	.2	3.5	2.2
14	35	35	40		60	23	33	.0	3.5	2.0
15	34	35	41		59	22	37	.0	3.0	2.0
16	33	35			51	20	40	.0	2.5	2.2
17	34	35			52	20	41	.1	1.9	2.2
18	32	43			51	19	40	.8	1.3	2.2
19	32	40			49	19	37	1.6	1.0	2.2
20	31	39			48	19	34	2.2	1.2	2.2
21	31	39			50	19	32	2.4	1.2	2.2
22	30	41			64	18	31	3.5	.9	2.2
23	31	41			61	17	30	4.0	.8	2.2
24	31	44			54	16	25	4.5	.8	2.5
25	33	48			51	14	19	3.5	.6	1.9
26	33	45			48	12	14	2.5	1.0	1.9
27	31	43			47	10	12	2.2	1.0	2.2
28	31	40			45	9.5	12	2.5	.8	3.5
29	31	39		72	44	9	10	5.5	.9	5.5
30	32	35		72	43	8.5	10	3.0	1.3	8.5
31	32			68		9.5		2.5	1.6	

NOTE.—Discharge estimated on account of ice Nov. 13–17 and Dec. 9–12.

Monthly discharge of Flatwillow Creek near Flatwillow, Mont., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	39	23	31.1	1,910
November	48	30	36.5	2,170
December 1–15	41	33	35.9	1,070
March 29–31	72	68	70.7	421
April	98	43	59.9	3,560
May	38	8.5	21.3	1,310
June	41	9.0	22.7	1,350
July	10	.0	3.50	215
August	4.0	.6	2.00	123
September	8.5	1.9	2.55	152

FLATWILLOW CREEK AT PETROLIA, MONT.

LOCATION.—In NE. ¼ sec. 25, T. 14 N., R. 28 E., 2 miles above junction with Box Elder Creek, 1 mile south of Petrolia, Petroleum County, and 16 miles southeast of Winnet.

DRAINAGE AREA.—650 square miles (measured on county map).

RECORDS AVAILABLE.—June 11, 1921, to September 30, 1925.

GAGE.—Chain gage on left bank; read by Faith R. Beck.

DISCHARGE MEASUREMENTS.—Made by wading or from bridge 1 mile below.

CHANNEL AND CONTROL.—Channel composed of clay and gravel. One channel at all stages, straight for 200 feet above but curved sharply to right just below gage. Left bank high; right bank low and covered with thick brush and trees. Control is gravel riffle; shifts occasionally.

EXTREMES OF DISCHARGE.—Maximum stage during year, 3.36 feet at 11 a. m. June 4 (discharge, 242 second-feet); no flow July 13 to September 30.

1921–1925: Maximum stage, 12.94 feet July 5, 1923 (discharge, 3,700 second-feet); minimum, no flow August 12 to September 17, 1921, August 23 to September 19, 1922, and July 13 to September 30, 1925.

ICE.—Stage-discharge relation affected by ice.

DIVERSIONS.—Numerous ditches divert water above station for irrigation.

REGULATION.—None.

ACCURACY.—Stage-discharge relation permanent except as affected by ice. Rating curve well defined between 10 and 200 second-feet. Gage read to hundredths once daily. Daily discharge ascertained by applying daily gage height to rating table. Records good.

The following discharge measurements were made:

April 16, 1925: Gage height, 2.14 feet; discharge, 57 second-feet.

July 9, 1925: Gage height, 1.46 feet; discharge, 7.2 second-feet.

Daily discharge, in second-feet, of Flatwillow Creek at Petrolia, Mont., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Mar.	Apr.	May	June	July
1	18	24	35	-------	83	42	13	6.0
2	18	24	33	-------	79	40	14	5.0
3	18	24	33	-------	83	36	12	2.4
4	18	24	43	-------	76	31	242	2.4
5	21	26	43	-------	67	31	155	2.4
6	22	26	25	-------	65	27	82	2.4
7	23	26	25	-------	61	27	39	2.4
8	24	24	25	-------	61	27	33	6.0
9	26	24	25	-------	61	27	21	8.0
10	27	24	25	-------	61	27	12	2.4
11	29	23	25	-------	58	23	10	2.4
12	29	23	25	-------	54	21	10	.8
13	29	29	25	-------	54	20	10	0
14	27	20	41	-------	54	20	10	0
15	27	20	45	-------	54	44	39	0
16	27	20	-------	-------	56	23	64	0
17	26	36	-------	-------	54	20	35	0
18	26	42	-------	-------	54	20	39	0
19	24	40	-------	-------	54	18	30	0
20	24	34	-------	-------	54	16	28	0
21	24	32	-------	-------	54	16	23	0
22	24	34	-------	-------	56	16	24	0
23	24	42	-------	-------	58	14.5	27	0
24	26	46	-------	-------	61	13.5	27	0
25	26	42	-------	-------	58	11.5	20	0
26	27	31	-------	-------	54	7.5	17	0
27	26	26	-------	-------	50	7.5	14	0
28	24	31	-------	-------	44	10.5	8	0
29	24	34	-------	94	44	6.5	8	0
30	24	34	-------	91	44	5.5	11	0
31	24	-------	-------	88	-------	6.5	-------	0

NOTE.—Stage-discharge relation affected by ice Nov. 13–16 and Dec. 8–13; discharge estimated. No flow during August and September.

Monthly discharge of Flatwillow Creek at Petrolia, Mont., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	29	18	24.4	1,500
November	46	20	29.2	1,740
December 1–15	45	25	31.5	937
March 29–31	94	88	91.0	541
April	83	44	58.9	3,500
May	44	5.5	21.1	1,300
June	242	8	35.9	2,140
July	8	0	1.37	84.2
August	0	0	0	0
September	0	0	0	0

MILK RIVER BASIN

SOUTH FORK OF MILK RIVER NEAR INTERNATIONAL BOUNDARY

LOCATION.—In NW. ¼ sec. 29, T. 37 N., R. 9 W., at Richard Croff ranch, just above Kennedy Coulee, Glacier County, 30 miles northeast of Browning, and 5 miles south of international boundary.

DRAINAGE AREA.—288 square miles (measured on topographic map).

RECORDS AVAILABLE.—April 28, 1905, to September 30, 1925.

GAGE.—Stevens continuous water-stage recorder on left bank.

DISCHARGE MEASUREMENTS.—Made from cable 300 feet above gage or by wading.

CHANNEL AND CONTROL.—Channel is composed of clay and small boulders. Banks are high and not subject to overflow, except during extreme floods.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 4.21 feet at 4 a. m. April 13 (discharge, 670 second-feet); minimum stage, 1.52 feet at 11 p. m. October 13 (discharge, 7.5 second-feet).

1905–1925: Maximum stage recorded, 15.4 feet June 6, 1908, determined from high-water marks, flood across section about 2,600 square feet; minimum stage recorded, no flow August 1–8 and August 18 to September 2, 1919.

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

DIVERSIONS.—None.

REGULATION.—None.

ACCURACY.—Stage-discharge relation affected by growth of moss on control and by shifting control. Rating curve well defined between 10 and 300 second-feet. Daily discharge ascertained by applying to rating table mean daily gage height as determined by inspection of recorder graph. Records good.

COOPERATION.—Data collected and compiled jointly by Canadian Dominion Water Power and Reclamation Service, and United States Geological Survey.

Discharge measurements of South Fork of Milk River near international boundary, during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 1	1.58	12.4	Apr. 24	2.96	276	July 20	1.82	23.4
Oct. 21	1.68	14.0	May 9	2.83	258	July 31	1.90	37.2
Dec. 2	[a] 1.70	14.0	June 9	2.38	142	Aug. 25	1.94	42.2
Mar. 25	[a] 2.14	71.0	June 22	2.17	90	Aug. 29	1.74	17.6
Apr. 8	3.55	460	July 16	1.81	32.2	Sept. 12	1.80	29.2

[a] Stage-discharge relation affected by ice.

Daily discharge, in second-feet, of South Fork of Milk River near international boundary, for the year ending September 30, 1925

Day	Oct.	Apr.	May	June	July	Aug.	Sept.
1	12.2	550	278	189	90	31.8	17.7
2	12.8	600	256	173	80	28.2	16.9
3	12.8	570	234	164	75	25.1	15.2
4	14.6	540	249	157	73	20.3	13.4
5	16.9	520	264	180	68	20.3	13.4
6	14.6	500	280	171	68	17.7	18.6
7	13.4	480	273	151	71	17.7	23.1
8	12.2	466	266	138	71	16.9	24.0
9	11.7	503	258	138	68	14.6	23.1
10	11.1	512	278	138	61	14.6	25.2
11	9.5	605	298	130	55	12.8	27.2
12	8.3	642	318	126	52	12.8	29.3
13	7.9	658	338	128	47.2	12.8	25.1
14	8.7	506	357	140	39.8	13.4	23.1
15	8.3	376	350	166	34.3	22.2	20.3
16	8.3	323	343	132	31.8	41.3	19.4
17	8.3	385	336	118	29.3	41.3	18.6
18	9.1	388	329	107	26.1	28.2	19.4
19	10.6	317	322	94	24.0	26.2	24.0
20	11.7	307	315	90	24.0	24.0	25.1
21	14.0	289	298	88	27.2	20.3	26.1
22	------	329	307	90	31.8	17.7	29.3
23	------	496	304	92	47.2	16.9	30.5
24	------	345	280	86	55.0	26.1	24.0
25	------	388	251	80	50.0	38.4	20.3
26	------	342	232	79	48.7	33.1	20.3
27	------	366	221	77	42.7	26.1	21.2
28	------	339	211	71	34.3	22.2	23.1
29	------	315	206	75	35.6	17.7	30.5
30	------	291	209	90	45.7	19.4	31.8
31	------	------	199	------	39.9	19.4	------

NOTE.—Shifting-control method used Oct. 1-21 and June 5 to Sept. 30. Discharge estimated by comparison with adjacent stream Apr. 1-7, Apr. 21 to May 20. Discharge interpolated Sept. 10-11.

Monthly discharge of South Fork of Milk River near international boundary, for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	16.9	7.9	11.3	471
April	658	291	442	26,300
May	357	199	279	17,200
June	189	71	122	7,260
July	90	24.0	49.9	3,070
August	41.3	12.8	22.6	1,390
September	31.8	13.4	22.6	1,340

MILK RIVER AT MILK RIVER, ALBERTA

LOCATION.—In NE. ¼ sec. 21, T. 2 N., R. 16 W. fourth meridian, at Milk River, Alberta.

DRAINAGE AREA.—1,104 square miles (measured by engineers of Department of the Interior, Canada).

RECORDS AVAILABLE.—During open-water season July 1, 1909, to December 31, 1911; complete records January 1, 1912, to September 30, 1925. Prior to October 1, 1920, maintained by Department of the Interior, Canada.

GAGE.—Stevens continuous water-stage recorder on left bank.

DISCHARGE MEASUREMENTS.—Made from traffic bridge above gage or by wading.

CHANNEL AND CONTROL.—Bed of stream composed of sand and gravel. Right bank high, clean, subject to overflow at extreme stages. Left bank low. Control shifting.

EXTREMES OF DISCHARGE.—Maximum stage during year, 5.15 feet at noon March 30 (discharge, 2,100 second-feet); minimum stage, 1.58 feet January 20 (discharge, 2.1 second-feet).

1909–1925: Maximum stage recorded, 8.50 feet February 17, 1916 (discharge, 3,467 second-feet); minimum discharge, no flow January 19 to March 8, 1922, and December 12, 1922, to March 15, 1923.

ICE.—Stage-discharge relation affected by ice.

REGULATION.—Flow increased by 132,500 acre-feet of water from St. Mary Canal of United States Bureau of Reclamation during irrigation season.

DIVERSIONS.—None of importance.

ACCURACY.—Stage-discharge relation affected by shifting control and by ice. Two fairly well defined rating curves used during year, one applicable October 1 to November 1 and the other April 1 to September 30. Daily gage heights November 4 to March 31 and April 2–7 are observer's readings on chain gage made to hundredths once daily. The remainder of the year the gage heights were obtained by inspection from the graph of the water-stage recorder. Daily discharge determined by applying mean daily gage height to rating table. Open-water records good; others fair.

COOPERATION.—Data collected and compiled jointly with the Canadian Dominion Water Power and Reclamation Service and the United States Geological Survey.

Discharge measurements of Milk River at Milk River, Alberta, during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Nov. 19	[a] 1.46	42.4	Mar. 14	[a] 3.06	12.2	June 17	3.04	646
Dec. 8	[a] 1.26	37.8	Mar. 27	[a] 6.22	[b] 700	July 28	2.94	550
Dec. 20	[a] 1.61	17.3	Apr. 15	3.03	658	Aug. 14	2.87	521
Jan. 21	[a] 1.67	2.2	Apr. 25	2.74	498	Aug. 18	2.93	627
Feb. 17	[a] 3.04	8.6	May 15	3.25	771	Sept. 24	2.85	523

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

Daily discharge, in second-feet, of Milk River at Milk River, Alberta, for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	29.5	34.4	33.6	9.4	5.0	11.2	950	456	717	583	546	49[illegible]
2	34.4	34.4	32.4	8.8	5.4	11.2	657	588	723	583	525	25[illegible]
3	36.1	32.7	31.2	8.2	5.8	11.8	627	680	717	577	515	13[illegible]
4	42.9	24.0	30.0	7.6	6.2	12.4	618	662	692	572	500	9[illegible]
5	41.2	28.0	30.0	7.0	6.6	13.0	627	680	686	546	495	10[illegible]
6	41.2	28.0	32.4	6.6	6.6	13.0	531	632	711	536	490	8[illegible]
7	44.6	27.0	34.8	6.2	7.0	13.0	740	644	705	536	490	7[illegible]
8	44.6	27.0	37.2	5.4	7.0	13.0	767	662	686	551	495	7[illegible]
9	42.9	26.0	38.4	5.0	7.0	12.4	793	662	668	541	505	68
10	41.2	26.0	39.6	4.6	7.6	12.4	780	610	680	541	505	77
11	39.5	25.0	40.8	4.2	7.6	12.4	894	610	698	525	510	141
12	36.1	26.0	40.8	3.8	7.6	11.8	1,010	599	650	525	520	42[illegible]
13	34.4	28.0	37.2	3.4	8.2	12.4	992	626	668	515	520	480
14	32.7	30.0	33.6	3.0	8.2	12.4	985	692	680	505	520	52[illegible]
15	32.7	32.4	30.0	3.0	8.2	13.0	711	774	705	495	562	514

Daily discharge, in second-feet, of Milk River at Milk River, Alberta, for the year ending September 30, 1925—Continued

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
16	32.7	34.8	26.0	2.7	8.8	13.0	510	806	711	485	644	551
17	31.0	37.2	22.0	2.7	8.8	13.7	456	786	680	480	626	551
18	29.5	39.6	20.0	2.4	9.4	14.4	546	748	644	480	644	562
19	28.0	42.0	18.6	2.4	9.4	15.1	551	729	621	475	638	577
20	29.5	42.0	17.2	2.1	9.4	16.5	470	754	604	480	621	577
21	29.5	40.8	16.5	2.1	9.4	18.6	475	774	588	490	604	562
22	28.0	39.6	15.8	2.4	9.4	22.0	490	780	604	505	599	551
23	29.5	37.2	15.1	2.7	10.0	26.0	662	780	599	551	577	536
24	29.5	34.8	14.4	3.4	10.0	30.0	873	761	599	562	438	525
25	28.0	32.4	13.7	4.2	10.0	70.0	536	723	599	562	299	510
26	31.0	30.0	13.0	4.6	10.0	120	588	692	588	556	200	515
27	34.4	31.2	12.4	5.0	10.6	702	515	686	588	562	306	536
28	32.7	32.4	11.8	5.0	10.6	1000	495	662	583	551	490	546
29	32.7	33.6	11.2	4.6	-------	828	424	662	588	546	536	577
30	32.7	34.8	10.6	4.6	-------	1560	382	686	594	556	551	577
31	32.7	-------	10.0	4.2	-------	956	-------	711	-------	551	551	------

NOTE.—Stage-discharge relation affected by ice Nov. 2 to Mar. 31; daily discharge computed from discharge measurements, observer's notes concerning ice, and temperature records. Shifting-control method used June 21 to Sept. 30.

Monthly discharge of Milk River at Milk River, Alberta, for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	44.6	28.0	34.4	2,120
November	42.0	24.0	32.4	1,930
December	40.8	10.0	24.8	1,520
January	9.4	2.1	4.56	280
February	10.6	5.0	8.21	456
March	1,560	11.2	180	11,100
April	1,010	382	655	39,000
May	806	456	688	42,300
June	723	583	653	38,900
July	583	475	533	32,800
August	644	200	517	31,800
September	577	68	394	23,400
The year	1,560	2.1	312	226,000

MILK RIVER AT EASTERN CROSSING OF INTERNATIONAL BOUNDARY

LOCATION.—In NE. ¼ sec. 6, T. 37 N., R. 9 E., at the eastern crossing of the international boundary, 30 miles north of Rudyard, Hill County, Mont., and 37 miles south of Many Berries, Alberta.

DRAINAGE AREA.—2,514 square miles (measured by engineers, Irrigation Branch, Department of the Interior, Canada).

RECORDS AVAILABLE.—April 1, 1913, to September 30, 1925. From August 7, 1909 to 1912 maintained by Irrigation Branch, Department of the Interior, Canada.

GAGE.—Stevens continuous water-stage recorder on left bank; inspected by Robert L. Connor. Zero of gage 2,698.92 feet above sea level.

DISCHARGE MEASUREMENTS.—Made from cable or by wading.

CHANNEL AND CONTROL.—A bar composed of heavy boulders, gravel, and sand makes a decided riffle at medium and low stages; shifts frequently.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 7.09 feet March 24 (discharge, estimated on account of ice, 2,000 second-feet); minimum stage, 0.64 foot October 30 and 31 (discharge, 28 second-feet).

1909–1925: Maximum stage recorded, 9.60 feet April 9, 1917 (discharge, 4,860 second-feet); minimum stage, channel reported dry August 3–17, 22, 23, 1914, February 1 to March 13, 1922, and March 1–5, 1923.

ICE.—Stage-discharge relation affected by ice.

DIVERSIONS.—None.

REGULATION.—Natural flow was increased by 132,900 acre-feet of water from St. Mary Canal during the period May to September, 1925.

ACCURACY.—Stage-discharge relation not permanent, affected by ice and by shifting control. Two well defined rating curves used during year, one applicable October 1–31 and the other applicable March 26 to September 30. Gage heights determined by inspection of graph of Stevens recorder October 1–31, March 30 to April 1, April 9 to June 9, July 17 to August 16, August 24 to September 16. Observer's reading to hundredths once daily used for intervening days. Daily discharge ascertained by applying mean daily gage height to rating table. Open-water records good; others fair.

COOPERATION.—Data collected and compiled jointly by the Canadian Dominion Water Power and Reclamation Service and the United States Geological Survey.

Discharge measurements of Milk River at eastern crossing of international boundary, during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 11	0.66	37	Apr. 9	2.56	724	July 13	2.40	508
Mar. 19	*2.72	63	Do	2.36	562	Aug. 12	2.33	492
Mar. 28	3.65	1,530	Apr. 25	3.26	1,240	Aug. 26	2.45	411
Mar. 29	3.41	1,250	May 5	2.47	760	Sept. 7	1.24	138
Do	3.40	1,350	May 23	2.62	742	Sept. 30	2.47	449
Mar. 30	3.88	1,740	June 15	2.60	734			

*Stage-discharge relation affected by ice.

Daily discharge, in second-feet, of Milk River at eastern crossing of international boundary, for the year ending September 30, 1925

Day	Oct.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	41		1,450	526	696	571	509	368
2	39		1,010	466	696	560	498	417
3	38		750	498	743	577	487	440
4	40		670	600	756	552	492	417
5	39		571	756	743	526	509	255
6	41		514	750	710	531	514	189
7	43		537	756	710	531	503	157
8	42		514	743	716	514	487	120
9	39		716	716	723	492	487	99
10	37		743	716	696	487	487	90
11	37		763	716	723	482	492	92
12	41		736	703	683	520	492	101
13	39		906	677	644	509	482	101
14	37		935	670	833	487	471	99
15	37		943	664	696	476	471	269
16	37		891	664	818	466	503	372
17	35		664	690	756	482	510	408
18	34		577	743	790	461	510	466
19	35	63	482	750	696	431	507	466
20	13	50	560	750	156	435	500	461

Daily discharge, in second-feet, of Milk River at eastern crossing of international boundary, for the year ending September 30, 1925—Continued

Day	Oct.	Mar.	Apr.	May	June	July	Aug.	Sept.
21	35	200	716	750	644	461	490	456
22	35	500	784	743	619	461	480	435
23	32	900	1,150	763	612	482	465	435
24	32	2,000	1,370	784	612	503	450	435
25	33	1,300	1,240	777	670	526	440	435
26	30	736	1,020	756	664	548	408	426
27	30	847	729	729	638	548	312	417
28	30	1,550	710	703	606	542	212	474
29	28	1,350	625	716	548	542	147	531
30	28	1,570	560	723	542	537	157	435
31	28	1,760	----	710	----	520	297	----

NOTE.—Stage-discharge relation affected by ice Mar. 19-25; flow computed from discharge measurements, observer's notes, and temperature records. Discharge estimated Aug. 17-23, from flow at Milk River on account of missing gage heights.

Monthly discharge of Milk River at eastern crossing of international boundary, for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	43	28	35.7	2,200
March 19-31	2,000	63	990	25,500
April	1,450	482	795	47,300
May	784	466	700	43,000
June	833	542	688	40,900
July	577	431	508	31,200
August	514	147	444	27,300
September	531	90	329	19,600

MILK RIVER AT LOHMAN, MONT.

LOCATION.—In SW. ¼ sec. 21, T. 33 N., R. 18 E., at highway bridge half a mile north of Lohman, Blaine County.

DRAINAGE AREA.—Not measured.

RECORDS AVAILABLE.—March 27, 1923, to September 30, 1925.

GAGE.—Chain gage on downstream guard rail of bridge; read by Nellie Kleinjan

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

CHANNEL AND CONTROL.—Bed of stream composed of gravel and sand. No definite control.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 13.20 feet at 11 a. m. March 24 (discharge, 3,290 second-feet); minimum stage, 5.70 feet at 4.15 p. m. October 30 (discharge, 27 second-feet).

1923–1925: Maximum stage recorded, that of March 24, 1925; minimum stage recorded, that of October 30, 1924.

ICE.—Stage-discharge relation affected by ice.

DIVERSIONS.—Headworks of Fort Belknap Canal are situated about half a mile above gage.

REGULATION.—Low-water flow slightly affected operation of flashboards at Fort Belknap Dam. Flow materially increased during irrigation season by operation of St. Mary Canal of United States Bureau of Reclamation.

ACCURACY.—Stage-discharge relation not permanent, affected by shifting control and by ice. Two well defined rating curves used during year. Gage read to half-tenths once daily. Daily discharge ascertained by applying daily gage height to rating table. Record for discharge below 600 second-feet good, above that discharge fair.

Discharge measurements of Milk River at Lohman, Mont., during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 16	5.90	42.5	July 16	7.56	211	Sept. 16	6.65	65
Mar. 31	11.60	1,990	July 19	7.45	212	Sept. 23	8.72	585
Apr. 24	10.95	1,930	July 23	7.82	281	Sept. 27	8.19	384
July 12	7.86	273	July 24	8.34	412			

Daily discharge, in second-feet, of Milk River at Lohman, Mont., for the year ending September 30, 1925

Day	Oct.	Nov.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	40	30		2,060	774	575	390	284	186
2	33	36		2,020	774	575	380	272	296
3	36	33		1,800	651	575	393	261	308
4	36	30		1,450	617	822	406	272	315
5	40	33		1,260	682	822	360	250	320
6	44	30		1,150	895	774	346	250	272
7	44	33		1,070	822	751	390	239	129
8	40	32		1,050	895	705	423	228	115
9	40			960	822	638	346	207	90
10	44			1,020	798	774	296	207	84
11	40			1,200	798	1,260	296	207	84
12	40			1,150	822	1,180	289	207	54
13	48			1,090	798	1,050	277	224	54
14	45			1,280	696	1,370	272	218	59
15	42			1,280	696	1,310	232	259	50
16	39			1,230	696	1,180	224	406	57
17	40			1,280	705	1,070	207	575	186
18	44			1,050	812	1,070	178	596	272
19	40			870	920	1,050	196	406	596
20	40			895	895	920	176	390	920
21	36			856	798	774	186	360	895
22	36			1,020	769	751	213	320	751
23	36			1,990	751	638	252	333	546
24	36		3,290	1,860	774	596	440	562	491
25	36		1,920	2,120	798	522	423	822	423
26	33		2,120	1,710	774	514	325	895	374
27	33		1,540	1,420	774	495	333	822	413
28	33		1,370	1,090	751	458	320	272	534
29	33		2,600	1,020	514	423	328	261	728
30	27		1,960	895	575	406	308	112	995
31	36		2,020		575		272	120	

Monthly discharge of Milk River at Lohman, Mont., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	48	27	38.4	2,360
November 1-8	36	30	32.1	509
March 24-31	3,290	1,370	2,100	33,300
April	2,120	856	1,300	77,400
May	920	514	756	46,500
June	1,260	406	802	47,700
July	440	176	306	18,800
August	895	112	350	21,500
September	995	50	353	21,000

NORTH FORK OF MILK RIVER ABOVE ST. MARY CANAL, NEAR BROWNING, MONT.

LOCATION.—In SW. ¼ sec. 16, T. 37 N., R. 11 W., on Blackfeet Indian Reservation 1¼ miles above outlet of canal, 3 miles south of international boundary, and 30 miles north of Browning, Glacier County.

DRAINAGE AREA.—60 square miles (measured on topographic sheets).

RECORDS AVAILABLE.—June 20, 1921, to September 30, 1925. Records obtained at this station only during period when the St. Mary Canal is in operation.

GAGE.—Stevens continuous water-stage recorder on left bank.

DISCHARGE MEASUREMENTS.—Made by wading.

CHANNEL AND CONTROL.—One channel at all stages. Banks high, not subject to overflow. Control is gravel bar; subject to shift.

EXTREMES OF DISCHARGE.—Maximum discharge recorded during the period May 8 to October 19, 1925, 60 second-feet (estimated) May 1; minimum stage 0.72 foot at 6 p. m. July 18 (discharge, 8.6 second-feet).

1921–1925: Maximum stage recorded, 2.65 feet June 7, 1924 (discharge, 168 second-feet); minimum stage, 0.59 foot September 22, 1922 (discharge, 7.3 second-feet).

REGULATION.—None.

DIVERSIONS.—None.

ACCURACY.—Stage-discharge relation not permanent, affected by shifting control. Rating curve well defined between 10 and 30 second-feet. Daily gage heights determined by inspection from graph of water-stage recorder May 8–23, May 27 to September 13. Observer's readings used for period September 14 to October 11. Daily discharge ascertained by applying mean daily gage height to rating table. Records good.

COOPERATION.—Data collected and compiled jointly by Canadian Dominion Water Power and Reclamation Service and the United States Geological Survey.

Discharge measurements of North Fork of Milk River above St. Mary Canal, near Browning, Mont., during the period May 8 to October 19, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
May 8	1.17	34.2	June 22	0.85	17.1	Aug. 28	0.76	12.3
May 9	1.14	39.8	July 16	.83	12.7	Oct. 19	.87	17.8
June 8	.93	21.8	July 30	.80	14.2			
June 22	.86	18.8	Aug. 24	.92	18.3			

Daily discharge, in second-feet, of North Fork of Milk River above St. Mary Canal, near Browning, Mont., for the period May 1 to October 11, 1925

Day	May	June	July	Aug.	Sept.	Oct.	Day	May	June	July	Aug.	Sept.	Oct.
1	60	23.2	12.9	13.8	12.9	19.4	16	36.8	21.9	9.4	18.8	19.4	------
2	45	23.2	12.0	13.8	13.3	19.4	17	36.1	21.9	9.0	18.1	14.2	------
3	42	23.8	12.0	13.3	17.7	19.4	18	38.3	19.4	9.0	16.5	14.2	------
4	38	25.1	11.1	12.9	15.9	19.4	19	39.0	17.7	9.0	15.4	14.2	------
5	37	27.7	12.0	13.8	13.8	19.4	20	37.5	17.7	9.8	13.3	14.2	------
6	35	23.8	12.4	13.8	14.2	19.4	21	36.1	18.8	10.2	13.3	18.8	------
7	34	21.3	12.4	13.3	14.8	19.4	22	36.8	17.7	12.9	13.3	18.8	------
8	39	21.3	12.0	13.8	15.4	18.8	23	27.7	16.5	15.4	13.8	18.8	------
9	36.1	20.6	11.1	13.8	15.9	18.8	24	25.6	16.5	14.2	17.1	18.8	------
10	29.8	21.9	10.2	13.8	15.9	18.8	25	25.0	15.9	13.3	16.5	18.8	------
11	32.4	21.9	10.7	14.2	14.8	18.8	26	24.4	14.8	13.8	13.3	18.8	------
12	37.5	21.3	10.2	13.8	15.4	------	27	24.5	13.8	13.3	12.9	19.4	------
13	40.5	27.7	9.8	13.3	15.4	------	28	25.1	13.3	13.8	12.9	19.4	------
14	43.5	36.1	9.4	13.8	14.2	------	29	25.8	13.8	17.1	12.9	20.0	------
15	42.8	25.8	9.4	17.7	13.8	------	30	25.1	13.3	14.8	12.9	20.0	------
							31	23.8	------	14.2	13.3	------	------

Monthly discharge of North Fork of Milk River above St. Mary Canal, near Browning, Mont., for the period May 1 to October 11, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
May	60	23.8	34.8	2,140
June	36.1	13.3	20.8	1,230
July	17.1	9.0	11.8	726
August	18.8	12.9	14.3	879
September	20.0	12.9	16.4	976
October 1-11	19.4	18.8	19.2	419
The period				6,370

NORTH FORK OF MILK RIVER NEAR INTERNATIONAL BOUNDARY

LOCATION.—In NE. ¼ sec. 11, T. 1, R. 23 W. fourth meridian, 300 yards above highway bridge at Peters ranch, 18 miles east of Kimball, Alberta, and 2 miles north of international boundary.

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

RECORDS AVAILABLE.—January 1, 1913, to September 30, 1925. July 21, 1909, to December 31, 1912, station was maintained by Irrigation Branch of the Department of the Interior, Canada, in the NE. ¼ sec. 13, T. 1, R. 23 W. fourth meridian, about 2 miles downstream; May 6, 1911, to December 31, 1912, station was maintained at Alexander Dubrays ranch, 2 miles south of international boundary.

GAGE.—Stevens water-stage recorder on left bank; inspected by Charles Barnett.

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

CHANNEL AND CONTROL.—Bed of stream at gage and principal control composed of clay and small boulders; shifting.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 3.13 feet at 1 a. m. August 16 (discharge, 590 second-feet); minimum discharge, 9.3 second-feet March 13 and 14.

1909–1925: Maximum stage recorded, 4.14 feet May 8, 1920 (discharge, 1,070 second-feet); minimum discharge, 5.5 second-feet February 11, 1916.

ICE.—Stage-discharge relation affected by ice.

DIVERSIONS.—None.

REGULATION.—Flow considerably increased by operation of St. Mary Canal of United States Bureau of Reclamation. From May to September, inclusive, a total of 132,900 acre-feet were turned into river above station.

ACCURACY.—Stage-discharge relation affected by ice and by change of control. Two well-defined rating curves used during year. Daily discharge ascertained by applying to rating table mean daily gage height determined by inspection of recorder graph. Open-water records good; others fair.

COOPERATION.—Data collected and compiled jointly with the Canadian Dominion Water Power and Reclamation Service and the United States Geological Survey.

Discharge measurements of North Fork of Milk River near international boundary, during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 1	1.12	9.8	May 1	2.54	292	June 22	3.02	541
Oct. 21	1.14	9.4	May 7	2.57	306	July 16	2.96	485
Nov. 11	*1.27	9.3	May 9	2.65	352	July 20	2.99	514
Dec. 1	*1.30	12.5	May 21	2.89	444	July 31	3.03	536
Mar. 24	*3.47	45.9	June 9	2.99	528	Aug. 25	1.68	57
Apr. 8	1.85	106	June 15	3.03	532	Aug. 29	3.01	525

* Stage-discharge relation affected by ice.

Daily discharge, in second-feet, of North Fork of Milk River near international boundary, for the year ending September 30, 1925

Day	Oct.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	10.7	9.8	187	266	516	531	542	93
2	11.9	12.0	163	157	515	531	547	30
3	13.1	12.0	127	157	514	531	542	28.8
4	16.4	13.1	94	183	514	520	536	28.8
5	15.7	15.2	102	262	514	515	536	28.8
6	15.0	13.7	99	287	512	520	536	28.8
7	13.8	13.1	90	300	509	512	531	30.8
8	13.1	12.0	106	371	515	505	525	30.8
9	12.5	9.8	102	363	520	505	525	30
10	12.5	9.8	104	370	515	505	520	233
11	11.9	9.8	110	376	520	507	520	446
12	11.9	9.8	113	395	525	509	520	488
13	11.9	9.3	99	414	525	509	520	525
14	11.9	9.3	70	434	558	509	515	547
15	11.3	9.8	57	442	542	509	552	552
16	11.3	9.8	64	442	531	504	558	558
17	11.3	9.8	72	442	531	509	536	545
18	11.3	9.8	73	442	520	509	536	535
19	11.3	15.2	62	442	515	509	536	533
20	10.7	20.3	57	442	515	504	536	532
21	10.0	25.0	62	457	525	509	536	531
22	10.0	30.0	76	472	531	524	484	512
23	10.0	30.0	83	467	525	539	336	509
24	9.4	43.8	104	467	515	539	189	512
25	9.4	59	66	457	515	542	81	531
26	9.4	80	62	472	520	544	356	538
27	10.7	100	55	478	520	544	462	545
28	10.0	152	48	488	525	542	504	552
29	10.0	198	41	525	525	539	525	550
30	10.0	172	60	520	531	538	520	547
31	10.7	209	-------	518	-------	536	431	-------

NOTE.—Discharge estimated or interpolated on account of missing gage heights Apr. 8, 13, 14, 16, 17, 20–23, 28, 30; May 10, 12, 13, 16, 18, 19, 30; June 1, 2, 4, 6, 8; July 7, 9, 11, 13, 14, 18, 22–25, 28, 30; Aug. 23; Sept. 17, 19, 20, 22, 24, 26, 27, 29, and 30. Stage-discharge relation affected by ice Mar. 1–30; discharge estimated.

Monthly discharge of North Fork of Milk River near international boundary, for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	16.4	9.4	11.6	713
March	209	9.3	43.0	2,640
April	187	41	86.9	5,170
May	525	157	397	24,400
June	558	509	522	31,100
July	544	505	521	32,000
August	558	81	487	29,900
September	558	28.8	372	22,100

LODGE CREEK AT INTERNATIONAL BOUNDARY

LOCATION.—In SE. ¼ sec. 12, T. 1, R. 29 W. third meridian, at Willow Creek Royal Northwest Mounted Police barracks, 1 mile north of international boundary, in Saskatchewan, Canada, and 30 miles northwest of Havre, Mont.

DRAINAGE AREA.—806 square miles (measured by Irrigation Branch, Department of the Interior, Dominion of Canada).

RECORDS AVAILABLE.—April 1, 1917, to September 30, 1925. April 25, 1910, to October 31, 1916 maintained by Irrigation Branch, Department of the Interior, Canada.

GAGE.—Stevens continuous water-stage recorder on right bank.

DISCHARGE MEASUREMENTS.—Made from cable or by wading. Some low-water measurements made with weir.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 8.77 feet at 7 a. m. April 24 (discharge, 1,690 second-feet); minimum discharge, no flow October 1–31 and July 4 to September 30.

1917–1925: Maximum stage recorded, 12.90 feet March 31, 1918 (discharge estimated, 2,700 second-feet); creek dry at numerous times.

ICE.—Stage-discharge relation affected by ice.

DIVERSIONS.—Several small ditches divert water for irrigation above station.

REGULATION.—None.

ACCURACY.—Stage-discharge relation permanent during year. Rating curve well defined below 1,200 second-feet. Mean daily gage height determined by inspection of recorder graph April 4 to May 7 and May 27 to September 21. Observer's reading to hundredths twice daily used for intervening days. Daily discharge ascertained by applying mean daily gage height to rating table. Open-water records good, others fair.

COOPERATION.—Data collected and compiled by Canadian Dominion Water Power and Reclamation Service and the United States Geological Survey.

Discharge measurements of Lodge Creek at international boundary during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Nov. 11	-------	0	Apr. 10	4.66	405	June 28	1.29	0.3
Mar. 31	7.18	1,120	Apr. 15	2.88	127	July 27	1.05	0
Apr. 3	6.66	942	May 7	1.96	23.4	Aug. 28	-------	0
Apr. 6	5.82	682	May 29	1.37	1.1			

Daily discharge, in second-feet, of Lodge Creek at international boundary for the year ending September 30, 1925

Day	Mar.	Apr.	May	June	July	Sept.	Day	Mar.	Apr.	May	June	July	Sept.
1	0	771	60.0	1.4	0.2	0	16	0	98	5.0	44	0	0
2	0	870	46.2	1.4	.2	0	17	0	74	4.7	22.5	0	0
3	0	981	36.5	1.4	.1	0	18	0	57	4.1	11.9	0	0
4	0	716	44.0	1.4	0	0	19	0	43.1	3.2	7.3	0	0
5	0	475	41.2	1.4	0	0	20	0	37.4	2.4	5.0	0	0
6	0	647	29.8	1.4	0	0	21	2	38.4	2.4	3.6	0	0
7	0	756	24.5	1.2	0	0	22	4	78	2.0	3.2	0	0
8	0	541	20.0	1.4	0	0	23	7	438	1.6	2.6	0	0
9	0	413	16.0	1.2	0	0	24	12	1,480	1.4	2.0	0	0
10	0	398	12.3	13.4	0	0	25	491	945	1.1	1.2	0	0
11	0	327	10.1	35.6	0	0	26	710	722	1.0	.8	0	0
12	0	260	9.4	5.5	0	0	27	1,280	332	1.4	.6	0	0
13	0	209	8.3	186	0	0	28	968	190	1.4	.3	0	0
14	0	167	7.3	686	0	0	29	1,370	114	1.4	.3	0	0
15	0	125	6.3	135	0	0	30	1,400	83	1.2	.2	0	21.1
							31	1,110	-------	1.2	-------	0	------

NOTE.—Stream dry during months of October and August. Discharge estimated on account of ice Mar. 21–24.

Monthly discharge of Lodge Creek at international boundary for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	0	0	0	0
March	1,400	0	237	14,600
April	1,480	37.4	413	24,600
May	60	1.0	13.1	806
June	686	.2	39.3	2,340
July	.2	0	.02	1.2
August	0	0	0	0
September	21.1	0	70	* 41.7

BATTLE CREEK AT INTERNATIONAL BOUNDARY

LOCATION.—In SE. ¼ sec. 4, T. 1 N., R. 26 W. fourth meridian, in Saskatchewan, Canada, one-fourth mile above point where creek crosses international boundary and 35 miles north of Chinook, Mont.

DRAINAGE AREA.—730 square miles.

RECORDS AVAILABLE.—April 1, 1917, to September 30, 1925.

GAGE.—Stevens continuous water-stage recorder; inspected by Ed. Peterson.

DISCHARGE MEASUREMENTS.—Made from cable 45 feet below gage or by wading.

CHANNEL AND CONTROL.—Bed composed of heavy boulders with sand and gravel; shifting.

EXTREMES OF DISCHARGE.—Maximum stage recorded, 6.38 feet at 11 p. m. April 2 (discharge, 1,430 second-feet); minimum discharge, dry October 1–22, March 1–23, and July 19–23, August 1 to September 18.

1917–1925: Maximum stage recorded, 8.50 feet April 13, 1917 (discharge, 3,200 second-feet); dry at numerous periods.

ICE.—Stage-discharge relation affected by ice.

DIVERSIONS.—Several small ditches divert water for irrigation above station.

REGULATION.—None.

ACCURACY.—Stage-discharge relation changed during winter. Two well-defined rating curves used during year. Daily discharge ascertained by applying to rating table mean daily gage height determined by inspection of water-stage recorder graph or observer's readings. Open-water records good; others fair.

COOPERATION.—Data collected and compiled jointly by Canadian Dominion Water Power and Reclamation Service and United States Geological Survey.

Discharge measurements of Battle Creek at international boundary during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 9		0	Apr. 7	4.63	579	May 29	2.47	19.4
Mar. 18		0	Apr. 8	5.04	774	June 27	2.45	16.7
Mar. 27	* 4.98	528	Apr. 17	3.30	129	July 17	1.97	.3
Apr. 1	5.02	710	May 8	2.95	71	July 29	1.94	.1
Apr. 2	5.84	1,160	May 24	2.60	27.9			

* Stage-discharge relation affected by ice.

Daily discharge, in second-feet, of Battle Creek at international boundary, for the year ending September 30, 1925

Day	Oct.	Mar.	Apr.	May	June	July	Sept.
1	0	0	686	99	20.6	14.4	0
2	0	0	1,190	88	20.6	8.9	0
3	0	0	1,310	81	20.0	8.9	0
4	0	0	1,080	140	19.4	8.5	0
5	0	0	766	119	20.6	8.5	0
6	0	0	644	90	20.6	8.9	0
7	0	0	602	80	19.4	8.9	0
8	0	0	781	70	18.7	8.9	0
9	0	0	858	67	18.7	8.9	0
10	0	0	655	62	18.1	7.3	0
11	0	0	544	58	21.3	3.6	0
12	0	0	381	55	20.6	2.8	0
13	0	0	300	48	68	2.8	0
14	0	0	246	44.6	134	1.0	0
15	0	0	198	43.5	121	.5	0
16	0	0	167	41.3	61	.5	0
17	0	0	136	39.0	37.9	.5	0
18	0	0	126	36.8	29.7	.2	0
19	0	0	119	35.4	25.7	0	.4
20	0	0	121	33.9	25.0	0	.5
21	0	0	130	32.4	21.3	0	.5
22	0	0	243	30.9	21.3	0	.5
23	1.4	0	344	29.4	21.3	0	.5
24	2.9	40	355	27.9	18.7	1.9	.6
25	3.7	580	392	27.2	19.4	1.9	1.0
26	2.9	580	355	26.4	18.1	1.9	2.0
27	2.5	658	240	24.2	17.5	.4	3.0
28	2.9	843	171	22.1	16.9	.4	7.0
29	3.3	1,160	136	20.0	16.9	.4	10.5
30	3.1	878	119	20.0	16.3	.4	11.4
31	3.1	696	-------	20.6	-------	.2	-------

NOTE.—Stream dry during month of August. Discharge Aug. 9 to Sept. 30 estimated by hydrographic study of discharge for Battle Creek at Nashs ranch. No record May 19–23; discharge interpolated.

Monthly discharge of Battle Creek at international boundary, for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	3.7	0	0.81	49.8
March	1,160	0	175	10,800
April	1,310	119	446	26,500
May	140	20	52	3,200
June	134	16.3	31	1,840
July	14.4	0	3.60	221
August	0	0	0	0
September	11.4	0	1.26	75

FRENCHMAN RIVER AT INTERNATIONAL BOUNDARY

LOCATION.—In SW. ¼ sec. 4, T. 1, R. 10 W. third meridian, at Ball's ranch in Saskatchewan, Canada, just across the international boundary from east side of lot 3, sec. 6, T. 37 N., R. 34 E. Montana principal meridian.

DRAINAGE AREA.—1,875 square miles (measured by engineers, Department of the Interior, Canada).

RECORDS AVAILABLE.—April 1, 1917, to September 30, 1925.

GAGE.—Stevens water-stage recorder referred to staff gage in well.

DISCHARGE MEASUREMENTS.—Made from cable 20 feet above gage or by wading.

CHANNEL AND CONTROL.—A bar composed of boulders and gravel forms the the principal control at low and medium stages.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 13.12 feet at 2 p. m. March 29 (discharge, 5,440 second-feet); minimum discharge estimated, 1.0 second-foot March 1–3.

1917–1925: Maximum stage recorded that of March 29, 1925; no flow at numerous periods.

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

DIVERSIONS.—Several ditches divert water for irrigation about 60 miles above station in Saskatchewan.

REGULATION.—None.

ACCURACY.—Stage-discharge relation changed during winter. Two well-defined rating curves used during year. Daily discharge ascertained by applying to rating table mean daily gage height determined by inspection of recorder graph. Open-water records good; others fair.

COOPERATION.—Data collected and compiled jointly by the Canadian Dominion Water Power and Reclamation Service and the United States Geological Survey.

Discharge measurements of Frenchman River at international boundary during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 2	2.19	3.0	Mar. 29	12.87	5,850	Apr. 13	7.00	1,750
Nov. 4	2.36	12.4	Mar. 30	12.49	4,740	Apr. 17	4.65	736
Mar. 18	a2.36	1.5	Mar. 31	12.40	4,580	Apr. 18	4.50	653
Mar. 19	a2.37	1.6	Do	12.74	4,840	Do	4.40	610
Mar. 20	a2.34	1.4	Apr. 1	11.79	3,850	Apr. 19	4.34	581
Mar. 21	a2.46	1.6	Apr. 2	10.69	3,230	Apr. 20	4.12	447
Mar. 22	a3.02	4.1	Apr. 3	10.06	2,990	Apr. 22	3.78	291
Mar. 23	a4.53	192	Apr. 6	6.44	1,560	Apr. 24	4.11	468
Mar. 24	a4.46	208	Apr. 9	5.50	1,170	May 13	3.13	129
Mar. 25	a6.25	939	Do	5.60	1,250	May 26	2.86	62
Mar. 26	a6.12	929	Apr. 10	5.82	1,350	June 19	3.22	152
Do	a6.47	1,140	Do	5.90	1,360	Aug. 5	2.38	15.0
Mar. 27	a6.65	1,090	Apr. 11	6.26	1,510	Sept. 3	2.26	6.8
Do	a6.97	1,280	Do	6.45	1,580			
Mar. 28	a7.61	1,530	Apr. 12	6.86	1,660			

a Stage-discharge relation affected by ice.

NOTE.—All measurements except the one on May 26 were made by engineers of the Dominion Water Power and Reclamation Service.

Daily discharge, in second-feet, of Frenchman River at international boundary for the year ending September 30, 1925

Day	Oct.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.0	1.0	4,110	320	67	42	13.0	3.8
2	3.1	1.0	3,240	285	67	42	10.6	5.0
3	3.7	1.0	3,000	250	67	42	10.6	7.0
4	5.1	7.6	2,560	225	187	40	13.8	7.4
5	6.8	17.0	1,890	200	232	37	15.4	8.6
6	5.9	37.9	1,570	184	164	35	16.2	13.0
7	7.2	43.2	1,360	176	100	52	14.6	12.2
8	6.8	25.0	1,190	168	107	107	13.8	14.6
9	5.9	8.1	1,180	161	94	82	13.0	13.8
10	6.4	3.7	1,340	154	87	52	12.2	12.2
11	9.6	14.4	1,530	147	110	44	11.4	10.6
12	292.0	5.9	1,720	140	174	46	11.4	9.0
13	407.0	5.9	1,780	132	112	45	10.6	8.2
14	342.0	2.0	1,590	130	278	40	9.0	7.8
15	101.0	1.4	1,360	120	496	34.1	8.2	7.8

Daily discharge, in second-feet, of Frenchman River at international boundary for the year ending September 30, 1925—Continued

Day	Oct.	Mar.	Apr.	May	June	July	Aug.	Sept.
16	56.0	1.4	1,060	110	200	30.5	7.8	7.8
17	39.0	1.5	745	104	157	27.8	7.8	7.8
18	29.4	1.5	655	94	167	25.1	7.4	7.4
19	23.5	1.6	560	94	152	21.5	7.0	18.8
20	19.6	1.4	425	87	142	20.6	6.6	23.3
21	17.7	1.6	336	82	127	18.8	5.8	33.2
22	16.4	136.0	305	77	114	16.2	5.4	21.5
23	15.8	180.0	346	72	102	15.4	5.0	13.8
24	15.1	272.0	410	67	90	15.4	4.8	9.8
25	13.8	633.0	420	65	70	13.0	4.6	12.6
26	14.4	966.0	415	65	62	12.2	4.8	15.4
27	13.3	1,120.0	410	67	55	11.4	4.6	13.8
28	12.7	1,680.0	390	67	51	19.7	4.4	14.6
29	12.2	4,800.0	385	67	48	22.4	4.2	47.0
30	12.2	4,700.0	350	67	46	18.8	3.8	57.0
31	11.2	4,820.0	-------	67	-------	16.2	3.4	-------

NOTE.—Stage-discharge relation affected by ice Mar. 1–28; discharge estimated from discharge measurements, observer's notes, and temperature record. No record Apr. 30, May 1, 2, 4, 5, 7–11, and Sept. 25; discharge estimated.

Monthly discharge of Frenchman River at international boundary for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	407	2.0	49.3	3,030
March	4,820	1.0	629	38,700
April	4,100	305	1,220	72,600
May	320	65	130	7,990
June	496	46	131	7,800
July	107	11.4	33.7	2,070
August	16.2	3.4	8.74	537
September	57.0	3.8	14.8	881

YELLOWSTONE RIVER BASIN

YELLOWSTONE LAKE AT LAKE HOTEL, YELLOWSTONE NATIONAL PARK

LOCATION.—At boat landing directly in front of Lake Hotel, 1½ miles southwest of outlet of Yellowstone Lake.

DRAINAGE AREA.—Not measured.

RECORDS AVAILABLE.—October 7, 1921, to September 30, 1925.

GAGE.—Vertical staff on pile at wharf; read by park rangers. Gage datum is 7,729.51 feet above mean sea level.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 6.06 feet July 7; minimum stage recorded, 0.49 foot December 18. Lower stage occurred during period of no record.

1922–1925: Maximum stage recorded, that of July 7, 1925; minimum stage, 0.36 foot December 17, 1921. Lower stage may have occurred during period of no record.

ICE.—Records discontinued during winter on account of severe ice formation.

DIVERSIONS.—None.

REGULATION.—None.

ACCURACY.—Gage read to half-tenths once daily June 5 to August 18 and to hundredths at other times. Records good.

COOPERATION.—Records furnished by Yellowstone Park officials.

Daily gage height, in feet, of Yellowstone Lake at Lake Hotel, Yellowstone National Park, for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	May	June	July	Aug.	Sept.
1	1.16	1.03	0.68	-------	4.24	5.86	4.36	2.70
2	1.17	1.02	.66	-------	4.36	5.91	4.31	2.64
3	1.18	1.01	.66	-------	4.41	5.96	4.21	2.60
4	1.20	1.00	.65	-------	4.42	6.01	4.21	2.56
5	1.18	.99	.65	-------	4.51	6.01	4.16	2.52
6	1.16	.98	.64	-------	4.51	6.01	4.06	2.52
7	1.14	.97	.64	-------	4.51	6.06	3.96	2.50
8	1.13	.96	.63	-------	4.51	5.96	3.86	2.48
9	1.15	.95	.61	-------	4.51	5.91	3.81	2.46
10	1.16	.94	.58	-------	4.56	5.86	3.76	2.44
11	1.19	.94	.56	-------	4.56	5.86	3.71	2.38
12	1.22	.94	.54	-------	4.56	5.76	3.71	2.34
13	1.20	.92	.53	-------	4.51	5.71	3.66	2.30
14	1.18	.90	.52	-------	4.51	5.71	3.61	2.30
15	1.16	.88	.51	-------	4.54	5.61	3.51	2.28
16	1.14	.85	.50	-------	4.54	5.56	3.46	2.26
17	1.13	.84	.50	-------	4.56	5.56	3.41	2.24
18	1.13	.83	.49	-------	4.56	5.46	3.31	2.20
19	1.13	.82	-------	-------	4.68	5.41	3.28	2.20
20	1.12	.80	-------	-------	4.78	5.31	3.21	2.17
21	1.11	.80	-------	2.50	4.91	5.25	3.16	2.14
22	1.10	.79	-------	2.76	5.01	5.21	3.11	2.12
23	1.09	.78	-------	2.90	5.16	5.11	3.08	2.11
24	1.08	.77	-------	-------	5.31	5.06	3.04	2.10
25	1.08	.76	-------	3.14	5.36	4.86	3.00	2.08
26	1.08	.74	-------	3.28	5.46	4.86	2.94	2.06
27	1.07	.73	-------	3.44	5.46	4.76	2.94	2.04
28	1.07	.72	-------	3.58	5.61	4.61	2.90	2.02
29	1.06	.71	-------	3.72	5.66	4.56	2.86	2.00
30	1.05	.70	-------	4.01	5.81	4.51	2.78	1.98
31	1.04	-------	-------	4.16	-------	4.46	2.74	-------

YELLOWSTONE RIVER AT YELLOWSTONE LAKE OUTLET, YELLOWSTONE NATIONAL PARK

LOCATION.—At Fishing Bridge, a quarter of a mile below outlet of Yellowstone Lake and 1½ miles northeast of Lake Hotel.

DRAINAGE AREA.—Not measured.

RECORDS AVAILABLE.—December 3, 1922, to September 30, 1925.

GAGE.—Vertical staff near left bank attached to upstream pier of Fishing Bridge; read by park rangers. Gage datum is 7,728.90 feet above mean sea level.

EXTREMES OF STAGE.—Maximum stage recorded during year, 6.20 feet July 5; minimum stage recorded, 1.15 feet March 31. Higher stages occurred during period of no record.

1923–1925: Maximum stage recorded, that of July 5, 1925; minimum stage, 0.96 foot April 6–8, 26–28, May 2 and 3, 1924.

ICE.—Gage heights seldom affected by ice.

DIVERSIONS.—None.

REGULATION.—None.

ACCURACY.—Gage read to hundredths once daily. Records good.

COOPERATION.—Records furnished by Yellowstone Park officials.

Gage-height record shows approximate stages in Yellowstone Lake, but owing to small amount of fall and drawdown between the lake outlet and gage, daily stages vary slightly from those obtained at gage in Yellowstone Lake at the Lake Hotel.

Daily gage height, in feet, of Yellowstone River at Yellowstone Lake outlet, Yellowstone National Park, for the year ending September 30, 1925

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		1.34	1.35	1.16	1.47			4.60	3.15
2		1.35	1.35	1.18	1.47		6.10	4.50	3.10
3		1.38	1.34	1.20	1.48	4.65		4.50	3.05
4		1.40	1.34	1.20	1.48		6.15	4.45	3.00
5		1.42	1.33	1.21	1.52		6.20	4.45	2.95
6		1.43	1.32	1.22	1.58			4.40	2.95
7		1.44	1.31	1.23	1.62			4.30	2.90
8		1.44	1.30	1.24	1.67			4.25	
9		1.43	1.30	1.25	1.73			4.20	
10		1.42	1.29	1.25	1.76			4.15	
11		1.41	1.29	1.26	1.80			4.15	
12	1.28	1.40	1.28	1.25	1.88			4.10	2.81
13	1.28	1.40	1.27	1.25	1.97			4.00	
14	1.28	1.39	1.26	1.26	2.08			4.00	
15	1.28	1.39	1.26	1.27	2.16			3.90	2.82
16	1.28	1.38	1.25	1.29	2.25		5.85	3.85	2.70
17	1.29	1.38	1.25	1.31			5.75	3.80	2.66
18	1.29	1.37	1.24	1.33	2.40		5.68	3.70	
19	1.29	1.36	1.24	1.35			5.60	3.65	
20	1.30	1.35	1.23	1.37			5.55	3.60	
21	1.30	1.34	1.22	1.37	2.62		5.41	3.55	
22	1.30	1.34	1.22	1.38			5.35	3.52	
23	1.30	1.35	1.21	1.40			5.30	3.48	
24	1.31	1.35	1.21	1.42			5.20	3.40	
25	1.31	1.35	1.20	1.44		5.52	5.15	3.35	
26	1.31	1.36	1.20	1.44			5.15	3.32	2.50
27	1.32	1.36	1.19	1.45			5.05	3.32	2.50
28	1.32	1.36	1.18	1.47			5.00	3.30	
29	1.32		1.17	1.46			4.90	3.28	
30	1.33		1.16	1.46			4.80	3.20	2.46
31	1.33		1.15				4.70	3.15	

YELLOWSTONE RIVER NEAR CANYON HOTEL, YELLOWSTONE NATIONAL PARK

LOCATION.—Half a mile upstream from Upper Falls and Canyon ranger station, 1¼ miles south of Canyon Hotel and 13 miles below outlet of Lake Yellowstone.

DRAINAGE AREA.—1,280 square miles (measured on topographic maps).

RECORDS AVAILABLE.—June 21, 1913, to September 30, 1925.

GAGE.—Stevens continuous water-stage recorder on left bank, 450 feet above Chittenden Bridge; inspected by park rangers.

DISCHARGE MEASUREMENTS.—Made from cable one-fifth mile above gage.

CHANNEL AND CONTROL.—One channel at all stages. Bed composed of gravel and boulders. Control formed by upper part of Upper Yellowstone Falls; permanent for long periods.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, from water-stage recorder, 4.14 feet at 10.30 p. m. July 5 (discharge, 7,340 second-feet); minimum discharge, 884 second-feet on October 1. A smaller discharge probably occurred during period of no record.

1913–1925: Maximum stage recorded, 4.50 feet June 27, 1918 (discharge, 8,550 second-feet); minimum stage, 0.72 foot September 6, 1919 (discharge, 664 second-feet).

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

DIVERSIONS.—None above station.

REGULATION.—None.

ACCURACY.—Stage-discharge relation changed slightly during winter. Two rating curves used; the first well defined between 1,200 and 5,000 second-feet, applicable prior to October 12; the second well defined between 1,000 and 6,500 second-feet, applicable after May 17. Water-stage recorder operated satisfactorily May 18 to August 1 and August 10 to September 30. Staff gage read to hundredths on October 4, 6, and 11. Daily discharge ascertained by applying to rating table mean daily gage height, except as indicated in footnote to table of daily discharge. Records good.

Discharge measurements of Yellowstone River near Canyon Hotel, Yellowstone National Park, during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*
June 24	3.65	5,960	Aug. 23	2.22	2,690
June 25	3.67	6,130	Sept. 13	1.72	1,720
July 22	3.60	5,730			

Daily discharge, in second-feet, of Yellowstone River near Canyon Hotel, Yellowstone National Park, for the year ending September 30, 1925

Day	Oc		June	July	Aug.	Sept.	Day	Oct.	May	June	July	Aug.	Sept.
1	884	-------	4,540	6,920	4,650	2,160	16	------	-------	5,000	6,370	3,200	1,700
2	892	-------	4,650	7,060		2,120	17	------	-------	4,880	6,370	3,090	1,660
3	900	-------	4,770	7,060		2,060	18	------	1,960	5,000	6,240	3,090	1,630
4	909	-------	4,770	7,060		2,040	19	------	2,120	5,000	6,110	2,980	1,660
5	900	-------	4,880	7,200		2,020	20	------	2,340	5,120	6,110	2,880	1,600
6	892	-------	5,000	7,200	4,200	2,020	21	------	2,780	5,240	5,980	2,880	1,570
7	896	-------	4,880	7,200		1,960	22	------	2,880	5,480	5,850	2,780	1,570
8	899	-------	4,880	7,200		1,960	23	------	2,980	5,720	5,720	2,670	1,570
9	903	-------	4,880	7,060		1,930	24	------	2,980	5,850	5,600	2,630	1,560
10	906	-------	5,000	7,060	3,740	1,870	25	------	3,200	5,980	5,480	2,530	1,530
11	909	-------	4,880	6,920	3,630	1,840	26	------	3,300	6,240	5,240	2,460	1,510
12	-----	-------	4,880	6,780	3,520	1,780	27	------	3,520	6,370	5,120	2,460	1,480
13	------	-------	4,880	6,640	3,520	1,750	28	------	3,740	6,370	5,000	2,440	1,460
14	------	-------	4,770	6,640	3,520	1,750	29	------	3,960	6,640	4,880	2,360	1,470
15	------	-------	4,880	6,500	3,410	1,730	30	------	4,190	6,780	4,770	2,280	1,460
							31	------	4,420	-------	4,650	2,200	-------

NOTE.—Discharge interpolated Oct. 1–3, 5, 7–10, and estimated Aug. 2–9 because of missing gage-height record.

Monthly discharge of Yellowstone River near Canyon Hotel, Yellowstone National Park, for the year ending September 30, 1925

[Drainage area, 1,280 square miles]

Month	Discharge in second-feet				Run-off	
	Maximum	Minimum	Mean	Per square mile	Inches	Acre-feet
October 1–11	909	884	899	0.702	0.29	19,600
May 18–31	4,420	1,960	3,170	2.48	1.29	88,000
June	6,780	4,540	5,270	4.12	4.60	314,000
July	7,200	4,650	6,260	4.89	5.64	385,000
August	4,650	2,200	3,310	2.59	2.99	204,000
September	2,160	1,460	1,750	1.37	1.53	104,000

YELLOWSTONE RIVER AT CORWIN SPRINGS, MONT.

LOCATION.—In NE. ¼ sec. 30, T. 8 S., R. 8 E., at highway bridge in canyon at Corwin Springs, Park County, and 8 miles north of Gardiner.

DRAINAGE AREA.—2,630 square miles.

RECORDS AVAILABLE.—September 2, 1910, to September 30, 1925.

GAGE.—Chain gage fastened to floor of highway bridge on downstream side near right bank; read by Mrs. Lena Bassett.

DISCHARGE MEASUREMENTS.—Made from downstream side of highway bridge.

CHANNEL AND CONTROL.—Bed of stream composed of small rocks. Current swift at all stages; no definite control visible but has not shifted since station was established. Banks high and not subject to overflow.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 9.07 feet at 9 a. m. May 30 (discharge, 18,600 second-feet); minimum stage, 0.84 foot January 15–29 (discharge, 930 second-feet).

1910–1925: Maximum stage recorded, 11.5 feet June 14 and 15, 1918 (discharge computed from extended rating curve, 26,500 second-feet); minimum discharge estimated at 720 second-feet January 8–10, 1920.

ICE.—Stage-discharge relation affected by ice.

DIVERSIONS.—No water diverted from Yellowstone River above station.

REGULATION.—Yellowstone Lake furnishes a natural but uncontrolled regulation.

ACCURACY.—Stage-discharge relation permanent except as affected by ice. Rating curve well defined between 1,000 and 20,000 second-feet. Gage read to hundredths once daily during greater part of year and to half-tenths during high stages. Daily discharge ascertained by applying daily gage height to rating table except November 14–16 and December 9 and 10 when daily discharge was estimated. Records good.

The following discharge measurements were made:

June 11, 1925: Gage height, 6.64 feet; discharge, 11,500 second-feet.

August 21, 1925: Gage height, 3.41 feet; discharge, 3,760 second-feet.

Daily discharge, in second-feet, of Yellowstone River at Corwin Springs, Mont., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,540	1,510	1,130	-------	1,010	1,140	1,210	2,620	14,600	15,200	5,590	2,860
2	1,440	1,490	1,160	-------	1,050	1,140	1,200	2,740	12,500	14,300	5,590	2,860
3	1,440	1,490	1,200	-------	1,070	1,160	1,260	3,330	11,600	13,700	5,380	2,800
4	1,440	1,490	1,200	-------	1,110	1,160	1,360	4,070	11,000	13,400	5,180	2,740
5	1,440	1,490	1,160	-------	1,130	1,160	1,360	4,070	10,700	13,100	5,180	2,740
6	1,440	1,490	1,160	-------	1,140	1,170	1,360	4,980	9,870	13,100	4,980	2,740
7	1,500	1,440	1,160	-------	1,160	1,170	1,360	5,590	9,590	13,400	4,980	2,740
8	1,560	1,390	1,100	-------	1,140	1,170	1,410	4,600	9,590	12,800	4,790	2,800
9	1,560	1,390	1,050	-------	1,130	1,170	1,470	4,070	9,590	12,500	4,420	2,960
10	1,660	1,390	1,050	-------	1,130	1,170	1,550	4,240	11,000	11,000	4,070	2,960
11	1,640	1,300	1,000	1,060	1,080	1,170	1,900	4,980	11,000	10,400	4,420	2,740
12	1,590	1,130	1,150	1,060	1,060	1,170	2,280	5,800	10,200	10,400	4,240	2,620
13	1,510	1,100	1,150	1,060	1,080	1,140	2,800	5,800	9,590	10,200	4,240	2,620
14	1,510	1,100	1,150	930	1,130	1,130	3,000	6,490	9,870	9,870	4,420	2,620
15	1,550	1,100	1,150	930	1,130	1,130	3,060	6,730	10,400	9,310	4,420	2,620
16	1,550	1,100	1,080	930	1,110	1,140	3,190	7,220	12,200	9,030	4,240	2,560
17	1,610	1,230	-------	930	1,100	1,130	3,190	9,310	12,500	9,030	4,070	2,500
18	1,610	1,230	-------	930	1,100	1,130	3,330	9,870	12,500	8,760	3,900	2,500
19	1,690	1,230	-------	930	1,110	1,130	3,000	10,700	12,800	8,490	3,750	2,500
20	1,890	1,260	-------	930	1,130	1,220	2,500	12,500	12,800	8,760	3,610	2,500

Daily discharge, in second-feet, of Yellowstone River at Corwin Springs, Mont., for the year ending September 30, 1925—Continued

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
21	1,790	1,260	------	930	1,140	1,160	2,500	17,700	17,400	8,490	3,610	2,500
22	1,750	1,230	------	930	1,140	1,190	2,450	15,500	17,100	8,230	3,470	2,500
23	1,690	1,230	------	930	1,160	1,220	2,280	13,400	16,800	7,720	3,330	2,450
24	1,630	1,230	------	930	1,140	1,140	2,230	12,800	16,400	7,720	3,330	2,450
25	1,590	1,230	------	930	1,140	1,140	2,180	12,200	16,400	7,470	3,190	2,400
26	1,650	1,230	------	930	1,160	1,140	2,120	12,500	15,800	6,490	3,190	2,400
27	1,650	1,210	------	930	1,160	1,140	2,060	13,100	15,200	6,490	3,190	2,400
28	1,550	1,200	------	930	1,140	1,160	2,060	13,100	15,200	6,490	3,190	2,400
29	1,550	1,160	------	930	------	1,190	2,010	14,900	15,200	6,490	3,190	2,400
30	1,490	1,130	------	1,000	------	1,240	2,400	18,600	15,200	6,490	3,000	2,450
31	1,450	------	------	1,010	------	1,220	------	15,200	------	6,490	2,860	------

Monthly discharge of Yellowstone River at Corwin Springs, Mont., for the year ending September 30, 1925

[Drainage area, 2,630 square miles]

Month	Discharge in second-feet			Per square mile	Run-off	
	Maximum	Minimum	Mean		Inches	Acre-feet
October	1,890	1,440	1,580	0.601	0.69	97,200
November	1,510	1,100	1,280	.487	.54	76,200
December 1–16	1,200	1,000	1,130	.430	.26	35,900
January 11–31	1,060	930	956	.363	.28	39,800
February	1,160	1,010	1,120	.426	.44	62,200
March	1,240	1,130	1,160	.441	.51	71,300
April	3,330	1,200	2,140	.814	.91	127,000
May	18,600	2,620	8,990	3.42	3.94	553,000
June	17,400	9,590	12,800	4.87	5.43	762,000
July	15,200	6,490	9,850	3.75	4.32	606,000
August	5,590	2,860	4,100	1.56	1.80	252,000
September	2,960	2,400	2,610	.992	1.11	155,000

YELLOWSTONE RIVER AT INTAKE, MONT.

LOCATION.—In NW. ¼ sec. 36, T. 18 N., R. 56 E., at Lower Yellowstone diversion dam at Intake, Dawson County, 18 miles below Glendive.

DRAINAGE AREA.—66,800 square miles (measured on maps of Montana and Wyoming).

RECORDS AVAILABLE.—January 1, 1911, to September 30, 1925. At Glendive, 18 miles above by War Department and Department of Agriculture 1893 to 1903 and by Geological Survey August 1, 1903, to December 31, 1910.

GAGE.—Chain gage on left abutment of dam, reads depth of water on the crest; read by employees of the United States Bureau of Reclamation.

DISCHARGE MEASUREMENTS.—Made from bridge at Glendive or from ferryboat 100 feet below dam.

CHANNEL AND CONTROL.—Dam forming the principal control is a rock-filled timber crib structure on pile foundation 700 feet long crosses the stream at right angles to current and raises low-water level about 4 feet; specially designed to resist the destructive effects of ice by approach on a slope of 3 to 1; downstream face is ogee-shaped and protected by a heavy rock apron.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 7.5 feet at 6 a. m. June 2 (discharge, 70,600 second-feet); minimum stage, 0.6 foot December 22 and 23 (discharge, 2,570 second-feet).

1903–1925: Maximum stage recorded, 12.6 feet June 21, 1921 (discharge, 159,000 second-feet); minimum discharge, estimated 1,200 second-feet December 6–8, 1922, and January 6–7, 1923.

ICE.—Stage-discharge relation affected by ice.

DIVERSIONS.—The Lower Yellowstone Canal, which diverts water to irrigate 66,000 acres of land, heads at the left abutment of dam. Of the several diversions from the main streams above station the Huntley project of the United States Bureau of Reclamation and the Billings Carey Act project are the largest. There are also numerous diversions from the tributaries.

REGULATION.—Yellowstone Lake and Shoshone Reservoir form the only important regulation above and control only a small part of the flood flow.

ACCURACY.—Stage-discharge relation permanent during year except when affected by ice. Rating curve well defined below 80,000 second-feet. Gage read to tenths or half-tenths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table except during periods affected by ice. Records good.

The following discharge measurements were made:

December 4, 1924: Gage height, 1.53 feet; discharge, 6,910 second-feet.

September 26, 1925: Gage height, 2.02 feet; discharge, 9,770 second-feet.

Daily discharge, in second-feet, of Yellowstone River at Intake, Mont., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	8,370	9,550	7,270	9,550	9,550	19,800	8,370	11,100	55,200	55,200	15,100	8,370
2	7,810	9,950	10,800	12,500	9,550	18,600	7,810	10,800	68,300	55,200	15,100	7,810
3	7,810	8,950	8,660	12,800	10,500	16,600	8,370	10,800	69,100	56,800	15,100	7,810
4	7,810	8,950	7,270	14,300	11,800	13,600	8,370	10,800	63,700	61,400	15,100	7,810
5	7,810	8,950	7,270	14,700	12,500	15,100	8,370	10,800	53,800	58,200	14,300	7,540
6	7,810	8,950	7,540	15,100	14,700	26,700	8,370	10,800	47,200	53,800	14,300	7,540
7	7,810	8,950	7,540	15,800	15,800	31,600	8,660	11,500	37,800	47,900	13,600	7,270
8	7,810	8,370	7,540	16,600	17,000	33,200	8,950	12,500	36,000	46,400	13,600	7,270
9	8,090	8,370	6,250	15,800	18,100	34,400	12,500	12,800	33,200	47,900	13,200	7,270
10	8,370	8,370	6,250	15,100	19,200	36,000	20,600	12,800	33,200	44,300	12,800	7,540
11	8,950	7,540	4,350	15,100	20,400	22,300	20,600	14,300	33,800	41,600	12,800	8,370
12	9,550	7,270	3,900	15,100	21,500	16,200	18,200	15,100	31,600	38,400	14,300	8,660
13	10,200	6,250	3,900	14,700	20,600	12,500	15,800	14,300	32,700	34,400	12,500	8,660
14	10,200	6,250	3,900	14,300	17,800	10,500	15,800	14,300	32,700	32,200	12,200	8,950
15	10,500	5,760	6,250	13,600	15,800	7,810	15,100	15,800	30,100	30,100	11,800	8,660
16	10,500	5,760	5,820	13,600	12,200	6,250	15,100	17,800	29,600	28,600	12,200	8,660
17	10,200	6,250	5,400	13,600	10,200	7,540	15,100	23,600	31,600	27,600	11,800	8,370
18	9,550	7,270	4,970	13,600	10,200	14,300	15,100	25,800	57,500	25,800	11,500	8,370
19	8,950	7,810	4,550	12,800	10,200	17,800	15,100	25,800	47,900	24,500	11,800	8,370
20	8,950	7,810	4,120	12,800	10,800	24,900	15,800	25,400	40,300	23,200	12,500	8,370
21	8,950	8,370	3,010	12,200	12,200	26,200	15,800	25,800	39,600	23,200	11,500	8,370
22	10,200	8,370	2,570	11,500	12,200	32,700	16,200	29,600	67,600	23,200	10,800	8,370
23	10,800	8,370	2,790	11,500	13,200	25,400	15,100	36,000	66,000	22,800	10,200	8,370
24	10,800	8,370	3,450	11,500	17,400	23,200	14,700	49,400	66,800	23,200	9,550	8,660
25	11,800	8,090	3,680	11,500	22,800	18,200	14,300	55,200	66,000	20,600	8,950	8,950
26	12,200	8,090	8,660	11,500	23,200	13,600	13,600	50,100	66,000	20,200	8,950	9,860
27	10,800	8,090	10,800	12,200	20,600	10,800	13,200	45,700	62,100	19,800	8,950	9,860
28	10,200	7,810	11,100	11,500	19,800	9,550	12,200	43,600	59,800	18,200	8,370	10,200
29	10,200	7,810	8,370	10,800	-------	8,950	12,200	42,200	60,600	17,000	8,370	10,800
30	10,200	7,810	8,660	10,500	-------	8,660	11,500	42,900	57,500	16,600	8,370	11,500
31	9,860	-------	9,550	10,200	-------	8,370	-------	45,000	-------	15,800	8,370	-------

NOTE.—Stage-discharge relation affected by ice Dec. 7, 16–20 and Feb. 7–11; daily discharge interpolated.

Monthly discharge of Yellowstone River at Intake, Mont., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	12,200	7,810	9,450	581,000
November	9,550	5,760	7,940	472,000
December	11,000	2,570	6,330	398,000
January	16,600	9,550	13,100	806,000
February	23,200	9,550	15,400	855,000
March	36,000	8,370	18,400	1,130,000
April	20,600	7,810	13,400	797,000
May	55,200	10,800	24,900	1,530,000
June	69,100	29,600	49,200	2,930,000
July	61,400	15,800	34,000	2,090,000
August	15,100	8,370	11,900	732,000
September	11,500	7,270	8,550	509,000
The year	69,100	2,570	17,700	12,800,000

TOWER CREEK AT TOWER FALLS, YELLOWSTONE NATIONAL PARK

LOCATION.—A short distance above Tower Falls and bridge on highway leading to Camp Roosevelt, a quarter of a mile above junction of Tower Creek with Yellowstone River, and 3 miles southeast of Camp Roosevelt.

DRAINAGE AREA.—51 square miles (measured on topographic maps).

RECORDS AVAILABLE.—September 2, 1922, to September 30, 1925.

GAGE.—Vertical staff on right bank; read by John Bauman and Earl Bowman.

DISCHARGE MEASUREMENTS.—Made by wading.

CHANNEL AND CONTROL.—Bed composed of lava rock, boulders, and gravel. One channel at all stages. Control formed by rock riffle 30 feet below gage; well defined and fairly permanent.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 6.16 feet May 30 (discharge, 642 second-feet); minimum discharge, estimated at 17 second-feet December 17–20.

1923–1925: Maximum stage recorded, that of May 30, 1925; minimum stage, 3.38 feet May 6, 1924 (discharge, 13 second-feet).

ICE.—Stage-discharge relation affected occasionally by ice; spring inflow above gage and heavy snow cover prevents severe ice formation on control.

DIVERSIONS.—None.

REGULATION.—None.

ACCURACY.—Stage-discharge relation changed slightly during high water. Rating curve used to May 18 well defined between 20 and 60 second-feet and poorly defined above 60 second-feet; curve used after May 18 is well defined between 25 and 100 second-feet, above which it is fairly well defined. Gage read to hundredths once daily June 20 to September 7 and two to four times a week at other times except for short periods in October and April when gage was not read. Daily discharge determined by applying daily gage height to rating table except as indicated in footnote to table of daily discharge. Winter records poor; high-water records fair; others good.

Discharge measurements of Tower Creek at Tower Falls, Yellowstone National Park, during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
June 23	5.48	391	July 23	4.29	70.9	Sept. 18	3.89	34.2
Do	5.53	393	Aug. 23	3.96	38.5			
July 22	4.26	74.0	Aug. 31	3.92	35.7			

Daily discharge, in second-feet, of Tower Creek at Tower Falls, Yellowstone National Park, for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		25	a 21	a 21	a 20	a 20		35	a 364	304	59	37
2		25	21	a 21	a 20	a 20		38	338	288	56	36
3		a 25	a 21	21	a 20	a 20		a 46	a 321	240	53	36
4		25	21	a 21	20	20		54	304	219	52	35
5	26	a 25	a 21	21	a 20	a 20		a 56	a 280	240	50	35
6		a 24	21	a 21	a 21	a 19		58	256	205	50	36
7		a 23	21	a 21	22	19		a 60	213	191	51	37
8		23	a 21	a 21	a 22	a 19	28	61	a 226	164	50	a 36
9		24	21	a 21	a 22	a 20		54	240	141	50	36
10		a 24	a 21	21	a 21	a 20		a 59	a 228	130	51	36
11		23	21	a 21	21	21		64	216	111	50	a 36
12			a 21	a 21	a 21	a 21		a 74	a 209	103	50	37
13			21	a 21	a 20	a 21		85	202	95	48	37
14	30		21	21	20	21		a 106	208	89	46	a 36
15		20	a 21	a 21	a 20	a 21	37	126	a 336	87	46	36
16			21	a 21	a 20	a 20	a 38	108	463	86	45	a 36
17				21	a 20	a 20	40	156	a 384	84	45	36
18			17	a 21	20	20	36	a 222	304	80	43	33
19	30			a 20	a 20	a 20	a 35	288	a 356	75	43	36
20	a 29	24		a 20	a 20	a 20	34	a 330	408	73	41	36
21	28			20	20	20	a 33	372	444	72	41	a 36
22	a 28	24		a 20	a 20	a 20	32	a 314	408	71	41	a 36
23	27	24		a 20	a 20	a 20	a 31	256	390	75	40	36
24	a 26	a 23	19	20	a 20	a 20	a 30	355	372	71	40	a 34
25	26	22		a 20	20	20	29	a 372	338	68	40	33
26	26	a 22		a 20	a 20	a 20	a 28	390	a 346	63	38	a 33
27	a 26	21	20	a 20	a 20	a 20	27	a 399	355	63	40	33
28	26	a 21	21	20	20	20	a 28	408	338	62	39	a 36
29	a 26	21	a 21	a 20	-------	21	29	600	338	61	38	38
30	26	21	a 21	a 20	-------	22	a 32	642	321	61	38	a 36
31	a 26	-------	a 21	20	-------		-------	390	-------	60	36	-------

a Discharge interpolated on account of missing gage heights.

NOTE.—Discharge estimated; based largely on weather records Oct. 1–18, Nov. 12–21, Dec. 17–26, Mar. 30–31, and Apr. 1–14.

Monthly discharge of Tower Creek at Tower Falls, Yellowstone National Park, for the year ending September 30, 1925

[Drainage area, 51 square miles]

Month	Discharge in second-feet				Run-off	
	Maximum	Minimum	Mean	Per square mile	Inches	Acre-feet
October	-------	-------	27.5	0.539	0.62	1,690
November	-------	-------	22.7	.445	.50	1,350
December	21	-------	20.1	.394	.45	1,240
January	21	20	20.6	.404	.47	1,270
February	22	20	20.4	.400	.42	1,180
March	-------	19	20.2	.396	.46	1,240
April	40	-------	30.4	.596	.66	1,810
May	642	35	212	4.16	4.80	13,000
June	463	202	317	6.22	6.94	18,900
July	304	60	120	2.35	2.71	7,380
August	59	36	45.5	.892	1.03	2,800
September	38	33	35.7	.700	.78	2,120
The year	642	-------	74.5	1.46	19.84	53,900

LAMAR RIVER NEAR TOWER FALLS RANGER STATION, YELLOWSTONE NATIONAL PARK

LOCATION.—About three-fourths mile above junction of Lamar and Yellowstone Rivers, 2 miles from Tower Falls ranger station, and half a mile north of the Cooke City road.

DRAINAGE AREA.—640 square miles (measured on topographic maps).

RECORDS AVAILABLE.—September 2, 1922, to September 30, 1925.

GAGE.—Au continuous recorder on left bank installed September 16, 1925; prior to this date vertical staff at present site was used; read and inspected by John L. Bauman and Earl S. Bowman.

DISCHARGE MEASUREMENTS.—Made from cable 50 feet below gage.

CHANNEL AND CONTROL.—Bed composed of lava rock, boulders, gravel, and sand. One channel at all stages. Control is formed by gravel and boulder riffle 200 feet below gage; well defined and practically permanent.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 7.8 feet May 30 (discharge, 11,500 second-feet); stage reported below zero of gage on November 29 and December 7 (discharge not computed).

1922–1925: Maximum stage recorded, that of May 30, 1925; minimum stage recorded, −0.08 foot April 20, 1924 (discharge, 104 second-feet). Lower stage was reported on November 29 and December 7, 1924, when gage could not be read accurately on account of ice.

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

DIVERSIONS.—None above or below station.

REGULATION.—None.

ACCURACY.—Stage-discharge relation permanent. Rating curve well defined between 150 and 9,000 second-feet. Gage read to hundredths about three times a week prior to August 28 and one to three times a day from August 28 to September 15; thereafter Au water-stage recorder was used. On account of diurnal fluctuations, which are usually excessive in the spring, daily gage heights probably do not represent actual mean stages for the day. Daily discharge ascertained by applying mean daily gage height to rating table, except as indicated in footnote to table of daily discharge. Records good for August and September; others fair, except for estimated periods in October, for which they are poor.

Discharge measurements of Lamar River near Tower Falls ranger station, Yellowstone National Park, during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
June 21	6.70	8,620	June 23	6.40	8,020	Aug. 24	0.68	297
June 22	6.45	8,210	July 22	2.05	1,150	Sept. 16	.72	325

Daily discharge, in second-feet, of Lamar River near Tower Falls ranger station, for the year ending September 30, 1925

Day	Oct.	Nov.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		260			825	a 9,360	a 6,420	725	260
2		260			1,060	8,750	6,200	695	260
3		a 251			a 1,550	a 6,230	4,570	a 680	242
4		242			2,040	3,710	4,210	665	260
5	210	a 242			a 2,100	a 3,560	3,870	a 610	319
6		a 242			2,160	3,400	a 3,870	555	362
7		a 242			a 2,160	3,250	3,870	a 542	480
8		242			2,160	a 4,000	a 3,560	530	407
9		226			1,940	4,760	3,250	555	582
10		a 226			a 1,990	a 4,160	2,500	a 656	407
11		226			2,040	3,550	2,040	758	340
12		a 203			a 2,320	a 3,200	2,380	a 969	319
13		180			2,610	2,850	a 2,210	1,180	384
14	350	a 180			a 3,000	2,980	2,040	a 868	340
15		180		1,360	3,400	a 5,040	1,740	555	340
16		155		a 1,360	3,110	7,100	a 1,840	530	319
17		a 136		1,360	3,550	a 7,330	1,940	a 505	307
18		116		1,360	a 4,250	7,560	1,640	480	283
19	610	a 116		a 1,230	4,950	a 7,920	1,360	a 432	307
20	a 520	116		1,100	a 7,580	8,270	a 1,310	384	366
21	431	a 116		a 929	10,200	8,750	1,260	340	336
22	a 408	116		758	a 9,000	8,270	1,180	319	349
23	384	116		a 747	7,790	8,030	a 1,100	a 319	371
24	a 373	a 116		a 736	6,640	a 7,120	1,020	319	328
25	362	116		725	a 6,530	6,200	975	a 299	303
26	340	a 116		a 640	6,420	6,640	935	279	291
27	a 320	116		555	a 6,880	6,200	a 846	a 332	279
28	299			a 596	7,330	6,200	758	384	275
29	a 289		168	638	a 9,420	a 6,420	a 774	340	323
30	279		a 168	a 732	11,500	6,640	790	279	371
31	a 270		168		9,960		a 758	279	

a Discharge interpolated.

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

Monthly discharge of Lamar River near Tower Falls ranger station, Yellowstone National Park, for the year ending September 30, 1925

[Drainage area, 640 square miles]

Month	Discharge in second-feet				Run-off	
	Maximum	Minimum	Mean	Per square mile	Inches	Acre-feet
October			325	0.508	0.59	20,000
November 1-27	260	116	180	.281	.28	9,640
March 29-31	168	168	168	.262	.03	1,000
April 15-30	1,360	555	927	1.45	.86	29,400
May	11,500	825	4,720	7.38	8.51	290,000
June	9,360	2,850	5,920	9.25	10.32	352,000
July	6,420	758	2,300	3.59	4.14	141,000
August	1,180	279	528	.825	.95	32,500
September	582	242	337	.527	.59	20,100

GARDINER RIVER AT MAMMOTH HOTEL, YELLOWSTONE NATIONAL PARK

LOCATION.—At footbridge on trail crossing leading to Mount Everts, 200 yards below inflow from Mammoth Hot Springs, 0.9 mile east of Mammoth Hotel, and 5 miles above junction with Yellowstone River.

DRAINAGE AREA.—201 square miles (measured on topographic map).

RECORDS AVAILABLE.—September 3, 1922, to September 30, 1925.

GAGE.—Vertical staff on left bank; read by park rangers.

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

CHANNEL AND CONTROL.—Bed composed of gravel. One channel at all stages. Control formed by a well-defined gravel and boulder riffle 50 feet below gage.

EXTREMES OF DISCHARGE.—Maximum discharge estimated, 1,500 second-feet June 22; minimum stage, 2.22 feet February 15 (discharge, 105 second-feet). Lower flow probably occurred during the period of no record.

1923–1925: Maximum discharge that of June 22, 1925; minimum stage, 1.5 feet March 3 and 4, 1923 (discharge, 80 second-feet). Lower discharge probably occurred during periods of no record.

ICE.—Observations discontinued during winter; stage-discharge relation may be affected by ice.

DIVERSIONS.—None.

REGULATION.—None.

ACCURACY.—Stage-discharge relation changed twice during year, May 17 to June 2 and on June 22. Rating curve used October 1 to May 16 well defined between 100 and 400 second-feet and extended above; a curve parallel thereto used June 3–21; curve used June 24 to September 30 well defined between 75 and 600 second-feet. Shifting-control method used May 17 to June 2. Gage read to hundredths once daily. Daily discharge determined by applying daily gage height to rating table except as noted in footnote to table of daily discharge. Records fair.

The following discharge measurements were made:

June 21, 1925: Gage height, 4.58 feet; discharge, 994 second-feet.

August 31, 1925: Gage height, 4.57 feet; discharge 138 second-feet.

September 11, 1925: Gage height, 4.55 feet; discharge, 138 second-feet.

Daily discharge, in second-feet, of Gardiner River at Mammoth Hotel, Yellowstone National Park, for the year ending September 30, 1925

Day	Oct.	Nov.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	144	171	--------		136	210	1,010	578	203	133
2	153	171	--------		136	251	918	523	203	133
3	153	171	--------		136	333	828	496	203	139
4	153	171	--------		144	346	679	496	203	139
5	153	171	--------		144	360	584	496	203	146
6	144	180	--------		153	514	548	444	195	173
7	144	190	--------		144	417	514	419	195	159
8	153	180	--------	115	153	360	497	395	188	146
9	144	171	--------		162	346	497	371	188	152
10	153	144	--------		171	333	531	348	188	139
11	144	136	120		200	432	566	326	188	139
12	153	136	124		210	497	602	326	180	133
13	144	136	128		230	480	621	305	180	139
14	144	136	112		296	531	640	285	211	139
15	136	144	105	120	296	566	660	285	195	133
16	136	--------	110	120	346	566	679	265	180	133
17	153	--------	115	128	388	679	700	265	173	127
18	171	--------	120	136	296	741	720	265	166	127
19	171	--------	116	136	251	805	828	265	166	159
20	162	--------	112	128	230	918	1,010	265	159	127
21	153	--------		136	220	962	1,130	246	159	133
22	153	--------		128	210	1,010	1,500	246	152	133
23	153	--------		128	190	940	850	246	146	133
24	153	--------		136	180	1,010	694	246	146	139
25	153	--------	115	136	171	1,030	664	228	139	139
26	153	--------		144	153	985	635	211	146	146
27	162	--------		153	162	985	606	211	159	146
28	153	--------		136	162	962	635	211	159	146
29	162	--------	--------	144	171	1,060	606	211	146	152
30	162	--------	--------	136	171	1,100	606	211	139	146
31	162	--------	--------	153	--------	1,010	--------	203	133	--------

NOTE.—Braced figures show estimated mean discharge for periods indicated. Discharge estimated Feb. 12, 16, 17, 19, and June 22 and 23 on account of questionable or missing record.

Monthly discharge of Gardiner River at Mammoth Hotel, Yellowstone National Park, for the year ending September 30, 1925

[Drainage area, 201 square miles]

Month	Discharge in second-feet				Run-off	
	Maximum	Minimum	Mean	Per square mile	Inches	Acre-feet
October	171	136	152	0.756	0.87	9,357
November 1–15	190	136	161	.801	.45	4,790
February 11–28			116	.577	.39	4,140
March	153		126	.627	.72	7,750
April	388	136	200	.995	1.11	11,900
May	1,100	210	669	3.33	3.84	41,100
June	1,500	497	719	3.58	3.99	42,800
July	578	203	319	1.59	1.83	19,600
August	211	133	174	.866	1.00	10,700
September	173	127	141	.701	.78	8,390

STILLWATER RIVER NEAR NYE, MONT.

LOCATION.—In SE. ¼ sec. 32, T. 5 S., R. 15 E., 1,000 feet above mouth of Woodbine Creek and 8 miles southwest of Nye, Stillwater County, in the Beartooth National Forest.

DRAINAGE AREA.—Not measured.

RECORDS AVAILABLE.—May 12, 1924, to September 30, 1925.

GAGE.—Stevens eight-day recorder in wooden shelter on left bank; read by E. J. Ikerman.

DISCHARGE MEASUREMENTS.—Made from cable situated below mouth of Woodbine Creek. The flow of Woodbine Creek subtracted to obtain the discharge at gage.

CHANNEL AND CONTROL.—Channel composed of heavy boulders and cobblestones. Control probably the entire section from some distance below gage. Channel has steep gradient and is obstructed by many large boulders.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 5.50 feet at 11 a. m. May 30 (discharge, 3,930 second-feet); minimum discharge, 50 second-feet January 19.

1924–1925: Maximum stage recorded that of May 30, 1925; minimum discharge, 50 second-feet January 19, 1925.

ICE.—Stage-discharge relation affected by ice.

DIVERSIONS.—None.

REGULATION.—None.

ACCURACY.—Stage-discharge relation permanent except as affected by ice. Rating curve well defined between 70 and 1,300 second-feet. Gage heights determined by inspection from graph of water-stage recorder. Daily discharge ascertained by applying mean daily gage height to rating table during open-water season. Discharge computed December 1 to March 31, records collected at a station below mouth of Woodbine Creek. Open-water record good; others fair.

Discharge measurements of Stillwater River near Nye, Mont., during the year ending September 30, 1926

Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Dec. 3	0.74	86	June 9	2.90	864
Jan. 10	[a]1.85	54	Aug. 23	1.16	145
Apr. 14	1.78	292			

[a] Stage-discharge relation affected by ice.

Daily discharge, in second-feet, of Stillwater River near Nye, Mont., for the year ending September 30, 1925

Day	Oct.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	153	87	93	67	57		212	2,420		378	114
2	160	87	93	67	54		276	2,020		358	114
3	167	85	163	67	54		306	1,690		378	114
4	175	85	109	67	69		340	1,590		420	121
5	183	85	80	79	57		358	1,140		378	146
6	191	83	109	79	57		420	946		340	172
7	163	82	80	79	58		466	815		322	163
8	163	82	74	67	55		378	776		306	182
9	163	82	67	62	57		322	900		276	154
10	163	92	58	67	59		306	1,340		261	146
11	172	92	58	86	59		398	1,340		261	129
12	154	108	58	108	55		572	1,290		248	121
13	154	93	58	94	57		992	1,290		235	154
14		86	69	80	59	261	1,190	1,290		290	146
15		93	81	68	59	261	1,390	1,490		261	146
16		116	69	63	59	248	992	1,800		212	137
17		112	69	58	59	322	946	1,800		200	129
18		112	58	58	59	322	900	1,960		188	114
19		112	50	58	64	261	858	2,970		176	
20		112	58	58	64	224	992	3,790		165	
21		102	69	59	59	202	3,230	2,970	516	154	
22		102	80	59	59	191	2,720		572	154	
23		102	110	62	59	182	2,240		543	146	
24		102	127	67	64	163	2,130		516	146	
25		92	81	79	69	154	2,130		466	129	
26		92	59	79	69	146	2,500		420	121	
27		92	59	62	67	146	2,870		398	129	
28		92	59	53	67	146	3,240		398	129	
29		82	69		81	154	3,660		442	146	
20		82	69		81	182	3,790		466	137	
31		82	69		81		3,440		398	121	

Monthly discharge of Stillwater River near Nye, Mont., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October 1–13	191	153	166	4,280
December	116	82	93.8	5,770
January	163	50	77.6	4,770
February	108	53	69.7	3,870
March	81	54	62.2	3,820
April 14–30	322	146	210	7,080
May	3,970	212	1,440	88,500
June 1–21	3,790	776	1,700	70,800
July 21–31	572	398	467	10,200
August	420	121	231	14,200
September 1–18	182	114	139	4,960

WOODBINE CREEK NEAR NYE, MONT.

LOCATION.—In SW. ¼ sec. 33, T. 5 S., R. 15 E., in Beartooth National Forest, one-quarter mile above mouth, 8 miles southwest of Nye, Stillwater County, and 44 miles southwest of Columbus.

DRAINAGE AREA.—Not measured.

RECORDS AVAILABLE.—May 12, 1924, to September 30, 1925.

GAGE.—Stevens eight-day recorder in wooden shelter on right bank.

DISCHARGE MEASUREMENTS.—Made from footbridge 10 feet below gage or by wading.

CHANNEL AND CONTROL.—Channel composed of heavy boulders and cobblestones. Control is rock outcrop situated 15 feet below gage. Current is swift at all stages.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 4.20 feet at 6 p. m. June 25 (discharge, 272 second-feet); minimum stage, 1.00 foot March 16 (discharge, 5.8 second-feet).

1924–1925: Maximum stage, that of June 25, 1925; minimum stage, that of March 16, 1925.

ICE.—Stage-discharge seriously affected by ice.

DIVERSIONS.—None.

REGULATION.—None.

ACCURACY.—Stage-discharge relation not permanent; affected by ice and by change in control. Two rating curves, well defined below 100 second-feet, used; one applicable October 1 to March 31 and the other April 14 to September 30. Gage read once a week December 1 to March 31. Daily discharge ascertained by applying mean daily gage height to rating table except as noted in footnote to table of daily discharge. Open-water records good; others fair.

Discharge measurements of Woodbine Creek near Nye, Mont., during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Dec. 3	1.22	8.5	June 9	2.36	64
Jan. 10	1.16	7.0	Aug. 23	1.70	26.7
Apr. 14	1.38	14.1			

Daily discharge, in second-feet, of Woodbine Creek near Nye, Mont., for the year ending September 30, 1925

Day	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1						8.5	154	154	47	20
2						9.8	122	154	47	22
3	8.5			5.9		11.0	106		53	22
4			8.2			11.0	91		56	22
5						12.8	86		50	24
6		7.2				14.5	81		50	24
7						18.0	76		47	28
8						16.2	72		47	28
9	8.0			5.9		16.2	77		44	26
10		7.0	8.2			20	72		41	22
11						26	64	95	38	20
12						28	60		38	20
13						44	60		36	22
14		6.0			14.5	72	82		41	20
15					12.8	68	86		36	20
16	8.2			5.8	12.8	56			34	20
17			6.8		16.2	53			31	18
18					16.2	56			31	
19					14.5	86			31	
20					13.8	116	125		31	
21		6.5			11.0	160		60	31	
22					11.0	144		60	26	
23	7.5				9.8	127		56	26	
24					9.8	122		56	24	20
25				5.9	9.8	116	211	53	22	
26			8.2		8.5	111	176	50	22	
27		5.8			8.5	116	166	47	24	
28					8.5	111	166	53	26	
29					7.5	154	176	60	26	
30	7.0				7.5	199	188	56	24	
31				6.2		193		50	22	

NOTE.—Braced figures show estimated mean discharge for periods indicated. Stage-discharge relation affected by ice Dec. 7 to Jan. 31.

Monthly discharge of Woodbine Creek near Nye, Mont., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
December	----------	----------	*7.8	480
January	----------	----------	*6.5	400
February	----------	----------	*7.8	433
March	----------	----------	*5.9	363
April 14-30	16.2	7.5	11.3	3,810
May	199	8.5	74.1	4,560
June	211	60	117	6,960
July	154	47	84.5	5,200
August	56	22	35.5	2,180
September	28	18	21.3	1,270

* Estimated.

CLARK FORK AT CHANCE, MONT.

LOCATION.—In NW. ¼ NW. ¼ sec. 32, T. 9 S., R. 22 E., on highway bridge at the former post office of Chance, in Carbon County, just above mouth of Sand Coulee, half a mile north of the Wyoming-Montana boundary, and 10 miles south of Belfry.

DRAINAGE AREA.—Not measured.

RECORDS AVAILABLE.—July 28, 1921, to September 30, 1925.

GAGE.—Vertical staff nailed to face of left abutment; read by Mrs. Charles Elze.

DISCHARGE MEASUREMENTS.—Made from highway bridge.

CHANNEL AND CONTROL.—One channel composed of clean boulders and gravel; subject to shift. Banks high and clean but subject to overflow at extreme stages.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 5.60 feet at 8 a. m. June 22 (discharge, 8,670 second-feet); minimum stage, 0.90 foot March 22 (discharge, 160 second-feet).

1921–1925: Maximum stage recorded, 5.75 feet June 15, 1922 (discharge, 9,150 second-feet); minimum stage, 0.59 foot April 19, 1922 (discharge, 87 second-feet).

ICE.—Stage-discharge relation affected by ice.

DIVERSIONS.—Numerous irrigation ditches above and below station.

REGULATION.—None

ACCURACY.—Stage-discharge relation affected by ice and by a change of control. Two well defined rating curves used during year, one applicable October 1 to December 6 and the other applicable March 22 to September 30. Gage read to half-tenths once daily. Daily discharge ascertained by applying daily gage height to rating table. Records good except for high stages.

The following discharge measurements were made:

April 15, 1925: Gage height, 2.40 feet; discharge, 1,360 second-feet.

June 7, 1925: Gage height, 3.15 feet; discharge, 2,390 second-feet.

September 30, 1925: Gage height, 1.50 feet; discharge, 443 second-feet.

Daily discharge, in second-feet, of Clark Fork at Chance, Mont., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	370	495	343		226	870	5,920	7,100	1,590	518
2	370	495	343		247	970	4,580	7,100	1,520	480
3	370	495	343		268	1,590	3,760	6,800	1,870	480
4	370	495	343		268	1,590	3,440	6,210	1,730	480
5	370	495	343		443	1,730	3,240	5,630	1,590	480
6	370	495	343		559	1,870	3,040	5,090	1,730	480
7	370	430			775	2,020	2,580	5,090	1,460	600
8	370	430			443	1,730	2,670	4,830	1,400	685
9	370	430			600	1,590	2,670	4,580	1,460	600
10	495	430			775	1,460	2,760	4,340	1,460	600
11	565	370			870	1,460	2,670	4,100	1,460	600
12	565	370			1,460	2,330	2,580	4,100	1,460	600
13	565	370			1,730	2,020	2,500	3,870	1,460	518
14	565	370			1,520	2,850	2,580	3,870	1,330	518
15	565	370			1,460	3,240	2,850	3,650	1,200	480
16	565				1,590	3,040	2,670	3,650	1,080	480
17	565				1,870	3,240	3,040	3,650	970	480
18	565				1,520	3,040	3,440	3,440	870	480
19	1,060				1,260	3,870	5,630	3,440	870	443
20	1,060	350			1,080	5,090	7,100	3,440	870	443
21	965				970	6,800	8,350	2,850	870	443
22	965			160	920	6,500	8,670	2,330	822	443
23	875	400		190	775	5,350	7,720	2,170	775	443
24	790	400		190	775	5,090	8,030	2,170	775	443
25	790	400		190	775	5,090	7,410	2,170	775	443
26	635	400		190	775	4,830	7,100	2,020	685	443
27	635	370		190	685	5,090	6,800	2,020	685	410
28	565	370		190	600	5,090	6,500	1,870	685	410
29	565	370		190	518	5,630	5,920	1,730	600	410
30	565	370		190	775	7,720	7,100	2,020	600	430
31	495			226		7,720		1,660	559	

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

Monthly discharge of Clark Fork at Chance, Mont., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	1,060	370	592	36,400
November	495		402	23,900
December 1-6	343	343	343	4,080
March 22-31	226	160	191	3,790
April	1,870	226	884	52,600
May	7,720	870	3,560	219,000
June	8,670	2,500	4,780	284,000
July	7,100	1,660	3,770	232,000
August	1,870	559	1,140	70,100
September	685	410	492	29,300

CLARK FORK AT EDGAR, MONT.

LOCATION.—In SW. ¼ sec. 24, T. 4 S., R. 23 E., on highway bridge half a mile east of Edgar, Carbon County.

DRAINAGE AREA.—Not measured.

RECORDS AVAILABLE.—July 29, 1921, to September 30, 1925.

GAGE.— Wire gage fastened to guardrail on downstream side of bridge; read by A. Van de Veegaetee and Mrs. L. O. Helmey.

DISCHARGE MEASUREMENTS.—Made from highway bridge.

CHANNEL AND CONTROL.—Channel composed of sand and gravel. Control not definite; probably is the entire channel for some distance below gage; shifts occasionally.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 7.30 feet June 22 (discharge, 8,310 second-feet); minimum stage, 2.62 feet September 5 (discharge, 469 second-feet).

1921–1925: Maximum stage recorded, 7.90 feet June 16, 1922 (discharge, 9,700 second-feet); minimum stage, 2.18 feet March 18 and 19, 1923 (discharge, 217 second-feet).

ICE.—Stage-discharge relation affected by ice.

DIVERSIONS.—Numerous ditches divert water for irrigation above station.

REGULATION.—None.

ACCURACY.—Stage-discharge relation slightly affected by ice, otherwise permanent during year. Rating curve well defined between 400 and 3,500 second-feet. Gage read to hundredths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table except April 16–18 when discharge was interpolated. Records good for medium and low stages and fair for high stages.

The following discharge measurements were made:

April 15, 1925: Gage height, 3.54 feet; discharge, 1,280 second-feet.

June 17, 1925: Gage height, 4.66 feet; discharge, 2,750 second-feet.

August 22, 1925: Gage height, 3.04 feet; discharge, 829 second-feet.

Daily discharge, in second-feet, of Clark Fork at Edgar, Mont., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Apr.	May	June	July	Aug.	Sept.
1	702	728	653	--------	918	6,520	7,160	1,700	574
2	719	702	645	--------	1,350	5,100	6,920	1,650	498
3	728	694	637	--------	1,230	3,990	6,370	1,730	484
4	710	710	629	--------	1,750	3,520	5,520	1,820	484
5	736	702	661	--------	1,700	3,290	5,240	1,780	469
6	762	702	661	--------	1,970	3,160	5,410	1,600	543
7	796	685	653	--------	1,940	2,980	5,160	1,460	605
8	812	702	637	--------	2,040	2,800	5,030	1,360	613
9	812	685	629	--------	1,730	2,600	4,690	1,270	621
10	830	685	621	--------	1,520	2,800	4,290	1,210	694
11	830	702	613	--------	1,410	3,430	4,090	1,190	645
12	830	685	613	--------	2,050	3,340	3,880	1,140	653
13	830	694	629	--------	2,340	2,920	3,610	1,110	653
14	846	685	661	--------	2,340	2,700	3,700	1,090	661
15	846	694	677	1,270	3,360	2,730	3,570	1,190	661
16	864	685	--------	1,340	3,430	3,210	3,470	1,130	621
17	873	661	--------	1,400	3,520	3,340	3,390	1,030	589
18	882	677	--------	1,460	3,340	3,610	3,430	963	574
19	891	685	--------	1,530	3,780	4,790	3,340	891	550
20	846	677	--------	1,250	4,550	7,030	3,110	821	558
21	812	677	--------	1,060	5,910	7,870	2,650	778	597
22	787	685	--------	999	6,590	8,260	2,440	770	702
23	762	677	--------	972	5,520	8,030	2,340	770	719
24	744	677	--------	909	5,100	7,620	2,260	744	736
25	710	677	--------	873	5,030	7,260	2,230	710	719
26	728	677	--------	830	4,990	7,120	2,180	669	669
27	728	677	--------	804	4,670	6,940	2,000	613	653
28	719	677	--------	821	4,890	6,850	1,940	637	629
29	710	685	--------	744	5,300	6,680	1,860	645	653
30	710	669	--------	753	6,960	6,980	1,860	645	653
31	744	--------	--------	--------	8,080	--------	1,860	645	--------

Monthly discharge of Clark Fork at Edgar, Mont., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	891	702	784	48,200
November	728	661	687	40,900
December 1-15	677	613	641	19,100
April 15-30	1,530	744	1,060	33,800
May	8,080	918	3,530	217,000
June	8,260	2,600	4,920	293,000
July	7,160	1,860	3,710	228,000
August	1,820	613	1,090	67,000
September	736	469	616	36,700

WIND RIVER AT RIVERTON, WYO.

LOCATION.—In sec. 2, T. 1 S., R. 4 E., at highway bridge three-quarters of a mile east of Riverton, Fremont County. Popo Agie River unites with Wind River to form the Big Horn three-quarters of a mile below.

DRAINAGE AREA.—2,320 square miles (measured on base map of Wyoming).

RECORDS AVAILABLE.—May 15, 1911, to September 30, 1925. From May 14, 1906, to November 1, 1908, station maintained at Walkers Ferry 1 mile above present station. No streams enter between; records directly comparable.

GAGE.—Friez water-stage recorder installed April 4, 1917, referred to chain gage on downstream side of first pier bent from left bank; inspected by employees of Bureau of Reclamation.

DISCHARGE MEASUREMENTS.—Made from cable just above bridge.

CHANNEL AND CONTROL.—Bed composed of sand and gravel. Control at gravel bar just below gage; slightly shifting. Right bank is overflowed at extremely high water.

EXTREMES OF DISCHARGE.—Maximum stage during year, from water-stage recorder, 10.6 feet at 9 p. m. July 4 (discharge 8,900 second-feet); minimum discharge occurred during winter.

1906–1908; 1911–1912; 1915–1925: Maximum discharge recorded, 12,300 second-feet June 14, 1906; minimum discharge recorded, 226 second-feet February 27, 1919.

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

DIVERSIONS.—Water is diverted from Wind River and its tributaries for the irrigation of 35,000 acres.

REGULATION.—None.

ACCURACY.—Stage-discharge relation slightly shifting; affected by ice during winter. Two rating curves well defined below 3,500 second-feet used during year, one October 1 to November 22 and the other December 1 to September 30. Operation of water-stage recorder satisfactory. Daily discharge ascertained by applying to rating tables mean gage height obtained by inspection of recorder graph. Records good except when affected by ice, for which they are fair.

Discharge measurements of Wind River at Riverton, Wyo., during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Feb. 28	6.26	326	June 18	8.73	3,040
Apr. 28	6.58	555	July 23	8.76	2,980
June 11	8.40	2,400	Sept. 11	7.33	1,140

Daily discharge, in second-feet, of Wind River at Riverton, Wyo., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	355	508					382	612	5,600	7,080	2,120	1,270
2	380	514					391	755	4,360	6,900	2,060	1,270
3	380	490					382	688	3,460	6,800	2,070	1,260
4	380	484					450	927	3,010	7,150	2,160	1,210
5	375	466					445	1,010	2,740	6,560	2,150	1,020
			310	330	320	340						
6	370	472					554	1,190	2,850	6,160	2,200	1,100
7	365	424					660	1,290	2,560	6,000	1,980	1,200
8	395	326					559	1,510	2,340	5,700	1,840	1,230
9	412						510	1,280	2,180	5,310	1,840	1,210
10	424						520	1,150	2,200	4,740	1,870	1,190
11	484	330				325	669	1,160	2,410	4,200	1,980	1,110
12	508					325	770	1,250	2,220	4,040	2,030	1,020
13	484					325	990	1,160	2,180	3,950	2,060	778
14	436					325	882	1,260	2,200	3,890	2,020	927
15	448	295				325	873	1,690	2,270	3,610	2,120	936
			305	325	315							
16	442					330	927	1,650	2,990	3,890	1,960	882
17	478					330	1,010	1,710	3,340	4,040	1,730	821
18	533					330	1,050	1,630	3,250	4,200	1,550	770
19	1,190	315				330	838	2,100	3,920	4,040	1,430	740
20	1,190					330	718	2,670	4,830	3,830	1,340	787
21	1,010					333	666	3,540	5,960	3,560	1,300	1,040
22	905	310				333	656	4,260	6,390	3,290	1,290	1,100
23	807					357	710	3,780	7,010	3,100	1,260	1,120
24	744					450	656	3,670	7,360	2,840	1,260	1,090
25	703				320	370	570	3,810	6,980	2,660	1,260	1,040
26	687	310	315	325		353	537	3,580	6,870	2,420	1,250	999
27	679					357	520	3,610	6,900	2,150	1,250	963
28	613					349	537	3,860	6,560	2,080	1,240	927
29	585				-------	383	520	4,390	6,560	2,120	1,270	981
30	559				-------	460	515	5,470	6,870	2,150	1,280	1,080
31	508	-------			-------	460	-------	6,100	-------	2,180	1,280	-------

NOTE.—Stage-discharge relation affected by ice Nov. 9–14, 6–21, 23–30, Dec. 1 to Mar. 13, and Mar. 15–20; discharge based on one discharge measurement, gage-height and temperature records, and comparison with records of flow of Big Horn River at Thermopolis. Braced figures show mean discharge for periods indicated.

Monthly discharge of Wind River at Riverton, Wyo., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	1,190	355	575	35,400
November	----------	----------	355	21,100
December	----------	----------	310	19,100
January	----------	----------	327	20,100
February	----------	----------	318	17,700
March	----------	----------	351	21,600
April	1,050	382	649	38,600
May	6,100	612	2,350	144,000
June	7,360	2,180	4,280	255,000
July	7,150	2,080	4,210	259,000
August	2,200	1,240	1,690	104,000
September	1,270	740	1,040	61,900
The year	----------	----------	1,380	998,000

BIG HORN RIVER AT THERMOPOLIS, WYO.

LOCATION.—In sec. 36, T. 43 N., R. 95 W., at highway bridge between Thermopolis and Hot Springs, Hot Springs County. Nearest tributary, Thermopolis Hot Springs, discharges 9 second-feet into Big Horn River, a short distance downstream.

DRAINAGE AREA.—8,080 square miles (measured on base map of Wyoming).

RECORDS AVAILABLE.—May 28, 1900, to December 31, 1905; June 30, 1910, to September 30, 1925.

GAGE.—Chain gage on downstream handrail of concrete bridge; read by Mrs. N. T. Olson.

DISCHARGE MEASUREMENTS.—Made from two-span highway bridge a third of a mile upstream.

CHANNEL AND CONTROL.—Bed composed of coarse gravel and small boulders. Control for low and medium stages situated a short distance below; shifting at intervals; high-water control is vertical walls of canyon entrance half a mile downstream. Banks high and not subject to overflow except during extreme flood stage.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 7.3 feet at 5 a. m. July 5 (discharge, 10,000 second-feet); minimum flow occurred during winter.

1900–1905; 1910–1925: Maximum stage from high-water mark, 16.2 feet at 11 p. m. July 24, 1923 (discharge, 29,800 second-feet); minimum discharge, 180 second-feet April 5, 1904.

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

DIVERSIONS.—Adjudicated diversions for irrigation of 1,100 acres from Big Horn River above station and 15,000 acres below. In addition, about 30,000 acres irrigated by unadjudicated rights.

REGULATION.—None.

ACCURACY.—Stage-discharge relation not permanent; affected by ice for short period during winter. Rating curve fairly well defined. Gage read to hundredths twice daily. Daily discharge ascertained by applying mean gage height to rating table using shifting-control method May 15 to September 5. Records good.

Discharge measurements of Big Horn River at Thermopolis, Wyo., during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Jan. 15	1.03	581	Apr. 29	1.61	951	Sept. 12	2.32	1,710
Feb. 26	1.46	818	June 13	3.26	2,710	Sept. 14	1.97	1,360
Feb. 27	1.35	764	July 16	4.20	4,290			

Daily discharge, in second-feet, of Big Horn River at Thermopolis, Wyo., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	987	1,560	848		600	808	1,010	920	8,230	8,070	2,640	1,350
2	978	1,530	848		706	772	864	1,000	7,120	8,570	2,600	1,330
3	978	1,500	880		706	856	896	1,170	5,610	8,680	2,460	1,270
4	978	1,460	864		670	920	840	1,110	4,360	8,810	2,730	1,370
5	1,010	1,440	848		758	1,240	920	1,380	4,150	9,730	2,570	1,300
6	1,000	1,400	840	600	1,070	1,280	1,010	1,540	3,700	8,380	2,640	1,470
7	996	1,330	832		1,110	1,370	1,180	1,660	3,570	7,570	2,800	1,590
8	1,010	1,250	832		1,080	1,230	1,330	1,850	3,290	7,230	2,490	1,650
9	1,040	1,140	751		896	1,160	1,230	2,080	3,000	6,770	2,350	1,660
10	1,210	1,020	682		816	682	1,080	1,890	2,590	6,090	2,460	1,800
11	1,320	840	590		779	920	1,040	1,710	2,700	5,660	2,590	1,740
12	1,330	737	547	580	730	880	1,220	1,680	3,000	5,380	2,500	1,650
13	1,300	688	560		700	664	1,330	1,780	2,820	4,800	3,150	1,530
14	1,300	648	610		737	682	1,600	1,700	2,740	4,620	3,050	1,330
15	1,300	642	1,160	580	730	800	1,510	1,860	2,780	4,440	3,010	1,440
16	1,280	765	1,000	626	758	712	1,520	2,280	2,880	4,240	2,980	1,480
17	1,260	920	600	626	737	744	1,580	2,360	3,900	4,290	2,400	1,450
18	1,550	987	520	524	712	724	1,660	2,190	4,510	4,380	2,130	1,310
19	2,740	1,110	510	524	751	688	1,770	2,240	4,360	4,380	1,940	1,290
20	4,220	1,290	510	524	772	682	1,560	2,920	5,140	4,330	1,800	1,204

Daily discharge, in second-feet, of Big Horn River at Thermopolis, Wyo., for the year ending September 30, 1925—Continued

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
21	4,040	1,390		534	772	682	1,380	3,970	5,880	4,290	1,710	1,940
22	3,410	1,330		538	800	706	1,380	5,380	7,790	4,650	1,670	2,000
23	2,040	1,190		542	832	765	1,300	6,030	7,830	3,970	1,580	2,030
24	2,020	960		542	840	880	1,360	5,510	8,530	3,750	1,560	1,980
25	1,940	737		626	848	969	1,220	5,570	8,940	3,700	1,510	1,940
26	1,850	730	530	682	840	856	1,100	5,680	8,200	3,250	1,500	1,890
27	1,820	718		712	832	800	1,050	5,200	8,340	2,980	1,430	1,790
28	1,740	779		565	765	779	1,050	5,420	8,010	2,660	1,400	1,660
29	1,700	824		580	-------	730	978	5,750	7,680	2,450	1,430	1,670
30	1,650	864		590	-------	832	936	6,640	7,640	2,660	1,510	1,470
31	1,600	-------		590	-------	1,000	-------	7,200	-------	2,880	1,480	-------

NOTE.—Stage-discharge relation affected by ice Dec. 16 to Jan. 14; discharge based on one discharge measurement and temperature record. Braced figures show estimated mean discharge for period indicated.

Monthly discharge of Big Horn River at Thermopolis, Wyo., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	4,220	978	1,660	102,000
November	1,560	642	1,060	63,100
December	1,160	----------	667	41,000
January	712	524	588	36,200
February	1,110	600	798	44,300
March	1,370	664	865	53,200
April	1,770	840	1,230	73,200
May	7,200	920	3,150	194,000
June	8,940	2,590	5,310	316,000
July	9,730	2,450	5,280	325,000
August	3,150	1,400	2,200	135,000
September	2,030	1,240	1,590	94,600
The year	9,730	----------	2,040	1,480,000

BIG HORN RIVER AT HARDIN, MONT.

LOCATION.—In NW. ¼ sec. 19, T. 1 S., R. 34 E., at highway bridge on Crow Indian Reservation half a mile above junction of Big Horn and Little Horn Rivers and 2 miles northeast of Hardin, Big Horn County.

DRAINAGE AREA.—20,700 square miles.

RECORDS AVAILABLE.—June 16, 1904, to May 31, 1925, when station was discontinued.

GAGE.—Chain gage attached to west span, downstream side of highway bridge; read by H. R. Kean.

DISCHARGE MEASUREMENTS.—Made from highway bridge or from ice cover during winter.

CHANNEL AND CONTROL.—Stream bed composed of gravel; free from vegetation; slightly shifting. Banks high; not subject to overflow except at extreme stages.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 7.75 feet May 31 (discharge, 20,000 second-feet); minimum discharge, 1,400 second-feet December 19.

1904–1925: Maximum stage recorded, 10.65 feet October 1, 1923 (discharge, 42,300 second-feet); minimum discharge, 516 second-feet July 15–18, 1919.

ICE.—Stage-discharge relation affected by ice.

DIVERSIONS.—Water is diverted a few miles above station by the Two Leggins Irrigation Co. to irrigate land on west side of river. Water is also diverted from Shoshone River at Corbett Dam, Wyo., by the United States Bureau of Reclamation, and many private ditches divert water from tributaries above the station.

REGULATION.—Shoshone Reservoir above Cody controls the flow of Shoshone River, a large tributary of the Big Horn.

ACCURACY.—Stage-discharge relation permanent during year except when affected by ice. Rating curve well defined between 2,000 and 34,000 second-feet. Gage read to quarter-tenths once daily. Daily discharge ascertained by applying daily gage height to rating table except during period of ice effect. Records good.

The following discharge measurements were made:

January 9, 1925: Gage height, 5.30 feet;[2] discharge, 1,950 second-feet.
February 2, 1925: Gage height, 5.30 feet;[2] discharge, 1,820 second-feet.
February 18, 1925: Gage height, 5.75 feet;[2] discharge, 1,900 second-feet.

Daily discharge, in second-feet, of Big Horn River near Hardin, Mont., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May
1	3,090	4,240	3,190	2,300	1,750	3,840	3,130	3,290
2	3,130	4,190	3,090	2,200	1,820	3,840	3,090	3,050
3	3,250	4,140	3,250	2,200	1,850	3,720	3,250	2,890
4	3,400	3,950	3,290	2,100	1,900	3,500	3,330	3,050
5	3,400	4,000	3,290	2,100	2,000	3,500	3,330	3,050
6	3,330	3,950	3,500	2,100	2,100	3,950	3,500	3,400
7	3,400	3,950	3,290	2,050	2,000	4,140	8,730	3,460
8	3,290	3,950	2,990	2,000	1,950	4,190	9,320	3,720
9	3,190	3,900	2,000	1,950	1,900	4,070	8,640	4,190
10	3,500	3,900	2,160	1,950	1,850	3,950	6,300	4,320
11	3,500	3,840	2,000	1,950	1,800	3,840	5,420	4,320
12	3,610	3,840	2,190	1,900	1,750	3,500	5,270	4,390
13	3,680	3,560	2,600	1,900	1,700	2,990	4,840	4,840
14	3,610	3,290	2,510	1,850	1,700	2,930	4,700	4,980
15	3,610	2,800	2,550	1,800	1,650	2,890	4,840	5,570
16	3,540	3,190	2,000	1,750	1,600	2,850	4,980	9,090
17	3,540	3,250	1,800	1,700	1,750	2,990	5,330	8,640
18	3,500	3,400	1,700	1,650	1,900	3,290	5,420	8,290
19	3,720	3,610	1,400	1,700	2,100	3,090	5,510	8,640
20	4,070	3,610	1,500	1,800	2,800	3,090	5,570	9,470
21	5,890	3,610	1,600	1,850	3,500	3,130	5,570	10,800
22	5,730	3,540	1,700	1,900	4,500	3,250	5,570	14,600
23	5,570	3,610	1,750	1,950	5,200	3,090	5,330	19,000
24	5,330	3,950	1,750	1,900	4,980	3,290	4,700	18,300
25	4,980	3,500	1,800	1,850	3,720	3,290	4,490	17,300
26	4,760	3,400	1,850	1,800	3,720	3,290	4,190	17,300
27	4,570	3,680	1,900	1,650	3,900	3,330	4,070	16,700
28	4,490	3,290	1,950	1,800	3,950	3,290	3,900	16,500
29	4,440	3,190	2,000	1,950	-------	2,980	3,610	16,400
30	4,390	3,190	2,100	2,050	-------	2,990	3,500	17,600
31	4,440	-------	2,200	1,900	-------	3,090	-------	20,000

NOTE.—Stage-discharge relation affected by ice Dec. 16 to Feb. 23; daily discharge computed from hydrographic study of measurements, temperature records, and observer's notes.

[2] Stage-discharge relation affected by ice.

Monthly discharge of Big Horn River near Hardin, Mont., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	5,890	3,090	4,000	246,000
November	4,240	2,800	3,650	217,000
December	3,500	1,400	2,290	141,000
January	2,300	1,650	1,920	118,000
February	5,200	1,600	2,550	142,000
March	4,190	2,850	3,390	208,000
April	9,320	3,090	4,980	296,000
May	20,000	2,890	9,260	569,000
The period				1,940,000

DINWOODY CREEK NEAR BURRIS,[3] WYO.

LOCATION.—In sec. 10, T. 5 N., R. 5 W., at highway bridge on road from Riverton to Dubois, 6 miles northwest of Burris, on Wind River Diminished Reservation. No tributary between station and mouth, a quarter of a mile below.

DRAINAGE AREA.—114 square miles (measured on base map of Wyoming).

RECORDS AVAILABLE.—May 15, 1918, to September 30, 1925. Station maintained at same section from January 16 to October 31, 1909.

GAGE.—Gurley water-stage recorder at left bridge abutment, referred to datum of gage used during 1909; inspected by Cloyd Miller.

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

CHANNEL AND CONTROL—Bed composed of boulders. Control at large boulders 25 feet downstream; slightly shifting. Banks not subject to overflow.

EXTREMES OF DISCHARGE.—Maximum stage during year from water-stage recorder, 3.25 feet at 6 p. m. July 6 (discharge, 992 second-feet); minimum discharge occurred during winter.

1918–1925: Maximum discharge during period, 1,710 second-feet at 9 a. m. July 25, 1923 (stage, 3.75 feet); minimum discharge, April 17, 1922 (discharge, 8 second-feet).

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

DIVERSIONS.—One small ditch diverts water from Dinwoody Creek above station.

REGULATION.—Natural regulation to small extent by Dinwoody Lake and numerous other small lakes on headwaters.

ACCURACY.—Stage-discharge relation slightly shifting; affected by ice for short periods during winter. Rating curve well defined. Staff gage read every other day November 20 to April 8; remainder of time the operation of water-stage recorder was satisfactory except as indicated in footnote to daily-discharge table. For period November 20 to April 8 daily discharge ascertained by applying gage height for alternate days to rating table and interpolating; remainder of time by applying to rating table mean gage height obtained by inspection of recorder graph, except as indicated in footnote to daily-discharge table; shifting-control method used April 11 to May 10. Records good.

The following discharge measurements were made:

April 26, 1925: Gage height, 1.01 feet; discharge, 39.8 second-feet.

July 14, 1925: Gage height, 2.76 feet; discharge, 671 second-feet.

September 9, 1925: Gage height, 2.01 feet; discharge, 272 second-feet.

[3] Formerly called Dinwoody Creek near Lenore.

Daily discharge, in second-feet, of Dinwoody Creek near Burris, Wyo., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	51	46		14	20	21	14	32	516	902	439	270
2	57	49		14	21	21	13	31	406	940	439	265
3	50	42		13	20	22	13	33	332	836	498	260
4	53	40		14	19	22	15	37	296	817	552	250
5	57	33		16	18	22	16	44	288	862	510	246
6	57	34	32	17	18	23	18	60	288	954	439	255
7	57	36		19	18	24	18	83	270	980	422	270
8	58	38		19	18		19	106	250	902	450	266
9	58	39		18	18		20	112	230	804	468	264
10	58	34		18	18		21	118	220	732	474	242
11	58			16	19	19	21	118	225	700	462	201
12	58		33	15	19		21	114	225	687	439	168
13	58		28	16	19		22	112	225	700	406	151
14	58		25	17	19		22	108	216	726	406	142
15	58	34		18	20		23	116	232	678	365	137
16	58			19	21	15	23	128	300	830	314	131
17	58			21	20	15	24	137	380	908	288	126
18	58		22	16	19	14	29	137	355	960	276	118
19	68			17	19	14	36	144	380	940	284	112
20	81	37		18	19	14	42	198	444	895	300	128
21	88	35		19	19	15	46	296	510	804	336	151
22	91	33		19	19	15	50	395	570	680	355	153
23	86			18	19	14	48	380	687	622	340	148
24	78			18	20	14	48	340	739	654	318	144
25	74		20	18	21	13	46	332	687	564	296	142
26	72	32			20	13	40	332	674	522	296	137
27	46				19	14	38	322	700	486	322	133
28	46			19	18	14	36	332	687	474	327	126
29	48		16		-------	14	34	375	713	462	292	124
30	48		15		-------	14	33	486	778	468	300	124
31	46	-------	15		-------	14	-------	546	-------	462	280	-------

NOTE.—No gage-height record Oct. 6–17, Mar. 8–15, June 7–12, Sept. 1–4, 6–8; discharge based on comparison with records of flow of Bull Lake Creek. Stage-discharge relation affected by ice Nov. 11–19, 23–30, Dec. 1–11, 15–28, Jan. 25–31; discharge based on gage height and temperature records and observer's notes. Braced figures show mean discharge for periods indicated.

Monthly discharge of Dinwoody Creek near Burris, Wyo., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	91	46	61.0	3,750
November	49	----------	35.3	2,100
December	----------	----------	25.1	1,540
January	----------	----------	17.5	1,080
February	21	18	19.2	1,070
March	24	13	17.2	1,060
April	50	13	28.3	1,680
May	546	31	197	12,100
June	778	216	427	25,400
July	980	462	740	45,500
August	552	276	377	23,200
September	270	112	179	10,700
The year	980	----------	178	129,000

DRY CREEK NEAR BURRIS,[4] WYO.

LOCATION.—In SW. ¼ sec. 12, T. 4 N., R. 5 W., half a mile above head of Dry Creek ditch and 2 miles south of Burris on Wind River Diminished Reservation. Little Dry Creek enters 2 miles below.

DRAINAGE AREA.—73 square miles (measured on base map of Wyoming).

RECORDS AVAILABLE.—May 19, 1921, to September 30, 1925.

GAGE.—Gurley water-stage recorder at left bank; inspected by employee of United States Office of Indian Affairs.

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

CHANNEL AND CONTROL.—Bed composed of boulders, which are fairly permanent. No well-defined control. Banks not subject to overflow.

EXTREMES OF DISCHARGE.—Maximum stage during year from water-stage recorder, 2.32 feet at 1 p. m. June 30 (discharge, 410 second-feet); minimum discharge occurred during winter.

1921–1925: Maximum stage from high-water mark, 3.9 feet about June 12, 1921 (discharge, 1,100 second-feet); minimum discharge recorded, 2 second-feet February 23, 1921.

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

DIVERSIONS.—One small ditch diverts water above station.

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

ACCURACY.—Stage-discharge relation practically permanent. Rating curve well defined. Operation of water-stage recorder satisfactory except for short periods as indicated in footnote to daily-discharge table. Daily discharge ascertained by applying to rating table mean gage height obtained by inspection of recorder graph. Records good except for periods of missing gage height for which they are fair.

The following discharge measurements were made:

April 26, 1925: Gage height, 0.30 foot; discharge, 11.3 second-feet.

September 9, 1925: Gage height, 0.84 foot; discharge, 52 second-feet.

Daily discharge, in second-feet, of Dry Creek near Burris, Wyo., for the year ending September 30, 1925

Day	Apr.	May	June	July	Aug.	Sept.	Day	Apr.	May	June	July	Aug.	Sept.
1	------	23	223	355	100	56	16	------	83	241	207	85	44
2	------	28	187	280	110	54	17	------	71	182	220	73	44
3	------	36	163	277	115	54	18	------	93	176	199	68	44
4	------	40	158	284	120	54	19	------	150	189	197	65	43
5	------	45	158	262	115	53	20	------	185	226	185	61	43
6	------	48	145	256	100	51	21	------	235	256	169	61	48
7	------	50	136	238	80	50	22	------	212	274	158	61	52
8	------	55	120	217	85	50	23	------	194	319	158	60	52
9	------	61	106	217	89	54	24	------	202	304	145	60	53
10	------	61	118	204	104	52	25	------	197	301	130	59	51
11	------	67	124	194	106	50	26	14	187	308	120	58	50
12	------	66	108	182	109	48	27	15	199	298	110	58	49
13	------	63	110	189	100	45	28	14	217	274	108	60	49
14	------	100	108	187	97	44	29	14	256	327	105	56	52
15	------	93	145	194	97	44	30	17	287	378	105	56	57
							31	------	305	------	102	56	------

NOTE.—No gage-height record May 4–8, Aug. 2–7, 23–28, Sept. 10–12; discharge based on comparison with records of flow of Dinwoody Creek.

[4] Formerly called Dry Creek near Lenore.

Monthly discharge of Dry Creek near Burris, Wyo., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
April 26–30	17	14	14.8	147
May	305	23	126	7,750
June	378	106	205	12,200
July	355	102	192	11,800
August	120	56	81.4	5,010
September	57	43	49.7	2,960
The period				39,900

WILLOW CREEK NEAR CROWHEART,[5] WYO.

LOCATION.—In SW. ¼ sec. 20, T. 3 N., R. 4 W., 2 miles upstream from bridge on main road from Fort Washakie to Dubois and 2 miles southwest of Crowheart, on Wind River Diminished Reservation. No tributary between station and mouth, 12 miles downstream.

DRAINAGE AREA.—Not measured.

RECORDS AVAILABLE.—May 15 to December 31, 1909; May 16, 1921, to June 30, 1923, April 25 to September 30, 1925.

GAGE.—Gurley water-stage recorder at left bank 400 feet above diversion dam; inspected by employee of United States Office of Indian Affairs. Prior to 1925 chain gage 800 feet farther upstream was used.

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

CHANNEL AND CONTROL.—Bed composed of gravel and small boulders. Control at rapids 10 feet downstream; shifts slightly during high water. Left bank subject to overflow at stage of 3.5 feet.

EXTREMES OF DISCHARGE.—Maximum stage during year from water-stage recorder, 2.13 feet at 2 a. m. June 30 (discharge, 108 second-feet); minimum discharge during winter.

1921–1923; 1925: Maximum discharge, 750 second-feet July 26, 1923; minimum discharge, 7 second-feet January 14, 1921.

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

DIVERSIONS.—No diversions above station.

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

ACCURACY.—Stage-discharge relation slightly shifting. Rating curve well defined below 80 second-feet. Operation of water-stage recorder satisfactory. Daily discharge ascertained by applying to rating table mean daily gage height obtained by inspection of recorder graph; shifting-control method used April 25 to May 20. Records good.

Discharge measurements of Willow Creek near Crowheart, Wyo., during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Apr. 25	0.80	11.0	July 14	1.24	29.4
May 21	1.46	44.6	Sept. 10	.90	15.1

[5] Formerly called Willow Creek near Lenore.

Daily discharge, in second-feet, of Willow Creek near Crowheart, Wyo., for the year ending September 30, 1925

Day	Apr.	May	June	July	Aug.	Sept.	Day	Apr.	May	June	July	Aug.	Sept.
1		11	66	69	20	15	16		14	62	29	16	15
2		11	59	57	18	15	17		14	52	29	16	15
3		11	56	60	17	15	18		14	56	27	16	15
4		11	53	59	17	15	19		16	67	27	16	15
5		12	51	52	19	15	20		32	78	25	16	15
6		12	44	44	17	15	21		51	86	25	15	15
7		13	48	42	17	15	22		46	82	25	15	15
8		14	46	38	18	15	23		48	87	25	15	19
9		13	39	36	18	15	24		54	78	22	15	15
10		13	42	33	18	15	25	11	54	70	20	15	15
11		13	42	32	18	15	26	11	58	71	19	15	15
12		13	37	30	17	15	27	11	62	66	19	15	15
13		13	39	29	17	15	28	11	71	90	20	15	15
14		14	38	28	17	15	29	11	81	88	21	15	15
15		14	47	28	16	15	30	11	93	82	21	14	15
							31		90		20	15	

NOTE.—No gage-height record May 4–5 and Sept. 7–9; discharge interpolated.

Monthly discharge of Willow Creek near Crowheart, Wyo., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
April 25–30	11	11	11.0	131
May	93	11	31.8	1,960
June	90	37	60.7	3,610
July	69	19	32.6	2,000
August	20	14	16.4	1,010
September	15	15	15.0	893
The period				9,600

BULL LAKE CREEK NEAR LENORE, WYO.

LOCATION.—Near north line of sec. 17, T. 3 N., R. 2 W., at highway bridge, 14 miles southeast of Lenore, Fremont County, on Wind River Diminished Reservation. No tributary between station and mouth, a quarter of a mile below.

DRAINAGE AREA.—132 square miles (measured on base map of Wyoming).

RECORDS AVAILABLE.—May 18, 1918, to September 30, 1925. During 1909, eight discharge measurements made at same site.

GAGE.—Stevens water-stage recorder at left bank just below bridge; inspected by Bureau of Reclamation employees.

DISCHARGE MEASUREMENTS.—Made from bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of large boulders; permanent. Control at small rapids just below gage; slightly shifting at long intervals. Banks not subject to overflow.

EXTREMES OF DISCHARGE.—Maximum stage during year from water-stage recorder, 6.7 feet at 11 p. m. July 1 (discharge, 2,300 second-feet); minimum discharge occurred during winter.

1918–1925: Maximum discharge, 3,990 second-feet at 2 p. m. June 16, 1918; minimum discharge recorded, 17.8 second-feet February 1, 1919.

ICE.—Stage-discharge relation affected by ice.

DIVERSIONS.—Two ditches divert water above station for irrigation of 200 acres.

REGULATION.—Natural regulation of flow by Bull Lake, which has an area of 4 square miles.

ACCURACY.—Stage-discharge relation slightly shifting; affected by ice during winter. Rating curve fairly well defined. Operation of water-stage recorder satisfactory. Daily discharge ascertained by applying to rating table mean daily gage height obtained by inspection of recorder graph; shifting-control method used October 1–20. Records good.

The following discharge measurements were made:
April 26, 1925: Gage height, 3.84 feet; discharge, 108 second-feet.
July 15, 1925: Gage height, 5.68 feet; discharge, 1,170 second-feet.
September 9, 1925: Gage height, 4.59 feet; discharge, 371 second-feet.

Daily discharge, in second-feet, of Bull Lake Creek near Lenore, Wyo., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	77	109				30	42	95	1,440	2,180	690	331
2	75	107					43	102	1,190	2,180	647	322
3	77	107					44	114	982	2,000	619	326
4	67	104					45	131	814	1,820	612	326
5	67	104					47	152	720	1,710	619	335
6	67	102					50	182	647	1,660	619	362
7	69	100	67				55	222	605	1,600	575	385
8	71	91			42	36	60	280	557	1,540	539	380
9	73	89					65	288	503	1,490	521	380
10	73	84					70	280	485	1,390	533	380
11	80	82					75	276	503	1,290	557	358
12	82	80					80	276	503	1,230	557	331
13	82	76					90	280	503	1,190	575	301
14	82	84	66				95	305	463	1,180	569	280
15	82	80			35	35	100	340	452	1,180	545	260
16	82	80					110	363	533	1,190	509	241
17	87	78					116	358	675	1,240	458	219
18	98	80					131	366	720	1,290	410	205
19	149	78					136	446	798	1,340	376	195
20	173	80					136	575	982	1,290	376	215
21	176	76					136	782	1,240	1,240	376	268
22	173	73			35	37	139	946	1,390	1,140	385	284
23	161	71					139	919	1,490	1,030	390	292
24	152	67					121	910	1,600	982	385	292
25	142	69		21			112	946	1,710	928	386	284
26	131	66					109	946	1,710	830	371	276
27	126	67					104	973	1,710	750	362	260
28	126	69					100	1,040	1,710	698	366	260
29	121	67				41	98	1,150	1,710	682	366	264
30	116	66					95	1,330	1,820	698	362	256
31	109							1,440		698	344	

NOTE.—No gage-height record Apr. 1–4, 6–11, 13–16; discharge interpolated.

Monthly discharge of Bull Lake Creek near Lenore, Wyo., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	176	67	105	6,460
November	109	66	82.9	4,930
December			[a] 60	4,000
January			[a] 50	3,070
February			[a] 37	2,050
March			[a] 36	2,210
April	139	42	91.4	5,440
May	1,440	95	542	33,300
June	1,820	452	1,010	60,100
July	2,180	682	1,280	78,700
August	690	344	484	29,800
September	385	195	296	17,600
The year	2,180			248,000

[a] Estimated.

LITTLE WIND RIVER NEAR FORT WASHAKIE, WYO.

LOCATION.—In SE. ¼ sec. 1, T. 1 S., R. 2 W., 2½ miles above junction with North Fork of Little Wind River at Fort Washakie on Wind River Diminished Reservation.

DRAINAGE AREA.—134 square miles (measured on base map of Wyoming).

RECORDS AVAILABLE.—May 11, 1921, to September 30, 1925.

GAGE.—Gurley water-stage recorder at right bank 500 feet above head gate of Ray ditch; inspected by employee of United States Office of Indian Affairs.

DISCHARGE MEASUREMENTS.—Made from cable 300 feet below gage.

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

EXTREMES OF DISCHARGE.—Maximum stage during year from water-stage recorder, 3.35 feet at 7 a. m. July 1 (discharge, 908 second-feet); minimum stage occurred during winter.

1921–1925: Maximum stage, 5.8 feet at 7 a. m. June 12, 1921 (discharge, 2,280 second-feet); minimum discharge, 14 second-feet February 22, 1921.

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

DIVERSIONS.—A few small ditches divert water above station. Several ditches divert water below station, largest being Ray ditch which irrigates 6,000 acres.

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

ACCURACY.—Stage-discharge relation practically permanent. Two fairly well defined rating curves used, one October 1–31 and the other March 28 to September 30. Operation of water-stage recorder satisfactory except as indicated in footnote to table of daily discharge. Daily discharge ascertained by applying to rating tables mean daily gage height obtained by inspection of recorder graph. Records good.

The following discharge measurements were made:

April 27, 1925: Gage height, 0.95 foot; discharge, 61 second-feet.

July 15, 1925: Gage height, 2.12 feet; discharge, 342 second-feet.

September 10, 1925: Gage height, 1.56 feet; discharge, 183 second-feet.

Daily discharge, in second-feet, of Little River near Fort Washakie, Wyo., for the year ending September 30, 1925

Day	Oct.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	32		31	88	492	830	234	108
2	30		32	95	388	662	215	108
3	32		34	132	328	730	201	108
4	32		36	143	310	685	201	163
5	33		40	150	288	618	201	198
6	33		45	159	275	572	237	186
7	35		45	186	266	536	198	168
8	37		42	173	240	496	178	198
9	37		40	159	234	456	186	215
10	37		50	152	272	428	215	186
11	38		64	168	291	396	215	163
12	37		81	176	275	376	266	150
13	37		86	186	240	370	284	141
14	36		83	240	242	366	284	139
15	36		90	215	263	362	284	132
16	35		110	173	370	342	248	122
17	38		132	150	324	345	209	110
18	177		104	196	366	338	186	110
19	158		81	288	448	328	173	152
20	135		70	362	572	310	166	176

Daily discharge, in second-feet, of Little River near Fort Washakie, Wyo., for the year ending September 30, 1925—Continued

Day	Oct.	Mar.	Apr.	May	June	July	Aug.	Sept
21	126		68	456	605	291	159	188
22	102		70	440	645	310	152	190
23	94		66	436	680	334	141	176
24	92		56	432	735	291	143	173
25	88		55	416	680	254	141	161
26	80		55	416	630	226	132	150
27	70		56	444	572	204	128	141
28	60	25	62	478	572	190	126	132
29	50	27	60	541	572	198	124	168
30	40	32	68	662	708	223	116	163
31	35	32		685		248	110	

NOTE.—No gage-height record Oct. 12–17, 26–31, Apr. 5–10, June 21–26; discharge based on comparison with records of flow of North Fork of Little Wind River and Bull Lake Creek.

Monthly discharge of Little Wind River near Fort Washakie, Wyo., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	177	30	61.4	3,780
March 28–31	32	25	29.0	230
April	132	31	63.7	3,790
May	685	88	290	17,800
June	735	234	429	25,500
July	830	190	397	24,400
August	284	110	189	11,600
September	215	108	156	9,280

NORTH FORK OF LITTLE WIND RIVER AT FORT WASHAKIE, WYO.

LOCATION.—In SW. ¼ sec. 33, T. 1 N., R. 1 W., at Fort Washakie, Fremont County, on Wind River Diminished Reservation. North and South Forks unite a quarter of a mile below.

DRAINAGE AREA.—138 square miles (measured on base map of Wyoming).

RECORDS AVAILABLE.—May 13, 1921, to September 30, 1925.

GAGE.—Gurley water-stage recorder at left bank a quarter of a mile above highway bridge; inspected by employee of United States Office of Indian Affairs.

DISCHARGE MEASUREMENTS.—Made from cable at gage.

CHANNEL AND CONTROL.—Bed composed of gravel and small boulders. Control at small rapids just below gage. Left bank subject to overflow at stage of 3 feet.

EXTREMES OF DISCHARGE.—Maximum stage during year from water-stage recorder, 2.62 feet from 6 to 10 a. m. May 31 (discharge, 878 second-feet); minimum discharge occurred during winter.

1921–1925: Maximum stage, 4.1 feet at 11 p. m. June 6, 1921 (discharge 2,250 second-feet); minimum discharge recorded, 16 second-feet January 19, 1922.

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

DIVERSIONS.—Several small ditches divert water above station.

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

ACCURACY.—Stage-discharge relation slightly shifting. Rating curve fairly well defined. Operation of water-stage recorder satisfactory except as indicated in footnote to table of daily discharge. Daily discharge ascertained by applying to rating table mean daily gage height obtained by inspection of recorder graph; shifting-control method used March 28 to May 5 and August 6 to September 30. Records good.

The following discharge measurements were made:
April 27, 1925: Gage height, 0.66 foot; discharge, 48.1 second-feet.
July 15, 1925: Gage height, 1.60 feet; discharge, 285 second-feet.
September 10, 1925: Gage height, 1.09 feet; discharge, 120 second-feet.

Daily discharge, in second-feet, of North Fork of Little Wind River at Fort Washakie Wyo., for the year ending September 30, 1925

Day	Oct.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	37	-------	26	61	697	800	191	61
2	38	-------	25	70	558	655	185	60
3	45	-------	25	92	468	640	185	61
4	45	-------	27	102	410	629	179	83
5	45	-------	31	110	363	605	176	85
6	37	-------	36	118	329	570	164	81
7	37	-------	36	134	300	529	159	87
8	37	-------	32	148	275	484	150	97
9	38	-------	30	142	254	440	145	107
10	40	-------	38	142	261	410	142	118
11	44	-------	45	139	275	381	142	118
12	42	-------	61	148	272	368	157	112
13	40	-------	60	159	264	346	162	112
14	39	-------	54	182	258	325	164	105
15	38	-------	60	191	272	304	164	99
16	37	-------	68	182	333	297	159	92
17	40	-------	87	170	358	297	150	85
18	213	-------	78	185	368	293	139	81
19	194	-------	68	250	400	290	128	85
20	148	-------	66	350	478	279	123	92
21	137	-------	66	512	558	275	110	115
22	120	-------	72	576	605	286	99	131
23	115	-------	66	562	654	282	94	137
24	110	-------	60	558	672	268	87	137
25	102	-------	54	541	654	247	83	134
26	90	-------	51	524	635	216	78	128
27	80	-------	51	546	623	194	76	121
28	70	22	53	599	605	182	74	118
29	60	26	51	660	610	182	70	134
30	50	27	54	774	700	194	66	131
31	40	25	-------	839	-------	194	65	-------

NOTE.—No gage-height record Oct. 12–17, 26–31, June 29 to July 3, July 13–14; discharge based on comparison with records of flow of Little Wind River and Bull Lake Creek.

Monthly discharge of North Fork of Little Wind River at Fort Washakie, Wyo., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	213	37	71.2	4,380
April	87	25	51.0	3,030
May	839	61	315	19,400
June	700	254	450	26,800
July	800	182	370	22,800
August	191	65	131	8,060
September	137	60	104	6,190

NOWOOD CREEK AT BONANZA, WYO.

LOCATION.—In sec. 13, T. 49 N., R. 91 W., at Bonanza, Big Horn County. Nearest tributary, Paintrock Creek, enters some distance above.

DRAINAGE AREA.—1,790 square miles (measured on base map of Wyoming).

RECORDS AVAILABLE.—June 29, 1910, to September 30, 1925.

GAGE.—Chain gage on left bank, 1,000 feet below store at Bonanza; read by Miss Leona Graves.

DISCHARGE MEASUREMENTS.—Made from two-span highway bridge a quarter of a mile below gage or by wading.

CHANNEL AND CONTROL.—Bed composed of gravel. Control 100 feet downstream at small rapids which are slightly shifting at long intervals.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 7.0 feet at 5 p. m. May 22 (discharge, 3,600 second-feet); minimum discharge occurred during winter.

1910–1912; 1915–1925: Maximum stage recorded, 8.09 feet at 9 a. m. June 15, 1924 (discharge, 5,160 second-feet); minimum stage, 1.55 feet July 27–31, 1919 (discharge, 1.5 second-feet).

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

DIVERSIONS.—Adjudicated diversions for irrigation of 5,700 acres from Nowood Creek above station and 3,400 acres below.

ACCURACY.—Stage-discharge relation slightly shifting; affected by ice during winter. Rating curve well defined. Gage read to hundredths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table except for periods April 1 to May 15 and May 21 to July 5, when shifting-control method was used. Records good.

Discharge measurements of Nowood Creek at Bonanza, Wyo., during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*
May 2	3.36	460	July 18	3.19	356
June 13	3.95	710	Sept. 15	2.86	230

Daily discharge, in second-feet, of Nowood Creek at Bonanza, Wyo., for the year ending September 30, 1925

Day	Oct.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	232		218	298	420	1,970	1,330	214	110
2	232		218	260	477	1,370	1,620	182	104
3	235	425	260	256	570	1,160	1,330	162	104
4	235		266	249	570	1,060	1,080	185	114
5	263		278	238	609	1,040	1,010	197	133
6	249		310	488	642	984	1,300	188	194
7	256		328	747	675	834	1,020	179	182
8	270	450	302	582	615	759	854	176	164
9	278		294	455	494	664	753	167	173
10	270		260	380	494	795	658	197	191
11	286		235	332	477	958	592	185	191
12	294		221	337	631	795	560	278	182
13	278		200	370	670	670	626	521	182
14	270	400	194	460	938	648	587	435	194
15	274		207	472	1,070	753	494	355	214
16	270		207	488	932	905	390	294	204
17	274	415	207	543	1,020	1,190	380	249	188
18	290	435	200	636	1,100	1,240	350	204	176
19	425	380	197	664	1,410	1,540	314	185	176
20	425	365	200	570	1,930	1,760	302	173	214

Daily discharge, in second-feet, of Nowood Creek at Bonanza, Wyo., for the year ending September 30, 1925—Continued

Day	Oct.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
21	405	332	204	526	2,580	1,820	263	179	235
22	355	278	207	504	3,590	1,840	282	167	242
23	328	375	239	510	1,940	1,820	298	153	246
24	310	346	286	526	1,580	1,730	270	142	235
25	302	294	286	460	1,480	1,430	232	133	214
26	294	263	235	420	1,650	1,490	197	133	207
27	290	242	224	410	1,470	1,260	191	120	207
28	286	249	207	400	1,510	1,220	167	116	221
29	278	----	214	390	1,870	1,220	164	112	235
30	270	----	214	390	2,260	1,530	342	116	319
31	256	----	270	----	2,730	----	282	114	----

NOTE.—Stage-discharge relation affected by ice Feb. 1-16; discharge based on gage-height and temperature records and observer's notes.

Monthly discharge of Nowood Creek at Bonanza, Wyo., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	425	232	290	17,800
February	----	----	384	21,300
March	328	194	238	14,600
April	747	238	445	26,500
May	3,590	420	1,240	76,200
June	1,970	648	1,220	72,600
July	1,620	164	588	36,200
August	521	112	200	12,300
September	319	104	192	11,400

PAINTROCK CREEK NEAR HYATTVILLE, WYO.

LOCATION.—In sec. 25, T. 50 N., R. 89 W., at mouth of canyon, 6 miles above Hyattville, Big Horn County. Nearest tributary, Luman Creek, enters three-quarters of a mile downstream.

DRAINAGE AREA.—164 square miles (measured on topographic map).

RECORDS AVAILABLE.—August 8, 1920, to September 30, 1925.

GAGE.—Gurley water-stage recorder at right bank, 1,000 feet upstream from bridge at State fish hatchery; inspected by Bliss Bayne.

DISCHARGE MEASUREMENTS.—Made from cable 300 feet below gage or by wading.

CHANNEL AND CONTROL.—Bed composed of boulders. Control at large boulders 25 feet downstream; may shift during high water. Banks not subject to overflow.

EXTREMES OF DISCHARGE.—Maximum stage during year from water-stage recorder, 5.6 feet May 21 (discharge, 2,520 second-feet); minimum discharge occurred during winter.

1921–1925: Maximum stage recorded, 7.2 feet at 1 a. m. July 24, 1923 (discharge, 4,960 second-feet); minimum stage, 0.29 foot February 17, 1921 (discharge, 14 second-feet).

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

DIVERSIONS.—Above all diversions except that for Rhinehart ditch which diverts water for irrigation of 12 acres. Below station adjudicated diversions for irrigation of 4,700 acres.

ACCURACY.—Stage-discharge relation practically permanent during year. Rating curve fairly well defined below 1,400 second-feet. Operation of water-stage recorder satisfactory except for short periods as explained in footnote to daily-discharge table. Daily discharge ascertained by applying to rating table mean daily gage height obtained by inspection of recorder graph. Records excellent below 1,400 second-feet; fair above.

Discharge measurements of Paintrock Creek near Hyattville, Wyo., during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*
May 1	1.62	122	July 17	2.26	268
June 12	2.55	300	September 14	1.44	85

Daily discharge, in second-feet, of Paintrock Creek near Hyattville, Wyo., for the year ending September 30, 1925

Day	Oct.	Apr.	May	June	July	Aug.	Sept.
1	60	50	118	746	320	152	66
2	61	46	152	541	432	131	65
3	61	45	205	454	457	121	63
4	65	44	187	457	468	168	66
5	62	48	213	478	489	161	80
6	62	46	245	432	628	146	82
7	63	46	240	367	468	128	79
8	63	45	187	320	426	123	77
9	65	50	155	290	355	118	76
10	66	55	166	418	328	110	74
11	67	61	215	471	305	115	70
12	68	72	295	334	300	242	64
13	70	79	315	305	290	248	63
14	71	77	468	322	278	191	88
15	72	85	446	397	262	170	82
16	73	102	355	906	265	174	75
17	75	128	520	583	248	157	67
18	77	123	760	680	228	140	64
19	92	100	1,250	848	213	136	81
20	97	94	1,750	1,140	197	134	86
21	91	87	2,300	1,020	201	116	82
22	86	86	1,430	970	242	99	80
23	79	82	705	1,050	221	95	75
24	76	75	749	855	187	90	71
25	71	68	738	802	162	87	66
26	68	71	820	796	146	83	64
27	67	77	722	685	134	81	62
28	67	76	862	468	126	79	62
29	66	72	1,080	391	168	75	85
30	65	87	1,310	406	308	72	97
31	65	------	1,360	------	197	68	------

NOTE.—Recorder not operating Oct. 5–17, Apr. 1–3, May 17–22, and Aug. 21; discharge based on comparison with record of flow of Nowood Creek at Bonanza, Wyo.

Monthly discharge of Paintrock Creek near Hyattville, Wyo., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	97	60	70.7	4,350
April	128	44	72.6	4,320
May	2,300	118	655	40,300
June	1,140	290	598	35,600
July	628	126	292	18,000
August	248	68	129	7,930
September	97	62	73.7	4,390

GREYBULL RIVER AT MEETEETSE, WYO.

LOCATION.—In sec. 4, T. 48 N., R. 100 W., at Meeteetse, Park County. Nearest tributary, Meeteetse Creek, enters 3 miles downstream.

DRAINAGE AREA.—690 square miles (measured on topographic map).

RECORDS AVAILABLE.—June 11 to September 30, 1897; April 24 to October 31, 1903; July 18, 1920, to September 30, 1925.

GAGE.—Gurley water-stage recorder at left bank, 1,000 feet above highway bridge at Meeteetse; inspected by J. A. Hamilton.

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

CHANNEL AND CONTROL.—Bed composed of boulders and coarse gravel. Control 35 feet downstream; shifting at intervals.

EXTREMES OF DISCHARGE.—Maximum stage during year from water-stage recorder, 6.55 feet at 11 p. m. June 22 (discharge, 2,450 second-feet); minimum stage occurred during winter.

1921–1925: Maximum discharge during period, 4,970 second-feet June 6, 1921; minimum discharge recorded, 63 second-feet March 4, 1922.

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

DIVERSIONS.—Adjudicated diversions for irrigation of 7,100 acres from Greybull River above station and 10,000 acres from tributaries entering above.

REGULATION.—None.

ACCURACY.—Stage-discharge relation not permanent. Rating curves used October 1 to May 31 and June 1 to September 30 are both fairly well defined. Operation of water-stage recorder satisfactory except for short periods as indicated in footnote to daily-discharge table. Daily discharge ascertained by applying to rating table mean gage height obtained by inspection of recorder graph; shifting-control method used May 14–31. Records fair.

Discharge measurements of Greybull River at Meeteetse, Wyo., during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*
May 3	3.16	360	July 22	3.38	577
June 16	4.52	1,150	Sept. 16	2.43	266

Daily discharge, in second-feet, of Greybull River at Meeteetse, Wyo., for the year ending September 30, 1925

Day	Oct.	Apr.	May	June	July	Aug.	Sept.
1	176	135	300	920	1,280	434	227
2	176	130	330	895	1,280	458	224
3	176	125	382	770	1,280	544	222
4	189	126	358	730	1,250	556	267
5	181	146	390	780	1,220	568	258
6	181	137	394	745	1,170	550	276
7	189	111	398	795	1,080	530	267
8	186	139	293	795	1,000	516	258
9	186	171	260	845	895	560	248
10	200	250	246	1,000	870	625	244
11	206	338	370	870	845	710	242
12	197	500	366	770	870	715	244
13	197	479	358	745	845	602	255
14	215	410	585	745	845	630	267
15	209	410	532	845	820	536	273

Daily discharge, in second-feet, of Greybull River at Meeteetse, Wyo., for the year ending September 30, 1925—Continued

Day	Oct.	Apr.	May	June	July	Aug.	Sept.
16	212	509	418	1,030	820	482	258
17	212	527	430	948	795	451	254
18	311	370	660	1,170	820	430	246
19	328	270	938	1,460	800	406	242
20	346	243	1,190	1,780	740	386	240
21	323	218	1,340	1,610	650	377	262
22	289	240	1,010	1,790	560	356	256
23	278	203	878	1,670	584	338	248
24	270	176	966	1,550	504	326	242
25	263	157	972	1,580	465	317	240
26	270	159	867	1,490	434	300	233
27	260	171	872	1,400	416	276	234
28	250	166	988	1,430	434	273	233
29	243	166	1,240	1,460	472	254	233
30	240	200	1,460	1,460	496	238	236
31	230	------	1,170	------	444	231	------

NOTE.—No gage-height record Oct. 19, 30, 31, Apr. 1-3, 10, 30, May 1, July 19-21, Aug. 6, 7, Sept. 13; discharge interpolated.

Monthly discharge of Greybull River at Meeteetse, Wyo., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	346	176	232	14,300
April	527	111	246	14,600
May	1,460	246	676	41,600
June	1,790	730	1,140	67,800
July	1,280	416	806	49,600
August	715	231	451	27,700
September	276	222	248	14,800

SHOSHONE RIVER ABOVE SHOSHONE RESERVOIR, WYO.

LOCATION.—In lot 46, T. 52 N., R. 103 W., 1 mile above high-water line of Shoshone Reservoir and 12 miles from Cody.

DRAINAGE AREA.—674 square miles (measured on base map of Wyoming).

RECORDS AVAILABLE.—January 1, 1921, to September 30, 1925.

GAGE.—Stevens water-stage recorder at highway bridge.

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

CHANNEL AND CONTROL.—Bed composed of gravel and boulders; slightly shifting.

EXTREMES OF DISCHARGE.—Maximum stage during year from water-stage recorder, 5.0 feet at noon June 20 (discharge, 4,200 second-feet); minimum discharge, 50 second-feet December 9 to January 5.

1921–1925: Maximum discharge during period, 4,440 second-feet June 12, 1921; minimum discharge, 9 second-feet August 28, 1924.

ICE.—Stage-discharge relation affected by ice.

REGULATION.—Alternate melting and freezing of mountain snow during spring of year causes diurnal fluctuations in flow. No artificial regulation.

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

Daily discharge, in second-feet, of Shoshone River above Shoshone Reservoir, for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	91	165	99	50	75	80	155	483	1,960	3,130	490	150
2	102	205	60	50	75	80	155	434	1,660	2,880	490	150
3	118	205	76	50	75	80	159	573	1,470	2,690	490	165
4	170	205	65	50	75	80	185	573	1,310	2,320	490	165
5	165	201	76	50	75	80	222	613	1,220	2,320	490	162
6	170	170	56	55	75	80	295	645	1,340	2,180	490	160
7	220	142	55	55	75	80	252	688	1,400	2,040	490	162
8	201	142	53	55	75	80	241	645	1,340	1,920	490	165
9	201	161	50	55	75	80	325	565	1,280	1,880	490	165
10	205	165	50	55	75	80	520	490	1,400	1,840	483	170
11	196	118	50	60	75	80	654	420	1,460	1,790	411	162
12	192	105	50	60	75	80	820	490	1,350	1,750	483	160
13	220	118	50	60	75	80	713	565	1,240	1,840	399	155
14	256	124	50	60	75	80	645	784	1,170	1,660	521	224
15	301	127	50	60	80	80	679	995	1,170	1,640	435	235
16	337	127	50	65	80	80	748	766	1,430	1,620	331	204
17	312	127	50	65	80	80	811	730	1,470	1,600	251	188
18	502	127	50	65	80	80	565	896	1,600	1,510	207	160
19	495	127	50	65	80	80	448	1,610	2,680	1,330	204	185
20	453	127	50	65	80	90	368	2,020	3,940	1,180	191	176
21	413	124	50	70	80	100	331	2,350	3,820	1,030	185	182
22	349	146	50	70	80	130	349	1,980	3,620	912	173	204
23	318	142	50	70	80	155	307	1,530	3,340	1,030	158	194
24	290	124	50	70	80	130	257	1,760	3,320	862	145	173
25	267	118	50	70	80	130	231	1,970	3,230	734	135	155
26	261	127	50	75	80	119	212	1,890	3,340	658	173	150
27	236	105	50	75	80	119	217	1,980	3,200	613	204	145
28	210	157	50	75	80	137	217	2,160	3,100	590	251	156
29	192	154	50	75	-------	159	217	2,430	3,260	590	197	271
30	165	138	50	75	-------	164	313	2,600	3,370	590	170	259
31	150	-------	50	75	-------	151	------	2,620	-------	495	158	------

NOTE.—Figures have been changed slightly to conform to computation rules used by U. S. Geol. Survey. Discharge Dec. 7 to Mar. 25 computed from fluctuation of water surface of Shoshone Reservoir and outflow data.

Monthly discharge of Shoshone River above Shoshone Reservoir, Wyo., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	502	91	250	15,400
November	205	105	144	8,570
December	99	50	54.5	3,350
January	75	50	62.9	3,870
February	80	75	77.5	4,300
March	164	80	100	6,150
April	820	155	387	23,000
May	2,620	420	1,230	75,600
June	3,940	1,170	2,180	130,000
July	3,130	495	1,520	93,500
August	521	135	331	20,402
September	271	145	178	10,600
The year	3,940	50	546	395,000

SHOSHONE RIVER AT CORBETT DAM, WYO.

LOCATION.—In NE. ¼ sec. 7, T. 53 N., R. 100 W., at Corbett diversion dam, Park County, and 8 miles below Cody.

DRAINAGE AREA.—Not measured. Drainage area above Cody is 1,400 square miles. Sage Creek, only sizable tributary that enters between this station and Cody, drains about 25 square miles.

RECORDS AVAILABLE.—April 20, 1908, to September 30, 1925.

GAGE.—Stevens water-stage recorder 40 feet upstream from crest of dam referenced to staff gage at same location. Gage heights represent height of water above crest.

DETERMINATION OF DISCHARGE.—Discharge computed by considering the dam as a weir and the sluice gates as submerged orifices. The following formula for discharge over the crest was developed by engineers of the United States Bureau of Reclamation: $Q=3.80\ BH^{1.61}$.

CHANNEL AND CONTROL.—The crest of the dam forms a permanent control. The dam is of reinforced concrete of the buttressed type, having on the upstream side a deck 2½ feet thick, sloping 1 to 1, and supported by the buttresses 2 feet thick spaced 14 feet on centers; it raises the low-water elevation of the river 10.2 feet; length between abutments, 400 feet.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year from water-stage recorder, 3.37 feet at 10 a. m. June 24 (discharge, 12,000 second-feet); minimum discharge occurred during winter.

1908–1925: Maximum stage recorded, 5.0 feet June 15, 1918 (total discharge 18,700 second-feet); no flow October 21 to November 19, 1909.

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

DIVERSIONS.—Little water is diverted above this station.

REGULATION.—Shoshone Reservoir, having a capacity of 456,000 acre-feet, partly regulates the flow. Corbett Tunnel diverts from the pool at the dam and discharges into Garland Canal.

COOPERATION.—Complete data furnished by United States Bureau of Reclamation; computations slightly changed to agree with Survey rules.

Daily discharge, in second-feet, of Shoshone River at Corbett Dam, Wyo., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	650	740	700		505			1,060	8,500	10,900	2,140	1,210
2	681	760	720		505			1,090	7,220	10,100	2,050	1,180
3	681		759				493	1,030	6,190	9,540	2,010	1,150
4	593		739					1,080	5,460	8,700	2,010	1,120
5	542	779	720	539	480		508	1,250	4,930	8,300	1,970	1,090
6	558		700				680	1,310	4,700	7,960	1,900	1,090
7	558		681				718	1,390	4,520	7,720	1,810	1,090
8	535		661			470	794	1,440	4,270	7,660	1,720	1,070
9	504		681				795	1,460	4,050	7,170	1,680	1,080
10	519	759	720		475		800	1,460	4,090	6,740	1,660	1,080
11	534		739				781	1,510	4,300	6,400	1,600	1,060
12	534		739	530			781	1,600	4,220	6,120	1,600	1,050
13	550		759				798	1,790	4,000	6,090	1,600	1,030
14	589	739	739				800	2,520	3,770	5,760	1,600	1,020
15	589	739	798	524			774	2,940	3,730	5,600	1,630	97[illegible]
16	618	739	964	524	470	477	797	2,980	4,220	5,410	1,570	919
17	604	720	964	520		477	862	3,130	4,440	5,360	1,530	947
18	713	739	964				1,010	3,290	4,810	5,140	1,520	933
19	766	739	609				1,060	3,700	6,190	4,780	1,490	940
20	681	739	574	514		462	1,060	4,640	8,240	4,490	1,480	915
21	562	739					1,060	6,310	10,200	4,080	1,470	927
22	590	759			475	477	1,040	7,130	11,000	3,670	1,460	943
23	605	739	574			493	1,060	6,690	11,900	3,440	1,450	957
24	620	739				462	1,060	6,280	11,900	3,210	1,420	960
25	635	739		510		477	1,050	6,150	11,600	2,970	1,390	943
26	650	720	557		470	477	1,050	6,210	11,800	2,770	1,350	925
27	665	700	557			477	1,040	6,280	11,600	2,590	1,320	917
28	680	700	557			477	1,040	6,430	11,100	2,490	1,310	924
29	695	700	539		-------	493	1,030	7,050	11,200	2,390	1,300	934
30	710	700	539	505	-------	508	1,030	8,260	11,400	2,370	1,270	927
31	725	-------	539		-------	508	------	9,180	--------	2,270	1,260	-------

NOTE.—Discharge Jan. 1 to Mar. 16, Apr. 23 to May 11, June 16 to Aug. 7, based on comparison with records of flow at Canyon station because of ice and unstable conditions. Discharge Aug. 7 to Sept. 30 obtained by adding flows at lower station at Willwood Dam and Garland Canal.

Monthly discharge of Shoshone River at Corbett Dam, Wyo., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	766	504	617	37,900
November			745	44,300
December			680	41,800
January			523	32,200
February			476	26,400
March			474	29,100
April	1,060		848	50,500
May	9,180	1,030	3,760	231,000
June	11,900	3,730	7,180	427,000
July	10,900	2,270	5,550	341,000
August	2,140	1,260	1,600	98,400
September	1,210	915	1,010	60,100
The year	11,900		1,960	1,420,000

NORTH FORK OF SHOSHONE RIVER NEAR WAPITI, WYO.

LOCATION.—In sec. 15, T. 52 N., R. 104 W., at Thermond ranch, 6 miles east of Wapiti, Park County, and below all tributaries entering above Shoshone Reservoir.

DRAINAGE AREA.—800 square miles (measured chiefly on topographic map).

RECORDS AVAILABLE.—January 1, 1921, to September 30, 1925.

GAGE.—Stevens continuous water-stage recorder at right bank; inspected by employee of United States Bureau of Reclamation.

DISCHARGE MEASUREMENT.—Made from cable 100 feet upstream.

CHANNEL AND CONTROL.—Bed composed of boulders and coarse gravel. Control at rock riffle a short distance downstream; shifts at intervals. Backwater from Shoshone Reservoir reaches a point 2 miles below gage.

EXTREMES OF DISCHARGE.—Maximum stage during year from water-stage recorder, 6.88 feet at midnight June 23 (discharge, 9,250 second-feet); minimum discharge, 110 second-feet January 4–10.

1921–1925: Maximum and minimum discharges occurred in 1925.

ICE.—Stage-discharge relation affected by ice.

DIVERSIONS.—Adjudicated diversions for irrigation of 1,800 acres from North Fork above station.

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

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

Daily discharge, in second-feet, of North Fork of Shoshone River near Wapiti, Wyo., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	307	355	230	125			307	1,080	4,460	7,140	1,200	435
2	336	350	225	120			299	1,030	3,750	6,700	1,170	429
3	350	345	220	115			336	1,400	3,190	6,350	1,200	424
4	411	336	215	110			456	1,430	2,900	5,660	1,290	429
5	377	336	210	110			518	1,550	2,720	5,690	1,150	464
6	372	307	205	110	160	160	554	1,630	2,790	5,480	998	470
7	503	295	200	110			449	1,690	2,580	5,480	925	476
8	462	303	195	110			532	1,320	2,240	5,340	885	464
9	443	303	190	110			854	1,100	2,340	4,760	875	602
10	424	307	185	110			1,200	1,120	2,720	4,650	905	482

Daily discharge, in second-feet, of North Fork of Shoshone River near Wapiti, Wyo., for the year ending September 30, 1925—Continued

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
11	417	295	185	115			1,280	1,470	2,700	4,330	885	440
12	405	278	185	115			1,660	1,720	2,420	4,330	935	424
13	400	274	185	115			1,460	1,730	2,240	4,330	915	412
14	510	276	185	120			1,360	2,100	2,240	4,000	1,010	401
15	525	355	185	120		160	1,320	2,130	2,520	3,980	998	396
16	561	312	185	125			1,510	1,990	3,090	3,810	769	380
17	577	295	185	125			1,900	2,050	2,820	3,730	686	360
18	927	291	185	130			1,530	2,400	3,520	3,420	659	345
19	1,000	295	185	130		170	1,140	3,240	5,010	3,050	626	360
20	836	299	185	135	160	180	928	4,060	6,280	2,890	610	418
21	757	276	180	135		196	809	5,080	7,580	2,430	610	396
22	631	312	175	140		231	800	4,490	7,870	2,180	586	401
23	577	295	170	140		286	757	3,810	8,210	2,090	556	396
24	546	270	165	145		235	656	3,660	7,800	1,900	528	396
25	532	274	160	145		228	600	3,810	7,740	1,750	492	375
26	515	278	155	150		219	554	3,960	7,830	1,640	476	365
27	469	266	150	150		216	546	4,080	7,380	1,550	528	365
28	443	255	145	155		259	510	4,300	7,220	1,450	610	360
29	424	245	140	155	-------	299	532	5,100	7,460	1,440	542	401
30	383	235	135	160	-------	336	765	6,040	7,800	1,550	476	470
31	361	-------	130	160	-------	270	-------	5,860	-------	1,280	452	-------

NOTE.—Figures have been changed slightly to comply with rules of computation used by U. S. Geol. Survey. Braced figures show mean discharge for period indicated.

Monthly discharge of North Fork of Shoshone River near Wapiti, Wyo., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	1,000	307	509	31,300
November	355	235	297	17,700
December	230	130	182	11,200
January	160	110	129	7,930
February	-------	-------	160	8,890
March	336	-------	194	11,900
April	1,900	299	871	51,800
May	6,040	1,030	2,790	172,000
June	8,210	2,240	4,650	277,000
July	7,140	1,280	3,690	227,000
August	1,290	452	792	48,700
September	602	345	418	24,900
The year	8,210	110	1,230	890,000

TONGUE RIVER NEAR DAYTON, WYO.

LOCATION.—In SE. ¼ sec. 2, T. 56 N., R. 87 W., at mouth of canyon 3½ miles southwest of Dayton, Sheridan County. Nearest tributary, Amsden Creek, enters 1½ miles downstream.

DRAINAGE AREA.—204 square miles (measured on topographic map).

RECORDS AVAILABLE.—October 24, 1911, to May 25, 1912; November 18, 1918, to September 30, 1925. From May 1 to October 31, 1903, at Dayton.

GAGE.—Stevens water-stage recorder on left bank, 1,000 feet below head gate of Highline Canal; inspected by Hugh Watson.

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

CHANNEL AND CONTROL.—Bed composed of boulders and coarse gravel, well compacted. Control 200 feet downstream; shifts slightly.

EXTREMES OF DISCHARGE.—Maximum stage during year from water-stage recorder, 4.82 feet at 1 a. m. May 22 (discharge, 1,860 second-feet); minimum discharge, 50 second-feet on December 19.

1919–1925: Maximum stage during period, 5.57 feet at 1 a. m. June 15, 1924 (discharge, 2,460 second-feet); minimum stage, 1.00 foot at 9 p. m. November 29, 1919 (discharge, 15 second-feet).

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

DIVERSIONS.—Only diversion above station is Highline Canal, which diverts about 3,500 acre-feet annually.

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

The following discharge measurements were made:

May 5, 1925: Gage height, 2.66 feet; discharge, 344 second-feet.

September 17, 1925: Gage height, 1.82 feet; discharge, 105 second-feet.

Daily discharge, in second-feet, of Tongue River near Dayton, Wyo., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	108	110	86	78	74	68	99	270	1,000	386	162	102
2	110	111	90	78	76	70	106	330	876	364	153	102
3	110	110	91	79	77	72	117	405	820	372	157	101
4	113	102	86	79	77	70	135	342	792	372	173	102
5	101	108	88	79	77	70	175	386	724	342	157	102
6	115	90	85	79	73	72	192	430	666	484	153	101
7	129	85	82	79	74	72	148	450	620	334	150	99
8	131	84	74	81	69	69	137	386	584	306	142	101
9	119	90	77	79	72	70	131	354	548	284	142	102
10	121	101	90	82	67	57	164	386	659	274	139	101
11	129	73	88	82	70	62	205	467	633	263	146	101
12	123	70	86	81	76	67	286	572	554	249	148	99
13	111	72	85	79	76	61	326	590	536	238	148	101
14	127	78	85	79	73	65	322	778	566	226	137	106
15	123	86	78	78	72	72	346	1,010	542	220	137	102
16	123	94	67	79	72	67	467	678	685	214	127	99
17	119	92	60	78	68	68	626	711	578	211	123	99
18	117	90	55	77	69	65	572	799	566	205	121	94
19	148	92	50	77	73	64	400	1,020	578	202	119	97
20	162	96	54	77	72	67	354	1,200	566	200	119	97
21	137	90	60	76	69	67	330	1,480	560	198	117	99
22	127	96	69	74	70	69	420	1,480	602	195	111	99
23	123	91	75	76	70	74	410	1,040	704	190	110	96
24	120	90	75	74	70	65	330	1,020	554	182	110	96
25	116	91	75	74	69	70	302	968	494	178	106	94
26	113	91	79	68	68	69	286	1,080	478	171	104	94
27	110	90	85	72	67	68	306	984	445	168	106	94
28	111	92	90	74	69	77	267	968	425	175	108	92
29	108	92	92	73	-------	101	246	1,010	415	185	106	106
30	94	88	84	74	-------	104	265	1,060	395	175	104	102
31	91	-------	79	74	-------	96	-------	1,280	-------	166	104	-------

NOTE.—Stage-discharge relation affected by ice Dec. 17-28; discharge based on gage height and temperature records.

Monthly discharge of Tongue River near Dayton, Wyo., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	162	91	119	7,320
November	111	70	91.5	5,440
December	92	50	78.1	4,800
January	82	68	77.1	4,740
February	77	67	71.8	3,990
March	104	57	71.2	4,380
April	626	99	282	16,800
May	1,480	270	772	47,500
June	1,000	395	606	36,100
July	484	166	249	15,300
August	173	104	130	7,990
September	106	92	99.3	5,910
The year	1,480	50	221	160,000

POWDER RIVER AT ARVADA, WYO.

LOCATION.—In sec. 16, T. 54 N., R. 77 W., at highway bridge at Arvada, Sheridan County. Nearest tributary, Wildhorse Creek, an intermittent stream, enters a quarter of a mile downstream.

DRAINAGE AREA.—6,050 square miles (measured on topographic maps and base map of Wyoming).

RECORDS AVAILABLE.—May 4, 1919, to September 30, 1925. From July 22, 1915, to April 29, 1919, station maintained just above mouth of Clear Creek, 16 miles downstream. Except for run-off following infrequent heavy rains, discharge at two points fairly comparable.

GAGE.—Chain gage fastened to downstream side of single-span bridge; read by Miss Sarah Evenson.

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

CHANNEL AND CONTROL.—Bed composed of sand and gravel. Control 200 feet downstream at small rapids composed of sand and rock which may shift at long intervals. Right bank subject to overflow at stage of 7 feet.

EXTREMES OF DISCHARGE.—Maximum stage during year, 16.6 feet at about 2 a. m. June 16, from high-water mark (discharge, 50,000 second-feet); minimum stage, 0.50 foot at 8 a. m. August 10 (discharge, 40 second-feet).

1919–1925: Maximum stage from high-water mark, 23.7 feet about 8 p. m. September 29, 1923 (discharge estimated at 95,000 second-feet); minimum discharge, river dry during part of summers of 1919, 1921, 1922, and 1923.

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

DIVERSIONS.—Practically no diversions from Powder River in Wyoming, but adjudicated diversions for irrigation of 90,000 acres from tributaries entering above.

ACCURACY.—Stage-discharge relation slightly shifting. Rating curve well defined below 6,000 second-feet. Chain gage read to quarter-tenths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table, using shifting-control method October 1–31. Records good.

The following discharge measurements were made:
May 7, 1925: Gage height, 1.45 feet; discharge, 361 second-feet.
September 19, 1925: Gage height, 0.83 foot; discharge, 86 second-feet.

Daily discharge, in second-feet, of Powder River at Arvada, Wyo., for the year ending September 30, 1925

Day	Oct.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	121		1,300	365	400	1,540	5,550	65	54
2	132		1,660	498	351	1,450	6,010	83	58
3	139		1,470	534	318	1,360	2,570	76	57
4	147		1,380	424	337	847	1,140	61	59
5	162		803	393	358	680	825	55	54
6	169		760	590	440	660	534	51	62
7	178		700	590	358	498	379	47	57
8	226		561	1,920	379	590	318	47	61
9	226		472	1,440	386	448	330	44	118
10	215		274	1,340	379	770	257	40	178
11	226		507	760	318	424	226	226	116
12	223		379	534	311	365	187	293	92
13	236		365	464	263	330	162	351	318
14	236		242	432	305	324	147	257	192
15	236		305	448	1,140	1,800	129	220	226
16	257	1,590	480	507	750	18,100	113	220	143
17	247	1,710	456	610	891	1,140	108	231	103
18	236	1,930	432	700	690	358	98	178	96
19	344	2,080	432	740	525	287	90	139	81
20	358	2,210	408	847	448	263	83	116	79
21	990	1,710	379	750	424	247	74	154	79
22	880	1,870	408	660	432	358	72	252	76
23	610	2,100	416	561	690	318	69	139	78
24	400	2,130	432	498	480	792	101	96	85
25	318	1,820	365	516	630	902	69	81	113
26	305	1,660	372	480	480	408	61	79	116
27	318	1,420	400	424	650	263	67	72	110
28	268	1,350	408	424	700	226	70	69	113
29	247		386	416	561	169	72	69	108
30	268		358	408	489	143	78	62	94
31	280		372		432		67	57	

NOTE.—Discharge June 15-16 computed from discharge hydrograph.

Monthly discharge of Powder River at Arvada, Wyo., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	990	121	297	18,300
February 16-28	2,210	1,350	1,810	46,700
March	1,660	242	570	35,000
April	1,920	365	642	38,200
May	1,140	263	494	30,400
June	18,100	143	1,200	71,400
July	6,010	61	647	39,800
August	351	40	127	7,810
September	318	54	106	6,310

CLEAR CREEK NEAR BUFFALO, WYO.

LOCATION.—In sec. 6, T. 50 N., R. 82 W., just above power house of Buffalo Manufacturing Co. and 4 miles west of Buffalo, Johnson County.

DRAINAGE AREA.—120 square miles (measured on topographic map).

RECORDS AVAILABLE.—June 16, 1917, to September 30, 1925. From June 1 to September 30, 1894, and from May 2, 1896, to February 28, 1900, station maintained at measuring flume 1 mile upstream. Flow at two points comparable.

GAGE.—Chain gage at left bank, 300 feet above power house; read by M. W. Bell.

DISCHARGE MEASUREMENTS.—Made from cable 50 feet upstream from gage or by wading.

CHANNEL AND CONTROL.—Bed composed of large boulders. Control at large boulders 10 feet downstream which shift slightly at infrequent intervals. Banks not subject to overflow.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 3.44 feet at 7 a. m. May 22 (discharge, 690 second-feet); minimum stage occurred during winter.

1917–1925: Maximum stage recorded, 4.2 feet at 6.30 a. m. June 18, 1917 (discharge, 1,120 second-feet); minimum stage recorded, 0.66 foot at 7 a. m. March 26, 1922 (discharge, 2 second-feet exclusive of flow through pipe line, which was 4 second-feet).

ICE.—Stage-discharge relation affected by ice.

DIVERSIONS.—Pipe line of Buffalo Manufacturing Co. diverts water from Clear Creek 1½ miles upstream. A separate record of flow through pipe line is kept and flow added to that at gaging station to give total of creek. Four Lakes and French Creek Canal and North Fork and French Creek Canal divert water from Clear Creek above station. During 1925, 12,800 acre-feet were diverted between May 22 and June 30.

REGULATION.—Alternate melting and freezing of mountain snow during spring causes diurnal fluctuation in flow. No artificial regulation.

ACCURACY.—Stage-discharge relation slightly shifting; affected by ice. Two well defined rating curves used during year. Gage read to quarter-tenths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table. Records good except for periods when stage-discharge relation was affected by ice, for which they are fair.

COOPERATION.—Data on diversions furnished by Fred Firnekas, water commissioner.

The following discharge measurements were made:

May 6, 1925:[6] Gage height, 1.54 feet; discharge, 60 second-feet.

September 18, 1925: Gage height, 1.42 feet; discharge, 46.4 second-feet.

Daily discharge, in second-feet, of Clear Creek near Buffalo, Wyo., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	28	35	21		11	10	37	52	385	336	132	46
2	28	34	20		12	13	37	65	328	332	96	46
3	29	36			12	10	30	73	310	321	82	48
4	32	36			12	11	38	69	262	314	77	53
5	32	35			12	13	43	63	273	288	93	73
6	33	33	17	11	11	14	45	58	266	306	80	67
7	33	33			12	16	41	58	230	248	76	59
8	30	32			12	15	40	58	206	227	76	58
9	27	33			11	14	39	58	210	217	80	58
10	32	28			9.3	13	47	58	200	172	87	55
			22									
11	33	27			8.1	11	60	59	244	142	104	52
12	37	25			7.7	11	67	82	255	132	191	54
13	32	23			7.3	10	94	98	206	115	181	56
14	33	23		11	6.9	10	84	191	197	102	134	56
15	33	25		11	8.5	12	89	223	248	100	108	56
			16									
16	30	26		10	7.7	11	100	178	358	98	102	52
17	28	27		10	8.5	10	124	158	306	96	87	50
18	32	28		8.5	8.9	9	113	188	312	89	82	47
19	74	28		8.1	9.3	10	67	217	317	87	77	53
20	68	28		8.5	9.3	11	63	366	336	84	72	58

[6] Flow through the pipe line of the Buffalo Manufacturing Co. was 7.6 second-feet, measured in the tailrace of the power plant.

Daily discharge, in second-feet, of Clear Creek near Buffalo, Wyo., for the year ending September 30, 1925—Continued

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
21	58	28		9.3	10	12	67	427	343	93	69	63
22	55	27		9.3	10	31	79	580	340	129	66	65
23	47	28		9.3	11	21	70	366	374	119	69	60
24	42	27		10	10	26	62	295	347	94	62	56
25	41	27		10	10	17	59	255	328	87	57	56
26	41	26		10	9.3	17	72	317	343	77	55	54
27	40	25	13	9.0	10	19	44	314	310	76	54	52
28	38	25		9.0	11	25	52	296	292	80	52	52
29	36	25		9.5	-------	35	45	321	280	169	51	87
30	36	25		10	-------	41	51	374	325	178	49	91
31	35	-------		10	-------	30	-------	457	-------	139	46	-------

NOTE.— Stage-discharge relation affected by ice Nov. 12-18, 24-29, Dec. 3-10, 12-31, Jan. 1-13, 26-31; discharge based on gage-height and temperature records and observer's notes. Braced figures show mean discharge for periods indicated.

Monthly discharge of Clear Creek near Buffalo, Wyo., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	74	27	37.8	2,320
November	36	23	28.6	1,700
December	-------	-------	15.8	972
January	-------	-------	10.2	627
February	12	6.9	9.92	551
March	41	9	16.4	1,010
April	124	30	62.0	3,690
May	580	52	206	12,700
June	385	197	291	17,300
July	336	76	163	10,000
August	191	46	85.4	5.250
September	91	46	57.8	3,440
The year	580	-------	82.2	59,600

Combined monthly discharge of Clear Creek and pipe line near Buffalo, Wyo., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	83	36	47	2,890
November	44	31	37	2,200
December	-------	-------	23	1,410
January	-------	-------	16	984
February	18	13	16	889
March	47	15	22	1,350
April	131	37	69	4,110
May	588	60	214	13,200
June	393	205	299	17,800
July	345	85	172	10,600
August	200	55	94	5,780
September	100	55	67	3,990
The year	588	-------	90	65,200

NOTE.—Flow through pipe line remains nearly uniform, and the monthly means based on several measurements are added to flow of Clear Creek to give combined flow.

LITTLE MISSOURI RIVER BASIN

LITTLE MISSOURI RIVER NEAR ALZADA, MONT.

LOCATION.—Near southwest corner of T. 8 S., R. 60 E., at Walker ranch, 300 yards below site of proposed dam 2 miles below mouth of Thompson Creek and 4 miles below Alzada, Carter County.

DRAINAGE AREA.—780 square miles (measured on General Land Office map).

RECORDS AVAILABLE.—June 18, 1911, to September 30, 1925, when station was discontinued.

GAGE.—Overhanging chain gage on right bank; read by John Walker.

DISCHARGE MEASUREMENTS.—Made by wading or from cable.

CHANNEL AND CONTROL.—Shifts during high water. Stream sluggish. Banks cut 5 to 15 feet in gumbo soil. Two channels at medium and one at high stage.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 15.5 feet at 7 a. m. June 17 (discharge 4,540 second-feet); minimum stage, 2.10 feet at 6 p. m. September 28 (discharge, 0.9 second-foot).

1911–1925: Maximum discharge recorded, 4,550 second-feet April 6, 1912 (gage height 15.3 feet); no flow at various times.

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

DIVERSIONS.—Small amount of water diverted above station for irrigation.

REGULATION.—None of importance. Some flood water is stored in coulees on tributaries for use in irrigating small tracts.

ACCURACY.—Stage-discharge relation affected by ice and by shifting control. Rating curve well defined below and extended above 2,000 second-feet but is subject to error owing to the fact that only one measurement was made during year. Gage read twice daily to quarter-tenths and oftener on days of considerable change in stage, Daily discharge ascertained by applying mean daily gage height to rating table using shifting-control method September 6–30. Records fair.

The following discharge measurement was made during the year:

September 28, 1925: Gage height, 2.09 feet; discharge estimated, 1.0 second-foot.

Daily discharge, in second-feet, of Little Missouri River near Alzada, Mont., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	15	13	13		700	75	17	17	35	15	10
2	15	12	13	300	700	72	16	1,260	32	15	10
3	15	10	14		700	68	16	1,690	62	13	10
4	16	9.5	13	521	650	92	15	518	70	15	9.5
5	17	10	13	1,520	850	144	16	173	56	14	13
6	16	11	13	1,600	1,200	88	16	66	40	14	10
7	15	11	12	1,490	1,950	57	15	104	36	15	604
8	36	10	12	1,540	2,030	58	15	751	34	17	544
9	773	11	12	1,260	1,550	49	15	1,430	30	15	180
10	918	10	13	816	848	43	16	1,080	27	15	144
11	598	8.5	13	503	1,020	88	16	158	25	16	47
12	115	11	58	433	722	48	16	126	25	18	36
13	59	12	120	273	235	37	17	86	25	16	22
14	35	12	52	255	175	30	16	63	24	138	14
15	25	12	45		537	27	16	80	24	57	10
16	19	15			346	25	18	1,220	22	36	7.0
17	18	14			336	22	19	3,920	21	29	5.0
18	15	13	20	250	447	21	25	3,470	21	22	3.9
19	12	14			387	22	33	1,680	19	19	3.2
20	11	13			368	19	25	245	20	19	2.3

Daily discharge, in second-feet, of Little Missouri River near Alzada, Mont., for the year ending September 30, 1925—Continued

Day	Oct.	Nov.	Dec.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
21	12	13			661	19	23	107	21	17	2.1
22	199	15		245	954	20	21	75	19	15	1.5
23	73	18	20	503	1,040	21	19	68	19	13	2.3
24	37	13		816	1,090	21	18	188	19	12	3.2
25	25	14		1,160	1,130	19	17	230	19	12	1.9
26	21	15	15	1,110	362	19	16	73	19	11	1.3
27	19	15	15	1,030	378	18	18	58	19	9.5	1.5
28	18	15	13	836	180	19	16	47	20	12	1.1
29	18	15	13	------	99	18	16	43	19	10	1.3
30	14	15	13	------	73	18	16	48	18	11	1.7
31	13	------	13	------	80	------	16	------	16	10	------

NOTE.—Stage-discharge relation affected by ice Dec. 16–25, Feb. 1–3, 15–21, and Mar. 1–3; discharge estimated.

Monthly discharge of Little Missouri River near Alzada, Mont., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	918	11	103	6,330
November	18	8.5	12.7	756
December	120	12	22.5	1,380
February	1,600	245	663	36,800
March	2,030	73	703	43,200
April	144	18	42.6	2,530
May	33	15	17.9	1,100
June	3,920	17	636	37,800
July	70	16	27.6	1,700
August	138	9.5	21.0	1,290
September	604	1.1	56.8	3,380

CHEYENNE RIVER BASIN

BELLE FOURCHE RIVER NEAR MOORCROFT, WYO.

LOCATION.—In sec. 36, T. 50 N., R. 68 W., at highway bridge 1½ miles west of Moorcroft, Crook County. Nearest perennial tributary, Donkey Creek, enters 1 mile downstream.

DRAINAGE AREA.—1,380 square miles (measured on base map of Wyoming).

RECORDS AVAILABLE.—September 1, 1923, to September 30, 1925.

GAGE.—Chain gage on upstream side of bridge; read by M. J. Sheperd.

DISCHARGE MEASUREMENTS.—Made from downstream side of bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of silt and sand; shifts during high water but is fairly permanent during low water.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 7.8 feet August 11 (discharge, 4,750 second-feet as determined by slope and area measurement); minimum discharge, 0.3 second-foot October 1–3.

1923-1925: Maximum stage recorded, 12.6 feet April 7, 1924 (discharge, 12,500 second-feet); minimum discharge, 0.3 second-foot September 6 to October 3, 1924.

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

DIVERSIONS.—Practically no diversions for irrigation above station. Burlington Railroad pumps 30,000 gallons daily from river just above station.

ACCURACY.—Stage-discharge relation not permanent. Rating curves used October 1–30 and May 9 to September 30 are both fairly well defined below 300 second-feet; above 300 second-feet they are based on slope measurements at 3,240 and 4,750 second-feet. Gage read to quarter-tenths twice daily. Daily discharge ascertained by applying mean daily gage height to rating tables except as indicated in footnote to daily-discharge table. Records good below 300 second-feet; poor above.

The following discharge measurements were made:
May 9, 1925: Gage height, 0.40 foot; discharge, 5.8 second-feet.
September 20, 1925: Gage height, 0.22 foot; discharge, 1.7 second-feet.

Daily discharge, in second-feet, of Belle Fourche River near Moorcroft, Wyo., for the year ending September 30, 1925

Day	Oct.	May	June	July	Aug.	Sept.	Day	Oct.	May	June	July	Aug.	Sept.
1	0.3	7	3	1	3.0	5	16	4	49	5	0.7	8	4
2	.3	8	5	1	1.0	5	17	2	26	4	.7	11	3
2	.3	8	8	2	1.0	4	18	2	17	4	.7	9	2
4	.6	9	9	2	.9	4	19	14	11	3	.6	9	1
5	.6	10	10	2	.9	3	20	228	9	3	.5	7	1
6	.6	10	9	1	.7	29	21	182	7	2	.6	1,190	2
7	.6	9	14	1	.7	15	22	45	6	24	.6	89	2
8	21	8	265	1	.7	10	23	22	5	10	85	45	2
9	45	6	53	1	.6	7	24	14	4	4	89	24	1
10	36	5	24	1	100	5	25	10	4	3	29	17	1
11	12	4	13	.9	2,890	5	26	8	4	2	12	12	1
12	11	4	10	.9	160	8	27	7	4	2	12	10	1
13	9	4	8	.9	54	116	28	6	3	2	41	8	1
14	8	4	8	.7	27	20	29	6	4	2	33	8	1
15	7	6	6	.7	6	7	30	5	3	1	11	7	1
							31	5	3	------	5	6	------

NOTE.—No gage-height record May 1–8; discharge based on comparison with records of flow of Powder River. Discharge July 23, Aug. 10–11, 21, obtained from discharge hydrograph. During February, March, and April run-off was about 68,000 acre-feet as determined by comparison with records for Belle Fourche River near Belle Fourche, S. Dak., and for Powder River at Arvada.

Monthly discharge of Belle Fourche River near Moorcroft, Wyo., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	228	0.3	23.0	1,410
May	49	3	8.4	516
June	265	1	17.2	1,020
July	89	.5	10.9	670
August	2,890	.6	152	9,350
September	116	1	8.9	530

BELLE FOURCHE RIVER NEAR BELLE FOURCHE, S. DAK.

LOCATION.—In sec. 2, T. 8 N., R. 2 E., at diversion dam of Belle Fourche irrigation project, 1½ miles below Belle Fourche, Butte County.

DRAINAGE AREA.—4,310 square miles (revised; measured on base maps).

RECORDS AVAILABLE.—May 10 to November 30, 1906; January 1, 1912, to September 30, 1925; May 26, 1903, to June 23, 1906, for station at the west edge of Belle Fourche; the records at these points are not directly comparable, as Redwater River enters between the two stations, and water is diverted from Belle Fourche River.

GAGE.—Inclined staff 100 feet from crest of diversion dam, and a gage in canal. See "Computation of discharge."

COMPUTATION OF DISCHARGE.—The following information was supplied by the United States Bureau of Reclamation:

The records of daily discharge represent the entire flow of the river at the diversion dam and have been corrected for water diverted through Inlet Canal and passed through the sluice gates. The diversion dam acts as a weir; the crest is 400 feet long; the gage is about 100 feet from the crest and is read twice daily. Careful discharge measurements were made in the river above and below the dam before the coefficient was established, and the discharge rating table as originally computed has not been changed. The quantity diverted is determined at a gaging station maintained on Inlet Canal, and the rating curve is checked by frequent discharge measurements. The sluice gates are seldom used, and the flow through them is estimated.

DIVERSIONS.—In Wyoming part of drainage basin, adjudicated diversions for irrigation of 980 acres from Belle Fourche River and 18,000 acres from tributaries

ACCURACY.—The United States Bureau of Reclamation considers the records fair.

COOPERATION.—Complete records furnished and station maintained by Bureau of Reclamation.

Daily discharge, in second-feet, of Belle Fourche River near Belle Fourche, S. Dak., for the year ending September 30, 1925.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	168	244	254	180	334	570	1,090	487	161	275	61	95
2	173	247	278	190	557	440	1,190	500	161	240	52	106
3	173	259	270	200	658	499	1,120	301	185	440	46	107
4	177	253	267	185	889	561	951	280	185	287	52	127
5	186	244	256	170	1,240	1,050	809	174	185	208	61	124
6	190	275	259	165	1,060	683	734	270	206	171	60	124
7	196	257	145	165	3,890	2,190	660	264	325	162	47	136
8	319	272	132	168	3,080	3,300	646	257	1,190	168	42	165
9	479	292	294	175	2,310	2,200	529	252	736	171	48	160
10	333	290	469	180	1,500	2,080	517	252	926	160	49	137
11	261	283	258	182	1,050	2,320	833	225	1,120	153	141	122
12	601	218	320	168	806	1,380	861	218	643	138	149	134
13	454	216	326	172	618	993	505	191	459	89	89	137
14	370	236	343	178	470	460	479	181	474	86	1,210	147
15	294	254	273	180	417	467	457	228	434	58	549	165
16	282	256	226	175	266	1,120	445	395	776	52	312	143
17	276	256	226	225	275	726	428	465	939	48	217	210
18	264	254	226	245	298	621	452	374	728	50	157	225
19	264	265	226	255	375	651	452	321	482	52	151	214
20	305	263	226	250	490	738	767	296	323	48	136	176
21	293	265	226	245	490	767	768	302	180	46	125	187
22	1,720	265	226	225	821	2,210	780	240	307	47	128	215
23	1,180	283	226	242	726	2,870	730	234	424	50	102	241
24	727	266	226	220	699	3,190	712	221	353	45	82	171
25	740	220	226	170	485	2,330	699	178	248	22	341	164
26	437	209	226	145	598	1,880	699	183	237	37	201	158
27	373	195	226	175	1,200	1,630	699	169	203	33	167	163
28	347	193	226	215	646	1,480	700	154	216	36	181	159
29	306	252	226	180	------	1,290	650	168	214	39	195	164
30	285	243	226	172	------	970	599	155	191	57	134	175
31	282	------	226	361	------	1,100	------	157	------	78	110	------

Monthly discharge of Belle Fourche River near Belle Fourche, S. Dak., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	1,720	168	402	24,700
November	292	193	251	14,900
December	469	132	250	15,400
January	361	145	199	12,200
February	3,890	266	937	52,000
March	3,300	440	1,380	84,800
April	1,190	428	699	41,600
May	500	154	261	16,000
June	1,190	161	440	26,200
July	440	22	114	7,010
August	1,210	42	174	10,700
September	241	95	158	9,400
The year	3,890	22	435	315,000

LITTLE SIOUX RIVER BASIN

LITTLE SIOUX RIVER AT CORRECTIONVILLE, IOWA

LOCATION.—In sec. 1, T. 88 N., R. 43 W., at Illinois Central Railroad bridge, half a mile southwest of Correctionville, Woodbury County, and 54 miles above confluence with Missouri River.

DRAINAGE AREA.—2,490 square miles (measured on map issued by United States Geological Survey).

RECORDS AVAILABLE.—May 28, 1918, to July 1, 1925, when station was discontinued.

GAGE.—Chain gage attached to upstream guard rail of center span of railroad bridge; read by Arlie Bentley.

DISCHARGE MEASUREMENTS.—Made from downstream side of highway bridge one-fourth mile above gage. Flood measurements from downstream side of railroad bridge.

CHANNEL AND CONTROL.—Stream bed composed of sand and clay; no well-defined control. Banks subject to overflow.

EXTREMES OF DISCHARGE.—Maximum stage recorded during period, October 1 to July 1, 9.15 feet at 7.30 p. m. June 4 (discharge, 2,190 second-feet); minimum stage, 3.05 feet at 7.30 p. m. June 1 (discharge, 50 second-feet).

1918–1925: Maximum stage recorded, 19.57 feet June 12, 1919 (discharge estimated, 20,700 second-feet). Minimum discharge recorded, 5 second-feet August 18, 1922.

ICE.—Stage-discharge relation affected by ice.

REGULATION.—There is a small power development at Correctionville, but it is thought that this has no appreciable effect on the gage readings.

ACCURACY.—Stage-discharge relation not permanent. Rating curve fairly well defined. Gage read to hundredths once daily. Daily discharge ascertained by applying daily gage height to rating table except as explained in footnote to table of daily discharge. Records fair.

The following discharge measurement was made:

April 16, 1925: Gage height, 4.23 feet; discharge, 270 second-feet.

Daily discharge, in second-feet, of Little Sioux River at Correctionville, Iowa, for the year ending September 30, 1925

Day	Oct.	Nov.	Mar.	Apr.	May	June	July
1	570	183	-------	319	225	50	225
2	480	183	-------	345	225	940	-------
3	452	183	-------	319	225	1,260	-------
4	424	173	-------	295	183	2,190	-------
5	397	143	-------	271	183	870	-------
6	371	143	-------	271	173	1,100	-------
7	371	134	-------	271	153	800	-------
8	371	143	600	295	163	540	-------
9	424	153	570	371	183	397	-------
10	345	173	630	397	143	424	-------
11	345	163	540	371	143	480	-------
12	371	173	570	319	153	480	-------
13	397	153	295	319	134	510	-------
14	452	153	600	271	134	480	-------
15	345	153	600	271	143	345	-------
16	271	153	660	225	163	319	-------
17	247	173	570	271	153	1,890	-------
18	271	183	540	345	125	660	-------
19	271	173	540	295	125	480	-------
20	295	173	540	295	116	424	-------
21	225	163	540	271	116	371	-------
22	203	173	540	247	107	600	-------
23	225	163	540	295	90	765	-------
24	183	153	540	225	73	480	-------
25	225	153	540	203	73	424	-------
26	271	173	540	183	73	371	-------
27	480	116	540	183	73	116	-------
28	424	116	510	183	66	116	-------
29	319	125	480	183	66	271	-------
30	183	116	424	203	73	271	-------
31	183	-------	371	-------	73	-------	-------

NOTE.—Stage-discharge relation affected by ice Nov. 30, discharge estimated. Gage heights missing Mar. 23 25; discharge interpolated.

Monthly discharge of Little Sioux River at Correctionville, Iowa, for the year ending September 30, 1925

[Drainage area, 2,490 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	570	183	335	0.135	0.16
November	183	116	157	.063	.07
March 8-31	630	295	534	.214	.19
April	397	183	277	.111	.12
May	225	66	133	.053	.06
June	2,190	50	614	.247	.28

BOYER RIVER BASIN

BOYER RIVER AT LOGAN, IOWA

LOCATION.—In sec. 24, T. 79 N., R. 43 W., at highway bridge south of Logan, Harrison County, and 30 miles above junction with Missouri River.

DRAINAGE AREA.—810 square miles (measured on map issued by United States Geological Survey).

RECORDS AVAILABLE.—May 24, 1918, to July 1, 1925, when station was discontinued.

GAGE.—Chain gage attached to upstream handrail of bridge until April 16; after that date a gage attached to cantilever at site 300 feet downstream on left bank was used; read by C. F. Peckenpaugh.

DISCHARGE MEASUREMENTS.—Made from downstream side of bridge or by wading.

CHANNEL AND CONTROL.—Channel is a dredged ditch with clay bottom and sides. Banks are overflowed during extreme floods. Control consists of the remains of an old milldam on a limestone ledge 1,000 feet below gage.

EXTREMES OF DISCHARGE.—Maximum stage recorded during period October 1 to July 1, 18.10 feet at 7 p. m. June 3 (discharge estimated, 9,600 second-feet); minimum stage, 1.80 feet at 5 p. m. May 23 (discharge, 85 second-feet).

1918–1925; Maximum stage recorded, 18.95 feet June 24, 1924 (discharge estimated, 10,400 second-feet); no flow September 27-29, 1918.

ICE.—Stage-discharge relation affected by ice during extreme cold weather; water at the control is very swift and seldom freezes.

ACCURACY.—Stage-discharge relation practically unchanged during period October 1 to July 1. Rating curve well defined between 50 and 800 second-feet. Extension of rating curve approximate. Gage read to hundredths twice daily. Daily discharge ascertained by applying to rating table mean daily gage height, except as explained in the footnote to table of daily discharge. Records fair.

The following discharge measurement was made:
April 15, 1925: Gage height, 2.45 feet; discharge, 162 second-feet.

Daily discharge, in second-feet, of Boyer River at Logan, Iowa, for the year ending September 30, 1925

Day	Oct.	Nov.	Feb.	Mar.	Apr.	May	June	July
1	290	164	1,460	300	164	112	90	112
2	270	164	760	290	164	118	90	------
3	250	173	425	290	164	106	4,300	------
4	230	173	270	270	156	112	6,620	------
5	220	164	250	240	156	112	1,500	------
6	200	173	280	240	148	112	580	------
7	210	164	290	230	148	112	425	------
8	512	156	260	270	412	112	350	------
9	565	156	210	182	300	112	173	------
10	290	164	200	220	290	118	112	------
11	250	173	191	300	230	125	100	------
12	240	164	200	325	210	106	95	------
13	210	173	250	375	182	112	90	------
14	200	156	300	350	182	100	375	------
15	210	148	450	300	156	90	730	------
16	200	156	500	290	164	173	375	------
17	200	173	350	280	148	156	210	------
18	200	182	450	250	148	156	191	------
19	191	164	260	230	148	156	200	------
20	200	164	325	200	132	132	200	------
21	182	173	610	191	112	125	191	------
22	182	164	450	173	140	95	200	------
23	182	148	375	182	140	90	350	------
24	182	148	350	173	132	100	191	------
25	182	140	260	173	132	95	182	------
26	182	140	250	173	118	95	173	------
27	182	148	300	173	118	90	173	------
28	182	148	337	173	112	100	164	------
29	164	112	------	173	112	100	140	------
30	173	118	------	182	112	95	112	------
31	173	------	------	173	------	90	------	------

NOTE.—No gage-height record Mar. 25–28, discharge estimated.

Monthly discharge of Boyer River at Logan, Iowa, for the year ending September 30, 1925

[Drainage area, 810 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	565	164	229	0.283	0.33
November	182	112	158	.195	.22
February	1,460	191	379	.468	.49
March	375	173	238	.294	.34
April	300	112	168	.207	.23
May	173	90	113	.140	.16
June	6,620	90	623	.769	.86

PLATTE RIVER BASIN

NORTH PLATTE RIVER NEAR WALDEN, COLO.

LOCATION.—In sec. 5, T. 8 N., R. 80 W., at highway bridge 8 miles southwest of Walden, Jackson County. Nearest tributary, Roaring Fork, enters 2½ miles above.

DRAINAGE AREA.—446 square miles (measured on topographic map and on geologic map in Bulletin 596).

RECORDS AVAILABLE.—May 13, 1904, to October 31, 1905; October 1, 1923, to September 30, 1925.

GAGE.—Bristol float-type water-stage recorder on downstream side of left pier of bridge referred to chain gage; inspected by Mrs. B. F. Green.

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

CHANNEL AND CONTROL.—Bed composed of gravel and medium-sized boulders. Control about 200 feet below gage; slightly shifting at long intervals.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 3.5 feet at midnight May 31 (discharge, 890 second-feet); minimum stage recorded, 0.84 foot October 1 (discharge, 43 second-feet).

1904–5; 1924–25: Maximum discharge recorded, 5.0 feet at 8 a. m. June 15, 1924 (discharge, 1,760 second-feet); minimum discharge recorded, 15 second-feet September 13–18, 1905.

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

DIVERSIONS.—See North Platte River near Northgate, Colo.

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

ACCURACY.—Stage-discharge relation slightly shifting. Rating curves used October 1–30 and April 1 to September 30 are well defined. Operation of water-stage recorder unsatisfactory before July 17, but satisfactory afterward. Daily discharge ascertained by applying to rating table mean daily gage height obtained by inspection of recorder graph, except as indicated in footnote to daily-discharge table. Records fair before July 17; after that date they were good.

Discharge measurements of North Platte River near Walden, Colo., during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*
May 2	1.72	178	July 19	1.44	124
May 24	2.87	553	Aug. 16	1.28	84

Daily discharge, in second-feet, of North Platte River near Walden, Colo., for the year ending September 30, 1925

Day	Oct.	Apr.	May	June	July	Aug.	Sept.
1	48	310	200	808	159	88	96
2	58	280	204	705	190	88	115
3	60	220	229	469	230	90	220
4	67	230	220	363	270	97	195
5	100	235	200	558	340	117	174
6	150	240	210	730	270	106	157
7	222	242	230	730	160	111	126
8	250	246	245	655	119	97	115
9	175	280	269	473	115	88	113
10	113	340	310	353	110	91	106
11	103	460	370	356	120	109	102
12	94	580	340	395	140	117	97
13	105	570	300	340	190	122	101
14	102	550	340	325	170	108	194
15	100	535	370	414	145	101	161
16	98	510	450	499	130	85	132
17	100	500	420	486	129	76	111
18	100	490	370	469	128	71	101
19	103	430	430	500	119	82	148
20	106	370	515	550	124	109	287
21	160	310	620	630	154	144	218
22	165	269	680	740	189	113	182
23	140	250	630	630	194	101	157
24	105	240	580	553	172	96	134
25	102	235	605	470	142	104	122
26	97	235	655	360	120	104	115
27	88	225	680	260	111	122	101
28	83	220	705	210	102	148	92
29	83	210	780	140	94	152	86
30	83	200	780	150	92	132	84
31	83	------	835	------	91	104	------

NOTE.—No gage-height record Oct. 5–6, 8–9, 14–19, 21–23, 31, Apr. 2–7, 9–14, 16–21, 23–30, May 1, 4–8, 10–21, June 7, 19–23, 25–30, July 2–7, 9–15, 17; discharge based on comparison with records of flow of North Platte River near Northgate.

Monthly discharge of North Platte River near Walden, Colo., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	250	48	111	6,820
April	580	200	334	19,900
May	835	200	444	27,300
June	808	140	477	28,400
July	340	91	155	9,530
August	152	71	106	6,520
September	287	84	138	8,210

NORTH PLATTE RIVER NEAR NORTHGATE, COLO.

LOCATION.—In sec. 11, T. 11 N., R. 80 W., at highway bridge on Interstate Highway, 6 miles south of Colorado-Wyoming line and 6 miles northwest of Northgate, Jackson County. Three small tributaries, Camp, Threemile, and Sixmile Creeks, enter North Platte River between station and State line. These streams have very little flow except spring run-off.

DRAINAGE AREA.—1,440 square miles (measured on base map of Colorado).

RECORDS AVAILABLE.—May 23, 1915, to September 30, 1925.

GAGE.—Gurley water-stage recorder installed April 8, 1918, referred to staff on right side of gage shelter; inspected by H. H. Quaintance.

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

CHANNEL AND CONTROL.—Bed composed of sand, gravel, and small boulders. Principal control 200 feet downstream at small rapids; slightly shifting at intervals. Banks not subject to overflow.

EXTREMES OF DISCHARGE.—Maximum stage during year from water-stage recorder, 3.90 feet at 10 a. m. June 7 (discharge, 2,570 second-feet); minimum stage probably occurred during winter.

1915–1925: Maximum stage recorded, 6.24 feet at 3 a. m. June 11, 1923 (discharge, 6,720 second-feet); minimum stage recorded, 1.17 feet October 7 and 20, 1922 (discharge, 67 second-feet).

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

DIVERSIONS.—Water diverted for irrigation of 100,000 acres by North Platte River and tributaries above station.

REGULATION.—None.

ACCURACY.—Stage-discharge relation not permanent. Rating curve fairly well defined. Operation of water-stage recorder satisfactory except for short periods as indicated in footnote to daily-discharge table. Daily discharge ascertained by shifting-control method except for periods October 1 to April 20 and June 1 to July 5, when mean gage height was applied to rating table. Records good.

The following discharge measurements were made:

May 1, 1925: Gage height, 1.69 feet; discharge, 277 second-feet.

July 21, 1925: Gage height, 2.15 feet; discharge, 543 second-feet.

August 15, 1925: Gage height, 1.85 feet; discharge, 360 second-feet.

Daily discharge, in second-feet, of North Platte River near Northgate, Colo., for the year ending September 30, 1925

Day	Oct.	Nov.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	104	255	-------	849	276	1,780	683	340	325
2	112	254	-------	780	276	1,730	798	335	295
3	122	253	-------	700	300	1,250	858	345	459
4	136	249	-------	640	291	990	814	366	558
5	155	240	-------	680	272	1,750	912	411	524
6	230	236	-------	720	281	1,860	814	465	453
7	310	236	-------	800	325	2,500	675	453	400
8	400	253	-------	810	372	1,850	572	394	383
9	361	281	-------	820	388	1,250	517	335	356
10	305	281	-------	830	484	912	465	335	330
11	258	-------	-------	850	510	876	465	359	305
12	232	-------	-------	894	551	894	530	383	281
13	224	-------	-------	960	498	960	565	423	267
14	224	-------	-------	950	453	858	478	417	272
15	211	-------	-------	912	530	885	417	366	366
16	211	-------	-------	903	638	921	411	377	491
17	211	-------	-------	858	660	1,000	394	388	447
18	224	-------	-------	876	579	1,040	417	372	383
19	267	-------	-------	867	544	1,000	435	372	330
20	305	-------	-------	739	622	1,260	441	510	325
21	320	-------	-------	630	723	1,310	530	638	459
22	330	-------	-------	572	980	1,720	593	630	537
23	315	-------	-------	565	1,120	1,850	652	537	429
24	305	-------	-------	478	1,020	1,410	579	423	388
25	286	-------	-------	423	1,050	1,040	510	366	356
26	272	-------	-------	356	1,160	885	453	388	325
27	262	-------	-------	335	1,200	723	417	411	291
28	245	-------	-------	320	1,210	615	388	423	267
29	250	-------	1,250	315	1,260	593	361	429	249
30	252	-------	1,040	295	1,350	715	350	400	228
31	256	-------	894	-------	1,480	-------	345	366	-------

NOTE.—No gage-height record Oct. 6, 29–31, Nov. 1–2, Apr. 2–11, June 6, Aug. 1, 8, 16; discharge based on comparison with records of flow of North Platte River at Saratoga.

Monthly discharge of North Platte River near Northgate, Colo., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	400	104	248	15,200
November 1–10	281	236	254	5,040
March 29–31	1,250	894	1,060	6,310
April	960	295	691	41,100
May	1,480	272	690	42,400
June	2,500	593	1,210	72,000
July	912	345	543	33,400
August	638	335	412	25,300
September	558	228	369	22,000

NORTH PLATTE RIVER AT SARATOGA, WYO.

LOCATION.—At highway bridge at Saratoga, Carbon County. Nearest tributary, Spring Creek, enters 2 miles above.

DRAINAGE AREA.—2,880 square miles (measured on base map of Wyoming).

RECORDS AVAILABLE.—June 9, 1903, to October 31, 1906; April 1 to December 17, 1909; April 27, 1911, to September 30, 1925.

GAGE.—Chain gage on upstream side of bridge; read by Miss Carrie Priquet.

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

CHANNEL AND CONTROL.—Bed composed of coarse gravel and small boulders. Control at rapids, 500 feet downstream, fairly permanent. Banks not subject to overflow.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 7.49 feet at 8 a. m. June 8 (discharge, 7,020 second-feet); minimum stage, 3.68 feet at 6 p. m. October 1 (discharge, 207 second-feet).

1903–1906; 1909; 1911–1925: Maximum stage recorded, 11.06 feet from high-water mark on June 8, 1909 (discharge from extension of rating curve, 18,000 second-feet); minimum stage, 3.3 feet at 6 p. m. September 7, 1924 (discharge, 87 second-feet).

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

DIVERSIONS.—Adjudicated diversions for irrigation of 5,800 acres from the North Platte between Saratoga and State line.

REGULATION.—None.

ACCURACY.—Stage-discharge relation practically permanent; affected by ice during winter. Rating curve well defined. Gage read to hundredths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table. Records excellent except for periods when affected by ice, for which they are fair.

The following discharge measurements were made:

January 12, 1925: Gage height, 4.05 feet (stage-discharge relation affected by ice); discharge, 271 second-feet.

June 12, 1925: Gage height, 6.07 feet; discharge, 3,140 second-feet.

September 5, 1925: Gage height, 4.80 feet; discharge, 973 second-feet.

Daily discharge, in second-feet, of North Platte River at Saratoga, Wyo., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	215	509	382		271	285	1,790	1,000	5,040	2,100	470	610
2	228	502			289	294	1,660	1,100	5,280	2,530	470	610
3	271	509	320		294	298	1,510	1,250	4,800	2,530	440	652
4	285	522			280	303	1,240	1,380	3,780	2,530	470	1,000
5	289	516		272	289	313	1,210	1,490	3,200	3,310	470	1,060
6	285	502			298	410	1,290	1,830	3,020	3,310	502	1,000
7	280	464			313	470	1,350	2,030	5,070	2,710	610	890
8	319	404	290		308	565	1,420	2,490	6,750	2,180	610	742
9	644	355			303	652	1,390	2,640	5,410	2,010	652	610
10	724	345			313	644	1,390	2,670	4,040	2,010	695	572
11	644	360	290		308	627	1,450	2,690	3,460	2,100	695	535
12	627	377	292		308	627	1,420	2,730	3,100	2,350	790	502
13	580	372	292		298	652	1,540	2,420	2,880	2,100	790	502
14	550	377	294		303	652	1,600	2,800	3,020	1,690	790	572
15	483	388	294	270	303	644	1,660	3,230	3,180	1,390	742	572
16	458	388	285		298	618	1,720	3,310	3,230	1,180	742	535
17	490	394	270		303	610	1,740	3,380	3,230	1,060	695	502
18	490	399	260		308	610	1,720	3,510	3,290	945	695	535
19	565	394	250		308	610	1,690	3,230	3,640	890	695	535
20	595	404	260		298	602	1,630	3,290	3,620	890	790	742
21	588	416	260		294	610	1,580	3,510	3,670	890	790	1,180
22	580	434	265		298	695	1,540	3,710	3,640	2,180	742	1,120
23	572	452	270		313	771	1,510	4,240	4,710	1,320	695	1,060
24	558	440	270		313	880	1,480	4,300	3,980	1,120	652	945
25	550	434	270	260	303	1,120	1,360	4,460	3,490	1,000	610	742
26	516	404	270		298	1,540	1,310	4,630	3,230	945	652	610
27	476	416	270		294	1,450	1,150	4,710	3,230	890	652	535
28	446	416	270		289	1,800	1,120	4,800	2,530	790	652	502
29	428	404	270		-------	1,930	1,100	4,860	2,150	652	652	502
30	440	350	270		-------	2,040	1,050	4,950	1,950	572	652	470
31	446	-------	270	257	-------	1,950	-------	4,860	-------	502	652	-------

NOTE.—Stage-discharge relation affected by ice Dec. 2–13, Dec. 17 to Jan. 30; discharge based on one discharge measurement, temperature and gage-height records, and observer's notes. Braced figures show mean discharge for periods indicated.

Monthly discharge of North Platte River at Saratoga, Wyo., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	724	215	472	29,000
November	522	345	422	25,100
December	-------	-------	286	17,600
January	-------	-------	267	16,400
February	313	271	300	16,700
March	2,040	285	815	50,100
April	1,790	1,050	1,450	86,300
May	4,950	1,000	3,150	194,000
June	6,750	1,950	3,720	221,000
July	3,310	502	1,630	100,000
August	790	440	652	40,100
September	1,180	470	698	41,500
The year	6,750	-------	1,160	838,000

NORTH PLATTE RIVER ABOVE PATHFINDER RESERVOIR, WYO.

LOCATION.—In sec. 27, T. 26 N., R. 84 W., 900 feet below mouth of Lost Creek and three-quarters of a mile below mouth of Black Canyon, Carbon County. Backwater from Pathfinder Reservoir reaches within 2½ miles of station.

DRAINAGE AREA.—7,410 square miles (measured on base map of Wyoming).

RECORDS AVAILABLE.—October 7, 1913, to September 30, 1925, when station was discontinued.

GAGE.—Friez water-stage recorder on right bank, 900 feet below Lost Creek; inspected by Otto Bennard.

DISCHARGE MEASUREMENTS.—Made from cable at gage.

CHANNEL AND CONTROL.—Bed composed of small boulders. Gage at lower end of long pool; control at rapids which shift at long intervals. Banks high and not subject to overflow.

EXTREMES OF DISCHARGE.—Maximum stage during year from water-stage recorder, 4.7 feet June 7 (discharge, 10,200 second-feet); minimum discharge occurred during winter.

1913–1925: Maximum stage recorded, 6.2 feet at 2 p. m. June 26, 1917 (discharge, 18,800 second-feet); minimum stage, 0.17 foot from 6 to 10 a. m. November 14, 1922 (discharge, 72 second-feet).

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

DIVERSIONS.—Adjudicated diversions for irrigation of 6,600 acres from North Platte River between this station and Saratoga.

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

ACCURACY.—Stage-discharge relation practically permanent; affected by ice. Rating curve well defined. Operation of water-stage recorder satisfactory except as explained in footnote to table of daily discharge. Daily discharge ascertained by applying to rating table mean gage height obtained by inspection of recorder graph. Records good except for periods of missing gage heights, for which they are poor.

The following discharge measurements were made:

October 14, 1924: Gage height, 1.42 feet; discharge, 733 second-feet.

May 4, 1925: Gage height, 2.36 feet; discharge, 2,030 second-feet.

Daily discharge, in second-feet, of North Platte River above Pathfinder Reservoir, Wyo., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Mar.	Apr.	May	June	July	Aug.
1	320	614	614	750	2,090	1,620	6,730	2,650	------
2	330	614	590	800	1,950	1,720	6,730	2,900	------
3	370	614	598	820	1,830	1,900	6,950	3,050	------
4	380	666	529	840	1,760	2,020	5,910	3,930	------
5	390	702	487	850	1,730	2,080	5,000	3,830	------
6	380	730	450	900	1,740	2,240	5,350	4,040	------
7	390	702	400	1,050	1,790	2,240	6,800	3,750	------
8	400	598	380	1,650	1,800	2,340	7,800	3,320	1,320
9	420	558	360	2,060	1,800	2,820	6,520	2,520	1,280
10	600	473	------	1,750	1,780	3,020	4,830	2,110	1,010
11	790	320	------	1,360	1,760	2,930	4,150	2,440	1,150
12	831	450	------	1,120	1,900	2,880	3,670	2,300	1,220
13	790	460	------	990	2,240	2,820	3,620	2,480	1,140
14	740	460	------	942	2,480	3,160	3,470	2,520	1,100
15	666	480	------	908	2,500	4,100	3,370	2,170	908
16	622	500	------	842	2,620	4,670	3,470	1,930	------
17	614	520	------	800	2,620	4,510	3,770	1,900	------
18	630	540	------	780	2,650	5,000	3,990	1,880	------
19	770	600	------	780	2,500	4,830	4,010	1,810	------
20	842	648	------	831	2,360	4,670	4,070	1,810	------
21	760	720	------	908	2,090	4,830	4,180	1,780	------
22	760	780	------	1,140	1,990	5,530	4,510	2,110	------
23	760	648	------	1,250	1,880	6,310	5,170	2,560	------
24	770	466	------	2,080	1,810	6,310	5,460	2,320	------
25	780	487	------	2,080	1,680	6,310	5,170	2,240	------
26	740	366	------	2,320	1,640	6,110	4,240	1,900	------
27	693	345	------	2,360	1,620	6,110	3,520	1,350	------
28	657	417	------	2,380	1,620	6,110	3,400	1,240	------
29	622	648	------	2,600	1,610	6,310	3,000	1,100	------
30	630	622	------	2,840	1,600	6,520	2,500	900	------
31	614	------	------	2,320	------	6,520	------	880	------

NOTE.—Stage-discharge relation affected by ice Nov. 12–19, Dec. 6–8. No gage-height record Oct. 1–10, Mar. 1–6, Apr. 5–10, 26–30, May 1–3, June 7–8, 28–30, July 1–3, and 26–31; discharge based on comparison with records of flow of North Platte River at Saratoga.

Monthly discharge of North Platte River above Pathfinder Reservoir, Wyo., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	842	320	614	37,800
November	780	320	558	33,200
December 1-9	614	360	490	8,750
March	2,840	750	1,390	85,500
April	2,650	1,600	1,980	118,000
May	6,520	1,620	4,150	255,000
June	7,800	2,500	4,710	280,000
July	4,040	880	2,310	142,000
August	1,320		970	59,600
September			960	57,100

NOTE.—Mean discharge for August and September based on comparison with records of flow for North Platte River at Saratoga.

NORTH PLATTE RIVER BELOW PATHFINDER RESERVOIR, WYO.

LOCATION.—In sec. 24, T. 29 N., R. 84 W., a quarter of a mile below Pathfinder Dam, Natrona County. Nearest tributary, Canyon Creek, enters 2 miles above, in the reservoir.

DRAINAGE AREA.—10,700 square miles (measured on base map of Wyoming).

RECORDS AVAILABLE.—May 9, 1905, to September 30, 1925.

GAGE.—Chain gage on left bank; read by employee of the United States Bureau of Reclamation.

DISCHARGE MEASUREMENTS.—Made from cable 50 feet above gage.

EXTREMES OF DISCHARGE.—Since completion of reservoir: Maximum discharge, 18,900 second-feet, June 25–27, 1917; minimum discharge, leakage through gate during winter may be as low as 5 second-feet.

WINTER FLOW.—Practically cut off by storage in reservoir.

DIVERSIONS.—Adjudicated diversions for irrigation of 31,000 acres from tributaries entering the North Platte between station above Pathfinder and this station. Near Whalen, 150 miles below, water from Pathfinder Reservoir is diverted by Interstate and Fort Laramie Canals and used to irrigate land in Wyoming and Nebraska.

REGULATION.—Pathfinder Dam forms reservior having a capacity of 1,070,000 acre-feet, which materially changes natural run-off of river.

COOPERATION.—Daily-discharge records furnished by United States Bureau of Reclamation.

Daily discharge, in second-feet, of North Platte River Below Pathfinder Reservoir, Wyo., for the year ending September 30, 1925.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	915	50	50	50	50	75	75	1,020	3,000	5,250	5,060	4,290
2	910	50	50	60	50	75	75	1,470	4,500	5,300	5,020	4,340
3	910	50	50	75	50	75	75	2,790	4,500	5,320	5,010	4,310
4	910	50	50	75	50	75	75	3,010	4,500	5,320	4,990	4,270
5	900	50	60	75	50	75	75	3,970	4,500	5,320	4,980	4,300
6	900	50	50	75	50	75	75	4,010	4,500	5,310	4,980	4,300
7	900	50	50	75	50	75	75	4,000	4,500	5,970	4,980	4,270
8	900	50	50	75	50	75	75	4,000	1,710	6,330	5,060	4,270
9	900	5	50	75	50	75	10	3,060	10	6,330	4,980	4,300
10	900	50	50	60	50	75	10	3,010	1,660	6,330	4,980	4,280
11	900	50	50	50	50	75	10	3,480	1,990	6,320	5,320	4,300
12	900	50	60	50	60	75	10	3,490	4,170	6,290	5,340	3,890
13	50	50	75	50	75	75	10	3,490	3,610	6,280	5,320	3,850
14	50	50	75	50	75	75	10	3,490	3,500	6,300	5,290	3,800
15	50	50	70	50	75	75	10	3,490	3,500	6,060	5,270	3,780

Daily discharge, in second-feet, of North Platte River below Pathfinder Reservoir, Wyo., for the year ending September 30, 1925—Continued

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
16	50	10	50	50	75	75	10	2,650	3,500	5,990	5,340	3,780
17	50	40	50	50	75	75	10	2,050	3,500	5,760	5,320	3,340
18	50	50	50	50	75	75	10	1,050	3,940	5,710	4,960	3,360
19	50	50	50	50	75	75	10	1,020	4,000	5,690	4,840	3,300
20	50	50	50	50	75	75	10	1,030	4,450	5,670	4,530	3,300
21	50	50	50	50	75	75	10	1,030	4,510	5,660	4,140	3,290
22	50	50	50	50	75	75	10	1,030	4,510	5,600	4,000	3,080
23	50	50	50	50	75	75	10	1,030	4,910	5,510	3,980	3,040
24	50	50	50	50	75	75	10	1,760	4,990	5,510	3,960	3,010
25	50	50	50	50	75	75	10	2,050	5,230	5,510	4,020	2,980
26	50	50	50	50	75	75	10	2,050	5,260	5,490	4,020	2,240
27	50	60	50	50	75	75	790	2,050	5,270	5,470	4,000	2,040
28	50	50	50	50	75	75	1,120	2,880	5,250	5,460	4,260	170
29	50	50	50	50	-------	75	1,020	3,000	5,250	5,500	4,320	50
30	50	50	50	50	-------	75	1,020	3,000	5,250	5,500	4,300	50
31	50	-------	50	50	-------	75	-------	3,000	-------	5,500	4,280	-------

Monthly discharge of North Platte River below Pathfinder Reservoir, Wyo., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	915	50	380	23,400
November	60	5	47	2,800
December	75	50	53	3,260
January	75	50	56	3,440
February	75	50	65	3,610
March	75	75	75	4,610
April	1,120	10	158	9,400
May	4,010	1,020	2,530	156,000
June	5,270	10	4,000	238,000
July	6,330	5,250	5,730	352,000
August	5,340	3,960	4,740	291,000
September	4,340	50	3,320	198,000
The year	6,330	5	1,780	1,290,000

NORTH PLATTE RIVER ABOVE AND BELOW WHALEN, WYO.

LOCATION.—In sec. 11, T. 26 N., R. 65 W., at diversion dam at Whalen, Goshen County. Nearest important tributary is Cottonwood Canyon Creek, an intermittent stream, which enters 1½ miles below.

DRAINAGE AREA.—16,300 square miles (measured on base map of Wyoming).

RECORDS AVAILABLE.—May 1, 1909, to September 30, 1925. Records above Whalen represent discharge above dam (overfall weir) and those below Whalen quantity passing over dam. Difference between two records represents amount diverted by Interstate and Fort Laramie Canals.

GAGE.—To determine flow over weir vertical staff is used, its zero being crest of weir. The discharge is then computed by a weir formula. The dam has four sluice gates, through which discharge is computed. In river, 75 feet downstream from weir gage, is another sluice gate with zero 10 feet lower. Second gage only used in computing discharge through gages when openings are submerged. Discharge through head gates of Interstate and Fort Laramie Canals is computed from gate openings. Vertical staffs in canals below head gates are used in computing discharge when head-gate openings are submerged.

DISCHARGE MEASUREMENTS.—Made from cable 1 mile below weir, in order to check the coefficients used in discharge computations.

DIVERSIONS.—Adjudicated diversions for irrigation of 4,310 acres from North Platte River between Douglas and the Whalen gaging station, exclusive of the diversions by the Bureau of Reclamation.

REGULATION.—Discharge represents chiefly effect of Pathfinder Reservoir which stores water for use in Interstate and Fort Laramie Canals.

COOPERATION.—Daily-discharge records furnished by United States Bureau of Reclamation.

Daily discharge, in second-feet, of North Platte River above Whalen, Wyo., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,250	640	393	195	326	534	1,050	520	3,200	5,120	5,140	4,130
2	1,210	661	403	202	445	497	1,400	1,120	3,180	5,020	4,980	4,130
3	1,150	642	415	202	586	431	1,210	1,100	3,120	5,120	4,760	4,140
4	1,080	604	401	202	579	316	1,470	1,050	4,060	4,920	4,660	4,270
5	1,050	585	372	214	433	306	1,780	1,300	4,310	5,340	4,670	4,230
6	1,090	585	359	253	357	308	1,650	2,430	4,290	5,050	4,700	4,220
7	1,130	604	386	247	644	349	1,810	3,060	4,320	5,030	4,810	4,250
8	1,180	576	347	239	758	392	1,910	3,450	5,650	5,030	4,720	4,280
9	3,250	518	195	239	1,060	370	1,760	3,570	5,300	5,750	4,700	4,210
10	2,960	455	184	231	906	412	1,590	3,630	4,270	5,750	4,790	4,250
11	2,200	433	205	230	663	467	1,500	2,970	2,380	5,690	4,770	4,300
12	2,090	470	278	231	729	504	1,130	2,840	1,660	5,760	4,890	4,230
13	1,900	469	324	224	515	498	1,140	3,180	1,860	5,830	5,030	4,260
14	1,750	426	454	255	601	469	1,220	3,180	3,460	5,800	5,090	3,780
15	1,600	360	438	247	497	500	1,190	3,290	3,590	5,730	4,860	3,950
16	1,560	364	371	247	480	506	1,130	6,050	6,080	5,700	4,800	3,800
17	1,160	386	283	247	534	549	1,040	9,680	3,900	5,360	4,770	3,760
18	953	346	247	247	556	499	1,040	6,450	3,630	5,450	4,850	3,740
19	857	545	297	290	556	521	1,010	5,190	3,890	5,350	4,810	3,480
20	826	568	202	264	573	503	968	4,150	4,080	5,330	4,560	3,510
21	944	515	378	255	595	491	827	3,510	4,140	5,380	4,510	3,400
22	1,660	430	299	311	597	439	869	3,040	4,490	5,400	4,520	3,420
23	1,810	451	261	272	642	396	739	2,660	4,650	6,870	4,020	3,840
24	1,550	457	239	280	610	401	676	2,280	4,800	5,090	3,950	3,450
25	1,330	459	234	291	562	407	612	2,160	4,990	5,040	3,880	3,290
26	1,200	546	234	292	576	451	581	2,050	4,940	5,090	3,940	3,230
27	1,100	520	229	292	534	470	518	2,650	5,090	5,120	4,000	3,190
28	982	494	229	284	519	506	492	2,600	5,120	5,020	3,960	2,960
29	907	500	215	292	-------	550	452	2,670	5,120	5,000	3,920	2,270
30	790	459	222	300	-------	570	401	2,990	5,160	5,200	4,040	2,190
31	640	-------	216	304	-------	677	-------	3,260	-------	5,140	4,140	-------

Daily discharge, in second-feet, of North Platte River below Whalen, Wyo., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	210	640	393	195	326	534	82	43	1,310	1,760	2,630	1,420
2	162	661	403	202	445	497	293	46	1,320	1,680	2,520	1,370
3	156	642	415	202	586	431	92	46	1,320	1,980	2,250	1,390
4	156	604	401	202	579	316	327	46	1,890	1,860	2,120	1,460
5	96	585	372	214	433	306	857	48	2,100	2,280	2,020	1,420
6	156	585	359	253	357	308	857	746	2,000	2,030	1,990	1,480
7	200	604	386	247	644	349	819	1,210	2,800	2,020	1,900	1,560
8	260	576	347	239	758	392	833	1,420	3,880	2,020	1,700	1,690
9	2,350	518	195	239	1,060	370	627	1,540	3,350	2,700	1,620	1,640
10	1,800	455	184	231	906	412	456	1,540	2,440	2,740	1,700	1,680
11	1,090	433	205	230	663	467	370	662	594	2,670	1,700	1,770
12	1,010	470	278	231	729	504	259	536	348	2,790	1,820	1,700
13	838	469	324	224	515	498	230	878	523	2,780	2,010	1,780
14	672	426	454	255	601	469	264	836	1,670	2,660	2,240	1,420
15	525	360	438	247	497	500	236	948	1,630	2,530	2,010	1,509

Daily discharge, in second-feet, of North Platte River below Whalen, Wyo., for the year ending September 30, 1925—Continued

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
16	1,560	364	371	247	480	506	175	4,010	4,130	2,440	2,080	1,490
17	1,160	386	283	247	534	549	93	8,010	1,690	2,140	2,120	1,490
18	953	346	247	247	556	499	50	4,700	1,210	2,200	2,150	1,590
19	857	545	297	290	556	521	46	3,250	1,250	2,100	2,140	1,300
20	826	568	202	264	573	503	46	2,280	1,320	2,040	1,970	1,330
21	944	515	378	255	595	491	46	1,570	1,270	2,180	1,920	1,300
22	1,660	430	299	311	597	439	46	1,100	1,480	2,360	1,630	1,430
23	1,810	451	261	272	642	396	43	723	1,520	4,740	1,380	1,780
24	1,550	457	239	280	610	401	42	341	1,650	2,220	1,260	1,400
25	1,330	459	234	291	562	407	41	293	1,800	2,080	1,140	1,240
26	1,200	546	234	292	576	451	40	460	1,780	2,250	1,160	1,160
27	1,100	520	229	292	534	470	40	831	1,920	2,230	1,180	1,120
28	982	494	229	284	519	420	41	899	1,960	2,180	1,120	893
29	907	500	215	292	-------	283	41	1,320	1,880	2,280	1,080	852
30	790	459	222	300	-------	112	42	1,490	1,780	2,560	1,270	1,990
31	640	-------	216	304	-------	40	-------	1,390	-------	2,580	1,340	-------

Monthly discharge of North Platte River above Whalen, Wyo., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	3,250	640	1,390	85,500
November	661	346	502	29,900
December	454	184	300	18,400
January	311	195	254	15,600
February	1,060	326	587	32,600
March	677	306	461	28,300
April	1,910	401	1,110	66,000
May	9,680	520	3,160	194,000
June	6,080	1,660	4,170	248,000
July	6,870	4,920	5,370	330,000
August	5,140	3,880	4,560	280,000
September	4,300	2,190	3,740	223,000
The year	9,680	184	2,140	1,550,000

Monthly discharge of North Platte River below Whalen, Wyo., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	2,350	96	902	55,500
November	661	346	502	29,900
December	454	184	300	18,400
January	311	195	254	15,600
February	1,060	326	587	32,600
March	549	40	414	25,500
April	857	40	248	14,800
May	8,010	43	1,390	85,500
June	4,130	348	1,790	107,000
July	4,740	1,680	2,360	145,000
August	2,630	1,080	1,780	109,000
September	1,990	852	1,460	86,900
The year	8,010	40	1,000	726,000

NORTH FORK OF NORTH PLATTE RIVER NEAR WALDEN, COLO.

LOCATION.—In sec. 29, T. 9 N., R. 80 W., at Norrell ranch, 7 miles west of Walden, Jackson County, and one-fourth mile above mouth.

DRAINAGE AREA.—168 square miles (measured on topographic map and special map in Bulletin 596).

RECORDS AVAILABLE.—October 1, 1923, to September 30, 1925. From May 14, 1904, to October 31, 1905, station maintained several miles above, near Higho. A number of tributaries enter between the two stations.

GAGE.—Bristol float-type water-stage recorder on left bank, referred to vertical staff. Inspected by Anton Verner.

DISCHARGE MEASUREMENTS.—Made from footbridge or by wading.

CHANNEL AND CONTROL.—Bed composed of gravel and sand. Control at gravel bar 150 feet below; shifting. Banks subject to overflow during high water.

EXTREMES OF DISCHARGE.—Maximum stage during year from water-stage recorder, 1.7 feet from 4 to 7 p. m. June 23 (discharge, 346 second-feet). Minimum stage, 0.17 foot October 1 (discharge, 23 second-feet).

1924–1925: Maximum stage recorded, 1.99 feet at noon June 15, 1924 (discharge, 416 second-feet); minimum stage, 0.10 foot September 16, 1924 (discharge, 19 second-feet).

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

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

ACCURACY.—Stage-discharge relation not permanent. Rating curves used October 1 to July 18 and July 18 to September 30 both fairly well defined. Operation of water-stage recorder fairly satisfactory except for short periods. Daily discharge ascertained by applying gage height to rating tables except as indicated in footnote to daily-discharge table. Records fair.

Discharge measurements of North Fork of North Platte River near Walden, Colo., during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet.*	*Sec.-ft.*
May 2	0.29	33.8	July 18	*1.16	149
May 24	.34	53	Aug. 16	.78	74

*0.99 foot referred to old datum.

Daily discharge, in second-feet, of North Fork of North Platte River near Walden, Colo., for the year ending September 30, 1925

Day	Oct.	Nov.	Apr.	May	June	July	Aug.	Sept.
1	23	49	90	30	207	173	91	70
2	28	43	85	31	197	173	86	74
3	30	46	78	36	110	166	99	152
4	31	48	99	33	69	297	99	122
5	37	46	115	27	240	220	120	106
6	37	----	123	27	229	177	122	86
7	35	----	73	27	223	155	106	76
8	98	----	57	33	112	150	91	70
9	85	----	64	40	82	148	81	72
10	52	----	78	45	56	150	82	66
11	42	----	96	50	48	165	95	66
12	37	----	127	40	64	195	103	64
13	41	----	132	33	78	160	97	71
14	46	----	115	25	66	140	84	101
15	45	----	90	35	74	123	79	84

Daily discharge, in second-feet, of North Fork of North Platte River near Walden, Colo., for the year ending September 30, 1925—Continued

Day	Oct.	Nov.	Apr.	May	June	July	Aug.	Sept.
16	50		76	50	91	123	71	70
17	49		72	40	108	123	65	61
18	48		76	27	114	138	65	61
19	50		51	24	130	137	90	66
20	60		45	29	159	140	133	160
21	67		46	33	184	172	124	120
22	59		43	80	220	180	90	95
23	49		36	90	291	164	80	91
24	42		33	57	202	135	75	86
25	42		40	55	153	131	76	79
26	43		37	66	148	120	83	76
27	49		36	93	151	114	76	72
28	50		36	93	142	104	84	66
29	49		33	121	132	103	86	61
30	48		29	146	144	106	81	64
31	48			184		103	74	

NOTE.—No gage-height record Apr. 1, May 8–13, 15–17, July 8–14, Aug. 23–26, Sept. 20–21; discharge based on comparison with records of flow of Roaring Fork and North Platte River near Walden. Shifting-control method used Apr. 2 to July 18.

Monthly discharge of North Fork of North Platte River near Walden, Colo., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	98	23	47.4	2,910
November 1–5	49	43	46.4	460
April	132	29	70.4	4,190
May	184	24	54.8	3,370
June	291	48	141	8,390
July	297	103	151	9,280
August	133	65	89.9	5,530
September	160	61	83.6	4,970

ROARING FORK NEAR WALDEN, COLO.

LOCATION.—In sec. 10, T. 8 N., R. 81 W., 11 miles southwest of Walden, Jackson County, and 1½ miles above mouth. Nearest tributary, Beaver Creek, enters 1 mile above.

DRAINAGE AREA.—84 square miles (measured on topographic map and geologic map in Bulletin 596).

RECORDS AVAILABLE.—May 14, 1904, to October, 1905; October 1, 1923, to September 30, 1925.

GAGE.—Bristol float-type water-stage recorder at left abutment of bridge, referred to vertical staff; inspected by Mrs. B. F. Green.

DISCHARGE MEASUREMENTS.—Made from bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of gravel. Control 50 feet below gage; slightly shifting at long intervals.

EXTREMES OF DISCHARGE.—Maximum discharge estimated, 330 second-feet June 4; minimum discharge probably occurred during winter.

1904–1905; 1924–1925: Maximum stage recorded, 3.73 feet at 6 a. m. June 15, 1924 (discharge, 790 second-feet); minimum stage recorded, 1.02 feet (old datum) August 15, 1904 (discharge, 2 second-feet).

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

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

ACCURACY.—Stage-discharge relation practically permanent. Rating curve well defined below 300 second-feet. Operation of water-stage recorder unsatisfactory before July 1, after which it operated satisfactorily. Daily discharge ascertained by applying to rating table mean gage height obtained by inspection of recorder graph except as indicated in footnote to table of daily discharge. Records good, except for periods of missing gage heights, for which they are fair.

Discharge measurements of Roaring Fork near Walden, Colo., during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*
May 2	0.56	16.2	July 19	1.04	70
May 24	1.50	155	Aug. 16	.93	49.2

Daily discharge, in second-feet, of Roaring Fork near Walden, Colo., for the year ending September 30, 1925

Day	Oct.	Apr.	May	June	July	Aug.	Sept.
1	17	64	17	247	78	50	58
2	17	67	18	223	82	48	62
3	18	68	24	160	78	51	140
4	20	76	25	330	92	61	120
5	22	94	24	300	91	70	91
6	23	105	22	285	78	63	83
7	22	70	25	250	61	68	75
8	75	45	28	200	58	61	75
9	60	53	30	120	57	58	75
10	22	63	33	63	53	63	71
11	20	75	60	100	61	78	64
12	20	90	50	123	82	78	60
13	21	120	40	100	68	73	74
14	24	100	30	104	60	64	85
15	25	84	45	166	58	57	80
16	25	78	60	200	58	51	66
17	25	75	26	207	64	45	60
18	25	76	35	205	68	42	58
19	27	66	61	230	68	57	119
20	30	58	127	221	71	76	170
21	50	53	127	247	82	80	123
22	40	47	195	320	92	60	89
23	35	28	151	230	91	58	80
24	31	25	147	198	78	58	68
25	30	22	164	155	70	61	61
26	32	20	193	139	61	70	58
27	37	19	195	115	60	61	50
28	38	18	240	106	60	73	46
29	38	18	272	75	59	73	43
30	37	18	280	76	56	61	43
31	37	----	306	----	53	60	----

NOTE.—Gage not read Oct. 1, 3–9, 11–15, 17–23, 25–31, Apr. 2–7, 10–15, May 7–9, 11–16, June 3–9, 23, 29–30, July 17–18, 28–31, Aug. 1–2, 31, Sept. 1–4; discharge based on comparison with records of flow of North Fork of North Platte and North Platte Rivers near Walden.

Monthly discharge of Roaring Fork near Walden, Colo., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	75	17	30.4	1,870
April	120	18	59.8	3,560
May	306	17	98.4	6,050
June	330	63	183.0	10,900
July	92	53	69.3	4,260
August	80	42	62.2	3,820
September	170	43	78.1	4,650

MICHIGAN CREEK AT WALDEN, COLO.

LOCATION.—In NW. ¼ sec. 21, T. 9 N., R. 79 W., at highway bridge half a mile north of Walden, Jackson County. Nearest tributary, Illinois Creek, enters 1½ miles downstream.

DRAINAGE AREA.—185 square miles (measured chiefly on topographic maps).

RECORDS AVAILABLE.—May 9, 1904, to October 31, 1905; May 1, 1923, to September 30, 1925.

GAGE.—Gurley water-stage recorder installed July 21, 1925, at site and datum of chain gage previously used; inspected by Art V. Wortman.

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

CHANNEL AND CONTROL.—Bed composed of sand and gravel. Control at small rapids 50 feet downstream; shifting. Banks not subject to overflow except during ice gorging in spring.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 2.48 feet at 6 p. m. June 7 (discharge, 560 second-feet); minimum stage recorded, 0.80 foot October 1 (discharge, 16 second-feet).

1904–5; 1923–1925: Maximum stage recorded, 3.3 feet at 9 a. m. June 10, 1923 (discharge, 1,070 second-feet); minimum discharge recorded, 0.62 foot August 28–31, 1924 (discharge, 4 second-feet).

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

DIVERSIONS.—Water diverted for irrigation of several thousand acres from Michigan Creek and tributaries above station. During 1925, 8,210 acre-feet diverted from Michigan Creek to Cache la Poudre Basin above station.

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

ACCURACY.—Stage-discharge relation slightly shifting. Rating curve well defined. Chain gage read to hundredths twice daily to July 21, after which water-stage recorder operated satisfactorily. Daily discharge ascertained by applying mean gage height to rating table. Records good.

Discharge measurements of Michigan Creek at Walden, Colo., during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*
May 1	1.20	64	July 19	1.17	60
May 23	1.72	213	Aug. 16	1.20	60

Daily discharge, in second-feet, of Michigan Creek at Walden, Colo., for the year ending September 30, 1925

Day	Oct.	Nov.	Apr.	May	June	July	Aug.	Sept.
1	16	69	130	61	348	111	45	58
2	19	67	130	63	284	105	46	56
3	18	63	140	64	204	142	46	71
4	21	58	150	61	169	135	54	95
5	20	57	172	54	256	138	64	91
6	20	54	226	51	352	120	58	83
7	19	47	142	46	520	100	53	76
8	71	49	132	54	490	88	49	67
9	54	50	93	57	302	81	51	63
10	45	------	100	56	208	64	57	60
11	41	------	123	67	155	78	66	56
12	42	------	162	61	211	91	93	51
13	38	------	149	49	211	76	108	61
14	35	------	135	44	197	64	100	83
15	36	------	152	79	190	61	83	91
16	38	------	172	100	176	63	79	78
17	41	------	142	117	190	56	67	67
18	38	------	166	100	200	56	60	66
19	44	------	111	88	204	60	74	76
20	47	------	105	108	208	95	105	71
21	56	------	86	149	272	93	132	66
22	58	------	103	122	343	103	111	61
23	57	------	93	200	375	100	91	60
24	60	------	86	190	366	78	79	57
25	58	------	71	226	226	67	78	56
26	54	------	69	190	183	61	83	51
27	51	------	69	183	145	54	91	50
28	51	------	67	176	138	51	88	47
29	50	------	57	208	98	49	78	46
30	60	------	57	280	108	49	71	42
31	71	------	------	325	------	46	64	------

NOTE.—Gage not read Apr. 1-4; discharge based on comparison with records of flow of Roaring Fork near Walden. Shifting-control method used Aug. 5 to Sept. 30.

Monthly discharge of Michigan Creek at Walden, Colo., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	71	16	42.9	2,640
November 1-9	69	47	57.1	1,020
April	226	57	120	7,140
May	325	44	117	7,190
June	520	98	244	14,500
July	142	46	81.8	5,030
August	132	45	75.0	4,610
September	95	42	65.2	3,880

ILLINOIS CREEK AT WALDEN, COLO.

LOCATION.—In NW. ¼ sec. 29, T. 9 N., R. 79 W., at highway bridge half a mile southwest of Walden, Jackson County. Illinois Creek enters Michigan Creek 1½ miles downstream.

DRAINAGE AREA.—254 square miles (measured on special map in Bulletin 596).

RECORDS AVAILABLE.—May 1, 1923, to September 30, 1925.

GAGE.—Vertical staff attached to upstream end of bridge abutment; read by Mrs. George Post.

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

CHANNEL AND CONTROL.—Bed composed of sand and gravel. Control at small rapids 75 feet downstream; slightly shifting. Banks not subject to overflow except during ice gorging in spring.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 2.18 feet at 5 p. m. June 8 (discharge, 388 second-feet); minimum discharge occurred during winter.

1923–1925: Maximum stage recorded, 3.8 feet June 10, 1923 (discharge, 1,040 second-feet); minimum stage, 0.42 foot September 7 and 8, 1924 (discharge, 0.3 second-foot).

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

DIVERSIONS.—Water diverted for irrigation of several thousand acres from Illinois Creek and tributaries above station.

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

ACCURACY.—Stage-discharge relation shifting. Rating curve fairly well defined. Gage read to quarter-tenths twice daily. Daily discharge ascertained by shifting-control method except for periods May 11–15 and June 6–15, when mean gage height was applied to rating table. Records fair.

Discharge measurements of Illinois Creek at Walden, Colo., during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*
May 2	0.80	28.6	July 19	0.84	30.8
May 23	1.06	72	Aug. 16	.89	35.9

Daily discharge, in second-feet, of Illinois Creek at Walden, Colo., for the year ending September 30, 1925

Day	Oct.	Nov.	Apr.	May	June	July	Aug.	Sept.
1	8	32	271	27	126	41	21	31
2	8	39	264	27	153	39	22	24
3	9	39	156	28	121	36	21	30
4	11	32	113	29	134	36	21	67
5	14	30	271	38	218	62	22	52
6	18	28	258	46	224	62	23	42
7	21	23	252	43	364	66	24	38
8	25	23	239	39	381	69	24	31
9	25	23	173	36	261	62	22	29
10	28	28	113	36	197	58	21	28
11	32	23	153	36	83	47	29	27
12	30	23	212	34	67	44	38	23
13	23	20	139	30	64	41	52	25
14	26	20	131	20	69	35	55	30
15	27	12	108	14	59	33	50	33
16	20	12	134	12	50	29	35	46
17	20	12	123	17	47	31	31	34
18	17	12	129	30	47	29	26	31
19	17	8	123	17	44	31	28	32
20	9	8	76	17	56	31	41	34
21	18	8	72	27	64	33	62	33
22	30	8	69	32	170	31	53	32
23	30	8	66	70	246	35	46	29
24	27	8	62	72	185	59	32	28
25	27	8	51	74	136	58	43	25
26	32	8	62	72	111	44	47	24
27	32	6	44	69	52	28	50	26
28	32	6	42	66	50	29	44	22
29	39	6	36	62	47	28	42	24
30	39	6	30	66	44	26	39	22
31	32			64		22	31	

Monthly discharge of Illinois Creek at Walden, Colo., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	39	8	23.4	1,440
November	39	6	17.3	1,030
April	271	30	132	7,860
May	74	12	40.3	2,480
June	381	44	129	7,680
July	69	22	41.1	2,530
August	62	21	35.3	2,170
September	67	22	31.7	1,890

SAGE CREEK ABOVE PATHFINDER, WYO.

LOCATION.—In sec. 3, T. 26 N., R. 84 W., at footbridge at Vivion ranch, 25 miles above Pathfinder Dam, Carbon County. No tributary between station and mouth, 2 miles below.

DRAINAGE AREA.—182 square miles (measured on base map of Wyoming).

RECORDS AVAILABLE.—March 20, 1915, to June 30, 1925, when station was discontinued.

GAGE.—Vertical staff 5 feet above footbridge at left bank; read by Otto Bennard.

DISCHARGE MEASUREMENTS.—Made from footbridge or by wading.

CHANNEL AND CONTROL.—Bed composed of boulders embedded in sand; control a short distance below bridge at riffle which is practically permanent. Banks are overflowed at stage of 6.5 feet.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 1.70 feet at 6 p. m. October 8 (discharge, 133 second-feet); minimum stage recorded 0.06 foot June 27–30 (discharge, 1 second-foot).

1915–1925: Maximum stage recorded, 6.73 feet (old datum) April 7, 1924 (discharge, 1,180 second-feet); minimum discharge, no flow July 6–8, 1921.

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

DIVERSIONS.—Adjudicated diversions for irrigation of 3,100 acres from Sage Creek and tributaries, all above station.

REGULATION.—None.

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

The following discharge measurements were made:

October 15, 1924: Gage height, 0.40 foot; discharge, 4.8 second-feet.

May 4, 1925: Gage height, 0.48 foot; discharge, 9.4 second-feet.

Daily discharge, in second-feet, of Sage Creek above Pathfinder, Wyo., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Mar.	Apr.	May	June
1	1	13	8	8	38	7	5
2	2	7	8	9	35	7	6
3	2	8	7	21	36	6	6
4	2	10	6	29	35	8	6
5	3	8	7	33	40	8	6
6	4	7	7	59	43	7	6
7	4	7	7	67	39	6	5
8	61	6	7	63	37	6	6
9	111	9	6	49	37	5	6
10	43	8	6	43	32	4	6
11	21	8	------	37	32	5	4
12	13	8	------	32	39	5	4
13	9	7	------	20	41	6	4
14	8	6	------	10	42	6	3
15	6	6	------	8	43	41	2
6	7	7	------	8	39	85	2
17	10	7	------	7	40	46	2
18	16	7	------	9	38	38	2
19	19	7	------	11	39	31	3
20	15	7	------	18	35	24	3
21	20	8	------	28	33	23	2
22	14	9	------	36	31	20	2
23	10	8	------	41	28	17	1
24	9	8	------	33	28	13	1
25	7	8	------	33	21	10	1
26	8	7	------	43	15	9	1
27	8	7	------	49	14	7	1
28	11	7	------	51	15	5	1
29	11	7	------	56	13	4	1
30	14	8	------	51	10	5	1
31	13	------	------	43	------	4	------

NOTE.—Stage-discharge relation affected by ice Nov. 12-19, 24-29, Mar. 13-16; discharge based on gage height and temperature records.

Monthly discharge of Sage Creek above Pathfinder, Wyo., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	111	1	15.5	953
November	13	6	7.7	458
December 1-10	8	6	6.9	137
March	67	7	32.4	1,990
April	43	10	32.3	1,920
May	85	4	15.1	928
June	6	1	3.3	196

LA PRELE CREEK NEAR DOUGLAS, WYO.

LOCATION.—In sec. 6, T. 31 N., R. 73 W., just above high-water line of La Prele Reservoir, 16 miles southwest of Douglas, Converse County. Nearest tributary, an unnamed stream 1 mile above.

DRAINAGE AREA.—146 square miles (measured on special map in Bulletin 626).

RECORDS AVAILABLE.—August 25, 1919, to September 30, 1925.

GAGE.—Gurley water-stage recorder on right bank; inspected by F. E. Benway.

DISCHARGE MEASUREMENTS.—Made from cable 50 feet below gage or by wading.

CHANNEL AND CONTROL.—Bed composed of well-compacted sand and gravel. Control 150 feet downstream at rapids which shift. Banks are overflowed at stage of 6 feet, but entire flow passes under cable.

EXTREMES OF DISCHARGE.—Maximum stage during year from water-stage recorder, 9.12 feet at 2 a. m. May 16 (discharge, 688 second-feet); minimum discharge, 3 second-feet October 1–3, July 31 to August 1.

1919–1925: Maximum stage from high-water mark of May 11, 1920 11.4 feet (discharge, 1,220 second-feet); minimum discharge recorded, 0.4 second-foot October 2, 1919.

ICE.—Stage-discharge relation affected by ice.

DIVERSIONS.—Adjudicated diversions for irrigation of 2,840 acres from La Prele Creek and tributaries, above station.

REGULATION.—None.

ACCURACY.—Stage-discharge relation slightly shifting; affected by ice. Rating curve fairly well defined. Operation of water-stage recorder satisfactory except as indicated in footnote to daily-discharge table. Daily discharge ascertained by applying to rating table mean gage height obtained by inspection of recorder graph; shifting-control method used March 21 to April 28. Open-water records good except for periods of missing gage heights, for which they are fair. Winter records fair.

COOPERATION.—Field data furnished by Douglas Reservoirs Co. Check measurements made by the United States Geological Survey.

Discharge measurements of La Prele Creek near Douglas, Wyo., during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Jan. 22	a 4.22	14.7	Feb. 24	3.67	10.5	Apr. 30	4.40	57
Feb. 4	a 3.85	18.9	Apr. 14	5.20	149	Sept. 8	3.62	8.0

a Stage-discharge relation affected by ice.

Daily discharge, in second-feet, of La Prele Creek near Douglas, Wyo., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3	57	27		20	14	82	48	55	19	3.0	4.2
2	3	52	28		21	20	115	48	48	18	3.4	3.8
3	3	50	26		22	16	129	45	43	29	4.6	65
4	5	48	26		20	16	108	45	39	24	5.0	29
5	5	47	27		20	20	120	44	76	24	5.0	19
6	5	48	26		20	29	158	43	98	22	5.0	12
7	6	43	26		19	39	139	46	181	21	5.8	9.0
8	190	42		16	17	38	125	47	201	19	6.2	7.5
9	96	44			22	41	114	48	171	18	6.2	8.0
10	110	45	24		20	32	119	46	154	14	12	7.5
11	122	38			21	32	136	43	132	12	17	7.0
12	101	36			22	27	144	42	116	11	12	7.5
13	90	34			19	25	144	40	98	9.0	13	7.0
14	86	35	23		16	23	142	34	88	5.8	12	7.0
15	82	35	23		16	23	142	223	90	4.6	10	7.0
16	79	31			15	22	147	595	100	4.6	9.5	7.0
17	79	30			15	20	142	470	100	4.2	8.0	6.6
18	78	29	18		15	20	141	403	90	4.2	7.0	6.6
19	104	29			15	20	116	336	70	4.2	6.6	5.8
20	168	29			14	23	108	292	44	5.0	6.2	5.4
21	166	28			14	24	101	243	43	4.6	5.4	5.8
22	140	29			16	29	95	198	55	5.0	4.6	6.6
23	127	30			14	46	86	175	45	5.4	3.8	7.0
24	116	32		15	14	43	73	153	35	6.2	3.8	6.6
25	105	34			15	46	64	142	32	5.0	4.2	6.2
26	96	33	17		14	53	55	122	29	4.6	5.0	5.8
27	88	43			15	46	51	118	27	3.8	5.0	5.4
28	81	30			15	60	56	100	26	3.4	5.0	5.4
29	73	29				82	52	80	23	3.8	5.0	5.4
30	68	28				93	71	65	20	3.4	4.6	5.0
31	58					68		61		3.0	4.6	

NOTE.—Stage-discharge relation affected by ice Nov. 12–14, 23–24, Dec. 8–13, 16–31, Jan. 1 to Feb. 2, Feb. 11, 15–20; discharge based on three discharge measurements and gage-height and temperature records. No gage-height record May 7–8, 28–29, June 15–19; discharge based on comparison with records of flow of Medicine Bow River. Discharge Oct. 8 and Sept. 3 computed from discharge hydrograph. Braced figures show mean discharge for periods indicated.

Monthly discharge of La Prele Creek near Douglas, Wyo., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	190	3	81.7	5,020
November	57	28	37.3	2,220
December	27	----------	21.7	1,330
January	----------	----------	15.5	953
February	22	14	17.4	966
March	93	14	35.2	2,160
April	158	51	109	6,490
May	595	34	142	8,730
June	201	20	77.6	4,620
July	29	3.0	10.3	633
August	17	3.0	6.73	414
September	65	3.8	9.70	577
The year	595	----------	47.1	34,100

LARAMIE RIVER NEAR GLENDEVEY, COLO.

LOCATION.—In SW. ¼ sec. 25, T. 10 N., R. 76 W., at highway bridge 3 miles east of Glendevey, Larimer County. Nearest tributary, Nunn Creek, enters just above station.

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

RECORDS AVAILABLE.—June 24, 1904, to October 31, 1905; August 18, 1910, to September 30, 1925.

GAGE.—Bristol float-type water-stage recorder at right bridge pier; inspected by R. A. Mosier.

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

CHANNEL AND CONTROL.—Bed composed of boulders and sand. Control is boulder riffle 50 feet below bridge; slightly shifting.

EXTREMES OF DISCHARGE.—Maximum stage during year, 2.15 feet at 10 p. m. June 6 (discharge, 335 second-feet); minimum discharge occurred during winter.

1904–1905; 1910–1925: Maximum stage recorded, 4.55 feet (old datum) on June 9 1923 (discharge, 2,240 second-feet); minimum stage recorded, 1.5 feet February 14–15, 1911 (discharge, 5 second-feet).

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

DIVERSIONS.—Water diverted for irrigation of 200 acres from Laramie River above station. In addition, a total of 30,200 acre-feet were diverted during 1925 from the Laramie Basin to that of Cache la Poudre.

REGULATION.—None.

ACCURACY.—Stage-discharge relation slightly shifting. Rating curve well defined. Operation of water-stage recorder satisfactory except as indicated in footnote to table of daily discharge. Daily discharge ascertained by applying to rating table mean gage height obtained by inspection of recorder graph; shifting-control method used October 1–5. Records good except for periods of missing gage height, for which they are fair.

Discharge measurements of Laramie River near Glendevey, Colo., during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Apr. 30	1.19	81	July 14	1.01	64
May 27	1.75	205	Aug. 14	.92	48.3

Daily discharge, in second-feet, of Laramie River near Glendevey, Colo., for the year ending September 30, 1925

Day	Oct.	Nov.	Apr.	May.	June	July	Aug.	Sept.
1	33			102	205	120	41	39
2	37			124	180	132	40	39
3	35	29		116	158	126	46	58
4	32			95	153	120	56	78
5	28			132	188	120	60	58
6	25			113	219	107	62	46
7	22			170	234	90	46	39
8	80			175	200	78	43	39
9	60			170	183	74	42	36
10	52	29		165	162	71	43	35
11	45	29		145	174	72	99	35
12	42			140	164	79	90	34
13	41			138	138	69	64	45
14	42			124	136	62	54	50
15	50			107	169	61	48	44
16	59			126	178	64	40	34
17	55			178	174	64	35	32
18	61	28		147	167	60	35	33
19	53	28		153	174	58	48	50
20	45	26		171	178	66	66	46
21	40	25		202	167	69	56	42
22	43			213	188	67	44	61
23	41			192	185	59	41	67
24	39			202	140	53	41	52
25	35			208	122	51	50	37
26	35			205	116	46	57	35
27	35			208	113	44	59	32
28	35			228	104	43	66	31
29	35		84	237	106	43	54	31
30	35		87	228	97	43	46	31
31	35			216		45	41	

NOTE.—No gage-height record Oct. 6-12, 25-31, May 7-12; discharge based on comparison with records of flow of Michigan Creek and Laramie River near Jelm. Braced figures show mean discharge for period indicated.

Monthly discharge of Laramie River near Glendevey, Colo., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	80	22	42.1	2,590
November			27	1,610
May	237	95	165	10,100
June	234	97	162	9,640
July	132	43	72.8	4,480
August	99	35	52.0	3,200
September	78	31	43.0	2,560

NOTE.—Mean discharge for November based on gage height and temperature records and observer's notes.

LARAMIE RIVER NEAR JELM, WYO.

LOCATION.—In sec. 15, T. 12 N., R. 77 W., just below highway bridge at Boswell ranch, a quarter of a mile below Colorado-Wyoming line, and 4 miles south of old Jelm, Albany County. Stuck Creek enters 1 mile upstream.

DRAINAGE AREA.—297 square miles (measured on topographic maps).

RECORDS AVAILABLE.—May 7, 1911, to September 30, 1925. From June 22, 1904, to October 31, 1905, station maintained at Decker's ranch, half a mile south of State line. Records at two stations comparable, as there are no tributaries or sizable diversions between them.

GAGE.—Bristol float-type water-stage recorder on right bank 30 feet downstream from bridge; inspected by R. A. Mosier.

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

CHANNEL AND CONTROL.—Bed composed of gravel. Control a short distance downstream; slightly shifting at long intervals. Left bank is overflowed at gage height 3.0 feet; flow passes through three well defined high water channels.

EXTREMES OF DISCHARGE.—Maximum stage during year from water-stage recorder, 2.75 feet from 2 a. m. to 5 a. m. June 7 (discharge, 830 second-feet); minimum discharge occurred during winter.

1904–1905, 1911–1925: Maximum discharge recorded, 4,200 second-feet at 8 p. m. June 9, 1923 (gage height, 4.15 feet); minimum stage recorded, 1.8 feet September 22–24, October 4–8, 18–23, 28–31, 1905 (discharge, 22 second-feet).

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

DIVERSIONS.—Water diverted for irrigation of 3,000 acres between Jelm and Glendevey stations.

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

ACCURACY.—Stage-discharge relation practically permanent. Rating curve well defined. Operation of water-stage recorder satisfactory except as indicated in footnote to table of daily discharge. Daily discharge ascertained by applying to rating table mean gage height obtained by inspection of recorder graph. Records excellent.

Discharge measurements of Laramie River near Jelm, Wyo., during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Apr. 30	1.48	158	July 14	1.36	123
May 28	2.29	499	Aug. 15	1.26	96

Daily discharge, in second-feet, of Laramie River near Jelm, Wyo., for the year ending September 30, 1925

Day	Oct.	May	June	July	Aug.	Sept.	Day	Oct.	May	June	July	Aug.	Sept.
1	60	172	528	220	98	86	16	------	231	395	138	100	86
2	60	195	468	257	92	83	17	------	275	400	144	90	75
3	61	231	380	238	94	138	18	------	340	365	132	84	72
4	61	198	355	261	125	161	19	------	300	370	123	96	102
5	60	211	552	231	136	129	20	------	360	390	146	146	116
6	61	217	616	204	169	108	21	------	434	370	198	123	100
7	63	211	656	167	132	94	22	------	516	400	169	106	90
8	------	265	516	154	127	86	23	------	462	417	151	96	105
9	------	270	492	141	112	83	24	------	598	365	129	90	145
10	------	265	456	132	102	81	25	------	504	282	116	108	100
11	------	250	434	127	189	79	26	------	510	270	104	121	79
12	------	242	428	158	208	75	27	------	455	246	98	106	79
13	------	250	375	144	151	81	28	------	492	224	94	114	73
14	------	257	350	125	129	112	29	------	528	214	90	118	70
15	------	246	380	123	114	100	30	------	516	217	94	102	70
							31	------	510	------	100	92	------

NOTE.—No gage-height record May 17–20, Sept. 21–25; discharge based on comparison with records of flow of Laramie River near Glendevey.

Monthly discharge of Laramie River near Jelm, Wyo., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October 1-7	63	60	60.9	846
May	528	172	336	20,700
June	656	214	397	23,600
July	261	90	152	9,350
August	208	* 84	118	7,260
September	161	70	95.3	5,670

LARAMIE RIVER AT TWO RIVERS, WYO.

LOCATION.—In sec. 5, T. 17 N., R. 74 W., at highway bridge at Two Rivers, Albany County. Nearest tributary, Little Laramie River, enters a quarter of a mile below.

DRAINAGE AREA.—1,290 square miles (measured on base map of Wyoming).

RECORDS AVAILABLE.—May 1, 1911, to September 30, 1925.

GAGE.—Stevens water-stage recorder on left bank; inspected by Miss E. A. Biddick.

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

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

EXTREMES OF DISCHARGE.—Maximum stage during year from water-stage recorder, 3.58 feet June 7 caused by backwater from Little Laramie River; maximum discharge occurred June 8, computed as 500 second-feet; minimum discharge recorded, 11 second-feet May 1-3.

1911-1925: Maximum stage, 7.48 feet at 3 a. m. June 13, 1923 (discharge, 3,930 second-feet); river dry September 22-25, 1911.

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

DIVERSIONS.—Adjudicated diversions for irrigation of 29,000 acres from Laramie River between Two Rivers and Woods gaging stations.

REGULATION.—Operation of ditches above station affects low-water flow.

ACCURACY.—Stage-discharge relation practically permanent. Rating curve fairly well defined. Operation of water-stage recorder fairly satisfactory except as indicated in footnote to table of daily discharge. Daily discharge ascertained by applying to rating table mean gage height obtained by inspection of recorder graph. Records good except for periods of missing gage heights, for which they are fair.

Discharge measurements of Laramie River at Two Rivers, Wyo., during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 15	1.59	129	May 21	1.23	73	July 23	1.27	73
Mar. 27	1.19	62	May 26	2.02	232			
May 3	.75	* 11	July 13	1.27	69			

* Estimated.

Daily discharge, in second-feet, of Laramie River at Two Rivers, Wyo., for the year ending September 30, 1925

Day	Oct.	Nov.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	40	134		59	11	241	94	75	44
2	40	134		58	11	235	83	64	38
3	40			60	11	248	90	67	40
4	40			62	12	195	95	70	38
5	40			62	15	205	100	70	40
6						240	110	70	58
7						295	115	72	64
8	75			50	20	460	120	75	56
9						440	124	80	48
10						327	110	68	43
11	120					294	94	68	39
12	122					267	92	73	35
13	128			40	30	220	80	89	34
14	134					162	70	128	36
15	130					147	68	116	40
16	124				40	124	60	96	45
17	126				45	116	58	80	50
18	126			30	50	130	58	67	55
19	145				55	181	59	60	62
20	130				56	178	59	54	58
21	147				64	169	58	58	54
22	151				76	174	59	65	65
23	153			20	108	178	70	62	80
24	151				162	195	81	59	80
25	147				193	190	78	54	73
26	149				238	171	68	52	75
27	151		60		235	132	56	53	52
28	149		59	15	243	108	61	58	48
29	147		59		241	92	72	55	42
30	153		59		246	84	83	50	39
31	142		59		251		84	48	

NOTE.—No gage-height record Oct. 1-4, 6-11, 13, Apr. 5 to May 2, May 4-19, July 3-8, 18, Aug. 3, 19, 29-30, Sept. 14-18; discharge based on comparison with records of flow of Laramie River near Jelm and Little Laramie River at Two Rivers. Backwater from Little Laramie River June 5-8; discharge based on comparison with records of flow of Laramie River near Lookout and Little Laramie River at Two Rivers. Braced figures give mean discharge for periods indicated.

Monthly discharge of Laramie River at Two Rivers, Wyo., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	153	40	113	6,950
November 1-2			134	532
March 27-31	60	59	59.2	587
April	62		35.9	2,140
May	251	11	84.3	5,180
June	460	84	207	12,300
July	124	56	80.9	4,970
August	128	48	69.5	4,270
September	80	34	51.0	3,030

LARAMIE RIVER AT FORT LARAMIE, WYO.

LOCATION.—In sec. 25, T. 26 N., R. 65 W., at siphon crossing of the Fort Laramie Canal, 3 miles west of Fort Laramie, Goshen County.

DRAINAGE AREA.—4,580 square miles (measured on base map of Wyoming).

RECORDS AVAILABLE.—April 4, 1915, to September 30, 1925.

GAGE.—Vertical staff; read by Theo. Fintus. Prior to 1925, the gage was at highway bridge in sec. 30, T. 26 N., R. 64 W., at Fort Laramie.

DISCHARGE MEASUREMENTS.—Made from highway bridge at Fort Laramie.

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

DIVERSIONS.—Water diverted for irrigation of 68,000 acres from Laramie River between Two Rivers and Fort Laramie.

REGULATION.—Flow regulated by Wheatland Reservoir, which has a capacity of 110,000 acre-feet and is situated 70 miles upstream in main channel of river. Stored water from reservoir diverted from river a few miles below reservoir.

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

Daily discharge, in second-feet, of Laramie River at Fort Laramie, Wyo., for the year ending September 30, 1925

Day	Apr.	May	June	July	Aug.	Sept.	Day	Apr.	May	June	July	Aug.	Sept.
1	215	104	93	20	49	18	16	246	93	175	25	60	16
2	350	97	89	20	49	15	17	204	410	157	20	50	25
3	330	86	62	20	47	15	18	222	375	155	15	50	20
4	283	80	60	25	47	20	19	213	265	115	16	47	25
5	265	71	60	25	43	20	20	204	253	80	15	47	30
6	245	71	72	25	45	25	21	194	233	65	15	48	33
7	245	71	265	36	40	25	22	185	222	60	15	43	43
8	278	82	385	25	47	26	23	176	197	60	20	40	43
9	261	71	375	25	47	26	24	167	186	60	20	30	46
10	250	71	310	25	50	20	25	158	175	67	18	36	44
11	245	67	286	25	30	20	26	148	165	65	20	34	44
12	241	62	260	30	36	20	27	139	154	62	20	28	46
13	225	60	235	30	45	18	28	130	152	50	20	28	43
14	225	58	225	35	84	18	29	121	152	30	20	23	43
15	218	82	188	25	47	18	30	112	130	25	55	20	63
							31	------	117	-----	55	22	------

NOTE.—No gage-height record Apr. 19–30 and May 24–26; discharge interpolated.

Monthly discharge of Laramie River at Fort Laramie, Wyo., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
April	350	112	216	12,900
May	410	58	142	8,730
June	385	25	140	8,330
July	55	15	24.5	1,510
August	84	20	42.3	2,600
September	63	15	28.9	1,720
The period				35,800

LITTLE LARAMIE RIVER NEAR FILMORE, WYO.

LOCATION.—In sec. 9, T. 15 N., R. 77 W., at private bridge at May ranch, 1½ miles south of Filmore, Albany County. No sizable tributary between station and junction of North, Middle, and South Forks, 4 miles above.

DRAINAGE AREA.—155 square miles (measured on base map of Wyoming).

RECORDS AVAILABLE.—July 5, 1902, to August 15, 1903; May 14, 1911, to September 30, 1925.

GAGE.—Vertical staff on downstream side of left abutment; read by Claude May.

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

CHANNEL AND CONTROL.—Bed composed of coarse gravel and small boulders; slightly shifting at long intervals. No well-defined control. During high water there is flow through channel around right end of bridge.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 3.5 feet at 6 a. m. June 5 (discharge, 960 second-feet); minimum discharge occurred during winter.

1902–3; 1911–1925: Maximum stage recorded, 5.9 feet at 7 a. m. June 1, 1914 (discharge, 2,400 second-feet); minimum stage, 0.25 foot September 19 and 20, 1913 (discharge, 1 second-foot).

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

DIVERSIONS.—Water diverted for irrigation of 20,000 acres from Little Laramie River and tributaries above station.

REGULATION.—None.

ACCURACY.—Stage-discharge relation practically permanent. Rating curve well defined. Gage read to quarter-tenths twice daily. Daily discharge ascertained by applying mean gage height to rating table. Records good except for periods of missing gage heights, for which they are fair.

The following discharge measurements were made:

May 28, 1925: Gage height, 2.69 feet; discharge, 461 second-feet.

July 15, 1925: Gage height, 1.44 feet; discharge, 119 second-feet.

Daily discharge, in second-feet, of Little Laramie River near Filmore, Wyo., for the year ending September 30, 1925

Day	Apr.	May	June	July	Aug.	Sept.	Day	Apr.	May	June	July	Aug.	Sept.
1	------	53	430	198	88	36	16	------	198	452	122	52	26
2	------	58	410	230	88	36	17	------	178	452	139	42	26
3	------	63	315	242	82	38	18	------	198	452	122	42	26
4	------	82	255	350	79	38	19	------	219	398	105	47	26
5	------	82	890	300	79	36	20	------	270	410	105	38	
6	------	85	552	219	82	35	21	------	370	410	105	38	
7	------	81	525	198	81	35	22	------	500	500	105	38	
8	------	130	525	198	81	32	23	------	410	490	105	38	
9	------	136	332	188	74	32	24	------	452	370	113	38	
10	------	143	332	198	70	32	25	------	452	300	105	34	25
11	------	144	300	198	70	32	26	------	525	255	90	34	
12	------	148	300	122	70	30	27	48	410	230	90	34	
13	------	148	315	122	70	30	28	47	525	242	88	38	
14	------	198	350	105	69	30	29	47	610	219	90	38	
15	------	213	410	110	69	26	30	49	580	219	90	38	
							31	------	525	------	90	38	------

NOTE.—No gage-height record May 1–2, 9, Sept. 20–30; discharge based on comparison with record of flow of Little Laramie River at Two Rivers. Braced figures shows mean discharge for period indicated.

Monthly discharge of Little Laramie River near Filmore, Wyo., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
April 27–30	49	47	47.8	379
May	610	53	264	16,300
June	890	219	388	23,100
July	350	88	150	9,220
August	88	34	57.4	3,530
September	38	25	29.2	1,740
The period				54,200

LITTLE LARAMIE RIVER AT TWO RIVERS, WYO.

LOCATION.—On line between secs. 5 and 6, T. 17 N., R. 74 W., at highway bridge half a mile south of Two Rivers, Albany County. No tributary between station and mouth, half a mile below.

DRAINAGE AREA.—310 square miles (measured on base map of Wyoming).

RECORDS AVAILABLE.—May 6, 1911, to September 30, 1925.

GAGE.—Stevens water-stage recorder; inspected by Miss E. A. Biddick.

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

CHANNEL AND CONTROL.—Bed composed of sand and gravel; shifting. No well-defined control. Banks are seldom overflowed.

EXTREMES OF DISCHARGE.—Maximum stage during year from water-stage recorder, 5.40 feet from 10 a. m. to noon June 7 (discharge, 1,120 second-feet); minimum discharge, estimated, 3 second-feet at 3.30 p. m. May 3.

1911–1925: Maximum discharge recorded, 1,740 second-feet June 4, 1914; river frequently becomes dry in the summer, owing to irrigation above.

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

DIVERSIONS.—Water diverted for irrigation of 29,000 acres from Little Laramie River between Filmore and Two Rivers gaging stations.

REGULATION.—None.

ACCURACY.—Stage-discharge relation not permanent. Rating curve fairly well defined. Operation of water-stage recorder only fairly satisfactory. Daily discharge ascertained by shifting-control method, except from June 11 to July 3, when mean gage height was applied to rating table. Records fair.

Discharge measurements of Little Laramie River at Two Rivers, Wyo., during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 15	2.46	34.9	May 21	2.19	17.3	July 13	2.46	46.1
Mar. 27	2.32	31.8	May 26	3.10	170	July 23	2.60	61
May 3	1.99	*3	June 14	2.90	109			

* Estimated.

Daily discharge, in second-feet, of Little Laramie River at Two Rivers, Wyo., for the year ending September 30, 1925

Day	Oct.	Nov.	Mar.	May	June	July	Aug.	Sept.
1	21			7	211	125	51	35
2	57	24		7	235	125	38	31
3	86			7	272	125	31	35
4	58			7	183	120	39	48
5	48			7	318	118	43	50
6	46			7	720	115	45	46
7	44			6	1,090	110	42	36
8	55			10	762	100	39	32
9	120			10	335	68	35	28
10	100			7	197	56	31	27
11	80			5	125	51	31	28
12	60			5	115	55	43	28
13	50			5	117	48	98	28
14	40			5	109	41	111	33
15	35			5	149	35	72	57

Daily discharge, in second-feet, of Little Laramie River at Two Rivers, Wyo., for the year ending September 30, 1925—Continued

Day	Oct.	Nov.	Mar.	May	June	July	Aug.	Sept.
16	34			5	149	29	50	53
17	33			9	136	27	36	42
18	33			13	138	30	28	35
19	37			17	129	33	28	31
20	34			20	130	40	28	29
21	39			17	130	46	25	29
22	37			26	135	53	21	32
23	32			58	160	60	20	34
24	30			100	140	50	19	34
25	28			123	132	40	21	32
26	28			160	130	31	36	30
27	26		32	143	128	25	35	28
28	24			143	128	26	27	28
29	22			136	126	42	30	28
30	21			151	126	108	35	28
31	20			192		72	40	

NOTE.—No gage-height record Oct. 7–14, May 1–2, 12–19, June 20–24, 26–30, July 1–2, 4–8, 18, 20–22, Aug. 19, 29–30; discharge based on comparison with records of flow of Little Laramie River near Filmore and Laramie River near Jelm.

Monthly discharge of Little Laramie River at Two Rivers, Wyo., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	120	20	44.5	2,740
May	192	5	45.6	2,800
June	1,090	109	232	13,800
July	125	25	64.6	3,970
August	111	19	39.6	2,430
September	57	27	34.5	2,050

SOUTH PLATTE RIVER AT SOUTH PLATTE, COLO.

LOCATION.—In sec. 25, T. 7 S., R. 70 W., 375 feet below point where North Fork of South Platte River enters at South Platte, Jefferson County.

DRAINAGE AREA.—2,550 square miles (revised; measured on base map of Colorado).

RECORDS AVAILABLE.—March 28, 1902, to September 30, 1925. Records at Platte Canyon and at Deansbury, a few miles below, extend back to 1887, with the exception of 1893 and 1894. Earlier records, 1887-1892, were obtained by State engineer, and records from 1895 to 1896 were obtained under direction of Denver Power & Irrigation Co.

GAGE.—Stevens water-stage recorder on right bank; inspected by Mrs. Mata Wallbrecht.

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

CHANNEL AND CONTROL.—Bed composed of coarse sand and fine gravel. Control 35 feet downstream at well-defined rapids; shifting. Banks high and not subject to overflow.

EXTREMES OF DISCHARGE.—Maximum stage during year, from water-stage recorder, 2.94 feet at 1 p. m. June 11 (discharge, 690 second-feet); minimum discharge occurred during winter.

1888–1892; 1895–1900; 1902–1925: Maximum stage recorded, 8.95 feet from 5 to 9 p. m. June 7, 1921 (discharge, 6,320 second-feet); minimum discharge recorded, 21 second-feet August 4, 1902.

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

DIVERSIONS.—Water diverted from tributaries of South Platte River above station for irrigation of 46,000 acres.

REGULATION.— Flow regulated chiefly by Cheesman Reservoir, having a capacity of 79,000 acre-feet and located in channel of South Platte River, 20 miles above station.

ACCURACY.—Stage-discharge relation not permanent; affected by ice during winter. Rating curve fairly well defined. Operation of water-stage recorder satisfactory. Daily discharge ascertained by shifting-control method, except for periods Apr. 11–14, May 13–31, when mean gage height was applied to rating table. Records good.

Discharge measurements of South Platte River at South Platte, Colo., during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 2	1.36	129	Apr. 17	2.13	307	June 23	2.58	539
Mar. 21	1.26	100	May 13	2.43	439	Aug. 4	1.92	281

Daily discharge, in second-feet, of South Platte River at South Platte, Colo., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	106	181	158		131	255	450	358	243	502
2	131	181	158		138	261	462	332	217	486
3	138	170	158		148	268	524	346	214	478
4	133	165	140		120	264	524	370	264	470
5	133	165	150		118	258	370	382	434	450
				110						
6	131	162	165		110	264	378	430	519	450
7	129	145	160		116	298	398	474	502	486
8	162	125	150		112	336	374	474	462	450
9	150	136	160		108	362	362	422	422	454
10	178	152	150		129	386	490	358	454	458
11	650	152	162		127	402	672	494	502	442
12	555	125			140	418	676	434	546	418
13	312	133			189	434	654	343	564	386
14	258	158		100	189	442	636	312	537	358
15	252	173			264	442	370	304	486	340
16	240	184			294	422	315	274	438	326
17	226	189	160	108	315	410	378	255	374	329
18	229	181		105	326	402	336	232	350	343
19	232	187		100	315	394	290	220	340	315
20	237	160		96	287	378	301	243	442	304
21	223	165		92	280	382	346	280	394	322
22	261	168		92	301	386	354	482	382	298
23	271	152		102	326	386	498	550	362	315
24	255	120		108	315	390	546	627	390	332
25	246	110		122	312	466	506	494	418	326
26	240	150	150	112	301	474	414	382	490	362
27	217	158		90	301	474	414	294	486	450
28	203	173		96	261	486	370	234	600	454
29	195	160		112	246	474	329	217	622	414
30	189	145		125	246	446	370	220	591	374
31	178	----		131	----	450	----	264	524	----

NOTE.—Stage-discharge relation affected by ice Dec. 3-10; discharge based on temperature and gage-height records. Discharge Dec. 12-31 and Mar. 1-16 based on comparison with records of flow of South Platte River at Platte Canyon as obtained by Denver Municipal Waterworks. Braced figures show mean discharge for periods indicated.

Monthly discharge of South Platte River at South Platte, Colo., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	650	106	228	14,000
November	189	110	158	9,400
December	------	------	155	9,530
January	------	------	168	10,300
February	------	------	148	8,220
March	131	------	106	6,520
April	326	108	219	13,000
May	486	255	384	23,600
June	676	290	437	26,000
July	677	217	358	22,000
August	622	214	438	26,900
September	502	298	396	23,600
The year	676	------	267	193,000

NOTE.—Mean discharge for January and February ascertained by reducing the records of flow at Platte Canyon by 1.4 per cent to allow for difference in drainage areas.

NORTH FORK OF SOUTH PLATTE RIVER AT SOUTH PLATTE, COLO.

LOCATION.—In sec. 25, T. 7 S., R. 70 W., one-third of a mile above railroad station at South Platte, Jefferson County. No tributary between station and mouth at South Platte.

DRAINAGE AREA.—484 square miles (revised; measured on base map of Coloradq).

RECORDS AVAILABLE.—June 4, 1909, to September 30, 1910; April 1, 1913, to September, 30, 1925.

GAGE.—Stevens water-stage recorder on left bank; inspected by Mrs. Mata Wallbrecht.

DISCHARGE MEASUREMENTS.—Made from cable 300 feet above gage or by wading.

CHANNEL AND CONTROL.—Bed composed of gravel and sand. Principal control a short distance below gage; shifting. Banks not subject to serious overflow.

EXTREMES OF DISCHARGE.—Maximum stage during year from water-stage recorder, 2.87 feet at 2 p. m. June 21 (discharge, 340 second-feet); minimum stage probably occurred during winter.

1909–1910; 1913–1925: maximum stage recorded, 5.9 feet at 4 a. m. June 8, 1921 (discharge, 1,910 second-feet); minimum stage recorded, 1.50 feet on December 18, 1922 (discharge, 12 second-feet).

DIVERSIONS.—Water diverted for irrigation of several hundred acres above station.

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

ACCURACY.—Stage-discharge relation slightly shifting. Rating curve fairly well defined. Gage read to hundredths twice daily to May 13, after which the the operation of water-stage recorder was satisfactory. Daily discharge ascertained by applying mean gage height to rating table, using shifting-control method March 15 to April 13, April 26 to May 25, and August 26 to September 30. Records good.

Discharge measurements of North Fork of South Platte River at South Platte, Colo., during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 2	1.61	78	Apr. 17	1.66	79	June 23	2.22	169
Mar. 21	1.31	44.3	May 13	1.74	97	Aug. 4	1.71	89

Daily discharge, in second-feet, of North Fork of South Platte River at South Platte, Colo., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	57	78	51		56	72	158	133	80	121
2	66	76	57		56	78	140	138	70	111
3	71	71	62		60	89	130	149	73	116
4	66	71	59		51	86	118	177	91	138
5	71	68	57		50	73	111	173	105	128
6	71	68	51		59	74	114	140	112	138
7	71	62	56		59	80	128	127	96	191
8	115	38	44		55	92	114	122	89	145
9	94	50	45		57	94	108	115	92	128
10	94	66	44		56	94	109	108	127	124
11	88	66	44		58	102	116	101	161	122
12	88	40			65	105	118	98	135	126
13	71	66			73	102	111	92	126	128
14	71	54			67	102	108	83	112	137
15	82	66		41	72	102	118	75	98	122
16	88	71		47	81	94	127	78	97	115
17	94	82		46	87	96	132	98	92	109
18	88	57		38	93	96	144	91	92	108
19	101	76		38	83	104	138	78	98	107
20	94	66		47	66	112	158	92	133	104
21	94	71		46	65	130	212	112	138	120
22	94	76		49	75	144	195	121	111	107
23	88	62		53	76	158	173	105	98	121
24	82	40		52	62	151	167	88	101	147
25	76	38		50	56	156	156	82	107	145
26	76	40		54	51	154	142	77	171	132
27	76	57		47	66	147	135	72	144	128
28	71	62		55	64	151	126	75	130	116
29	71	47		49	62	160	137	74	121	116
30	71	54		53	67	160	137	80	112	118
31	66			51		167		89	127	

Monthly discharge of North Fork of South Platte River at South Platte, Colo., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	115	57	80.8	4,970
November	82	38	61.3	3,650
December 1–11	62	44	51.8	1,130
March 15–31	55	38	48.0	1,620
April	93	50	64.9	3,860
May	167	72	114	7,010
June	212	108	136	8,090
July	177	72	105	6,460
August	171	70	111	6,820
September	191	104	126	7,500

CLEAR CREEK NEAR GOLDEN, COLO.

LOCATION.—In sec. 32, T. 3 S., R. 70 W., in canyon 1½ miles above Golden, Jefferson County. Only important tributary between station and mouth, Ralston Creek, enters 12 miles below.

DRAINAGE AREA.—392 square miles (measured on topographic map).

RECORDS AVAILABLE.—May 4, 1919, to September 30, 1925. Records from December 4, 1908, to December 31, 1909; June 8, 1911, to May 3, 1919, records available for station half a mile upstream where flow is practically the same.

GAGE.—Bristol float-type water-stage recorder on left bank 200 feet upstream from Colorado & Southern Railway section house; inspected by R. Wahlberg.

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

CHANNEL AND CONTROL.—Bed composed of coarse gravel and sand; shifting. Low-water control 100 feet downstream at small rapids composed of small boulders and coarse gravel; shifting during high water. Banks not subject to overflow.

EXTREMES OF DISCHARGE.—Maximum stage during year, 3.3 feet at 7 a. m. June 21 (discharge, 720 second-feet); minimum discharge occurred during winter. 1909; 1911–1925: Maximum discharge recorded, 4,420 second-feet at about 10 p. m. July 31, 1921; minimum discharge, 18 second-feet January 11, 1918.

ICE.—Stage-discharge relation seriously affected by ice; records discontinued during winter except for occasional discharge measurements.

DIVERSIONS.—Court decree for diversion of 53 second-feet from the headwaters of Fraser River to the West Fork of Clear Creek. During 1925, 1,050 acre-feet diverted. Above station only sizable diversion is Golden ditch, three-fourths mile upstream. During 1925 the amount of water diverted by this ditch was 3,200 acre-feet.

REGULATION.—Alternate melting and freezing of mountain snow causes diurnal fluctuation during spring.

ACCURACY.—Stage-discharge relation slightly shifting. Rating curve well defined. Operation of water-stage recorder fairly satisfactory. Daily discharge ascertained by applying to rating table mean daily gage height obtained by inspection of recorder graph except as indicated in footnote to daily-discharge table. Shifting-control method used April 16 to May 7. Records excellent except for periods of missing gage heights, for which they are fair.

COOPERATION.—Gage-height record was furnished by the Farmers Reservoir & Irrigation Co.

Discharge measurements of Clear Creek near Golden, Colo., during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 9	2.06	101	June 4	2.64	286
Feb. 6		56	July 28	2.31	168
Apr. 28	2.10	126			

Daily discharge, in second-feet, of Clear Creek near Golden, Colo., for the year ending September 30, 1925

Day	Oct.	Nov.	Apr.	May	June	July	Aug.	Sept.
1	91	85	56	142	412	451	160	200
2	108	84	57	158	359	479	150	190
3	100	82	60	174	315	486	158	190
4	95	82	55	162	284	444	171	210
5	100	85	50	162	274	364	180	202
6	90	85	59	162	332	326	162	202
7	87	56	58	165	348	310	145	232
8	145	69	56	174	270	306	145	195
9	108	------	66	165	258	284	130	190
10	100	------	67	171	288	279	128	208
11	87	------	67	177	370	258	171	202
12	82	------	69	165	354	216	177	206
13	82	------	76	150	315	230	174	206
14	93	------	84	171	306	238	162	223
15	106	------	106	168	444	230	150	202
16	111	------	138	162	528	223	140	177
17	106	------	138	165	528	226	132	158
18	108	------	148	186	521	220	128	158
19	118	------	125	226	549	234	150	152
20	135	------	108	284	577	315	192	152
21	118	------	111	337	648	306	192	155
22	111	------	138	332	626	254	174	158
23	108	------	140	342	591	226	165	192
24	100	------	113	388	563	206	168	177
25	95	------	115	348	521	192	175	168
26	91	------	120	364	514	183	217	155
27	87	------	111	354	479	168	205	145
28	85	------	113	394	451	171	197	140
29	84	------	108	458	437	168	190	138
30	84	------	128	458	444	165	215	122
31	69	------	------	486	------	174	206	------

NOTE.—No gage-height record Oct. 4–6, Apr. 1–7, Aug. 23 to Sept. 6; discharge based on comparison with records of flow of Bear Creek and North Fork of South Platte River.

Monthly discharge of Clear Creek near Golden, Colo., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	145	69	99.5	6,120
November 1–8	85	56	78.5	1,250
April	148	50	94.7	5,640
May	486	142	250	15,400
June	648	258	430	25,600
July	486	165	269	16,500
August	217	128	168	10,300
September	230	122	180	10,700

NORTH BOULDER CREEK AT SILVER LAKE, COLO.

LOCATION.—In NW. ¼ sec. 28, T. 1 N., R. 73 W., at outlet of Silver Lake, Boulder County.

DRAINAGE AREA.—8.7 square miles (measured by special survey).

RECORDS AVAILABLE.—August 20, 1913, to September 30, 1925.

GAGE.—Friez water-stage recorder, which records head on weir.

DISCHARGE MEASUREMENTS.—Made by means of standard, sharp-crested weir 10 feet long, having low-water section 5 feet long.

ICE.—Weir kept open during winter.

DIVERSIONS.—None above station.

REGULATION.—Winter flow increased by storage in Silver Lake (capacity, 2,080 acre-feet).

COOPERATION.—Records of daily discharge furnished by city engineer of Boulder.

Daily discharge, in second-feet, of North Boulder Creek near Silver Lake, Colo., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	53.9	51.0	43.0	41.8	40.3	38.8	34.4	30.1	28.7	41.6	41.6	46.8
2	53.9	50.0	43.0	42.0	40.3	38.8	34.4	31.5	25.7	44.4	40.0	45.1
3	53.9	50.0	43.0	42.0	40.3	38.8	33.0	32.0	20.1	46.8	40.0	44.4
4	53.9	50.0	43.0	41.6	40.3	38.8	33.0	32.4	13.7	48.6	41.6	24.3
5	53.9	50.0	43.0	41.6	40.3	38.8	33.0	32.8	11.4	48.6	40.0	21.4
6	53.9	50.0	43.0	41.6	40.3	38.8	32.2	33.2	12.5	48.6	35.0	27.2
7	53.9	47.0	43.0	41.6	40.3	38.8	32.2	33.6	14.9	48.6	31.8	31.8
8	53.9	47.0	43.0	41.6	41.4	38.8	32.2	34.0	14.9	48.6	31.8	35.0
9	53.8	49.0	43.0	41.6	41.4	38.8	32.2	34.5	17.4	48.6	30.3	17.4
10	53.8	49.0	43.0	41.6	41.4	38.8	31.5	35.0	18.8	46.8	31.8	25.7
11	53.8	48.0	43.0	41.6	41.4	38.8	31.5	35.0	20.1	45.1	31.8	28.7
12	52.0	48.0	43.0	41.6	41.4	38.8	31.5	28.7	21.5	45.1	31.8	25.7
13	52.0	48.0	41.4	41.6	41.4	38.8	32.2	28.7	21.5	45.1	30.3	24.3
14	52.0	48.0	41.4	41.6	41.4	38.8	31.5	28.7	21.5	73.5	28.7	24.3
15	52.0	48.0	41.4	41.6	41.4	38.8	30.8	28.7	22.8	65.5	22.8	20.1
16	52.0	47.6	41.4	41.6	41.4	38.8	30.8	30.3	22.8	57.8	18.8	18.8
17	52.0	47.6	41.4	41.6	41.4	38.8	30.8	34.0	24.3	59.7	17.4	17.4
18	52.0	47.6	41.2	42.0	41.4	38.8	30.8	38.0	25.7	52.2	17.4	17.4
19	52.0	47.6	41.2	42.0	41.4	38.8	30.1	41.6	28.7	48.6	20.1	17.4
20	52.0	47.6	41.2	42.0	40.3	38.8	30.1	59.7	30.3	48.6	20.1	18.8
21	52.0	47.6	41.4	42.0	40.3	38.8	30.1	48.6	41.6	48.6	21.5	20.1
22	52.0	47.6	41.4	42.0	40.3	38.8	30.0	40.0	50.4	48.6	41.6	21.5
23	52.0	46.0	41.4	42.0	40.3	37.3	30.0	41.6	63.5	50.4	63.5	22.8
24	52.0	46.0	41.4	42.0	40.3	37.3	30.0	38.3	71.5	52.2	56.0	24.3
25	52.0	46.0	41.2	41.6	40.3	37.3	30.0	38.3	71.5	52.2	52.2	25.7
26	53.0	46.0	41.2	41.6	40.3	37.3	28.8	35.0	67.5	50.4	46.8	27.2
27	52.0	46.0	41.0	41.6	40.3	37.3	28.8	35.0	63.5	50.4	48.6	28.7
28	51.0	43.2	41.2	40.3	40.3	37.3	28.1	33.4	59.7	52.2	52.2	27.2
29	51.0	43.2	41.4	40.3	------	35.8	28.1	31.8	59.7	63.5	52.2	27.2
30	51.0	43.0	41.6	40.3	------	35.1	30.0	33.4	48.6	52.2	50.4	25.7
31	51.0	------	41.7	40.3	------	34.4	------	24.3	------	48.6	48.6	------

Monthly discharge of North Boulder Creek near Silver Lake, Colo., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	53.9	51.0	52.6	3,230
November	51.0	43.0	47.5	2,830
December	43.0	41.0	42.0	2,580
January	42.0	40.3	41.6	2,560
February	41.4	40.3	40.8	2,270
March	38.8	34.4	38.2	2,350
April	34.4	28.1	31.1	1,850
May	59.7	24.3	34.9	2,150
June	71.5	11.4	33.8	2,010
July	73.5	41.6	51.0	3,140
August	63.5	17.4	36.7	2,260
September	46.8	17.4	26.1	1,550
The year	73.5	11.4	39.7	28,800

THOMPSON RIVER NEAR DRAKE, COLO.

LOCATION.—In NW. ¼ sec. 2, T. 5 N., R. 71 W., at Halfway, 1 mile east of Drake, Larimer County. Nearest tributary, North Fork, enters at Drake.

DRAINAGE AREA.—274 square miles (measured on topographic maps).

RECORDS AVAILABLE.—September 18, 1917, to September 30, 1925.

GAGE.—Vertical staff attached to rock cliff at right bank a hundred yards above hotel; read by M. A. Ellison.

DISCHARGE MEASUREMENTS.—Made from two-span bridge a third of a mile above gage or by wading.

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

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 3.62 feet at 7 a. m. May 30 (discharge, 640 second-feet); minimum discharge occurred during winter.

1918–1925: Maximum stage fromh igh-water mark, 9.5 feet (old datum) at 6 p. m. July 31, 1919 (discharge computed as 8,000 second-feet from extension of rating curve); minimum discharge occurred during winter.

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

DIVERSIONS.—Water diverted for irrigation of a few hundred acres from Thompson River and tributaries above station.

REGULATION.—Alternate melting and freezing of mountain snow during spring causes diurnal fluctuation of discharge. No artificial regulation.

ACCURACY.—Stage-discharge relation slightly shifting, affected by ice during winter. Rating curve fairly well defined. Gage read to quarter-tenths twice daily. Daily discharge ascertained by applying mean gage height to rating table, using shifting-control method October 1 to November 9. Records fair.

COOPERATION.—Field data furnished by the city of Loveland. Check measurements made by the United States Geological Survey.

Discharge measurements of Thompson River near Drake, Colo., during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 23	1.91	73	Jan. 5	[a] 1.30	18.0	Apr. 15	1.72	59
Nov. 28	[a] 1.64	35.1	Jan. 19	[a] 1.33	18.0	May 7	2.18	106
Dec. 5	(a)	15.0	Feb. 21	1.35	22.0	Sept. 16	2.48	140
Dec. 18	[a] 2.30	14.5	Mar. 10	1.18	17.0			
Dec. 24	[a] 2.00	16.0	Apr. 11	1.48	35.0			

[a] Stage-discharge relation affected by ice.

Daily discharge, in second-feet, of Thompson River near Drake, Colo., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Jan.	Feb	Mar.	Apr.	May	June	July	Aug.	Sept.
1	57	54			24	28	30	54	331	502	136	160
2	59	52			24	30	29	81	294	537	123	176
3	59	51	23	18	26	26	29	104	223	438	126	214
4	55	49			26	22	29	100	196	423	220	283
5	56	50			26	26	28	99	217	393	271	217
6	54	44			26	26	29	99	287	375	190	190
7	64	35			26	26	30	103	287	331	144	179
8	129	33	15	17	28	26	29	115	230	331	144	162
9	91	41			23	26	30	104	223	283	144	132
10	78	53			22	18	29	101	250	283	179	131
11	69	24	22		24		32	107	380	254	287	121
12	70	24	26		24		40	118	352	233	375	118
13	65	32	31	16	22		48	123	323	236	398	120
14	66	35	36		26	18	65	145	275	230	254	190
15	65	38	30		29		61	128	438	226	220	131
16	67	39	27		29		86	124	508	243	171	129
17	66	42		17	30		81	136	580	250	144	120
18	67	35	15		30	25	90	155	480	271	145	118
19	67	39			22	28	70	176	508	275	190	120
20	108	39		19	26	21	71	243	566	271	271	118

Daily discharge, in second-feet, of Thompson River near Drake, Colo., for the year ending September 30, 1925—Continued

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
21	92	37	15	21	25	19	77	275	592	290	243	120
22	85	37		22	22	22	72	344	502	331	254	128
23	77	25		23	22	25	74	275	548	271	250	144
24	70	14	15	22	22	28	67	339	470	264	210	142
25	68	17		23	23	28	56	323	497	240	204	132
26	60	30		22	22	26	58	298	464	196	230	121
27	57	32		22	22	29	56	275	423	179	220	120
28	54	35		23	21	26	56	331	423	160	214	111
29	54	38	18	25	------	32	59	475	408	171	196	101
30	40	38		24	-------	38	61	592	423	162	176	99
31	33	-------		24	-------	29	------	491	-------	158	149	-------

NOTE—Stage-discharge relation affected by ice Nov. 13–16, Nov. 26 to Dec. 12, Dec. 17 to Jan. 19, and Mar. 11–17; discharge based on six discharge measurements, temperature and gage-height records, and observer's notes. Braced figures show mean discharge for periods indicated.

Monthly discharge of Thompson River near Drake, Colo., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	129	33	67.8	4,170
November	54	14	37.1	2,210
December	36	------	19.5	1,200
January	25	------	19.1	1,170
February	30	21	24.7	1,370
March	38	18	24.3	1,490
April	90	28	52.4	3,120
May	592	54	208	12,800
June	592	196	390	23,200
July	537	158	284	17,500
August	398	123	209	12,900
September	283	99	145	8,630
The year	592	------	124	89,800

NISHNABOTNA RIVER BASIN

EAST NISHNABOTNA RIVER AT RED OAK, IOWA

LOCATION.—In sec. 20, T. 72 N., R. 38 W., at highway bridge on Coolbaugh Street in Red Oak, Montgomery County, 35 miles above junction of East and West Nishnabotna Rivers.

DRAINAGE AREA.—890 square miles (measured on map issued by United States Geological Survey).

RECORDS AVAILABLE.—May 22, 1918, to July 4, 1925, when station was discontinued.

GAGE.—Chain gage attached to downstream handrail of bridge; read by C. E. Wilson.

DISCHARGE MEASUREMENTS.—Made from bridge or by wading. Extreme floods measured from Chicago, Burlington & Quincy Railroad bridge half a mile downstream.

CHANNEL AND CONTROL.—Sand and mud bottom, fairly permanent gravel control. Banks are overflowed during high water.

EXTREMES OF DISCHARGE.—Maximum stage recorded during period October 1 to July 4, 10.0 feet at 1.30 p. m. June 25 (discharge, 1,850 second-feet); minimum stage, 1.84 feet at 7 a. m. June 1 (discharge, 58 second-feet).

1918–1925: Maximum stage recorded, 18.10 feet June 26, 1924 (discharge, 7,960 second-feet); minimum stage, 1.53 feet September 28, 1918 (discharge estimated, 13 second-feet).

ICE.—Stage-discharge relation affected by ice.

ACCURACY.—Stage-discharge relation changed during high water in February. Rating curve used October 1 to November 30 well defined between 200 and 6,000 second-feet; curve used February 8 to July 4 well defined between 90 and 6,000 second-feet. Gage read to hundredths once daily and frequently during days of rapidly changing stage. Daily discharge ascertained by applying daily gage height to rating table. Records fair.

The following discharge measurement was made:

April 8, 1925: Gage height, 2.43 feet; discharge, 115 second-feet.

Daily discharge, in second-feet, of East Nishnabotna River at Red Oak, Iowa, for the year ending September 30, 1925

Day	Oct.	Nov.	Feb.	Mar.	Apr.	May	June	July
1	275	160	--------	220	125	72	58	205
2	261	160	--------	205	125	72	77	190
3	261	160	--------	205	125	68	103	190
4	247	150	--------	205	125	68	72	176
5	233	150	--------	190	114	68	63	--------
6	233	150	--------	190	114	68	235	--------
7	233	150	--------	190	114	68	176	--------
8	233	150	1,520	190	114	68	114	--------
9	233	150	918	176	442	68	82	--------
10	233	150	741	176	365	68	72	--------
11	220	150	636	162	265	63	77	--------
12	220	150	461	162	176	63	114	--------
13	220	194	347	162	125	63	87	--------
14	220	182	281	149	125	63	518	--------
15	207	171	250	149	114	63	988	--------
16	207	171	235	149	114	63	383	--------
17	207	171	220	137	103	63	205	--------
18	194	171	205	137	103	63	114	--------
19	194	160	190	137	103	63	114	--------
20	194	160	176	137	92	114	103	--------
21	194	160	176	383	92	63	103	--------
22	194	160	162	313	92	63	92	--------
23	182	160	941	220	92	63	1,360	--------
24	182	160	383	499	92	63	1,280	--------
25	182	160	190	347	82	63	1,820	--------
26	182	160	190	235	82	63	1,060	--------
27	171	160	190	190	82	63	365	--------
28	171	160	190	162	82	58	265	--------
29	171	160	--------	137	77	58	220	--------
30	160	150	--------	137	77	58	220	--------
31	160	--------	--------	125	--------	58	--------	--------

Monthly discharge of East Nishnabotna River at Red Oak, Iowa, for the year ending September 30, 1925

[Drainage area, 890 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	275	160	209	0.235	0.27
November	194	150	160	.180	.20
February 8–28	1,520	162	410	.461	.36
March	499	125	199	.224	.26
April	442	77	131	.147	.16
May	114	58	65.8	.074	.09
June	1,820	58	351	.394	.44

TARKIO RIVER BASIN

TARKIO RIVER AT FAIRFAX, MO.

LOCATION.—On line between SW. ¼ SW. ¼ sec. 22 and NW. ¼ NW. ¼ sec. 27, T. 64 N., R. 40 W., at highway bridge half a mile west of Fairfax, Atchinson County, and 8 miles below junction of East and West Tarkio Creeks.

DRAINAGE AREA.—508 square miles (measured on base maps of Missouri and Iowa).

RECORDS AVAILABLE.—March 8, 1922, to September 30, 1925.

GAGE.—Chain gage bolted to handrail on upstream side of bridge; read by Leo Donelson.

DISCHARGE MEASUREMENTS.—Made from downstream side of bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of silt and sand; clean and shifting. Channel is an artificial ditch section. Banks cultivated; subject to overflow at extremely high stages. No well-defined control.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 12.80 feet at 8 a. m. June 15 (discharge, 4,530 second-feet); minimum discharge, 1 second-foot December 21 to January 4.

1922–1925: Maximum stage recorded, 15.95 feet June 12, 1924 (discharge, 6,610 second-feet); minimum discharge, that of 1925.

ACCURACY.—Stage-discharge relation changed during February and June; seriously affected by ice during winter. Rating curves well defined between 10 and 1,500 second-feet; extended above, parallel to curve defined by measurements for 1926. Gage read to hundredths once or twice daily. Daily discharge ascertained by applying mean daily gage height to rating table except as described in footnote to table of daily discharge. Records fair, except for period of ice effect for which they are poor.

Discharge measurements of Tarkio River at Fairfax, Mo., during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 12	0.52	12.5	Mar. 29	0.76	18.7	June 17	1.52	109
Dec. 18	*.68	2.7	May 4	.72	14.2	Sept. 28	.95	48
Jan. 14	*1.25	7.0	Do	.72	14.2			

*Stage-discharge relation affected by ice.

Daily discharge, in second-feet, of Tarkio River at Fairfax, Mo., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	16	13	13	1	107	59	14	20	2	16	11	17
2	12	11	13	1	107	57	19	12	10	12	11	16
3	11	11	13	1	121	57	22	17	400	12	10	13
4	11	11	198	1	152	60	17	15	71	19	9	12
5	11	12	114	3	208	57	14	9	19	11	14	11
6	11	12	78	3	312	59	12	15	13	10	532	10
7	13	13	78	3	312	54	27	13	9	8	152	10
8	17	12	16	3	312	48	42	25	23	11	57	11
9	17	13	22	5	208	44	27	16	6	208	39	152
10	17	13	14	5	152	40	40	16	5	32	22	89
11	15	11	14	8	136	34	34	6	2	23	1,110	44
12	13	12	16	8	136	33	24	10	37	12	950	27
13	13	63	16	8	121	188	24	43	10	11	136	24
14	13	22	26	8	121	620	21	22	5	208	121	21
15	12	18	23	8	107	118	26	9	4,530	69	101	19

Daily discharge, in second-feet, of Tarkio River at Fairfax, Mo., for the year ending September 30, 1925—Continued

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
16	13	16	19	12	107	68	12	66	312	60	26	13
17	12	16	8	18	107	59	12	15	107	24	23	13
18	13	15	5	18	95	34	12	16	51	16	20	19
19	12	14	3	25	95	34	12	15	35	17	72	161
20	13	14	3	33	95	33	8	18	28	14	57	812
21	12	14	1	42	95	33	400	10	27	13	58	161
22	12	12	1	61	77	30	45	3	37	12	66	576
23	11	12	1	72	1,540	26	16	4	78	11	44	107
24	11	12	1	95	444	26	15	3	378	12	38	59
25	12	12	1	152	367	26	488	3	78	12	34	170
26	12	12	1	228	290	22	198	3	31	11	29	121
27	13	12	1	290	87	19	45	4	22	11	27	87
28	12	12	1	188	60	17	43	3	208	10	35	53
29	13	17	1	152	-------	16	26	4	59	19	23	35
30	12	13	1	121	-------	10	26	2	21	15	19	27
31	12	-------	1	107	-------	8	-------	2	-------	13	18	-------

NOTE.—Stage-discharge relation affected by ice Dec. 17 to Feb. 21; daily discharge ascertained by applying to rating table daily gage heights corrected for ice effect by means of two discharge measurements, observer's notes, and weather records. Gage not read and discharge interpolated Feb. 25, Mar. 7, 22, and Sept. 27.

Monthly discharge of Tarkio River at Fairfax, Mo., for the year ending September 30, 1925

[Drainage area, 508 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	17	11	12.8	0.025	0.03
November	63	11	15.0	.030	.03
December	198	1	22.7	.045	.05
January	290	1	54.2	.107	.12
February	1,540	60	217	.427	.44
March	620	8	64.2	.126	.15
April	488	8	57.4	.113	.13
May	66	2	13.5	.027	.03
June	4,530	2	220	.433	.48
July	208	8	30.1	.059	.07
August	1,110	9	124	.244	.28
September	812	10	96.2	.189	.21
The year	4,530	1	75.9	.149	2.02

NODAWAY RIVER BASIN

NODAWAY RIVER AT CLARINDA, IOWA

LOCATION.—In sec. 32, T. 69 N., R. 36 W., at Fred C. Brummet highway bridge, just east of Clarinda, Page County, and 7 miles above mouth of East Nodaway River.

DRAINAGE AREA.—740 square miles (measured on map issued by United States Geological Survey).

RECORDS AVAILABLE.—May 17, 1918, to July 4, 1925, when station was discontinued.

GAGE.—Chain gage attached to upstream handrail of middle span of bridge; read by W. S. Grimes.

DISCHARGE MEASUREMENTS.—Made from downstream side of bridge or by wading.

CHANNEL AND CONTROL.—Dredged channel with sand and clay bottom. Loam banks that are overflowed at 14-foot stage. No well-defined control.

EXTREMES OF DISCHARGE—Maximum stage recorded during period October 1 to July 4, 11.10 feet at 2.10 p. m. June 14 (approximate discharge, 5,390 second-feet); minimum stage, 1.66 feet May 30 (discharge, 15 second-feet).

1918–1925: Maximum stage recorded, 15.85 feet June 9, 1924 (discharge, about 10,200 second-feet); minimum stage, 1.30 feet August 25, 1919 (discharge practically zero).

ICE.—Stage-discharge relation affected by ice.

DIVERSIONS.—The water supply of the city of Clarinda is pumped from river a few hundred feet above gage.

ACCURACY.—Stage-discharge relation not permanent. Rating curve used October 1 to November 30 and curve used January 30 to July 4 fairly well defined between 50 and 5,000 second-feet. Gage read once daily to hundredths and twice daily during periods of rapidly changing stage. Daily discharge ascertained by applying daily gage height to rating table. Records fair.

The following discharge measurement was made:

April 8, 1925: Gage height, 2.10 feet; discharge, 54.9 second-feet.

Daily discharge, in second-feet, of Nodaway River at Clarinda, Iowa, for the year ending September 30, 1925

Day	Oct.	Nov.	Feb.	Mar.	Apr.	May	June	July
1	125	32	248	165	30	45	18	55
2	121	28	222	154	35	45	89	50
3	132	26	210	154	55	39	248	50
4	132	24	204	154	53	35	67	45
5	121	24	198	134	45	31	50	----
6	117	24	210	115	50	31	45	----
7	132	21	187	115	45	28	45	----
8	143	24	210	115	67	28	41	----
9	121	19	198	106	50	41	37	----
10	121	21	198	115	45	41	35	----
11	101	21	176	124	43	37	31	----
12	101	24	165	134	43	37	45	----
13	97	39	154	198	41	33	55	----
14	111	51	165	176	43	31	1,760	----
15	101	32	154	154	39	28	388	----
16	101	32	144	124	35	26	248	----
17	97	30	165	115	33	26	176	----
18	91	26	176	97	30	28	115	----
19	91	24	187	81	31	26	106	----
20	85	19	580	81	30	26	97	----
21	85	19	682	67	30	24	78	----
22	81	21	358	55	30	24	274	----
23	81	28	288	45	28	23	482	----
24	91	30	274	45	26	23	248	----
25	85	26	222	40	26	20	210	----
26	73	24	187	43	30	18	106	----
27	65	24	176	35	31	18	67	----
28	54	21	165	35	33	17	65	----
29	51	19	----	33	222	17	62	----
30	45	24	----	28	55	15	62	----
31	35	----	----	26	----	17	----	----

NOTE.—No gage-height record Feb. 4, discharge interpolated.

Monthly discharge of Nodaway River at Clarinda, Iowa, for the year ending September 30, 1925

[Drainage area, 740 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	143	35	96.4	0.130	0.15
November	51	19	25.9	.035	.04
February	682	144	232	.314	.33
March	198	26	98.8	.134	.15
April	222	26	45.1	.061	.07
May	45	15	28.3	.038	.04
June	1,760	18	178	.241	.27

NODAWAY RIVER NEAR BURLINGTON JUNCTION, MO.

LOCATION.—In NE. ¼ sec. 17, T. 65 N., R. 37 W., at highway bridge one-fourth mile below Wabash Railway bridge, 1½ miles west of Burlington Junction, Nodaway County, and 3 miles above Mill Creek.

DRAINAGE AREA.—1,240 square miles (measured on base maps of Missouri and Iowa).

RECORDS AVAILABLE.—March 4, 1922, to September 30, 1925.

GAGE.—Chain gage on upstream side of bridge; read by C. O. Rundle.

DISCHARGE MEASUREMENTS.—Made from downstream side of bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of sand and silt; clean except for some lodged drift; shifting. Channel is an artificial ditch section. No well-defined control.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 9.50 feet at 6.15 p. m. June 14 (discharge, 5,000 second-feet); minimum discharge, 6 second-feet June 1 and July 26.

1922–1925: Maximum stage recorded, 13.42 feet June 26, 1924 (discharge, 10,200 second-feet); minimum discharge that of 1925.

ACCURACY.—Stage-discharge relation not permanent; seriously affected by ice during winter. Rating curve fairly well defined above 37 second-feet. Gage read to hundredths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table except as described in footnote to table of daily discharge. Open-water records fair for discharge above 37 second-feet and poor below; winter records poor.

Discharge measurements of Nodaway River near Burlington Junction, Mo., during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 13	2.94	76	Jan. 13	[a] 3.26	19	June 17	4.85	619
Dec. 16	[a] 3.08	58	Mar. 28	3.16	110	June 18	3.87	272
Dec. 17	[a] 3.13	26	May 3	2.85	43	Sept. 27	3.27	118

[a] Stage-discharge relation affected by ice.

Daily discharge, in second-feet, of Nodaway River near Burlington Junction, Mo., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	141	62	45	7	165	217	64	60	6	34	10	25
2	125	58	68	7	217	231	67	53	22	29	9	23
3	113	53	93	11	260	178	64	38	810	27	8	19
4	89	49	154	11	354	136	59	37	245	34	12	17
5	88	47	178	11	1,410	154	59	35	79	32	53	17
6	86	47	165	17	2,270	165	64	32	35	20	165	15
7	85	46	204	17	1,900	165	87	46	20	74	274	12
8	83	41	165	17	1,410	154	102	45	16	100	110	36
9	82	45	143	17	1,210	143	204	36	14	72	54	29
10	75	47	108	17	1,030	125	121	37	13	95	44	17
11	75	49	104	17	970	87	102	34	11	130	910	22
12	75	50	104	17	422	154	125	33	15	74	1,560	22
13	72	50	115	19	387	260	136	36	15	28	515	19
14	72	50	108	17	337	305	82	34	1,210	84	231	21
15	64	52	102	17	204	260	62	41	1,480	62	190	15
16	35	54	65	26	370	204	42	154	760	35	165	10
17	35	56	26	26	387	204	37	62	475	22	2,170	11
18	59	56	26	26	245	217	33	41	260	21	305	125
19	62	58	17	26	190	204	30	36	274	19	143	165
20	60	59	17	26	165	190	30	33	165	21	1,210	595
21	58	54	17	26	154	143	1,340	28	93	20	439	290
22	60	47	11	26	337	134	165	23	121	16	143	337
23	59	45	11	26	2,370	130	115	20	231	13	134	305
24	56	47	11	37	810	123	82	21	675	12	117	98
25	49	46	11	50	404	125	125	15	555	9	70	64
26	46	36	7	50	154	117	154	12	143	6	53	68
27	49	37	7	65	121	108	104	11	108	10	44	100
28	50	28	7	65	231	108	79	10	125	9	37	65
29	56	14	7	100	-------	95	65	14	125	13	36	40
30	59	8	7	121	-------	89	64	10	58	23	33	36
31	60	-------	7	121	-------	80	-------	8	-------	12	29	-------

NOTE.—Gage readings probably in error Oct. 5–8; daily discharge interpolated. Stage-discharge relation affected by ice Dec. 16 to Feb. 2; daily discharge ascertained by applying to rating table mean daily gage heights corrected for ice effect by means of three discharge measurements, observer's notes, and weather records.

Monthly discharge of Nodaway River near Burlington Junction, Mo., for the year ending September 30, 1925

[Drainage area, 1,240 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	141	35	70.3	0.057	0.07
November	62	8	46.4	.037	.04
December	204	7	68.1	.055	.06
January	121	7	33.4	.027	.03
February	2,370	121	660	.532	.55
March	305	80	161	.130	.15
April	1,340	30	129	.104	.12
May	154	8	35.3	.028	.03
June	1,480	6	272	.219	.24
July	130	6	37.3	.030	.03
August	2,170	8	299	.241	.28
September	595	10	87.3	.070	.08
The year	2,370	6	154	.124	1.68

WEST NODAWAY RIVER AT VILLISCA, IOWA

LOCATION.—In sec. 28, T. 71 N., R. 36 W., at Chicago, Burlington & Quincy Railroad bridge (Clarinda branch) half a mile west of Villisca, Montgomery County, and 1 mile above junction with Middle Nodaway River.

DRAINAGE AREA.—360 square miles (measured on map issued by United States Geological Survey).

RECORDS AVAILABLE.—May 20, 1918, to July 4, 1925, when station was discontinued.

GAGE.—Chain gage attached to upstream guardrail of bridge; read by Bruce Moody.

DISCHARGE MEASUREMENTS.—Made from downstream side of bridge or by wading.

CHANNEL AND CONTROL.—Stream bed composed of sand and mud; no well-defined control. Banks were overflowed frequently prior to dredging of new channel.

EXTREMES OF DISCHARGE.—1918–1925: Maximum stage recorded, 18.4 feet April 23, 1919 (discharge, 3,780 second-feet); minimum discharge, estimated 1 second-foot several times in September and October, 1918, on July 9, 1921, and on June 12, 1925.

ICE.—Stage-discharge relation affected by ice.

ACCURACY.—Stage-discharge relation not permanent. Rating curve fairly well defined except below 10 second-feet. Gage read to hundredths once daily. Daily discharge ascertained by applying daily gage height to rating table, except as explained in footnote to table of daily discharge. Records fair.

The following discharge measurement was made:

April 8, 1925: Gage height, 2.02 feet; discharge, 18.8 second-feet.

Daily discharge, in second-feet, of West Nodaway River at Villisca, Iowa, for the year ending September 30, 1925

Day	Oct.	Nov.	Apr.	May	June	July	Day	Oct.	Nov.	Apr.	May	June	July
1	30	7	2	6	6	11	16	12	14	13	9	620	------
2	30	7	6	4	5	13	17	20	23	3	14	148	------
3	25	7	8	5	263	10	18	21	36	11	20	15	------
4	18	3	11	6	68	14	19	18	5	7	19	15	------
5	20	24	15	6	30	------	20	14	9	3	7	15	------
6	21	9	19	30	7	------	21	13	9	11	5	11	------
7	23	4	7	10	4	------	22	16	24	10	6	7	------
8	24	6	14	9	2	------	23	13	24	8	4	85	------
9	30	8	20	8	5	------	24	4	24	7	6	85	------
10	24	10	19	8	4	------	25	8	30	6	7	51	------
11	23	23	20	7	3	------	26	6	11	10	6	9	------
12	18	9	18	8	1	------	27	4	10	15	5	11	------
13	13	20	17	7	4	------	28	30	30	44	5	11	------
14	8	21	17	5	4	------	29	14	24	17	6	11	------
15	20	5	11	8	148	------	30	4	------	4	7	10	------
							31	8	------	------	7	------	------

NOTE.—Gage not read on Sundays, discharge interpolated or estimated.

Monthly discharge of West Nodaway River at Villisca, Iowa, for the year ending September 30, 1925

[Drainage area, 360 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	30	4	17.2	0.048	0.06
November 1–29	36	3	15.0	.042	.05
April	44	2	12.4	.034	.04
May	30	4	8.2	.023	.03
June	620	1	55.3	.153	.17

PLATTE RIVER BASIN (IOWA–MISSOURI)

PLATTE RIVER AT CONCEPTION JUNCTION, MO.

LOCATION.—In NE. ¼ sec. 11, T. 63 N., R. 34 W., at highway bridge 1 mile above Wabash Railway bridge, 1 mile north of Conception Junction, Nodaway County, 6 miles below Honey Creek, and 14 miles above Long Creek.

DRAINAGE AREA.—492 square miles (measured on base maps of Missouri and Iowa).

RECORDS AVAILABLE.—July 11, 1921, to December 25, 1923, and May 20, 1924, to May 11, 1925, when station was discontinued.

GAGE.—Chain gage on downstream side of bridge; read by Glen Bright.

DISCHARGE MEASUREMENTS.—Made from downstream side of bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of silt, sand, and small gravel; clean and probably shifting. New dredged channel subject to rapid erosion; no definite control.

EXTREMES OF DISCHARGE.—1921–1925: Maximum stage recorded, 20.62 feet (old datum) July 10, 1922 (discharge, 8,730 second-feet); minimum discharge, 0.48 second-foot January 30, 1922 (measured with current meter).

ACCURACY.—Stage-discharge relation not permanent owing to rapid erosion of channel. Gage read to hundredths once daily. Data insufficient for determination of daily discharge.

Discharge measurements of Platte River at Conception Junction, Mo., during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 13	1.76	5.4	Mar. 28	1.55	27.6
Dec. 18	1.88	9.4	May 3	1.18	10.8
Jan. 13	[a]1.48	2.5			

[a] Stage-discharge relation affected by ice.

Daily gage height, in feet, of Platte River at Conception Junction, Mo., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May
1	2.12	1.71	-------	1.44	2.92	1.90	1.38	-------
2	2.10	1.69	1.74	1.40	-------	-------	-------	2.21
3	-------	1.70	-------	1.38	2.90	1.85	1.38	-------
4	2.20	1.70	1.70	-------	-------	-------	1.39	1.16
5	-------	1.69	-------	1.42	2.88	1.80	-------	1.14
6	1.84	1.69	1.68	-------	2.94	1.72	1.38	1.14
7	1.90	-------	-------	1.46	2.90	1.73	1.39	1.13
8	1.84	1.72	2.10	1.48	2.88	1.74	1.38	1.14
9	-------	-------	-------	-------	-------	-------	1.39	-------
10	1.83	1.78	3.01	1.42	2.70	1.75	-------	-------
11	1.83	1.71	-------	1.38	2.80	1.63	1.38	1.08
12	1.88	1.70	3.05	-------	-------	-------	1.40	-------
13	1.86	-------	-------	1.48	2.86	2.56	-------	-------
14	1.85	1.80	-------	-------	2.88	2.70	-------	-------
15	1.84	1.76	1.95	1.38	2.60	2.60	1.45	-------
16	1.84	1.71	1.90	-------	-------	-------	-------	-------
17	-------	-------	-------	1.38	2.70	2.40	1.39	-------
18	-------	1.73	1.87	1.46	-------	2.10	1.38	-------
19	-------	1.75	1.85	-------	2.50	-------	-------	-------
20	1.73	-------	1.80	1.54	-------	2.22	-------	-------
21	1.72	1.74	-------	-------	-------	1.92	-------	-------
22	1.74	1.70	1.53	1.60	2.98	1.44	-------	-------
23	1.70	1.70	1.52	-------	-------	1.70	-------	-------
24	1.70	-------	1.52	1.70	8.02	1.74	-------	-------
25	-------	-------	-------	-------	-------	1.62	-------	-------
26	-------	1.61	1.50	2.00	2.14	-------	-------	-------
27	1.76	1.60	1.50	-------	-------	1.55	-------	-------
28	1.74	-------	1.45	2.20	2.10	-------	-------	-------
29	1.73	1.80	-------	-------	-------	1.39	-------	-------
30	1.72	1.90	1.42	2.98	-------	1.36	-------	-------
31	1.71	-------	1.43	2.97	-------	1.40	-------	-------

NOTE.—Stage-discharge relation affected by ice Dec. 22 to Jan. 20 and Feb. 1-7.

PLATTE RIVER AT AGENCY, MO.

LOCATION.—In NE. ¼ sec. 29, T. 56 N., R. 34 W., at highway bridge in Agency, Buchanan County, 600 feet below Atchison, Topeka & Santa Fe Railway bridge, 8 miles below Third Fork, and 13 miles above Castile Creek.

DRAINAGE AREA.—1,790 square miles (measured on soil-survey maps and base maps of Missouri and Iowa.

RECORDS AVAILABLE.—May 22, 1924, to September 30, 1925.

GAGE.—Chain gage on downstream side of bridge; read by Carl Pike.

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

CHANNEL AND CONTROL.—Bed composed of solid rock; permanent. Control is a series of riffles 500 feet below gage; permanent.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 22.60 feet at 6 a. m. June 4 (discharge, 15,200 second-feet); minimum discharge, 33 second-feet January 15 (measured with current meter).

1924–1925: Maximum and minimum discharge, that of 1925.

Flood of July, 1925, reached a stage of 31.4 feet, determined by levels to chiseled high-water mark on bridge.

ACCURACY.—Stage-discharge relation permanent except as affected by ice. Rating curve fairly well defined. Gage read to hundredths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table. Records good except for period of ice effect, for which they are poor.

Discharge measurements of Platte River at Agency, Mo., during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 11	2.04	76	Jan. 15	[a]2.18	33	June 6	5.46	1,690
Dec. 20	[a]2.30	66	Mar. 30	2.31	136	Sept. 28	4.47	1,180

[a] Stage-discharge relation affected by ice.

Daily discharge, in second-feet, of Platte River at Agency, Mo., for the year endin September 30, 1925

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	105	81	50	34	109	301	140	205	81	301	81	88
2	98	56	53	34	109	320	173	184	248	248	67	81
3	103	53	54	34	109	301	231	176	6,980	205	60	77
4	88	54	968	34	132	282	193	152	14,000	339	55	74
5	96	53	1,620	34	132	265	157	137	7,400	512	55	66
6	88	51	1,020	34	157	265	132	127	1,890	320	49	64
7	94	77	536	34	184	265	123	125	806	170	84	101
8	86	60	339	34	214	248	248	132	422	134	103	66
9	94	53	265	24	358	231	422	124	444	116	173	60
10	88	51	214	34	698	231	301	109	258	111	154	144
11	77	53	184	34	644	205	248	92	157	94	196	698
12	68	51	168	34	466	187	211	120	644	103	400	2,320
13	64	53	184	34	358	444	196	358	165	84	752	2,260
14	61	54	181	34	301	1,290	202	339	400	84	617	1,400
15	58	50	184	34	248	1,080	184	466	265	74	563	466
16	58	55	176	34	248	617	173	3,290	3,720	66	320	282
17	58	55	157	43	211	512	157	1,940	4,100	67	488	205
18	51	53	109	43	165	466	140	698	2,750	66	2,320	168
19	50	55	70	43	134	466	444	379	1,350	66	3,830	134
20	53	55	70	55	130	444	320	282	617	61	4,640	103
21	53	56	55	55	154	422	444	190	400	61	1,990	1,620
22	50	53	55	70	160	358	1,020	157	339	55	3,780	2,210
23	54	53	43	70	466	282	1,720	140	1,720	55	1,720	1,560
24	55	54	43	88	3,400	248	4,150	114	1,720	55	444	2,160
25	53	50	34	132	4,690	199	2,860	103	860	58	282	1,180
26	53	50	34	184	3,180	193	752	84	671	58	208	2,800
27	53	55	34	184	1,080	193	400	77	806	58	563	590
28	50	51	34	157	358	165	320	92	488	66	137	1,080
29	51	53	34	132	-------	160	242	94	806	67	123	914
30	50	54	34	132	-------	140	231	90	444	81	107	590
31	70	-------	34	109	-------	134	-------	84	-------	79	96	-------

NOTE.—Stage-discharge relation affected by ice Dec. 17 to Feb. 8; daily discharge ascertained by applying to rating table mean daily gage height corrected for ice effect by means of two discharge measurements, observer's notes, and weather records.

Monthly discharge of Platte River at Agency, Mo., for the year ending September 30 1925

[Drainage area, 1,790 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	105	50	68.7	0.038	0.04
November	81	50	55.1	.031	.03
December	1,620	34	227	.127	.15
January	184	34	65.8	.037	.04
February	4,690	109	664	.371	.39
March	1,290	134	352	.197	.23
April	4,150	123	552	.308	.34
May	3,290	77	344	.192	.22
June	14,000	81	1,840	1.03	1.15
July	512	55	126	.070	.08
August	4,640	49	789	.441	.51
September	2,800	60	785	.439	.49
The year	14,000	34	484	.270	3.67

KANSAS RIVER BASIN

REPUBLICAN RIVER AT SCANDIA, KANS.

LOCATION.—In NE. ¼ sec. 17, T. 3 S., R. 4 W., at highway bridge at Scandia, Republic County, 4 miles below Dry Creek.

DRAINAGE AREA.—23,000 square miles.

RECORDS AVAILABLE.—August 27, 1919, to July 2, 1925, when station was discontinued.

GAGE.—Vertical staff in three sections: 0.0 foot to 3.34 feet on cut-off pile on left bank 5 feet to right of first pier; 2.0 to 13.7 feet, painted on left face of downstream pier at right end of first left truss span; 11.65 to 16.0 feet, fastened to southwest corner of Missouri Pacific Railway station, 250 feet from left end of bridge; read by Charles Nordman.

DISCHARGE MEASUREMENTS.—Made from downstream side of bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of clean sand; shifting. Low sand bars covered with small vegetation. No well-defined control. The Chicago, Rock Island & Pacific Railway bridge and approach fill half a mile downstream is control at high stages. Bank-full stage, 9 feet.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 6.2 feet at 7 a. m. June 24 (discharge, 5,220 second-feet); minimum discharge, estimated 130 second-feet December 16–20 (stage-discharge relation affected by ice).

1919–1925: Maximum stage recorded, 11.4 feet at 6.30 a. m. June 12, 1923 (discharge, 16,700 second-feet); minimum discharge occurred on October 9, 15, and 16, 1922 (discharge, 2 second-feet).

High-water mark of June 20, 1915, painted on Missouri Pacific Railway station corresponds to a stage of 14.2 feet.

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

REGULATION.—Flow affected by operation of power plant at Superior, Nebr.

DIVERSIONS.—Some water is diverted for irrigation in western Nebraska.

ACCURACY.—Stage-discharge relation not permanent. Rating curve fairly well defined. Gage read to hundredths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table, using shifting-control method March 12–16 and May 19–25. Records fair.

Discharge measurements of Republican River at Scandia, Kans., during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 17	2.24	209	Dec. 18	[a]2.70	82.9	Mar. 14	3.00	738
Nov. 21	2.64	434	Feb. 2	[a]4.18	348	May 22	2.90	647

[a] Stage-discharge relation affected by ice.

Daily discharge, in second-feet, of Republican River at Scandia, Kans., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
1	194	305	505			860	705	635	385	445
2	208	305	485			780	950	635	358	385
3	186	305	415		360	780	1,310	505	358	----
4	178	330	415			742	950	445	330	----
5	204	358	415			742	670	445	330	----
6	186	330	385			742	742	415	305	----
7	182	305	358			742	705	415	305	----
8	170	258	358	190	520	742	705	445	248	----
9	190	245	358			742	705	445	445	----
10	190	230	330			780	635	538	602	----

Daily discharge, in second-feet, of Republican River at Scandia, Kans., for the year ending September 30, 1925—Continued

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
11	178	262	305	200	950	780	635	475	475	
12	186	276			1,370	780	670	505	820	
13	194	305			2,850	860	705	538	505	
14	182	330			2,210	860	705	705	258	
15	194	385			1,910	780	705	1,140	1,910	
16	212	445	130		2,210	742	670	780	2,850	
17	204	415			1,770	670	635	670	2,530	
18	208	385			1,560	705	602	602	995	
19	212	415			1,560	780	670	538	3,500	
20	199	358			1,310	780	635	570	1,560	
21	208	385	150		1,090	860	670	570	538	
22	240	385			995	860	635	570	445	
23	207	415			1,090	860	602	570	950	
24	204	385			1,090	820	635	538	4,860	
25	230	415			995	742	670	505	2,930	
26	226	445			995	705	635	445	2,210	
27	222	445			995	670	635	445	1,630	
28	207	475			905	602	635	445	1,250	
29	226	538			------	570	635	445	905	
30	244	505			------	570	602	415	538	
31	280	------			------	570	------	415	------	------

NOTE—Stage-discharge relation affected by ice Dec. 11 to Feb. 12; discharge estimated from observer's notes, climatologic data, and comparison with station below. Braced figures show mean discharge for periods indicated.

Monthly discharge of Republican River at Scandia, Kans., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	280	170	205	12,600
November	538	230	365	21,700
December	505	------	253	15,600
January	------	------	195	12,000
February	2,850	------	973	54,000
March	860	570	749	46,100
April	1,310	602	702	41,800
May	1,140	415	542	33,000
June	4,860	248	1,180	70,200
The period	------	------	------	307,000

REPUBLICAN RIVER AT WAKEFIELD, KANS.

LOCATION.—In NE. ¼ sec. 5, T. 10 S., R. 4 E., at highway bridge one-fourth mile north of Union Pacific Railroad station at Wakefield, Clay County, 25 miles above confluence with Smoky Hill River, and 65 miles below Salt Creek, first large tributary above.

DRAINAGE AREA.—24,700 square miles.

RECORDS AVAILABLE.—June 21, 1917, to September 30, 1925.

GAGE.—Chain gage on upstream side of highway bridge at center of middle span; read by S. R. Winsor. An auxiliary high-water vertical staff, from 13.6 to 20.3 feet is spiked to large cottonwood tree on right bank, 25 feet below bridge.

DISCHARGE MEASUREMENTS.—Made from downstream side of bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of clean sand; shifting. No well-defined control. Bank-full stage 11 feet.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 7.02 feet at 7.10 a. m. February 13 (discharge, 4,940 second-feet); minimum discharge estimated 78 second-feet December 18–20 (stage-discharge relation affected by ice).

1917–1925: Maximum stage recorded, 12.86 feet at 7.50 p. m. June 4, 1923 (discharge, 20,100 second-feet); minimum discharge, 16 second-feet October 21, 1922.

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

REGULATION.—Flow is affected by operation of water-power plant at Clay Center.

ACCURACY.—Stage-discharge relation not permanent. Rating curves fairly well defined. Gage read to hundredths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table, using shifting-control method October 14–16. Records fair.

Discharge measurements of Republican River at Wakefield, Kans., during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 13	2.63	144	Jan. 30	[a] 3.75	244	Aug. 11	3.74	688
Nov. 17	3.12	415	Mar. 9	3.94	853	Sept. 29	2.86	252
Dec. 15	2.98	304	May 25	3.46	557			

[a] Stage-discharge relation affected by ice.

Daily discharge, in second-feet, of Republican River at Wakefield, Kans., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	169	270	460			970	715	528	445	970	390	1,060
2	144	332	380			890	680	528	418	750	555	1,260
3	152	290	405		258	855	715	528	1,480	615	365	970
4	128	270	460			1,160	715	500	1,110	500	209	680
5	134	290	460			970	930	500	555	445	555	528
6	217	332	488			890	1,260	500	418	390	890	471
7	194	332	405			890	970	528	390	390	820	390
8	198	310	460	225	470	855	855	528	418	293	1,160	390
9	187	332	217			855	855	555	340	316	1,850	445
10	202	332	150			820	930	528	293	316	1,110	680
11	134	332	130		1,260	785	930	528	293	316	648	418
12	155	355	155		1,980	750	970	500	472	293	648	316
13	225	355	260		4,900	855	970	528	472	390	750	316
14	138	380	277		2,240	820	855	528	365	528	555	248
15	158	355	260		1,980	820	785	555	528	365	680	225
16	191	380	340		1,850	785	785	528	3,920	236	648	225
17	234	380	108		1,600	750	750	890	2,500	252	970	166
18	270	380	78		1,720	750	715	750	3,020	236	615	144
19	234	355	78		1,480	750	715	615	2,760	191	418	102
20	234	355	78		1,480	715	648	585	1,480	277	365	96
21	200	380			1,480	750	680	555	2,630	244	365	202
22	252	355			1,370	715	648	555	1,720	198	528	128
23	270	380			1,370	680	648	500	1,480	169	785	102
24	217	380		235	1,260	785	585	500	1,480	169	750	172
25	252	405			1,260	855	585	528	1,370	252	615	155
26	200	380	135		1,160	855	555	528	3,760	198	1,720	202
27	200	355			1,110	785	680	528	2,760	340	1,160	281
28	217	405			1,110	750	615	472	1,980	418	930	272
29	270	380			-------	715	585	472	1,720	277	750	264
30	252	380			-------	750	555	445	1,370	648	750	217
31	252	-------			-------	680	-------	418	-------	785	2,370	-------

NOTE.—Stage-discharge relation affected by ice Dec. 10–11 and Dec. 18 to Feb. 10, discharge estimated from observer's notes and climatologic data. Braced figures show mean discharge for periods indicated.

Monthly discharge of Republican River at Wakefield, Kans., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	270	128	203	12,500
November	405	270	351	20,900
December	488	78	230	14,100
January			230	14,100
February	4,900		1,220	67,800
March	1,160	680	815	50,100
April	1,260	555	763	45,400
May	890	418	540	33,200
June	3,920	293	1,400	83,300
July	970	169	380	23,400
August	2,370	209	804	49,400
September	1,260	96	371	22,100
The year	4,900	78	603	436,000

KANSAS RIVER AT OGDEN, KANS.

LOCATION.—In SE. ¼ sec. 12, T. 11 S., R. 6 E., at highway bridge three-fourths mile south of Odgen, Riley County, one-fourth mile below Sevenmile Creek, 2 miles below Clark Creek, and 10 miles below point where Smoky Hill and Republican Rivers unite to form Kansas River.

DRAINAGE AREA.—45,200 square miles.

RECORDS AVAILABLE.—June 19, 1917, to September 30, 1925.

GAGE.—Chain gage on upstream side of highway bridge; read by Arthur Estes. A vertical staff from 21.0 to 29.8 feet is spiked to aspen tree on upstream side of road, 200 feet from right end of bridge.

DISCHARGE MEASUREMENTS.—Made from downstream side of bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of clean sand; shifting. No well-defined control. Bank-full stage, 18 feet.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 9.42 feet at 6.15 p. m. June 28 (discharge, 5,990 second-feet); minimum discharge probably occurred during winter.

1917–1925: Maximum stage recorded, 18.2 feet at 6.30 a. m. June 10, 1923 (discharge, 32,600 second-feet); minimum discharge, 103 second-feet October 30, 1922.

ICE.—Stage-discharge relation affected by ice.

REGULATION.—Flow affected by operation of power plants on tributary streams.

ACCURACY.—Stage-discharge relation not permanent. Rating curves fairly well defined. Gage read to hundredths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table, using shifting-control method September 1–30. Records good.

Discharge measurements of Kansas River at Ogden, Kans., during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Nov. 3	4.63	408	Mar. 7	6.02	1,330	Sept. 29	5.16	558
Dec. 13	4.71	402	May 25	5.44	833			
Jan. 30	*5.49	307	Aug. 10	6.94	2,060			

*Stage-discharge relation affected by ice.

Daily discharge, in second-feet, of Kansas River at Ogden, Kans., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	330	495	445			1,510	920	1,000	770	2,730	1,330	2,730
2	314	425	495			1,410	1,140	1,050	920	1,940	768	1,230
3	405	385	495		315	1,230	1,140	1,050	2,500	1,530	845	2,160
4	314	348	575			1,410	1,050	960	3,470	1,140	628	2,860
5	298	348	635			1,510	1,050	960	2,380	965	1,430	3,540
6	314	365	575		348	1,410	1,710	880	1,230	845	2,050	3,120
7	365	405	575		365	1,320	2,040	880	1,140	730	2,050	2,050
8	348	405	575		425	1,320	3,470	1,000	920	695	1,730	1,430
9	405	385	545		495	1,230	3,600	920	805	595	1,940	1,230
10	425	405	425		605	1,230	2,620	805	700	805	2,160	1,040
11	385	445	330		700	1,230	2,260	842	605	965	1,630	1,530
12	298	470	405		925	1,230	2,040	842	635	925	1,140	1,790
13	283	405	425		2,040	1,230	2,260	920	770	965	1,140	1,630
14	330	425	470		3,100	1,320	2,040	880	805	965	1,530	1,430
15	405	495	445		2,620	1,140	1,820	805	735	965	1,530	1,530
16	298	425	470	320	2,380	1,230	1,610	920	1,820	925	1,830	1,680
17	314	445	405		2,150	1,140	1,610	842	3,740	730	1,730	1,330
18	330	520	350		2,150	1,320	1,410	1,320	3,600	595	1,940	965
19	330	445	390		2,040	1,230	1,320	1,410	3,470	480	1,230	768
20	314	445	405		1,930	960	1,320	1,410	3,340	535	1,140	695
21	298	445			1,820	1,050	1,140	1,230	3,220	535	1,230	695
22	298	520			1,820	1,050	1,140	1,050	3,600	535	1,330	660
23	405	470	350		1,820	1,050	1,140	920	2,620	430	2,730	695
24	298	425			1,820	920	1,050	805	2,380	408	3,400	595
25	330	495			1,820	1,140	1,050	842	2,260	480	2,860	625
26	314	495			1,610	1,140	1,050	880	3,470	885	2,270	595
27	385	445			1,710	1,230	1,230	842	4,690	1,230	2,990	565
28	348	470			1,510	1,140	1,320	805	5,610	1,040	2,380	628
29	298	545	330			1,050	1,050	842	5,070	805	2,050	595
30	405	495				1,140	1,050	735	3,960	660	1,730	565
31	425					1,000		700		1,040	1,940	

NOTE.—Stage-discharge relation affected by ice Dec. 17 to Feb. 10; discharge estimated from engineer's and observer's notes and climatologic data. Braced figures show estimated mean discharge for period indicated.

Monthly discharge of Kansas River at Ogden, Kans., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	425	283	342	21,000
November	545	348	443	26,400
December	635		425	26,100
January			320	19,700
February	3,100		1,350	75,000
March	1,510	960	1,210	74,400
April	3,600	920	1,590	94,600
May	1,410	700	947	58,200
June	5,610	605	2,370	141,000
July	2,730	408	906	55,700
August	3,400	628	1,760	108,000
September	3,540	565	1,360	80,900
The year	5,610		1,080	781,000

KANSAS RIVER AT WAMEGO, KANS.

LOCATION.—In SE. ¼ sec. 9, T. 10 S., R. 10 E., at highway bridge on Main Street in Wamego, Pottawatomie County, 3 miles below Antelope Creek and 7 miles above Vermilion River.

DRAINAGE AREA.—54,900 square miles.

RECORDS AVAILABLE.—January 1, 1919, to September 30, 1925. The United States Weather Bureau has intermittent records of stage since June 15, 1914.

GAGE.—Chain gage on downstream side of bridge; read by B. A. Larson.

DISCHARGE MEASUREMENTS.—Made from downstream side of bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of clean sand; shifting. No well-defined control. Bank-full stage, 15 feet.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 10.3 feet at 7 a. m. June 20 (discharge, 24,400 second-feet); minimum discharge, estimated, 460 second-feet January 11–20 (stage-discharge relation affected by ice).

1919–1925: Maximum stage recorded, 15.8 feet at 7 a. m. June 10, 1923 (discharge, 46,600 second-feet); minimum discharge, 330 second-feet several days in October, 1922.

The United States Weather Bureau has published a maximum stage of 26.3 feet for the flood of 1903.

ICE.—Stage-discharge relation affected by ice.

REGULATION.—Flow is affected by operation of power plants on tributary streams.

ACCURACY.—Stage-discharge relation not permanent. Two fairly well-defined rating curves used during year. Gage read to tenths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table. Records good.

Discharge measurements of Kansas River at Wamego, Kans., during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Nov. 3	1.70	714	Mar. 7	2.96	2,190	Aug. 10	4.42	4,600
Dec. 13	1.94	899	May 26	2.26	1,200	Sept. 29	2.30	925

Daily discharge, in second-feet, of Kansas River at Wamego, Kans., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,400	745	1,000			2,450	1,880	1,530	1,400	3,990	2,400	3,780
2	1,280	905	905			2,450	1,950	1,600	1,400	2,400	2,050	4,410
3	1,100	905	950		680	2,280	1,950	1,600	2,450	2,780	1,430	3,780
4	1,050	820	1,050			2,280	1,950	1,660	20,400	2,310	1,260	3,360
5	950	820	1,160			1,950	1,880	1,660	14,800	2,050	1,500	3,360
6	1,050	820	1,160	500		2,110	1,600	1,530	6,500	1,890	1,890	3,360
7	1,160	860	1,280			1,950	1,600	1,530	2,110	1,730	2,970	3,990
8	1,000	820	1,100		1,160	1,730	2,280	1,530	1,950	1,890	5,070	2,780
9	1,050	820	1,050			1,730	5,340	1,530	1,730	1,890	4,840	2,220
10	1,100	780	1,000			1,800	4,900	1,530	1,530	1,890	4,840	1,890
11	1,160	745	905			1,430	1,800	3,400	1,460	1,530	2,400	4,110
12	1,100	860	820			1,400	1,800	3,400	1,400	1,660	2,140	3,360
13	950	860	820			1,400	2,110	2,630	1,400	1,600	1,890	5,300
14	950	820	820			1,400	2,450	2,630	1,340	1,660	1,890	8,100
15	950	780	820			1,530	2,110	2,450	1,340	1,660	1,810	5,530
16	950	905	780	460		2,280	1,660	2,280	1,340	3,400	1,580	2,970
17	950	1,000	745			4,240	1,660	2,280	1,600	17,200	1,500	5,530
18	860	860	640			3,400	1,660	2,280	1,660	21,900	1,430	6,260
19	745	860	600			3,010	1,660	2,280	2,110	23,300	1,500	11,700
20	710	780	600			3,010	1,530	2,280	3,010	21,800	1,430	6,260
21	710	780				2,630	1,530	2,280	1,880	11,700	1,430	5,070
22	745	780				3,010	1,730	2,280	1,880	7,780	1,260	9,060
23	675	860	640			3,010	1,730	1,950	1,660	7,780	1,190	7,780
24	675	780				2,820	1,730	1,730	1,730	6,840	1,220	6,840
25	640	745				2,450	1,600	1,730	1,730	7,140	1,220	4,200
26	675	710		520		2,280	1,730	1,600	1,530	5,070	1,190	3,360
27	675	710				2,280	1,880	1,600	1,460	7,780	1,220	2,590
28	675	675				2,280	1,880	1,730	1,400	6,840	1,190	2,970
29	745	745	580			------	1,880	1,600	1,400	7,140	1,580	2,780
30	710	905				------	1,950	1,600	1,400	6,540	1,580	2,590
31	675	------				------	1,880	------	1,400	------	1,500	2,590

NOTE.—Stage-discharge relation affected by ice Dec. 18 to Feb. 14; discharge estimated from flow at Topeka, observer's notes, and climatologic data. Braced figures show mean discharge for periods indicated.

Monthly discharge of Kansas River at Wamego, Kans., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	1,400	640	905	55,600
November	1,000	675	815	48,500
December	1,280	----------	803	49,400
January	----------	----------	494	30,400
February	4,240	----------	1,900	106,000
March	2,450	1,530	1,900	117,000
April	5,340	1,600	2,310	137,000
May	3,010	1,340	1,610	99,000
June	23,300	1,400	7,490	446,000
July	3,990	1,190	1,770	109,000
August	11,700	1,260	4,430	272,000
September	4,410	1,040	2,120	126,000
The year	23,300	----------	2,200	1,600,000

KANSAS RIVER AT TOPEKA, KANS.

LOCATION.—In Topeka, Shawnee County, midway between Topeka Avenue and Harrison Street, 300 feet below Chicago, Rock Island & Pacific Railway bridge, 1,460 feet above Melan arch highway bridge on Kansas Avenue, and 1½ miles above Soldier Creek.

DRAINAGE AREA.—56,400 square miles.

RECORDS AVAILABLE.—April 24 to August 31, 1904, and June 12, 1917, to September 30, 1925.

GAGE.—Gurley long-distance water-stage recorder on right bank referred to inside staff and outside slope gages, and chain gage on Melan highway bridge; read by Gordon Parkinson.

DISCHARGE MEASUREMENTS.—Made from downstream side of Sardou Avenue highway bridge 1 mile below gage, from brickyard highway bridge 3 miles above gage, or by wading.

CHANNEL AND CONTROL.—Bed composed of sand and silt; shifting. No well-defined control. The Melan arch bridge concrete piers affect stage-discharge relation. Banks protected by levees within which the water is confined.

EXTREMES OF DISCHARGE.—Maximum stage during year from water-stage recorder, 13.6 feet at 8 p. m. June 4 and at 3 p. m. June 18 (discharge, 25,600 second-feet); minimum discharge estimated, 480 second-feet January 10–23 (stage-discharge relation affected by ice).

1917–1925: Maximum stage recorded, 21.5 feet at 7.45 a. m. June 10, 1923 (discharge, 73,700 second-feet); minimum discharge that of January, 1925. A stage of 26.85 feet referred to present datum occurred July 7, 1904. The United States Weather Bureau has published a maximum stage of 32.7 feet for the flood of May 30, 1903.

ICE.—Stage-discharge relation affected by ice.

REGULATION.—The effect of the operation of power plants on the tributaries is not appreciable.

ACCURACY.—Stage-discharge relation not permanent. Rating curves fairly well defined above 800 feet. Gage read once daily to tenths except as explained in footnotes to table of daily discharge. Daily discharge obtained by applying daily or mean daily gage height to rating tables. Records fair.

Discharge measurements of Kansas River at Topeka, Kans., during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 4	2.80	856	Feb. 6	3.50	1,110	June 19	13.36	24,800
Oct. 10	2.90	953	Mar. 5	3.72	1,960			
Jan. 9	[a] 2.95	490	June 1	3.30	1,270			

[a] Stage-discharge relation affected by ice.

Daily discharge, in second-feet, of Kansas River at Topeka, Kans., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,060	615	790	565	615	2,500	1,390	1,990	1,300	7,290	1,380	2,660
2	1,000	615	790	565	615	2,340	1,560	1,860	1,380	5,890	1,380	2,490
3	892	670	790	542	670	2,340	2,580	1,860	1,380	4,690	1,790	3,910
4	967	790	860	542	790	2,040	1,960	1,800	16,800	3,370	1,380	2,330
5	916	725	940	520	940	1,820	1,890	1,990	18,500	3,010	1,380	3,010
6	1,000	670	940	520	1,110	2,340	1,750	1,860	10,800	2,490	1,170	3,190
7	725	670	1,030	520	1,250	2,190	1,750	1,740	7,490	2,330	1,790	4,490
8	790	670	1,030	500	1,380	2,040	3,500	1,740	4,960	2,330	2,490	3,550
9	790	725	1,030	490	1,380	1,890	6,890	1,860	4,060	1,910	6,290	2,490
10	860	725	2,340	480	1,620	1,890	6,890	1,860	3,790	1,680	7,890	2,040
11	790	670	2,340	480	1,250	1,750	6,100	1,740	3,520	1,570	4,890	2,330
12	860	670	1,380	480	1,380	1,680	4,960	1,620	1,680	2,490	4,290	2,490
13	860	790	725	480	1,620	1,750	4,240	1,570	1,790	2,490	3,730	3,730
14	860	725	615	480	1,890	1,890	3,440	1,470	2,180	1,910	6,890	2,490
15	860	738	725	480	4,550	1,890	3,880	1,300	1,680	1,910	8,490	2,330
16	725	758	725	480	4,920	1,890	3,610	1,680	3,100	1,680	4,100	2,040
17	725	825	670	480	4,370	1,890	3,360	1,470	15,800	1,570	3,370	1,790
18	790	846	615	480	4,010	1,820	3,190	1,680	24,000	1,680	3,910	1,790
19	790	804	590	480	3,670	1,750	3,110	1,790	22,600	1,680	3,910	1,570
20	790	868	615	480	3,670	1,680	3,030	2,660	21,300	1,470	11,100	1,380
21	790	860	615	480	3,330	1,750	2,870	2,180	17,000	1,380	6,290	1,230
22	725	818	642	480	2,800	1,620	2,710	2,040	11,500	1,230	4,890	1,470
23	790	868	670	480	2,820	1,510	2,710	1,790	9,100	1,230	3,010	1,110
24	725	818	642	520	2,660	1,480	3,190	1,680	9,100	1,230	5,090	1,060
25	725	804	642	565	2,660	1,440	2,710	1,470	7,290	1,170	4,890	1,110
26	670	790	615	642	2,660	1,460	2,560	1,570	8,090	1,110	4,890	1,110
27	615	846	615	725	2,500	1,450	2,400	1,380	5,890	1,020	4,100	1,110
28	615	853	615	698	2,500	1,500	2,120	1,380	8,090	1,300	3,190	1,170
29	615	825	615	670	-------	1,540	2,060	1,380	8,090	1,470	3,910	1,380
30	725	725	590	615	-------	1,500	2,120	1,380	7,890	2,040	3,730	1,110
31	670	-------	590	615	-------	1,480	-------	1,300	-------	1,680	3,190	-------

NOTE.—Stage-discharge relation affected by ice. Dec. 17 to Feb. 6, discharge estimated from observer's notes and climatologic records. Gage heights for periods Oct. 1–6, Nov. 15–29, Jan. 8–19, Mar. 4 to Apr. 16, June 4–11 and 17–23 obtained from recorder graph. All others prior to May 13 obtained from slope gage at the station and thereafter chain gage was read at the Melan highway bridge.

Monthly discharge of Kansas River at Topeka, Kans., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	1,060	615	797	49,000
November	868	615	756	45,000
December	2,340	590	851	52,300
January	725	480	533	32,800
February	4,920	615	2,270	126,000
March	2,500	1,440	1,810	111,000
April	6,890	1,390	3,150	187,000
May	2,660	1,300	1,710	105,000
June	24,000	1,300	8,670	516,000
July	7,290	1,020	2,200	136,000
August	11,100	1,170	4,150	255,000
September	4,490	1,060	2,130	127,000
The year	24,000	480	2,410	2,150,000

KANSAS RIVER AT BONNER SPRINGS, KANS.

LOCATION.—In NW. ¼ sec. 32, T. 11 S., R. 23 E., at highway bridge at Bonner Springs, Wyandotte County, half a mile below Wolf Creek, half a mile below Atchison, Topeka & Santa Fe Railway bridge, and 18 miles above mouth of river.

DRAINAGE AREA.—59,600 square miles.

RECORDS AVAILABLE.—July 8, 1917, to September 30, 1925.

GAGE.—Chain gage on upstream side of bridge; read by B. L. Rehm.

DISCHARGE MEASUREMENTS.—Made from downstream side of bridge.

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

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 18.3 feet at 6.45 p. m. June 19 (discharge, 70,700 second-feet); minimum discharge estimated, 650 second-feet January 11–20 (stage-discharge relation affected by ice).

1917–1925: Maximum stage recorded, 22.2 feet March 17, 1919 (discharge, 109,000 second-feet); minimum discharge that of January, 1925.

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

REGULATION.—Flow may be slightly affected by operation of mill and power plant at Lawrence.

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

The following discharge measurements were made:

October 25, 1924: Gage height, 3.60 feet; discharge, 1,100 second-feet.

April 18, 1925: Gage height, 5.64 feet; discharge, 4,320 second-feet.

September 18, 1925: Gage height, 4.69 feet; discharge, 2,440 second-feet.

Daily discharge, in second-feet, of Kansas River at Bonner Springs, Kans., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,050	930	930			2,500	1,770	3,180	2,190	8,470	2,830	3,000
2	1,770	830	985			2,660	2,500	3,000	3,370	7,320	2,660	3,000
3	1,640	830	1,100		1,770	3,000	5,630	2,830	3,180	6,380	2,830	2,830
4	1,450	880	1,450			2,660	6,130	2,500	3,000	5,380	2,660	3,000
5	1,390	985	3,370			2,500	5,380	2,660	34,100	4,900	2,660	3,000
				740								
6	1,450	1,010	3,370		2,050	2,500	3,180	2,500	34,100	4,220	2,340	3,000
7	1,330	1,040	3,180		2,190	2,660	3,000	2,340	14,300	3,780	2,340	3,370
8	1,450	985	2,340		2,340	2,500	2,830	2,500	6,130	3,570	2,500	3,780
9	1,910	930	2,050		2,500	2,340	3,000	2,500	4,440	3,570	3,000	3,370
10	1,910	880	1,510		2,190	2,190	12,400	2,500	3,570	4,000	6,640	3,000
11	1,640	985	1,270		2,050	2,050	7,680	2,500	3,180	5,140	6,900	3,000
12	1,510	1,330	1,270		2,050	2,050	6,130	2,340	3,370	3,570	5,380	3,000
13	1,330	1,150	1,330		2,050	2,050	4,900	3,180	3,570	3,570	7,320	8,740
14	1,330	1,100	1,390		1,910	2,340	4,670	4,000	5,630	3,570	5,380	7,940
15	1,210	1,210	1,390		3,180	3,000	4,000	3,370	4,440	3,370	7,160	5,630
				650								
16	1,100	1,100	1,390		4,220	2,660	4,220	6,640	4,440	3,780	6,900	3,000
17	1,040	1,040	1,330		4,000	2,500	4,220	5,630	11,300	3,570	4,670	2,660
18	1,040	1,040	1,110		4,000	2,340	4,220	3,570	62,100	3,180	4,220	2,340
19	1,040	1,100	1,040		3,780	2,190	4,670	2,830	67,000	2,830	4,670	2,340
20	985	1,150	-------		3,570	2,340	3,570	2,830	67,800	2,830	6,380	2,050
21	985	1,100			3,370	2,190	3,370	3,000	51,600	2,660	7,940	1,910
22	985	1,150			3,000	2,190	2,830	2,830	24,000	3,570	6,640	1,910
23	985	1,150	1,000	830	5,380	2,050	2,830	2,660	12,400	3,180	6,770	1,910
24	985	1,040			3,780	1,910	6,640	2,500	10,700	2,660	6,900	1,770
25	1,040	1,040			3,000	1,770	11,600	2,190	10,100	2,660	4,900	1,770
26	985	1,040			2,830	1,770	8,200	2,050	9,560	2,500	4,670	1,770
27	930	1,040			2,830	1,910	4,440	2,050	8,470	2,340	4,670	1,700
28	880	1,040			2,660	1,770	3,780	1,910	7,160	2,500	4,000	1,910
29	880	1,040	930	1,150	-------	1,770	3,370	2,500	7,680	2,500	3,570	1,910
30	830	1,040			-------	1,770	3,180	4,670	8,470	2,500	3,780	1,770
31	930	-------			-------	1,770	-------	3,780	--------	2,830	3,370	-------

NOTE.—Stage-discharge relation affected by ice Dec. 18 to Feb. 6, discharge estimated from observer's notes and climatologic data. Braced figures show mean discharge for periods indicated. No gage-height record Oct. 22, 26, Nov. 6, Dec. 15, 31, Aug. 23; discharge interpolated.

Monthly discharge of Kansas River at Bonner Springs, Kans., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	2,050	830	1,260	77,500
November	1,330	830	1,040	61,900
December	3,370	----------	1,400	86,100
January	----------	----------	805	49,500
February	5,380	----------	2,780	154,000
March	3,000	1,770	2,250	138,000
April	12,400	1,770	4,810	286,000
May	6,640	1,910	3,020	186,000
June	67,800	2,190	16,400	976,000
July	8,470	2,340	3,770	232,000
August	7,940	2,340	4,730	291,000
September	8,740	1,700	3,010	179,000
The year	67,800	----------	3,750	2,720,000

SMOKY HILL RIVER AT ELLSWORTH, KANS.

LOCATION.—In SE. ¼ sec. 20, T. 15 S., R. 8 W., at Pioneer Mem orial highway bridge at Ellsworth, Ellsworth County, 2 miles below Turkey Creek and 2 miles above Oxide Creek.

DRAINAGE AREA.—7,580 square miles.

RECORDS AVAILABLE.—April 17, 1895, to October 31, 1905; July 23, 1918, to July 4, 1925, when station was discontinued.

GAGE.—Chain gage on upstream handrail of bridge; read by E. A. Forkner.

DISCHARGE MEASUREMENTS.—Made from downstream side of bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of clean sand; shifting. Bank-full stage, 20 feet. A sand dip operating 200 feet downstream probably affects stage-discharge relation.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 8.35 feet at 5.20 p. m. April 3 (discharge, 2,560 second-feet); minimum discharge estimated, 4 second-feet December 20–24 (stage-discharge relation affected by ice).

1895–1905; 1918–1925: Maximum discharge recorded 21,000 second-feet July 5, 1895; minimum discharge, 1.6 second-feet October 9–10, 1922.

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

REGULATION.—None.

ACCURACY.—Stage-discharge relation not permanent. Rating curve fairly well defined above 10 second-feet. Gage read to hundredths twice daily. Daily discharge ascertained by shifting-control method. Records fair except for period of ice effect for which they are poor.

Discharge measurements of Smoky River at Ellsworth, Kans., during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 14	1.96	22.6	Dec. 16	2.02	23.4	Mar. 10	2.05	43.3
Nov. 18	2.00	22.2	Feb. 1	* 2.21	9.2	May 21	2.66	149

* Stage-discharge relation affected by ice.

Daily discharge, in second-feet, of Smoky Hill River at Ellsworth, Kans., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
1	28	26	21	5	10	53	56	71	66	107
2	27	25	24	6	10	50	331	65	62	87
3	25	25	26	6	10	49	2,470	63	56	80
4	25	25	40	6	26	52	1,870	57	52	73
5	25	25	40	7	53	52	829	54	47	
6	30	22	35	7	76	50	449	54	45	
7	32	24	32	7	94	47	307	57	40	
8	28	24	32	7	152	47	1,670	57	38	
9	28	24	30	7	142	46	307	56	38	
10	31	24	27	7	126	45	215	54	36	
11	33	25	25	7	116	45	182	54	33	
12	28	25	22	7	105	45	142	52	40	
13	27	26	21	7	90	57	130	50	38	
14	25	26	22	8	78	46	116	46	36	
15	25	25	24	8	74	46	101	56	33	
16	25	24	24	8	71	50	96	73	32	
17	25	24	16	8	71	49	92	73	32	
18	24	22	11	8	71	46	90	62	39	
19	21	22	6	8	70	45	87	57	38	
20	21	22	4	8	68	45	142	81	35	
21	21	22	4	8	65	42	193	132	33	
22	21	22	4	8	65	42	162	152	193	
23	24	24	4	8	63	39	112	142	2,170	
24	24	24	4	8	63	39	112	124	1,040	
25	21	22	5	8	60	36	103	116	483	
26	21	22	5	8	57	36	237	105	283	
27	22	22	5	8	56	33	162	96	215	
28	22	21	5	8	54	33	107	87	172	
29	23	21	5	10		33	94	92	142	
30	24	21	5	10		33	80	80	128	
31	25		5	10		39		73		

NOTE.—Stage-discharge relation affected by ice Dec. 17 to Feb. 8; discharge estimated from observer's notes and climatologic data.

Monthly discharge of Smoky Hill River at Ellsworth, Kans., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	33	21	25.2	1,550
November	26	21	23.5	1,400
December	40	4	17.2	1,060
January	10	5	7.62	468
February	152	10	71.3	3,960
March	57	33	44.2	2,720
April	2,470	56	368	21,900
May	152	46	77.1	4,740
June	2,170	32	190	11,300
July 1-4	107	73	86.8	688
The period				49,800

SMOKY HILL RIVER NEAR MENTOR, KANS.

LOCATION.—In SE. ¼ sec. 18, T. 15 S., R. 2 W., at highway bridge 1½ miles east of Mentor, Saline County, and 26 miles above Saline River.

DRAINAGE AREA.—8,210 square miles (measured on topographic map).

RECORDS AVAILABLE.—December 1, 1923, to September 30, 1925.

GAGE.—Chain gage on upstream side of bridge; read by Scott Mongold.

DISCHARGE MEASUREMENTS.—Made from downstream side of bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of sand and silt; shifting. No well-defined control. Bank-full stage, 20 feet.

EXTREMES OF DISCHARGE.—Maximum stage recorded during period, 13.6 feet 7 a. m. June 25 (discharge, 2,100 second-feet); minimum stage, 1.4 feet October 14 and November 22 (discharge, 20 second-feet).

ICE.—Stage-discharge relation affected by ice.

REGULATION.—Flow is slightly affected by operation of milldam upstream.

ACCURACY.—Stage-discharge relation not permanent. Rating curves fairly well defined below 600 second-feet. Gage read to tenths once daily. Daily discharge ascertained by applying daily gage height to rating table, using shifting-control method February 12 to April 1. Records fair.

Discharge measurements of Smoky Hill River near Mentor, Kans., during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 14	1.38	19.5	Mar. 9	2.02	60.1	Aug. 12	2.93	111
Nov. 18	1.39	18.1	May 21	2.37	69.9	Sept. 30	2.60	90.4
Dec. 16	1.85	45.1	June 25	10.44	1,230			
Jan. 31	a 2.42	30.8	June 26	8.30	770			

a Stage-discharge relation affected by ice.

Daily discharge, in second-feet, of Smoky Hill River near Mentor, Kans., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	30	30	30		40	85	45	134	67	196	502	426
2	30	30	30		40	78	292	134	110	169	402	1,300
3	51	35	30		45	78	372	102	151	151	502	992
4	40	35	35		50	85	55	88	95	126	402	440
5	30	35	35		50	85	950	95	205	102	252	322
6	30	30	40	34	65	93	1,450	88	102	74	187	302
7	25	30	35		80	85	684	102	49	1,420	151	223
8	30	25	35		80	71	502	118	38	758	142	205
9	30	25	35		93	57	414	110	74	440	126	187
10	25	30	30		93	57	1,250	110	49	312	118	196

Daily discharge, in second-feet, of Smoky Hill River near Mentor, Kans., for the year ending September 30, 1925—Continued

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
11	30	30	30		78	71	402	88	38	252	118	178
12	25	25	30		85	64	332	102	61	232	110	777
13	25	25	30		118	57	223	81	67	223	118	758
14	20	30	35		157	57	205	81	38	178	102	382
15	30	25	35		147	64	178	81	38	151	102	262
16	30	30	35	33	118	64	214	88	67	126	102	262
17	35	30	30		109	71	142	67	38	126	81	187
18	30	25			147	71	134	49	38	110	126	160
19	25	30			137	64	126	88	33	88	151	142
20	30	30			127	57	126	88	33	55	1,300	134
21	25	25			118	57	126	81	33	88	1,400	118
22	30	20			93	51	118	81	33	110	758	134
23	30	25			93	51	151	88	67	151	392	142
24	30	30			101	57	187	134	187	134	332	118
25	35	25	35		93	51	169	126	2,100	88	302	118
26	30	30		31	93	51	160	134	796	74	262	102
27	30	30			85	57	134	126	470	67	232	102
28	35	25			85	57	134	118	312	74	205	95
29	30	30			-------	51	214	126	252	88	196	95
30	30	25			-------	45	178	126	223	81	187	88
31	30	-------			-------	40	-------	118	-------	95	187	-------

NOTE.—Stage-discharge relation affected by ice Dec. 18 to Feb. 11, discharge estimated from study of climatologic data and one discharge measurement. Braced figures show mean discharge for periods indicated.

Monthly discharge of Smoky Hill River near Mentor, Kans., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	51	20	30.2	1,860
November	35	20	28.3	1,680
December	40	-------	33.9	2,080
January	-------	-------	32.6	2,000
February	157	40	93.6	5,200
March	93	40	63.9	3,930
April	1,450	45	322	19,200
May	134	49	102	6,270
June	2,100	33	195	11,600
July	1,420	55	204	12,500
August	1,400	81	308	18,900
September	1,300	88	298	17,700
The year	2,100	-------	142	103,000

SMOKY HILL RIVER AT SOLOMON, KANS.

LOCATION.—In SE. ¼ sec. 19, T. 13 S., R. 1 E., at highway bridge one-fourth of a mile below mouth of Solomon River and 1 mile south of Solomon, Lincoln County.

DRAINAGE AREA.—18,700 square miles.

RECORDS AVAILABLE.—April to July, 1904; October 24, 1922, to September 30, 1925.

GAGE.—Chain gage on upstream handrail of bridge; read by L. Z. Castor.

DISCHARGE MEASUREMENTS.—Made from downstream side of bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of sand and silt; shifting. No well-defined control. Bank-full stage, 24 feet.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 12.4 feet at 7 a. m. June 27 (discharge, 3,850 second-feet); minimum stage, 2.3 feet at 7 a. m. October 14 (discharge, 25 second-feet).

The maximum stage during the flood of 1903 was determined by levels to be about 35.0 feet, and in 1904 the maximum stage was 26.4 feet. On June 13, 1923, a stage of 25.96 feet was recorded, with a discharge of 14,200 second-feet. Minimum discharge occurred on October 14, 1924.

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

REGULATION.—Flow is affected by operation of mills and power plants upstream.

ACCURACY.—Stage-discharge relation not permanent. Rating curve fairly well defined. Gage read to tenths once daily. Daily discharge ascertained by applying daily gage height to rating table, using shifting-control method September 3–30. Records fair.

COOPERATION.—Gage-height record furnished by United States Weather Bureau.

Discharge measurements of Smoky Hill River at Solomon, Kans., during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 13	2.58	68.9	Jan. 31	[a]2.83	48.2	Aug. 11	3.94	381
Nov. 17	2.66	91.0	Mar. 9	3.21	210	Sept. 29	3.65	215
Dec. 15	2.86	135	May 20	3.41	239			

[a] Stage-discharge relation affected by ice.

Daily discharge, in second-feet, of Smoky Hill River at Solomon, Kans., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	58	40	58		48	194	152	414	216	710	250	830
2	58	58	76		48	152	133	338	216	560	850	1,920
3	58	40	76		55	216	194	313	560	470	1,440	2,880
4	114	40	76		58	194	500	216	338	363	1,920	3,620
5	95	40	95		65	194	470	216	830	313	1,220	2,140
6	95	40	133		70	133	1,050	172	216	313	860	950
7	58	76	172		75	152	3,080	250	194	264	680	800
8	58	95	133		75	172	1,680	172	152	216	530	680
9	40	95	76		75	172	1,120	250	114	1,260	470	590
10	58	95	152		85	172	920	250	152	770	388	590
11	58	58	152		95	172	1,080	172	114	590	388	1,220
12	58	40	172		114	152	950	194	114	590	530	920
13	58	95	172		114	133	650	216	152	442	770	1,020
14	25	95	152		133	152	620	152	133	650	1,190	1,440
15	76	114	152		172	194	590	172	114	414	920	980
16	40	114	133	65	216	194	442	172	114	288	770	680
17	58	95	114		250	172	414	288	95	250	560	560
18	58	58	76		264	172	388	770	1,640	288	530	442
19	76	76	50		288	152	363	414	1,880	194	980	388
20	58	114	55		313	172	338	288	1,300	216	950	338
21	58	40			313	152	288	250	680	194	1,800	338
22	76	133			264	133	264	264	560	194	3,030	338
23	95	95			264	133	264	250	338	860	2,830	313
24	95	76			264	133	414	172	288	620	1,800	313
25	76	40			264	133	388	194	950	313	1,400	313
26	40	114	70		264	133	338	250	2,180	288	1,400	264
27	58	76			250	152	313	264	3,850	216	1,220	250
28	40	58			250	133	338	250	3,510	264	1,080	250
29	95	58			------	133	338	250	1,880	288	860	216
30	58	58			-------	133	388	264	1,020	363	800	172
31	76	-------			-------	133	-------	216	-------	363	740	-------

NOTE.—Stage-discharge relation affected by ice Dec. 18 to Feb. 10; discharge estimated from one discharge measurement, observer's notes, and a study of climatologic records. No gage-height record Aug. 2; discharge interpolated.

Monthly discharge of Smoky Hill River at Solomon, Kans., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	114	25	65.3	4,020
November	133	40	74.2	4,420
December	172		98.2	6,040
January			65	4,000
February	313	48	170	9,440
March	216	133	159	9,780
April	3,080	133	616	36,700
May	770	152	260	16,000
June	3,850	95	797	47,400
July	1,260	194	423	26,000
August	3,030	250	1,070	65,800
September	3,620	172	858	51,100
The year	3,850	25	387	281,000

SALINE RIVER AT TESCOTT, KANS.

LOCATION.—In SE. ¼ sec. 16, T. 12 S., R. 5 W., at highway bridge one-fourth of a mile below an old dam, half a mile south of Tescott, Ottawa County, half a mile above Dry Creek, 4 miles below Table Rock Creek, and 40 miles above mouth.

DRAINAGE AREA.—2,800 square miles.

RECORDS AVAILABLE.—September 3, 1919, to September 30, 1925.

GAGE.—Chain gage on downstream side of highway bridge; read by Leo Diehl.

DISCHARGE MEASUREMENTS.—Made from downstream side of bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of sand and silt; shifting. No well-defined control. Bank-full stage, 25 feet.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 18.90 feet at 7 p. m. September 1 (discharge, 2,860 second-feet); minimum stage, 1.38 feet October 19 (discharge, 1 second-foot).

1919–1925: Maximum stage recorded, that of September 1, 1925; minimum discharge, that of October 19, 1924.

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

REGULATION.—Flow is affected by operation of mills at Shady Bend and Lincoln.

ACCURACY.—Stage-discharge relation not permanent. Rating curves fairly well defined. Gage read to hundredths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table, using shifting-control method October 16 to November 18. Records poor.

Discharge measurements of Saline River at Tescott, Kans., during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 14	2.07	11.9	Mar. 10	2.00	10.7	Aug. 11	9.44	650
Nov. 18	1.98	8.1	May 21	2.88	44.4	Sept. 30	4.45	72.1
Dec. 16	2.29	18	June 26	10.02	830			

Daily discharge, in second-feet, of Saline River at Tescott, Kans., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4	4	9			26	28	46	5	100	50	2,780
2	3	4	8			18	32	50	28	233	100	2,640
3	3	2	12	4	3	15	22	34	30	52	282	1,350
4	3	3	13			32	272	27	28	32	197	200
5	4	6	40			40	858	26	5	30	155	237
6	4	6	48			38	252	32	32	28	155	200
7	4	4	26			32	171	36	22	85	106	191
8	5	4	6		4	18	133	30	5	119	90	133
9	4	4	22			28	112	26	20	112	106	369
10	4	4	38			11	155	38	4	38	100	237
11	4	5	13			32	147	16	10	46	510	200
12	4	5	19			17	100	32	22	119	301	289
13	6	5	24		10	38	65	52	5	48	218	173
14	13	6	10			12	44	36	6	52	125	133
15	6	9	10			32	40	38	5	24	247	90
16	3	8	16		38	18	52	7	10	30	200	111
17	6	6	10		50	22	44	12	30	38	157	111
18	3	7			65	38	32	32	126	58	439	111
19	2	8	7	2	65	20	28	70	140	46	892	72
20	7	10			32	30	18	38	40	4	1,840	84
21	3	7			42	32	40	52	48	188	1,330	97
22	4	8			20	15	58	46	28	735	425	94
23	3	3			20	26	48	42	44	171	439	90
24	4	6			40	18	34	32	752	179	111	90
25	11	4			58	22	22	22	752	106	237	78
26	9	4	5		19	22	32	48	684	85	227	78
27	7	5			19	15	30	34	242	28	191	75
28	4	4			20	26	140	32	188	38	173	84
29	5	8			-------	17	50	32	155	24	78	84
30	3	9			-------	22	52	48	126	34	40	78
31	3	-------			-------	19	-------	8	-------	19	1,200	-------

NOTE.—Stage-discharge relation affected by ice Dec. 18 to Feb. 16; discharge estimated from a study of climatologic data. No gage readings Sept. 22; discharge interpolated.

Monthly discharge of Saline River at Tescott, Kans., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	13	2	4.8	295
November	10	2	5.6	333
December	48	----------	12.9	793
January	----------	----------	2.3	141
February	65	----------	20.5	1,140
March	40	11	24.2	1,490
April	858	18	104	6,190
May	70	7	34.6	2,130
June	752	4	120	7,140
July	735	4	93.9	5,770
August	1,840	40	346	21,300
September	2,780	72	353	21,000
The year	2,780	----------	93.3	67,700

SOUTH FORK OF SOLOMON RIVER AT ALTON, KANS.

LOCATION.—In SW. ¼ sec. 12, T. 7 S., R. 15 W., on highway bridge 1,000 feet downstream from small dam and three-fourths of a mile south of Alton, Osborne County.

DRAINAGE AREA.—1,720 square miles.

RECORDS AVAILABLE.—August 31, 1919, to June 30, 1925, when station was discontinued.

GAGE.—Chain gage on upstream handrail of bridge; read by J. K. Thompson.
DISCHARGE MEASUREMENTS.—Made from downstream side of bridge or by wading.
CHANNEL AND CONTROL.—Bed composed of sand and gravel; shifting. No well-defined control. Bank-full stage, 23 feet.
EXTREMES OF DISCHARGE.—Maximum stage recorded during period, 7.00 feet at 8 p. m. June 21 (discharge, 1,070 second-feet) minimum discharge, 0.2 second-foot October 18–20.

1919–1925: Maximum stage recorded, 21.5 feet September 19, 1919 (discharge, 9,340, second-feet); minimum discharge, 0.1 second-foot on September 7 and 27, 1922.

ICE.—Stage-discharge relation affected by ice.
REGULATION.—Flow may be slightly regulated by small dam upstream.
ACCURACY.—Stage-discharge relation not permanent. Rating curve poorly defined. Gage read to hundredths twice daily. Daily discharge ascertained by shifting-control method. Records poor.

Discharge measurements of South Fork of Solomon River at Alton, Kans., during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 16	1.20	.19	Mar. 12	1.94	25.0
Nov. 20	1.55	6.16	May 22	2.08	27.7
Dec. 17	*1.96	6.66			

* Stage-discharge relation affected by ice.

Daily discharge, in second-feet, of South Fork of Solomon River at Alton, Kans., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.5	4	14	3	3	28	53	26	12
2	.5	4	15	3	3	27	64	25	11
3	.4	8	16	3	4	42	53	24	10
4	.4	5	15	3	5	46	84	23	8
5	.4	3	14	2	7	42	43	22	7
6	.4	2	12	2	8	42	38	22	6
7	.3	2	12	2	10	39	35	21	5
8	1.8	2	12	2	12	37	34	24	5
9	1	4	12	2	22	35	33	26	4
10	.5	4	12	2	53	31	34	28	4
11	.4	6	11	2	53	28	34	31	179
12	.4	8	11	2	53	25	35	35	638
13	.4	8	11	2	53	25	33	42	94
14	.4	8	10	2	50	24	31	46	42
15	.4	9	10	2	50	25	27	42	24
16	.4	9	6	2	46	24	24	50	16
17	.4	9	6	2	46	26	22	60	14
18	.2	9	4	2	42	24	23	50	14
19	.2	10	4	2	42	24	29	39	14
20	.2	8	4	2	39	24	29	35	14
21	1.4	8	4	2	39	24	26	31	267
22	1	10	4	2	38	24	26	27	349
23	.8	10	4	2	37	24	42	24	219
24	.7	10	3	2	35	24	39	22	167
25	.6	10	3	2	34	25	35	20	94
26	.7	10	3	2	30	24	31	18	53
27	1.5	11	3	2	28	24	27	18	42
28	3	12	3	2	27	24	25	18	35
29	2	12	3	2	------	24	24	17	28
30	2	14	3	2	------	24	25	16	22
31	3	------	3	2	------	25	------	14	------

NOTE.—Stage-discharge relation affected by ice Dec. 17 to Feb. 8; discharge based on observer's notes and weather records. Gage height probably in error Apr. 5–7; discharge estimated.

Monthly discharge of South Fork of Solomon River at Alton, Kans., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	3.0	0.2	0.85	52
November	14	2	7.63	454
December	16	3	7.97	490
January	3	2	2.13	131
February	53	3	31	1,720
March	46	24	28.5	1,750
April	84	22	35.3	2,100
May	60	14	28.9	1,780
June	638	4	79.9	4,750
The period				13,200

SOLOMON RIVER AT NILES, KANS.

LOCATION.—In NW. ¼ sec. 31, T. 12 S., R. 1 W., at highway bridge three-fourths of a mile west of Niles, Ottawa County, and 7 miles above mouth of river

DRAINAGE AREA.—6,710 square miles.

RECORDS AVAILABLE.—May 6, 1897, to November 30, 1903; May 15, 1919, to September 30, 1925. October 1, 1917, to June 23, 1919, records were collected near Bennington, Kans.

GAGE.—Chain gage on downstream side of bridge; read by Ellsworth Boyle.

DISCHARGE MEASUREMENTS.—Made from downstream side of bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of sand and silt; shifting. No well-defined control. Bank-full stage, 22 feet. Backwater occurs at station when Smoky Hill River is at flood stage.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 13.22 feet at 7.10 a. m. August 3 (discharge, 1,950 second-feet); minimum stage, 1.32 feet at 2.10 p. m. November 4 (discharge, 10 second-feet).

1897–1903; 1919–1925: Maximum stage recorded, 35.8 feet June 3, 1903 (discharge, 10,600 second-feet); minimum discharge, 6.8 second-feet October 11 and 12, 1922.

ICE.—Stage-discharge relation affected by ice.

REGULATION.—Flow is affected by operation of power plants upstream.

ACCURACY.—Stage-discharge relation not permanent. Rating curves used are fairly well defined throughout. Gage read to hundredths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table using shifting-control method April 8 to June 16. Open-water records fair; winter records poor.

Discharge measurements of Solomon River at Niles, Kans., during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 13	1.47	17.4	Jan. 31	[a]2.49	22.3	Aug. 11	5.92	301
Nov. 17	1.65	25.6	Mar. 9	1.98	52.9	Sept. 30	3.13	63.7
Dec. 15	2.34	70.4	May 20	2.96	163			

[a] Stage-discharge relation affected by ice.

Daily discharge, in second-feet, of Solomon River at Niles, Kans., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	18	24	51			83	92	120	83	151	55	545
2	19	11	31			96	67	140	388	187	376	320
3	44	11	20		33	120	96	51	151	115	1,840	294
4	22	10	92			79	88	55	310	120	756	147
5	20	16	83	16		79	40	70	110	115	281	147
6	22	48	88			101	908	106	67	79	255	147
7	17	44	96			96	566	63	48	83	200	139
8	16	23	67		42	67	325	106	70	63	155	147
9	16	19	37			59	240	115	101	101	155	132
10	15	18	37			106	174	67	51	71	164	390
11	19	16	79			67	174	92	31	41	294	320
12	21	63	83			63	130	92	79	29	362	155
13	19	51	67		55	115	187	55	55	187	334	104
14	14	51	71			88	282	59	32	115	450	91
15	21	25	79	14		83	200	101	55	83	390	70
16	36	22	67		92	67	162	130	32	48	220	45
17	16	24	44		70	55	140	820	1,110	130	182	37
18	15	22	23		115	71	125	454	1,660	63	132	33
19	16	59	13		200	71	120	213	1,780	42	155	52
20	49	29	-------		115	75	101	162	754	48	173	58
21	20	75			120	44	101	106	268	75	147	40
22	59	22			110	63	106	140	162	71	243	50
23	75	16			120	59	174	130	151	63	513	60
24	36	27			130	67	200	140	125	35	435	58
25	18	63			135	67	140	115	79	29	738	28
26	20	55	11	23	120	67	115	110	1,580	40	579	26
27	18	27			88	40	130	101	1,600	63	465	26
28	12	27			83	67	162	96	1,600	92	334	23
29	12	24			-------	79	162	120	585	115	255	23
30	31	83			-------	67	115	101	310	140	255	55
31	75	-------			-------	67	-------	88	-------	67	268	-------

NOTE.—Stage-discharge relation affected by ice Dec. 16 to Feb. 17; discharge estimated from observer's notes, climatologic data, and one discharge measurement.

Monthly discharge of Solomon River at Niles, Kans., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	75	12	26.2	1,610
November	83	10	33.5	1,990
December	96	----------	40.3	2,480
January	----------	----------	17.8	1,090
February	200	----------	76.7	4,260
March	120	40	75.1	4,620
April	908	40	187	11,100
May	820	51	139	8,550
June	1,780	31	448	26,700
July	187	29	85.8	5,280
August	1,840	55	360	22,100
September	545	23	125	7,440
The year	1,840	----------	134	97,200

NORTH FORK OF SOLOMON RIVER AT KIRWIN, KANS.

LOCATION.—In SW. ¼ sec. 34, T. 4 S., R. 16 W., at highway bridge half a mile below milldam, half a mile south of Kirwin, Phillips County, three-fourths of a mile below Bow Creek, and 1½ miles above Deer Creek.

DRAINAGE AREA.—1,290 square miles.

RECORDS AVAILABLE.—August 30, 1919, to June 30, 1925, when station was discontinued.

GAGE.—Chain gage on downstream handrail of bridge; read by Dan W. Fisk High-water staff gage from 14.0 feet to 27.0 feet, in three sections fastened to trees in immediate vicinity of gage.

DISCHARGE MEASUREMENTS.—Made from bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of sand and silt; shifting. No well-defined control. Bank-full stage, 13 feet.

EXTREMES OF DISCHARGE.—Maximum stage recorded during the year, 10.15 feet at 7 a. m. June 22 (discharge, 1,970 second-feet); minimum discharge, 0.5 second-foot, several days in October.

1919–1925: Maximum stage recorded, 22.5 feet at 5 p. m. September 18, 1919 (discharge, 15,500 second-feet); minimum discharge, 0.5 second-foot December 5, 1922, and several days in October, 1924.

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

REGULATION.—Flow is regulated by operation of milldam upstream.

ACCURACY.—Stage-discharge relation not permanent. Rating curve fairly well-defined from 15 to 1,000 second-feet. Gage read to hundredths twice daily. Daily discharge determined by shifting-control method. Records fair.

Discharge measurements of North Fork of Solomon River at Kirwin, Kans., during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 16	2.07	0.74	Dec. 17	[a]2.45	5.4
Nov. 20	2.30	13.9	May 22	2.38	33.6

[a] Stage-discharge relation affected by ice.

Daily discharge, in second-feet, of North Fork of Solomon River at Kirwin, Kans., for the period ending June 30, 1925

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar	Apr.	May	June
1	0.5	14	15	2	2	32	41	28	34
2	6	2.2	15	2	3	24	239	16	67
3	5	16	16	2	5	41	45	29	27
4	7	9	18	2	8	41	48	29	27
5	.5	16	8	2	17	42	48	47	16
6	6	16	18	2	28	36	55	41	12
7	4	12	13	2	26	38	49	51	17
8	7	14	16	2	22	27	42	52	13
9	5	5	10	2	18	37	48	52	18
10	8	14	12	2	44	36	45	32	18
11	4	16	15	2	53	32	41	35	12
12	.5	12	16	2	46	40	32	50	24
13	7	15	18	2	45	43	32	47	18
14	10	16	12	2	57	32	29	36	11
15	5	16	22	2	37	22	39	53	18
16	5	10	28	2	32	37	30	36	12
17	6	16	5	2	32	40	28	32	12
18	8	18	1	2	42	42	32	39	18
19	.5	18	1	2	45	40	30	44	13
20	8	12	1	2	44	39	28	39	26
21	12	15	2	2	41	28	29	43	29
22	9	22	2	2	28	27	30	46	1,350
23	7	13	2	2	41	28	35	47	778
24	8	23	2	2	41	27	29	20	550
25	11	8	2	2	41	41	28	29	120
26	1.6	4	2	2	45	41	29	39	75
27	10	10	2	2	41	42	36	38	57
28	1.9	17	2	2	40	47	38	32	47
29	12	8	2	2	-------	23	41	37	48
30	8	4	2	2	-------	40	31	42	54
31	12	-------	2	2	-------	40	-------	19	-------

NOTE.—Stage-discharge relation affected by ice Dec. 17 to Feb. 5; discharge estimated from study of observer's notes, climatologic data, and one discharge measurement.

Monthly discharge of North Fork of Solomon River at Kirwin, Kans., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	12	0.5	6.31	388
November	23	2.2	13.0	774
December	28	1	9.1	560
January	2	2	2.0	123
February	57	2	33	1,830
March	47	22	35.6	2,190
April	239	28	43.6	2,590
May	53	16	38.1	2,340
June	1,350	11	117	6,960
The period				17,800

BIG BLUE RIVER AT HULL, KANS.

LOCATION.—In NW. ¼ sec. 3, T. 2 S., R. 7 E., at highway bridge one-fourth mile west of Hull, Marshall County, 4 miles below Elk Creek, and 2 and 3 miles, respectively, above Deer and Horseshoe Creeks.

DRAINAGE AREA.—4,510 square miles.

RECORDS AVAILABLE.—August 24, 1919, to July 2, 1925, when station was discontinued.

GAGE.—Staff gage from 2.00 to 26.1 feet fastened to masonry pier on right bank; read by James Pribyl. High-water staff gage, from 26.0 to 32.0 feet, fastened to an elm tree 75 feet west of gage and 40 feet north of highway.

DISCHARGE MEASUREMENTS.—Made from downstream side of bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of silt and gravel; shifting. Control for low stages at rapids half a mile below gage. Bank-full stage, 22 feet.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 18.70 feet at 7.25 a. m. June 18 (discharge, 12,400 second-feet); minimum discharge, 30 second-feet March 13.

1919–1925: Maximum stage recorded, 20.8 feet at 5.30 p. m. October 3, 1923 (discharge, 14,500 second-feet); minimum stage recorded, 1.20 feet on September 8 and 14, 1922 (discharge, 2 second-feet).

In May, 1903, a stage equivalent to 31.7 feet on the gage was recorded by observer.

ICE.—Stage-discharge relation affected by ice.

REGULATION.—Flow affected by operation of power plants upstream.

ACCURACY.—Stage-discharge relation not permanent. One fairly well defined rating curve used. Gage read to tenths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table except as indicated in footnote to daily-discharge table. Records poor.

Discharge measurements of Big Blue River at Hull, Kans., during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 17	3.93	144	Feb. 3	[a]4.60	206
Nov. 21	3.65	82.1	May 23	3.93	200
Dec. 18	[a]4.02	103			

[a] Stage-discharge relation affected by ice.

Daily discharge, in second-feet, of Big Blue River at Hull, Kans., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
1	127	101	184	154	194	298	164	265	204	418
2	92	110	204	136	184	265	174	214	364	418
3	184	110	204	174	174	194	214	265	2,740	------
4	154	110	234	234	204	214	174	234	644	------
5	110	110	234	174	214	204	194	234	276	------
6	101	136	184	154	194	234	184	254	320	------
7	92	164	254	214	244	224	244	244	320	------
8	110	127	234	174	644	174	254	254	364	------
9	92	92	224	154	770	136	234	265	298	------
10	118	110	204	194	608	101	276	254	276	------
11	127	101	194	154	608	84	320	265	298	------
12	101	92	224	52	608	76	204	204	364	------
13	110	110	265	118	644	30	364	174	320	------
14	118	118	244	84	1,050	84	364	214	320	------
15	136	92	224	84	1,580	145	234	244	1,050	------
16	164	110	204	68	860	127	224	680	7,680	------
17	118	110	174	101	770	110	254	472	11,400	------
18	127	101	194	118	770	110	265	320	11,200	------
19	127	127	224	101	770	127	214	276	5,800	------
20	145	164	184	154	1,050	76	244	276	2,380	------
21	127	204	92	136	1,050	52	276	320	1,580	------
22	164	136	145	136	364	154	234	276	1,360	------
23	127	174	136	154	265	204	254	244	3,140	------
24	92	194	184	154	194	224	234	265	1,820	------
25	145	145	154	136	204	204	224	214	608	------
26	127	127	84	136	276	224	194	234	860	------
27	76	145	118	118	244	204	224	234	1,000	------
28	84	184	154	136	234	164	224	224	1,050	------
29	110	184	136	154	------	174	224	224	644	------
30	110	204	84	136	------	174	244	234	418	------
31	110	------	145	136	------	164	------	234	------	------

NOTE.—Stage-discharge relation affected by ice Dec. 17 to Feb. 16; discharge estimated from study of gage-height record, climatologic data, and two discharge measurements. Shifting-control method used Feb. 26 to July 2. Gage readings probably in error Apr. 1, May 18 and 19. Discharge estimated.

Monthly discharge of Big Blue River at Hull, Kans., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	184	76	120	7,380
November	204	92	133	7,910
December	265	84	185	11,400
January	234	52	140	8,610
February	1,580	174	535	29,700
March	298	30	160	9,840
April	364	164	238	14,200
May	680	174	268	16,500
June	11,400	204	1,970	117,000
The period				223,000

BIG BLUE RIVER AT RANDOLPH, KANS.

LOCATION.—In SW. ¼ sec. 12, T. 7 S., R. 6 E., at highway bridge half a mile above Fancy Creek, three-fourths of a mile east of Randolph, Riley County, 15 miles below Black Vermilion River, and 32 miles (by river) above mouth.

DRAINAGE AREA.—8,860 square miles.

RECORDS AVAILABLE.—April 17, 1918, to September 30, 1925.

GAGE.—Chain gage on upstream handrail of bridge; read by Mrs. Ollie Webb. Vertical staff gages, one from 6.0 to 30.9 feet, on right bank pier, and one from 29.0 to 33.5 feet, painted on old concrete foundation for oil tank on right bank 500 feet west of chain gage, are used during floods.

DISCHARGE MEASUREMENTS.—Made from downstream side of bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of sand and gravel; shifting. No well-defined control. Bank-full stage, 20 feet.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 19.8 feet at 5.05 p. m. June 19 (discharge, 20,200 second-feet); minimum stage, 2.6-feet at 5.03 p. m. October 22 (discharge, 230 second-feet).

1918–1925: Maximum discharge, 22,300 second-feet June 11, 1919; minimum discharge, 210 second-feet October 2, 1922.

On May 31, 1903, a stage equivalent to 31.7 feet on gage was observed by Mr. John Nord, Randolph, Kans.

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

REGULATION.—Flow is affected by operation of power plants upstream.

ACCURACY.—Stage-discharge relation not permanent. Rating curve fairly well defined between 300 and 6,000 second-feet. Gage read to hundredths twice daily. Daily discharge determined by applying mean daily gage height to rating table, using shifting-control method October 1–15. Records good.

Discharge measurements of Big Blue River at Randolph, Kans., during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 18	2.96	339	Mar. 15	3.42	553	Aug. 10	5.39	1,630
Nov. 22	2.89	319	Apr. 4	3.37	556	Sept. 21	3.08	431
Dec. 19	[a] 2.98	154	May 23	3.52	614			

[a] Stage-discharge relation affected by ice.

Daily discharge, in second-feet, of Big Blue River at Randolph, Kans., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Jan.	Feb	Mar.	Apr.	May	June	July	Aug.	Sept.
1	370	410	370			775	482	504	342	1,270	510	1,060
2	300	300	330			720	504	482	440	1,030	705	885
3	332	332	332	300	255	720	504	461	17,500	1,030	605	885
4	510	285	370			830	549	342	12,000	860	605	620
5	490	315	370			670	504	400	3,830	970	510	482
6	410	300	370			670	504	482	1,000	755	555	420
7	390	285	410			526	572	482	775	705	3,410	526
8	370	300	370		430	620	830	440	670	755	8,250	720
9	430	300	315			549	1,310	420	670	605	3,140	440
10	370	315	285			620	885	461	885	1,340	1,670	526
11	300	315	270		970	572	620	400	775	1,090	1,400	482
12	315	332	315		1,210	572	572	420	670	655	3,810	620
13	332	300	270	285	1,670	526	526	400	885	555	8,380	720
14	285	332	410		1,810	572	526	420	885	605	2,780	461
15	332	350	430		1,810	670	670	482	720	605	1,670	420
16	332	350	350		1,640	620	830	526	8,900	705	1,270	420
17	390	410	200		1,380	572	670	1,060	16,400	605	915	360
18	285	315	177		1,180	549	670	1,120	18,200	510	8,900	360
19	285	315	154		1,060	620	620	775	20,000	510	6,060	324
20	350	430	158		1,060	526	549	670	10,900	470	3,230	332
21	300	350			1,060	420	526	526	4,860	430	6,820	380
22	240	315			720	504	549	670	4,620	605	3,530	332
23	255	350	225		670	504	526	572	4,980	555	1,780	332
24	255	315			620	504	504	526	4,260	605	1,500	420
25	240	315			830	504	504	440	2,870	470	1,180	526
26	300	315		255	940	482	440	482	2,600	315	775	461
27	270	315			830	461	461	461	2,440	315	775	526
28	255	315			1,000	526	440	380	1,670	860	670	549
29	285	300	300		-------	526	572	342	1,810	705	670	504
30	270	315			-------	461	549	380	1,460	605	720	504
31	430	-------			-------	482	-------	420	-------	605	1,000	-------

NOTE.—Stage-discharge relation affected by ice Dec. 16 to Feb. 12; discharge based on observer's notes, climatologic data, and one discharge measurement. Braced figures show mean discharge for periods indicated.

Monthly discharge of Big Blue River at Randolph, Kans., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	510	240	332	20,400
November	430	285	327	19,500
December	430		296	18,200
January			277	17,000
February	1,810		853	47,400
March	775	420	577	35,500
April	1,310	440	599	35,600
May	1,120	342	514	31,600
June	20,000	342	4,930	293,000
July	1,340	315	700	43,000
August	8,900	510	2,510	154,000
September	1,060	324	520	30,900
The year	20,000		1,030	746,000

LITTLE BLUE RIVER AT WATERVILLE, KANS.

LOCATION.—In SE. ¼ sec. 16, T. 4 S., R. 6 E., at Cornhusker highway bridge, half a mile north of Waterville, Marshall County, 1 mile below Corn Creek and 5 miles above junction with Big Blue River.

DRAINAGE AREA.—3,390 square miles.

RECORDS AVAILABLE.—June 1, 1922, to June 30, 1925, when station was discontinued.

GAGE.—Chain gage on downstream handrail of bridge; read by A. McAtee.

DISCHARGE MEASUREMENTS.—Made from downstream side of bridge or by wading.

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

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 13.43 feet at 6 p. m. June 17 (discharge, 9,920 second-feet); minimum discharge, 76 second-feet December 19 and 20 (stage-discharge relation affected by ice).

1922–1925: Maximum stage recorded, 15.4 feet at 12.15 p. m. July 13, 1923 (discharge, 13,200 second-feet); minimum discharge, that of December 19 and 20, 1924.

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

REGULATION.—None.

ACCURACY.—Stage-discharge relation not permanent. Rating curve fairly well defined below 1,200 second-feet and extended above. Gage read to hundredths twice daily. Daily discharge determined by applying mean daily gage height to rating table. Records good, except for high stages for which they are poor. Winter records fair.

Discharge measurements of Little Blue River at Waterville, Kans., during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 17	1.81	128	Dec. 19	[a] 2.40	82	Mar. 15	2.19	214
Nov. 21	1.98	163	Feb. 3	[a] 2.78	142	May 23	2.34	257

[a] Stage-discharge relation affected by ice.

Daily discharge, in second-feet, of Little Blue River at Waterville, Kans., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	126	144	154	86	135	232	172	184	172
2	126	144	164	86	135	336	196	184	400
3	126	144	164	86	144	400	196	172	1,870
4	126	135	190	86	144	272	220	172	738
5	126	144	190	86	144	244	208	172	304
6	118	144	190	86	164	208	258	172	272
7	126	144	177	91	190	220	304	184	232
8	126	144	177	91	232	208	272	196	208
9	126	144	310	91	336	208	272	184	172
10	126	144	229	96	420	208	232	184	172
11	126	144	190	96	614	184	220	184	152
12	135	144	190	96	648	208	208	184	172
13	126	164	682	96	580	232	208	184	184
14	126	164	190	96	516	232	196	196	220
15	135	164	203	96	484	220	196	208	220
16	135	164	190	96	516	208	208	220	4,250
17	126	164	110	103	682	208	220	272	9,150
18	126	154	81	103	416	196	196	220	7,240
19	126	154	76	110	400	208	208	208	5,750
20	135	164	76	110	320	196	196	244	3,070
21	135	154	81	110	288	196	220	352	2,000
22	135	164	81	110	258	196	196	288	4,490
23	126	154	86	118	258	184	184	258	1,560
24	135	154	86	118	272	196	184	232	1,200
25	135	154	86	118	244	172	184	220	1,300
26	135	154	86	126	244	172	184	208	1,600
27	135	154	86	126	258	172	184	184	1,090
28	135	164	86	126	232	184	196	184	948
29	144	216	86	126	-------	184	220	208	808
30	144	154	86	126	-------	172	196	196	704
31	144	-------	86	126	-------	172	-------	172	-------

NOTE.—Stage-discharge relation affected by ice Dec. 17 to Feb. 17; discharge estimated from study of two discharge measurements, observer's notes, and climatologic data.

Monthly discharge of Little Blue River at Waterville, Kans., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	144	118	131	8,060
November	216	135	154	9,160
December	682	76	157	9,650
January	126	86	104	6,400
February	648	135	331	18,400
March	400	172	214	13,200
April	304	172	211	12,600
May	352	172	207	12,700
June	9,150	152	1,690	101,000
The period	-------	-------	-------	191,000

DELAWARE RIVER AT VALLEY FALLS, KANS.

LOCATION.—In SW. ¼ sec. 18, T. 8 S., R. 18 E., at highway bridge 300 feet above Atchison, Topeka & Santa Fe Railway bridge, 500 feet below Walnut Creek, one-fourth of a mile north of Valley Falls, Jefferson County, 1 mile below Cedar Creek, 13 miles below Elk Creek, and 35 miles above mouth.

DRAINAGE AREA.—922 square miles.

RECORDS AVAILABLE.—June 16, 1922, to September 30, 1925.

GAGE.—Chain gage on upstream side of bridge; read by J. M. Piazzek.

DISCHARGE MEASUREMENTS.—Made from downstream side of bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of silt and rock with outcropping rock along banks; permanent. Control is a rock riffle 200 feet below gage at site of old masonry dam; practically permanent. Bank-full stage, 22 feet.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 29.72 feet at midnight June 16 (discharge about 30,000 second-feet); minimum stage, 1.39 feet November 3 (discharge, 9 second-feet).

1922–1925: Maximum stage recorded, that of June 16, 1925; minimum discharge, 1.3 second-feet October 28, 1922. A stage equivalent to 27.2 feet was recorded on May 27, 1915.

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

REGULATION.—None.

ACCURACY.—Stage-discharge relation permanent. Rating curve fairly well defined below and poorly defined above 3,000 second-feet. Gage read to hundredths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table except as explained in footnote to table of daily discharge. Records fair.

Discharge measurements of Delaware River at Valley Falls, Kans., during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 11	1.86	34.4	June 17	24.76	20,800	June 20	16.30	4,930
Mar. 3	1.81	32.2	June 18	22.20	14,700	Do	13.02	3,280
Apr. 13	2.94	241	June 20	19.56	8,310			

Daily discharge, in second-feet, of Delaware River at Valley Falls, Kans., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	42	9	13	13	43	46	38	96	58	95	92	37
2	36	9	14	13	42	30	161	86	540	175	75	36
3	28	9	19	13	43	29	750	82	8,500	124	60	34
4	23	9	231	13	43	43	480	77	19,800	118	54	31
5	23	9	930	14	45	66	241	69	6,900	104	48	33
6	30	11	231	15	52	66	161	63	540	95	56	28
7	110	13	161	16	68	62	134	88	346	86	175	42
8	55	14	90	17	82	53	3,440	98	259	80	130	45
9	116	14	58	19	98	46	1,700	106	189	2,340	70	37
10	102	16	52	19	95	42	540	93	161	900	58	420
11	38	17	46	18	89	36	360	80	130	203	2,090	3,080
12	25	20	48	17	66	33	288	71	540	116	1,970	5,610
13	22	25	52	16	55	316	245	136	810	88	690	720
14	20	21	52	18	56	241	203	189	375	1,250	288	450
15	20	20	47	20	50	136	161	480	203	510	148	450
16	19	19	41	22	46	110	287	870	19,000	245	217	273
17	19	18	31	19	44	81	302	148	21,300	93	1,780	203
18	20	17	22	18	40	80	288	95	14,700	75	2,180	126
19	19	16	14	17	41	71	217	81	13,600	60	435	70
20	20	14	13	18	47	62	161	76	8,000	64	420	69
21	21	14	12	19	48	52	128	63	690	1,850	660	77
22	22	13	11	31	50	45	112	55	780	390	375	372
23	19	13	11	74	81	44	189	44	690	136	175	570
24	17	13	11	189	86	42	540	37	900	78	175	346
25	13	12	10	302	81	37	273	34	900	72	63	273
26	12	13	10	85	58	34	189	32	480	420	59	245
27	12	13	10	70	45	32	128	30	450	189	55	259
28	12	12	10	57	44	31	126	36	331	89	48	241
29	11	14	12	47	------	30	136	420	390	480	44	175
30	12	13	13	42	------	28	120	148	302	189	43	93
31	11	------	13	42	------	33	------	78	------	120	39	------

NOTE.—Gage heights missing Dec. 23, 26, Mar. 31, June 4 and 16–20. Discharge interpolated Dec. 23, 26, and Mar. 31. Discharge obtained from study of hydrograph based on engineer's measurements June 3–5 and 16–20.

Monthly discharge of Delaware River at Valley Falls, Kans., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	116	11	30.6	1,880
November	25	9	14.3	851
December	930	10	73.8	4,540
January	302	13	41.7	2,560
February	98	40	58.5	3,250
March	316	28	66.4	4,080
April	3,440	38	403	24,000
May	870	30	131	8,060
June	21,300	58	4,060	242,000
July	2,340	60	349	21,500
August	2,180	39	412	25,300
September	5,610	28	480	28,600
The year	21,300	9	506	367,000

GRAND RIVER BASIN

GRAND RIVER NEAR GALLATIN, MO.

LOCATION.—In NW. ¼ sec. 16, T. 59 N., R. 27 W., at highway bridge 1,000 feet above Chicago, Rock Island & Pacific Railway bridge, 2 miles northeast of Gallatin, Daviess County, and 7 miles above Honey Creek.

DRAINAGE AREA.—2,250 square miles (measured on base maps of Missouri and Iowa).

RECORDS AVAILABLE.—June 30, 1921, to September 30, 1925.

GAGE.—Chain gage on downstream side of bridge; read by L. C. Rogers.

DISCHARGE MEASUREMENTS.—Made from downstream side of bridge or by wading.

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

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 30.2 feet at 5 p. m. June 4 (discharge, 20,800 second-feet); minimum stage, 2.20 feet at 7 a. m. November 2 (discharge, 33 second-feet). A minimum discharge of 33 second-feet was also estimated January 8–16, when stage-discharge relation was affected by ice.

1921–1925: Maximum stage recorded, 36.5 feet July 12, 1922 (discharge, 34,100 second-feet); minimum stage, 1.55 feet while river was dammed above gage May 15, 1924 (discharge, determined from extension of rating curve, 10 second-feet).

The United States Weather Bureau has published a maximum stage of 39.3 feet for the flood of July, 1909.

ACCURACY.—Stage-discharge relation permanent during the year except as affected by ice. Rating curve fairly well defined. Gage read to hundredths once daily during low stages and twice during high stages. Daily discharge ascertained by applying mean daily gage height to rating table. Records good for open-water periods and poor for period of ice effect.

Discharge measurements of Grand River near Gallatin, Mo., during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 14	2.58	70	Jan. 12	[a] 2.80	38	June 19	6.32	920
Dec. 15	3.54	188	Mar. 27	4.18	304	Sept. 26	7.35	1,310

[a] Stage-discharge relation affected by ice.

Daily discharge, in second-feet, of Grand River near Gallatin, Mo., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	327	45	60	41	118	560	208	448	100	475	94	94
2	244	33	60	41	118	776	208	373	138	305	66	88
3	190	50	71	41	118	776	235	327	8,300	235	55	82
4	144	46	60	41	131	475	244	305	20,400	350	51	76
5	118	48	1,430	41	144	448	244	284	11,100	840	60	71
6	106	46	1,390	41	158	475	208	244	2,470	327	49	68
7	94	82	808	41	190	475	190	217	870	190	60	68
8	106	106	448	33	350	448	776	208	560	151	82	64
9	131	71	422	33	503	422	1,310	208	397	138	138	124
10	118	106	284	33	840	397	1,200	217	327	112	112	100
11	106	94	217	33	776	373	840	217	284	106	94	422
12	88	71	244	33	531	350	620	190	305	100	305	8,450
13	76	71	190	33	475	590	560	182	2,870	88	936	12,000
14	69	82	182	33	448	5,840	422	190	1,350	100	422	3,790
15	60	94	190	33	397	2,420	327	284	590	94	217	1,030
16	56	131	158	33	373	1,100	284	1,270	4,420	106	166	650
17	50	82	131	41	350	936	284	2,370	5,020	100	560	448
18	41	71	106	41	350	840	264	650	2,120	88	5,320	327
19	43	71	82	41	327	840	650	373	904	71	2,020	284
20	50	60	71	50	284	776	1,230	305	560	71	1,920	2,170
21	48	71	60	50	244	680	1,510	244	397	67	9,350	7,440
22	45	71	60	50	305	590	2,020	217	373	70	2,120	4,480
23	45	60	60	50	5,970	503	1,310	166	1,680	71	590	5,970
24	50	58	60	60	16,200	422	8,980	131	2,070	57	373	4,010
25	45	50	50	94	12,200	373	8,680	118	1,160	52	264	1,600
26	41	60	50	144	2,820	327	3,300	112	1,310	60	190	1,350
27	41	50	50	284	776	327	1,100	112	1,310	174	151	4,840
28	46	60	41	284	503	284	808	106	1,030	124	138	5,780
29	50	82	41	208	-------	254	590	106	808	71	124	2,170
30	45	50	41	174	-------	244	503	106	840	70	112	1,100
31	50	-------	41	144	-------	226	-------	106	-------	76	106	-------

NOTE.—Stage-discharge relation affected by ice Dec. 17 to Feb. 17; daily discharge ascertained by applying to rating table daily gage height corrected for ice effect by means of one discharge measurement, observer's notes, and weather records.

Monthly discharge of Grand River near Gallatin, Mo., for the year ending September 30, 1925

[Drainage area, 2,250 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	327	41	87.8	0.039	0.04
November	131	33	69.1	.031	.03
December	1,430	41	231	.103	.12
January	284	33	74.2	.033	.04
February	16,200	118	1,640	.729	.76
March	5,840	226	760	.338	.39
April	8,980	190	1,300	.578	.64
May	2,370	106	335	.149	.17
June	20,400	100	2,470	1.10	1.23
July	840	52	159	.071	.08
August	9,350	49	847	.376	.43
September	12,000	64	2,300	1.02	1.14
The year	20,400	33	843	.375	5.07

GRAND RIVER NEAR SUMNER, MO.

LOCATION.—In NE. ¼ sec. 29, T. 56 N., R. 21 W., at Chicago, Burlington & Quincy Railroad bridge 2 miles southwest of Sumner, Chariton County, 2½ miles below Locust Creek, and 5 miles above Yellow Creek.

DRAINAGE AREA.—6,880 square miles (measured on base maps of Missouri and Iowa).

RECORDS AVAILABLE.—April 19, 1924, to September 30, 1925.

GAGE.—Chain gage on upstream side of bridge; read by Isaac McGuire.

DISCHARGE MEASUREMENTS.—Made from downstream side of bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of sand and mud; fairly permanent. Right bank high. Left bank subject to overflow at stage of about 26 feet. No well-defined control.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 28.0 feet at 2.50 p. m. April 27 (discharge, 33,000 second-feet); minimum discharge, 170 second-feet January 10–19.

1924–25: Maximum stage recorded, 28.56 feet July 1, 1924 (discharge, 36,600 second-feet); minimum discharge, that of January 10–19, 1925.

ACCURACY.—Stage-discharge relation permanent during year except as affected by ice. Rating curve well defined above 300 second-feet and extended below. Gage read to hundredths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table. Records good for open-water periods; poor for period of ice effect.

Discharge measurements of Grand River near Sumner, Mo., during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 15	3.27	346	Jan. 11	*3.45	182	June 20	9.70	4,080
Dec. 14	3.84	603	Mar. 25	5.07	1,160	Sept. 24	15.24	9,390

* Stage-discharge relation affected by ice.

Daily discharge, in second-feet, of Grand River near Sumner, Mo., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,420	238	213	190	480	1,920	650	2,490	520	2,850	325	342
2	990	238	213	190	480	1,480	650	2,030	500	1,980	310	310
3	740	238	226	190	480	890	650	1,810	540	1,370	325	295
4	650	238	252	190	480	1,260	695	1,590	14,800	1,150	310	280
5	540	238	400	190	480	1,320	890	1,420	23,900	2,140	295	265
6	460	252	1,370	190	695	1,260	740	1,260	25,800	2,490	280	252
7	460	265	2,920	190	1,150	1,200	695	1,150	22,400	2,250	280	252
8	460	252	2,490	213	1,370	1,260	740	1,040	8,780	1,040	280	360
9	460	400	1,590	190	2,250	1,260	4,110	990	2,790	840	280	380
10	500	605	990	170	2,850	1,150	7,900	940	1,700	740	280	295
11	500	540	740	170	2,790	1,100	9,240	940	1,370	650	342	940
12	420	325	695	170	2,730	1,040	5,770	890	1,150	605	440	2,490
13	400	325	650	170	2,490	1,040	2,990	840	1,200	540	520	11,200
14	360	310	605	170	2,250	1,810	2,140	840	3,620	605	790	17,600
15	342	295	540	170	1,760	7,700	1,760	840	4,250	560	1,200	13,400
16	325	325	500	170	1,590	6,400	1,420	2,550	2,610	790	1,100	5,410
17	325	380	440	170	1,100	3,410	1,260	5,950	15,300	560	1,260	2,030
18	310	342	400	170	990	2,370	1,100	4,970	18,800	500	1,150	1,370
19	295	325	360	170	940	2,140	1,040	2,990	13,200	480	3,690	1,040
20	280	295	325	190	840	2,430	4,730	1,640	4,410	440	5,410	790
21	265	280	295	190	840	2,370	5,050	1,260	2,370	420	5,680	840
22	252	280	265	213	840	1,980	5,230	1,040	1,810	380	8,560	13,200
23	252	280	238	265	1,320	1,700	4,490	890	5,230	380	5,770	11,400
24	252	252	238	440	13,200	1,420	7,900	740	10,300	360	2,030	9,240
25	252	238	213	650	21,100	1,200	22,800	695	11,800	380	1,040	7,800
26	252	238	213	740	20,600	1,100	28,500	650	8,120	360	740	4,330
27	252	226	190	790	12,900	990	33,000	560	4,040	342	582	5,410
28	252	226	190	790	3,830	840	25,500	540	3,270	342	520	9,240
29	252	226	190	695	-------	840	12,500	520	4,180	480	440	10,700
30	252	213	190	605	-------	740	3,620	520	4,110	460	380	5,500
31	252	-------	190	480	-------	695	-------	540	-------	380	360	-------

NOTE.—Stage-discharge relation seriously affected by ice Dec. 18 to Feb. 15; daily discharge ascertained by applying to rating table daily gage height corrected for ice effect by means of one discharge measurement, observer's notes, and weather records.

Monthly discharge of Grand River near Sumner, Mo., for the year ending September 30, 1925

[Drainage area, 6,880 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	1,420	252	420	0.061	0.07
November	605	213	296	.043	.05
December	2,920	190	591	.086	.10
January	790	170	306	.044	.05
February	21,100	480	3,670	.533	.56
March	7,700	695	1,820	.265	.31
April	33,000	650	6,590	.958	1.07
May	5,950	520	1,460	.212	.24
June	25,800	500	7,430	1.08	1.20
July	2,850	342	867	.126	.15
August	8,560	280	1,450	.211	.24
September	17,600	252	4,570	.664	.74
The year	33,000	170	2,420	.352	4.78

THOMPSON RIVER AT DAVIS CITY, IOWA

LOCATION.—In sec. 35, T. 68 N., R. 26 W., at highway bridge in Davis City Decatur County, 22 miles below mouth of Long Creek.

DRAINAGE AREA.—670 square miles (measured on map issued by United States Geological Survey).

RECORDS AVAILABLE.—May 14, 1918, to July 2, 1925, when station was discontinued.

GAGE.—Chain gage attached to downstream handrail of bridge; read by W. L. Severe.

DISCHARGE MEASUREMENTS.—Low-water measurements made by wading about 1,000 feet downstream from gage; medium-stage measurements from highway bridge; high-stage measurements from Chicago, Burlington & Quincy Railroad bridge 500 feet downstream.

CHANNEL AND CONTROL.—Left bank is overflowed during floods. Low-water control is the rock-fill dam at Chicago, Burlington & Quincy pumping station 300 feet below gage. At high stages the capacity of the channel below controls the stage. The channel has a gravel bottom, the banks are well protected with a heavy growth of willows, and the control section is fairly permanent.

EXTREMES OF DISCHARGE.—Maximum stage recorded during the period October 1 to July 2, 13.06 feet at 10 a. m. June 3 (discharge, 4,230 second-feet); minimum discharge probably occurred during winter.

1918–1925: Maximum stage recorded, 19.85 feet July 18, 1922 (discharge, 16,700 second-feet); minimum discharge, about 1 second-foot September 18–24, 27–29, October 15 and 16, 1918 A stage of 22.8 feet referred to present gage was recorded August 8, 1885 (discharge, about 17,600 second-feet).

ICE.—Stage-discharge relation affected by ice.

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

The following measurement was made:

June 11, 1923: Gage height, 2.09 feet; discharge, 31 second-feet.

Daily discharge, in second-feet, of Thompson River at Davis City, Iowa, for the year ending September 30, 1925

Day	Oct.	Nov.	Feb.	Mar.	Apr.	May	June	July
1	77	28	------	58	41	34	16	35
2	45	42	------	53	37	33	17	34
3	41	28	------	51	50	30	2,960	------
4	37	27	------	66	48	22	1,750	------
5	34	30	------	58	53	20	304	------
6	37	24	------	69	29	23	124	------
7	24	22	------	68	30	27	75	------
8	26	26	------	88	37	22	53	------
9	33	35	------	88	45	23	53	------
10	34	37	------	82	189	20	33	------
11	32	45	------	77	135	19	32	------
12	33	14	------	69	128	18	37	------
13	30	33	------	156	124	18	41	------
14	21	29	------	207	66	15	28	------
15	26	24	------	170	53	20	1,340	------
16	20	35	------	137	47	64	1,250	------
17	27	24	------	156	41	50	220	------
18	32	27	------	182	40	41	182	------
19	27	26	------	170	23	34	45	------
20	27	19	------	120	14	24	82	------
21	24	27	------	94	50	32	59	------
22	19	28	207	86	33	29	56	------
23	27	28	2,200	78	75	20	566	------
24	22	27	396	69	109	18	364	------
25	23	15	233	68	98	15	148	------
26	21	20	142	66	51	13	106	------
27	21	23	66	61	42	13	82	------
28	24	19	61	53	37	13	61	------
29	22	20	------	50	28	14	47	------
30	21	22	------	41	38	13	40	------
31	23	------	------	44	------	15	------	------

Monthly discharge of Thompson River at Davis City, Iowa, for the year ending September 30, 1925

[Drainage area, 670 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	77	19	29.4	0.044	0.05
November	45	14	26.8	.040	.04
February 22-28	2,200	61	472	.704	.18
March	207	41	91.5	.137	.16
April	189	14	59.7	.089	.10
May	64	13	24.3	.036	.04
June	2,960	16	339	.506	.56

MEDICINE CREEK NEAR GALT, MO.

LOCATION.—In NW. ¼ sec. 34, T. 62 N., R. 22 W., at Quincy, Omaha & Kansas City Railroad bridge 1 mile above West Medicine Creek, and 1½ miles east of Galt, Grundy County.

DRAINAGE AREA.—225 square miles (measured on soil-survey maps).

RECORDS AVAILABLE.—July 6, 1921, to September 30, 1925.

GAGE.—Chain gage on upstream side of bridge; read by C. R. Rusk. On June 19, 1925, the datum of the gage was lowered 2.00 feet, and all gage readings after September 30, 1924, have been corrected to refer to the new datum.

DISCHARGE MEASUREMENTS.—Made from downstream side of highway bridge 1,000 feet below gage or by wading.

CHANNEL AND CONTROL.—Bed composed of silt and sand; shifting. Banks of medium height, lightly wooded, and subject to overflow at high stages. Channel was straightened during 1923 by means of a small dredged ditch, which now is rapidly becoming larger through erosion. No well-defined control.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 14.20 feet at 7 a. m. April 25 (discharge, 3,000 second-feet); minimum stage, 1.38 feet September 9 (discharge not determined).

1921–1925: Maximum discharge recorded, 3,170 second-feet June 28, 1924; minimum discharge, less than 1 second-foot August 22 and 29, 1922.

ACCURACY.—Stage-discharge relation not permanent; affected by ice during the winter. Rating curves fairly well defined above 5 second-feet. Gage read to hundredths once daily except Sundays. Daily discharge ascertained by shifting-control method except as described in footnote to table of daily discharge. Records fair except for very low stages, which are poor. Daily discharge not determined after April 30 on account of unstable stage-discharge relation caused by rapid erosion of channel.

Discharge measurements of Medicine Creek near Galt, Mo., during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 16	2.13	1.2	Apr. 25	14.09	2,920	June 19	3.58	80
Dec. 13	2.55	10	Apr. 26	9.01	965	Sept. 25	3.57	93
Jan. 10	*2.29	2.6	Do	7.56	566	Do	3.54	82
Mar. 24	3.08	36	May 1	3.61	64			

*Stage-discharge relation affected by ice.

Daily gage height, in feet, of Medicine Creek near Galt, Mo., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	------	2.06	2.08	2.32	------	------	2.48	3.68	2.20	2.38	1.58	1.46
2	2.22	------	2.10	2.34	3.80	3.56	2.48	3.50	11.90	2.28	------	1.44
3	2.20	2.06	2.12	2.32	3.94	3.16	2.54	------	12.80	2.24	1.58	1.40
4	2.24	2.08	2.64	------	2.82	2.80	2.50	3.18	7.80	2.92	1.56	1.40
5	------	2.06	2.90	2.32	3.60	2.64	------	3.02	4.72	------	1.54	1.40
6	2.20	2.08	4.34	2.22	3.50	2.78	2.38	2.88	3.86	2.40	1.52	------
7	2.22	3.12	------	2.24	3.80	2.84	2.34	2.78	------	2.84	1.64	1.42
8	2.22	2.68	3.68	2.28	------	------	7.00	2.72	2.62	2.30	1.62	1.42
9	2.38	------	2.74	2.20	5.70	2.90	8.50	2.70	2.48	2.14	------	1.38
10	2.34	2.26	2.30	2.22	6.90	2.94	7.70	------	2.40	2.02	1.54	1.48
11	2.30	2.24	3.14	------	6.70	2.84	6.60	2.62	2.40	1.94	1.62	1.76
12	------	2.16	2.70	2.22	6.60	2.80	------	2.58	2.32	------	1.90	2.76
13	2.16	2.18	2.50	2.20	4.74	3.96	4.04	2.54	2.96	1.88	1.82	------
14	2.16	2.16	------	2.14	5.20	------	3.66	2.50	------	1.98	1.72	2.96
15	2.14	2.18	2.42	2.24	------	------	3.30	2.42	6.10	1.94	1.68	3.40
16	2.14	------	2.48	2.22	3.74	4.30	3.10	3.58	9.30	1.90	------	2.54
17	2.12	2.16	2.46	2.22	4.02	3.86	2.92	------	10.00	1.82	1.92	2.10
18	2.12	2.20	2.44	------	3.96	4.02	2.84	2.60	5.50	1.78	1.78	1.92
19	------	2.28	2.42	2.18	3.54	4.02	------	2.64	3.90	------	1.68	1.78
20	2.12	2.26	2.20	2.20	3.42	4.34	3.36	2.72	3.20	1.68	2.12	------
21	2.10	2.32	------	2.18	------	3.84	5.10	2.50	------	1.72	1.74	4.70
22	2.10	2.24	2.14	2.26	------	------	4.60	2.40	9.40	1.72	1.68	3.60
23	2.08	------	2.14	2.62	11.00	3.22	5.30	2.30	5.00	1.66	------	4.40
24	2.08	2.16	2.12	2.64	8.60	3.10	13.62	------	7.50	1.66	1.76	4.90
25	2.06	2.12	2.18	------	5.70	3.00	14.20	2.20	5.00	1.68	1.80	4.10
26	------	2.12	2.26	4.02	3.26	2.96	8.28	2.16	3.28	------	1.72	3.44
27	2.08	2.14	------	4.28	3.14	2.84	5.80	2.18	2.80	1.62	1.62	------
28	2.12	2.12	------	3.24	3.68	2.74	5.10	2.16	------	1.60	1.56	4.76
29	2.12	2.12	2.28	2.96	------	------	4.30	2.14	3.24	1.60	1.52	4.36
30	2.10	------	2.32	3.00	------	2.58	3.86	2.12	2.62	1.62	------	3.18
31	2.10	------	2.34	3.10	------	2.52	------	2.10	------	1.62	1.46	------

Daily discharge, in second-feet, of Medicine Creek near Galt, Mo., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.
1	2	1	2	2	10	55	20
2	2	1	2	2	10	53	20
3	2	1	3	2	11	38	21
4	3	1	11	2	11	28	20
5	2	1	14	2	13	24	19
6	2	1	69	2	16	28	18
7	2	18	54	2	18	30	17
8	2	10	39	2	60	30	445
9	5	7	13	2	165	31	785
10	4	4	6	2	320	32	585
11	4	4	21	2	290	30	367
12	3	2	12	2	290	28	218
13	2	3	9	2	96	69	69
14	2	3	8	2	133	75	57
15	1	3	8	2	87	80	43
16	1	3	9	2	41	85	37
17	1	3	7	2	52	65	31
18	1	4	5	2	50	69	30
19	1	5	4	2	33	69	37
20	1	4	2	2	28	85	44
21	1	5	2	2	24	61	149
22	1	4	2	2	1,000	50	103
23	1	4	2	5	1,580	40	171
24	1	3	2	8	810	37	2,720
25	1	2	2	11	223	34	3,000
26	1	3	2	24	42	32	735
27	1	3	2	30	38	30	237
28	2	3	2	14	57	26	159
29	2	3	2	8	-------	24	91
30	1	2	2	8	-------	22	74
31	1	-------	2	10	-------	20	-------

NOTE.—Gage heights missing Oct. 1, Mar. 14, Feb. 21, and Sundays; discharge interpolated or estimated. Stage-discharge relation affected by ice Dec. 17 to Feb. 8; daily discharge ascertained by applying to rating table daily gage height corrected for ice effect by means of one discharge measurement, observer's notes, and weather records.

Monthly discharge of Medicine Creek near Galt, Mo., for the year ending September 30, 1925

[Drainage area, 225 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	5	1	1.81	0.008	0.01
November	18	1	3.70	.016	.02
December	69	2	10.3	.046	.05
January	30	2	5.23	.023	.03
February	1,580	10	197	.876	.91
March	85	20	44.5	.198	.23
April	3,000	17	344	1.53	1.70

LOCUST CREEK NEAR MILAN, MO.

LOCATION.—In SW. ¼ sec. 8, T. 62 N., R. 20 W., at Booth's highway bridge, 3½ miles southwest of Milan, Sullivan County, and 14 miles above East Locust Creek.

DRAINAGE AREA.—225 square miles (measured on soil-survey maps).

RECORDS AVAILABLE.—July 2, 1921, to September 30, 1925.

GAGE.—Chain gage bolted to upstream handrail of bridge; read by Harry McCaughey.

DISCHARGE MEASUREMENTS.—Made from downstream side of bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of sand and gravel; clean and shifting Low-water control is a clean rock and gravel bar 75 feet below gage; subject to occasional changes.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 17.70 feet at 7.30 p. m. April 25 (discharge, 3,200 second-feet); minimum discharge, 2 second-feet many days from October to January.

1921–1925: Maximum stage recorded, that of April 25, 1925; minimum discharge, 0.8 second-foot October 1, 1922.

ACCURACY.—Stage-discharge relation not permanent; affected by ice. Rating curve fairly well defined above 17 second-feet. Gage read to hundredths once daily during low stages and twice during high stages. Daily discharge ascertained by shifting-control method. Records fair for medium and high stages; poor for discharges less than 5 second-feet and for periods of ice effect.

Discharge measurements of Locust Creek near Milan, Mo., during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 16	1.61	2.6	Mar. 24	2.72	49	June 20	3.26	74
Dec. 13	2.07	13	Apr. 26	15.44	2,400	Sept. 25	3.15	73
Jan. 10	a 1.59	1.9	May 1	3.82	88			

a Stage-discharge relation affected by ice.

Daily discharge, in second-feet, of Locust Creek near Milan, Mo., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2	3	3	2	10	30	15	88	4	24	4	4
2	2	3	3	2	10	28	15	71	4	24	4	4
3	2	3	3	2	10	23	16	47	1,850	20	4	3
4	2	3	9	2	10	22	13	40	1,170	51	4	3
5	2	3	180	2	13	23	9	32	958	67	3	3
6	2	4	396	2	16	22	9	26	140	28	4	4
7	2	4	140	2	26	32	9	22	20	18	5	4
8	2	18	63	2	45	37	10	20	32	13	5	4
9	3	6	22	2	264	32	288	20	19	10	5	4
10	3	5	20	2	252	30	396	18	15	10	4	5
11	2	5	18	2	410	28	738	18	14	7	5	45
12	2	3	12	2	200	28	230	16	13	7	5	51
13	2	3	12	2	120	690	111	14	63	7	6	42
14	2	3	10	2	98	818	75	14	12	10	6	42
15	2	2	10	2	71	340	50	13	508	10	4	41
16	2	2	14	2	67	24	34	40	1,790	12	4	15
17	2	4	9	2	43	20	30	26	1,820	7	4	7
18	2	5	6	2	26	264	30	18	508	6	4	7
19	2	4	4	2	22	200	642	21	140	5	4	5
20	2	3	4	2	23	200	106	14	80	5	8	220
21	2	4	3	2	24	160	125	14	16	5	5	116
22	2	4	3	2	28	140	180	10	1,680	5	4	19
23	2	4	2	2	850	90	536	11	2,300	4	4	21
24	2	4	2	10	1,160	49	2,150	11	1,190	4	4	98
25	2	4	2	12	312	42	2,940	7	508	4	4	86
26	2	3	2	18	140	35	1,580	5	102	3	4	63
27	2	3	2	28	140	28	550	7	55	3	4	116
28	2	3	2	20	71	21	264	6	88	4	4	35
29	2	3	2	16	-------	16	150	6	80	4	4	31
30	2	3	2	13	-------	16	116	6	35	4	3	312
31	2	------	2	10	-------	13	-------	6	-------	4	3	------

NOTE.—Gage readings probably in error Oct. 6, 13–18, and Mar. 23–27; discharge estimated. Stage-discharge relation affected by ice Dec. 18 to Jan. 23, Jan. 28 to Feb. 6, and Feb. 10–11; daily discharge ascertained by applying to rating table daily gage height corrected for ice effect by means of one discharge measurement, observer's notes, and weather records.

Monthly discharge of Locust Creek near Milan, Mo., for the year ending September 30, 1925

[Drainage area, 225 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	3	2	2.06	0.0092	0.01
November	18	2	4.03	.018	.02
December	396	2	31	.138	.16
January	28	2	5.58	.025	.03
February	1,160	10	159	.707	.74
March	818	13	113	.502	.58
April	2,940	9	381	1.69	1.89
May	88	5	21.5	.096	.11
June	2,300	4	507	2.25	2.51
July	67	3	12.4	.055	.06
August	8	3	4.35	.019	.02
September	312	3	46.8	.208	.23
The year	2,940	2	105	.467	6.36

CHARITON RIVER BASIN

CHARITON RIVER AT ELMER, MO.

LOCATION.—In SW. ¼ SW. ¼ sec. 2, T. 59 N., R. 16 W., at Atchison, Topeka & Santa Fe Railway bridge three-fourths mile southwest of Elmer, Macon County, 1 mile below Walnut Creek, and 3½ miles above Rock Creek.

DRAINAGE AREA.—1,660 square miles (measured on base maps of Missouri and Iowa).

RECORDS AVAILABLE.—July 7, 1921, to September 30, 1925.

GAGE.—Chain gage bolted to lower chord on downstream side of bridge; read by P. F. Wigal and G. W. Elliot. On August 3, 1925, the datum of the gage was lowered 3.00 feet, and all gage readings after September 30, 1924, have been corrected to refer to the new datum.

DISCHARGE MEASUREMENTS.—Made from downstream side of bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of hardpan and silt; shifting. Banks of medium height, cultivated, and subject to overflow at high stages. Channel was straightened during 1922–23 by means of a small dredged ditch about 1½ miles below gage and just above gage. Channel is now becoming larger through erosion. No well-defined control.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 18.65 feet at 1.10 p. m. April 27 (discharge, 7,200 second-feet); minimum discharge, 23 second-feet numerous days during November, December, January, and September.

1921–1925: Maximum stage recorded, 22.64 feet July 13, 1922 (discharge, 7,350 second-feet); minimum discharge, that of 1925.

REGULATION.—None.

ACCURACY.—Stage-discharge relation not permanent; seriously affected by ice during the winter. Rating curve used until June 23 fairly well defined above 30 second-feet; curve used after that date fairly well defined above 300 second-feet. Gage read to hundredths once or twice daily. Daily discharge ascertained by applying mean daily gage height to rating table. Records fair for open-water periods until June 23; others poor.

Discharge measurements of Chariton River at Elmer, Mo., during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 16	3.36	38	Mar. 26	5.22	349	Apr. 30	8.33	1,020
Dec. 12	4.15	138	Apr. 27	18.71	7,290	Do	8.00	885
Jan. 9	*3.30	24	Apr. 28	18.51	7,180	June 21	8.38	1,140
Mar. 23	6.19	562	Apr. 29	10.96	1,810	Sept. 23	5.11	348

* Stage-discharge relation affected by ice.

Daily discharge, in second-feet, of Chariton River at Elmer, Mo., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	58	24	24	23	54	621	181	819	63	455	60	30
2	53	29	23	23	54	555	153	709	61	417	46	28
3	46	28	24	23	54	511	135	621	331	398	32	28
4	38	27	34	23	54	471	127	533	4,300	328	30	26
5	35	27	181	23	54	411	119	471	2,080	770	28	23
6	42	25	731	23	153	391	104	431	731	362	28	28
7	35	26	797	23	271	371	104	391	709	455	52	24
8	64	30	599	23	351	351	97	351	935	379	41	23
9	47	27	311	23	960	311	127	351	775	793	26	24
10	42	26	181	23	935	291	511	331	599	990	26	38
11	41	104	162	23	841	271	1,170	311	451	1,050	28	379
12	35	73	144	23	731	271	960	291	331	1,020	32	862
13	30	67	119	23	621	643	511	271	291	417	36	362
14	29	64	112	23	511	1,170	371	241	331	328	34	226
15	58	57	90	23	451	1,780	291	211	471	328	1,230	148
16	55	32	84	23	411	1,140	251	311	3,420	294	1,080	103
17	29	25	70	23	371	709	211	960	4,220	260	495	98
18	28	33	65	23	351	753	191	511	3,660	211	277	142
19	29	30	54	23	331	841	171	371	3,270	211	119	108
20	42	32	54	23	311	990	2,360	351	2,620	243	226	77
21	28	35	44	23	291	1,390	885	351	1,390	182	417	1,320
22	27	32	44	29	291	731	1,110	351	960	130	94	417
23	25	30	44	36	819	555	775	271	4,540	103	98	417
24	28	23	36	54	3,720	491	990	211	3,900	89	81	663
25	34	24	36	171	2,280	331	5,400	171	3,320	77	77	474
26	32	24	29	135	1,390	291	6,500	112	2,120	73	58	362
27	29	28	29	90	863	251	7,200	97	1,560	65	36	516
28	28	29	29	77	731	231	6,900	80	684	65	36	600
29	27	30	29	65	-------	211	2,520	81	495	65	38	436
30	25	29	29	65	-------	201	1,020	65	436	69	36	362
31	25	-------	23	54	-------	181	-------	63	-------	73	32	-------

NOTE.—Stage-discharge relation affected by ice Dec. 18 to Feb. 19; daily discharge estimated from a study of gage heights, one discharge measurement, observer's notes, and weather records. Daily discharge interpolated Aug. 1–2 on account of missing gage heights.

Monthly discharge of Chariton River at Elmer, Mo., for the year ending September 30, 1925

[Drainage area, 1,660 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	64	25	36.9	0.022	0.03
November	104	23	35.7	.022	.02
December	797	23	136	.082	.09
January	171	23	40.6	.024	.03
February	3,720	54	652	.393	.41
March	1,780	181	571	.344	.40
April	7,200	97	1,380	.831	.93
May	819	63	345	.208	.24
June	4,540	61	1,640	.988	1.10
July	1,050	65	345	.208	.24
August	1,230	26	159	.096	.11
September	1,320	23	278	.167	.19
The year	7,200	23	463	.279	3.79

LAMINE RIVER BASIN

LAMINE RIVER AT CLIFTON CITY, MO.

LOCATION.—In NW. ¼ sec. 16, T. 46 N., R. 19 W., at highway bridge 300 feet above Missouri, Kansas & Texas Railway bridge, three-fourths mile east of Clifton City, Cooper County, and 2 miles below Honey Creek.

DRAINAGE AREA.—598 square miles (measured on topographic maps).

RECORDS AVAILABLE.—June 21, 1922, to September 30, 1925.

GAGE.—Chain gage on downstream side of bridge; read by Henry Lorenz.

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

CHANNEL AND CONTROL.—Bed composed of clean, coarse gravel. Control is a coarse gravel bar 200 feet below gage; practically permanent.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 20.60 feet at 6 p. m. March 19 (discharge, 10,100 second-feet); minimum stage, 1.24 feet September 10 (discharge, 2 second-feet).

1922–1925: Maximum stage recorded, that of March 19, 1925; minimum discharge, 1 second-foot September 27, 1924.

ACCURACY.—Stage-discharge relation changed at end of frozen period December 18–28. Rating curves fairly well defined above 10 second-feet. Gage read to hundredths once daily. Daily discharge ascertained by applying daily gage height to rating table. Records good for discharges above 10 second-feet and fair for those below.

Discharge measurements of Lamine River at Clifton City, Mo., during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 8	3.88	583	Jan. 2	1.86	27	July 9	1.69	15
Do	3.52	458	Mar. 20	14.00	[a] 4,220	Do	1.70	16
Do	3.37	394	Do	8.66	[b] 1,940	Aug. 21	1.78	21
Oct. 9	2.90	256	Mar. 21	4.74	905			
Nov. 4	1.74	10	May 7	2.10	57			

[a] Rapidly falling stage; discharge computed to correspond to stationary stage, 4,890 sec ft.
[b] Rapidly falling stage; discharge computed to correspond to stationary stage, 2,220 sec.-ft.

Daily discharge, in second-feet, of Lamine River at Clifton City, Mo., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4	7	12	27	2,840	170	107	111	28	37	6	4
2	3	9	12	28	1,820	155	102	88	28	30	6	4
3	3	7	12	28	1,040	140	175	75	28	28	6	4
4	3	7	17	28	1,540	150	1,500	67	32	25	5	4
5	3	9	22	28	2,710	175	860	63	140	22	5	3
6	7	15	20	28	2,220	475	475	56	75	20	5	3
7	168	13	36	30	825	260	380	56	50	17	5	3
8	860	7	33	30	1,860	260	245	59	31	16	5	3
9	245	13	30	28	4,430	215	475	200	27	15	5	3
10	140	20	30	29	1,300	175	1,100	275	22	15	5	2
11	145	22	27	30	1,580	155	685	215	22	14	7	3
12	140	135	25	32	825	130	365	116	20	13	7	4
13	145	71	22	32	1,000	320	290	135	23	11	11	3
14	175	135	20	32	720	1,700	320	125	27	10	14	3
15	42	75	22	32	475	720	380	175	230	9	8	3
16	33	58	22	32	365	440	275	475	245	8	8	3
17	25	52	27	32	305	335	320	545	260	8	11	3
18	22	42	27	34	230	3,250	1,100	320	2,980	8	28	3
19	58	33	27	39	200	9,000	440	200	1,940	7	22	4
20	55	27	27	44	200	3,740	305	155	275	8	20	4
21	42	30	15	59	230	860	230	145	188	8	17	4
22	22	22	15	102	200	475	175	88	130	7	14	6
23	17	22	15	215	305	410	145	67	188	8	10	6
24	7	20	15	545	615	320	125	56	335	8	8	107
25	7	17	15	1,900	380	260	150	42	320	7	7	59
26	7	15	15	3,340	305	230	145	32	230	7	6	42
27	7	15	15	1,980	200	188	145	32	150	8	5	30
28	7	13	15	965	175	160	200	30	67	8	5	37
29	7	12	22	860	-------	140	175	32	53	8	5	32
30	7	9	27	410	-------	125	130	30	44	7	5	28
31	9	-------	23	475	-------	116	-------	30	-------	6	4	-------

NOTE.—Stage-discharge relation affected by ice Jan. 18–28; discharge estimated from gage heights observer's notes, and weather records. Discharge interpolated Jan. 10.

Monthly discharge of Lamine River at Clifton City, Mo., for the year ending September 30, 1925

[Drainage area, 598 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	860	3	77.9	0.130	0.15
November	135	7	31.1	.052	.06
December	36	12	21.4	.036	.04
January	3,340	27	370	.619	.71
February	4,430	175	1,030	1.72	1.79
March	9,000	116	814	1.36	1.57
April	1,500	102	384	.642	.72
May	545	30	132	.221	.25
June	2,980	20	273	.457	.51
July	37	6	13	.022	.03
August	28	4	8.87	.015	.02
September	107	2	13.9	.023	.03
The year	9,000	2	259	.433	5.88

BLACKWATER RIVER AT BLUE LICK, MO.

LOCATION.—On line between secs. 27 and 34, T. 49 N., R. 21 W., at bridge on State highway No. 65 (formerly No. 3), three-fourths mile below Finney Creek, 1 mile south of Blue Lick, Saline County, and 12 miles above Salt Creek.

DRAINAGE AREA.—1,120 square miles (measured on topographic maps).

RECORDS AVAILABLE.—June 22, 1922, to September 30, 1925.

GAGE.—Chain gage on upstream side of bridge; read by J. T. Duncan and Mrs. Julia Sadewhite.

DISCHARGE MEASUREMENTS.—Made from downstream side of bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of clean hardpan and silt; probably shifting. Right bank high and rocky; never overflowed. Left bank cultivated; subject to overflow at stage of about 30 feet. Control is gravel bar 300 feet below gage; practically permanent.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 24.10 feet at 6.30 p. m. June 19 (discharge, 7,060 second-feet); minimum stage, 0.98 foot June 12 and September 1 (discharge, 0.6 second-foot).

1922–1925: Maximum stage determined by levels to floodmarks, 30.9 feet July 4, 1923; maximum discharge recorded, 10,800 second-feet June 30, 1924; minimum stage recorded, that of 1925.

ACCURACY.—Stage-discharge relation practically permanent during the year; not affected by ice. Rating curve fairly well defined above 15 second-feet. Gage read to hundredths once daily. Gage-height record prior to July 24 rather poor. Daily discharge ascertained by applying daily gage height to rating table except as described in footnote to table of daily discharge. Records poor until July 24 and fair after that date.

Discharge measurements of Blackwater River at Blue Lick, Mo., during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 9	6.64	*862	Mar. 21	7.37	917	July 24	1.43	14
Nov. 4	1.29	3.5	May 8	1.94	50	Do	1.43	14
Jan. 2	1.33	7.1	July 10	1.41	13	Aug. 22	2.49	127

*Rapidly rising stage; discharge computed to correspond to stationary stage, 782 sec.-ft.

Daily discharge, in second-feet, of Blackwater River at Blue Lick, Mo., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	10	9	3	5	344	150	79	85	74	136	2	0.6
2	2	6	3	5	296	136	77	72	46	110	3	1
3	1	4	3	6	296	136	700	72	25	103	4	.8
4	376	4	4	8	408	116	3,250	66	13	85	11	.9
5	280	3	45	7	472	110	4,340	64	3	76	2	.8
6	103	3	68	5	520	103	3,780	60	2	65	2	.8
7	79	15	45	4	376	188	2,860	56	1	52	2	.9
8	203	10	33	3	408	203	1,470	51	1	39	2	1
9	472	8	27	3	424	218	536	116	.8	26	2	.8
10	79	6	23	3	440	218	488	103	.8	13	2	1
11	68	5	17	2	608	203	392	85	.8	10	50	2
12	24	4	14	2	680	188	296	79	.6	6	42	2
13	23	59	10	2	520	910	296	188	46	4	12	2
14	21	27	10	2	344	700	264	136	35	3	6	2
15	10	1	10	1	233	536	233	122	30	2	2	1

Daily discharge, in second-feet, of Blackwater River at Blue Lick, Mo., for the year ending September 30, 1925—Continued

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
16	3	2	9	2	218	296	218	1,860	17	4	50	2
17	2	2	8	2	203	218	328	1,010	4	3	835	1
18	2	2	8	2	188	3,320	440	376	3,040	2	34	1
19	2	2	7	3	188	4,260	233	233	6,220	2	29	1
20	2	2	7	5	173	3,140	173	136	3,640	2	2,220	1
21	2	2	7	110	173	835	122	91	1,120	910	810	1
22	2	1	7	720	166	360	116	76	572	344	116	12
23	2	2	6	1,770	158	188	110	35	344	57	68	2
24	2	1	6	3,110	158	180	188	22	136	13	21	2
25	2	4	6	3,700	203	166	296	18	110	8	13	4
26	2	4	5	2,800	280	150	328	16	233	10	4	6
27	2	3	5	1,650	312	129	173	16	129	78	6	20
28	2	3	4	572	173	110	143	12	110	2	3	33
29	2	3	5	408	-------	91	110	280	280	2	2	41
30	1	3	4	392	-------	85	110	218	91	2	2	28
31	2	-------	4	360	-------	79	-------	136	--------	2	2	-------

NOTE.—Gage-height record unreliable Nov. 1–5, May 6–7, July 7–11 and missing July 19–23, Aug. 2, 9, 16, 23, 30, Sept. 6, 7, 13, 20, 25, 27; discharge estimated.

Monthly discharge of Blackwater River at Blue Lick, Mo., for the year ending September 30, 1925

[Drainage area, 1,120 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	472	1	57.6	0.051	0.06
November	59	1	6.67	.006	.01
December	68	3	13.3	.012	.01
January	3,700	1	505	.451	.52
February	680	158	320	.286	.30
March	4,260	79	572	.511	.59
April	4,340	77	738	.659	.74
May	1,860	12	190	.170	.20
June	6,220	.6	544	.486	.54
July	910	2	70	.062	.07
August	2,220	2	141	.126	.15
September	41	.6	5.75	.005	.01
The year	6,220	.6	262	.234	3.20

OSAGE (MARAIS DES CYGNES) RIVER BASIN

OSAGE RIVER NEAR QUENEMO, KANS.

LOCATION.—In NW. ¼ sec. 7, T. 17 S., R. 18 E., at highway bridge 2½ miles below Dragoon Creek, 3 miles below Salt Creek, and 3 miles east of Quenemo, Osage County.

DRAINAGE AREA.—1,030 square miles (measured on topographic maps).

RECORDS AVAILABLE.—June 17, 1922, to September 30, 1925.

GAGE.—Chain gage on upstream handrail of bridge; read by Mrs. T. H. King.

DISCHARGE MEASUREMENTS.—Made from downstream side of bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of shale and silt; practically permanent. Control for low and medium stages is short riffle over solid rock 300 feet below gage; permanent. Bank-full stage, 27 feet.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 20.0 feet at 6 p. m. June 3 (discharge, 5,600 second-feet); minimum stage, 2.20 feet at 6 p. m. September 18 (discharge, 0.1 second-foot).

1922–1925: Maximum stage recorded, 34.65 feet at 6 p. m. June 11, 1923, (discharge, 17,800 second-feet); minimum discharge, that of September 18, 1925.

ICE.—Stage-discharge relation affected by ice.

REGULATION.—None.

ACCURACY.—Stage-discharge relation practically permanent. Rating curve fairly well defined between 10 and 3,000 second-feet; poorly defined below and extended above these limits. Gage read to hundredths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table. Records good except for discharge below 10 second-feet, for which they are poor.

The following discharge measurements were made:

May 14, 1925: Gage height, 3.46 feet; discharge, 93.8 second-feet.

June 2, 1925: Gage height, 5.29 feet; discharge, 520 second-feet.

August 14, 1925: Gage height, 2.36 feet; discharge, 1.23 second-feet.

Daily discharge, in second-feet, of Osage River near Quenemo, Kans., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	29	4	4		264	49	15	142	11	4	2.0	0.6
2	16	3	4		219	49	32	108	660	3	.4	.6
3	10	3	4		188	47	95	95	4,560	2	2	.4
4	10	3	5		178	44	2,420	98	3,140	1	1	.5
5	10	3	6		142	47	996	108	348	12	2	.2
6	9	3	6		116	55	442	95	208	4	1	.4
7	5	3	6		116	43	276	87	108	2	3	.6
8	5	3	9		89	45	241	73	73	2	2	.3
9	660	3	12		81	47	288	169	55	2	2	.2
10	612	3	12		105	31	252	219	40	2	1	.7
11	160	5	10		116	27	219	208	31	2	2	2.0
12	84	5	10	1	156	37	169	142	34	2	2	2.0
13	55	4	10		160	24	151	116	1,160	2	1	1.0
14	37	3	9		151	22	133	94	828	2	1	.9
15	29	19	7		142	21	108	87	264	2	1	.7
16	15	19	6		116	66	95	116	124	9	1	.6
17	13	18	4		124	51	198	324	77	4	2	.3
18	11	14	3		116	41	178	142	55	3	1	.1
19	9	11			116	53	188	97	51	3	1	.3
20	8	9			116	69	198	77	36	3	2	.5
21	6	6			108	58	169	55	27	3	1	1.0
22	4	5			116	46	124	40	21	5	1	1.0
23	4	5			108	40	47	30	15	11	.8	2.0
24	4	5		514	116	33	564	24	7	10	.8	2.0
25	4	4	2	1,610	100	28	972	28	8	6	.4	2.0
26	4	4		1,330	81	29	660	32	9	4	.8	2.0
27	3	4		852	78	22	348	23	8	3	.7	2.0
28	3	4		708	57	17	300	20	5	2	.7	2.0
29	3	4		442	-------	17	230	18	3	2	.4	2.0
30	4	4		230	-------	14	169	13	4	5	.6	1.0
31	4	-------		142	-------	17	-------	12	-------	5	.8	-------

NOTE.—Stage-discharge relation affected by ice Dec. 17 to Jan. 23; discharge estimated. Braced figures represent mean discharge for periods indicated.

Monthly discharge of Osage River near Quenemo, Kans., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	660	3	59	3,630
November	19	3	6.1	363
December	12		4.9	301
January	1,610		190	11,700
February	264	57	128	7,110
March	69	14	38.4	2,360
April	2,420	15	343	20,400
May	324	12	93.3	5,740
June	4,560	3	399	23,700
July	12	1	3.9	240
August	3	.4	1.24	76
September	2	.1	.96	57
The year	4,560	.1	104	75,700

OSAGE RIVER NEAR OTTAWA, KANS.

LOCATION.—In NW. ¼ sec. 6, T. 17 S., R. 20 E., at highway bridge on East Seventh Street, 1½ miles southeast of Ottawa, Franklin County, three-fourths mile below Skunk Creek, 1¾ miles below old dam west of Main Street highway bridge, 2¾ miles below Eightmile Creek, and 3¼ miles below waterworks dam of Ottawa.

DRAINAGE AREA.—1,250 square miles.

RECORDS AVAILABLE.—October 27, 1918, to September 30, 1925. From August 26, 1902, to October 31, 1905, records were obtained at Main Street Bridge in Ottawa.

GAGE.—Stevens water-stage recorder on right bank, 100 feet upstream from bridge; inspected by J. M. Lewis.

DISCHARGE MEASUREMENTS—Made from downstream side of bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of silt and shale No well-defined control. Bank-full stage, 27 feet.

EXTREMES OF DISCHARGE.—Maximum stage during year from water-stage recorder, 14.2 feet at 7 a. m. June 4 (discharge, 5,320 second-feet); minimum stage, 1.28 feet August 26 (discharge, 3 second-feet).

1918–1925: Maximum stage recorded, 32.9 feet at 8.30 a. m. April 10, 1922 (discharge, 17,400 second-feet); no flow, June 27 and 28, 1920. Highest known stage, about 38 feet, referenced by residents during flood of July, 1909.

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

REGULATION.—Low-water flow is regulated by dams upstream.

DIVERSIONS.—The city of Ottawa diverts water from storage dams for the city water supply.

ACCURACY.—Stage-discharge relation not permanent. Rating curve fairly well defined. Operation of water-stage recorder satisfactory. Daily discharge ascertained by applying to rating table mean daily gage height obtained by inspection of recorder graph. Records fair.

The following discharge measurements were made:

November 14, 1924: Gage height, 1.66 feet; discharge, 18.4 second-feet.

March 28, 1925: Gage height, 1.75 feet; discharge, 36.4 second-feet.

June 6, 1925: Gage height, 2.88 feet; discharge, 246 second-feet.

Daily discharge, in second-feet, of Osage River near Ottawa, Kans., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	68	22	20		182	66	28	234	23	11	6	3
2	47	17	20		258	61	66	196	144	10	5	3
3	36	12	21		229	58	449	173	3,990	9	5	3
4	32	10	45		171	57	2,280	164	4,570	8	5	3
5	28	9	156		148	59	1,460	166	821	8	4	3
6	21	10	95		144	57	693	158	258	11	3	6
7	28	12	65		156	61	449	139	144	10	5	5
8	58	12	54		175	51	379	140	92	9	5	3
9	212	10	39		222	50	393	191	62	7	6	3
10	1,000	9	37		266	47	365	379	43	6	5	7
11	323	13	30	5	241	43	329	315	35	4	5	5
12	154	10	28		205	41	263	239	76	5	5	3
13	100	14	25		156	39	210	184	421	4	5	3
14	68	14	25		121	39	186	154	963	7	4	3
15	39	36	24		103	39	162	131	365	7	3	3
16	29	43	25		94	47	148	150	164	5	3	3
17	31	36	23		81	65	154	365	92	7	3	3
18	33	30	24		73	65	234	263	191	9	3	3
19	30	27	14		68	70	175	140	98	7	3	3
20	23	24	8		66	90	168	105	65	15	3	3
21	21	21			62	82	168	76	43	9	3	8
22	23	21		59	78	65	162	59	35	7	3	19
23	22	20		139	196	56	148	44	42	6	3	25
24	18	21		568	244	50	164	32	25	9	3	12
25	13	21		1,330	156	45	224	30	19	17	3	15
26	14	20	6	1,760	117	38	329	42	14	11	3	11
27	16	21		1,210	94	35	523	41	15	9	3	9
28	17	21		757	79	32	449	37	12	7	3	7
29	18	21		614	-------	29	421	31	11	8	3	5
30	21	21		449	-------	27	297	25	11	8	3	3
31	22	-------		229	-------	27	-------	23	-------	7	3	-------

NOTE.—Stage-discharge relation affected by ice Dec. 21 to Jan. 21; discharge estimated. No gage-height record Sept. 28–30; discharge interpolated.

***Monthly** discharge of Osage River near Ottawa, Kans., for the year ending September 30, 1925*

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	1,000	13	82.7	5,080
November	43	9	19.3	1,150
December	156	----------	27.2	1,670
January	1,760	----------	233	14,300
February	266	62	149	8,280
March	90	27	51.3	3,150
April	2,280	28	383	22,800
May	379	23	143	8,790
June	4,570	11	428	25,500
July	17	4	8.3	510
August	6	3	3.8	234
September	25	3	6.2	369
The year	4,570	3	127	91,800

OSAGE RIVER AT OSCEOLA, MO.

LOCATION.—In NW. ¼ sec. 20, T. 38 N., R. 25 W., at highway bridge in Osceola, St. Clair County, one-fourth mile above St. Louis-San Francisco Railway bridge, three-fourths mile above Gallinipper Creek, and 3 miles below Sac River.

DRAINAGE AREA.—8,180 square miles (measured on topographic maps).

RECORDS AVAILABLE.—July 23, 1921, to September 30, 1925. The United States Weather Bureau has records of stage since April 1, 1910.

GAGE.—Chain gage on downstream side of bridge; read by J. T. Fields.

DISCHARGE MEASUREMENTS.—Made from downstream side of bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of silt, sand, and rock. Right bank high and lightly wooded. Left bank cultivated; subject to overflow at stage of 22 feet. Control is a heavy gravel bar one-fourth mile below gage; fairly permanent.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 17.31 feet at 5 p. m. September 24 (discharge, 32,000 second-feet); minimum stage, 0.60 foot at 5 p. m. September 4 (discharge, 40 second-feet).

1921–1925: Maximum stage recorded, 28.8 feet April 10, 1922 (discharge, 65,000 second-feet, revised determination); minimum stage, that of September 4, 1925.

The flood of December, 1895, reached a stage of 33.27 feet, that of June, 1844, a stage of 43.3 feet, determined by United States Weather Bureau.

REGULATION.—Dams and power plants on headwaters and tributaries have no noticeable effect at station.

ACCURACY.—Stage-discharge relation not permanent; slightly affected by ice December 26 to January 2. Rating curves fairly well defined. Gage read to hundredths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table. Shifting-control method used October 1 to December 25. Records good.

Discharge measurements of Osage River at Osceola, Mo., for the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Nov. 2	1.46	337	Mar. 12	2.16	1,460	July 24	1.22	221
Jan. 3	1.94	1,040	May 8	2.34	1,660	Aug. 25	.83	80
Mar. 11	2.25	1,590	July 13	1.15	216			

Daily discharge, in second-feet, of Osage River at Osceola, Mo., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,780	375	629	1,120	9,090	2,460	1,910	2,830	650	380	216	57
2	1,280	366	640	1,120	9,490	2,320	1,910	2,680	13,200	299	264	63
3	1,010	309	640	1,120	7,290	2,180	6,500	2,080	16,900	239	258	55
4	1,140	309	700	1,180	5,030	2,040	22,800	2,080	11,500	326	117	44
5	1,010	302	880	1,250	5,210	2,040	25,900	2,080	9,800	308	102	49
6	820	295	3,760	1,250	5,570	2,040	23,100	2,080	8,200	232	132	52
7	1,420	295	4,640	1,250	5,570	1,910	22,800	1,930	6,800	226	141	52
8	4,460	295	3,420	1,180	6,310	1,910	23,700	1,930	2,980	226	132	54
9	5,550	339	2,450	1,250	11,900	1,780	24,200	1,780	1,630	226	154	55
10	4,100	384	1,950	1,320	15,400	1,650	23,700	2,080	1,350	185	206	55
11	3,080	464	1,560	1,730	14,000	1,650	22,800	3,280	1,210	200	258	59
12	2,760	497	1,280	1,730	9,690	1,390	20,300	3,280	1,070	232	226	54
13	2,450	880	1,080	1,800	6,690	1,780	14,800	2,830	1,070	226	290	57
14	1,780	1,850	945	1,940	5,210	4,860	7,090	2,680	930	226	290	63
15	1,280	5,180	945	1,940	4,010	6,310	4,690	2,980	930	226	226	72
16	1,010	10,300	945	1,520	3,520	4,860	4,180	2,830	1,700	226	258	105
17	820	8,290	880	2,840	3,200	3,360	5,750	2,530	1,780	200	406	108
18	700	5,740	1,850	3,300	2,900	4,520	8,290	2,380	1,350	132	239	86
19	629	3,420	2,150	2,840	2,600	18,200	7,290	1,930	1,280	132	226	70
20	585	2,220	5,550	2,690	2,460	24,200	6,690	1,700	1,070	132	200	99
21	552	1,700	4,820	2,540	2,320	15,200	4,180	1,560	1,000	126	132	458
22	475	1,560	4,820	2,840	2,600	10,300	3,200	1,280	1,210	102	132	10,200
23	475	1,350	2,300	5,550	3,050	6,310	2,750	1,140	1,070	445	102	23,300
24	442	1,140	2,000	10,300	4,180	4,520	2,460	1,140	902	226	132	31,500
25	393	1,010	1,780	15,800	4,350	3,520	2,460	1,700	678	216	117	21,100
26	375	1,010	1,660	19,000	4,520	3,200	6,890	1,700	552	226	76	7,400
27	375	880	1,520	16,700	3,520	3,200	9,490	1,350	790	226	70	7,000
28	375	832	1,380	13,500	2,900	2,750	7,890	1,070	678	190	226	5,280
29	375	760	1,250	11,900	------	2,460	6,500	930	650	175	790	3,580
30	375	640	1,120	6,690	------	2,320	3,840	790	510	132	55	2,830
31	375	------	1,120	5,570	------	2,040	------	762	------	149	54	------

NOTE.—Stage-discharge relation affected by ice Dec. 26 to Jan. 2; discharge estimated from study of gage heights, observer's notes, and weather records.

Monthly discharge of Osage River at Osceola, Mo., for the years ending September 30, 1922 and 1925

[Drainage area, 8,180 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
1921–22					
October	11,700	520	2,100	0.257	0.30
November	1,250	430	646	.079	.09
December	3,300	620	1,420	.174	.20
January	4,100	420	1,060	.130	.15
February	2,600	330	833	.102	.11
March	42,300	1,420	20,400	2.49	2.87
April	65,000	8,690	42,800	5.23	5.84
May	23,300	2,000	7,000	.856	.99
June	3,760	288	1,090	.133	.15
July	9,690	366	3,000	.367	.42
August	2,760	136	585	.072	.08
September	3,930	120	568	.069	.08
The year	65,000	120	6,790	.830	11.28
1924–25					
October	5,550	375	1,360	.166	.19
November	10,300	295	1,770	.216	.24
December	5,550	629	1,950	.238	.27
January	19,000	1,120	4,670	.571	.66
February	15,400	2,320	5,810	.710	.74
March	24,200	1,390	4,750	.581	.67
April	25,900	1,910	10,900	1.33	1.48
May	3,280	762	1,980	.242	.28
June	16,900	510	3,110	.380	.42
July	445	102	219	.027	.03
August	406	54	201	.025	.03
September	31,500	44	3,800	.465	.52
The year	31,500	44	3,340	.408	5.53

NOTE.—Owing to revision of rating curve for high stages, the daily discharge Apr. 9–19, 1922, has been revised and the monthly discharge for year ending Sept. 30, 1922, as given in the above table supersede the figures published in Water-Supply Paper 546. The revised daily discharge, in second-feet, Apr. 9–19, 1922, is as follows: Apr. 9, 62,000; Apr. 10, 65,000; Apr. 11, 64,300; Apr. 12, 64,300; Apr. 13, 61,800; Apr. 14, 59,800; Apr. 15, 59,400; Apr. 16, 56,700; Apr. 17, 60,100; Apr. 18, 61,200; Apr. 19, 58,400.

OSAGE RIVER NEAR BAGNELL, MO.

LOCATION.—In N. ½ SE. ¼ sec. 21, T. 40 N., R. 15 W., 1 mile above Little Gravois Creek and 1½ miles above Bagnell, Miller County.

DRAINAGE AREA.—14,000 square miles (measured on topographic maps and base map of Missouri).

RECORDS AVAILABLE.—May 5 to September 30, 1925.

GAGE.—Vertical staff gage in six sections fastened to posts or trees on left bank; read by L. E. Strange. Zero of gage is 549.75 feet above mean sea level.

DISCHARGE MEASUREMENTS.—Made from cable or by wading.

CHANNEL AND CONTROL.—Bed composed of mud and gravel. Control is a gravel bar half a mile below gage; practically permanent.

EXTREMES OF DISCHARGE.—Maximum stage recorded during period of record, 17.57 feet at 6 p. m. September 26 (discharge, 36,200 second-feet); minimum discharge, 324 second-feet September 10–12.

Flood of December 22, 1895, reached a stage of 38.9 feet.

ACCURACY.—Stage-discharge relation permanent. Rating curve well defined above 4,470 second-feet and fairly well defined below. Gage read to hundredths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table. Records good.

Discharge measurements of Osage River near Bagnell, Mo., during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
May 7	6.76	3,910	June 6	11.03	15,100	July 22	4.82	646
May 13	8.30	7,670	July 8	5.14	929	Sept. 9	4.11	344
June 5	14.02	25,100						

Daily discharge, in second-feet, of Osage River near Bagnell, Mo., for the year ending September 30, 1925

Day	May	June	July	Aug.	Sept.	Day	May	June	July	Aug.	Sept.
1	-------	1,800	1,550	610	442	16	5,850	1,980	720	610	340
2	-------	1,800	1,400	610	420	17	7,300	1,880	762	610	340
3	-------	8,330	1,260	610	380	18	6,560	2,170	720	645	340
4	-------	26,000	1,130	610	380	19	5,390	2,270	682	645	340
5	4,470	23,300	1,010	610	380	20	4,700	2,680	720	645	340
6	4,240	14,800	955	575	365	21	4,240	2,890	682	682	340
7	4,010	11,600	955	575	350	22	3,550	4,010	682	720	720
8	3,780	10,000	955	610	340	23	3,110	3,550	645	720	7,810
9	3,780	7,810	900	645	330	24	2,890	2,680	575	682	26,600
10	3,550	4,930	852	645	324	25	2,470	2,270	575	610	33,200
11	3,550	3,330	852	575	324	26	2,270	1,880	575	575	35,600
12	6,080	2,470	852	575	324	27	2,170	1,710	575	545	29,900
13	7,550	2,370	805	575	330	28	2,890	2,470	575	545	18,100
14	6,800	2,270	762	575	340	29	2,680	2,270	575	515	15,700
15	5,850	2,070	720	610	340	30	2,270	1,880	575	490	10,800
						31	1,980	-------	610	490	-------

Monthly discharge of Osage River near Bagnell, Mo., for the year ending September 30, 1925

[Drainage area, 14,000 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
May 5-31	7,550	1,980	4,220	0.301	0.30
June	26,000	1,710	5,320	.380	.42
July	1,550	575	813	.058	.07
August	720	490	604	.043	.05
September	35,600	324	6,190	.442	.49

MARMATON RIVER NEAR FORT SCOTT, KANS.

LOCATION.—In NW. ¼ sec. 21, T. 25 S., R. 25 E., at military highway bridge 500 feet below the Missouri Pacific Railroad bridge, 2 miles northeast of Fort Scott, Bourbon County, 2½ miles below Mill Creek, and 2½ miles west of Kansas-Missouri State line.

DRAINAGE AREA.—411 square miles (measured on topographic map).

RECORDS AVAILABLE.—August 5, 1921, to June 6, 1925, when station was discontinued.

GAGE.—Chain gage on upstream handrail of bridge; read by Clyde Severy.

DISCHARGE MEASUREMENTS.—Made from downstream side of bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of rock and gravel; fairly permanent. Low-water control is rock and gravel riffle under and extending 50 feet below bridge; practically permanent.

EXTREMES OF DISCHARGE.—Maximum stage recorded during period October 1, 1924, to June 6, 1925, 25.99 feet at 7.20 a. m. April 4 (discharge, 8,320 second-feet); minimum stage recorded, 2.60 feet at 7.20 a. m. November 6 (discharge, 7 second-feet).

1921–1925: Maximum stage recorded, 36.10 feet at noon March 14, 1922 (discharge, 16,400 second-feet); minimum discharge of 1 second-foot occurred on several days in 1922 and 1923.

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

REGULATION.—Slight regulation by dam at Fort Scott.

ACCURACY.—Stage-discharge relation shifted slightly during period. Rating curve fairly well defined below and poorly defined above 80 second-feet. Gage read to hundredths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table except January 25 to June 6, when shifting-control method was used. Low-water records fair, medium and high water records poor.

The following discharge measurements were made:

November 12, 1924: Gage height, 2.93 feet; discharge, 32.6 second-feet.

March 27, 1925: Gage height, 3.78 feet; discharge, 132 second-feet.

June 5, 1925: Gage height, 3.47 feet; discharge, 101 second-feet.

Daily discharge, in second-feet, of Marmaton River near Fort Scott, Kans., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	96	13	48	32	1,300	101	76	47	20
2	76	11	43	30	864	96	286	36	3,200
3	59	10	39	27	540	91	3,580	38	1,610
4	49	8	322	24	386	86	7,410	45	625
5	750	8	714	23	275	86	2,990	76	146
6	678	7	146	21	176	86	1,040	86	86
7	1,610	86	126	20	106	81	660	81	-------
8	1,420	136	121	18	660	81	625	76	-------
9	608	116	116	17	2,610	76	2,330	76	-------
10	346	91	111	15	1,470	76	3,370	76	-------
11	253	76	101	15	978	76	1,950	71	-------
12	126	48	96	14	714	71	1,060	71	-------
13	86	156	91	14	461	111	714	71	-------
14	71	864	86	14	286	242	523	71	-------
15	64	3,040	81	14	198	209	401	71	-------
16	56	978	81	23	166	156	286	71	-------
17	46	310	81	91	156	446	209	66	-------
18	39	166	76	136	146	2,790	156	66	-------
19	37	136	76	209	136	1,550	146	64	-------
20	37	121	76	298	126	732	136	62	-------
21	35	116	71	416	121	372	136	60	-------
22	33	106	66	940	121	220	126	57	-------
23	31	101	63	2,040	116	187	121	54	-------
24	28	96	59	3,160	111	176	116	51	-------
25	25	91	53	2,540	111	166	111	46	-------
26	23	86	49	1,610	106	156	101	40	-------
27	23	81	45	1,300	106	146	91	35	-------
28	21	76	42	1,020	101	146	81	30	-------
29	19	65	39	807	-------	101	76	25	-------
30	16	56	36	625	-------	86	61	23	-------
31	14	-------	34	750	-------	81	-------	23	-------

Monthly discharge of Marmaton River near Fort Scott, Kans., for the year ending September 30, 1925

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	1,610	14	219	13,500
November	3,040	7	242	14,400
December	714	34	103	6,330
January	3,160	14	525	32,300
February	2,610	101	452	25,100
March	2,790	71	293	18,000
April	7,410	61	966	57,500
May	86	23	56.9	3,500
June 1-6	3,200	20	948	11,300
The period				182,000

SAC RIVER NEAR STOCKTON, MO.

LOCATION.—In W. ½ sec. 11, T. 34 N., R. 26 W., at bridge on State highway No. 54, 1½ miles above Bear Creek, 2½ miles east of Stockton, Cedar County, and 3½ miles below Little Sac River.

DRAINAGE AREA.—1,160 square miles (measured on topographic maps).

RECORDS AVAILABLE.—July 20, 1921, to September 30, 1925.

GAGE.—Chain gage bolted to wooden beam between vertical members of downstream truss; read by H. H. Dixon.

DISCHARGE MEASUREMENTS.—Made from downstream side of bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of mud, sand, and gravel; fairly permanent. No well-defined control.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 22.30 feet at 6 p. m. September 22 (discharge, 23,900 second-feet); minimum stage, 1.62 feet September 10 (discharge, 25 second-feet).

1921–1925: Maximum and minimum stages recorded, those of 1925, as given above.

REGULATION.—Small dams above have no appreciable effect on the flow at this station.

ACCURACY.—Stage-discharge relation permanent during year; not affected by ice. Rating curve fairly well defined. Gage read to hundredths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table except as described in footnote to table of daily discharge. Records fair.

Discharge measurements of Sac River near Stockton, Mo., during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Nov. 1	2.37	174	Mar. 10	3.45	517	July 11	2.54	226
Jan. 7	3.58	618	May 9	3.25	467	Aug. 27	1.72	35

Daily discharge, in second-feet, of Sac River near Stockton, Mo., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	323	184	257	600	a2,500	860	640	765	290	147	86	31
2	306	a168	241	600	1,280	810	640	680	340	129	a74	29
3	290	153	225	640	1,170	765	2,010	a620	290	118	61	29
4	a430	150	a220	680	1,060	720	1,610	563	257	105	60	27
5	a500	144	372	680	1,120	680	a1,460	527	225	a98	58	27
6	372	138	356	720	1,060	680	1,220	492	212	91	56	27
7	356	159	a340	600	a980	600	810	440	187	83	52	a28
8	340	a165	323	910	a1,100	a580	600	423	178	77	a100	30
9	306	a145	306	1,010	1,780	563	3,100	457	165	a70	187	27
10	389	129	274	1,170	1,610	527	2,250	a500	153	206	121	25
11	765	113	241	960	1,500	527	1,950	457	144	168	83	29
12	440	105	225	910	1,390	527	1,660	440	a140	121	69	27
13	406	132	219	860	1,280	a930	1,610	423	372	105	65	a30
14	372	440	212	765	1,170	1,610	1,500	1,170	a350	91	65	32
15	340	a1,280	199	680	a1,060	a1,000	a1,100	860	340	88	61	43
16	323	1,280	a199	860	960	720	1,280	680	306	86	61	58
17	290	765	a450	1,010	860	640	1,120	a630	274	81	60	75
18	274	720	6,500	a1,220	765	1,060	1,010	492	241	a80	54	61
19	a266	640	a5,200	1,440	680	7,320	a940	406	219	a80	52	52
20	257	a603	a3,600	1,390	640	5,440	860	389	199	79	48	46
21	257	a566	a2,000	1,660	720	3,170	810	372	a186	77	43	a2,800
22	241	a529	1,220	a1,690	a1,100	1,560	765	372	174	73	41	20,000
23	241	492	860	1,720	1,610	1,390	720	356	178	73	a40	15,200
24	225	440	810	1,720	1,440	1,170	680	1,720	640	69	38	a6,000
25	219	389	765	a2,000	1,220	1,060	640	1,440	323	69	37	3,170
26	a216	356	720	1,440	1,120	960	a660	1,170	241	a67	36	3,170
27	212	340	a700	1,330	1,010	a910	680	960	225	65	34	3,820
28	203	323	a690	1,280	960	860	960	720	a202	61	33	3,170
29	196	306	680	1,170	-------	765	860	492	178	61	33	2,790
30	193	290	a640	1,120	-------	720	810	406	159	168	a32	a3,500
31	187	-------	600	1,220	-------	680	-------	306	-------	118	31	-------

a Gage not read; discharge estimated from records of Sac River near Collins and Cedar Creek near Pleasant View.

Monthly discharge of Sac River near Stockton, Mo., for the year ending September 30, 1925

[Drainage area, 1,160 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	765	187	314	0.271	0.31
November	1,280	105	388	.334	.37
December	6,500	199	956	.824	.95
January	2,000	600	1,100	.948	1.09
February	2,500	640	1,180	1.02	1.06
March	7,320	527	1,280	1.10	1.27
April	3,100	600	1,170	1.01	1.13
May	1,720	306	636	.548	.63
June	640	140	246	.212	.24
July	206	61	96.9	.084	.10
August	187	31	60.4	.052	.06
September	20,000	25	2,150	1.85	2.06
The year	20,000	25	793	.684	9.27

SAC RIVER NEAR COLLINS, MO.

LOCATION.—In sec. 12, T. 36 N., R. 26 W., at highway bridge 800 feet below site of former dam, 9 miles below Cedar Creek, and 10 miles west of Collins, St. Clair County.

DRAINAGE AREA.—1,900 square miles (measured on topographic maps).

RECORDS AVAILABLE.—April 22, 1923, to September 30, 1925.

GAGE.—Stevens continuous water-stage recorder attached to downstream pier near left end of bridge; inspected by W. K. Simmons.

DISCHARGE MEASUREMENTS.—Made from downstream side of bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of coarse gravel. Control is a long riffle extending 300 feet downstream from gage; practically permanent.

EXTREMES OF DISCHARGE.—Maximum stage during year from water-stage recorder, 25.4 feet at 11 p. m. September 23 (discharge, 32,300 second-feet); minimum stage, 1.07 feet at 9 p. m. September 10 (discharge, 9 second-feet).

1923–1925: Maximum stage recorded, 26.4 feet May 30, 1924 (discharge, 35,700 second-feet); minimum stage, that of September 10, 1925.

REGULATION.—Dams above cause little fluctuation at station.

ACCURACY.—Stage-discharge relation practically permanent during the year; not affected by ice. Rating curve fairly well defined below 24,000 second-feet. Operation of water-stage recorder satisfactory except as noted in footnote to table of daily discharge. Daily discharge ascertained by applying to rating table mean daily gage height determined by inspection of recorder graph or, for days of large fluctuation in stage, by averaging discharge for 4-hour intervals. Records good for discharges below 24,000 second-feet and fair for those above.

Discharge measurements of Sac River near Collins, Mo., during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Nov. 2	1.76	202	May 9	2.55	614	Aug. 27	1.21	27
Jan. 7	2.75	806	May 10	2.87	876			
Mar. 10	2.78	836	July 12	1.68	162			

Daily discharge, in second-feet, of Sac River near Collins, Mo., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	392	227	409	815	3,310	1,340	1,420	1,070	370	206	232	35
2	375	214	398	742	2,950	1,260	1,420	995	800	214	162	50
3	359	210	386	792	1,900	1,220	2,770	958	995	223	75	28
4	457	214	381	808	1,620	1,140	7,100	898	588	173	98	26
5	778	214	404	770	1,660	1,110	5,650	868	415	146	92	43
6	464	219	415	749	1,700	1,070	2,500	830	333	166	104	50
7	528	206	421	763	1,580	1,030	1,940	792	322	173	80	26
8	672	206	409	1,070	1,780	995	1,620	756	288	181	89	26
9	588	219	370	1,110	3,400	958	1,940	742	302	185	154	20
10	995	227	348	1,180	3,580	868	3,850	830	409	177	236	17
11	995	227	322	1,260	2,950	778	2,860	1,070	426	202	173	33
12	700	232	317	1,180	2,420	742	2,260	756	359	136	139	22
13	574	278	312	1,070	2,180	1,260	1,980	735	338	259	146	26
14	489	574	312	958	1,940	4,750	1,860	1,620	451	250	139	26
15	432	3,040	307	920	1,740	3,490	1,700	1,540	630	116	126	83
16	392	3,490	307	1,220	1,580	2,180	1,580	1,300	528	154	130	73
17	354	1,780	502	3,850	1,420	1,820	3,040	1,300	415	150	95	22
18	343	1,220	838	2,770	1,300	4,030	2,770	868	343	101	110	47
19	322	995		2,100	1,220	12,100	2,020	735	278	173	169	75
20	407	875		1,900	1,180	9,400	1,620	672	227	166	101	83
21	298	800		1,860	1,220	4,480	1,380	609	245	95	75	2,750
22	288	721		2,340	1,820	3,310	1,220	470	232	214	52	14,200
23	268	665		3,220	2,680	2,680	1,110	534	241	126	126	27,500
24	245	630	2,500	3,940	2,590	2,260	995		359	73	80	22,000
25	241	588		4,340	2,020	1,980	958		547	98	73	4,480
26	236	547		4,750	1,700	1,820	958		651	133	47	4,700
27	232	508		3,220	1,540	1,740	958	1,660	375	150	26	5,740
28	236	470		2,020	1,420	1,700	995		273	75	31	3,840
29	236	445		1,700	-------	1,620	1,220		241	104	29	2,688
30	232	426		1,380	-------	1,500	1,140		236	113	43	2,100
31	232	-------	920	1,700	-------	1,460	-------		-------	189	47	-------

NOTE.—Operation of water-stage recorder unsatisfactory Dec. 19–30 and May 24–31; mean discharge for these periods, as indicated by braced figures, estimated from discharge of Sac River near Stockton and Cedar Creek near Pleasant View.

Monthly discharge of Sac River near Collins, Mo., for the year ending September 30, 1925

[Drainage area, 1,900 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	995	232	431	0.227	0.26
November	3,490	206	689	.363	.49
December		307	1,230	.647	.70
January	4,750	742	1,820	.958	1.15
February	3,580	1,180	2,010	1.06	1.10
March	12,100	742	2,450	1.29	1.40
April	7,100	958	2,090	1.10	1.23
May			1,100	.579	.67
June	995	227	407	.214	.24
July	259	73	159	.084	.10
August	236	26	106	.056	.06
September	27,500	17	3,030	1.59	1.77
The year	27,500	17	1,290	.679	9.17

CEDAR CREEK NEAR PLEASANT VIEW, MO.

LOCATION.—In sec. 2, T. 35 N., R. 27 W., 1½ miles below Alder Creek, 2 miles northwest of Pleasant View, Cedar County, and 5 miles above mouth.

DRAINAGE AREA.—411 square miles (measured on topographic maps).

RECORDS AVAILABLE.—April 22, 1923, to September 30, 1925.

GAGE.—Chain gage on downstream side of bridge; read by J. T. Hackleman.

DISCHARGE MEASUREMENTS.—Made from downstream side of bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of clean coarse gravel. Left bank high. Right bank thinly wooded; subject to overflow at stage of 20 feet. Control is a clean gravel bar 150 feet below gage; practically permanent.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 21.78 feet at 7 a. m. September 23 (discharge, 5,590 second-feet); minimum stage, 0.33 foot at 7 a. m. September 10 (discharge, 0.4 second-foot).

1923–1925: Maximum stage recorded, 24.0 feet July 12, 1924 (discharge estimated, 9,400 second-feet); minimum stage that of September 10, 1925.

REGULATION.—Dam 2 miles above causes no noticeable fluctuation at gage.

ACCURACY.—Stage-discharge relation permanent during year except for slight ice effect. Rating curve fairly well defined below 3,000 second-feet. Gage read to hundredths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table. Records good for discharge below 3,000 second-feet and poor for that above.

Discharge measurements of Cedar Creek near Pleasant View, Mo., during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Nov. 1	0.77	7.7	Mar. 10	1.71	112	July 11	0.65	4.7
Jan. 5	1.40	67	May 9	1.43	67	Aug. 27	.50	1.3

Daily discharge, in second-feet, of Cedar Creek near Pleasant View, Mo., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	25	8	48	47	1,550	203	158	92	31	13	2	0.7
2	20	8	45	47	1,080	194	356	80	356	10	2	.6
3	18	6	43	62	596	176	1,400	68	428	9	4	.5
4	53	5	40	59	501	176	3,160	76	132	8	4	.5
5	22	4	44	62	558	167	1,590	71	71	7	5	.5
6	76	3	47	52	691	150	672	83	50	6	6	.5
7	102	4	84	71	596	141	501	59	37	5	4	.5
8	62	5	64	89	710	124	392	53	35	4	4	.5
9	71	4	53	116	1,410	116	501	56	30	4	3	.5
10	185	8	43	150	870	108	596	320	26	3	4	.5
11	203	11	39	176	596	102	428	302	26	5	3	.7
12	105	16	37	158	464	92	338	132	23	3	19	.7
13	80	28	39	124	410	356	320	338	27	3	14	.6
14	59	167	37	124	356	2,220	446	558	32	3	10	.8
15	40	1,640	37	95	302	830	302	338	50	2	5	.7
16	31	1,040	33	124	266	558	392	577	50	3	3	.7
17	28	482	221	446	230	446	910	501	36	2	4	.7
18	25	284	428	482	212	1,370	501	221	28	2	8	.8
19	22	212	284	284	194	3,860	410	150	23	1	8	.8
20	19	176	338	266	176	2,140	320	124	33	1	7	.7
21	18	150	230	302	194	850	248	100	23	2	6	1,420
22	10	124	158	672	374	615	212	83	14	2	4	4,120
23	15	108	124	1,060	770	482	185	65	22	1	3	4,830
24	14	95	92	1,480	577	410	158	103	16	1	3	2,050
25	12	86	62	2,120	392	338	150	176	194	2	2	428
26	10	76	62	1,840	302	320	141	132	141	2	2	970
27	8	66	47	990	248	284	124	74	68	2	1	810
28	10	65	47	615	221	266	116	59	35	2	1	428
29	9	59	47	539	-------	221	108	48	25	2	1	266
30	9	52	47	374	-------	194	116	44	20	2	.9	212
31	8	-------	47	520	-------	176	-------	34	-------	2	.8	-------

NOTE.—Stage-discharge relation affected by ice Dec. 23 to Jan. 3; discharge estimated from a study of gage-height record, observer's notes, and weather records.

Monthly discharge of Cedar Creek near Pleasant View, Mo., for the year ending September 30, 1925

[Drainage area, 411 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	203	8	44.2	0.108	0.12
November	1,640	3	166	.404	.45
December	428	33	95.7	.233	.27
January	2,120	47	437	1.06	1.22
February	1,550	176	531	1.29	1.34
March	3,860	92	570	1.39	1.60
April	3,160	108	508	1.24	1.38
May	577	34	165	.401	.46
June	428	14	69.4	.169	.19
July	13	1	3.68	.009	.01
August	19	.8	4.65	.011	.01
September	4,830	.5	518	1.26	1.41
The year	4,830	.5	257	.625	8.46

POMME DE TERRE RIVER AT HERMITAGE, MO.

LOCATION.—In NW. ¼ sec. 26, T. 37 N., R. 22 W., at south highway bridge in Hermitage, Hickory County, 800 feet above Mill Creek, and 8 miles below Lindley Creek.

DRAINAGE AREA.—630 square miles (measured on topographic maps).

RECORDS AVAILABLE.—July 25, 1921, to September 30, 1925.

GAGE.—Chain gage fastened to downstream handrail of bridge; read by Albert Jackson, Kenneth Wilson, and Ross Coon.

DISCHARGE MEASUREMENTS.—Made from downstream side of bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of clean sand and gravel; shifting. Control is a heavy gravel bar 50 feet below gage; fairly permanent.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 15.80 feet at 5.30 p. m. September 22 (discharge, 11,400 second-feet); minimum discharge, 1 second-foot September 8–10.

1921–1925: Maximum stage recorded, 22.56 feet May 29, 1924 (discharge 24,600 second-feet); minimum discharge, that of September 8–10, 1925.

ACCURACY.—Stage-discharge relation changed slightly during the year; slightly affected by ice. Rating curves fairly well defined. Gage read to hundredths once daily during low stages and twice during high stages. Daily discharge ascertained by applying daily gage height to rating table. Records good for discharges above 25 second-feet, and fair for those below.

Discharge measurements of Pomme de Terre River at Hermitage, Mo., during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 31	1.88	39	May 11	4.76	1,260	Aug. 28	1.29	4.4
Jan. 6	2.84	221	Do	4.22	903	Do	1.29	3.8
Mar. 11	2.81	242	May 12	3.58	574			
Do	2.81	237	July 13	1.69	28			

• Stage-discharge relation affected by ice.

Daily discharge, in second-feet, of Pomme de Terre River at Hermitage, Mo., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	87	43	103	237	790	448	305	362	93	47	22	3
2	76	42	102	237	790	425	298	305	93	38	30	2
3	72	40	100	207	790	404	425	270	114	138	28	2
4	76	40	96	207	735	382	1,030	270	134	80	25	2
5	342	39	119	237	708	362	735	270	96	55	24	2
6	207	37	132	221	680	342	520	270	81	40	25	2
7	178	37	180	305	625	305	382	207	66	32	24	2
8	298	40	160	680	598	298	362	207	58	28	17	1
9	172	43	141	680	1,660	270	520	207	66	25	14	1
10	270	43	132	652	1,210	270	1,150	1,090	130	22	13	1
11	153	46	126	570	1,210	237	850	1,210	122	55	14	2
12	144	40	119	570	1,030	237	625	570	114	32	19	2
13	134	74	109	520	850	237	520	520	88	30	47	2
14	117	180	102	494	735	2,470	425	470	382	25	38	6
15	94	1,600	96	404	625	1,090	382	425	207	20	28	20
16	85	1,460	88	470	570	708	342	362	114	22	38	17
17	71	1,270	92	1,150	520	545	790	425	118	27	28	16
18	64	790	96	1,030	448	520	1,270	288	96	19	25	10
19	61	362	7,100	1,030	404	8,100	680	237	63	14	25	9
20	58	305	4,470	910	382	2,050	520	207	52	12	20	9
21	54	270	2,120	790	342	1,270	382	170	60	13	17	80
22	49	207	1,150	1,090	570	910	362	156	55	14	17	10,200
23	48	194	790	1,400	790	680	305	141	52	13	9	7,900
24	46	180	625	1,460	970	625	270	126	40	12	8	1,270
25	44	165	545	1,400	850	520	270	404	520	10	5	708
26	43	146	470	1,340	735	470	382	237	156	13	5	1,270
27	43	132	425	1,210	625	494	298	134	96	12	4	3,770
28	43	124	342	1,030	470	425	708	134	66	10	4	1,340
29	42	115	305	910	-------	382	625	114	52	10	3	850
30	40	109	270	790	-------	342	520	105	45	12	3	545
31	40	-------	237	680	-------	305	-------	96	-------	10	3	-------

NOTE.—Stage-discharge relation affected by ice Dec. 27 to Jan. 6; discharge estimated from a study of one discharge measurement, gage-height record, observer's notes, and weather records.

Monthly discharge of Pomme de Terre River at Hermitage, Mo., for the year ending September 30, 1925

[Drainage area, 630 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	342	40	105	0.167	0.19
November	1,600	37	272	.432	.48
December	7,100	88	676	1.07	1.23
January	1,460	207	739	1.17	1.35
February	1,660	342	740	1.17	1.22
March	8,100	237	843	1.34	1.54
April	1,270	270	542	.860	.96
May	1,210	96	322	.511	.59
June	520	40	114	.181	.20
July	138	10	28.7	.046	.05
August	47	3	18.8	.030	.03
September	10,200	1	935	1.48	1.65
The year	10,200	1	442	.702	9.49

SOUTH GRAND RIVER NEAR BROWNINGTON, MO.

LOCATION.—In NW. ¼ sec. 17, T. 40 N., R. 25 W., at highway bridge on Browningtion-Clinton road, 300 feet below St. Louis-San Francisco Railway bridge, 500 feet below Deepwater Creek, and 1 mile north of Brownington, Henry County.

DRAINAGE AREA.—1,660 square miles (measured on topographic maps).

RECORDS AVAILABLE.—July 24, 1921, to September 30, 1925.

GAGE.—Chain gage on upstream side of bridge; read by Letha Jackson.

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

CHANNEL AND CONTROL.—Bed composed of clean sand and gravel; shifting. Control is a heavy gravel bar 500 feet below gage; practically permanent.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 20.25 feet at 4.30 p. m. April 6 (discharge, 13,300 second-feet); minimum discharge, 0.5 second-foot several days in September.

1921–1925: Maximum stage (determined by levels to floodmarks), 28.0 feet April 9, 1922 (discharge, 21,100 second-feet); minimum discharge, that of September, 1925.

ACCURACY.—Stage-discharge relation changed during January; slightly affected by ice. Rating curves fairly well defined above 16 second-feet. Gage read to hundredths once or twice daily. Daily discharge ascertained by applying mean daily gage height to rating table. Records good for discharge above 16 second-feet and fair for that below.

Discharge measurements of South Grand River near Brownington, Mo., during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Nov. 3	1.17	1.9	Mar. 11	2.35	118	July 10	1.52	20
Jan. 3	1.49	13	May 8	2.70	179	Aug. 25	1.78	40

Daily discharge, in second-feet, of South Grand River near Brownington, Mo., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	15	6	16	13	750	188	149	590	121	69	28	2
2	14	3	14	12	750	158	332	450	8,990	63	23	2
3	17	2	14	14	590	140	6,270	350	10,100	50	18	1
4	188	2	12	14	550	149	9,950	300	1,800	46	14	1
5	54	1	24	14	590	188	12,600	285	1,190	37	11	.9
6	24	1	80	14	630	188	13,300	246	1,430	31	10	.9
7	350	10	390	14	630	178	11,700	233	233	210	9	.7
8	224	126	212	16	990	168	4,350	199	178	74	8	.7
9	590	45	166	17	3,450	158	3,450	210	130	36	7	.5
10	390	28	132	19	3,380	140	4,120	246	102	23	6	.5
11	188	21	86	20	1,930	121	4,500	550	77	18	5	.6
12	144	15	74	20	990	112	4,740	430	102	14	3	.5
13	88	16	68	21	670	121	1,930	285	98	12	2	.5
14	63	188	68	33	630	940	990	350	98	10	1	.6
15	45	265	54	42	370	510	840	430	95	8	80	.8
16	39	212	51	44	332	370	940	990	80	7	27	.8
17	31	155	47	55	272	285	940	430	83	4	18	.5
18	24	123	47	52	232	3,980	1,430	272	272	4	10	.5
19	20	75	38	130	210	6,520	1,310	210	670	7	7	.5
20	18	55	30	134	199	5,060	710	168	2,060	7	8	.5
21	13	44	30	200	188	2,790	750	149	1,740	13	7	.7
22	11	37	22	670	199	750	390	130	890	14	188	630
23	10	31	16	1,550	390	550	332	130	350	10	112	750
24	9	28	16	3,820	390	430	285	109	199	10	83	168
25	9	24	11	4,660	550	350	272	95	470	11	48	80
26	8	22	11	4,200	430	300	3,150	80	840	13	28	890
27	7	21	11	1,930	285	210	3,750	69	510	12	25	300
28	7	18	11	890	233	199	3,900	60	188	130	20	89
29	7	18	11	590	-------	188	2,450	55	121	13	14	52
30	7	17	11	510	-------	178	710	55	74	66	10	48
31	7	-------	11	630	-------	158	--------	66	-------	44	4	-------

NOTE.—Stage-discharge relation affected by ice Dec. 20 to Jan. 1; discharge estimated from a study of gage-height record, observer's notes, and weather records.

Monthly discharge of South Grand River near Brownington, Mo., for the year ending September 30, 1925

[Drainage area 1,660 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	590	7	84.5	0.051	0.06
November	265	1	53.6	.032	.04
December	390	11	57.5	.035	.04
January	4,660	12	656	.395	.46
February	3,450	188	743	.448	.47
March	6,520	112	832	.501	.58
April	13,300	149	3,350	2.02	2.25
May	990	55	265	.160	.18
June	10,100	74	1,110	.669	.75
July	210	4	34.4	.021	.02
August	188	1	26.9	.016	.02
September	890	.5	101	.061	.07
The year	13,300	.5	603	.363	4.94

NIANGUA RIVER NEAR ROACH, MO.

LOCATION.—In SW. ¼ sec. 20, T. 38 N., R. 17 W., at highway bridge on Linn Creek-Roach road 2½ miles above Little Niangua River, 4 miles northeast of Roach, Camden County, and 10 miles below Hahatonka Spring.

DRAINAGE AREA.—About 698 square miles (measured on topographic maps and base map of Missouri); somewhat indefinite on account of several large tributary springs.

RECORDS AVAILABLE.—November 18, 1922, to September 30, 1925.

GAGE.—Vertical staff gage fastened to tree on left bank 40 feet downstream from bridge.

DISCHARGE MEASUREMENTS.—Made from downstream side of bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of sand and gravel; probably shifting. Control is a gravel bar 400 feet below gage; fairly permanent.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 11.90 feet at 8.10 a. m. December 21 (discharge, 12,800 second-feet); minimum stage, 0.80 foot at 6 a. m. September 10 (discharge, 190 second-feet).

1923–1925: Maximum stage recorded, 13.30 feet May 30, 1924 (discharge, 15,200 second-feet); minimum discharge, 160 second-feet August 26 to September 2, 1923.

ACCURACY.—Stage-discharge relation changed slightly during the year; not affected by ice. Rating curve well defined. Gage read to hundredths once daily during low stages and twice during high stages. Daily discharge October 1 to December 21 ascertained by applying mean daily gage height to rating table; shifting-control method used for remainder of year. Records good.

Discharge measurements of Niangua River near Roach, Mo., during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 31	1.16	273	Mar. 11	1.46	483	July 14	1.00	257
Nov. 5	1.14	279	May 12	4.27	2,250	Sept. 8	.80	192
Mar. 10	1.49	486	June 7	1.20	369			

Daily discharge, in second-feet, of Niangua River near Roach, Mo., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	380	280	320	790	730	645	595	730	425	300	242	225
2	360	280	320	790	730	620	570	645	425	280	242	225
3	360	280	300	790	850	620	545	595	425	280	242	225
4	340	280	300	700	850	595	645	570	402	280	242	211
5	340	280	320	570	790	570	670	545	402	280	225	204
6	1,030	280	320	545	760	545	670	545	380	280	225	204
7	620	280	320	545	730	545	620	545	360	260	225	200
8	595	300	320	570	700	545	595	520	360	242	242	197
9	448	280	320	700	910	520	620	495	360	242	242	194
10	425	280	300	760	790	448	730	545	360	242	225	190
11	402	280	300	760	970	402	1,030	730	360	260	242	208
12	380	280	300	760	1,030	402	1,150	3,660	380	320	260	211
13	360	300	300	700	970	402	970	1,950	380	320	280	204
14	360	340	300	645	910	970	910	1,150	360	260	280	200
15	340	790	300	595	910	910	790	1,030	448	260	260	225
16	340	300	300	645	850	910	700	970	402	260	242	225
17	340	360	300	850	760	790	1,030	910	360	260	242	218
18	320	730	300	2,190	730	730	1,280	910	360	242	225	214
19	320	595	2,710	1,950	700	2,710	2,110	790	340	242	225	211
20	300	520	8,260	1,220	670	3,010	1,410	730	340	242	225	204
21	300	470	9,860	1,090	620	2,110	1,150	645	340	242	225	242
22	300	425	3,330	1,090	620	2,030	970	620	320	242	225	1,280
23	300	402	2,810	1,030	620	1,810	850	570	320	242	242	2,030
24	280	380	2,110	970	700	1,090	760	545	320	242	242	2,030
25	280	380	1,670	970	910	970	730	520	402	225	242	1,030
26	280	360	1,600	1,030	850	910	670	495	425	225	242	910
27	280	340	1,540	970	760	790	645	495	340	225	242	2,110
28	280	320	1,480	910	700	760	700	495	320	225	225	4,240
29	280	320	1,280	850	------	700	700	448	300	242	225	2,030
30	280	320	1,150	760	------	670	790	448	300	242	225	1,280
31	280	------	1,220	730	------	620	------	425	------	242	225	------

NOTE.—Gage reading probably in error Feb. 7; discharge interpolated.

Monthly discharge of Niangua River near Roach, Mo., for the year ending September 30, 1925

[Drainage area, 698 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	1,030	280	371	0.532	0.61
November	790	280	368	.527	.59
December	9,860	300	1,440	2.06	2.38
January	2,190	545	886	1.27	1.46
February	1,030	620	790	1.13	1.18
March	3,010	402	947	1.36	1.57
April	2,110	545	853	1.22	1.36
May	3,660	425	783	1.12	1.29
June	448	300	367	.526	.59
July	320	225	256	.367	.42
August	280	225	238	.341	.39
September	4,240	190	713	1.02	1.14
The year	9,860	190	668	.957	12.98

HAHATONKA SPRINGS AT HAHATONKA, MO.

LOCATION.—In NW. ¼ sec. 2, T. 37 N., R. 17 W., at Hahatonka, Camden County, one-fourth of a mile below spring outlet and half a mile above mouth of spring branch.

DRAINAGE AREA.—Not measured.

RECORDS AVAILABLE.—November 17, 1922, to September 30, 1925.

GAGE.—Vertical staff gage bolted to tree on left bank; read by F. R. Roofener.

DISCHARGE MEASUREMENTS.—Made by wading.

CHANNEL AND CONTROL.—Bed composed of coarse gravel and rocks. Stage-discharge relation is affected by dam across spring branch 2,000 feet below gage; also affected at times by aquatic plants in channel and by backwater from Niangua River.

EXTREMES OF DISCHARGE.—Maximum discharge probably occurred during backwater from Niangua River and has not been determined. Minimum discharge, 58 second-feet December 16–17 and September 13–19.

1923–1925: Minimum discharge, 43 second-feet February 23, 1923.

ACCURACY.—Stage-discharge relation changed considerably during year; not affected by ice. Rating curves fairly well defined. Gage read to hundredths once daily. Daily discharge ascertained by applying daily gage height to rating table until May 31 and by shifting-control method thereafter. Records fair.

Discharge measurements of Hahatonka Spring at Hahatonka, Mo., during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 31	0.75	66	May 12	0.98	99	Sept. 8	0.73	59
Nov. 5	.76	54	June 7	.84	71			
Mar. 12	.68	76	July 14	.81	64			

Daily discharge, in second-feet, of Hahatonka Spring at Hahatonka, Mo., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	66	63	63	79	88	86	93	93	76	67	64	63
2	66	63	66	79	88	86	90	86	76	67	64	63
3	66	63	66	76	88	83	90	82	73	64	64	63
4	64	63	63	73	86	83	90	82	73	64	64	66
5	64	61	63	73	86	83	90	82	70	64	64	66
6	64	61	63	71	83	81	87	79	70	64	67	63
7	66	61	63	76	83	81	87	76	70	64	67	63
8	66	61	63	83	83	78	87	73	73	64	67	61
9	66	61	60	86	83	78	87	70	73	62	64	61
10	66	61	60	88	86	76	87	76	73	64	64	61
11	64	61	60	88	92	76	99	94	76	62	64	61
12	64	61	60	86	92	74	100	102	76	64	63	61
13	66	61	60	86	88	88	106	107	73	64	63	58
14	66	63	60	80	92	110	110	102	70	62	63	58
15	64	68	60	78	92	106	120	98	70	62	63	58
16	66	81	58	92	92	103	120	90	67	62	63	58
17	66	84	58	113	88	95	130	90	67	62	63	58
18	64	81	101	108	88	-------	140	94	67	64	63	58
19	64	81	-------	106	90	-------	136	94	67	64	66	58
20	66	71	-------	104	90	-------	133	98	64	64	66	71
21	64	66	-------	100	88	-------	130	98	70	64	66	92
22	63	66	-------	97	88	-------	126	94	70	64	66	175
23	63	63	-------	97	88	-------	116	90	73	64	63	140
24	63	63	-------	97	88	131	110	82	73	62	63	140
25	63	61	113	97	88	121	100	79	70	62	63	175
26	63	61	101	97	88	113	96	76	67	64	63	-------
27	63	66	94	94	86	113	96	76	70	64	63	-------
28	63	66	88	92	86	107	96	73	67	64	63	-------
29	63	66	85	92	-------	104	96	73	64	64	63	164
30	61	66	82	88	-------	100	93	76	64	64	63	144
31	61	-------	82	86	-------	97	-------	76	-------	64	63	-------

NOTE.—Discharge interpolated May 7; not determined when there was backwater from Niangua River.

Monthly discharge of Hahatonka Spring at Hahatonka, Mo., for the year ending September 30, 1925

Month	Discharge in second-feet			Month	Discharge in second-feet		
	Maximun	Minimum	Mean		Maximum	Minimum	Mean
October	66	61	64.3	May	107	70	85.8
November	84	61	65.8	June	76	64	70.4
December	----------	58	----------	July	67	62	63.7
January	113	71	89.1	August	67	63	64.0
February	92	83	87.8	September	----------	58	----------
March	----------	74	----------				
April	140	87	105.0	The year	----------	58	----------

GASCONADE RIVER BASIN

GASCONADE RIVER NEAR WAYNESVILLE, MO.

LOCATION.—In SE. ¼ sec. 3, T. 36 N., R. 12 W., at highway bridge on Waynesville-Crocker road 2½ miles below Roubidoux Creek and 4 miles north of Waynesville, Pulaski County.

DRAINAGE AREA.—1,680 square miles (measured on soil-survey maps).

RECORDS AVAILABLE.—June 9, 1921, to September 30, 1925. The Missouri Engineering Experiment Station has records of discharge from August 16 1914, to July 31, 1921.[7]

GAGE.—Chain gage on upstream side of bridge; read by Mrs. J. R. Skaggs. Zero of gage is 739.34 feet above mean sea level.

[7] See Missouri Univ. Eng. Exper. Sta. Bull. 35, ser. 22, vol. 21

DISCHARGE MEASUREMENTS.—Made from bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of gravel and small boulders; clean and fairly permanent. Control is a diagonal, heavy gravel bar 300 feet below gage; practically permanent.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 17.50 feet at 8 a. m. December 21 (discharge, 25,900 second-feet); minimum stage, 2.08 feet at 9 a. m. September 15 (discharge, 92 second-feet).

1921–1925: Maximum stage recorded, that of December 21, 1924; minimum discharge, 77 second-feet September 27, 1922.

On August 22, 1915, river reached a stage of 25.0 feet (estimated discharge, 45,000 second-feet).

REGULATION.—Natural regulation due to flow of large springs.

ACCURACY.—Stage-discharge relation changed slightly during the year; not affected by ice. Rating curves well defined below 16,000 second-feet; extended above. Gage read to hundredths twice daily. Daily discharge ascertained by applying mean daily gage height to rating tables. Records good.

Discharge measurements of Gasconade River near Waynesville, Mo., during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 7	3.99	1,160	Mar. 10	3.48	730	July 8	2.41	194
Oct. 30	2.65	276	May 6	3.94	1,110	Sept. 10	2.14	102

Daily discharge, in second-feet, of Gasconade River near Waynesville, Mo., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	790	250	206	1,000	1,090	1,400	510	2,720	480	222	171	122
2	710	250	291	910	1,090	1,180	480	2,120	600	216	158	134
3	635	232	291	870	1,180	1,140	480	1,640	405	190	164	140
4	600	232	291	790	710	1,040	510	1,460	405	187	158	134
5	1,280	232	291	790	710	1,040	510	1,180	357	193	152	128
6	1,520	232	291	750	1,520	910	510	1,090	334	196	152	110
7	1,140	232	291	750	1,400	1,000	510	1,040	314	193	149	110
8	955	232	334	790	1,280	830	480	910	334	187	152	116
9	830	250	405	830	1,340	750	710	910	380	209	146	104
10	710	250	405	1,000	1,880	750	2,120	2,600	275	222	149	104
11	635	250	635	1,040	2,240	750	2,000	2,720	256	222	158	107
12	570	250	635	1,090	2,240	635	2,000	2,120	256	222	275	110
13	510	232	600	1,040	2,120	635	1,760	1,880	380	203	275	98
14	480	270	540	1,040	1,880	710	1,460	1,400	405	239	294	104
15	455	430	510	910	1,700	600	1,340	1,280	334	540	256	98
16	430	510	510	1,180	1,580	600	1,090	1,230	314	670	239	101
17	405	600	2,600	2,360	1,400	600	1,090	1,520	314	540	239	107
18	357	750	16,500	3,520	1,230	870	2,120	1,040	294	314	222	110
19	357	750	17,700	3,100	1,090	2,240	2,480	910	294	314	209	110
20	334	600	25,900	2,600	1,000	1,520	2,240	790	275	294	196	110
21	334	570	24,300	2,360	1,000	1,230	2,360	750	294	275	177	380
22	312	510	5,940	2,120	910	1,040	1,640	670	294	275	174	455
23	291	455	3,800	1,760	910	910	1,400	600	314	239	164	1,040
24	291	430	3,100	1,700	955	830	1,140	570	275	222	158	2,000
25	270	405	2,480	1,580	2,120	750	1,040	1,640	275	222	152	1,520
26	250	380	2,120	1,520	2,120	750	910	1,180	256	209	128	4,100
27	270	334	2,000	1,520	1,880	670	955	910	239	184	128	11,900
28	270	334	1,340	1,400	1,700	600	1,400	750	239	187	125	15,900
29	270	334	1,180	1,180	-------	600	3,100	635	239	184	122	13,900
30	250	182	1,520	1,140	-------	570	3,240	570	222	177	122	3,660
31	250	-------	1,090	1,040	-------	540	-------	510	-------	171	122	-------

NOTE.—Gage readings probably in error Apr. 26–27; discharge estimated from records at Jerome.

Monthly discharge of Gasconade River near Waynesville, Mo., for the year ending September 30, 1925

[Drainage area, 1,680 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	1,520	250	541	0.322	0.37
November	750	182	366	.218	.24
December	25,900	206	3,810	2.27	2.62
January	3,520	750	1,410	.839	.97
February	2,240	710	1,440	.857	.89
March	2,240	540	893	.532	.61
April	3,240	480	1,390	.827	.92
May	2,720	510	1,270	.756	.87
June	600	222	322	.192	.21
July	670	171	255	.152	.18
August	294	122	177	.107	.12
September	15,900	98	1,900	1.13	1.26
The year	25,900	98	1,150	.685	9.26

GASCONADE RIVER AT JEROME, MO.

LOCATION.—In S. ½ sec. 13, T. 37 N., R. 10 W., 500 feet north of St. Louis-San Francisco Railway station at Jerome, Phelps County, half a mile below St. Louis-San Francisco Railway bridge, and half a mile below Little Piney Creek.

DRAINAGE AREA.—2,840 square miles (measured on soil-survey maps).

RECORDS AVAILABLE.—April 12, 1903, to July 21, 1906 (published as Gasconade River at Arlington, Mo.); January 3, 1923, to September 30, 1925. The United States Weather Bureau has records of stage at railroad bridge since 1885.

GAGE.—Staff gage in two sections fastened to trees on left bank; read by C. F. Brockman. Zero of gage is 657.98 feet above mean sea level.

DISCHARGE MEASUREMENTS.—Made from downstream side of railroad bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of gravel and small boulders; clean and fairly permanent. Control is a coarse gravel bar extending diagonally across river 100 feet below gage; practically permanent.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 18.20 feet at 4 p. m. December 20 (discharge, 38,600 second-feet); minimum stage, 1.40 feet September 12 and 13 (discharge, 400 second-feet).

1923–1925: Maximum and minimum stages same as for 1925, as given above.

1903–1906: Maximum discharge recorded, 45,000 second-feet July 23, 1905; minimum discharge, 300 second-feet June 15, 1905.

Flood of January 5, 1897, reached stage of about 31 feet as determined from records of United States Weather Bureau and relationship between gages.

REGULATION.—Natural regulation due to flow of large springs.

ACCURACY.—Stage-discharge relation practically permanent during year; not affected by ice. Rating curves well defined. Gage read to hundredths twice daily. Daily discharge ascertained by applying mean daily gage height to rating tables. Records good.

Discharge measurements of Gasconade River at Jerome, Mo., during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 6	3.41	2,450	Feb. 17	3.33	2,410	July 7	1.80	698
Oct. 30	1.82	687	Feb. 20	2.97	1,910	Sept. 11	1.42	408
Nov. 6	1.79	662	May 6	3.12	2,060			

Daily discharge, in second-feet, of Gasconade River at Jerome, Mo., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,460	670	715	1,920	1,920	2,400	1,150	5,560	1,100	630	530	426
2	1,350	670	715	1,680	1,920	2,160	1,150	3,280	850	590	530	426
3	1,250	670	715	1,680	2,280	2,040	1,150	2,890	850	590	530	465
4	1,200	670	760	1,570	2,400	1,920	1,150	2,400	950	590	530	432
5	1,460	670	760	1,570	2,520	1,920	1,150	2,280	900	550	498	426
6	2,400	670	760	1,460	2,400	1,800	1,150	2,040	850	550	498	426
7	1,920	670	760	1,460	2,280	1,680	1,100	1,920	805	630	498	426
8	1,800	670	805	1,460	2,160	1,570	1,100	1,800	805	630	465	426
9	1,570	670	900	1,570	2,400	1,460	2,280	1,920	760	590	465	426
10	1,350	670	950	1,680	3,020	1,460	2,640	2,160	760	590	465	420
11	1,250	670	1,050	1,800	3,150	1,350	3,280	3,670	760	590	465	413
12	1,150	715	1,200	1,800	3,410	1,350	3,150	3,280	715	550	530	406
13	1,100	670	1,150	1,800	3,150	1,350	2,890	2,640	715	550	565	400
14	1,050	760	1,100	1,680	2,890	1,460	2,520	2,400	850	670	640	420
15	950	1,100	1,050	1,680	2,760	1,350	2,280	2,160	850	800	640	449
16	950	1,050	1,000	2,040	2,640	1,350	2,040	2,400	850	1,200	600	432
17	900	1,050	1,000	3,020	2,400	1,250	2,160	2,160	850	1,100	600	426
18	850	1,200	5,260	4,320	2,160	1,460	2,640	2,040	850	950	565	426
19	850	1,250	21,800	4,450	2,040	3,020	3,410	1,800	805	805	565	426
20	805	1,250	37,000	3,930	1,920	2,760	3,540	1,570	805	805	530	413
21	805	1,150	23,200	3,280	1,800	2,400	3,020	1,460	805	715	530	1,000
22	760	1,050	20,400	3,020	1,800	2,040	2,640	1,350	760	670	530	1,460
23	760	1,000	6,440	2,640	1,800	1,800	2,400	1,250	760	630	530	2,160
24	715	950	4,980	2,400	2,280	1,680	2,160	1,920	950	590	498	3,410
25	715	900	3,980	2,400	2,640	1,570	1,920	2,160	805	590	498	2,520
26	715	850	3,410	2,400	3,280	1,460	1,800	2,160	760	590	465	5,260
27	715	850	2,890	2,280	2,890	1,460	2,040	1,920	715	550	452	14,900
28	715	805	2,400	2,160	2,640	1,350	2,280	1,570	670	510	446	16,500
29	715	760	2,280	2,040	-------	1,250	4,710	1,350	670	510	432	20,100
30	670	760	2,130	1,920	-------	1,200	5,260	1,250	670	510	426	6,260
31	715	-------	2,040	1,800	-------	1,150	-------	1,150	-------	510	426	-------

NOTE.—Gage not read July 15-18; discharge estimated.

Monthly discharge of Gasconade River at Jerome, Mo., for the year ending September 30, 1925

[Drainage area, 2,840 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	2,400	670	1,080	0.380	0.44
November	1,250	670	850	.299	.33
December	37,000	715	4,950	1.74	2.01
January	4,450	1,460	2,220	.782	.90
February	3,410	1,800	2,460	.866	.90
March	3,020	1,150	1,690	.595	.69
April	5,260	1,100	2,340	.824	.92
May	5,560	1,150	2,190	.771	.89
June	1,100	670	808	.285	.32
July	1,200	510	656	.231	.27
August	640	426	514	.181	.21
September	20,100	400	2,740	.965	1.08
The year	37,000	400	1,870	.658	8.96

GASCONADE RIVER NEAR RICH FOUNTAIN, MO.

LOCATION.—In SE. ¼ sec. 16, T. 42 N., R. 8 W., at highway bridge on Belle-Rich Fountain road just below Brushy Creek, just above Swan Creek, and 4 miles east of Rich Fountain, Osage County.

DRAINAGE AREA.—3,180 square miles (measured on soil-survey maps).

RECORDS AVAILABLE.—October 10, 1921, to September 30, 1925.

GAGE.—Chain gage on upstream side of bridge; read by August Mebruer.

DISCHARGE MEASUREMENTS.—Made from bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of coarse gravel and rock; clean and fairly permanent. Control is a heavy gravel bar 800 feet below gage; clean and practically permanent.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 18.0 feet at 4 p. m. December 21 (discharge, 29,600 second-feet); minimum discharge, 415 second-feet September 13.

1922–1925: Maximum stage recorded, that of December 21, 1924. Minimum discharge, 410 second-feet September 29 and 30, 1922.

REGULATION.—Natural regulation due to flow of large springs.

ACCURACY.—Stage-discharge relation permanent during the year; not affected by ice. Rating curve well defined. Gage read to hundredths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table, except as described in footnote to table of daily discharge. Records good.

Discharge measurements of Gasconade River near Rich Fountain, Mo., during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 1	2.49	1,580	July 20	1.82	879
Dec. 16	2.10	1,170	Sept. 18	1.23	434
Apr. 15	3.66	2,910			

Daily discharge, in second-feet, of Gasconade River near Rich Fountain, Mo., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,560	722	765	2,220	2,220	2,900	1,350	5,560	1,200	680	572	475
2	1,450	680	722	2,000	2,220	2,550	1,250	4,240	1,150	680	572	475
3	1,450	680	765	1,890	2,330	2,330	1,250	3,620	1,100	642	572	445
4	1,350	680	812	1,890	2,550	2,220	1,350	3,260	1,000	642	540	445
5	1,250	680	955	1,780	2,780	2,110	1,450	2,660	955	642	540	445
6	2,220	680	908	1,670	2,780	2,000	1,450	2,440	908	642	540	445
7	2,330	680	908	1,670	2,660	1,890	1,350	2,330	860	722	540	445
8	2,000	642	860	1,780	2,660	1,890	1,350	2,000	860	642	540	445
9	1,780	680	908	1,780	2,780	1,780	2,220	2,000	812	642	540	445
10	1,560	680	955	1,780	2,780	1,670	3,380	2,330	765	642	540	440
11	1,450	642	1,050	1,890	3,500	1,560	3,380	3,380	765	642	540	435
12	1,350	722	1,100	1,890	3,860	1,560	3,740	3,980	765	642	605	425
13	1,200	860	1,250	1,890	3,980	1,560	3,620	3,620	812	572	642	415
14	1,150	812	1,250	1,890	3,740	2,220	3,260	2,900	908	572	642	445
15	1,100	1,100	1,200	1,890	3,500	2,000	2,780	2,550	860	642	680	445
16	1,050	1,200	1,100	2,440	3,020	1,780	2,550	3,860	955	1,350	1,450	445
17	1,000	1,200	1,250	2,900	2,780	1,670	2,900	3,260	955	1,230	908	445
18	955	1,200	4,630	3,860	2,660	4,760	3,020	2,660	908	1,120	765	445
19	908	1,250	13,300	4,630	2,440	5,700	3,620	2,330	908	1,000	642	445
20	860	1,350	22,500	4,500	2,220	4,370	4,110	2,110	812	879	605	445

Daily discharge, in second-feet, of Gasconade River near Rich Fountain, Mo., for the year ending September 30, 1925—Continued

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept
21	812	1,250	29,400	4,240	2,110	3,380	3,860	1,890	812	765	572	445
22	812	1,200	27,700	3,740	2,110	2,780	3,380	1,670	812	765	540	1,050
23	765	1,150	21,100	3,380	2,110	2,440	2,780	1,560	812	680	540	2,900
24	765	1,050	6,700	3,140	2,330	2,110	2,550	2,900	765	680	508	2,440
25	765	955	5,280	3,020	2,660	2,000	2,330	2,780	765	605	508	3,020
26	722	908	4,370	2,780	3,260	1,780	2,110	2,440	765	605	475	4,760
27	722	812	3,500	2,550	3,500	1,670	2,110	2,220	812	605	475	8,580
28	722	765	3,380	2,550	3,140	1,670	3,020	1,890	722	572	445	14,700
29	722	765	3,020	2,330	-------	1,560	5,000	1,670	722	572	445	17,100
30	722	765	2,550	2,220	-------	1,350	5,900	1,450	680	572	445	15,700
31	722	-------	2,330	2,220	-------	1,350	-------	1,250	-------	572	445	-------

NOTE.—Gage not read Apr. 29–30; probably read incorrectly July 17–20, Sept. 9–12, and 19–21. Discharge for these days estimated from discharge at Jerome.

Monthly discharge of Gasconade River near Rich Fountain, Mo., for the year ending September 30, 1925

[Drainage area, 3,180 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	2,330	722	1,170	0.368	0.42
November	1,350	642	892	.281	.31
December	29,400	722	5,370	1.69	1.95
January	4,630	1,670	2,530	.796	.92
February	3,980	2,110	2,810	.884	.92
March	5,700	1,350	2,280	.717	.83
April	5,900	1,250	2,750	.865	.97
May	5,560	1,250	2,670	.840	.97
June	1,200	680	864	.272	.30
July	1,350	572	717	.225	.26
August	1,450	445	593	.186	.21
September	17,100	415	2,650	.833	.93
The year	29,400	415	2,110	.664	8.99

PINEY CREEK NEAR BIG PINEY, MO.

LOCATION.—In NE. ¼ sec. 8, T. 34 N., R. 10 W., at Ross highway bridge 3 miles east of Big Piney, Pulaski County, and 14 miles above Spring Creek.

DRAINAGE AREA.—560 square miles (measured on soil-survey maps).

RECORDS AVAILABLE.—October 13, 1921, to September 30, 1925.

GAGE.—Chain gage on upstream side of bridge; read by E. G. Rowden.

DISCHARGE MEASUREMENTS.—Made from bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of gravel and rock; clean, except where brush grows on bars exposed at low stages; fairly permanent. Control is a coarse gravel and rock bar 300 feet below gage; clean and practically permanent.

EXTREMES OF DISCHARGE.—Maximum stage during year estimated 12.0 feet December 20 (discharge, 9,650 second-feet); minimum stage recorded, 1.72 feet September 4 and 5 (discharge, 91 second-feet).

1922–1925: Maximum and minimum stages those of 1925, as given above.

REGULATION.—Natural regulation due to flow of large springs.

ACCURACY.—Stage-discharge relation changed slightly during the year; not affected by ice. Rating curves fairly well defined. Gage read to hundredths once daily but are not entirely reliable. Daily discharge ascertained by applying daily gage height to rating table; shifting-control method used December 21 to July 7. Records fair.

Discharge measurements of Piney Creek near Big Piney, Mo., during the year ending September 30, 1925

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 6	2.46	305	Mar. 9	2.54	326	July 16	2.09	178
Nov. 6	1.94	123	May 26	2.44	279	Sept. 12	1.76	98

Daily discharge, in second-feet, of Piney Creek near Big Piney, Mo., for the year ending September 30, 1925

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	244	138	144	315	375	740	213	1,160	171	132	102	96
2	238	132	138	295	398	740	216	1,020	199	126	106	96
3	220	126	138	275	420	680	196	560	178	120	106	94
4	185	132	164	267	420	510	196	510	164	114	102	91
5	398	120	171	259	465	335	202	488	157	114	106	91
6	335	126	182	267	465	332	188	465	150	114	106	96
7	335	138	188	283	442	329	182	535	157	102	106	95
8	315	132	182	315	442	326	291	590	150	102	110	99
9	227	138	174	331	1,090	323	299	650	141	108	118	98
10	206	135	234	355	1,240	315	442	680	135	114	116	96
11	199	138	227	375	950	307	465	442	135	111	114	96
12	196	227	220	375	1,160	299	459	420	154	108	114	96
13	192	234	206	315	810	315	453	398	154	108	110	94
14	192	248	199	291	560	331	448	375	216	102	114	94
15	185	230	202	335	465	335	442	355	182	105	110	96
16	178	227	192	465	465	275	510	287	178	182	110	99
17	168	220	185	845	398	267	1,240	291	185	108	110	99
18	150	213	355	950	375	252	1,400	299	178	114	106	106
19	144	206	1,020	845	355	259	1,240	252	171	108	106	110
20	535	202	7,520	810	335	275	950	224	157	102	102	114
21	150	192	950	775	398	331	535	210	150	108	102	116
22	144	178	810	650	375	315	442	188	144	114	103	1,800
23	141	171	775	535	510	307	398	216	141	114	104	1,090
24	138	164	740	398	1,160	291	355	252	141	108	102	650
25	144	164	710	375	880	275	283	244	135	120	99	740
26	138	150	535	375	845	267	230	283	147	117	99	640
27	132	138	465	355	810	252	420	224	141	108	96	1,400
28	126	144	442	335	775	238	1,480	210	129	108	94	1,160
29	132	154	398	331	.....	210	2,060	196	132	110	94	1,020
30	123	150	355	355	.....	210	3,370	182	135	106	94	740
31	132	.....	315	375	.....	202	.....	174	.....	102	96	.....

NOTE.—Gage readings Mar. 6–8 and 10–11 are probably in error; gage not read Apr. 12–14 and Aug. 1–22. Discharge interpolated.

Monthly discharge of Piney Creek near Big Piney, Mo., for the year ending September 30, 1925

[Drainage area, 560 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	535	123	205	0.366	0.42
November	248	120	169	.302	.34
December	7,520	138	598	1.07	1.23
January	950	259	433	.773	.89
February	1,240	335	621	1.11	1.16
March	740	202	337	.602	.69
April	3,370	182	652	1.16	1.29
May	1,160	174	399	.712	.82
June	216	129	157	.280	.31
July	182	102	113	.202	.23
August	118	94	105	.188	.22
September	1,800	91	377	.673	.75
The year	7,520	91	345	.616	8.35

MISCELLANEOUS DISCHARGE MEASUREMENTS

Discharge measurements of streams in the Missouri River Basin at points other than regular gaging stations are listed in the following table:

Miscellaneous discharge measurements in the Missouri River Basin during the year ending September 30, 1925

Date	Stream	Tributary to—	Locality	Gage height	Discharge
				Feet	*Sec.-ft.*
June 18	Soldier Creek	Kansas River	Topeka, Kans.		5,890
Sept. 9	Niangua River	Osage River	At mouth at Linn Creek, Mo.		210
Sept. 10	Blue Spring	Niangua River	6 miles west of Eldridge, Laclede County, Mo.		16
Sept. 12	Schlicht Spring	Gasconade River	7 miles northwest of Waynesville, Mo.		1.0
ept. 11	Falling Spring	do	4 miles west of Waynesville, Mo.		2.3
Aug. 18	Boiling Spring	Piney Creek	8 miles southwest of Licking, Mo.		12
18	Hazleton Spring	do	Hazleton, Texas County, Mo.		4.3
July 21	Slabtown Spring	do	5 miles south of Edanville, Texas County, Mo.		13
21	Prewett Spring	do	1 mile north of Edanville, Mo.		17
Sept. 12	Stone Mill Spring	do	2 miles southwest of Spring Creek, Phelps County, Mo.		23
Mar. 24	Shanghai Spring	do	7 miles east of Waynesville, Mo.		22
July 21	do	do	do		12
May 26	Coppedge Spring	Spring Creek	Relfe, Phelps County, Mo.		29
Sept. 12	do	do	do		20
July 24	Piney Spring	Little Piney Creek	1½ miles southeast of Yancy Mill, Phelps County, Mo.		5.0
24	Yancy Mill Spring	do	Yancy Mill, Mo.		1.5

INDEX

A

Page

Accuracy of data and results, degrees of..... 4-5
Acre-foot, definition of..... 2
Agency, Mo., Platte River at..... 181-182
Alton, Kans., South Fork of Solomon River at..... 198-200
Alzada, Mont., Little Missouri River near.. 130-131
American Fork near Harlowton, Mont..... 64-65
Appropriations, record of..... 1
Arvada, Wyo., Powder River at..... 126-127
Augusta, Mont., North Fork of Sun River near..... 37-39
Willow Creek near..... 41-43

B

Bagnell, Mo., Osage River near..... 227-228
Barratts, Mont., Beaverhead River at..... 14-15
Battle Creek at international boundary..... 81-82
Beaverhead River at Barratts, Mont..... 14-15
Belle Fourche River near Belle Fourche, S. Dak..... 132-134
near Moorcroft, Wyo..... 131-132
Big Blue River at Hull, Kans..... 203-204
at Randolph, Kans..... 204-206
Big Hole River near Melrose, Mont..... 23-24
Big Horn River at Hardin, Mont..... 105-107
at Thermopolis, Wyo..... 103-105
Big Piney, Mo., Piney Creek near..... 245-247
Birch Creek at Swift Dam, near Dupuyer, Mont..... 47-49
near Dupuyer, Mont..... 49-51
Blackwater River at Blue Lick, Mo..... 221-222
Blue Spring, Mo., discharge measurement of.. 247
Bonanza, Wyo., Nowood Creek at..... 116-117
Bonner Springs, Kans., Kansas River at.. 191-192
Boiling Spring, Mo., discharge measurement of..... 247
Boyer River at Logan, Iowa..... 135-137
Brinkman, Mont., Marias River near..... 46-47
Browning, Mont., North Fork of Milk River near..... 77-78
Brownington, Mo., South Grand River near..... 236-237
Buffalo, Wyo., Clear Creek near..... 127-129
Bull Lake Creek near Lenore, Wyo..... 111-112
Burlington Junction, Mo., Nodaway River near..... 177-178
Burris, Wyo., Dinwoody Creek near..... 107-108
Dry Creek near..... 109-110

C

Cedar Creek near Pleasant View, Mo..... 233-234
Chance, Mont., Clark Fork at..... 99-100
Chariton River at Elmer, Mo..... 217-219
Checkerboard Creek at Delpine, Mont..... 62-64

Page

Cheyenne River Basin, Wyo.-S. Dak., gaging-station records in..... 131-134
Clancy, Mont., Prickly Pear Creek near.. 30-31
Clarinda, Iowa, Nodaway River at..... 175-177
Clark Fork at Chance, Mont..... 99-100
at Edgar, Mont..... 100-102
Clear Creek near Buffalo, Wyo..... 127-129
near Golden, Colo..... 168-169
Clifton City, Mo., Lamine River at..... 219-220
Collins, Mo., Sac River near..... 231-233
Computations, results of, accuracy of..... 4-5
Conception Junction, Mo., Platte River at.. 180-181
Control, definition of..... 2
Cooperation, record of..... 10-11
Coppedge Spring, Mo., discharge measurements of..... 247
Corbett Dam, Wyo., Shoshone River at..... 121-123
Correctionville, Iowa, Little Sioux River at.. 134-135
Corwin Springs, Mont., Yellowstone River at..... 88-89
Crow Creek near Radersburg, Mont..... 28-29
Crowheart, Wyo., Willow Creek near..... 110-111

D

Data, accuracy of..... 4-5
explanation of..... 3-4
Davis City, Iowa, Thompson River at..... 212-213
Dayton, Wyo., Tongue River near..... 124-126
Delaware River at Valley Falls, Kans..... 207-209
Delpine, Mont., Checkerboard Creek at..... 62-64
North Fork of Musselshell River at..... 59-61
Devon, Mont., Willow Creek near..... 54-55
Dillon, Mont., Grasshopper Creek near..... 21-23
Dinwoody Creek near Burris, Wyo..... 107-108
Douglas, Wyo., La Prele Creek near..... 154-156
Dry Creek near Burris, Wyo..... 109-110
Dupuyer, Mont., Birch Creek near..... 47-51
Dupuyer Creek near Valier, Mont..... 51-52

E

East Nishnabotna River at Red Oak, Iowa.. 172-173
Edgar, Mont., Clark Fork at..... 100-102
Ellsworth, Kans., Smoky Hill River at..... 192-194
Elmer, Mo., Chariton River at..... 217-219

F

Fairfax, Mo., Tarkio River at..... 174-175
Falling Spring, Mo., discharge measurement of..... 247
Filmore, Wyo., Little Laramie River near.. 161-162
Flatwillow, Mont., Flatwillow Creek near.. 67-68
Flatwillow Creek at Petrolia, Mont..... 68-70
near Flatwillow, Mont..... 67-68
Fort Benton, Mont., Missouri River at..... 18-20
Fort Laramie, Wyo., Laramie River at..... 160-161

Page

Fort Scott, Kans., Marmaton River near.. 228-230
Fort Shaw, Mont., Sun River at..... 40-41
Fort Washakie, Wyo., Little Wind River near..... 113-114
North Fork of Little Wind River at... 114-115
Fowler, Mont., Dry Fork of Marias River at..... 53-54
Frenchman River at international boundary.. 82-84

G

Gallatin, Mo., Grand River near..... 209-210
Galt, Mo., Medicine Creek near..... 213-215
Gardiner River at Mammoth Hotel, Yellowstone National Park..... 94-96
Gasconade River at Jerome, Mo..... 242-243
near Rich Fountain, Mo..... 244-245
near Waynesville, Mo..... 240-242
Gasconade River Basin, Mo., gaging-station records in..... 240-247
Glendevey, Colo., Laramie River near..... 156-157
Golden, Colo., Clear Creek near..... 168-169
Grand River near Gallatin, Mo..... 209-210
near Sumner, Mo..... 210-212
Grand River Basin, Mo.-Iowa, gaging-station records in..... 209-217
Grasshopper Creek near Dillon, Mont..... 21-23
Greybull River at Meeteetse, Wyo..... 119-120

H

Hahatonka Spring at Hahatonka, Mo..... 239-240
Hardin, Mont., Big Horn River at..... 105-107
Harlowton, Mont., America Fork near..... 64-65
Lebo Creek near..... 65-67
Musselshell River at..... 61-62
Hazleton Spring, Mo., discharge measurement of..... 247
Helena, Mont., Missouri River near..... 17-18
Tenmile Creek near..... 33-34
Hermitage, Mo., Pomme de Terre River at..... 234-236
Hull, Kans., Big Blue River at..... 203-204
Hyattville, Wyo., Paintrock Creek near... 117-118

I

Illinois Creek at Walden, Colo..... 151-153
Intake, Mont., Yellowstone River at..... 89-91
International boundary, Battle Creek at..... 81-82
Frenchman River at..... 82-84
Lodge Creek at..... 80-81
Milk River at eastern crossing of..... 73-75
North Fork of Milk River near..... 78-79
South Fork of Milk River near..... 70-71

J

Jefferson River near Silverstar, Mont..... 15-17
Jelm, Wyo., Laramie River near..... 157-159
Jerome, Mo., Gasconade River at..... 242-243
Judith River near Utica, Mont..... 57-58
Judith River Basin, Mont., gaging-station records in..... 57-59

Page

K

Kansas River at Bonner Springs, Kans..... 191-192
at Ogden, Kans..... 186-187
at Topeka, Kans..... 189-191
at Wamego, Kans..... 187-189
Kansas River Basin, Kans., gaging-station records in..... 183-209
Kirwin, Kans., North Fork of Solomon River at..... 201-203

L

Lamar River near Tower Falls ranger station, Yellowstone National Park..... 93-94
Lamine River at Clifton City, Mo..... 219-220
Lamine River Basin, Mo., gaging-station records in..... 219-222
La Prele Creek near Douglas, Wyo..... 154-156
Laramie River at Fort Laramie, Wyo..... 160-161
at Two Rivers, Wyo..... 159-160
near Glendevey, Colo..... 156-157
near Jelm, Wyo..... 157-159
Leavenworth, Kans., Missouri River at... 20-21
Lebo Creek near Harlowton, Mont..... 65-67
Lenore, Wyo., Bull Lake Creek near..... 111-112
Little Blue River at Waterville, Kans..... 206-207
Little Laramie River at Two Rivers, Wyo.. 163-164
near Filmore, Wyo..... 161-162
Little Missouri River near Alzada, Mont.. 130-131
Little Prickly Pear Creek near Marysville, Mont..... 34-36
Little Sioux River at Correctionville, Iowa.. 134-135
Little Wind River near Fort Washakie, Wyo..... 113-114
North Fork of, at Fort Washakie, Wyo.. 114-115
Locust Creek near Milan, Mo..... 215-217
Lodge Creek at international boundary..... 80-81
Logan, Iowa, Boyer River at..... 135-137
Lohman, Mont., Milk River at..... 75-76

M

Madison River near West Yellowstone, Mont..... 26-28
Marias River, Dry Fork of, at Fowler, Mont.. 53-54
near Brinkman, Mont..... 46-47
near Shelby, Mont..... 44-46
Marias River Basin, Mont., gaging-station records in..... 44-56
Marmaton River near Fort Scott, Kans... 228-230
Marysville, Mont., Little Prickly Pear Creek near..... 34-36
Medicine Creek near Galt, Mo..... 213-215
Meeteetse, Wyo., Greybull River at..... 119-120
Melrose, Mont., Big Hole River near..... 23-24
Mentor, Kans., Smoky Hill River near..... 194-195
Michigan Creek at Walden, Colo..... 150-151
Milan, Mo., Locust Creek near..... 215-217
Milk River, Alberta, Milk River at..... 71-73
Milk River at eastern crossing of international boundary..... 73-75
at Lohman, Mont..... 75-76
at Milk River, Alberta..... 71-73

Page

Milk River, North Fork of, above St. Mary Canal, near Browning, Mont. 77–78
near international boundary 78–79
South Fork of, near international boundary 70–71
Milk River Basin, Mont., gaging-station records in 70–84
Missouri River at Fort Benton, Mont. 18–20
at Leavenworth, Kans. 20–21
below Hauser Lake Dam, near Helena, Mont. 17–18
Missouri River proper, Mont.-Kans., gaging-station records of 11–21
Monida, Mont., Red Rock River near 11–14
Moorcroft, Wyo., Belle Fourche River near 131–132
Muddy Creek at Vaughn, Mont. 43–44
Musselshell River at Harlowton, Mont. 61–62
North Fork of, at Delpine, Mont. 59–61
Musselshell River Basin, Mont., gaging-station records in 59–70

N

Niangua River, Mo., discharge measurement of 247
near Roach, Mo. 237–239
Niles, Kans., Solomon River at 200–201
Nishnabotna River Basin, Iowa, gaging-station records in 172–173
Nodaway River at Clarinda, Iowa 175–177
near Burlington Junction, Mo. 177–178
Nodaway River Basin, Iowa-Mo., gaging-station records in 175–180
North Boulder Creek at Silver Lake, Colo. 169–170
North Platte River above Pathfinder Reservoir, Wyo. 141–143
at Saratoga, Wyo. 140–141
below Pathfinder Reservoir, Wyo. 143–144
near Northgate, Colo. 138–140
near Walden, Colo. 137–138
near Whalen, Wyo. 144–146
North Fork of, near Walden, Colo. 147–148
Northgate, Colo., North Platte River near 138–140
Norwood Creek at Bonanza, Wyo. 116–117
Nye, Mont., Stillwater River near 96–97
Woodbine Creek near 97–99

O

Ogden, Kans., Kansas River at 186–187
Osage River at Osceola, Mo. 225–227
near Bagnell, Mo. 227–228
near Ottawa, Kans. 224–225
near Quenemo, Kans. 222–224
Osage (Marais des Cygnes) River Basin, Mo.-Kans., gaging-station records in 222–240
Osceola, Mo., Osage River at 225–227
Ottawa, Kans., Osage River near 224–225

P

Paintrock Creek near Hyattville, Wyo. 117–118
Pathfinder, Wyo., Sage Creek above 153–154
Pathfinder Reservoir, Wyo., North Platte River near 141–144
Petrolia, Mont., Flatwillow Creek at 68–70
Piney Creek near Big Piney, Mo. 245–247
Piney Spring, Mo., discharge measurement of 247
Platte River at Agency, Mo. 181–182
at Conception Junction, Mo. 180–181
Platte River Basin (Iowa-Mo.), gaging-station records in 180–182
Platte River Basin, Colo.-Wyo., gaging-station records in 137–172
Pleasant View, Mo., Cedar Creek near 233–234
Pomme de Terre River at Hermitage, Mo. 234–236
Powder River at Arvada, Wyo. 126–127
Prewett Spring, Mo., discharge measurement of 247
Prickly Pear Creek near Clancy, Mo. 30–31
Prickly Pear Creek Basin, Mont., gaging-station records in 30–39
Publications, information concerning 5–7
obtaining or consulting of 6–9
on stream flow, lists of 7–8, 4

Q

Quenemo, Kans., Osage River near 222–224

R

Radersburg, Mont., Crow Creek near 28–29
Randolph, Kans., Big Blue River at 204–206
Red Oak, Iowa, East Nishnabotna River at 172–173
Red Rock River at Metzel Ford, near Monida, Mont. 11–12
below Red Rock Reservoir, near Monida, Mont. 13–14
Republican River at Scandia, Kans. 183–184
at Wakefield, Kans. 184–186
Rich Fountain, Mo., Gasconade River near 244–245
Rimini, Mont., Tenmile Creek near 31–33
Riverton, Wyo., Wind River at 102–103
Roach, Mo., Niangua River near 237–239
Roaring Fork near Walden, Colo. 148–150
Run-off in inches, definition of 2

S

Sac River near Collins, Mo. 231–233
near Stockton, Mo. 230–231
Sage Creek above Pathfinder, Wyo. 153–154
Saline River at Tescott, Kans. 197–198
Saratoga, Wyo., North Platte River at 140–141
Scandia, Kans., Republican River at 183–184
Schlicht Spring, Mo., discharge measurement of 247
Second-feet, definition of 2
Second-feet per square mile, definition of 2
Shanghai Spring, Mo., discharge measurements of 247
Shelby, Mont., Marias River near 44–46
Shoshone River above Shoshone Reservoir, Wyo. 120–121
at Corbett Dam, Wyo. 121–123
North Fork of, near Wapiti, Wyo. 123–124
Silver Lake, Colo., North Boulder Creek at 169–170
Silverstar, Mont., Jefferson River near 15–17
Slabtown Spring, Mo., discharge measurement of 247

Page

Smith River near White Sulphur Springs, Mont. 36–37
Smoky Hill River at Ellsworth, Kans. 192–194
at Solomon, Kans. 195–197
near Mentor, Kans. 194–195
Soldier Creek, Kans., discharge measurement of 247
Solomon, Kans., Smoky Hill River at 195–197
Solomon River at Niles, Kans. 200–201
North Fork of, at Kirwin, Kans. 201–203
South Fork of, at Alton, Kans. 198–200
South Grand River near Brownington, Mo. 236–237
South Platte River at South Platte, Colo. 164–166
North Fork of, at South Platte, Colo. 166–167
Stage-discharge relation, definition of 2
Stanford, Mont., Wolf Creek near 58–59
Stillwater River near Nye, Mont. 96–97
Stockton, Mo., Sac River near 230–231
Stone Mill Spring, Mo., discharge measurement of 247
Strabane, Mont., Teton River at 55–56
Sumner, Mo., Grand River near 210–212
Sun River at Fort Shaw, Mont. 40–41
North Fork of, near Augusta, Mont. 37–39
Sun River Basin, Mont., gaging-station records in 37–44

T

Tarkio River at Fairfax, Mo. 174–175
Tenmile Creek near Helena, Mont. 33–34
near Rimini, Mont. 31–33
Terms, definition of 2
Tescott, Kans., Saline River at 197–198
Teton River at Strabane, Mont. 55–56
Thermopolis, Wyo., Big Horn River at 103–105
Thompson River at Davis City, Iowa 212–213
near Drake, Colo. 170–172
Tongue River near Dayton, Wyo. 124–126
Topeka, Kans., Kansas River at 189–191
Tower Creek at Tower Falls, Yellowstone National Park 91–92
Two Rivers, Wyo., Laramie River at 159–160
Little Laramie River at 163–164

U

Utica, Mont., Judith River near 57–58

V

Valier, Mont., Dupuyer Creek near 51–52
Valley Falls, Kans., Delaware River at 207–209
Vaughn, Mont., Muddy Creek at 43–44
Villisca, Iowa, West Nodaway River at 179–180

W

Page

Wakefield, Kans., Republican River at 184–186
Walden, Colo., Illinois Creek at 151–153
Michigan Creek at 150–151
North Fork of North Platte River near 147–148
North Platte River near 137–138
Roaring Fork near 148–150
Wamego, Kans., Kansas River at 178–189
Wapiti, Wyo., North Fork of Shoshone River near 123–124
Waterville, Kans., Little Blue River at 206–207
Waynesville, Mo., Gasconade River near 240–242
West Nodaway River at Villisca, Iowa 179–180
West Yellowstone, Mont., Madison River near 26–28
Whalen, Wyo., North Platte River near 144–146
White Sulphur Springs, Mont., Smith River near 36–37
Willow Creek, Mont., Willow Creek near 24–26
Willow Creek near Augusta, Mont. 41–43
near Crowheart, Wyo. 110–111
near Devon, Mont. 54–55
near Willow Creek, Mont. 24–26
Wind River at Riverton, Wyo. 102–103
Wolf Creek near Stanford, Mont. 58–59
Woodbine Creek near Nye, Mont. 97–99
Work, authorization of 1
division of 11
scope of 1–2

Y

Yellowstone Lake at Lake Hotel, Yellowstone National Park 84–85
Yellowstone National Park, Gardiner River in 94–96
Lamar River in 93–94
Tower Creek in 91–92
Yellowstone Lake in 84–85
Yellowstone River in 85–87
Yellowstone River at Corwin Springs, Mont. 88–89
at Intake, Mont. 89–91
at Yellowstone Lake outlet, Yellowstone National Park 85–86
near Canyon Hotel, Yellowstone National Park 86–87
Yellowstone River Basin, Mont.-Wyo., gaging-station records in 84–129
Yancy Mill Spring, Mo., discharge measurement of 247

Z

Zero flow, point of, definition of 2