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MEASUREMENTS OF DISCHARGE, GAIN OR LOSS IN FLOW, AND
CHEMICAL QUALITY OF THE POPLAR AND REDWATER RIVERS,
NORTHEASTERN MONTANA, OCTOBER 24-25, 1979

By

Kent A. Dodge and Gary W. Levings

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METRIC CONVERSION TABLE

The following factors can be used to convert inch-pound units in this report to the International System (SI) of metric units.

<u>Multiply inch-pound unit</u>	<u>By</u>	<u>To obtain metric unit</u>
cubic foot per second (ft ³ /s)	0.02832	cubic meter per second (m ³ /s)
foot (ft)	0.3048	meter (m)
mile (mi)	1.609	kilometer (km)
ton per acre-foot (ton/acre-ft)	0.0007357	megagram per cubic meter (Mg/m ³)
temperature, degrees Celsius (°C) = 0.556 (°F-32)		

MEASUREMENTS OF DISCHARGE, GAIN OR LOSS IN FLOW,
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ABSTRACT

Discharge, specific conductance, and water temperature were measured at 37 sites on the Poplar and Redwater Rivers in northeastern Montana on October 24-25, 1979, to provide data on the interaction between surface-water and ground-water systems. Streamflow gains or losses were computed for those stream reaches not significantly affected by irrigation. Water samples were collected at 17 of the sites for detailed chemical-quality analysis. The tabulated data provide an areally broad data base of concurrent base-flow conditions.

INTRODUCTION

Rapid development of energy resources in eastern Montana (fig. 1) will put additional stresses on the hydrologic systems of the area. As a result, the U.S. Geological Survey has begun studies of the hydrologic systems to provide a basis for evaluating alternatives in water management and development. An important facet of these studies is evaluation of the interaction between the surface-water and ground-water systems. Streamflow gain or loss data and chemical-quality data for periods of base flow are pertinent to the study of this interaction.

The purpose of this report is to present the data obtained during periods of base flow of the Poplar and Redwater Rivers on October 24-25, 1979. Stream discharge was measured, water samples were collected for chemical analysis, and gain or loss in streamflow was computed at several sites along the streams. The streamflow data presented in this report provide an areally broad data base that is representative of concurrent base-flow conditions and that should be useful in assessing the water resources of the area.

DATA COLLECTION

Site selection and scheduling

Locations of measurement sites (fig. 2) were based upon geologic considerations, tributary inflow, accessibility, and reasonable distribution along the river system. Data collection at the sites was scheduled for late October when base-flow conditions were anticipated. Actual base-flow conditions were veri-

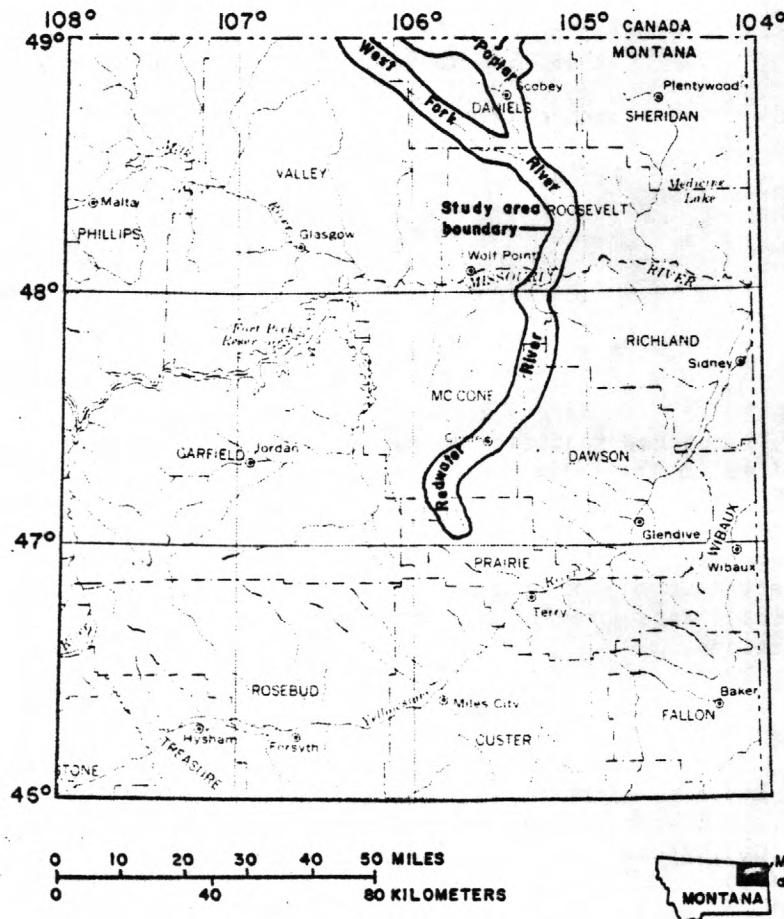


Figure 1.--Location of study area.

fied by inspection of gage-height records at area stream-gaging stations and by observation of weather before and during the scheduled measuring period. Base flow is defined as sustained or fair-weather runoff, which is composed of natural ground-water discharge, with no direct contribution from precipitation runoff.

Measurements in each basin were made in downstream order within a 24-hour period. Sites measured twice on the same day are part of a Geological Survey quality-control program. Some data were collected and computed by contractors in accordance with U.S. Geological Survey specifications and under Geological Survey quality control.

The measurements were made after a killing frost and after most irrigation had been discontinued; thus, the measurements should not have been significantly affected by evapotranspiration or uncertain gains and losses in streamflow from surface irrigation. However, during the base-flow measurements, a diver-

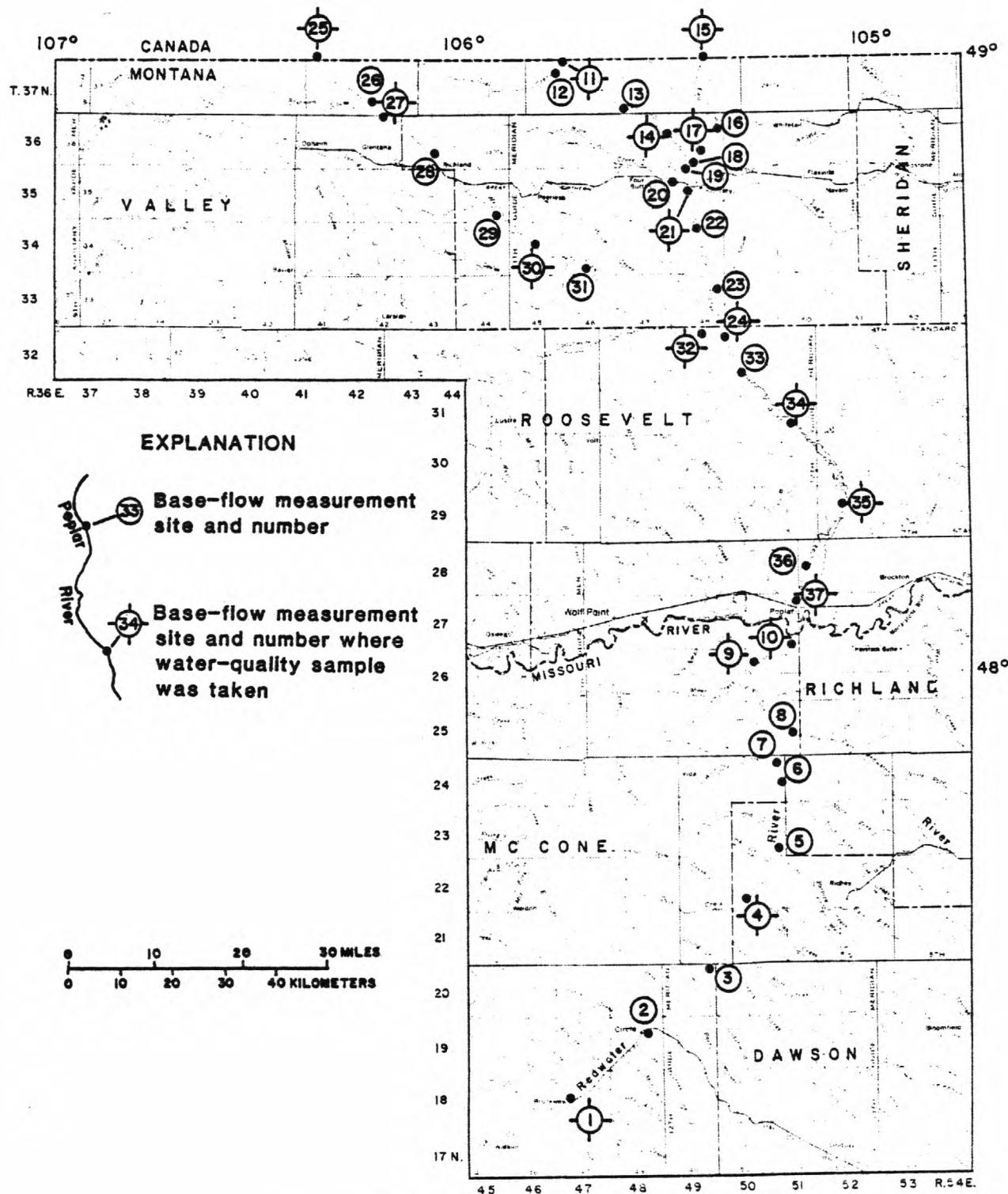


Figure 2.--Locations of measurement sites.

sion ditch on the Poplar River between sites 21 and 22 was discovered to be in use. The water was applied to the land or returned to the river between sites 22 and 23. Therefore, the discharge measurement at site 22 was not used to calculate gain or loss in that reach of the river.

Results

The site number, stream name, date, discharge, gain or loss in flow, onsite specific conductance, and water temperature are listed in table 1. Data are separated into main-stem streams and tributaries and are identified by the Missouri River basin and respective subbasins. Gains or losses were computed for each reach where discharge was measured at two or more sites on the same stream.

The results of detailed chemical-quality analyses for selected sites are listed in table 2. Data are reported in the table as dissolved and total. The dissolved concentration was determined for a water sample after it had passed through a filter having a pore size of 0.45 micrometer (micron). Total concentration was determined on an unfiltered sample containing both dissolved and suspended components. The analyses were performed by the Geological Survey's water-quality laboratory in Denver, Colo.

The data are identified according to measurement-site numbers, which correspond to those shown on the location map (fig. 2). Each site is described in table 3 by land-line description, county, distance from a nearby town or landmark, and station number. If a site was at a Geological Survey stream-gaging station, the standard eight-digit station number was used. The first two digits denote the drainage basin ("06" is Missouri River drainage basin). The last six digits, which increase in downstream order, are unique to a specific site. If the site was for miscellaneous measurements, it was assigned a 15-digit station number based on latitude and longitude. The first six digits are the degrees, minutes, and seconds of north latitude; the next seven digits are the degrees, minutes, and seconds of west longitude; and the last two digits (assigned sequentially) identify the sites within a 1-second grid.

Factors affecting gain or loss computations

The downstream continuity of the results of the discharge measurements could have been affected by several factors, including storage by beaver dams, unrecognized irrigation withdrawal or return, and discharge from ground-water sources by irrigation wells. In addition, ground-water seepage from irrigated areas may have continued to augment streamflow for some time following the seasonal discontinuance of irrigation. The quantitative effect of these factors cannot be accurately determined.

Table 1.—Measured discharge, gain or loss in flow, onsite specific conductance, and water temperature at measurement sites

[ft³/s, cubic feet per second; micromhos, micromhos per centimeter at 25 degrees Celsius; °C, degrees Celsius]

Site num- ber (fig. 2)	Basin, subbasin, and stream	Date (mo- day)	Meas- ured dis- charge (ft ³ /s)	Gain (+) or loss (-) in flow (ft ³ /s)	Spe- cific conduct- ance (micro- mhos)	Water tempera- ture (°C)
<u>Missouri River basin</u>						
<u>Redwater River subbasin</u>						
1	Redwater River	10-25	0.52	--	5,000	6.5
2	Redwater River	10-25	.64	+0.12	4,500	8.0
3	Redwater River	10-25	1.46	+.82	4,080	8.5
4	Redwater River	10-25	3.34	+1.88	3,600	9.0
5	Redwater River	10-25	4.25	+ .91	3,500	7.5
		10-25	4.63 ¹	--	3,600	7.5
6	Redwater River	10-25	6.05	+1.80	2,720	10.0
7	Wolf Creek	10-25	.04	--	4,600	9.0
8	Redwater River	10-25	7.62	+1.53	2,780	10.0
		10-25	7.31 ¹	--	--	10.0
9	Redwater River	10-25	9.39	+1.77	3,000	10.0
10	Redwater River	10-25	7.38	-2.01	3,100	8.0
<u>Poplar River subbasin</u>						
11	Poplar River	10-24	2.84	--	1,210	5.0
12	Coal Creek	10-24	1.28	--	760	5.5
13	Poplar River	10-24	2.21	-1.91	1,780	1.0
14	Poplar River	10-24	3.41	+1.20	1,930	6.0

See footnotes at end of table, p. 7.

Table 1.--Measured discharge, gain or loss in flow, onsite specific conductance, and water temperature at measurement sites--Continued

Site num- ber (fig. 2)	Basin, subbasin, and stream	Date (mo- day)	Meas- ured dis- charge (ft ³ /s)	Gain (+) or loss (-) in flow (ft ³ /s)	Spe- cific conduct- ance (micro- mhos)	Water tempera- ture (°C)
<u>East Fork subbasin</u>						
15	East Fork	10-24	4.23	--	1,320	5.0
16	East Fork	10-24	5.95	+1.72	1,360	7.5
17	East Fork	10-24	5.08	- .87	1,390	7.5
18	East Fork	10-24	5.57	+ .49	1,440	6.5
19	Poplar River	10-24	8.47	- .51	1,730	6.5
20	Butte Creek	10-24	2.14	--	3,580	7.5
21	Poplar River	10-24	11.1	+0.5	1,730	7.5
		10-24	12.2 ¹	--	--	--
22	Poplar River	10-24	3.87	-- ²	1,510	10.0
23	Poplar River	10-24	7.77	-3.3	1,530	9.5
24	Poplar River	10-24	10.4	+2.6	1,550	7.5
		10-24	10.7 ¹	--	--	--

See footnotes at end of table, p. 7.

Table 1.--Measured discharge, gain or loss in flow, onsite specific conductance, and water temperature at measurement sites--Continued

Site num- ber (fig. 2)	Basin, subbasin, and stream	Date (mo- day)	Meas- ured dis- charge (ft ³ /s)	Gain (+) or loss (-) in flow (ft ³ /s)	Spe- cific conduct- ance (micro- mhos)	Water tempera- ture (°C)
<u>West Fork subbasin</u>						
25	West Fork	10-24	.46	--	1,260	5.0
26	West Fork	10-24	.88	+ .42	990	5.0
27	West Fork	10-24	1.22	+ .34	1,000	5.5
28	West Fork	10-24	2.26	+1.04	1,220	10.0
29	West Fork	10-24	4.04	+1.78	1,210	8.0
30	West Fork	10-24	5.30	+1.26	1,140	10.0
31	West Fork	10-24	7.08	+1.78	980	9.5
32	West Fork	10-24	7.00	- .08	1,250	10.5
33	Poplar River	10-24	18.0	+ .6	1,480	8.5
34	Poplar River	10-25	20.3	+2.3	1,360	7.5
35	Poplar River	10-25	21.5	+1.2	1,380	7.0
36	Poplar River	10-25	23.8	+2.3	1,710	8.0
		10-25	22.8 ¹	--	--	7.5
37	Poplar River	10-25	23.0	- .8	2,020	7.5

¹ Quality-control measurement.

² Water was diverted for irrigation between sites 21 and 22 and returned between sites 22 and 23. Therefore, gain or loss inflow was not computed.

Table 2.--Chemical analyses of streamflow at selected measurement sites

[Except as indicated otherwise, constituents are dissolved and values are reported in milligrams per liter. Station number is formal Geological Survey number (06177150) or number based on latitude and longitude (473748105192901). micromhos, micromhos per centimeter at 25 degrees Celsius; $\mu\text{g/L}$, micrograms per liter]

Site number (fig. 2)	Station number	Date of sample (yr-mo-day)	Time	Onsite specific conductance (micromhos)	Onsite pH	Temperature, air (°C)	Temperature, water (°C)	Hardness (CaCO_3)	Hardness, noncarbonate (CaCO_3)	Calcium (Ca)
1	06177150	79-10-25	0900	5,000	8.4	10.5	6.5	1,600	1,200	190
4	473748105192901	79-10-25	1125	3,600	8.5	15.5	9.0	670	91	55
9	480111105182001	79-10-25	1620	3,000	8.6	16.5	10.0	570	24	46
10	480315105125001	79-10-25	1545	3,100	8.7	--	8.0	520	0	43
11	490000105460001	79-10-24	0945	1,210	8.4	4.5	5.0	350	0	53
14	06178150	79-10-24	0945	1,930	8.8	5.0	6.0	280	0	31
∞	15	06178500	79-10-24	0840	1,320	8.3	1.5	5.0	320	0
	17	06179000	79-10-24	1410	1,390	8.8	13.0	7.5	280	0
	21	484708105270601	79-10-24	1515	1,730	8.8	10.0	7.5	310	0
	24	06179200	79-10-24	1520	1,550	8.6	12.5	7.5	280	0
	25	06179500	79-10-24	1010	1,260	9.0	5.0	5.0	170	0
27	485439106114401	79-10-24	1025	1,000	9.0	5.5	5.5	130	0	15
30	484145105494901	79-10-24	1550	1,140	8.6	11.0	10.0	140	0	23
32	06180400	79-10-24	1600	1,250	8.8	14.0	10.5	100	0	18
34	06180500	79-10-25	0945	1,360	8.7	7.0	7.5	180	0	21
35	481608105051101	79-10-25	0905	1,380	8.8	6.0	7.0	190	0	24
37	480656105115001	79-10-25	1155	2,020	8.6	15.0	7.5	260	0	36

Table 2.--Chemical analyses of streamflow at selected measurement sites--Continued

Site num- ber (fig. 2)	Magne- sium (Mg)	Sodium (Na)	Sodium, percent	Sodium adsorp- tion ratio	Potas- sium (K)	Bicar- bonate (HCO_3)	Car- bonate (CO_3)	Alka- linity, total as CaCO_3	Carbon dioxide (CO_2)	Sulfate (SO_4)	Chlo- ride (Cl)
1	280	740	50	8.0	12	520	12	450	3.5	2,900	14
4	130	700	69	12	10	650	27	580	3.2	1,500	12
9	110	570	68	10	9.9	620	20	540	2.7	1,200	18
10	100	610	71	12	10	620	34	560	2.2	1,200	19
11	53	180	52	4.2	9.7	570	5	470	3.7	240	7.7
14	49	400	75	10	9.3	720	55	680	2.1	410	15
15	40	190	55	4.6	11	540	7	450	3.9	270	6.4
17	50	210	61	5.4	11	400	65	440	1.4	320	8.0
21	56	320	68	7.9	11	590	38	550	1.7	420	13
24	49	280	67	7.3	9.6	600	36	560	2.7	340	13
25	27	240	75	8.1	9.6	590	17	510	1.0	190	4.9
27	22	200	76	7.7	9.9	440	55	450	.9	120	6.3
30	20	230	77	8.5	5.6	560	22	490	2.4	150	6.5
32	14	270	84	12	4.2	560	29	510	1.6	180	7.1
34	30	260	75	8.5	7.3	570	26	510	2.0	260	12
35	31	280	76	8.9	7.4	560	29	500	1.6	250	12
37	42	340	73	9.1	8.3	530	12	450	2.2	260	220

Table 2.--Chemical analyses of streamflow at selected measurement sites--Continued

Site num- ber (fig. 2)	Fluo- ride (F)	Silica (SiO ₂)	Dis- solved solids (residue at 180°C)	Dis- solved solids (sum of consti- tuents)	Dis- solved solids (tons per acre- foot)	Nitro- gen, NO ₂ +NO ₃ total as N	Nitro- gen, NO ₂ +NO ₃ as N	Nitro- gen, ammonia total as N	Nitro- gen, ammonia total as NH ₄	Nitro- gen, organic total as N	Nitro- gen, am- monia + organic total as N
1	0.3	2.7	4,610	4,410	6.27	0.00	0.00	0.07	0.08	1.2	1.3
4	.8	6.3	2,680	2,760	3.64	.01	.01	.01	.01	1.1	1.1
9	.7	5.3	2,190	2,290	2.98	.00	.00	.04	.05	.51	.55
10	.7	3.6	2,180	2,330	2.96	.00	.03	.05	.06	.63	.68
11	.4	12	802	841	1.09	.00	.01	.03	.04	.68	.71
14	.8	3.6	1,250	1,330	1.70	.02	.01	.01	.01	.91	.92
15	.3	9.9	874	864	1.19	.25	.26	.19	.23	.81	1.0
17	.4	2.0	909	634	1.24	.00	.02	.09	.11	1.0	1.1
21	.4	3.4	1,170	1,190	1.59	.00	.01	.04	.05	.78	.82
24	.4	6.1	1,040	1,070	1.41	.00	.01	.00	.00	1.1	1.1
25	.4	3.4	803	806	1.09	.02	.01	.07	.08	.89	.96
27	.6	1.1	623	647	.85	.10	.02	.02	.02	1.1	1.1
30	.5	6.2	713	738	.97	.01	.00	.05	.06	1.5	1.5
32	.4	9.4	785	809	1.07	.02	.01	.04	.05	.77	.81
34	.4	6.1	919	598	1.25	.01	.01	.08	.10	.78	.86
35	.4	7.1	873	916	1.19	.01	.00	.08	.10	1.7	1.8
37	.4	6.9	1,180	1,190	1.60	.02	.02	.07	.08	.65	.72

Table 2.--Chemical analyses of streamflow at selected measurement sites--Continued

Site num- ber (fig. 2)	Nitro- gen, total as N	Nitro- gen, total as NO_3	Phos- phorus, total as P	Phos- phorus total (PO_4)	Phos- phorus as P	Boron ($\mu\text{g/L}$ as B)	Iron ($\mu\text{g/L}$ as Fe)	Carbon, organic (C)	Carbon organic sus- pended total (C)
1	1.3	5.8	0.02	0.06	0.00	1,600	30	41	0.1
4	1.1	4.9	.01	.03	.01	400	30	9.1	.1
9	.55	2.4	.01	.03	.00	410	10	8.8	.2
10	.68	3.0	.01	.03	.00	410	20	18	.1
11	.71	3.1	.01	.03	.01	1,200	60	15	.2
14	.94	4.2	.04	.12	.01	2,100	20	13	.3
15	1.3	5.5	.02	.06	.01	1,500	10	9.4	.1
17	1.1	4.9	.03	.09	.01	1,600	20	9.8	.1
21	.82	3.6	.02	.06	.01	1,900	30	18	.2
24	1.1	4.9	.01	.03	.00	1,600	<10	15	.1
25	.98	4.3	.02	.06	.01	890	70	20	.1
27	1.2	5.3	.03	.09	.01	520	80	14	.4
30	1.5	6.7	.01	.03	.00	600	50	8.0	.2
32	.83	3.7	.01	.03	.00	600	50	9.9	.0
34	.87	3.9	.01	.03	.00	1,100	10	19	.2
35	1.8	8.0	.01	.03	.00	960	10	22	.1
37	.74	3.3	.01	.03	.00	940	40	19	.0

Table 3.--Site descriptions

[Number in parentheses is formal Geological Survey station number (06177150) or station number based on latitude and longitude (473036105253101)]

Site num- ber (fig. 2)	Stream	Location and station number
1	Redwater River	NW1/4 sec. 20, T. 18 N., R. 47 E., McCone County, at bridge on county road, one-quarter of a mile northeast of Brockway (06177150).
2	Redwater River	SW1/4 SW1/4 sec. 11, T. 19 N., R. 48 E., McCone County, on left bank at Circle, 1 mi upstream from Horse Creek, and at mile 79.6 (06177500).
3	Redwater River	SE1/4 SE1/4 sec. 2, T. 20 N., R. 49 E., McCone County, at county bridge crossing, 10 mi northeast of Circle (473036105253101).
4	Redwater River	SE1/4 sec. 29, T. 22 N., R. 50 E., Dawson County, at county road bridge crossing, just upstream from Cow Creek tributary, and 12 mi due west of Richey (473748105192901).
5	Redwater River	NW1/4 NW1/4 sec. 36, T. 23 N., R. 50 E., Dawson County, measured 150 ft upstream from county road bridge, and 10 mi northwest of Richey (474242105150001).
6	Redwater River	NW1/4 sec. 24, T. 24 N., R. 50 E., McCone County, along county road, southeast of "T" in road from community of Vida, in vicinity of old log cabin, 11 mi due east of Vida (474947105150401).
7	Wolf Creek	SE1/4 sec. 11, T. 24 N., R. 50 E., McCone County, measured at mouth near county road bridge crossing, 1.3 mi north of "T" located 10 mi east of Vida (475101105153101).
8	Redwater River	SW1/4 sec. 24, T. 25 N., R. 50 E., McCone County, on right bank at downstream side of bridge on FAS Highway 201, 400 ft downstream from East Redwater River and 13.7 mi northeast of Vida post office (06177825).
9	Redwater River	NW1/4 NE1/4 SE1/4 sec. 7, T. 26 N., R. 50 E., McCone County, measured behind barnyard at ranch, 2 mi due south of Nickwall, and 27 road mi north of Vida (48011105182001).

Table 3.—Site descriptions—Continued

Site num- ber (fig. 2)	Stream	Location and station number
10	Redwater River	NW1/4 NW1/4 sec. 36, T. 27 N., R. 50 E., McCone County, at first county road bridge crossing upstream from mouth, about 4 mi south of Poplar (480315105125001).
11	Poplar River	NE1/4 NW1/4 NE1/4 sec. 3, T. 37 N., R. 45 E., Daniels County, at international boundary, 22 mi northwest of Scobey (490000105460001).
12	Coal Creek	NW1/4 NW1/4 NE1/4 NE1/4 sec. 16, T. 37 N., R. 45 E., Daniels County, at county road bridge 1.8 mi southeast of Carbert, and 21 mi northwest of Scobey (485807105471001).
13	Poplar River	SW1/4 SW1/4 NW1/4 sec. 36, T. 37 N., R. 46 E., Daniels County, 0.7 mi south of Silver Lake, at bridge 7.5 mi north of Four Buttes, 12 mi northwest of Scobey (485507105363601).
14	Poplar River	NE1/4 SE1/4 sec. 13, T. 36 N., R. 47 E., Daniels County, 200 ft upstream from county road crossing, 6 mi upstream from East Fork, 6.4 mi northwest of Scobey (06178150).
15	East Fork Poplar River	SW1/4 sec. 3, T. 1 N., R. 26 W., Second Meridian, on left bank 10 ft north of international boundary, 400 ft southwest of Canadian East Poplar Port of Entry, 20 mi upstream from mouth, and 14 mi north of Scobey (06178500).
16	East Fork Poplar River	NW1/4 SW1/4 SW1/4 sec. 12, T. 36 N., R. 48 E., Daniels County, 0.9 mi north of county road bridge, 6.6 mi north of Scobey (485305105230701).
17	East Fork Poplar River	NE1/4 NW1/4 sec. 27, T. 36 N., R. 48 E., Daniels County, on right bank at downstream side of bridge on State Highway 13, 2.5 mi upstream from mouth, and 4 mi north of Scobey (06179000).
18	East Fork Poplar River	SE1/4 NE1/4 SW1/4 NE1/4 sec. 33, T. 36 N., R. 48 E., Daniels County, 1.5 mi southwest of State Highway 13 bridge, and 2.9 mi northwest of Scobey (485001105261601).

Table 3.—Site descriptions--Continued

Site num- ber (fig. 2)	Stream	Location and station number
19	Poplar River	NE1/4 NW1/4 NE1/4 sec. 5, T. 35 N., R. 48 E., Daniels County, downstream 0.05 mi from county bridge, 2.7 mi northwest of Scobey (484924105273101).
20	Butte Creek	SW1/4 SE1/4 NW1/4 SW1/4 sec. 7, T. 35 N., R. 48 E., Daniels County, 0.02 mi downstream from railroad trestle, and 3.4 mi west of Scobey (484759105293801).
21	Poplar River	SW1/4 NW1/4 SW1/4 sec. 16, T. 35 N., R. 48 E., Daniels County, 0.1 mi downstream from county bridge, 1.0 mi downstream from Butte Creek, 1.5 mi west of Scobey (484708105270601).
22	Poplar River	NW1/4 SE1/4 SE1/4 SW1/4 sec. 3, T. 34 N., R. 48 E., Daniels County, at State Highway 13 bridge, 4.2 mi south of Scobey (484328105251701).
23	Poplar River	NE1/4 SW1/4 SE1/4 SW1/4 sec. 12, T. 33 N., R. 48 E., Daniels County, on south end of large meander curve in river, 0.35 mi south of ranch building, 13 mi south of Scobey along road on east side of Poplar River (483721105224801).
24	Poplar River	NW1/4 SW1/4 SW1/4 sec. 4, T. 32 N., R. 49 E., Roosevelt County, on county road bridge, 3.8 mi upstream from mouth, and 4.4 mi northwest of Bredette (06179200).
25	West Fork Poplar River	SE1/4 sec. 5, T. 1 N., R. 3 W., Third Meridian, at West Poplar River Canadian Customs Post, 100 ft north of international boundary, 8.0 mi upstream from Roanwood Coulee, and 10 mi north of Opheim (06179500).
26	West Fork Poplar River	NW1/4 NE1/4 NW1/4 NW1/4 sec. 30, T. 37 N., R. 42 E., Valley County, 500 ft downstream from county road bridge, 4 mi south of international boundary, and 6.5 mi north of Glentana (485621106151001).
27	West Fork Poplar River	SW1/4 SE1/4 SW1/4 SW1/4 sec. 33, T. 37 N., R. 42 E., Valley County, near county road crossing, 6 mi south of international boundary, and 7 mi northeast of Glentana (485439106114401).

Table 3.--Site descriptions--Continued

Site num- ber (fig. 2)	Stream	Location and station number
28	West Fork Poplar River	SE1/4 NW1/4 SW1/4 NW1/4 sec. 26, T. 36 N., R. 43 E., Daniels County, 700 ft southeast of 90° curve in county road, 3/4 mi southwest of Zimmer Ranch, and 2 mi north of Richland (485052106034501).
29	West Fork Poplar River	SE1/4 NW1/4 NE1/4 NW1/4 sec. 35, T. 35 N., R. 44 E., Daniels County, downstream side of ford, at county road crossing, about 8 mi southwest of Peerless (484502105553301).
30	West Fork Poplar River	SE1/4 NE1/4 SW1/4 SE1/4 sec. 16, T. 34 N., R. 45 E., Daniels County, measured upstream from bridge, 5 road miles east of West Fork, and 4.2 road miles south of Peerless (484145105494901).
31	West Fork Poplar River	NW1/4 SW1/4 NE1/4 NW1/4 sec. 33 T. 34 N., R. 46 E., Daniels County, measured at cement ford, 2.2 mi north of the Fort Peck Indian Reservation boundary, and about 18 mi southwest of Scobey (483945105423301).
32	West Fork Poplar River	SW1/4 SW1/4 sec. 1, T. 32 N., R. 48 E., Roosevelt County, at bridge on State Highway 13, 5.9 mi upstream from mouth, and 6.6 mi northwest of Bredette (06180400).
33	Poplar River	NE1/4 NE1/4 sec. 34, T. 32 N., R. 49 E., Roosevelt County, from southwest corner of sec. 25, T. 32 N., R. 49 E., drive 1 mi west, then walk west about 0.5 mi where river is flowing north-south; located 1.5 mi southwest of Bredette and about 27 mi north of Poplar (482902105191601).
34	Poplar River	SW1/4 sec. 27, T. 31 N., R. 50 E., Roosevelt County 11 mi southeast of Bredette, 12 mi downstream from West Fork, and 24 mi north of Poplar (06180500).
35	Poplar River	NE1/4 sec. 16, T. 29 N., R. 51 E., Roosevelt County, downstream side of county road bridge, 0.4 mi west of Route 251, 11.5 mi north on Route 251 from Highway 2, and 12 mi north of Poplar (481608105051101).
36	Poplar River	NE1/4 NE1/4 sec. 19, T. 28 N., R. 51 E., Roosevelt County, on right bank 4 mi north of Poplar, and 11 mi upstream from mouth (06181000).

Table 3.—Site descriptions—Continued

Site num- ber (fig. 2)	Stream	Location and station number
37	Poplar River	NW $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 1, T. 27 N., R. 50 E., Roosevelt County, at American Legion Park next to road that parallels river, north side of Poplar, about 1 mi downstream from Boys Bend (480656105115001).