

Discharge at
High-Flow Partial-Record Stations,
Low-Flow Sites, and
Miscellaneous Sites

Discharge at High-Flow Partial-Record Stations



High-flow partial record station with precipitation recorder.

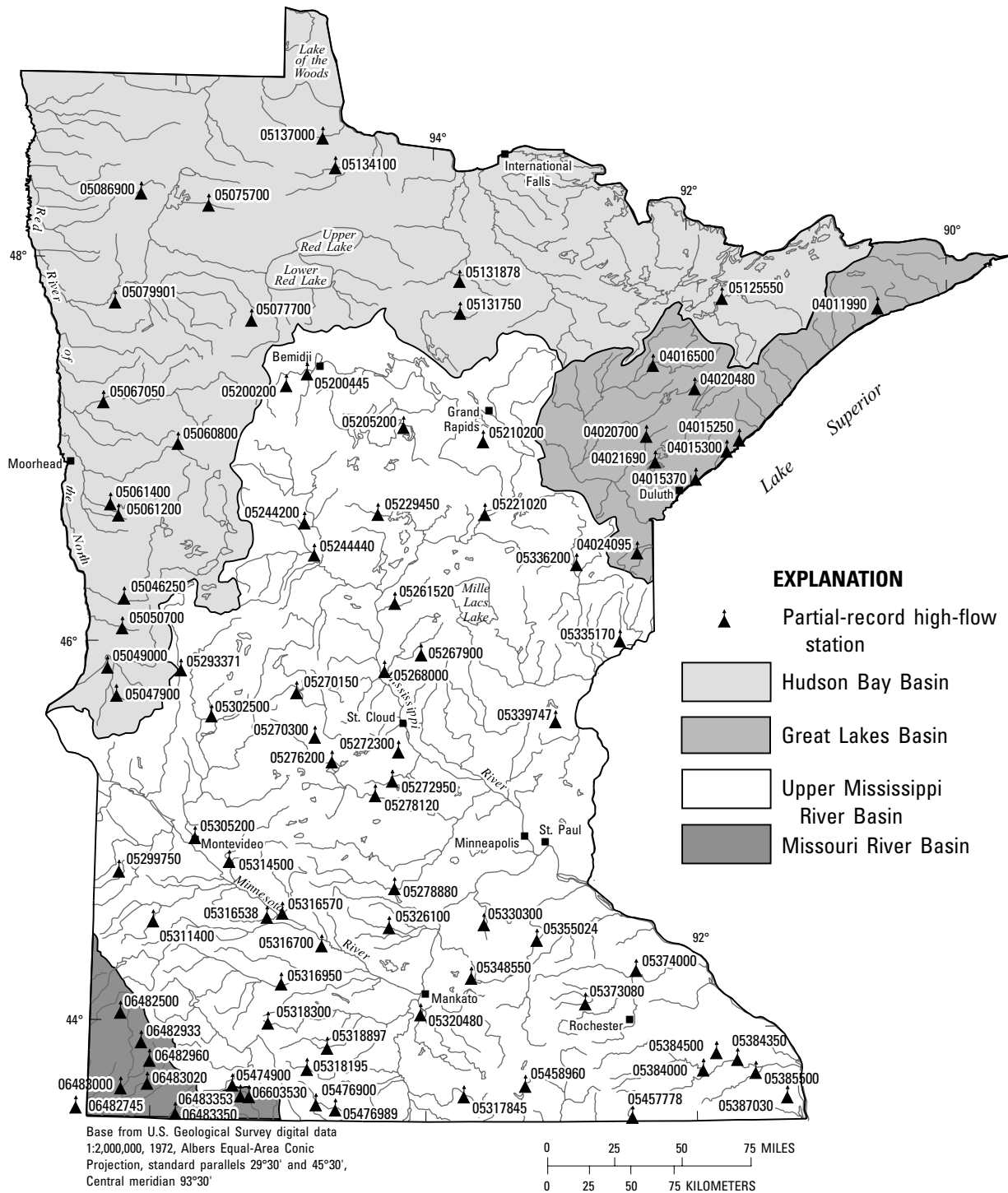


Figure 7. Location of high-flow partial-record stations.

DISCHARGE AT HIGH-FLOW PARTIAL-RECORD STATIONS

As the number of streams on which streamflow information is likely to be desired far exceeds the number of stream-gaging stations feasible to operate at one time, the Geological Survey collects limited streamflow data at sites other than stream-gaging stations. When limited streamflow data are collected on a systematic basis over a period of years for use in hydrologic analyses, the site at which the data are collected is called a partial-record station. Data collected at these partial-record stations are usable in low-flow or flood-flow analyses, depending on the type of data collected. In addition, discharge measurements are made at other sites not included in the partial-record program. These measurements are generally made in times of drought or flood to give better areal coverage to those events. Those measurements and others collected for some special reason are called measurements at miscellaneous sites.

Records collected at high-flow partial-record stations are presented in a table of annual maximum stage and discharge. Discharge measurements made at miscellaneous sites for both low flows and high flows are given in a second table.

The following table contains annual maximum discharges for high-flow (crest-stage) partial-record stations. A crest-stage gage is a device which will register the peak stage occurring between inspections of the gage. A stage-discharge relation for each gage is developed from discharge measurements made by indirect measurements of peak flow or by current meter. The date of the maximum discharge is not always certain but is usually determined by comparison with nearby continuous-record stations, weather records, or local inquiry. The years given in the period of record represent water years for which the annual maximum has been determined.

Annual maximum discharge at high-flow sites during water year 1999

Station Name and [Station Number]	Location and [Drainage area]	Period of Record	Water year 1999 Maximum			Period of Record Maximum		
			Date	Gage height (feet)	Discharge (ft ³ /s)	Date	Gage height (feet)	Discharge (ft ³ /s)
Cascade River near Grand Marais [04011990]	Lat 47°47'24", long 90°31'35", in SE ¹ / ₄ sec. 1, T. 61 N., R. 2 W., Cook County, Hydrologic Unit 04010101, at bridge on Forest Road 45, 6.6 miles upstream from mouth, 9.5 miles west of Grand Marais. [Drainage area: 87.6 mi ²]	1985- current year	04-15-99	a11.51	696	05-19-96	a12.95	1,350
Silver Creek tributary near Two Harbors [04015250]	Lat 47°04'40", long 91°36'49", in SW ¹ / ₄ NE ¹ / ₄ sec. 16, T. 53 N., R. 10 W., Lake County, Hydrologic Unit 04010102, at culvert on County High- way 3, 1.0 mile upstream from mouth, 4.5 miles northeast of Two Har- bors. [Drainage area: 3.62 mi ²]	1965- current year	07-05-99	a12.68	1,260	9-20-72	17.08	1,880
Little Stewart River near Two Harbors [04015300]	Lat 47°03'52", long 91°40'03", in SE ¹ / ₄ NE ¹ / ₄ sec. 24, T. 53 N., R. 11 W., Lake County, Hydrologic Unit 04010102, at culvert on County High- way 2, 2.0 miles upstream from mouth, 2.7 miles north of Two Har- bors. [Drainage area: 4.96 mi ²]	1960- current year	07-05-99	12.13	320	9-20-72	15.18	598
Talmadge River at Duluth [04015370]	Lat 46°53'20", long 91°55'21", in SE ¹ / ₄ NE ¹ / ₄ sec. 24, T. 51 N., R. 13 W., St. Louis County, Hydrologic Unit 04010102, at culvert on U.S. Highway 61, 0.6 mile upstream from mouth, 0.5 mile northeast of Duluth city limits. [Drainage area: 5.86 mi ²]	1964- current year	07-05-99	b23.62	1,470	07-05-99	23.62	1,470
St. Louis River near Aurora [04016500]	Lat 47°29'30", long 92°14'20", in NW ¹ / ₄ SW ¹ / ₄ sec. 22, T. 58 N., R. 15 W., St. Louis County, Hydrologic Unit 04010201, at bridge on County High- way 100, 0.8 mile downstream from Partridge River and 1.5 mile south of Aurora. [Drainage area: 293 mi ²]	1942-87#, 1988- current year	07-05-99	a6.29	3,280	05-14-50	8.37	5,380
North Branch Whiteface River near Fairbanks [04020480]	Lat 47°22'20", long 91°56'28", in NW ¹ / ₄ NW ¹ / ₄ sec. 1, T. 56 N., R. 13 W., St. Louis County, Hydrologic Unit 04010201, at culvert on County High- way 16, 2 miles upstream from the mouth of Jenkins Creek, 0.7 mile west of Fairbanks. [Drainage area: 17.1 mi ²]	1979- current year	07-05-99	a12.81	235	04-23-79	13.67	660
Bug Creek at Shaw [04020700]	Lat 47°06'40", long 92°21'03", in SW ¹ / ₄ SE ¹ / ₄ sec. 34, T. 54 N., R. 16 W., St. Louis County, Hydrologic Unit 04010201, at culverts on County Road 15 at Shaw, 7.5 miles upstream from mouth. [Drainage area: 24.8 mi ²]	1979- current year	07-05-99	18.00	c1,350	07-05-99	18.00	1,350

Annual maximum discharge at high-flow sites during water year 1999--Continued

Station Name and [Station Number]	Location and [Drainage area]	Period of Record	Water year 1999 Maximum			Period of Record Maximum		
			Date	Gage height (feet)	Discharge (ft ³ /s)	Date	Gage height (feet)	Discharge (ft ³ /s)
Cloquet River near Toimi [04021690]	Lat 47°21'00", long 91°39'30", in NE ¹ / ₄ SW ¹ / ₄ sec. 7, T. 56 N., R. 10 W., Lake County, Hydrologic Unit 04010202, at bridge on County High- way 2, 5.8 miles southeast of Toimi, 23 miles north of Two Harbors. [Drainage area: 40.8 mi ²]	1986- current year	09-26-99	a7.97	831	07-04-93	9.06	1,540
Nemadji River near Holyoke [04024095]	Lat 46°31'04", long 92°23'22", in NE ¹ / ₄ NE ¹ / ₄ sec. 32, T. 47 N., R. 16 W., Carlton County, Hydrologic Unit 04010301, at bridge on State Highway 23, 3.5 miles north of Holyoke, 7 miles south of Wrenshall. [Drainage area: 127 mi ²]	1972- current year	07-26-99	13.80	2,980	09-03-85	17.38	4,420
Ottertail River near Foxhome [05046250]	Lat 46°12'48", long 96°18'24", in SW ¹ / ₄ SW ¹ / ₄ sec. 26, T. 132 N., R. 45 W., Wilkin County, Hydrologic Unit 09020103, at bridge on County Road 19, 4 miles south of Foxhome., 10.8 miles below Orwell Dam.	1990- current year	06-05-99	a16.25	1,460	04-04-97	d18.10	1,980
Twelvemile Creek near Dumont [05047900]	Lat 45°42'58", long 96°20'54", in SE ¹ / ₄ SW ¹ / ₄ sec. 17, T.126 N., R.45 W., Traverse County, Hydrologic Unit 09020102, at bridge on Traverse County Road 6, 3 miles east of Dumont.	1996- current year	07-08-99	8.44	470	04-06-97	13.63	c3,720
Mustinka River above Wheaton [05049000]	Lat 45°49'15", long 96°29'25", in SW ¹ / ₄ sec.8, T. 127 N., R. 46 W., Traverse County, Hydrologic Unit 09020102, at bridge on U.S. Highway 75, 1 mile upstream from Chicago, Milwaukee and St. Paul railroad bridge, 0.5 mile north of Wheaton, about 8 miles above Lake Traverse. [Drainage area: 810 mi ²]	1915-24#, 1930-58#, 1985- current year	06-07-99	7.80	787	04-07-97	23.63	8,800
Rabbit River near Nashua [05050700]	Lat 46°04'30", long 96°18'24", in SE ¹ / ₄ NE ¹ / ₄ sec. 15, T. 130 N., R. 45 W., Wilkin County, Hydrologic Unit 09020101, at bridge on County Road 19, 2.6 miles north of Nashua, 4.8 miles upstream from mouth of South Fork Rabbit River. [Drainage area: 99.2 mi ²]	1979- current year	06-06-99	12.86	523	04-05-97	de15.76	1,640
Buffalo River near Callaway [05060800]	Lat 47°01'17", long 95°54'43", in SW ¹ / ₄ SW ¹ / ₄ sec. 17, T. 141 N., R. 41 W., Becker County, Hydrologic Unit 09020106, at culvert on U.S. Highway 59, 2.7 miles north of Callaway. [Drainage area: 76.4 mi ²]	1960- current year	07-06-99	14.70	367	07-16-93	24.90	1,630
Whiskey Creek at Barnesville [05061200]	Lat 46°39'35", long 96°23'54", in SE ¹ / ₄ SW ¹ / ₄ sec. 20, T. 137 N., R. 45 W., Clay County, Hydrologic Unit 09020106, at culvert on State High- way 34, 0.7 mile upstream from Blue Eagle Lake, 1.0 mile northeast of Barnesville. [Drainage area: 76.3 mi ²]	1961-64, 1965-66#, 1967- current year	09-04-99	4.88	129	05-31-85	7.12	660
Spring Creek above Downer [05061400]	Lat 46°44'37", long 96°25'12", in NW ¹ / ₄ NW ¹ / ₄ sec. 30, T. 138 N., R. 45 W., Clay County, Hydrologic Unit 09020106, at culvert on county road, 3.1 miles east of Downer. [Drainage area: 7.93 mi ²]	1961- current year	05-10-99	7.77	78	06-29-75	13.52	1,460
Marsh River Ditch near Ada [05067050]	Lat 47°17'46", long 96°26'09", in NE ¹ / ₄ NE ¹ / ₄ sec. 13, T. 144 N., R 46 W., Norman County, Hydrologic Unit 09020108, at bridge on County High- way 24, 3.5 miles southeast of Ada.	1985- current year	f03-29-99	13.11	0	04-06-89	16.74	1,070

DISCHARGE AT HIGH-FLOW PARTIAL-RECORD STATIONS--Continued

Annual maximum discharge at high-flow sites during water year 1999--Continued

Station Name and [Station Number]	Location and [Drainage area]	Period of Record	Water year 1999 Maximum			Period of Record Maximum		
			Date	Gage height (feet)	Discharge (ft ³ /s)	Date	Gage height (feet)	Discharge (ft ³ /s)
Mud River near Grygla [05075700]	Lat 48°19'31", long 95°44'35", in NE ¹ / ₄ NE ¹ / ₄ sec. 23, T. 156 N., R. 40 W., Hydrologic Unit 09020304, Mar- shall County, at bridge on State Highway 89, 6 miles west of Grygla.[Drainage area: 150 mi ²]	1979- current year	03-31-99	18.18	1,960	04-19-96	a18.57	1,950
Ruffy Brook near Gonvick [05077700]	Lat 47°44'50", long 95°24'45", in SE ¹ / ₄ SE ¹ / ₄ sec. 5, T. 149 N., R. 37 W., Clearwater County, Hydrologic Unit 09020305, at culvert on County Highway 67, 4.0 miles upstream from mouth, 4.8 miles east of Gon- vick.[Drainage area: 46.2 mi ²]	1960-78#, 1979-85, 1986#, 1987- current year	05-13-99	d3.41	210	04-19-96	a5.78	455
Burnham Creek near Crookston [05079901]	Lat 47°43'59", long 96°39'52", in SE ¹ / ₄ SW ¹ / ₄ sec. 10, T. 149 N., R. 47 W., Polk County, Hydrologic Unit 09020303, at triple box culvert on U.S. Highway 75, 0.75 mile northeast of Girard, 3 miles southwest of Crookston, 7 miles above mouth. [Drainage area: 134 mi ²]	1986- current year	03-29-99	20.04	2,200	04-15-97	22.63	3,000
Middle River near Newfolden [05086900]	Lat 48°22'04", long 96°16'47", in NE ¹ / ₄ NE ¹ / ₄ sec. 3, T. 156 N., R. 44 W., Marshall County, Hydrologic Unit 09020309, at bridge on township road, 2.0 miles northeast of New- folden.[Drainage area: 88.8 mi ²]	1979- current year	04-03-99	18.69	1,100	05-18-96	18.31	2,300
Stony River near Babbitt [05125550]	Lat 47°41'36", long 91°45'38", in SW ¹ / ₄ SW ¹ / ₄ sec.8, T.60 N., R.11 W., Lake County, Hydrologic Unit 09030001, in Superior National For- est, at bridge on Forest Road 424, 4.7 miles upstream from mouth, 8.5 miles southeast of Babbitt. [Drain- age area: 215 mi ²]	1975-80#, 1986- current year	07-06-99	7.16	1,400	04-19-76	8.71	2,490
Big Fork River near Bigfork [05131750]	Lat 47°44'56", long 93°46'31", in SE ¹ / ₄ SE ¹ / ₄ sec. 1, T.149 N., R.25 W., Itasca County, Hydrologic Unit 09030006, at bridge on State Highway 6, 5.5 miles west of Bigfork. [Drainage area: 606 mi ²]	1973- current year	05-12-99	13.59	1,870	04-22-79	15.48	2,830
Bowerman Brook near Craigville [05131878]	Lat 47°55'29", long 93°45'34", in NE ¹ / ₄ NW ¹ / ₄ sec.26, T. 63 N., R.27 W., Koochiching County, Hydrologic Unit 09030006, at culvert on State High- way 6, 2.4 miles upstream from mouth, 7.0 miles west of Craigville. [Drainage area: 25.7 mi ²]	1979- current year	05-13-99	14.06	276	04-21-79	14.73	650
North Branch Rapid River near Baudette [05134100]	Lat 48°31'56", long 94°38'50", in NW ¹ / ₄ SW ¹ / ₄ sec.4, T.158 N., R.31 W., Lake of the Woods County, Hydrologic Unit 09030007, at bridge on County Highway 1, 12.7 miles southwest of Baudette. [Drainage area: 174 mi ²]	1986- current year	05-14-99	c12.49	1,190	05-18-96	13.27	1,550
Winter Road River near Baudette [05137000]	Lat 48°42'39", long 94°41'52", in NW ¹ / ₄ NE ¹ / ₄ sec.1, T.160 N., R.32 W., Lake of the Woods County, Hydrologic Unit 09030008, at bridge on State Highway 11, 4.5 miles west of Bau- dette, 1.8 miles east of Pitt, 5 miles upstream of mouth. [Drainage area: 140 mi ²]	1986- current year	04-07-99	12.56	1,170	05-18-96	15.35	2,420

Annual maximum discharge at high-flow sites during water year 1999--Continued

Station Name and [Station Number]	Location and [Drainage area]	Period of Record	Water year 1999 Maximum			Period of Record Maximum		
			Date	Gage height (feet)	Discharge (ft ³ /s)	Date	Gage height (feet)	Discharge (ft ³ /s)
Hennepin Creek near Bécida [05200200]	Lat 47°23'52", long 95°05'12", in NW ¹ / ₄ NE ¹ / ₄ sec. 11, T.145 N., R.35 W., Hubbard County, Hydrologic Unit 07010101, at culvert on Stumphges Rapids Trail approximately 0.5 mile west of Hubbard County Road 3, 3 miles north of Bécida, 1.5 miles upstream from mouth. [Drainage area: 36.0 mi ²]	1979- current year	06-05-99	dgl2.87	180	05-11-85	15.25	375
Mississippi River at Bemidji [05200445]	Lat 47°27'04", long 94°54'23", in NW ¹ / ₄ NW ¹ / ₄ sec.20, T.146 N., R.33 W., Beltrami County, Hydrologic Unit 07010101, at bridge on County High- way 11, 1.4 miles southwest of intersection of State Highway 197 and County Highway 7 in Bemidji. [Drainage area: 358 mi ²]	1973-87, 1988-89#, 1990- current year	04-05-99	12.28	981	04-18-97	13.17	1,820
Boy River near Remer [05205200]	Lat 47°04'51", long 94°05'54", in NE ¹ / ₄ NE ¹ / ₄ sec. 33 T.142 N., R.27 W., Cass County, Hydrologic Unit 07010102, at bridge on County High- way 53, 1.9 miles upstream from Boy Lake and 9 miles northwest of Remer. [Drainage area: 289 mi ²]	1986- current year	04-05-99	ad10.74	435	04-10-96 07-23-87	e11.59 11.64	660 660
Smith Creek near Hill City [05210200]	Lat 47°04'58", long 93°34'59", in SE ¹ / ₄ NW ¹ / ₄ sec.13, T.53 N.,R.26 W., Itasca County, Hydrologic Unit 07010101, at culvert on U.S. Highway 169, 6.2 miles north of Hill City. [Drainage area: 8.01 mi ²]	1961- current year	05-12-99	a4.85	75	08-05-81	7.95	445
Willow River below Palisade [05221020]	Lat 46°42'36", long 93°33'21", in NW ¹ / ₄ NE ¹ / ₄ sec.30, T.49 N., R.25 W., Aitkin County, Hydrologic Unit 07010103, at bridge on County High- way 3, 3.2 miles west of Palisade. [Drainage area: 523 mi ²]	1972- current year	05-13-99	15.22	2,650	04-25-79	17.25	3,730
Pine River near Pine River [05229450]	Lat 46°41'39", long 94°22'11", in NE ¹ / ₄ SE ¹ / ₄ sec.8, T.137 N., R.29 W., Cass County, Hydrologic Unit 07010105, at bridge 2.3 miles south- east of Pine River, on U.S. Highway 371, 4.9 miles upstream of upper Whitefish Lake. [Drainage area: 261 mi ²]	1986- current year	05-14-99	5.15	1,520	04-06-97	a5.19	1,410
Cat River near Nimrod [05244200]	Lat 46°37'49", long 94°55'51", in SW ¹ / ₄ SW ¹ / ₄ sec.36, T.137 N., R.34 W., Wadena County, Hydrologic Unit 07010106, at bridge on State Highway 227, 2.5 miles west of Nimrod, 3.0 miles upstream from mouth. [Drainage area: 57.1 mi ²]	1961- current year	05-13-99	7.47	300	10-12-73	9.43	560
Leaf River near Aldrich [05244440]	Lat 46°27'25", long 94°50'29", in SW ¹ / ₄ SW ¹ / ₄ sec.34, T.135 N., R.33 W., Wadena County, Hydrologic Unit 07010107, at bridge on County High- way 29, 3.3 miles upstream from mouth, 7.0 miles northeast of Ald- rich. [Drainage area: 870 mi ²]	1972- current year	05-13-99	14.66	2,680	04-22-79	16.15	5,170
Nokasippi River near Fort Ripley [05261520]	Lat 46°12'02", long 94°19'03", in NE ¹ / ₄ NE ¹ / ₄ sec. 24,T.43 N., R.32 W., Crow Wing County, Hydrologic Unit 07010104, at bridge on County High- way 2, 3 miles northeast of Fort Ripley. [Drainage area: 193 mi ²]	1967- 70+,74+,1 976+, 1986- current year	05-13-99	a14.92	1,100	04-09-97	a14.93	1,030

DISCHARGE AT HIGH-FLOW PARTIAL-RECORD STATIONS--Continued

Annual maximum discharge at high-flow sites during water year 1999--Continued

Station Name and [Station Number]	Location and [Drainage area]	Period of Record	Water year 1999 Maximum			Period of Record Maximum		
			Date	Gage height (feet)	Discharge (ft ³ /s)	Date	Gage height (feet)	Discharge (ft ³ /s)
Hillman Creek near Pierz [05267900]	Lat 45°58'27", long 94°04'21", in NE ¹ / ₄ SE ¹ / ₄ sec. 9, T.40 N., R.30 W., Morrison County, Hydrologic Unit 07010201, at bridge on county high- way, 1.1 miles upstream from mouth, 1.5 miles east of Pierz. [Drainage area: 45.0 mi ²]	1964- current year	06-28-99	14.52	1,320	04-09-69	15.48	2,960
Platte River at Royalton [05268000]	Lat 45°50'43", long 94°17'40", in SE ¹ / ₄ NW ¹ / ₄ sec.26, T.39 N.,R.32 W., Morrison County, Hydrologic Unit 07010201, at bridge on County High- way 27, 0.6 mile north of Royalton, 6.6 miles upstream from mouth.[Drainage area: 432 mi ²]	1929-36, 1972- current year	05-13-99	12.94	2,410	07-26-72	7.84	6,850
Ashley Creek near Sauk Centre [05270150]	Lat 45°46'46", long 94°58'52", in NW ¹ / ₄ SE ¹ / ₄ sec.29, T.127 N., R.34 W., Todd County, Hydrologic Unit 07010202, at bridge on County High- way 11, 3 miles north of Sauk Cen- tre.[Drainage area: 119 mi ²]	1963- 70+,74+, 1976+, 1986-88, 1989#, 1990- current year	05-16-99	14.71	390	04-06-97	17.12	740
Sauk River tribu- tary at Spring Hill [05270300]	Lat 45°31'22", long 94°48'31", in SW ¹ / ₄ NE ¹ / ₄ sec.27, T.124 N.,R.33 W., Stearns County, Hydrologic Unit 07010202, at culvert on State High- way 4, 1.0 mile east of Spring Hill, 2.7 miles upstream from mouth.[Drainage area: 7.11 mi ²]	1960- current year	04-06-99	10.05	101	07-08-78	22.76	1,440
Johnson Creek near St. Augusta [05272300]	Lat 45°27'49", long 94°09'19", in NW ¹ / ₄ SW ¹ / ₄ sec.13, T.123 N.,R.28 W., Stearns County, Hydrologic Unit 07010203, at bridge on County High- way 7, 1.0 mile south of St. Augusta, 3.3 miles upstream from mouth.[Drainage area: 45.6 mi ²]	1964- current year	04-06-99	12.50	202	09-09-85	16.37	2,350
Clearwater River near South Haven [05272950]	Lat 45°16'45", long 94°15'04", in NE ¹ / ₄ NW ¹ / ₄ sec.19, T.121 N., R.28 W., Wright County, Hydrologic Unit 07010203, at culvert 3.4 miles southeast of Kimball, 0.25 mile downstream of Scott Lake Outlet, 2.0 miles southeast of South Haven.[Drainage area: 78.8 mi ²]	1985- current year	05-13-99	14.65	222	09-09-85	17.11	1,040
North Fork Crow River at Paynes- ville [05276200]	Lat 45°23'09", long 94°42'41", in SW ¹ / ₄ SE ¹ / ₄ sec.9, T. 122 N., R.32 W., Stearns County, Hydrologic Unit 07010204, at bridge on county road at northeast edge of Paynesville city limits. [Drainage area: 243 mi ²]	1973- current year	05-15-99	14.00	663	04-03-97	18.85	2,460
North Fork Crow River near King- ston [05278120]	Lat 45°12'13", long 94°23'16", in SW ¹ / ₄ SE ¹ / ₄ sec.13, T. 120 N., R. 30 W., Meeker County, Hydrologic Unit 07010204, at bridge on State Highway 24, 3.7 miles west of Kingston, 3.9 miles east of Forest City.[Drainage area: 779 mi ²]	1986- current year	05-17-99	14.00	1,000	05-01-86	17.82	4,850
Buffalo Creek near Glencoe [05278930]	Lat 44°45'50", long 94°05'27", in SW ¹ / ₄ SW ¹ / ₄ sec. 16, T. 115 N., R. 27 W., McLeod County, Hydrologic Unit 07010205, at bridge on County Hwy 1, 2.6 miles east of Glencoe. [Drainage area: 373 mi ²]	1972-95, 1998- current year	06-15-99	14.67	1,010	09-12-91	11.78	4,300

Annual maximum discharge at high-flow sites during water year 1999--Continued

Station Name and [Station Number]	Location and [Drainage area]	Period of Record	Water year 1999 Maximum			Period of Record Maximum		
			Date	Gage height (feet)	Discharge (ft ³ /s)	Date	Gage height (feet)	Discharge (ft ³ /s)
Pomme de Terre River near Elbow Lake [05293371]	Lat 45°57'47", long 95°53'07", in SE ¹ / ₄ SW ¹ / ₄ sec. 19, T. 129 N., R. 41 W., Grant County, Hydrologic Unit 07020002, at bridge on County Road 47, 4 miles southeast of Elbow Lake, 2.5 miles south of the outlet of Pomme de Terre Lake. [Drainage area: 340 mi ²]	1986- current year	06-07-99	5.02	247	04-07-97	6.72	550
Florida Creek near Burr [05299750]	Lat 44°44'10", long 96°25'10", in SE ¹ / ₄ SE ¹ / ₄ sec. 29, T. 115 N., R.46 W., Yellow Medicine County, Hydro- logic Unit 07020003, at culvert on County Road 15, 3.0 miles west of Burr, 7.6 miles northwest of Canby.[Drainage area: 77.3 mi ²]	1982, 1983-84#, 1991- current year	06-10-99	14.49	75	06-17-92	20.85	996
Little Chippewa River near Starbuck [05302500]	Lat 45°36'52", long 95°37'12", in NW ¹ / ₄ NE ¹ / ₄ sec.30, T. 125 N., R.39 W., Pope County, Hydrologic Unit 07020005, at culvert on State High- way 28, 4.4 miles west of Star- buck.[Drainage area: 96.2 mi ²]	1979- current year	05-16-99	12.66	100	04-06-97	e15.45	850
Spring Creek near Montevideo [05305200]	Lat 44°58'41", long 95°42'57", in NW ¹ / ₄ NW ¹ / ₄ sec. 5, T. 117 N., R. 40 W., Chippewa County, Hydrologic Unit 07020005, at culvert on State High- way 29, 1.2 miles upstream from mouth, 2.0 miles north of Montev- ideo.[Drainage area: 15.8 mi ²]	1959- current year	05-17-99	13.06	34	06-17-92	19.73	660
South Fork Yellow Medicine River near Minneota [05311400]	Lat 44°33'50", long 95°59'50", in SE ¹ / ₄ SE ¹ / ₄ , sec.26, T.113 N., R.43 W., Lyon County, Hydrologic Unit 07020004, on downstream side of bridge on State Highway 68, on northwest edge of Minneota and 6 miles upstream from mouth. [Drainage area: 115 mi ²]	# 1960- 81, 1981- 87, 1998- current year	06-09-99	7.33	†	04-18-69	13.41	4,430
Hawk Creek near Maynard [05314500]	Lat 44°52'10", long 95°28'58", in SW ¹ / ₄ NW ¹ / ₄ sec. 7, T. 116 N., R.38 W., at Renville and Chippewa County line, Hydrologic Unit 07020004, at bridge on State Highway 23, 3.0 miles southwest of Maynard.[Drainage area: 315 mi ²]	1949-54#, 1981- current year	04-13-99	i	c250	06-18-57	16.10	6,970
Ramsey Creek near Redwood Falls [05316538]	Lat 44°33'08", long 95°10'38", in SE ¹ / ₄ NE ¹ / ₄ sec. 33, T. 113 N., R.36 W., Redwood County, Hydrologic Unit 07020006 at bridge on township road 2.3 miles northeast of KLGR radio towers, on west side of Redwood Falls.[Drainage area: 629 mi ²]	1991-93, 1995 - current year	04-11-99	a22.00	305	06-17-93	25.94	920
Beaver Creek at Beaver Falls [05316570]	Lat 44°35'03", long 95°02'49", in NE ¹ / ₄ NW ¹ / ₄ sec. 22, T. 113 N., R.35 W., Renville County, Hydrologic Unit 07020004, at bridge on County High- way 2 in Beaver Falls, 2.2 miles upstream from mouth, 3.8 miles northwest of Morton. [Drainage area: 191 mi ²]	1972- current year	06-11-99	9.86	667	04-02-97	14.73	3,300
Spring Creek near Sleepy Eye [05316700]	Lat 44°24'12", long 94°44'41", in NE ¹ / ₄ SE ¹ / ₄ sec. 24, T. 111 N., R. 33 W., Brown County, Hydrologic Unit 07020007, at culvert on county high- way, 4.3 miles upstream from mouth, 7.5 miles north of Sleepy Eye.[Drainage area: 32.8 mi ²]	1959- current year	04-09-99	d10.23	108	06-17-93	17.91	960

DISCHARGE AT HIGH-FLOW PARTIAL-RECORD STATIONS--Continued

Annual maximum discharge at high-flow sites during water year 1999--Continued

Station Name and [Station Number]	Location and [Drainage area]	Period of Record	Water year 1999 Maximum			Period of Record Maximum		
			Date	Gage height (feet)	Discharge (ft ³ /s)	Date	Gage height (feet)	Discharge (ft ³ /s)
Cottonwood River near Springfield [05316950]	Lat 44°12'12", long 95°02'53", on line between secs. 33 and 34, T.109 N., R.35 W., Brown County, Hydro- logic Unit 07020008, at bridge on County Highway 2, 1.3 miles down- stream from Mound Creek, 1.0 mile upstream from Coal Mine Creek, 3.5 miles southwest of Springfield. [Drainage area: 777 mi ²]	1973- current year	04-12-99	20.20	2,080	03-29-97	28.77	7,860
East Branch Blue Earth River near Walters [05317845]	Lat 43°37'58", long 93°42'28", in SE ¹ / ₄ SE ¹ / ₄ sec. 16, T.102 N., R.24 W., Faribault County, Hydrologic Unit 07020009, at culvert on State Highway 22, 2.5 miles northwest of Walters. [Drainage area: 30.2 mi ²]	1979- current year	07-20-99	17.92	506	08-15-93	18.73	595
Elm Creek near Trimont [05318195]	Lat 43°45'27", long 94°50'30", in NW ¹ / ₄ NW ¹ / ₄ sec. 5, T. 103 N., R. 33 W., Martin County, Hydrologic Unit 07020009, at bridge on County Road 103, 12.5 miles northeast of Jack- son, 5 miles west of Trimont.	1991- current year	04-09-99	20.00	359	06-04-91	22.92	2,000
North Fork Waton- wan River near Delft [05318300]	Lat 43°59'55", long 95°07'11", in NE ¹ / ₄ SE ¹ / ₄ sec. 11, T. 106 N. R.36 W., Cottonwood County, Hydrologic Unit 07020010, at culvert on U.S. Highway 71, 1.7 miles northwest of Delft. [Drainage area: 13.5 mi ²]	1960- current year	04-10-99	15.02	44	06-18-93	17.70	1,000
South Fork Waton- wan River near Ormsby [05318897]	Lat 43°53'08", long 94°41'27", in SE ¹ / ₄ NW ¹ / ₄ sec.21, T. 105 N., R.32 W., Watonwan County, Hydrologic Unit 07020010, at bridge on township road, 2.6 miles north of Ormsby, 5.0 miles upstream from Willow Creek. [Drainage area: 107 mi ²]	1979- current year	04-10-99	11.68	240	05-31-80	18.40	1,920
Maple River near Rapidan [05320480]	Lat 44°03'54", long 94°01'32", in SW ¹ / ₄ SW ¹ / ₄ sec.13, T. 107 N., R.27 W., Blue Earth County, Hydrologic Unit 07020011, at bridge on County High- way 35, 3.0 miles southeast of Rapi- dan, 3.3 miles upstream from mouth.[Drainage area: 338 mi ²]	1972- current year	04-11-99	11.56	3,030	03-01-83	12.73	4,550
Middle Branch Rush River near Gay- lord [05326100]	Lat 44°30'27", long 94°15'00", in SW ¹ / ₄ NW ¹ / ₄ sec. 18, T. 112 N., R. 28 W., Sibley County, Hydrologic Unit 07020012, at culvert on township road, 3.0 miles southwest of Gay- lord, 10.5 miles upstream from the main branch of Rush River. [Drainage area: 67.3 mi ²]	1979- current year	03-22-99	i	525	03-28-97	19.22	3,200
Sand Creek near New Prague [05330300]	Lat 44°32'37", long 93°32'16", in NE ¹ / ₄ NW ¹ / ₄ sec.1, T.112 N., R.23 W., Le Sueur County, Hydrologic Unit 07020012, at culvert on State High- way 13 and 19, 1.9 miles east of New Prague. [Drainage area: 62.2 mi ²]	1960- current year	05-17-99	10.83	456	05-21-60	14.84	1,100
Crooked Creek near Hinckley [05335170]	Lat 46°00'42", long 92°31'45", in NE ¹ / ₄ NE ¹ / ₄ sec.30, T.41 N., R. 17 W., Pine County, Hydrologic Unit 07030001, at culvert on State High- way 48, 2.7 miles upstream from mouth, 8 miles south of Duxbury, 19 miles east of Hinckley. [Drainage area: 94.4 mi ²]	1966- 70+,74+, 76+, 79- 80+, 1986- current year	07-26-99	11.84	415	05-28-89	15.52	1,630
Glaisby Brook near Kettle River [05336200]	Lat 46°27'19", long 92°51'34", in SE ¹ / ₄ NW ¹ / ₄ sec.22, T.46 N., R.20 W., Carlton County, Hydrologic Unit 07030003, at bridge on State High- ways 27 and 73, 1.0 mile upstream from mouth, 2.4 miles south of Ket- tle River. [Drainage area: 27.0 mi ²]	1960-70#, 1971- current year	08-25-99	a5.27	286	07-22-72	10.18	1,370

Annual maximum discharge at high-flow sites during water year 1999--Continued

Station Name and [Station Number]	Location and [Drainage area]	Period of Record	Water year 1999 Maximum			Period of Record Maximum		
			Date	Gage height (feet)	Discharge (ft ³ /s)	Date	Gage height (feet)	Discharge (ft ³ /s)
Goose Creek at Harris [05339747]	Lat 45°35'11", long 92°58'39", in SW ¹ / ₄ SW ¹ / ₄ sec.21, T.36 N., R.21 W., Chisago County, Hydrologic Unit 07030005, at culverts on County Highway 9, 0.15 mile west of County Highway 30 in Harris, 8 miles above mouth. [Drainage area: 47.3 mi ²]	1986- current year	05-14-99	d5.15	100	04-19-96	7.50	295
Cannon River below Sabre Lake near Kilkenny [05348550]	Lat 44°17'50", long 93°37'44", in NE ¹ / ₄ NE ¹ / ₄ sec.31, T. 110 N., R.23 W., Le Sueur County, Hydrologic Unit 07040002, at bridge on township road, 0.25 mile downstream of Sabre Lake, 3 miles southeast of Kilk- enny.[Drainage area: 87.9 mi ²]	1985- current year	07-03-99	13.16	350	06-17-93	14.36	535
Cannon River at Northfield [05355024]	Lat 44°27'19", long 93°09'46", in NE ¹ / ₄ NE ¹ / ₄ sec.1, T.111 N., R.20 W., Rice County, Hydrologic Unit 07040002, at Fifth Street bridge in Northfield. [Drainage area: 929 mi ²]	1980- current year	05-23-99	904.05	5,060	06-18-93	905.00	8,000
Milliken Creek near Concord [05373080]	Lat 44°07'13", long 92°49'08", in NW ¹ / ₄ NW ¹ / ₄ sec.36, T. 108 N., R.17 W., Dodge County, Hydrologic Unit 07040004, at bridge on County Road 9, 8.0 miles upstream from mouth, 2.1 miles southeast of Concord. [Drainage area: 22.1 mi ²]	1979- current year	05-21-99	13.98	509	05-31-82	14.50	580
Zumbro River at Zumbro Falls [05374000]	Lat 44°17'12", long 92°25'56", in sec.36, T.110 N., R.14 W., Wabasha County, Hydrologic Unit 07040004, in Zumbro Falls, 1,000 ft downstream from Cold Creek, 0.7 mi upstream from bridge on U.S. Highway 63, and 6.3 mi downstream from North Fork. [Drainage area: 1,150 mi ²]	1909-17#, 1929-80#, 1990- current year	05-18-99	16.95	10,100	07-21-51	30.80	35,900
Root River near Lanesboro [05384000]	Lat 43°44'58", long 91°58'43", in sec. 1, T.103 N., R.10 W., Fillmore County, Hydrologic Unit 07040008, 1.2 mi upstream from highway bridge, and 2.5 mi northeast of Lanesboro. [Drainage area: 615 mi ²]	1910-17# 1940-85#, 1986, 87- 90#, 1991- current year	07-20-99	8.53	6,630	03-29-62	16.11	22,100
Root River at Rushford [05384350]	Lat 43°48'11", long 91°45'10", in NE ¹ / ₄ NE ¹ / ₄ sec.23, T.104 N., R.8 W., Fillmore County, Hydrologic Unit 07040008, at U.S. Highway 16 bridge on south side of Rushford. [Drainage area: 992 mi ²]	1985- current year	07-21-99	23.09	9,140	04-01-93	26.10	15,200
Rush Creek near Rushford [05384500]	Lat 43°50'00", long 91°46'40", in SW ¹ / ₄ SW ¹ / ₄ sec. 3, T.104 N., R.8 W., Fillmore County, Hydrologic Unit 07040008, at bridge, 1.5 miles northwest of Rushford, 3.0 miles upstream from mouth. [Drainage area: 132 mi ²]	1942-79#, 1980- current year	08-10-98 07-21-99	j5.60 3.36	j1,540 510	03-26-50	13.54	11,600
South Fork Root River near Hous- ton [05385500]	Lat 43°44'19", long 91°33'50", in NE ¹ / ₄ SW ¹ / ₄ sec.9, T.103 N., R.6 W., Houston County, Hydrologic Unit 07040008, at bridge on State Highway 76, 0.5 mile upstream from Badger Creek, 1.5 mile south of Hous- ton.[Drainage area: 275 mi ²]	1953-83#, 1985- current year	07-31-99	8.15	1,850	06-21-74	13.81	11,000
Crooked Creek at Freeburg [05387030]	Lat 43°36'37", long 91°21'39", in SW ¹ / ₄ NE ¹ / ₄ sec.30, T.102 N., R.4 W., Houston County, Hydrologic Unit 07060001, at bridge on State Highway 249 at Freeburg 6.5 miles upstream from mouth. [Drainage area: 44.8 mi ²]	1979- current year	10-18-99	a9.24	247	03-04-92	19.02	2,200

DISCHARGE AT HIGH-FLOW PARTIAL-RECORD STATIONS--Continued

Annual maximum discharge at high-flow sites during water year 1999--Continued

Station Name and [Station Number]	Location and [Drainage area]	Period of Record	Water year 1999 Maximum			Period of Record Maximum		
			Date	Gage height (feet)	Discharge (ft ³ /s)	Date	Gage height (feet)	Discharge (ft ³ /s)
Little Cedar River near Johnsbury [05457778]	Lat 43°30'52", long 92°45'19", in NW ¹ / ₄ NE ¹ / ₄ sec.33, T.101 N., R.16 W., Mower County, Hydrologic Unit 07080201, at bridge on County Road 6, 1 mile northeast of Johnsbury, 1 mile north of Minnesota-Iowa bor- der.[Drainage area: 45.8 mi ²]	1986- current year	07-21-99	a16.49	5,580	08-16-93	17.58	9,280
Bancroft Creek at Bancroft [05458960]	Lat 43°42'09", long 93°21'23", in SW ¹ / ₄ SE ¹ / ₄ sec.21, T.103 N., R.21 W., Freeborn County, Hydrologic Unit 07080202, at bridge on County Road 14, 1.6 miles northeast of Fountain Lake, 1 mile north of Interstate 90. [Drainage area: 28.7 mi ²]	1985+, 1986- current year	07-21-99	a6.82	427	08-16-93	8.26	700
Elk Creek near Brewster [05474900]	Lat 43°40'43", long 95°27'10", in NE ¹ / ₄ SE ¹ / ₄ sec.36, T.102 N., R.39 W., Nobles County, Hydrologic Unit 07100001, on County Highway 1 bridge 0.7 miles south of Brewster.	1996- current year	04-10-99	19.88	554	06-17-96	24.37	1,380
Fourmile Creek near Dunnell [05476900]	Lat 43°34'57", long 94°46'26", in SW ¹ / ₄ NW ¹ / ₄ sec.2, T.101 N., R.33 W., Martin County, Hydrologic Unit 07100003, at bridge on State Highway 4, 0.6 mile upstream from mouth, 1.6 miles north of Dunnell. [Drainage area: 15.9 mi ²]	1960- current year	06-11-99	13.65	284	07-04-62	16.15	2,200
East Fork Des Moines River near Ceylon [05476989]	Lat 43°33'53", long 94°39'15", in NW ¹ / ₄ SW ¹ / ₄ sec.11, T.101 N., R.32 W., Martin County, Hydrologic Unit 07010003, at bridge on County Road 23, 2.4 miles northwest of Ceylon. [Drainage area: 128 mi ²]	1986- current year	06-11-99	19.85	826	07-05-93	21.65	1,350
North Branch Pipe- stone Creek near Pipestone [06482500]	Lat 44°04'54", long 96°18'27", in SE ¹ / ₄ SE ¹ / ₄ sec.12, T.107 N., R.46 W., Pipestone County, Hydrologic Unit 10170203, at bridge on U.S. Highway 75, 5.5 miles north of Pipestone. Formerly "Pipestone Creek near Pipe- stone"	1991- current year	06-09-99	a19.03	1,260	05-08-93	20.28	2,650
Beaver Creek at Valley Springs, S.D. [06482745]	Lat 43°35'10", long 96°28'20", in NW ¹ / ₄ NW ¹ / ₄ sec.3, T.101 N., R.47 W., Minnehaha County, South Dakota, Hydrologic Unit 10170203, at bridge on County Road 103 (Valley Drive), 1 mile west of South Dakota-Minnesota border, 2.5 miles south of Inter- state 90. [Drainage area: 104 mi ²]	1986- current year	04-09-99	17.15	363	06-13-94	24.89	2,280
Chanarambi Creek near Edgerton [06482933]	Lat 43°53'59", long 96°03'39", in NW ¹ / ₄ SW ¹ / ₄ sec.18, T.105 N., R.43 W., Murray County, Hydrologic Unit 10170204, at bridge on township road, 3.8 miles northeast of Edger- ton, 7.4 miles upstream from mouth.[Drainage area: 57.3 mi ²]	1979- current year	04-09-99	d12.62	285	05-08-93 03-22-97	18.14 c16.70	850 850
Champepadan Creek at Co. Rd. 18 near Leota [06482970]	Lat 43°47'24", long 96°00'40", in NW ¹ / ₄ NW ¹ / ₄ sec.28, T.104 N., R. 43 W., Nobles County, Hydrologic Unit 10170204, at bridge on Nobles County Road 18 near junction with County Road 19, 3 miles south of Leota.	1996- current year	04-09-99	14.09	†	04-06-97	17.20	†
Rock River at Luverne [06483000]	Lat 43°39'15", long 96°12'03", in SW ¹ / ₄ NE ¹ / ₄ sec. 11, T.102N., R45W., Rock County, Hydrologic Unit 10170204, at left bank downstream side of bridge on Main Street (County Highway 4) in Luverne. [Drainage area: 419 mi ²]	# 1911- 14, 1968- 69, 1971- current year.	04-10-99	6.51	1,670	05-08-93	14.23	35,400

Annual maximum discharge at high-flow sites during water year 1999--Continued

Station Name and [Station Number]	Location and [Drainage area]	Period of Record	Water year 1999 Maximum			Period of Record Maximum		
			Date	Gage height (feet)	Discharge (ft ³ /s)	Date	Gage height (feet)	Discharge (ft ³ /s)
Elk Creek near Lismore [06483020]	Lat 43°41'38", long 96°00'46", in NE ¹ / ₄ SE ¹ / ₄ sec. 29, T.103 N., R. 43 W., Nobles County, Hydrologic Unit 10170204, at bridge on Nobles County Road 19, 4.6 miles southwest of Lis- more.	1996- current year	04-06-99	13.46	†	04-06-97	a15.01	†
Little Rock River near Rushmore [06483350]	Lat 43°32'36", long 95°48'58", in NE ¹ / ₄ NE ¹ / ₄ sec. 24, T. 101 N., R. 42 W., Nobles County, Hydrologic Unit 10170204, at bridge #4967, on County Road 6, 1.5 miles west of Ransom, 5.1 miles south of Rushmore.	1991- current year	06-28-99	22.80	100	07-11-93	27.04	4,290
Little Rock Creek near Rushmore [06483353]	Lat 43°32'37", long 95°50'50", in NE ¹ / ₄ NW ¹ / ₄ sec.23, T. 101 N., R. 42 W., Nobles County, Hydrologic Unit 10170204, at bridge on County Road 6, 5.5 miles southwest of Rushmore.	1996- current year	06-28-99	22.50	258	04-06-97	24.60	†
Little Sioux River near Spafford [06603530]	Lat 43°36'08", long 95°15'27", in NE ¹ / ₄ NE ¹ / ₄ sec. 34, T. 102 N., R. 37 W., Jackson County, Hydrologic Unit 10230003, at bridge on county high- way, 1.6 miles downstream from Jack- son County ditch No. 11, 5.8 miles east of Spafford. [Drainage area: 40.5 mi ²]	1962- current year	04-11-99	8.04	167	06-29-69	12.06	4,500

+ Operated as low flow site.

c Estimated.

g Stage from downstream gage.

Operated as a continuous-record gaging station.

d Not annual maximum gage height.

h Backwater from Beaver Dam.

e Backwater from ice.

i Not determined

† Not available at time of printing.

f Approximate.

j Revised.

a Affected by shifting control.

b From highwater mark.