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Water Resources Data
Minnesota
Water Year 2004

Water-Data Report MN-04-1

U.S. Department of the Interior
U.S. Geological Survey

Calendar for Water Year 2004

2003

October

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
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26	27	28	29	30	31	

November

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30						

December

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28	29	30	31			

2004

January

S	M	T	W	T	F	S
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February

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29						

March

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April

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25	26	27	28	29	30	

May

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23	24	25	26	27	28	29
30	31					

June

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20	21	22	23	24	25	26
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July

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18	19	20	21	22	23	24
25	26	27	28	29	30	31

August

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

September

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

Water Resources Data
Minnesota
Water Year 2004

By G.B. Mitton, K.G. Guttormson, G.W. Stratton, and E.S. Wakeman

Water-Data Report MN-04-1

Prepared in cooperation with the U.S. Army Corps of Engineers, Minnesota Department of Natural Resources, Divisions of Waters; the Minnesota Department of Transportation; and with other State, municipal, and Federal agencies

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Gale A. Norton, Secretary

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Preface

This volume of the annual hydrologic report of Minnesota is one of a series of annual reports that documents hydrologic data gathered from the U.S. Geological Survey's surface- and ground-water data-collection networks in each state, Puerto Rico, and the Trust Territories. These records of streamflow, ground-water levels, and water quality provide the hydrologic information needed by state, local, and Federal agencies, and the private sector for developing and managing our Nation's land and water resources. Hydrologic data for Minnesota, including four major basins; Great Lakes, Souris-Red Rainy River, Upper Mississippi River, and Missouri River, are contained in this volume.

This report is the culmination of a concerted effort by dedicated personnel of the U.S. Geological Survey who collected, compiled, analyzed, verified, and organized the data, and who typed, edited, and assembled the report. The authors had primary responsibility for assuring that the information contained herein is accurate, complete, and adheres to U.S. Geological Survey policy and established guidelines.

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Water resources data for the 2004 water year for Minnesota consist of records of stage, discharge, and water quality of streams; stage of lakes and reservoirs; ground-water quality; and water quality in wells. This report contains discharge records for 110 stream-gaging stations; stage for 12 lakes and reservoirs; water quality for 12 stream-gaging stations; peak flow data for 87 high-flow partial-record stations, and water levels for 2 ground water observation wells. Additional water data were collected at various sites that are not part of the systematic data collection program, and are published as miscellaneous measurements. These data represent that part of the National Water Data System operated by the U.S. Geological Survey for cooperating State and Federal agencies in Minnesota.

14. SUBJECT TERMS
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Note.--Data for partial-record stations and miscellaneous sites for both surface-water quantity and quality are published in separate sections of the data report. See references at the end of this list for page numbers for these sections.

[Letters after station name designates type of data: (d) discharge; (e) gage height, elevation, or contents; (c) chemical, radio-chemical, or pesticides; (b) biological or micro-biological; (p) physical (water temperature, sediment, or specific conductance)]

ST. LAWRENCE RIVER BASIN

		Station Number	Page
STREAMS TRIBUTARY TO LAKE SUPERIOR			
Pigeon River at Middle Falls, near Grand Portage	(d - - - -)	04010500	30
Hollow Rock Creek near Red Rock	(d - - - -)	04010520	32
Reservation River near Grand Portage	(d - - - -)	04010528	34
Knife River near Two Harbors	(d - - - -)	04015330	36
St. Louis River at Scanlon	(d - - - -)	04024000	38

HUDSON BAY BASIN

STREAMS TRIBUTARY TO LAKE WINNIPEG (head of Nelson River):

RED RIVER OF THE NORTH BASIN

Otter Tail River (head of Red River of the North):			
Otter Tail River near Elizabeth	(d - - - -)	05030500	40
Otter Tail River below Orwell Dam, near Fergus Falls	(d - - - -)	05046000	42
Bois de Sioux River:			
Mud Lake above White Rock Dam near White Rock, SD	(- e - - -)	05049995	44
Bois de Sioux River near White Rock, SD	(d - - - -)	05050000	46
Bois de Sioux River near Doran	(d - - - -)	05051300	48
Red River of the North at Wahpeton, ND	(d - - - -)	05051500	50
Red River of the North at Hickson, ND	(d - - - -)	05051522	52
Red River of the North at Fargo, ND	(d - - - -)	05054000	54
Buffalo River near Hawley	(d - - - -)	05061000	56
South Branch Buffalo River at Sabin	(d - - - -)	05061500	58
Buffalo River near Dilworth	(d - - - -)	05062000	60
Wild Rice River at Twin Valley	(d - - - -)	05062500	62
Wild Rice River at Hendrum	(d - - - -)	05064000	64
Red River of the North at Halstad, ND	(d - - - -)	05064500	66
Marsh River near Shelly	(d - - - -)	05067500	68
Sand Hill River at Climax	(d - - - -)	05069000	70
Red Lake River:			
Upper Red Lake at Waskish	(- e - - -)	05073500	72
Lower Red Lake at Battle River mouth near Saum	(- e - - -)	05073650	74
Lower Red Lake near Red Lake	(- e - - -)	05074000	76
Red Lake River near Red Lake	(d - - - -)	05074500	78
Thief River near Thief River Falls	(d - - - -)	05076000	80
Clearwater River at Plummer	(d - - - -)	05078000	82
Lost River at Oklee	(d - - - -)	05078230	84
Clearwater River:			
Lower Badger Creek:			
Judicial Ditch 64 near Mentor	(d - c - p)	05078470	86
Clearwater River at Red Lake Falls	(d - - - -)	05078500	90
Red Lake River:			
Cyr Creek near Marcoux Corners	(d - c - p)	05078520	92
Gentilly River:			
County Ditch 140 near Benoit	(d - c - p)	05078730	96
Kripple Creek:			
Judicial Ditch 66 near Marcoux Corners	(d - c - p)	05078770	100
Red Lake River at Crookston	(d - - - -)	05079000	104

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County Ditch 72 near Maple Bay ..... (d - c - p) 05079200 106
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Snake River:
Middle River at Argyle ..... (d - - - -) 05087500 118
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South Branch Two Rivers at Lake Bronson ..... (d - - - -) 05094000 122
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Nett Lake River near Nett Lake ..... (d - - - -) 05131455 158
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UPPER MISSISSIPPI RIVER MAIN STEM
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Sauk River near St. Cloud ..... (d - - - -) 05270500 192
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Mille Lacs Lake (head of Rum River) at Cove Bay near Onamia ..... (- e - - -) 05284000 200
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Little Cobb River near Beauford ..... (d - c - p) 05320270 254
Le Sueur River near Rapidan ..... (d - - - -) 05320500 256
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Mississippi River below Lock and Dam 2, at Hastings ..... (d - c - p) 05331580 274
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Kettle River below Sandstone ..... (d - - - -) 05336700 280
Snake River near Pine City ..... (d - - - -) 05338500 282
St. Croix River at St. Croix Falls, WI ..... (d - - - -) 05340500 284
UPPER MISSISSIPPI RIVER MAIN STEM
Mississippi River at Prescott, WI ..... (d - - - -) 05344500 286
Sturgeon Lake, West Side, at Prairie Island ..... (- e - - -) 05344850 288
Vermillion River near Empire ..... (d - - - -) 05345000 290
Clear Lake, East Side, at Prairie Island ..... (- e - - -) 05346050 292
Cannon River:
Straight River near Faribault ..... (d - - - -) 05353800 294
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UPPER MISSISSIPPI RIVER MAIN STEM--Continued
Zumbro River:
South Fork Zumbro River at Rochester ..... (d - - - -) 05372995 298
Mississippi River at Winona ..... (d - - - -) 05378500 300
Root River near Pilot Mound ..... (d - - - -) 05383950 302
Root River near Houston ..... (d - - - -) 05385000 304
Iowa River:
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GROUND-WATER WELLS, BY COUNTY, FOR WHICH RECORDS ARE PUBLISHED IN THIS VOLUME

GROUND-WATER LEVELS

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BELTRAMI
Well 473423095053301 Local number 147N35W02CDCBDD 419
MORRISON
Well 460444094212501 Local number 130N29W08DCC01 420

DISCONTINUED SURFACE-WATER DISCHARGE OR STAGE ONLY STATIONS

The following continuous-record surface-water discharge or stage-only stations (gaging stations) in Minnesota have been discontinued. Daily streamflow or stage records were collected and published for the period of record, expressed in water years, shown for each station. Those stations with an asterisk (*) after the station number are currently operated as crest-stage partial-record stations. Discontinued project stations with less than 3 years of record have not been included. Information regarding these stations may be obtained from the District Office at the address given on the back side of the title page of this report.

[Letters after station name designate type of data collected: (d) discharge, (e) elevation (stage only)].

Station name	Station number	Drainage area (mi^2)	Period of record
Pigeon River above mouth of Arrow River, MN (d)	04010000	256	1924-27
Loon Lake, northeast side, near Grand Portage, MN (e)	475807089483501	-	1998-2002
Cuffs Lake, east side, near Grand Portage, MN (e)	475647089443301	-	1998-2002
Poplar River at Lutsen, MN (d)	04012500	114	1911 (e), 1912-17, 1928-47, 1952-61
Cross River at Schroeder, MN (d)	04013000	91	1931-32
Baptism River near Beaver Bay, MN (d)	04014500	140	1928-93
Beaver Creek (Beaver Bay Run) at Beaver Bay, MN (d)	04015000	126	1911-14, 1928-31
South Branch Partridge River near Babbitt, MN (d)	04015455	18.5	1977-80
Partridge River above Colby Lake, at Hoyt Lakes, MN (d)	04015475	106	1979-88
Second Creek near Aurora, MN (d)	04015500	29	1955-80
Partridge River near Aurora, MN (d)	04016000	161	1942-82
St. Louis River near Aurora, MN (d)	04016500	290	1942-87
Embarrass River at Embarrass, MN (d)	04017000	93.8	1942-64
Embarrass River near McKinley, MN (d)	04018000	171	1953-62
St. Louis River at Forbes, MN (d)	04018750	713	1965-90
East Two Rivers near Iron Junction, MN (d)	04018900	40.0	1966-79
West Two Rivers near Iron Junction, MN (d)	04019000	65.3	1953-62, 1965-79
West Swan River near Silica, MN (d)	04019300	16.3	1963-79
East Swan River near Toivola, MN (d)	04019500	112	1953-62, 1964-71
Swan River near Toivola, MN (d)	04020000	254	1952-61
Whiteface River below (at) Meadowlands, MN (d)	04021000	453	1909-17
Cloquet River at Independence, MN (d)	04023000	750	1909-17
Elim Creek near Holyoke, MN (d)	04024090	1.06	1976-78
Skunk Creek below Elim Creek near Holyoke, MN (d)	04024093	8.83	1976-78
Deer Creek near Holyoke, MN (d)	04024098	7.70	1976-2002
Otter Tail River near Detroit Lakes, MN (d)	05030000	270	1937-71
Pelican River at Detroit Lakes, MN (d)	05033900	-	1968-71
Pelican River at Detroit Lk. out. nr. Detroit Lakes, MN (d)	05034100	-	1968-71, 1974-75
Long Lake outlet near Detroit Lakes, MN (d)	05035100	-	1968-71
West Branch Cty. Ditch No. 14 nr. Detroit Lakes, MN (d)	05035200	-	1968-71
East Branch County Ditch No. 14 nr. Detroit Lakes, MN (d)	05035300	-	1968-71
St. Clair Lake outlet near Detroit Lakes, MN (d)	05035500	-	1968-75
Pelican River at Muskrat Lk outlt nr Detroit Lakes, MN (d)	05035600	-	1968-75
Pelican River at Sallie Lk outlet nr Detroit Lakes, MN (d)	05037100	-	1968-75
Pelican River at Lake Melissa olt nr Detroit Lakes, MN (d)	05039100	-	1968-75
Pelican River near Detroit Lakes, MN (d)	05040000	123	1942-53
Pelican River near Fergus Falls, MN (d)	05040500	482	1909-12
Otter Tail River near Breckenridge, MN (d)	05046500	2,040	1931-32, 1939-46
Mustinka River (head of Bois de Sioux River) nr Norcross, MN (d)	05047000	-	1940-47
Mustinka Ditch above West Branch Mustinka River (Twelve Mile Creek) near Charlesville, MN (d)	05047500	-	1943-55
Mustinka Ditch below West Branch Mustinka River (Twelve Mile Creek) near Charlesville, MN (d)	05048000	-	1943-55
W. Branch Mustinka River (Twelve Mile Creek) below Mustinka Ditch near Charlesville, MN (d)	05048500	-	1943-55
Mustinka River above Wheaton, MN (d)	05049000	834	1915-24, 1930-58
Bois de Sioux River below Fairmont, ND (d)	05050500	1,540	1919-44
Rabbit River at Campbell, MN (d)	05051000	266	1942-52
Red River of the North below Fargo, ND (d)	05054020	-	1969-78
Whiskey Creek at Barnesville, MN (d)	05061200*	25.3	1964-66
Wild Rice River near Ada, MN (d)	05063000	1,100	1948-54
South Branch Wild Rice River near Borup, MN (d)	05063500	254	1944-49
Marsh River below Ada, MN (d)	05067000	-	1948-52
Sand Hill River at Beltrami, MN (d)	05068000	324	1943-58
Sand Hill Ditch at Beltrami, MN (d)	05068500	-	1943-58
Red Lake River at High Landing, near Goodridge (d)	05075000	2,300	1929-2000
Thief River near Gatske, MN (d)	05075500	-	1953-56

Station name	Station number	Drainage area (mi^2)	Period of record
Red Lake River at Thief River Falls, MN (d)	05076500	3,450	1909-18, 1920-30
Clearwater River near Pinewood, MN (d)	05077000	132	1940-45
Clearwater River near Leonard, MN (d)	05077500	153	1934-47
Ruffy Brook near Gonvick, MN (d)	05077700*	45.2	1960-78
Red River of the North at Oslo, MN (d)	05083500	31,200	1936-37, 1941-43, 1945-60, 1973-78
Snake River at Warren, MN (d)	05085500	-	1945, 1953-56
Snake River above Alvarado, MN (d)	05085900	218	1993-96
Snake River at Alvarado, MN (d)	05086000	220	1945, 1953-56
Middle River near Strandquist, MN (d)	05087000	-	1953-56
Tamarac River near Strandquist, MN (d)	05090500	-	1953-56
Tamarac River near Stephen, MN (d)	05091500	320	1945
Two Rivers (Middle Fork Two Rivers) nr Hallock, MN (d)	05092500	131	1931-38
South Branch (South Fork) Two Rivers near Pelan, MN (d)	05093000	281	1928-38, 1953-56
South Branch Two Rivers (Two Rivers) at Hallock, MN (d)	05094500	-	1940-47
Two Rivers (South Branch Two Rivers) at Hallock, MN (d)	05095000	-	1911-14, 1929-30, 1938-39, 1941-43
Two Rivers below Hallock, MN (d)	05095500	644	1945-55
North Branch (North Fk) Two Rivers nr Lancaster, MN (d)	05096000	32	1929-38, 1941-55 1953-55
State Ditch 85 near Lancaster, MN (d)	05096500	95	1929-38, 1942-55
North Branch Two Rivers at Lancaster, MN (d)	05096500	209	1941-42, 1953-56
North Branch Two Rivers near Northcote, MN (d)	05097500	386	1941-42, 1945-51
Two Rivers below North Branch near Hallock, MN (d)	05098000	1,060	1941-43
Roseau River (at) near Malung, MN (d)	05103000	252	1928-46
South Fork (W. Branch) Roseau River nr Malung, MN (d)	05104000	312	1911-14, 1928-46
Roseau River at Roseau, MN (d)	05105000	-	1940-47
Roseau River near Roseau, MN (d)	05105500	-	1930-60
Pine Creek near Pine Creek, MN (d)	05107000	74.6	1928-53
Roseau River at Roseau Lake, MN (e)	05106500	-	1939-91
Roseau River near Badger, MN (d)	05108000	-	1928-69
Roseau River near Duxby, MN (d)	05108500	-	1929-51, 1952-56
Badger Creek near Badger, MN (d)	05109000	2.2	1929-30, 1931-38
Roseau River near Haug, MN (d)	05109500	-	1932-66
Roseau River at otlt of State Ditch 69 nr Oak Point, MN (d)	05110000	-	1939-42
Roseau R. at head of State Ditch 51 nr Oak Point, MN (d)	05110500	-	1933-42
Roseau River at Oak Point, MN (d)	05111000	-	1933-39, 1941-60
Roseau River at international boundary, nr Caribou, MN (d)	05112500	1,590	1933-69
Shagawa Lake tributary at Ely, MN (d)	05127219	1.84	1971-78
Burgo Creek near Ely, MN (d)	05127220	3.04	1967-78
Shagawa River near Ely, MN (d)	05127230	99	1967-78
Vermilion Lake near Soudan, MN (e)	05128200	-	1913-15, 1941-42, 1946-87
Pike River near Biwabik, MN (d)	05128340	-	1977-79
Pike River near Embarrass, MN (d)	05128500	115	1953-64, 1976-79
Rainy River at International Falls, MN (d)	05129500	14,900	1905-60
Sturgeon River (Lake) at Side Lake, MN (d)	05130000	-	1938-47
Dark River near Chisholm, MN (d)	05131000	50.6	1942-61, 1965-79
Deer Lake outlet (Deer Lake) near Effie, MN (d)	05131800	-	1937-39, 1940-46 1982-93
Rapid River near Baudette, MN (d)	05134200	543	1956-85
Warroad River near Warroad, MN (d)	05139500	162	1946-80
Bulldog Run near Warroad, MN (d)	05140000	14.2	1946-51, 1966-77
East Branch Warroad River nr Warroad, MN (d)	05140500	102	1946-54, 1966-77
Mississippi River near Bemidji, MN (d)	05200510	610	1987-2002
Williams lake near Akeley, MN (e) (data stored under station number 465724094402601)	05202000	0.88	1988-96.
Mississippi River near Deer River, MN (d)	05210000	3,190	1945-50
Prairie River near Grand Rapids, MN (d)	05213000	485	1909 (e), 1925-49
O'Brien Creek near Pengilly, MN (d)	05216800	-	1963-68
Initial tailings basin outflow near Keewatin, MN (d)	05216820	2.5	1982-85
Swan River near Calumet, MN (d)	05216850	114	1964-90
Swan River near Warba, MN (d)	05217000	254	1954-69
Mississippi River above Sandy River near Libby, MN (d)	05218000	4,560	1895-1915,

Station name	Station number	Drainage area (mi^2)	Period of record
			1925-29
Mississippi River below Sandy River near Libby, MN (d)	05220500	5,060	1930-90
Pelican Brook (Long Lake) near Pequot Lakes, MN (d)	05232000	-	1938-42, 1943-47
Rabbit River near Crosby, MN (d)	05241500	8.38	1945-63
Little Sand Lake outlet (Sand Lake outlet) nr Dorset, MN (d	05242700	74	1930-41
Straight River at County Highway 125 near Osage, MN (d)	05243721	-	1986-91
Straight River at Cty. Hwy. 115 near Park Rapids, MN (d)	05243723	-	1986-89
Crow Wing River at Motley, MN (d)	05244500	2,140	1909 (e), 1913-17
			1930-31
Diversion from Long Prairie River near Osakis, MN (d)	05244980	-	1939-47
Long Prairie River near Osakis, MN (d)	05245000	-	1949-54
Long Prairie near Motley	05245500	973	1909-17, 1930-31
Crow Wing River at Pillager, MN (d)	05246000		1909-13, 1925-50
Mississippi River near Ft. Ripley, MN (d)	05261000	11,010	1987-2000
Platte (Platt) River at Pillager, MN (d)	05268000*	338	1929-36
Mississippi River near Sauk Rapids, MN (d)	05269000	12,400	1903-06
Mississippi River at Sartell, MN (d)	05270000	12,450	1929, 1943-47(e)
Clearwater River at Clearwater, MN (d)	05273500	-	1937, 1940-42
St. Francis River at Santiago, MN (d)	05274700	-	1965-70, 1980-81
St. Francis River above Zimmerman, MN (d)	05274750	-	1980-84
St. Francis River near Big Lake, MN (d)	05274900	-	1965-70
Mississippi River at Elk River, MN (d)	05275500	14,500	1915-56
North Fork Crow River near Regal, MN (d)	05276000	215	1943-54
North Fork Crow River above Paynesville, MN (d)	05276005	232	1996-98
Middle Fork Crow River at New London, MN (e)	05277000	-	1939-42, 1943-47
Middle Fork Crow River (Calhoun Lk Diversion) nr Spicer, MN (e)	05277500	-	1939, 1940-46
Middle Fork Crow River near Spicer, MN (d)	05278000	179	1949-87
South Fork Crow River at Cosmos, MN (d)	05278500	221	1945-64
Buffalo Creek near Glencoe, MN (d)	05278930*	374	1972-80
South Fork Crow River near Mayer, MN (d)	05279000	1,170	1934-79
South Fork Crow River near Rockford, MN (d)	05279500	1,250	1909-12
Mississippi River at Anoka, MN (d)	05283500	17,100	1897, 1905-13
Rum River at Onamia, MN (d)	05284500	414	1910-12
Rum River at Spencer Brook, MN (d)	05284750	-	1960-64
Rum River at Cambridge, MN (d)	05285000	1,160	1909-14
Rum River near Anoka, MN (d)	05286500	1,430	1905-06, 1909
Minnetonka Lake (head of Minnehaha Creek) near Wayzata (at Excelsior), MN (d)	05289000	-	1938-64
Minnehaha Creek at Minnetonka Mills, MN (d)	05289500	130	1953-64
Little Minnesota River near Peever, SD (d)	05290000	438	1939-81, 90-2002
Big Stone Lake near Big Stone City, SD (formerly Big Stone Lake at Ortonville, MN (e)	05291500	-	1937-93
Minnesota River near Odessa, MN (d)	05292500	1,340	1909-12, 1944-63
North Fork Yellow Bank River near Odessa (d)	05292704	208	1991-2003
Pomme de Terre River near Morris, MN (d)	05293500	-	1937-39, 1940-47
Pomme de Terre River at Appleton, MN (d)	05294000	864	1931-99
Canby Creek at Canby, MN (d)	05299500	-	1938-39,
			1940-46
Chippewa River at diversion dam near Hancock, MN (d)	05303000	-	1930-39, 1940-46
Chippewa River at Benson, MN (d)	05303500	1,270	1949-51
Shakopee Creek near Benson, MN (d)	05304000	352	1949-54
Chippewa River near Watson, MN (d)	05305000	2,050	1910-17, 1931-36
South Branch Yellow Medicine River at Minneota, MN (d)	05311400	111	1960-81, 1983-87
Spring Creek near Hazel Run, MN (d)	05312500	101	1945-48
Chetomba Creek near Maynard, MN (d)	05314000	200	1949-51
Hawk Creek near Maynard, MN (d)	05314500*	474	1949-54
Prairie Ravine near Marshall, MN (d)	05315200	5.63	1959-64
Redwood River near Green Valley, MN (d)	05315500	436	1947-57
Minnesota River at New Ulm, MN (d)	05316770	9,536	1968-76
Dry Creek near Jeffers, MN (d)	05316900	3.13	1982-85
Minnesota River at Judson, MN (d)	05317500	11,200	1938-50
East Branch (East Fork) Blue Earth River near Bricelyn, MN (d)	05318000	132	1951-70
South Fork Watonwan River at diversion dam near St. James, MN (d)	05319000	-	1939, 1940-46
Blue Earth River at Mankato, MN (d)	05321000	3,550	1938-39, 1940-42
Sand Creek at diversion dam near Jordan, MN (d)	05330400	-	1938-39, 1940-46
Purgatory Creek at Eden Prairie, MN (d)	05330800	-	1975-80
Nine Mile Creek at Bloomington, MN (d)	05330900	-	1963-73

Station name	Station number	Drainage area (mi^2)	Period of record
Glaisby Brook near Kettle River, MN (d)	05336200*	24.2	1959-70
Kettle River near Sandstone, MN (d)	05336500	825	1908-16
Grindstone River at Hinckley, MN (d)	05337000	-	1940-47
Knife River near Mora, MN (d)	05337400	102	1974-2002
Snake River at Mora, MN (d)	05337500	422	1909-13
St. Croix River near Rush City, MN (d)	05339500	5,120	1923-61
Sunrise River near Stacy, MN (d)	05340000	167	1949-65
Sunrise River near Lindstrom, MN (d)	05340050	231	1965-85
Vermillion River at Hastings, MN (d)	05346000	195	1942-47, 90
South Fork Zumbro River near Rochester, MN (d)	05373000	304	1952-81
Zumbro River (South Branch) near Zumbro Falls, MN (d)	05373500	821	1911-17
Zumbro River at Zumbro Falls, MN (d)	05374000*	-	1909-17, 1929-80
Zumbro River at Theilman, MN (d)	05374500	1,320	1938-56
Zumbro River at Kellogg, MN (d)	05374900	1,400	1975-90
North Fork Whitewater River near Elba, MN (d)	05376000	101	1939-41, 1967-93
Middle Fork Whitewater River near St. Charles, MN (d)	05376100	-	1988-92
South Fork Whitewater River near Altura, MN (d)	05376500	76.8	1939-71
Whitewater River near Beaver, MN (d)	05376800	271	1975-85, 1991-99
Whitewater River at Beaver, MN (d)	05377500	288	1936-38, 1939-56
Stockton Valley Creek at Stockton, MN (d)	05378230	-	1982-85
Garvin Brook near Minnesota City, MN (d)	05378235	-	1982-91
Straight Valley Creek near Rollingstone, MN (d)	05378300	5.16	1970-85
Gilmore Creek at Winona, MN (d)	05379000	8.95	1939-63
Mississippi River at LaCrosse, WI (d)	05383500	-	1929-55
North Branch Root River tributary near Stewartville, MN (d)	05383600	0.73	1959-64
Root River near Lanesboro, MN (d)	05384000*	615	1910, 11-17, 1940-85, 87-90
Rush Creek near Rushford, MN (d)	05384500*	129	1942-79
Root River near Houston, MN (d)	05385000*	1,250	1909-17, 1929-83, 1991-2000
South Fork Root River near Houston, MN (d)	05385500*	275	1953-83
Root River below South Fork near Houston, MN (d)	05386000	1,560	1938-61
Turtle Creek near Austin, MN (d)	05456500	144	1947-51
Heron Lake outlet nr Heron Lake, MN (d)	05475000	-	1930-43
Rock River at Luverne, MN (d)	06483000*	419	1911-14, 1996-97
Little Sioux River near Lakefield, MN (d)	06603000	17.1	1948-63
Jackson County Ditch No. 11 near Lakefield, MN (d)	06603500	7.69	1948-61

Station name	Station number	Drainage area (mi^2)	Type of record	Period of record
Baptism River near Beaver Bay, MN	04014500	140	C., Bio., Sed., Temp., D.O., pH., S.C.	1968-93
Partridge River abv Colby Lake at Hoyt Lakes, MN	04015475	106	Temp., S.C.	1976-85
St. Louis River at Forbes, MN	04018750	713	Sed.	1968-70
St. Louis River at Scanlon, MN	04024000	3430	C., Bio., Sed., Temp., D.O., pH, S.C.	1958-66, 68-94
Elim Creek near Holyoke, MN	04024090	1.06	Sed.	1976-79
Skunk Creek below Elim Creek near Holyoke, MN	04024093	8.83	C., Sed., Temp., D.O., pH, S.C.	1976-79
Deer Creek near Holyoke, MN	04024098	7.77	C., Bio., Temp., D.O., pH, S.C.	1977-79
			Sed.	1977-81
Pelican River near Fergus Falls, MN	05040500	482	Sed.	1968-69
Otter Tail River below Orwell Dam, near Fergus Falls, MN	05046000	1740	C., Sed., Temp., D.O., pH, S.C.	1961-63, 65-66, 85-86, 93-95
Bois de Sioux River near Doran, MN	05051300	1880	C., Sed., Temp., D.O., pH, S.C.	1993-95
Buffalo River near Hawley, MN	05061000	325	Sed.	1977-78
South Branch Buffalo River at Sabin, MN	05061500	454	Sed.	1977-78
Buffalo River near Dilworth, MN	05062000	1040	Sed.	1971-81
Wild Rice River at Twin Valley, MN	05062500	934	C., Sed., Temp., D.O., pH, S.C.	1966, 1973-79, 92-98, 2000-01
Wild Rice River at Hendrum, MN	05064000	1,560	C., Temp., D.O., pH, S.C.	1962-63, 67-68, 80-85, 91, 97-2001
Marsh River near Shelly, MN	05067500	220	C., Temp., D.O., pH, S.C.	1975, 79, 2000-01
Sand Hill River at Climax, MN	05069000	420	C., Temp., D.O., pH, S.C.	1966, 75, 79, 2000-01
Red Lake River near Red Lake, MN	05074500	1,950	C., Temp., D.O., pH, S.C.	1964-66, 2000-01
Thief River near Thief River Falls, MN	05076000	985	C., Temp., D.O., pH, S.C.	1963-66, 75, 79, 2000-01
Clearwater River at Plummer, MN	05078000	555	C., Temp., D.O., pH, S.C.	1963, 79, 2000-01
Lost River at Oklee, MN	05078230	254	C., Temp., D.O., pH, S.C.	1966, 1979, 2000-01
Clearwater River at Red Lake Falls, MN	05078500	1370	C., Sed., Temp., D.O., pH, S.C.	1964-66, 79, 92, 95
Red Lake River at Crookston, MN	05079000	5,270	C., Sed., Temp., D.O., pH, S.C.	1962-68, 72-76, 78-95, 97, 2000-01
Red Lake River at Fisher, MN	05080000	5,680	C., Sed., Temp., D.O., pH, S.C.	2000-01
Snake River above Alvarado, MN (d)	05085900	218	C., Temp., D.O., pH, S.C.	1994-96
Middle River at Argyle, MN	05087500	255	C., Sed., Temp., D.O., pH, S.C.	1968, 75, 79, 93, 2000-01
South Branch Two Rivers at Lake Bronson, MN	05094000	422	C., Sed., Temp., D.O., pH, S.C.	2000-01
Roseau River below Roseau, MN	05105300		C., Bio., Sed., Temp., D.O., pH, S.C.	1973-83
Roseau River below State Ditch 51, near Caribou, MN	05112000	1560	C., Bio., Sed., Temp., D.O., pH, S.C	1972-95, 2001
Kawishiwi River near Ely, MN	05124480	253	C., Bio., Sed., Temp., D.O., pH, S.C	1966-96
Little Fork River at Littlefork, MN	05131500	1730	C., Bio., Sed., Temp., D.O., pH, S.C.	1967, 69, 71, 73-86
Big Fork River at Big Falls, MN	05132000	1460	C., Bio., Sed., Temp., D.O., pH, S.C.	1968, 71-77
Rainy River at Manitou Rapids, MN	05133500	19,400	C., Bio., Sed., Temp., D.O., pH, S.C.	1968-70, 78-94
Crow Wing River at Nimrod, MN	05244000	1,010	Sed.	1968-70
Mississippi River near Royalton, MN	05267000	11,600	C., Bio., Sed., Temp., D.O., pH, S.C.	1963-66, 1975-98
Sauk River near St. Cloud, MN	05270500	1,030	C., Bio., Temp., D.O., pH, S.C.	2001
Elk River near Big Lake, MN	05275000	615	Sed., Temp.	1976-81
North Fork Crow River above Paynesville, MN	05276005	232	C., Bio., Sed., Temp., D.O., S.C.	1996-98
Crow River at Rockford, MN	05280000	2520	Sed., Temp.	1975-81
			C., Sed., Temp., D.O., pH, S.C.	1997
Mississippi River near Anoka, MN	05288500	19,100	Sed.	1963-67, 75-98
			C., Temp., D.O., pH, S.C.	1996-98
Mississippi River at Fridley, MN	05288550		Temp., D.O., pH, S.C.	1975-86
Mississippi River at Ford Plant at St. Paul, MN	05288950	19,700	Temp., D.O., pH, S.C.	1974-78, 81-82
Whetstone River near Big Stone City, SD	05291000	389	Sed., Temp.	1974-88
Yellow Bank River near Odessa, MN	05293000	398	Sed., Temp.	1974-88
Chippewa River near Milan, MN	05304500	1870	Sed., Temp.	1972-81
Yellow Medicine River near Granite Falls, MN	05313500	653	Sed., Temp.	1971-75, 77-81
Redwood River near Marshall, MN	05315000	259	Sed., Temp.	1968-71
Redwood River near Redwood Falls, MN	05316500	629	Sed., Temp.	1968-70
Cottonwood River near New Ulm, MN	05317000	1,300	Sed.,	1968-76
Watonwan River near Garden City, MN	05319500	812	Sed.	1977-80
Blue Earth River near Rapidan, MN	05320000	2,410	C., Bio., Temp., D.O., pH, S.C.	1960-67, 69, 2000-01
Minnesota River near Jordan, MN	05330000	16,200	C., Bio., Temp., D.O., pH, S.C.	1952-63, 69, 72-98
Minnesota River at Burnsville, MN	05330908		Temp., D.O., pH, S.C.	1980-83
Minnesota River at Fort Snelling State Pk., St. Paul, MN	05330920	16,900	Temp., D.O., pH, S.C.	1973-83
Mississippi River at Industrial Molasses, St. Paul, MN	05331005		Temp., D.O., pH, S.C.	1976-85
Mississippi River at Fifth at Newport, MN	05331545		Temp., D.O., pH, S.C.	1979-90
Mississippi River at Grey Cloud Island near Cottage Grove, MN	05331560		Temp., D.O., pH, S.C.	1977-90
Mississippi River at Ninninger	05331570	37,000	C., Bio., Sed., Temp., D.O., pH, S.C.	1977-95
Mississippi River at Lock and Dam 2 at Hastings, MN	05331578		Temp., D.O., pH, S.C.	1975-90
Snake River near Pine City, MN	05338500	958	C., Bio., Temp., D.O., pH, S.C.	1963, 65, 67-68, 75-83, 85, 92-94, 98

DISCONTINUED SURFACE-WATER-QUALITY STATIONS--Continued

Station name	Station number	Drainage area (mi^2)	Type of record	Period of record
St. Croix River at Afton, MN	05341770		Temp., D.O., pH, S.C.	1977-83
Vermillion River near Empire, MN	05345000	110	Temp., D.O., pH, S.C.	1974-91
			C., Bio.	1990-91, 97, 98
Mississippi River at Lock and Dam 3 near Red Wing, MN	05344980	46,000	Temp., D.O., pH, S.C.	1976-83
Mississippi River at Red Wing, MN	05355250	46,800	C., Bio., Sed., Temp., D.O., pH, S.C.	1996-98
South Fork Zumbro River at Rochester, MN	05372995	303	C., Temp., D.O., pH, S.C.	2001
			Sed., Temp.	1981-82
Zumbro River at Zumbro Falls, MN	05374000	1,150	Sed.	1971, 73-75
Zumbro River at Kellogg, MN	05374900	1400	Sed., Temp.	1975-81
North Fork Whitewater River near Elba, MN	05376000	101	C., Bio., Sed., Temp, D.O., pH, S.C.	1967-93
Middle Fork Whitewater River near St. Charles, MN	05376100		Sed., Temp., S.C.	1988-92
Whitewater River near Beaver, MN	05376800	271	Sed., Temp.	1975-81
Mississippi River at Winona, MN	05378500	59,200	C., Bio., D.O., pH	1963-66, 76-88
			Sed.	1976-2000
Root River near Lanesboro, MN	05384000	615	Sed.	1968-71
Root River near Houston, MN	05385000	1270	Sed.,Temp.	1975-81
South Fork Root River near Houston, MN	05385500	275	Sed., Temp.	1975-81
Cedar River near Austin, MN	05457000	425	Sed., Temp., S.C.	1971, 73-75, 78-81
Des Moines River at Jackson, MN	05476000	1220	C., Bio., D.O., pH, S.C.	1968-69, 73-76, 78, 83, 89-90, 94-95, 98
			Sed., Temp	1968-81

INTRODUCTION

Water Resources Division of the U.S. Geological Survey (USGS), in cooperation with Federal, State, and local agencies, collects a large amount of data pertaining to the water resources of Minnesota each water year. These data, accumulated during many years, constitute a valuable data base for developing an improved understanding of the water resources of the State. To make these data readily available to interested parties outside the USGS, the data are published annually in this report series entitled, "Water-Resources Data—Minnesota."

Water-resources data for the 2004 water year (hereinafter 2004) for Minnesota consist of records of stage, discharge, and water quality of streams; and stage of lakes and reservoirs; and water quality of ground water. This volume contains discharge records for 110 stream-gaging stations; stage for 12 lakes and reservoirs; water quality for 12 stream-gaging stations; peak flow data for 87 high-flow partial-record stations; and ground-water levels for 2 ground-water observation wells. These data represent a part of the National Water Data System collected by the USGS and cooperating State and Federal agencies in Minnesota.

This series of annual reports for Minnesota began with the 1961 water year with a report that contained only data relating to the quantities of surface water. For the 1964 water year, a similar report was introduced that contained only data relating to water quality. Beginning with the 1975 water year, the report was changed to present, in one volume, data on quantities of surface water, quality of surface and ground water, and ground-water levels.

Prior to introduction of this series and for several water years concurrent with it, water-resources data for Minnesota were published in U.S. Geological Survey Water-Supply Papers. Data on stream discharge and stage and on lake or reservoir contents and stage, through September 1960, were published annually under the title "Surface-Water Supply of the United States, Parts 4, 5 and 6A." For the 1961 through 1970 water years, the data were published in two 5-year reports. Data on chemical quality, temperature, and suspended sediment for the 1941 through 1970 water years were published annually under the title "Quality of Surface Waters of the United States," and water levels for the 1935 through 1974 water years were published under the title "Ground-Water Levels in the United States." The above mentioned Water-Supply Papers can be consulted in the libraries of the principal cities of the United States and may be purchased from the U.S. Geological Survey Branch of Information Services, Denver Federal Center, Box 25286, Denver, Colorado 80225.

Publications similar to this report are published annually by the USGS for all States. These official Survey reports have an identification number consisting of the two-letter State abbreviation, the last two digits of the water year, and volume number. For example, this volume is identified as the "U.S. Geological Survey Water-Data Report MN-04-1." For archiving and general distribution, the reports for 1971-74 water years also are identified as water-data reports. These water-data reports are for sale in paper copy or in microfiche by the National Technical Information Service, U.S. Department of Commerce, Springfield, Virginia 22161.

Additional information, including current prices, for ordering specific reports may be obtained from the District Chief at the address given on the back of the title page or by telephone (763) 783-3100.

COOPERATION

The USGS and agencies of the State of Minnesota have had cooperative agreements for the systematic collection of streamflow records since 1909, for ground-water levels since 1948, and for water-quality records since 1952. Organizations that assisted in collecting data through cooperative agreement with the USGS are:

— Minnesota Department of Natural Resources
— Minnesota Department of Transportation
— Minnesota Pollution Control Agency
— Grand Portage Reservation Tribal Council
— Elm Creek Watershed Management Commission
— Red River Watershed Management Board
— City of Rochester
— City of Grand Forks
— Bois Forte Reservation Tribal Council
— Prairie Island Indian Community
— City of Mankato
— Prairie Country Resource Conservation District
— White Earth Reservation Tribal Council
— High Island Creek Clean Water Partnership
— Brown Nicollet Cottonwood Clean Water Partnership
— Buffalo-Red River Watershed District
— Sibley County
— South St. Louis County Soil and Water Conservation District

Assistance in the form of funds or services was given by the U.S. Army Corps of Engineers, U.S. Department of State, and the Federal Energy Regulatory Commission. Other organizations that supplied data are acknowledged in station descriptions.

SUMMARY OF HYDROLOGIC CONDITIONS

Precipitation

Minnesota had precipitation totals for the water year ranging from above normal to approximately normal (normal being the statistical median based on data from 1971-2000) during the 2004 water year (figs. 1 and 2). Southeast Minnesota was from 5 to 10 inches above normal while annual totals for the rest of the state were generally within 2 inches of normal. State aggregate totals for the water year were 1.8 inches above normal. Precipitation totals, unless otherwise stated, are aggregates for the state, or for the nine climatic divisions. These include the northwest, north-central, northeast, west-central, central, east-central, southwest, south-central, and southeast divisions.

Precipitation totals for the first quarter, October 1 to December 31, 2003, were below normal for the entire state and ranged from 2.0 inches in the west-central to 3.6 inches in the north-central and southeast parts of the state. Departures from normal ranged from -2.6 inches in the south-central to -0.8 inches in the northwest part of the state. Statewide, the average was -1.7 inches below normal.

Precipitation for the second quarter, January 1 to March 31, 2004, was near normal for the entire state. Deviations from normal ranged from -.7 inches in the west-central to 0.8 inches in the southeast. were in the north-central and northeast parts of the state, which were approximately 1.7 inches below normal. Statewide, the average was near normal. Precipitation totals for much of western and southern Minnesota from July 2003 to April, 2004 were below the 10th percentile.

The third quarter, April 1 to June 30, 2004, had the largest deviations from normal of any quarter. The north-central part of the state was -2.4

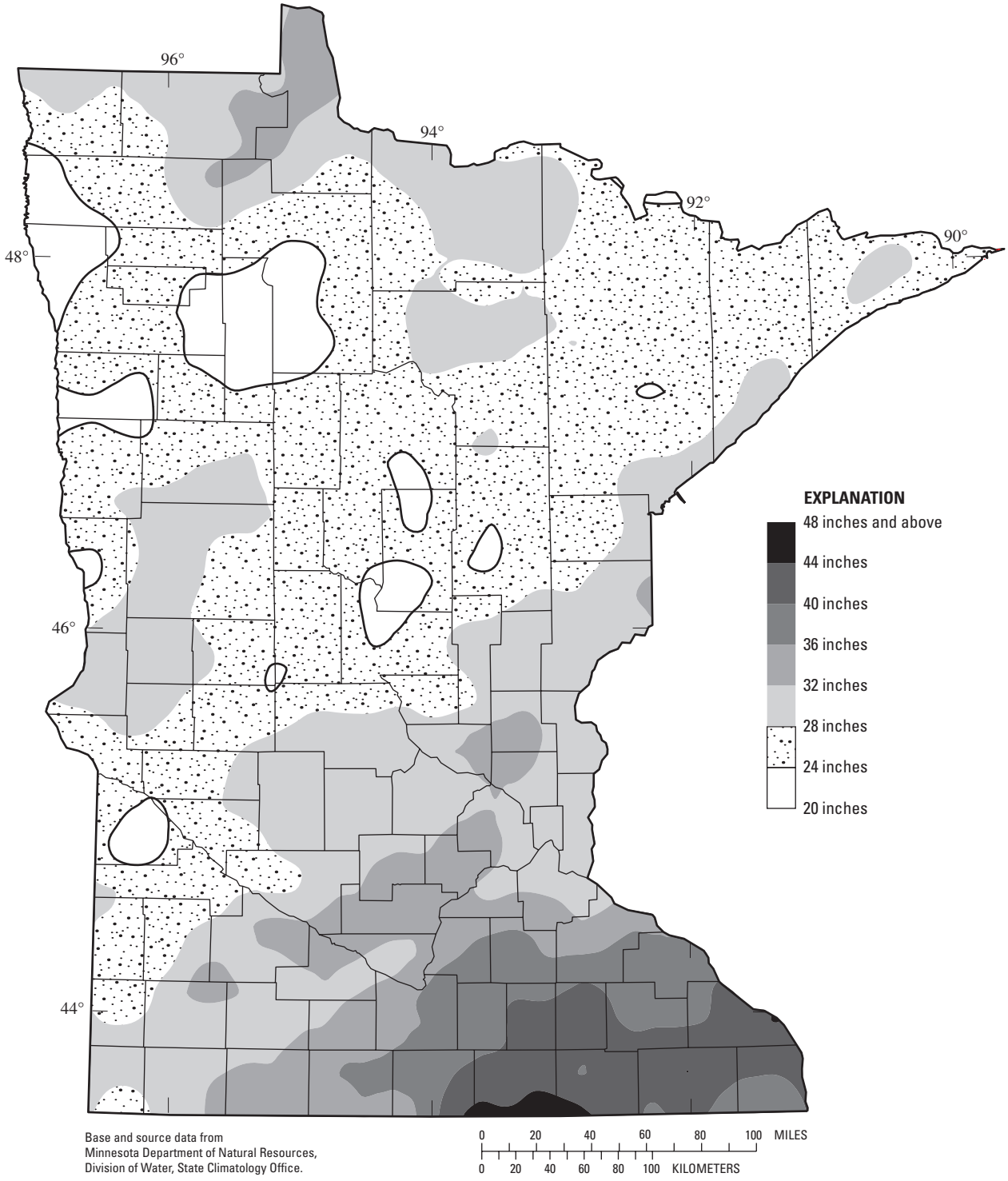


Figure 1. Precipitation, in inches, during 2004 water year, Minnesota.

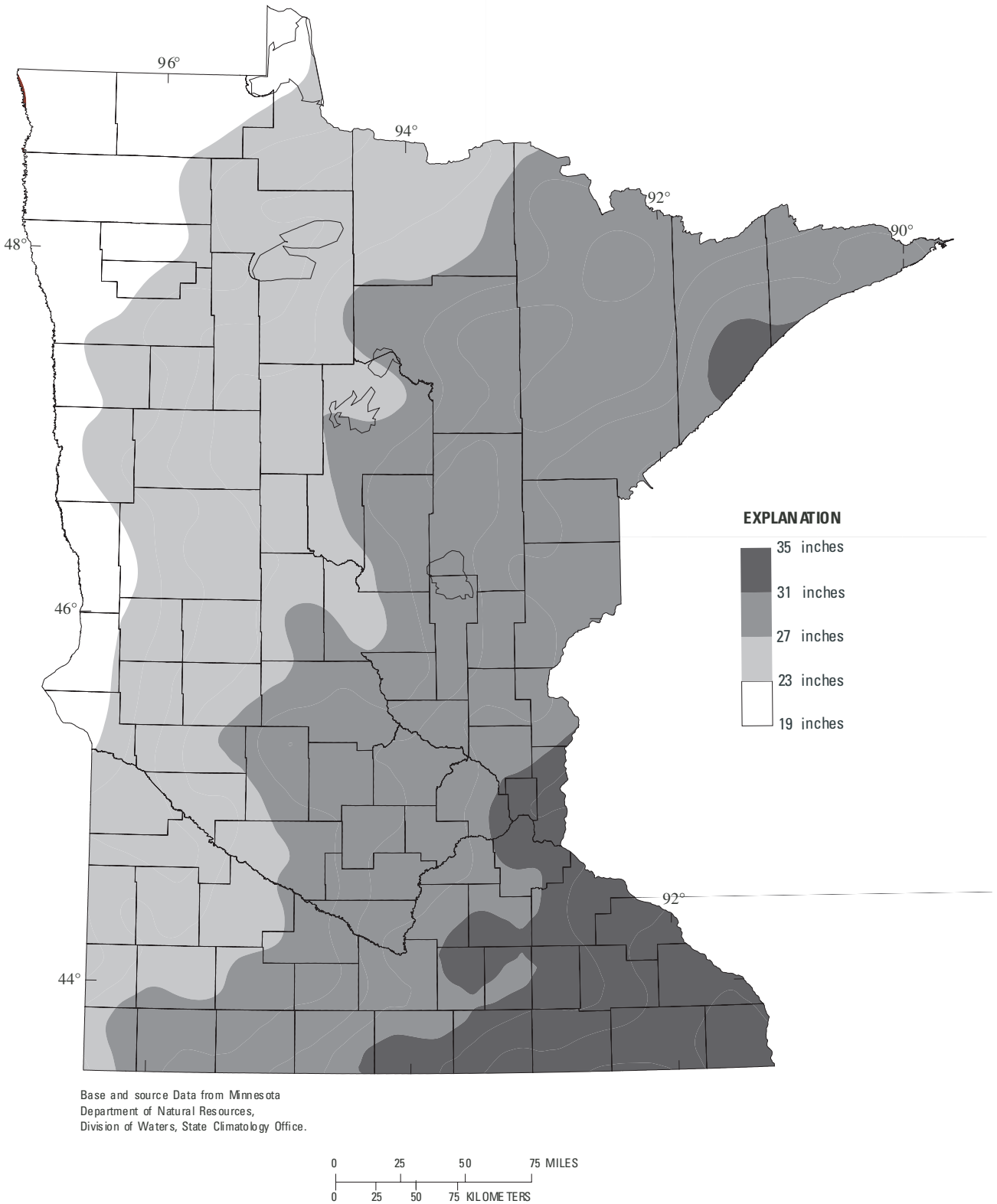


Figure 2. Average annual precipitation, in inches, for 30-year period, 1971-2000, in Minnesota.

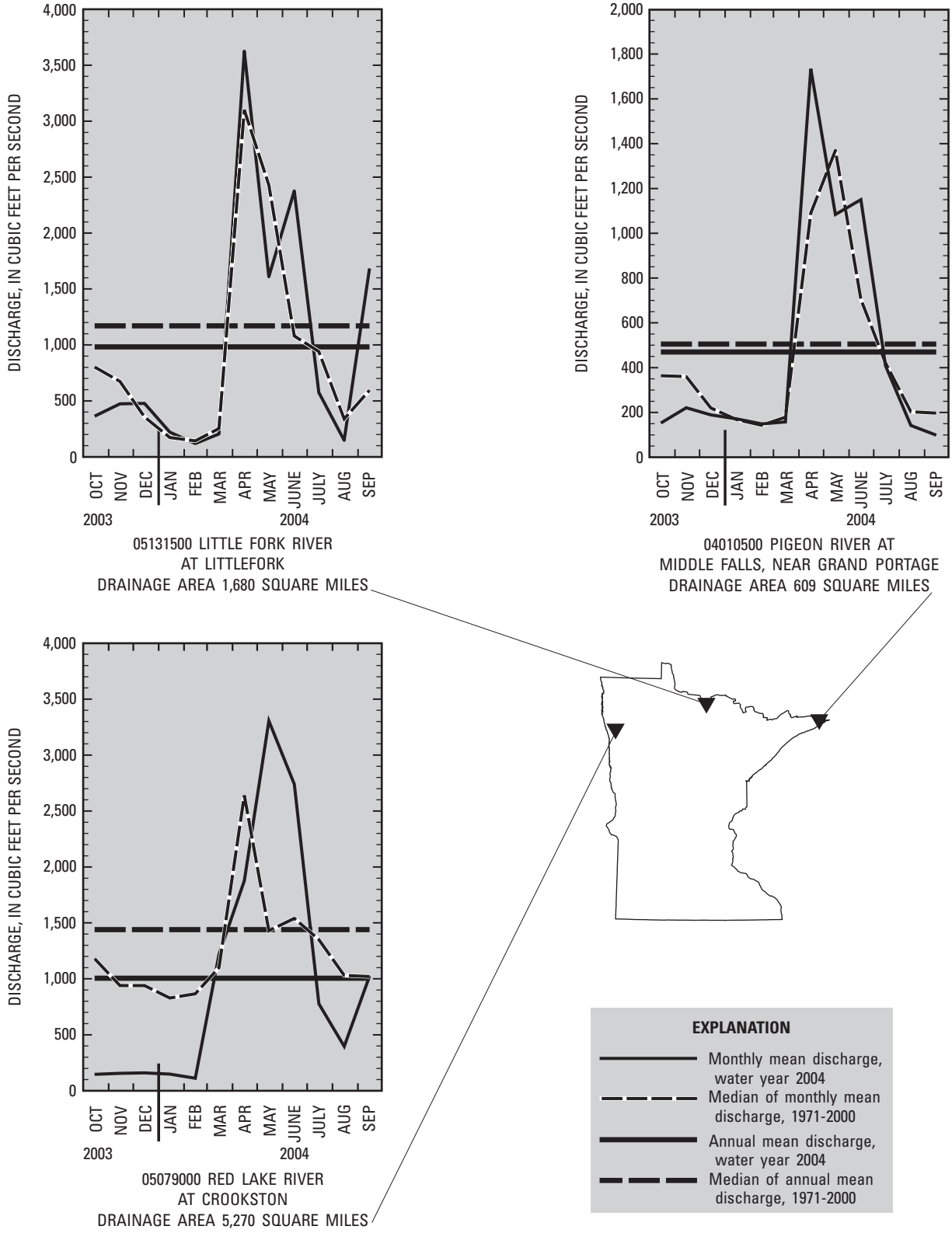
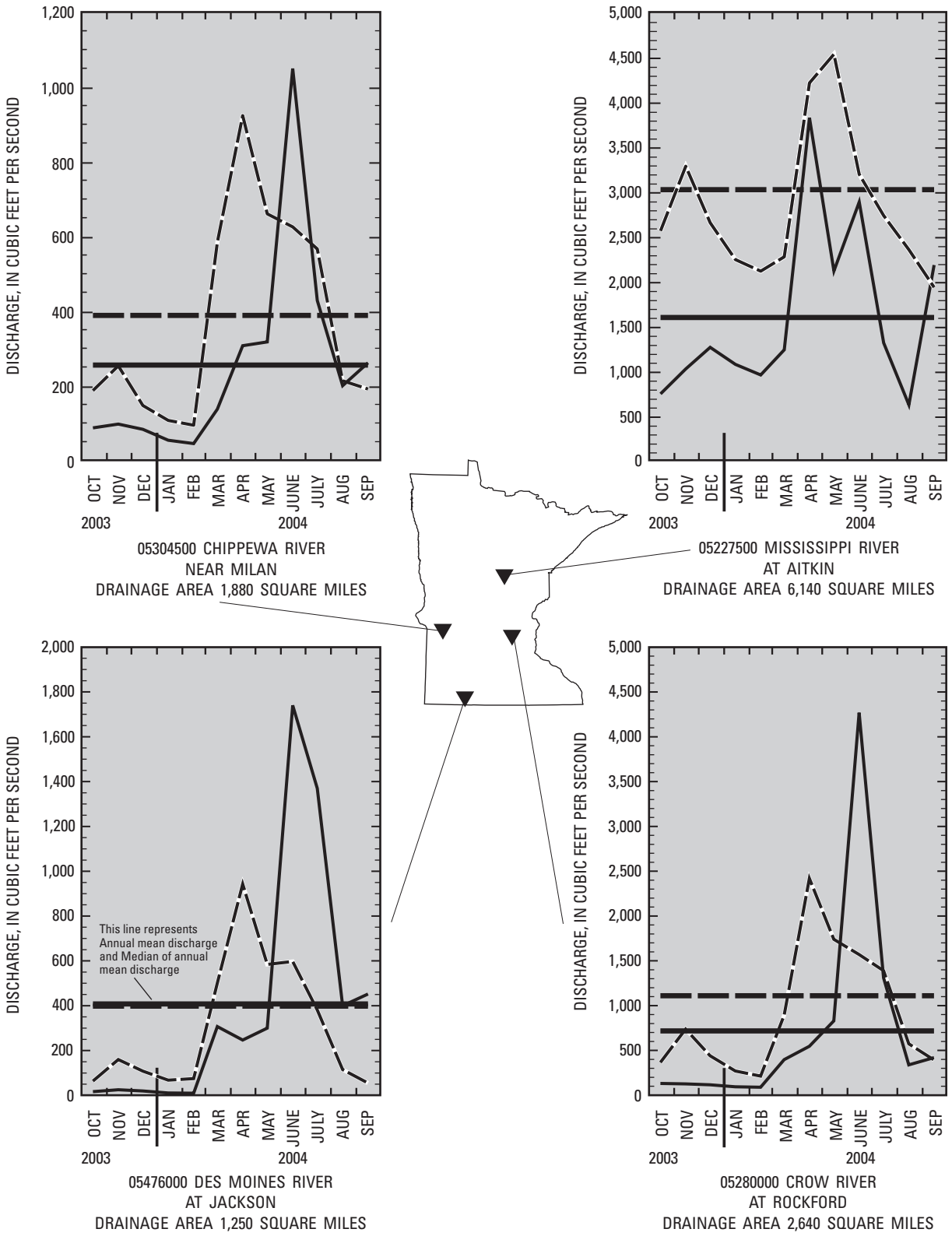


Figure 3. Comparison of mean discharge for the 2004 water year with the median



of mean discharges for 1971-2000 at seven long-term representative gaging stations.

inches below normal while the southwast was 6.7 inches above normal. Statewide, the total was 1.1 inches above normal. All parts of the state were at or above normal except for the north-central. A storm event June 8-9 produced rainfall totals in excess of 5 inches for much of area between Mankato and Rochester Minnesota. Some locations had totals approaching 7 inches.

For the fourth quarter, July 1 to September 30, 2004, precipitation totals were above normal for all climate divisions in the state except the northeast, which was -1.7 inches below normal. The south-central had the largest deviation from normal at 6.3 inches above normal. The state aggregate was about 2.3 inches above normal. The month of September so rainfall totals for the month and as well as for an individual storm event in excess of 10 inches for parts of southeast Minnesota. The month of September was amongst the wettest on record for much of the central and southern parts of the state.

Precipitation data not derived from figures 1 and 2 were obtained through the World Wide Web from the Minnesota State Climatology Office at: http://climate.umn.edu/ or from the Midwestern Regional Climate Center at: http://mcc.sws.uiuc.edu/index.html.

Surface Water

Dry conditions in the 2003 water year continued into the 2004 water year until alleviated by snowmelt runoff in the spring and heavy rains in June (see Precipitation) brought flows for many stations back to or above normal for the remainder of the water year.

Figure 3 shows monthly-mean and annual-mean discharges for water year 2004 compared to normal (median of monthly-mean discharges for the period 1971-2000) for 7 streamflow gaging stations: Little Fork River at Littlefork, Pigeon River at Middle Falls, Red Lake River at Crookston, Chippewa River near Milan, Mississippi River at Aitkin, Des Moines River at Jackson, and Crow River at Rockford. These stations are located in the following basins—Lake Superior, Red River of the North, Lake of the Woods, and the upper Mississippi River.

Monthly-mean streamflows were near normal for the entire water year for two of the seven stations listed - Pigeon River at Middle Falls and Little Fork River at Littlefork. For four of the seven stations, Red Lake River at Crookston, Crow River at Rockford, Chippewa River near Milan, and Des Moines River at Jackson, streamflows were generally below normal from October, 2003 through April, 2004, above normal from May to July, 2004 and near normal again towards the end of the water year. Discharges Mississippi River at Aitkin were below normal for the entire water year except for September.

With respect to stream-gaging stations with 10 or more years of streamflow record, a new peak of record was recorded at one site, Cedar River near Austin. The discharge, 20,000 ft^3/s, had a recurrence interval greater than 200 years. A storm event on September 14-15 produced rainfall amounts in excess of 10 inches for some locations in southeast Minnesota. Five high-flow partial record stations in southern Minnesota recorded peak stages of record, all in September of 2004. At least three of these were also peak flows of record. These high-flow partial-record sites were located from south-west to southeast Minnesota.

Ground-Water Levels

This report includes levels from two ground-water wells, both located in surficial-sand and gravel aquifers. The wells are measured approximately monthly by observers and/or USGS personnel. The wells, located in Beltrami and Morrison Counties, are also equipped with continuous-water-level recorders.

Water levels for these two levels, both located in northern Minnesota, in Beltrami and Itasca Counties generally showed declining water levels throughout the water year.

The Beltrami and Morrison County Wells were equipped with telemetry so near real-time water levels could be observed on the World Wide Web at: http://waterdata.usgs.gov/mn/nwis/current/?type=gw&group_key=county.

Downstream Order System and Station Number

Since October 1, 1950, the order of listing hydrologic-station records in USGS reports is in a downstream direction along the main stream. All stations on a tributary entering upstream from a main stream station are listed before that station. A station on a tributary that enters between two mainstream sections is listed between them. A similar order is followed by listing stations on first rank, second rank, and other order ranks of tributaries. The rank of any tributary on which a station is situated with respect to the stream to which it is immediately tributary is indicated by an indentation in a list of stations in front of the report. Each indentation represents one rank. This downstream order and system of indention show which stations are on tributaries between any two stations and the rank of the tributary on which each station is situated.

As an added means of identification, each hydrologic station and partial-record station has been assigned a station number. These are in the same downstream order in this report. In assigning station numbers, no distinction is made between partial-record stations and other stations; therefore, the station number for a partial-record station indicates downstream-order position in a list made up of both types of stations. Gaps are left in the series of numbers to allow for new stations that may be established; hence, the numbers are not consecutive. The complete eight-digit number for each station such as 05041000, which appears just to the left of the station name, includes the two-digit part number “05” plus the six-digit downstream order number "041000." In areas of high station density, an additional two digits may be added to the station identification number to yield a 10-digit number. The stations are numbered in downstream order as previously described between the stations of consecutive 8-digit numbers.

Numbering System for Wells and Miscellaneous Sites

The eight-digit downstream order station numbers are not assigned to wells and miscellaneous sites where only occasional water-quality samples or discharge measurements are taken.

The well and miscellaneous site numbering system of the USGS is based on the grid system of latitude and longitude. The system provides the geographic location of the well or miscellaneous site and a unique number for each site. The number consists of 15 digits. The first six digits denote the degrees, minutes, and seconds of latitude, the next seven digits denote degrees, minutes, and seconds of longitude, and the last two digits (assigned sequentially) identify the wells or other sites within a one-second grid. See figure 4. The numbering system used to define the location of data collection sites is based on the Federal system of land subdivision (township, range, and section). The first number of the site location indicates the township (the N after the township number is an abbreviation for north); the second, the range (the W after the range number is an abbreviation for west); and the third the section. Uppercase letters after the section number indicate location within the section; the first letter denotes the 160-acre tract, the second the 40-acre tract, and the third the 10-acre tract. The number of uppercase letters indicates accuracy of the location number. For example, if a point can be located within a 10-acre tract, three uppercase letters are shown in the location number. The number T142NR38W22DDC indicates the site is located in the SW 1/4 of the SE 1/4 of the SE 1/4, section 22, township 142 north, range 38 west.

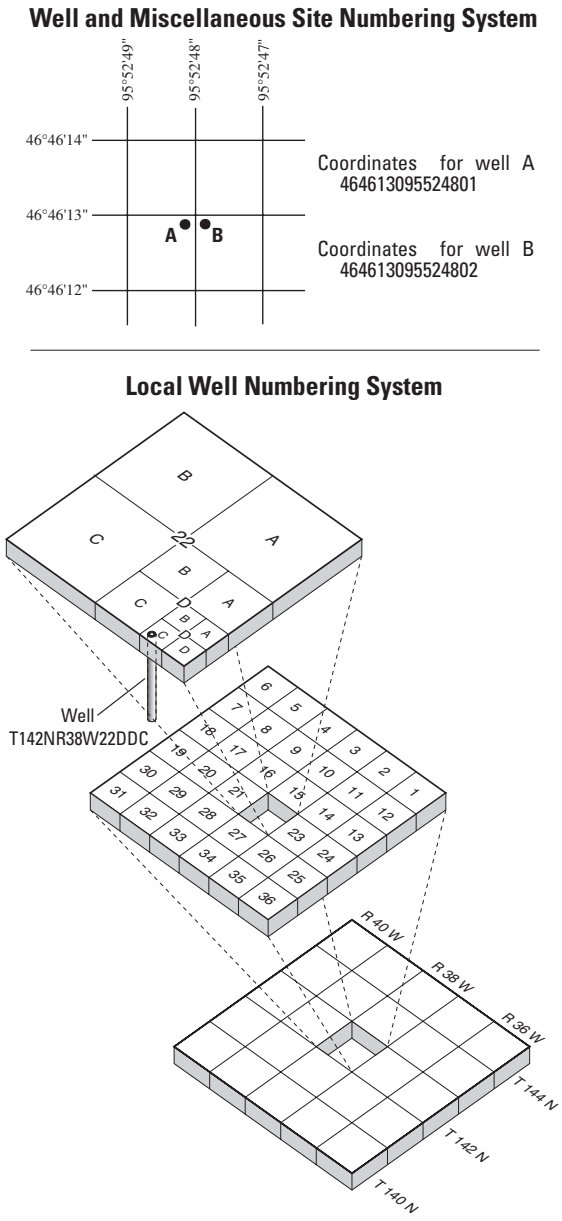


Figure 4. Example of system for numbering wells.

RECORDS OF STAGE AND WATER DISCHARGE

Records of stage and water discharge may be complete or partial. Complete records of discharge are those obtained using a continuous stage-recording device through which either instantaneous or mean-daily discharge may be computed for any time, or any period of time, during the period of record. Complete records of lake or reservoir content, similarly, are those for which stage or content may be computed or estimated with reasonable accuracy for any time, or period of time. They may be obtained using a continuous stage-recording device, but need not be. Because daily-mean discharges and end-of-day contents commonly are published for such stations, they are referred to as "daily stations."

By contrast, partial records are obtained through discrete measurements without using a continuous stage-recording device and pertain only to a few flow characteristics, or perhaps only one. The nature of the partial record is indicated by table titles such as "High-flow partial records," or "Low-flow partial records." Records of miscellaneous discharge measurements or of measurements from special studies, such as low-flow seepage studies, may be considered as partial records, but they are presented separately in this report. Location of all continuous-record, surface-water-quality, and high-flow partial-record stations for which data are given in this report are shown in figures 5, 6, and 7.

SPECIAL NETWORKS AND PROGRAMS

Hydrologic Benchmark Network is a network of 61 sites in small drainage basins in 39 states that was established in 1963 to provide consistent streamflow data representative of undeveloped watersheds nationwide, and from which data could be analyzed on a continuing basis for use in comparison and contrast with conditions observed in basins more obviously affected by human activities. At selected sites, water-quality information is being gathered on major ions and nutrients, primarily to assess the effects of acid deposition on stream chemistry. Additional information on the Hydrologic Benchmark Program may be accessed from http://water.usgs.gov/hbn/.

National Stream-Quality Accounting Network (NASQAN) is a network of sites used to monitor the water quality of large rivers within the Nation's largest river basins. From 1995 through 1999, a network of approximately 40 stations was operated in the Mississippi, Columbia, Colorado, and Rio Grande River Basins. For the period 2000 through 2004, sampling was reduced to a few index stations on the Colorado and Columbia Rivers so that a network of 5 stations could be implemented on the Yukon River. Samples are collected with sufficient frequency that the flux of a wide range of constituents can be estimated. The objective of NASQAN is to characterize the water quality of these large rivers by measuring concentration and mass transport of a wide range of dissolved and suspended constituents, including nutrients, major ions, dissolved and sediment-bound heavy metals, common pesticides, and inorganic and organic forms of carbon. This information will be used (1) to describe the long-term trends and changes in concentration and transport of these constituents; (2) to test findings of the National Water-Quality Assessment (NAWQA) Program; (3) to characterize processes unique to large-river systems such as storage and re-mobilization of sediments and associated contaminants; and (4) to refine existing estimates of off-continent transport of water, sediment, and chemicals for assessing human effects on the world's oceans and for determining global cycles of carbon, nutrients, and other chemicals. Additional information about the NASQAN Program may be accessed from http://water.usgs.gov/nasqan/.

The National Atmospheric Deposition Program/National Trends Network (NADP/NTN) is a network of monitoring sites that provide continuous measurement and assessment of the chemical constituents in precipita-

tion throughout the United States. As the lead Federal agency, the USGS works together with over 100 organizations to provide a long-term, spatial and temporal record of atmospheric deposition generated from this network of 250 precipitation-chemistry monitoring sites. The USGS supports 74 of these 250 sites. This long-term, nationally consistent monitoring program, coupled with ecosystem research, provides critical information toward a national scorecard to evaluate the effectiveness of ongoing and future regulations intended to reduce atmospheric emissions and subsequent impacts to the Nation's land and water resources. Reports and other information on the NADP/NTN Program, as well as data from the individual sites, may be accessed from http://bqs.usgs.gov/acidrain/.

The National Water-Quality Assessment (NAWQA) Program of the USGS is a long-term program with goals to describe the status and trends of water-quality conditions for a large, representative part of the Nation's ground- and surface-water resources; to provide an improved understanding of the primary natural and human factors affecting these observed conditions and trends; and to provide information that supports development and evaluation of management, regulatory, and monitoring decisions by other agencies.

Assessment activities are being conducted in 42 study units (major watersheds and aquifer systems) that represent a wide range of environmental settings nationwide and that account for a large percentage of the Nation's water use. A wide array of chemical constituents will be measured in ground water, surface water, streambed sediments, and fish tissues. The coordinated application of comparative hydrologic studies at a wide range of spatial and temporal scales will provide information for decision making by water-resources managers and a foundation for aggregation and comparison of findings to address water-quality issues of regional and national interest.

Communication and coordination between USGS personnel and other local, State, and Federal interests are critical components of the NAWQA Program. Each study unit has a local liaison committee consisting of representatives from key Federal, State, and local water resources agencies, Indian nations, and universities in the study unit. Liaison committees typically meet semiannually to discuss their information needs, monitoring plans and progress, desired information products, and opportunities to collaborate efforts among the agencies. Additional information about the NAWQA Program can be found at http://water.usgs.gov/nawqa.

The USGS National Streamflow Information Program (NSIP) is a long-term program with goals to provide framework streamflow data across the Nation. Included in the program are creation of a permanent Federally funded streamflow network, research on the nature of streamflow, regional assessments of streamflow data and data bases, and upgrades in the streamflow information delivery systems. Additional information about NSIP may be accessed from http://water.usgs.gov/nsip/.

EXPLANATION OF STAGE- AND WATER-DISCHARGE RECORDS

Data Collection and Computation

The data obtained at a complete-record gaging station on a stream or canal consist of a continuous record of stage, individual measurements of discharge throughout a range of stages, and notations regarding factors that may affect the relation between stage and discharge. These data, together with supplemental information, such as weather records, are used to compute daily discharges. The data obtained at a complete-record gaging station on a lake or reservoir consist of a record of stage and of notations regarding factors that may affect the relation between stage and lake content. These data are used with stage-area and stage-capacity curves or tables to compute water-surface areas and lake storage.

Records of stage are obtained with recorders that encode stage values at selected time intervals and stored on a variety of media. Measurements of discharge are made with current and acoustic meters using methods adapted by the USGS as a result of experience accumulated since 1880. These methods are described in standard textbooks, in U.S. Geological Survey Water-Supply Paper 2175, and in U.S. Geological Survey Techniques of Water-Resources Investigations (TWRI), book 3, chapter A6.

In computing discharge records, results of individual measurements are plotted against the corresponding stages, and stage-discharge relation curves are then constructed. From these curves, rating tables indicating the approximate discharge for any stage within the range of the measurements are prepared. If it is necessary to define extremes of discharge outside the range of current-meter measurements, the curves are extended using: (1) logarithmic-plotting; (2) velocity-area studies; (3) results of indirect measurements of peak discharge, such as slope-area or contracted-opening measurements, and computations of flow-over-dams or weirs; or (4) step-backwater techniques.

Daily-mean discharges are computed by applying the daily-mean stages (gage heights) to the stage-discharge curves or tables. If the stage-discharge relation is subject to change because of frequent or continual change in the physical features that form the control, the daily-mean discharge is determined by the shifting-control method, in which correction factors based on the individual discharge measurements and notes of the personnel making the measurements are applied to the gage heights before the discharges are determined from the curves or tables. This shifting-control method also is used if the stage-discharge relation is changed temporarily because of aquatic growth or debris on the control. For some stations, formation of ice in the winter may so obscure the stage-discharge relations so that daily-mean discharges must be estimated from other information such as temperature and precipitation records, notes of observations, and records for other stations in the same or nearby basins for comparable periods.

At some stream-gaging stations the stage-discharge relation is affected by the backwater from reservoirs, tributary streams, or other sources. This necessitates the use of the slope method in which the slope or fall in a reach of the stream is a factor in computing discharge. The slope or fall is obtained by means of an auxiliary gage set at some distance from the base gage. At some stations the stage-discharge relation is affected by changing stage. At these stations the rate of change in stage is used as a factor in computing discharge.

In computing records of lake or reservoir contents, it is necessary to have available from surveys, curves or tables defining the relation of stage and content. The application of stage to the stage-content curves or tables gives the contents from which daily, monthly, or yearly changes then are determined. If the stage-content relation changes because of deposition of sediment in a lake or reservoir, periodic resurveys may be necessary to redefine the relation. Even when this is done, the contents computed may become increasingly in error as time since the last survey increases. Discharge over lake or reservoir spillways are computed from stage-discharge relations much as other stream discharges are computed.

For some gaging stations there are periods when no gage-height record is obtained, or the recorded gage height is so faulty that it cannot be used to compute daily discharge or contents. For such periods, the daily discharges are estimated from the recorded range in stage, previous or following record, discharge measurements, weather records, and comparison with other station

records from the same or nearby basins. Likewise, daily contents may be estimated from operator's logs, previous or following record, inflow-outflow studies, and other information. Information explaining how estimated daily-discharge values are identified in station records is included in the sections, "Data Presentation" (REMARKS paragraph) and "Identifying Estimated Daily Discharge."

Data Presentation

Streamflow data in this report are presented in a new format that is considerably different from the format in data reports prior to the 1991 water year. The major changes are that statistical characteristics of discharge now appear in tabular summaries following the water-year data table and less information is provided in the text or station manuscript above the table.

The records published for each continuous-record surface-water discharge station (gaging station) now consist of five parts: (1) the manuscript or station description; (2) the data table of daily-mean values of discharge for the current water year with summary data; (3) a tabular statistical summary of monthly-mean-flow data for a designated period, by water year; (4) a summary statistics table that includes statistical data of annual, daily and instantaneous flows as well as data pertaining to annual runoff, 7-day low-flow minimums, and flow duration; and (5) a hydrograph of discharge.

Station Manuscript

The manuscript provides, under various headings, descriptive information, such as station location, period of record, historical extremes outside the period of record, record accuracy, and other remarks pertinent to station operation and regulation. The following information, as appropriate, is provided with each continuous record of discharge or lake content. Comments to follow clarify information presented under the various headings of the station description.

LOCATION--Information on locations is obtained from the most accurate maps available. The location of the gage with respect to the cultural and physical features in the vicinity and with respect to the reference place mentioned in the station name is given. River mileages, given for only a few stations, were determined by methods given in "River Mileage Measurement," Bulletin 14, Revision of October 1968, prepared by the Water Resources Council or were provided by the U.S. Army Corps of Engineers.

DRAINAGE AREA--Drainage areas are measured using the most accurate maps available. Because the type of maps available varies from one drainage basin to another, the accuracy of drainage areas likewise varies. Drainage areas are updated as better maps become available.

PERIOD OF RECORD--This indicates the period for which there are published records for the station or for an equivalent station. An equivalent station is one that was in operation at a time when the present station was not, and whose location was such that records from it can reasonably be considered equivalent with records from the present station.

REVISED RECORDS--Published records, because of new information, occasionally are found to be incorrect, and revisions are printed in later reports. Listed under this heading are all reports in which revisions have been published for the station and water years to which the revisions apply. If a revision did not include daily, monthly, or annual figures of discharge, that fact is noted after the year dates as follows: "(M)" means that only the instantaneous maximum discharge was revised; "(m)" means that only the instantaneous minimum was revised; and "(P)" means that only peak discharges were revised. If the drainage area has been revised, the report in which the most recently revised figure was first published is given.

GAGE--The type of gage in current use, the datum of the current gage referred to National Geodetic Vertical Datum of 1929 (see glossary), and a condensed history of the types, locations, and datum of previous gages are given under this heading.

REMARKS--All periods of estimated daily-discharge record will either be identified by date in this paragraph of the station description for water-discharge stations or flagged in the daily-discharge table. If a remarks statement is used to identify estimated record, the paragraph will begin with this information presented as the first entry. The paragraph is also used to present information relative to the accuracy of the records, to special methods of computation, to conditions that affect natural flow at the station and, possibly, to other pertinent items. For reservoir stations, information is given on the dam forming the reservoir, the capacity, outlet works and spillway, and purpose and use of the reservoir.

COOPERATION--Records provided by a cooperating organization or obtained for the USGS by a cooperating organization are identified here.

EXTREMES OUTSIDE PERIOD OF RECORD--Included here is the information concerning major floods or unusually low flows that occurred outside the stated period of record. The information may or may not have been obtained by the USGS.

REVISIONS--If errors in published water-quality records are discovered after publication, appropriate updates are made in the U.S. Geological Survey's distributed data system NWIS, and subsequently to its web-based National data system, NWISWeb [http://water.usgs.gov/nwis/nwis]. Because the usual volume of updates makes it impractical to document individual changes in the State data-report series or elsewhere, potential users of U.S. Geological Survey water-quality data are encouraged to obtain all required data from NWIS or NWISWeb to ensure the most recent updates. Updates to NWISWeb are currently made on an annual basis.

Manuscript information for lake or reservoir stations differs from that for stream stations in the nature of the "Remarks" and to the inclusion of a skeleton stage-capacity table when daily contents are given.

Headings for AVERAGE DISCHARGE, EXTREMES FOR PERIOD OF RECORD, AND EXTREMES FOR CURRENT YEAR have been deleted and the information contained in these paragraphs, except for the listing of secondary instantaneous peak discharges in the EXTREMES FOR CURRENT YEAR paragraph, is now presented in the tabular summaries following the discharge table or in the REMARKS paragraph, as appropriate. No changes have been made to the data presentations of lake contents.

Peak Discharges Greater Than Base Discharge

Tables of peak discharges above base discharge are included for some stations where secondary instantaneous peak discharges are used in flood-frequency studies of highway and bridge design, flood-control structures, and other flood-related projects. The base discharge value is selected so an average of three peaks a year will be reported. This base discharge value has a recurrence interval of approximately 1.1 years, or a 91-percent chance of exceedance in any 1 year.

Data Table of Daily-Mean Values

The daily table of discharge records for stream-gaging stations gives mean discharge for each day of the water year. In the monthly summary for the table, the line headed TOTAL gives the sum of the daily figures for each month; the line headed MEAN gives the average flow in cubic feet per sec-

ond for the month; and the lines headed MAX and MIN give the maximum and minimum daily-mean discharges, respectively, for each month. Discharge for the month also is usually expressed in cubic feet per second per square mile (line headed CFSM); or in inches (line headed IN); or in acre-feet (line headed AC-FT). Figures for cubic feet per second per square mile and runoff in inches or in acre-feet may be omitted if there is extensive regulation or diversion or if the drainage area includes large noncontributing areas. At some stations, monthly and (or) yearly observed discharges are adjusted for reservoir storage or diversion, or diversion data or reservoir contents are given. These figures are identified by a symbol and corresponding footnote.

Statistics of Monthly-Mean Data

A tabular summary of the mean (line headed MEAN), maximum (line headed MAX), and minimum (line headed MIN) of monthly-mean flows for each month for a designated period is provided below the mean values table. The water years of the first occurrence of the maximum and minimum monthly flows are provided immediately below those figures. The designated period will be expressed as FOR WATER YEARS 20__-20__, BY WATER YEAR (WY), and will list the first and last water years of the range of years selected from the PERIOD OF RECORD paragraph in the station manuscript. It will consist of all of the station record within the specified water years, inclusive, including complete months of record for partial water years, if any, and may coincide with the period of record for the station. The water years for which the statistics are computed will be consecutive, unless a break in the station record is indicated in the manuscript.

Summary Statistics

A table titled SUMMARY STATISTICS follows the statistics of monthly mean data tabulation. This table consists of four columns, with the first column containing the line headings of the statistics being reported. The table provides a statistical summary of yearly, daily, and instantaneous flows, not only for the current water year, but also for the previous calendar year and for a designated period, as appropriate. The designated period selected, WATER YEARS 20__-20__, will consist of all of the station record within the specified water years, inclusive, including complete months of record for partial water years, if any, and may coincide with the period of record for the station. The water years for which the statistics are computed will be consecutive, unless a break in the station record is indicated in the manuscript. All of the calculations for the statistical characteristics designated ANNUAL (see line headings below), except for the ANNUAL 7-DAY MINIMUM statistic, are calculated for the designated period using complete water years. The other statistical characteristics may be calculated using partial water years.

The date or water year, as appropriate, of the first occurrence of each statistic reporting extreme values of discharge is provided adjacent to the statistic. Repeated occurrences may be noted in the REMARKS paragraph of the manuscript or in footnotes. Because the designated period may not be the same as the station period of record published in the manuscript, occasionally the dates of occurrence listed for the daily and instantaneous extremes in the designated-period column may not be within the selected water years listed in the heading. When this occurs, it will be noted in the REMARKS paragraph or in footnotes. Selected streamflow duration curve statistics and runoff data are also given. Runoff data may be omitted if there is extensive regulation or diversion of flow in the drainage basin.

The following summary statistics data, as appropriate, are provided with each continuous record of discharge. Comments to follow clarify information presented under the various line headings of the Summary Statistics Table.

ANNUAL TOTAL--The sum of the daily-mean values of discharge for the year. At some stations the yearly-mean discharge is adjusted for reservoir storage or diversion. The adjusted figures are identified by symbol and corresponding footnotes.

ANNUAL MEAN--The arithmetic mean of the individual daily-mean discharges for the year noted or for the designated period. At some stations the yearly-mean discharge is adjusted for reservoir storage or diversion. The adjusted figures are identified by a symbol and corresponding footnotes.

HIGHEST ANNUAL MEAN--The maximum annual-mean discharge occurring for the designated period.

LOWEST ANNUAL MEAN--The minimum annual-mean discharge occurring for the designated period.

HIGHEST DAILY MEAN--The maximum daily-mean discharge for the year or for the designated period.

LOWEST DAILY MEAN--The minimum daily-mean discharge for the year or for the designated period.

ANNUAL 7-DAY MINIMUM--The lowest mean discharge for 7 consecutive days for a calendar year or a water year. Note that most low-flow frequency analyses of annual 7- day minimum flows use a climatic year (April 1-March 31). The date shown in the summary statistics table is the initial date of the 7-day period. (This value should not be confused with the 7-day 10-year low-flow statistic.)

MAXIMUM PEAK FLOW--The maximum instantaneous peak discharge occurring for the water year or designated period. Occasionally the maximum flow for a year may occur at midnight at the beginning or end of the year. In this case, the maximum peak flow is given in the table and the maximum flow may be reported in a footnote or REMARKS paragraph in the manuscript.

MAXIMUM PEAK STAGE--The maximum instantaneous peak stage occurring for the water year or designated period. Occasionally the maximum flow for a year may occur at midnight at the beginning or end of the year, on a recession from or rise toward a higher peak in the adjoining year. In this case, the maximum peak stage is given in the table and the maximum stage may be reported in the REMARKS paragraph in the manuscript or in a footnote. If the dates of occurrence of the maximum peak stage and maximum peak flow are different, the REMARKS paragraph in the manuscript or a footnote may be used to provide further information.

INSTANTANEOUS LOW FLOW--The minimum instantaneous discharge occurring for the water year or for the designated period.

ANNUAL RUNOFF--Indicates the total quantity of water in runoff for a drainage area for the year. Data reports may use any of the following units of measurement in presenting annual runoff data.

Acre-foot (AC-FT) is the quantity of water required to cover 1 acre to a depth of 1 foot and is equivalent to 43,560 cubic feet or about 326,000 gallons or 1,233 cubic meters.

Cubic feet per second per square mile (CFSM) is the average number of cubic feet of water flowing per second from each square

mile of area drained, assuming the runoff is distributed uniformly in time and area.

Inches (INCHES) indicates the depth to which the drainage area would be covered if all of the runoff for a given time period were uniformly distributed on it.

10 PERCENT EXCEEDS--The discharge that is exceeded by 10 percent of the flow for the designated period.

50 PERCENT EXCEEDS--The discharge that is exceeded by 50 percent of the flow for the designated period.

90 PERCENT EXCEEDS--The discharge that is exceeded by 90 percent of the flow for the designated period.

Data collected at partial-record stations follow the information for continuous-record sites. Data for partial-record discharge stations are presented in two tables. The first is a table of discharge measurements at low-flow partial-record stations, and the second is a table of annual maximum stage and discharge at crest-stage stations. The tables of partial-record stations are followed by a listing of discharge measurements made at sites other than continuous-record or partial-record stations. These measurements generally are 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.

Identifying Estimated Daily Discharge

Estimated daily-discharge values published in the water-discharge tables of annual State data reports are identified either by flagging individual daily values with the letter symbol “e” and printing a table footnote, "e Estimated," or by listing the dates of the estimated record in the REMARKS paragraph of the station description.

Accuracy of the Field Data and Completed Results

The accuracy of streamflow records depends primarily on: (1) The stability of the stage-discharge relation or, if the control is unstable, the frequency of discharge measurements; and (2) the accuracy of measurements of stage, measurements of discharge, and interpretation of records.

The accuracy attributed to the records is indicated under REMARKS. "Excellent" means that about 95 percent of the daily discharges are within 5 percent of the true; "good," within 10 percent; and "fair," within 15 percent. Records that do not meet the criteria mentioned are rated "poor." Different accuracies may be attributed to different parts of a given record.

Daily-mean discharges in this report are given to the nearest hundredth of a cubic foot per second for values less than 1 ft^3/s; to the nearest tenth between 1.0 and 10 ft^3/s; to whole numbers between 10 and 1,000 ft^3/s; and to 3 significant figures for more than 1,000 ft^3/s. The number of significant figures used is based solely on the magnitude of the discharge value. The same rounding rules apply to discharges listed for partial-record stations and miscellaneous sites.

Discharge at many stations, as indicated by the monthly mean, may not reflect natural runoff due to the effects of diversion, consumption, regulation by storage, increase or decrease in evaporation due to artificial causes, or to other factors. For such stations, figures of cubic feet per second per square mile and of runoff, in inches, are not published unless satisfactory adjustments can be made for diversions, for changes in contents of reservoirs, or for other changes incident to use and control. Evaporation from a reservoir is not included in the adjustments for changes in reservoir contents, unless it is so stated. Even at those stations where adjustments are made, large errors in computed runoff may occur if adjustments or losses are large in comparison with the observed discharge.

Other Records Available

Information of a more detailed nature than that published for most of the gaging stations, such as observations of water temperatures, discharge measurements, gage-height records, and rating tables, is on file in the Minnesota District office. Also, most gaging-station records are available in computer-usable form and many statistical analyses have been made.

Information on the availability of unpublished data or statistical analyses may be obtained from the district office.

The National Water-Data Exchange, Water Resources Division, U.S. Geological Survey, National Center, Reston, VA 22092, maintains an index of all discharge-measurement sites in the State as well as an index of records of discharge collected by other agencies but not published by the USGS. Information on records available at specific sites can be obtained upon request.

EXPLANATION OF PRECIPITATION RECORDS

Data Collection and Computation

Rainfall data generally are collected using electronic data loggers that measure the rainfall in 0.01-inch increments every 15 minutes using either a tipping-bucket rain gage or a collection well gage. Twenty-four hour rainfall totals are tabulated and presented. A 24-hour period extends from just past midnight of the previous day to midnight of the current day. Snowfall-affected data can result during cold weather when snow fills the rain-gage funnel and then melts as temperatures rise. Snowfall-affected data are subject to errors. Missing values are indicated by this symbol “---” in the table.

Data Presentation

Precipitation records collected at surface-water gaging stations are identified with the same station number and name as the stream-gaging station. Where a surface-water daily-record station is not available, the precipitation record is published with its own name and latitude-longitude identification number.

Information pertinent to the history of a precipitation station is provided in descriptive headings preceding the tabular data. These descriptive headings give details regarding location, period of record, and general remarks.

The following information is provided with each precipitation station. Comments that follow clarify information presented under the various headings of the station description.

LOCATION.—See Data Presentation in the EXPLANATION OF STAGE- AND WATER-DISCHARGE RECORDS section of this report (same comments apply).

PERIOD OF RECORD.—See Data Presentation in the EXPLANATION OF STAGE- AND WATER-DISCHARGE RECORDS section of this report (same comments apply).

INSTRUMENTATION.—Information on the type of rainfall collection system is given.

REMARKS.—Remarks provide added information pertinent to the collection, analysis, or computation of records.

RECORDS OF SURFACE-WATER QUALITY

Records of surface-water quality ordinarily are obtained at or near stream-gaging stations because interpretation of records of surface-water quality nearly always requires corresponding discharge data. Records of surface-water quality in this report may involve a variety of types of data and measurement frequencies.

Classification of Records

Water-quality data for surface-water sites are grouped into one of three classifications. A **continuing record station** is a site where data are collected on a regularly scheduled basis. Frequency may be one or more times daily, weekly, monthly, or quarterly. A **partial-record station** is a site where limited water-quality data are collected systematically over a period of years. Frequency of sampling is usually less than quarterly. A **miscellaneous** sampling site is a location other than a continuing or partial-record station, where random samples are collected to give better areal coverage to define water-quality conditions in the river basin.

A distinction needs to be made between "continuing records," as used in this report, and "continuous recordings," which refers to a continuous graph or a series of discrete values punched at short intervals on a paper tape. Some records of water quality, such as temperature and specific conductance, may be obtained through continuous recordings; however, PERIOD OF RECORD.—See Data Presentation in the EXPLANATION OF STAGE- AND WATER-DISCHARGE RECORDS section of this report (same comments apply).

INSTRUMENTATION.—Information on the type of rainfall collection system is given.

REMARKS.—Remarks provide added information pertinent to the collection, analysis, or computation of records.

EXPLANATION OF WATER-QUALITY RECORDS

Collection and Examination of Data

Surface-water samples for analysis usually are collected at or near stream-gaging stations. The quality-of-water records are given immediately following the discharge records at these stations.

The descriptive heading for water-quality records gives the period of record for all water-quality data; the period of daily record for parameters that are measured on a daily basis (specific conductance, water temperature, sediment discharge, and so forth); extremes for the current year; and general remarks.

For ground-water records, no descriptive statements are given; however, the well number, depth of well, sampling date, or other pertinent data are given in the table containing the chemical analyses of the ground water.

Water Analysis

Most of the methods used for collecting and analyzing water samples are described in the TWRIs, which may be accessed from *http://water.usgs.gov/pubs/twri/*. Also, detailed information on collecting, treating, and shipping samples may be obtained from the USGS Minnesota District office.

One sample can define adequately the water quality at a given time if the mixture of solutes throughout the stream cross section is homogeneous. However, the concentration of solutes at different locations in the cross section may vary widely with different rates of water discharge, depending on the source of material and the turbulence and mixing of the stream. Some streams must be sampled at several verticals to obtain a representative sample needed for an accurate mean concentration and for use in calculating load.

Chemical-quality data published in this report are considered to be the most representative values available for the stations listed. The values reported represent water-quality conditions at the time of sampling as much as possible, consistent with available sampling techniques and methods of analysis. In the rare case where an apparent inconsistency exists between a reported pH value and the relative abundance of carbon dioxide species (carbonate and bicarbonate), the inconsistency is the result of a slight uptake of carbon dioxide from the air by the sample between measurement of pH in the field and determination of carbonate and bicarbonate in the laboratory.

For chemical-quality stations equipped with digital monitors, the records consist of daily maximum and minimum values (and sometimes mean or median values) for each constituent measured, and are based on 15-minute or 1-hour intervals of recorded data beginning at 0000 hours and ending at 2400 hours for the day of record.

Accuracy of the Records

One of four accuracy classifications is applied for measured physical properties at continuous-record stations on a scale ranging from poor to excellent. The accuracy rating is based on data values recorded before any shifts or corrections are made. Additional consideration also is given to the amount of publishable record and to the amount of data that have been corrected or shifted.

Arrangement of Records

Water-quality records collected at a surface-water daily record station are published immediately following that record, regardless of the frequency of sample collection. Station number and name are the same for both records. Where a surface-water daily-record station is not available or where the water quality differs significantly from that at the nearby surface-water station, the continuing water-quality record is published with its own station number and name in the regular downstream-order sequence. Water-quality data for partial-record stations and for miscellaneous sampling sites appear in separate tables following the table of discharge measurements at miscellaneous sites.

On-Site Measurements and Sample Collection

Water-quality data must be representative of the in situ quality of water. To assure this, certain measurements, such as water temperature, pH, and dissolved oxygen, need to be made onsite when the samples are taken. To assure that measurements made in the laboratory also represent the in situ water, carefully prescribed procedures need to be followed in collecting the samples, in treating the samples to prevent changes in quality pending analysis, and in shipping the samples to the laboratory. Procedures for on-site measurements and for collecting, treating, and shipping samples are given in publications on"Techniques of Water-Resource Investigations," book 1, chap. D2; book 3, chap. C2; book 5 chaps. A1, A3, and A4; book 9, chap. A1-A9. Most of the methods used for collecting and analyzing water samples are described in the TWRIs, which may be accessed from *http://water.usgs.gov/pubs/twri/*. Also, detailed information on collecting,

Rating classifications for continuous water-quality records

[≤, less than or equal to; ±, plus or minus value shown; °C, degree Celsius; >, greater than;%, percent; mg/L, milligram per liter; pHunit, standard pH unit]

Measured physical property	Rating			
	Excellent	Good	Fair	Poor
Water temperature	≤ ±0.2 °C	> ±0.2 to 0.5 °C	> ±0.5 to 0.8 °C	> ±0.8 °C
Specific conductance	≤ ±3%	> ±3 to 10%	> ±10 to 15%	> ±15%
Dissolved oxygen	≤ ±0.3 mg/L	> ±0.3 to 0.5 mg/L	> ±0.5 to 0.8 mg/L	> ±0.8 mg/L
pH	≤ ±0.2 unit	> ±0.2 to 0.5 unit	> ±0.5 to 0.8 unit	> ±0.8 unit
Turbidity	≤ ±5%	> ±5 to 10%	> ±10 to 15%	> ±15%

treating, and shipping samples may be obtained from the USGS Minnesota District office.

One sample can define adequately the water quality at a given time if the mixture of solutes throughout the stream cross section is homogeneous. However, the concentration of solutes at different locations in the cross section may vary widely with different rates of water discharge, depending on the source of material and the turbulence and mixing of the stream. Some streams must be sampled through several vertical sections to obtain a representative sample needed for an accurate mean concentration and for use in calculating load. All samples obtained for the National Stream Quality Accounting Network (see definitions) are obtained from at least several verticals. Whether samples are obtained from the centroid of flow or from several verticals depends on flow conditions and other factors which must be evaluated by the collector.

Chemical-quality data published in this report are considered to be the most representative values available for the stations listed. The values reported represent water-quality conditions at the time of sampling as much as possible, consistent with available sampling techniques and methods of analysis. In the rare case where an apparent inconsistency exists between a reported pH value and the relative abundance of carbon dioxide species (carbonate and bicarbonate), the inconsistency is the result of a slight uptake of carbon dioxide from the air by the sample between measurement of pH in the field and determination of carbonate and bicarbonate in the laboratory.

For chemical-quality stations equipped with digital monitors, the records consist of daily maximum, minimum, and mean values for each constituent measured and are based upon hourly punches beginning at 0100 hours and ending at 2400 hours for the day of record. More detailed records (hourly values) may be obtained from the USGS Minnesota District office.

Water Temperature

Water temperatures are measured at most of the water-quality stations. In addition, water temperatures are taken at time of discharge measurements for water-discharge stations. For stations where water temperatures are taken manually once or twice daily, the water temperatures are taken at about the same time each day. Large streams have a small diurnal temperature change; shallow streams may have a daily range of several degrees and may follow closely the changes in air temperature. Some streams may be affected by waste-heat discharges.

At stations where recording instruments are used, either mean temperatures or maximum and minimum temperatures for each day are published. Water temperatures measured at the time of water-discharge measurements are on file in the Minnesota District office.

Sediment

Suspended-sediment concentrations are determined from samples collected by using depth-integrating samplers. Samples usually are obtained at several verticals in the cross section, or a single sample may be obtained at a fixed point and a coefficient applied to determine the mean concentration in the cross sections.

During periods of rapidly changing flow or rapidly changing concentration, samples may have been collected more frequently (twice daily or, in some instances, hourly). The published sediment discharges for days of rapidly changing flow or concentration were computed by the subdivided-day method (time-discharge weighted average). Therefore, for those days when the published sediment discharge value differs from the value computed as the product of discharge times mean concentration times 0.0027, the reader can assume that the sediment discharge for that day was computed by the subdivided-day method. For periods when no samples were collected, daily loads of suspended sediment were estimated on the basis of water discharge, sediment concentrations observed immediately before and after the periods, and suspended-sediment loads for other periods of similar discharge.

At other stations, suspended-sediment samples were collected periodically at many verticals in the stream cross section. Although data collected periodically may represent conditions only at the time of observations, such data are useful in establishing seasonal relations between quality and streamflow and in predicting long-term sediment-discharge characteristics of the stream.

In addition to the records of suspended-sediment discharge, records of the periodic measurements of the particle-size distribution of the suspended sediment and bed material are included for some stations.

Laboratory Measurements

Samples for indicator bacteria and specific conductance are analyzed locally. All other samples are analyzed in the U.S. Geological Survey laboratories in Arvada, Colorado; Doraville, Georgia; or Iowa City, Iowa. Methods used in analyzing sediment samples and computing sediment records are given in U.S. Geological Survey Techniques of Water Resources Investigations, book 5, chap. C1. Methods used by the USGS laboratories are given in

U.S. Geological Survey Techniques of Water Resources Investigation, book 1, chap. D2; book 3, chap. C2; book 5, chaps. A1, A3, and A4.

Data Presentation

For continuous-record stations, information pertinent to the history of station operation is provided in descriptive headings preceding the tabular data. These descriptive headings give details regarding location, drainage area, period of record, type of data available, instrumentation, general remarks, cooperation, and extremes for parameters currently measured daily. Tables of chemical, physical, biological, radiochemical data, and so forth, obtained at a frequency less than daily are presented first. Tables of daily values of specific conductance, pH, water temperature, dissolved, and suspended sediment then follow in sequence.

In the descriptive headings, if the location is identical to that of the discharge gaging station, neither the LOCATION nor the DRAINAGE AREA statements are repeated. The following information, when appropriate, is provided with each continuous-record station. Comments that follow clarify information presented under the various headings of the station description.

LOCATION--See "Data Presentation" under "Records of Stage and Water Discharge;" same comments apply.

DRAINAGE AREA--See "Data Presentation" under "Records of Stage and Water Discharge;" same comments apply.

PERIOD OF RECORD--This indicates the periods for which there are published water-quality records for the station. The periods are shown separately for records of parameters measured daily or continuously and those measured less than daily. For those measured daily or continuously, periods of record are given for the parameters individually.

INSTRUMENTATION--Information on instrumentation is given only if a water-quality monitor, temperature recorder, sediment pumping sampler, or other sampling device is in operation at a station.

REMARKS--Remarks provide added information pertinent to the collection, analysis, or computation of the records.

COOPERATION--Records provided by a cooperating organization or obtained for the USGS by a cooperating organization are identified here.

EXTREMES--Maximums and minimums are given only for parameters measured daily or more frequently. None are given for parameters measured weekly or less frequently, because the true maximums or minimums may not have been sampled. Extremes, when given, are provided for both the period of record and for the current water year.

REVISIONS--If errors in published water-quality records are discovered after publication, appropriate updates are made to the Water-Quality File in the U.S. Geological Survey's computerized data system, WATSTORE, and subsequently by monthly transfer of update transactions to the U.S. Environmental Protection Agency's STORET system. Because the usual volume of updates makes it impractical to document individual changes in the State data-report series or elsewhere, potential users of USGS water-quality data are encouraged to obtain all required data from the appropriate computer file to ensure the most recent updates.

The surface-water-quality records for partial-record stations and miscellaneous sampling sites are published in separate tables following the table of discharge measurements at miscellaneous sites. No descriptive statements are given for these records. Each station is published with its own station number and name in the regular downstream-order sequence.

Remark Codes

The following remark codes may appear with the water-quality data in this report:

PRINTED OUTPUT	REMARK
e, E	Estimated value
>	Actual value is known to be greater than the value shown
<	Actual value is known to be less than the value shown
K	Results based on colony count outside the acceptance range (non-ideal colony count)
L	Biological organisms count less than 0.5 percent (organisms may be observed rather than counted)
D	Biological organism count equal to or greater than 15 percent (dominant)
M	Presence of material verified, but not quantified.
V	Analyte was detected in both the environmental sample and the associated blanks
&	Biological organism estimated as dominant.

Water Quality-Control Data

The USGS National Water-Quality Laboratory collects quality-control data on a continuing basis to evaluate selected analytical methods to determine long-term method detection levels (LT-MDLs) and laboratory reporting levels (LRLs). These values are re-evaluated each year on the basis of the most recent quality-control data and, consequently, may change from year to year.

This reporting procedure limits the occurrence of false positive error. Falsely reporting a concentration greater than the LT-MDL for a sample in which the analyte is not present is 1 percent or less. Application of the LRL limits the occurrence of false negative error. The chance of falsely reporting a non-detection for a sample in which the analyte is present at a concentration equal to or greater than the LRL is 1 percent or less.

Accordingly, concentrations are reported as less than LRL for samples in which the analyte was either not detected or did not pass identification. Analytes detected at concentrations between the LT-MDL and the LRL and that pass identification criteria are estimated. Estimated concentrations will be noted with a remark code of “E.” These data should be used with the understanding that their uncertainty is greater than that of data reported without the E remark code.

Data generated from quality-control (QC) samples are a requisite for evaluating the quality of the sampling and processing techniques as well as data from the actual samples themselves. Without QC data, environmental sample data cannot be adequately interpreted because the errors associated with the sample data are unknown. The various types of QC samples collected by this district are described in the following section. Procedures have been established for the storage of water-quality-control data within the USGS. These procedures allow for storage of all derived QC data and are identified so that they can be related to corresponding environmental samples.

Blank Samples

Blank samples are collected and analyzed to ensure that environmental samples have not been contaminated by the overall data-collection process. The blank solution used to develop specific types of blank samples is a solution that is free of the analytes of interest. Any measured value signal in a blank sample for an analyte (a specific component measured in a chemical analysis) that was absent in the blank solution is believed to be due to contamination. There are many types of blank samples possible, each designed to segregate a different part of the overall data-collection process. The types of blank samples collected in this district are:

FIELD BLANK--a blank solution that is subjected to all aspects of sample collection, field processing preservation, transportation, and laboratory handling as an environmental sample.

TRIP BLANK--a blank solution that is put in the same type of bottle used for an environmental sample and kept with the set of sample bottles before and after sample collection.

EQUIPMENT BLANK--a blank solution that is processed through all equipment used for collecting and processing an environmental sample (similar to a field blank, but normally done in the more controlled conditions of the office).

SAMPLER BLANK--a blank solution that is poured or pumped through the same field sampler used for collecting an environmental sample.

FILTER BLANK--a blank solution that is filtered in the same manner and through the same filter apparatus used for an environmental sample.

SPLITTER BLANK--a blank solution that is mixed and separated using a field splitter in the same manner and through the same apparatus used for an environmental sample.

PRESERVATION BLANK--a blank solution that is treated with the sampler preservatives used for an environmental sample.

Reference Samples

Reference material is a solution or material prepared by a laboratory whose composition is certified for one or more properties so that it can be used to assess a measurement method. Samples of reference material are submitted for analysis to ensure that an analytical method is accurate for the known properties of the reference material. Generally, the selected reference material properties are similar to the environmental sample properties.

Replicate Samples

Replicate samples are a set of environmental samples collected in a manner such that the samples are thought to be essentially identical in composition. Replicate is the general case for which a duplicate is the special case consisting of two samples. Replicate samples are collected and analyzed to establish the amount of variability in the data contributed by some part of the collection and analytical process. There are many types of replicate samples possible, each of which may yield slightly different results in a dynamic hydrologic setting, such as a flowing stream. The types of replicate samples collected in this district are:

CONCURRENT SAMPLES—A type of replicate sample in which the samples are collected simultaneously with two or more samplers or by using one sampler and alternating the collection of samples into two or more compositing containers.

SEQUENTIAL SAMPLE--a type of replicate sample in which the samples are collected one after the other, typically over a short time.

SPLIT SAMPLE--a type of replicate sample in which a sample is split into subsamples contemporaneous in time and space.

Spike Samples

Spike samples are samples to which known quantities of a solution with one or more well-established analyte concentrations have been added. These samples are analyzed to determine the extent of matrix interference or degradation on the analyte concentration during sample processing and analysis.

EXPLANATION OF GROUND-WATER-LEVEL RECORDS

Generally, only ground-water-level data from selected wells with continuous recorders from a basic network of observation wells are published in this report. This basic network contains observation wells located so that the most significant data are obtained from the fewest wells in the most important aquifers.

Site Identification Numbers

Each well is identified by means of (1) a 15-digit number that is based on latitude and longitude and (2) a local number that is produced for local needs.

Data Collection and Computation

Measurements are made in many types of wells, under varying conditions of access and at different temperatures; hence, neither the method of measurement nor the equipment can be standardized. At each observation well, however, the equipment and techniques used are those that will ensure that measurements at each well are consistent.

Most methods for collecting and analyzing water samples are described in the TWRIs referred to in the On-site Measurements and Sample Collection and the Laboratory Measurements sections in this report. In addition, TWRI book 1, chapter D2, describes guidelines for the collection and field analysis of ground-water samples for selected unstable constituents. Procedures for on-site measurements and for collecting, treating, and shipping samples are given in TWRIs book 1, chapter D2; book 3, chapters A1, A3, and A4; and book 9, chapters A1 through A9. The values in this report represent water-quality conditions at the time of sampling, as much as possible, and that are consistent with available sampling techniques and methods of analysis. These methods are consistent with ASTM standards and generally follow ISO standards. Trained personnel collected all samples. The wells sampled were pumped long enough to ensure that the water collected came directly from the aquifer and had not stood for a long time in the well casing where it would have been exposed to the atmosphere and to the material, possibly metal, comprising the casings.

Water-level measurements in this report are given in feet with reference to land-surface datum (lsd). Land-surface datum is a datum plane that is approximately at land surface at each well. If known, the elevation of the land-surface datum above sea level is given in the well description. The height of the measuring point (MP) above or below land-surface datum is given in each well description. Water levels in wells equipped with recording gages are reported for every fifth day and the end of each month (EOM).

Water levels are reported to as many significant figures as can be justified by the local conditions. For example, in a measurement of a depth of water of several hundred feet, the error in determining the absolute value of

the total depth to water may be a few tenths of a foot, whereas the error in determining the net change of water level between successive measurements may be only a hundredth or a few hundredths of a foot. For lesser depths to water the accuracy is greater. Accordingly, most measurements are reported to a hundredth of a foot, but some are given only to a tenth of a foot or a larger unit.

Data Presentation

Water-level data are presented in alphabetical order by county. The primary identification number for a given well is the 15-digit site identification number that appears in the upper left corner of the table. The secondary identification number is the local or county well number. Well locations are shown in figure 8; each well is identified on the map by its local well or county well number.

Each well record consists of three parts: the well description, the data table of water levels observed during the water year, and, for most wells, a hydrograph following the data table. Well descriptions are presented in the headings preceding the tabular data.

The following comments clarify information presented in these various headings.

LOCATION.—This paragraph follows the well-identification number and reports the hydrologic-unit number and a geographic point of reference. Latitudes and longitudes used in this report are reported as North American Datum of 1927 unless otherwise specified.

AQUIFER.—This entry designates by name and geologic age the aquifer that the well taps.

WELL CHARACTERISTICS.—This entry describes the well in terms of depth, casing diameter and depth or screened interval, method of construction, use, and changes since construction.

INSTRUMENTATION.—This paragraph provides information on both the frequency of measurement and the collection method used, allowing the user to better evaluate the reported water-level extremes by knowing whether they are based on continuous, monthly, or some other frequency of measurement.

DATUM.—This entry describes both the measuring point and the land-surface elevation at the well. The altitude of the land-surface datum is described in feet above the altitude datum; it is reported with a precision depending on the method of determination. The measuring point is described physically (such as top of casing, top of instrument shelf, and so forth), and in relation to land surface (such as 1.3 ft above land-surface datum). The elevation of the land-surface datum is described in feet above National Geodetic Vertical Datum of 1929 (NGVD 29); it is reported with a precision depending on the method of determination.

REMARKS.—This entry describes factors that may influence the water level in a well or the measurement of the water level, when various methods of measurement were begun, and the network (climatic, terrane, local, or areal effects) or the special project to which the well belongs.

PERIOD OF RECORD.—This entry indicates the time period for which records are published for the well, the month and year at the start of publication of water-level records by the USGS, and the words “to current year” if the records are to be continued into the following year. Time periods for which water-level records are available, but are not published by the USGS, may be noted.

EXTREMES FOR PERIOD OF RECORD.—This entry contains the highest and lowest instantaneously recorded or measured water levels of the period of published record, with respect to land-surface datum or sea level, and the dates of occurrence.

Water-Level Tables

A table of water levels follows the well description for each well. Water-level measurements in this report are given in feet with reference to either sea level or land-surface datum (lsd). Missing records are indicated by dashes in place of the water-level value.

For wells not equipped with recorders, water-level measurements were obtained periodically by steel or electric tape. Tables of periodic water-level measurements in these wells show the date of measurement and the measured water-level value.

Hydrographs

Hydrographs are a graphic display of water-level fluctuations over a period of time. In this report, current water year and, when appropriate, period-of-record hydrographs are shown. Hydrographs that display periodic water-level measurements show points that may be connected with a dashed line from one measurement to the next. Hydrographs that display recorder data show a solid line representing the mean water level recorded for each day. Missing data are indicated by a blank space or break in a hydrograph. Missing data may occur as a result of recorder malfunctions, battery failures, or mechanical problems related to the response of the recorder’s float mechanism to water-level fluctuations in a well.

GROUND-WATER-QUALITY DATA

Data Collection and Computation

The ground-water-quality data in this report were obtained as a part of special studies in specific areas. Consequently, a number of chemical analyses are presented for some wells within a county, but not for others. As a result, the records for this year, by themselves, do not provide a balanced view of ground-water quality Statewide.

Most methods for collecting and analyzing water samples are described in the TWRIs. Procedures for on-site measurements and for collecting, treating, and shipping samples are given in TWRI, book 1, chapter D2; book 3, chapter C2; and book 5, chapters A1, A3, and A4. Also, detailed information on collecting, treating, and shipping samples may be obtained from the USGS District office (see address shown on back of title page in this report).

Laboratory Measurements

Analysis for sulfide and measurement of alkalinity, pH, water temperature, specific conductance, and dissolved oxygen are performed on site. All other sample analyses are performed at the USGS laboratory in Lakewood, Colorado, unless otherwise noted. Methods used by the USGS laboratory are given in TWRI, book 1, chapter D2; book 3, chapter C2; and book 5, chapters A1, A3, and A4.

ACCESS TO USGS WATER DATA

The USGS provides near real-time stage and discharge data for many of the gaging stations equipped with the necessary telemetry and historic daily-mean and peak-flow discharge data for most current or discontinued gaging stations through the World Wide Web (WWW). These data may be accessed from http://water.usgs.gov.

Water-quality data and ground-water data also are available through the World Wide Web. In addition, data can be provided in various machine-readable formats on various media. Information about the availability of specific types of data or products, and user charges, can be obtained locally from each Water Discipline District Office (See address that is shown on the back of the title page of this report.)

RECORDS OF GROUND-WATER QUALITY

Records of ground-water quality in this report differ from other types of records in that for most sampling sites they consist of only one set of measurements for the water year. The quality of ground water ordinarily changes only slowly; therefore, for most general purposes one annual sampling, or only a few samples taken at infrequent intervals during the year, is sufficient. Frequent measurement of the same constituents is not necessary unless one is concerned with a particular problem, such as monitoring for trends in nitrate concentration. In the special cases where the quality of ground water may change more rapidly, more frequent measurements are made to identify the nature of the changes.

Data Collection and Computation

The records of ground-water quality in this report were obtained mostly as a part of special studies in specific areas. Consequently, a number of chemical analyses are presented for some counties, but none are presented for others. As a result, the records for this year, by themselves, do not provide a balanced view of ground-water quality statewide. Such a view can be attained only by considering records for this year in context with similar records obtained for these and other counties in earlier years.

Most methods for collecting and analyzing water samples are described in the U.S. Geological Survey Techniques of Water-Resources Investigation manuals. The values reported in this report represent water-quality conditions at the time of sampling as much as possible, consistent with available sampling techniques and methods of analysis. All samples were obtained by trained personnel. The wells sampled were pumped long enough to assure that the water collected came directly from the aquifer and had not stood for a long time in the well casing where it would have been exposed to the atmosphere and to the material, possibly metal, comprising the casings.

Data Presentation

The records of ground-water quality are published in the section entitled QUALITY OF GROUND WATER. Data for quality of ground water are listed alphabetically, by county, and are identified by well number. The prime identification number for wells sampled is the 15-digit number derived from the latitude-longitude locations. No descriptive statements are given for ground-water-quality records; however, the well number, depth of well, date of sampling, and other pertinent data are given in the table containing the chemical analyses of the ground water. The REMARK codes listed for surface-water-quality records also are applicable to ground-water-quality records.

DEFINITION OF TERMS

Specialized technical terms related to streamflow, water-quality, and other hydrologic data, as used in this report, are defined below. Terms such as algae, water level, and precipitation are used in their common everyday meanings, definitions of which are given in standard dictionaries. Not all terms defined in this alphabetical list apply to every State. See also table for converting English units to International System (SI) Units on the inside of the back cover. Other glossaries that also define water-related terms are accessible from http://water.usgs.gov/glossaries.html.

Acid neutralizing capacity (ANC) is the equivalent sum of all bases or base-producing materials, solutes plus particulates, in an aqueous system that can be titrated with acid to an equivalence point. This term designates titration of an “unfiltered” sample (formerly reported as alkalinity).

Acre-foot (AC-FT, acre-ft) is the quantity of water required to cover 1 acre to a depth of 1 foot and is equivalent to 43,560 cubic feet, 325,851 gallons, or 1,233 cubic meters.(See also "Annual runoff")

Adjusted discharge is discharge data that have been mathematically adjusted (for example, to remove the effects of a daily tide cycle or reservoir storage).

Algae are mostly aquatic single-celled, colonial, or multicelled plants containing chlorophyll and lacking roots, stems, and leaves.

Alkalinity is the capacity of solutes in an aqueous system to neutralize acid. This term designates titration of a “filtered” sample.

Annual runoff is the total quantity of water in runoff for a drainage area for the year. Data reports may use any of the following units of measurement in presenting annual runoff data:

Acre-foot (AC-FT, acre-ft) is the quantity of water required to cover 1 acre to a depth of 1 foot and is equal to 43,560 cubic feet, 325,851 gallons, or 1,233 cubic meters.

Cubic foot per second per square mile [CFSM, $(ft^3/s)/mi^2$] is the average number of cubic feet of water flowing per second from each square mile of area drained, assuming the runoff is distributed uniformly in time and area.

Inch (IN., in.) as used in this report, refers to the depth to which the drainage area would be covered with water if all of the runoff for a given time period were uniformly distributed on it.

Annual 7-day minimum is the lowest mean value for any 7-consecutive-day period in a year. Annual 7-day minimum values are reported herein for the calendar year and the water year (October 1 through September 30). Most low-flow frequency analyses use a climatic year (April 1-March 31), which tends to prevent the low-flow period from being artificially split between adjacent years. The date shown in the summary statistics table is the initial date of the 7-day period. (This value should not be confused with the 7-day, 10-year low-flow statistic.)

Ash mass is the mass or amount of residue present after the residue from a dry-mass determination has been ashed in a muffle furnace at a temperature of 500 °C for 1 hour. Ash mass of zooplankton and phytoplankton is expressed in grams per cubic meter (g/m^3), and periphyton and benthic organisms in grams per square meter (g/m^2). (See also “Biomass” and “Dry mass”)

Aspect is the direction toward which a slope faces with respect to the compass.

Bacteria are microscopic unicellular organisms, typically spherical, rod like, or spiral and threadlike in shape, often clumped into colonies. Some bacteria cause disease, while others perform an essential role in nature in the recycling of materials; for example, by decomposing organic matter into a form available for reuse by plants.

Total coliform bacteria are a particular group of bacteria that are used as indicators of possible sewage pollution. This group

includes coliforms that inhabit the intestine of warm-blooded animals and those that inhabit soils. They are characterized as aerobic or facultative anaerobic, gram-negative, nonspore-forming, rod-shaped bacteria that ferment lactose with gas formation within 48 hours at 35 °C. In the laboratory, these bacteria are defined as all the organisms that produce colonies with a golden-green metallic sheen within 24 hours when incubated at 35 °C plus or minus 1.0 °C on M-Endo medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Fecal coliform bacteria are bacteria that are present in the intestine or feces of warm-blooded animals. They are often used as indicators of the sanitary quality of the water. In the laboratory, they are defined as all organisms that produce blue colonies within 24 hours when incubated at 44.5 °C plus or minus 0.2 °C on M-FC medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Fecal streptococcal bacteria are bacteria found in the intestine of warm-blooded animals. Their presence in water is considered to verify fecal pollution. They are characterized as gram-positive, cocci bacteria that are capable of growth in brain-heart infusion broth. In the laboratory, they are defined as all the organisms that produce red or pink colonies within 48 hours at 35 °C plus or minus 1.0 °C on KF-streptococcus medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Escherichia coli (E. coli) are bacteria present in the intestine and feces of warm-blooded animals. *E. coli* are a member species of the fecal coliform group of indicator bacteria. In the laboratory, they are defined as those bacteria that produce yellow or yellow-brown colonies on a filter pad saturated with urea substrate broth after primary culturing for 22 to 24 hours at 44.5 °C on mTEC medium. Their concentrations are expressed as number of colonies per 100 mL of sample.

Bankfull stage, as used in this report, is the stage at which a stream first overflows its natural banks formed by floods with 1- to 3-year recurrence intervals.

Base discharge (for peak discharge) is a discharge value, determined for selected stations, above which peak discharge data are published. The base discharge at each station is selected so that an average of about three peak flows per year will be published. (See also “Peak flow”)

Base flow is flow in a channel sustained by ground-water discharge in the absence of direct runoff.

Bed material is the sediment mixture of which a streambed, lake, pond, reservoir, or estuary bottom is composed.(See also "Bedload" and "Sediment")

Bottom material: See “Bed material.”

Canadian Geodetic Vertical Datum 1928 is a geodetic datum derived from a general adjustment of Canada’s first order level network in 1928.

Cells/volume refers to the number of cells of any organism that is counted by using a microscope and grid or counting cell. Many planktonic organisms are multicelled and are counted according to the number of contained cells per sample volume, and generally are reported as cells or units per milliliter (mL) or liter (L).

Cells volume (biovolume) determination is one of several common methods used to estimate biomass of algae in aquatic systems. Cell members of algae are frequently used in aquatic surveys as an indicator of algal production. However, cell numbers alone cannot represent true biomass because of considerable cell-size variation among the algal species. Cell volume (μm^3) is determined by obtaining critical cell measurements on cell dimensions (for example, length, width, height, or radius) for 20 to 50 cells of each important species to obtain an average biovolume per cell. Cells are categorized according to the correspondence of their cellular shape to the nearest geometric solid or combinations of simple solids (for example, spheres, cones, or cylinders). Representative formula used to compute biovolume are as follows:

sphere $4/3\ \pi^3$ cone $1/3\ \pi^3 h$ cylinder $\pi^3 h$.

From cell volume, total algal biomass expressed as biovolume (μm^3/mL) is thus determined by multiplying the number of cells of a given species by its average cell volume and then summing these volumes over all species.

Cfs-day (See “Cubic foot per second-day”)

Chemical oxygen demand (COD) is a measure of the chemically oxidizable material in the water and furnishes an approximation of the amount of organic and reducing material present. The determined value may correlate with BOD or with carbonaceous organic pollution from sewage or industrial wastes.(See also "Biochemical oxygen demand" (BOD))

Chlorophyll refers to the green pigments of plants. Chlorophyll *a* and *b* are the two most common green pigments in plants.

Colloid is any substance with particles in such a fine state of subdivision dispersed in a medium (for example, water) that they do not settle out; but not in so fine a state of subdivision that they can be said to be truly dissolved.

Confined aquifer is a term used to describe an aquifer containing water between two relatively impermeable boundaries. The water level in a well tapping a confined aquifer stands above the top of the confined aquifer and can be higher or lower than the water table that may be present in the material above it. In some cases the water level can rise above the ground surface, yielding a flowing well.

Contents is the volume of water in a reservoir or lake. Unless otherwise indicated, volume is computed on the basis of a level pool and does not include bank storage.

Continuous-record station is a site that meets either of the following conditions:

Stage or streamflow are recorded at some interval on a continuous basis. The recording interval is usually 15 minutes, but may be less or more frequent.

Water-quality, sediment, or other hydrologic measurements are recorded at least daily.

Control designates a feature in the channel downstream from a gaging station that physically influences the water-surface elevation and thereby determines the stage-discharge relation at the station. This feature may be a constriction of the channel, a bedrock outcrop, a gravel bar, an artificial structure, or a uniform cross section over a long reach of the channel.

Control structure as used in this report is a structure on a stream or canal that is used to regulate the flow or stage of the stream or to prevent the intrusion of saltwater.

Cubic foot per second (CFS, ft^3/s) is the rate of discharge representing a volume of 1 cubic foot passing a given point in 1 second. It is equivalent to

approximately 7.48 gallons per second, 449 gallons per minute, or 0.02832 cubic meters per second.The daily mean discharges report in the daily value tables numerically are equal to the daily volumes in cfs-days, and the totals also represent volumes in cfs-days.

Cubic foot per second-day (CFS-DAY, Cfs-day, [$(ft^3/s)/d$]) is the volume of water represented by a flow of 1 cubic foot per second for 24 hours. It is equivalent to 86,400 cubic feet, 1.9837 acre-feet, 646,317 gallons, or 2,447 cubic meters. The daily mean discharges reported in the daily value data tables numerically equal to the daily volumes in cfs-days, and the totals represent volumes in cfs-days.

Cubic foot per second per square mile [CFSM, $(ft^3/s)/mi^2$] is the average number of cubic feet of water flowing per second from each square mile of area drained, assuming the runoff is distributed uniformly in time and area. (See also "Annual runoff")

Daily mean suspended-sediment concentration is the time-weighted mean concentration of suspended sediment passing a stream cross section during a 24-hour day. (See also "Sediment" and "Suspended-sediment concentration")

Daily record is a summary of streamflow, sediment, or water-quality values computed from data collected with sufficient frequency to obtain reliable estimates of daily mean values.

Daily record station is a site for which daily records of streamflow, sediment, or water-quality values are computed.

Data collection platform (DCP) is an electronic instrument that collects, processes, and stores data from various sensors, and transmits the data by satellite data relay, line-of-sight radio, and/or landline telemetry.

Data logger is a microprocessor-based data acquisition system designed specifically to acquire, process, and store data. Data usually are downloaded from onsite data loggers for entry into office data systems.

Datum is a surface or point relative to which measurements of height and/or horizontal position are reported. A vertical datum is a horizontal surface used as the zero point for measurements of gage height, stage, or elevation; a horizontal datum is a reference for positions given in terms of latitude-longitude, State Plane coordinates, or Universal Transverse Mercator (UTM) coordinates. (See also "Gage datum," "Land-surface datum," "National Geodetic Vertical Datum of 1929," and "North American Vertical Datum of 1988")

Discharge, or **flow**, is the volume of water (or more broadly, volume of fluid including solid- and dissolved-phase material), that passes a given point in a given period of time.

Annual 7-day minimum is the lowest mean discharge for 7 consecutive days in a year. Note that most low-flow frequency analyses of annual 7-day minimum flows use a climatic year (April 1-March 31). The date shown in the summary statistics table is the initial date of the 7-day period. (This value should not be confused with the 7-day 10-year low-flow statistic.)

Instantaneous discharge is the discharge at a particular instant of time.

Mean discharge (MEAN) is the arithmetic mean of individual daily mean discharges during a specific period.

Dissolved refers to that material in a representative water sample that passes through a 0.45-micrometer membrane filter. This is a convenient operational definition used by Federal agencies that collect water data. Determinations of "dissolved" constituents are made on subsamples of the filtrate.

Dissolved oxygen (DO) content of water in equilibrium with air is a function of atmospheric pressure, temperature, and dissolved-solids concentration of the water. The ability of water to retain oxygen decreases with increasing temperature or dissolved solids, with small temperature changes having the more significant offset. Photosynthesis and respiration may cause diurnal variations in dissolved-oxygen concentration in water from some streams.

Dissolved-solids concentration of water is determined either analytically by the "residue-on-evaporation" method, or mathematically by totaling the concentrations of individual constituents reported in a comprehensive chemical analysis. During that analytical determination of dissolved solids, the bicarbonate (generally a major dissolved component of water) is converted to carbonate. In the mathematical calculation of dissolved-solids concentration, the bicarbonate value, in milligrams per liter, is multiplied by 0.4917 to reflect the change. Alternatively, alkalinity concentration (as mg/L $CaCO_3$) can be converted to carbonate concentration by multiplying by 0.60.

Drainage area of a site on a stream is that area, measured in a horizontal plane, that has a common outlet at the site for its surface runoff. Figures of drainage area given herein include all closed basins, or noncontributing areas, within the area unless otherwise specified.

Drainage basin is a part of the Earth's surface that is occupied by a drainage system with a common outlet for its surface runoff (see "Drainage area").

Dry mass refers to the mass of residue present after drying in an oven at 105 °C, until the mass remains unchanged. This mass represents the total organic matter, ash and sediment, in the sample. Dry-mass values are expressed in the same units as ash mass. (See also "Ash mass," "Biomass," and "Wet mass")

Dry weight refers to the weight of animal tissue after it has been dried in an oven at 65 °C until a constant weight is achieved. Dry weight represents total organic and inorganic matter in the tissue. (See also "Wet weight")

Estimated (E) value of a concentration is reported when an analyte is detected and all criteria for a positive result are met. If the concentration is less than the method detection limit (MDL), an E code will be reported with the value. If the analyte is identified qualitatively as present, but the quantitative determination is substantially more uncertain, the National Water-Quality Laboratory will identify the result with an E code even though the measured value is greater than the MDL. A value reported with an E code should be used with caution. When no analyte is detected in a sample, the default reporting value is the MDL preceded by a less than sign (<). For bacteriological data, concentrations are reported as estimated when results are based on non-ideal colony counts.

Flow-duration percentiles are values on a scale of 100 that indicate the percentage of time for which a flow is not exceeded. For example, the 90th percentile of river flow is greater than or equal to 90 percent of all recorded flow rates.

Gage datum is the elevation of the zero point of the reference gage from which gage height is determined as compared to sea level (see "Datum"). This elevation is established by a system of levels from known benchmarks, by approximation from topographic maps, or by geographical positioning system.

Gage height (G.H.) is the water-surface elevation referenced to the gage datum. Gage height is often used interchangeably with the more general term "stage," although gage height is more appropriate when used with a reading on a gage.

Gaging station is a site on a stream, canal, lake, or reservoir where systematic observations of stage, discharge, or other hydrologic data are obtained.

Gage values are values that are recorded, transmitted, and/or computed from a gaging station. Gage values typically are collected at 5-, 15-, or 30-minute intervals.

Gas chromatography/flame ionization detector (GC/FID) is a laboratory analytical method used as a screening technique for semi-volatile organic compounds that are extractable from water in methylene chloride.

Ground-water level is the elevation of the water table or another potentiometric surface at a particular location.

Hardness of water is a physical-chemical characteristic that is commonly recognized by the increased quantity of soap required to produce lather. It is attributable to the presence of alkaline earths (principally calcium and magnesium) and is expressed as the equivalent concentration of calcium carbonate ($CaCO_3$).

Horizontal datum (See "Datum")

Hydrologic index stations referred to in this report are continuous-record gaging stations that have been selected as representative of streamflow patterns for their respective regions. Station locations are shown on index maps.

Hydrologic benchmark station is one that provides hydrologic data for a basin in which the hydrologic regimen will likely be governed solely by natural conditions. Data collected at a benchmark station may be used to separate effects of natural from human-induced changes in other basins that have been developed and in which the physiography, climate, and geology are similar to those in the undeveloped benchmark basin.

Hydrologic unit is a geographic area representing part or all of a surface drainage basin or distinct hydrologic feature as defined by the former Office of Water Data Coordination and delineated on the State Hydrologic Unit Maps by the U.S. Geological Survey. Each hydrologic unit is identified by an 8-digit number.

Inch (IN., in.), in reference to streamflow, as used in this report, refers to the depth to which the drainage area would be covered with water if all of the runoff for a given time period were distributed uniformly on it. (See also "Annual runoff")

Instantaneous discharge is the discharge at a particular instant of time. (See also "Discharge")

International Boundary Commission Survey Datum refers to a geodetic datum established at numerous monuments along the United States-Canada boundary by the International Boundary Commission.

Laboratory reporting level (LRL) generally is equal to twice the yearly determined long-term method detection level (LT-MDL). The LRL controls false negative error. The probability of falsely reporting a nondetection for a sample that contained an analyte at a concentration equal to or greater than the LRL is predicted to be less than or equal to 1 percent. The value of the LRL will be reported with a "less than" (<) remark code for samples in which the analyte was not detected. The National Water Quality Laboratory (NWQL) collects quality-control data from selected analytical methods on a continuing basis to determine LT-MDLs and to establish LRLs. These values are reevaluated annually on the basis of the most current quality-control data and, therefore, may change. The LRL replaces the term 'non-detection value' (NDV).

Land-surface datum (lsd) is a datum plane that is approximately at land surface at each ground-water observation well.

Long-term method detection level (LT-MDL) is a detection level derived by determining the standard deviation of a minimum of 24 method detection limit (MDL) spike-sample measurements over an extended period of time. LT-MDL data are collected on a continuous basis to assess year-to-year variations in the LT-MDL. The LT-MDL controls false positive error. The chance of falsely reporting a concentration at or greater than the LT-MDL for a sample that did not contain the analyte is predicted to be less than or equal to 1 percent.

Low tide is the minimum height reached by each falling tide. The high-low and low-low tides are the higher and lower of the two low tides, respectively, of each tidal day. See NOAA web site: http://www.co-ops.nos.noaa.gov/tideglos.html

Macrophytes are the macroscopic plants in the aquatic environment. The most common macrophytes are the rooted vascular plants that are usually arranged in zones in aquatic ecosystems and restricted in the area by the extent of illumination through the water and sediment deposition along the shoreline.

Mean concentration of suspended sediment (Daily mean suspended-sediment concentration) is the time-weighted concentration of suspended sediment passing a stream cross section during a given time period. (See also "Daily mean suspended-sediment concentration" and "Suspended-sediment concentration")

Mean discharge (MEAN) is the arithmetic mean of individual daily mean discharges during a specific period. (See also "Discharge")

Mean high or **low tide** is the average of all high or low tides, respectively, over a specific period.

Mean sea level is a local tidal datum. It is the arithmetic mean of hourly heights observed over the National Tidal Datum Epoch. Shorter series are specified in the name; for example, monthly mean sea level and yearly mean sea level. In order that they may be recovered when needed, such datums are referenced to fixed points known as benchmarks. (See also "Datum")

Measuring point (MP) is an arbitrary permanent reference point from which the distance to water surface in a well is measured to obtain water level.

Megahertz is a unit of frequency. One megahertz equals one million cycles per second.

Membrane filter is a thin microporous material of specific pore size used to filter bacteria, algae, and other very small particles from water.

Method detection limit (MDL) is the minimum concentration of a substance that can be measured and reported with 99-percent confidence that the analyte concentration is greater than zero. It is determined from the analysis of a sample in a given matrix containing the analyte. At the MDL con-

centration, the risk of a false positive is predicted to be less than or equal to 1 percent.

Micrograms per gram (UG/G, µg/g) is a unit expressing the concentration of a chemical constituent as the mass (micrograms) of the element per unit mass (gram) of material analyzed.

Micrograms per kilogram (UG/KG, µg/kg) is a unit expressing the concentration of a chemical constituent as the mass (micrograms) of the constituent per unit mass (kilogram) of the material analyzed. One microgram per kilogram is equivalent to 1 part per billion.

Micrograms per liter (UG/L, µg/L) is a unit expressing the concentration of chemical constituents in water as mass (micrograms) of constituent per unit volume (liter) of water. One thousand micrograms per liter is equivalent to 1 milligram per liter.

Microsiemens per centimeter (US/CM, µS/cm) is a unit expressing the amount of electrical conductivity of a solution as measured between opposite faces of a centimeter cube of solution at a specified temperature. Siemens is the International System of Units nomenclature. It is synonymous with mhos and is the reciprocal of resistance in ohms.

Milligrams per liter (MG/L, mg/L) is a unit for expressing the concentration of chemical constituents in water as the mass (milligrams) of constituent per unit volume (liter) of water. Concentration of suspended sediment also is expressed in mg/L and is based on the mass of dry sediment per liter of water-sediment mixture.

Minimum reporting level (MRL) is the smallest measured concentration of a constituent that may be reliably reported by using a given analytical method.

Miscellaneous site, or miscellaneous station, is a site where streamflow, sediment, and/or water-quality data are collected once, or more often on a random or discontinuous basis to provide better areal coverage for defining hydrologic and water-quality conditions over a broad area.

Most probable number (MPN) is an index of the number of coliform bacteria that, more probably than any other number, would give the results shown by the laboratory examination; it is not an actual enumeration. MPN is determined from the distribution of gas-positive cultures among multiple inoculated tubes.

Nanograms per liter (NG/L, ng/L) is a unit expressing the concentration of chemical constituents in solution as mass (nanograms) of solute per unit volume (liter) of water. One million nanograms per liter is equivalent to 1 milligram per liter.

National Geodetic Vertical Datum of 1929 (NGVD 29) is a fixed reference adopted as a standard geodetic datum for elevations determined by leveling. It formerly was called "Sea Level Datum of 1929" or "mean sea level." Although the datum was derived from the mean sea level at 26 tide stations**,** it does not necessarily represent local mean sea level at any particular place. See NOAA Web site: http://www.ngs.noaa.gov/faq.shtml#WhatVD29VD88 (See "North American Vertical Datum of 1988")

Nephelometric turbidity unit (NTU) is the measurement for reporting turbidity that is based on use of a standard suspension of Formazin. Turbidity measured in NTU uses nephelometric methods that depend on passing specific light of a specific wavelength through the sample.

North American Datum of 1927 (NAD 27) is the horizontal control datum for the United States that was defined by a location and azimuth on the Clarke spheroid of 1866.

North American Datum of 1983 (NAD 83) is the horizontal control datum for the United States, Canada, Mexico, and Central America that is based on the adjustment of 250,000 points including 600 satellite Doppler stations that constrain the system to a geocentric origin. NAD 83 has been officially adopted as the legal horizontal datum for the United States by the Federal government.

North American Vertical Datum of 1988 (NAVD of 1988) is the vertical control datum established in 1991 by the minimum-constraint adjustment of the Canadian-Mexican-U.S. leveling observations. It held fixed the height of the primary tidal bench mark, referenced to the new International Great Lakes Datum of 1985 local mean sea level height value, at Father Point/Rimouski, Quebec, Canada. See NOAA web site: http://www.ngs.noaa.gov/faq.shtml#WhatVD29VD88

Open or screened interval is the length of unscreened opening or of well screen through which water enters a well, in feet below land surface.

Organic carbon (OC) is a measure of organic matter present in aqueous solution, suspension, or bottom sediments. May be reported as dissolved organic carbon (DOC), suspended organic carbon (SOC), or total organic carbon (TOC).

Organic mass or **volatile mass** of a living substance is the difference between the dry mass and ash mass and represents the actual mass of the living matter. Organic mass is expressed in the same units as for ash mass and dry mass. (See also "Ash mass," "Biomass," and "Dry mass")

Organism is any living entity.

Organism count/area refers to the number of organisms collected and enumerated in a sample and adjusted to the number per area habitat, usually square meter (m^2), acre, or hectare. Periphyton, benthic organisms, and macrophytes are expressed in these terms.

Organism count/volume refers to the number of organisms collected and enumerated in a sample and adjusted to the number per sample volume, usually milliliter (mL) or liter (L). Numbers of planktonic organisms can be expressed in these terms.

Total organism count is the total number of organisms collected and enumerated in any particular sample.

Organochlorine compounds are any chemicals that contain carbon and chlorine. Organochlorine compounds that are important in investigations of water, sediment, and biological quality include certain pesticides and industrial compounds.

Parameter Code is a 5-digit number used in the U.S. Geological Survey computerized data system, National Water Information System (NWIS), to uniquely identify a specific constituent or property.

Partial-record station is a site where discrete measurements of one or more hydrologic parameters are obtained over a period of time without continuous data being recorded or computed. A common example is a crest-stage gage partial-record station at which only peak stages and flows are recorded.

Particle size is the diameter, in millimeters (mm), of a particle determined by sieve or sedimentation methods. The sedimentation method utilizes

the principle of Stokes Law to calculate sediment particle sizes. Sedimentation methods (pipet, bottom-withdrawal tube, visual-accumulation tube, Sedigraph) determine fall diameter of particles in either distilled water (chemically dispersed) or in native water (the river water at the time and point of sampling).

Particle-size classification used in this report agrees with the recommendation made by the American Geophysical Union Subcommittee on Sediment Terminology. The classification is as follows:

Classification	Size (mm)			Method of analysis
Clay	0.00024	-	0.004	Sedimentation
Silt	0.004	-	0.062	Sedimentation
Sand	0.062	-	2.0	Sedimentation/sieve
Gravel	2.0	-	64.0	Sieve

The particle-size distributions given in this report are not necessarily representative of all particles in transport in the stream. Most of the organic matter is removed, and the sample is subjected to mechanical and chemical dispersion before analysis in distilled water. Chemical dispersion is not used for native water analysis.

Peak flow (peak stage) is an instantaneous local maximum value in the continuous time series of streamflows or stages, preceded by a period of increasing values and followed by a period of decreasing values. Several peak values ordinarily occur in a year. The maximum peak value in a year is called the annual peak; peaks lower than the annual peak are called secondary peaks. Occasionally, the annual peak may not be the maximum value for the year; in such cases, the maximum value occurs at midnight at the beginning or end of the year, on the recession from or rise toward a higher peak in the adjoining year. If values are recorded at a discrete series of times, the peak recorded value may be taken as an approximation of the true peak, which may occur between the recording instants. If the values are recorded with finite precision, a sequence of equal recorded values may occur at the peak; in this case, the first value is taken as the peak.

Percent composition or **percent of total** is a unit for expressing the ratio of a particular part of a sample or population to the total sample or population, in terms of types, numbers, weight, or volume.

Periodic-record station is a site where stage, discharge, sediment, chemical, physical, or other hydrologic measurements are made one or more times during a year but at a frequency insufficient to develop a daily record.

Periphyton is the assemblage of microorganisms attached to and living upon submerged solid surfaces. While primarily consisting of algae, they also include bacteria, fungi, protozoa, rotifers, and other small organisms. Periphyton are useful indicators of water quality.

Pesticides are chemical compounds used to control undesirable organisms. Major categories of pesticides include insecticides, miticides, fungicides, herbicides, and rodenticides.

pH of water is the negative logarithm of the hydrogen-ion activity. Solutions with pH less than 7.0 are termed “acidic,” and solutions with a pH greater than 7.0 are termed “basic.” Solutions with a pH of 7.0 are neutral. The presence and concentration of many dissolved chemical constituents found in water are, in part, influenced by the hydrogen-ion activity of water. Biological processes including growth, distribution of organisms, and toxicity of the water to organisms are also influenced, in part, by the hydrogen-ion activity of water.

Polychlorinated biphenyls (PCB’s) are industrial chemicals that are mixtures of chlorinated biphenyl compounds having various percentages of chlorine. They are similar in structure to organochlorine insecticides.

Pool, as used in this report, is a small part of a stream reach with little velocity, commonly with water deeper than surrounding areas.

Radioisotopes are isotopic forms of an element that exhibit radioactivity. Isotopes are varieties of a chemical element that differ in atomic weight, but are very nearly alike in chemical properties. The difference arises because the atoms of the isotopic forms of an element differ in the number of neutrons in the nucleus; for example, ordinary chlorine is a mixture of isotopes having atomic weights of 35 and 37, and the natural mixture has an atomic weight of about 35.453. Many of the elements similarly exist as mixtures of isotopes, and a great many new isotopes have been produced in the operation of nuclear devices such as the cyclotron. There are 275 isotopes of the 81 stable elements, in addition to more than 800 radioactive isotopes.

Recoverable from bottom material is the amount of a given constituent that is in solution after a representative sample of bottom material has been digested by a method (usually using an acid or mixture of acids) that results in dissolution of readily soluble substances. Complete dissolution of all bottom material is not achieved by the digestion treatment and thus the determination represents less than the total amount (that is, less than 95 percent) of the constituent in the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results (See also "Bed material").

Recurrence interval, also referred to as return period, is the average time, usually expressed in years, between occurrences of hydrologic events of a specified type (such as exceedances of a specified high flow or non-exceedance of a specified low flow). The terms “return period” and “recurrence interval” do not imply regular cyclic occurrence. The actual times between occurrences vary randomly, with most of the times being less than the average and a few being substantially greater than the average. For example, the 100-year flood is the flow rate that is exceeded by the annual maximum peak flow at intervals whose average length is 100 years (that is, once in 100 years, on average); almost two-thirds of all exceedances of the 100-year flood occur less than 100 years after the previous exceedance, half occur less than 70 years after the previous exceedance, and about one-eighth occur more than 200 years after the previous exceedance. Similarly, the 7-day 10-year low flow ($7Q_{10}$) is the flow rate below which the annual minimum 7-day-mean flow dips at intervals whose average length is 10 years (that is, once in 10 years, on average); almost two-thirds of the non-exceedances of the $7Q_{10}$ occur less than 10 years after the previous non-exceedance, half occur less than 7 years after, and about one-eighth occur more than 20 years after the previous non-exceedance. The recurrence interval for annual events is the reciprocal of the annual probability of occurrence. Thus, the 100-year flood has a 1-percent chance of being exceeded by the maximum peak flow in any year, and there is a 10-percent chance in any year that the annual minimum 7-day-mean flow will be less than the $7Q_{10}$.

Replicate samples are a group of samples collected in a manner such that the samples are thought to be essentially identical in composition.

Riffle, as used in this report, is a shallow part of the stream where water flows swiftly over completely or partially submerged obstructions to produce surface agitation.

River mile is the distance of a point on a river measured in miles from the river’s mouth along the low-water channel.

River mileage is the linear distance along the meandering path of a stream channel determined in accordance with Bulletin No. 14 (October 1968) of the Water Resources Council.

Runoff in inches (IN., in.) is the depth, in inches, to which the drainage area would be covered if all the runoff for a given time period were uniformly distributed on it.

Sea level, as used in this report, refers to one of the two commonly used national vertical datums (NGVD 1929 or NAVD 1988). See separate entries for definitions of these datums.

Sediment is solid material that is transported by, suspended in, or deposited from water. It originates mostly from disintegrated rocks; it also includes chemical and biochemical precipitates and decomposed organic material, such as humus. The quantity, characteristics, and cause of the occurrence of sediment in streams are influenced by environmental factors. Some major factors are degree of slope, length of slope, soil characteristics, land usage, and quantity and intensity of precipitation.

Suspended sediment is the sediment that is maintained in suspension by the upward components of turbulent currents or that exists in suspension as a colloid.

Suspended-sediment concentration is the velocity-weighted concentration of suspended sediment in the sampled zone (from the water surface to a point approximately 0.3 ft above the bed) expressed as milligrams of dry sediment per liter of water-sediment mixture (mg/L). The entire sample is used for the analysis.

Mean concentration of suspended sediment is the time-weighted concentration of suspended sediment passing a stream section during a 24-hour day.

Suspended-sediment discharge (tons/day) is the quantity of sediment moving in suspension, reported as dry weight, that passes a cross section in a given time. It is calculated in units of tons per day as follows: concentration (mg/L) x discharge (ft^3/s) x 0.0027.

Suspended-sediment load is a term that refers to material in suspension. The term needs to be qualified, such as "annual suspended-sediment load" or "sand-size suspended-sediment load," and so on. It is not synonymous with either suspended-sediment discharge or concentration.

Seven-day 10-year low flow ($7Q_{10}$) is the minimum flow averaged over 7 consecutive days that is expected to occur on average, once in any 10-year period. The $7Q_{10}$ has a 10-percent chance of occurring in any given year (See also "Annual 7-day minimum" and "Recurrence interval").

Sodium adsorption ratio (SAR) is the expression of relative activity of sodium ions in exchange reactions within soil and is an index of sodium or alkali hazard to the soil. Waters range in respect to sodium hazard from those which can be used for irrigation on almost all soils to those which are generally unsatisfactory for irrigation.

Soil-water content is the water lost from the soil upon drying to constant mass at 105 °C; expressed either as mass of water per unit mass of dry soil or as the volume of water per unit bulk volume of soil.

Solute is any substance that is dissolved in water.

Specific electrical conductance (conductivity) is a measure of the capacity of water (or other media) to conduct an electrical current. It is expressed in microsiemens per centimeter at 25 °C. Specific electrical conductance is a function of the types and quantity of dissolved substances in water and can be used for approximating the dissolved-solids content of the water. Commonly, the concentration of dissolved solids (in milligrams per liter) is from 55 to 75 percent of the specific conductance (in microsiemens). This relation is not constant from stream to stream, and it may vary in the same source with changes in the composition of the water.

Stable isotope ratio (per MILL/MIL) is a unit expressing the ratio of the abundance of two radioactive isotopes. Isotope ratios are used in hydrologic studies to determine the age or source of specific waters, to evaluate mixing of different waters, as an aid in determining reaction rates, and other chemical or hydrologic processes.

Stage: See "Gage height."

Stage-discharge relation is the relation between the water-surface elevation, termed stage (gage height), and the volume of water flowing in a channel per unit time.

Streamflow is the discharge that occurs in a natural channel. Although the term "discharge" can be applied to the flow of a canal, the word "streamflow" uniquely describes the discharge in a surface stream course. The term "streamflow" is more general than "runoff" as streamflow may be applied to discharge whether or not it is affected by diversion or regulation.

Surface area of a lake or impoundment is that area encompassed by the boundary of the lake or impoundment as shown on USGS topographic maps, or on other available maps or photographs. The computed surface areas reflect the water levels of the lakes or impoundments at the times when the information for the maps or photographs was obtained.

Surficial bed material is the top 0.1 to 0.2 ft of the bed material that is sampled using U.S. Series Bed-Material Samplers.

Surrogate is an analyte that behaves similarly to a target analyte, but that is highly unlikely to occur in a sample. A surrogate is added to a sample in known amounts before extraction and is measured with the same laboratory procedures used to measure the target analyte. Its purpose is to monitor method performance for an individual sample.

Suspended (as used in tables of chemical analyses) refers to the amount (concentration) of undissolved material in a water-sediment mixture. It is associated with the material retained on a 0.45-micrometer filter.

Suspended, recoverable is the amount of a given constituent that is in solution after the part of a representative suspended-sediment sample that is retained on a 0.45-micrometer membrane filter has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all the particulate matter is not achieved by the digestion treatment and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the sample. To achieve comparability of analytical data, equivalent digestion procedures are required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Determinations of "suspended, recoverable" constituents are made either by analyzing portions of the material collected on the filter or, more commonly, by difference, based on determinations of (1) dissolved and (2) total recoverable concentrations of the constituent.

Suspended, total is the total amount of a given constituent in the part of a representative suspended-sediment sample that is retained on a 0.45-micrometer membrane filter. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent determined. Knowledge of the expected form of the con-

stituent in the sample, as well as the analytical methodology used, is required to determine when the results should be reported as "suspended, total."

Determinations of "suspended, total" constituents are made either by analyzing portions of the material collected on the filter or, more commonly, by difference, based on determinations of (1) dissolved and (2) total concentrations of the constituent.

Suspended sediment is the sediment maintained in suspension by the upward components of turbulent currents or that exists in suspension as a colloid. (See also "Sediment")

Suspended-sediment concentration is the velocity-weighted concentration of suspended sediment in the sampled zone (from the water surface to a point approximately 0.3 foot above the bed) expressed as milligrams of dry sediment per liter of water-sediment mixture (mg/L). The analytical technique uses the mass of all of the sediment and the net weight of the water-sediment mixture in a sample to compute the suspended-sediment concentration. (See also "Sediment" and "Suspended sediment")

Suspended-sediment discharge (tons/d) is the rate of sediment transport, as measured by dry mass or volume, that passes a cross section in a given time. It is calculated in units of tons per day as follows: concentration (mg/L) x discharge (ft^3/s) x 0.0027. (See also "Sediment," "Suspended sediment," and "Suspended-sediment concentration")

Suspended-sediment load is a general term that refers to a given characteristic of the material in suspension that passes a point during a specified period of time. The term needs to be qualified, such as "annual suspended-sediment load" or "sand-size suspended-sediment load," and so on. It is not synonymous with either suspended-sediment discharge or concentration. (See also "Sediment")

Suspended solids, total residue at 105 °C concentration is the concentration of inorganic and organic material retained on a filter, expressed as milligrams of dry material per liter of water (mg/L). An aliquot of the sample is used for this analysis.

Suspended, total is the total amount of a given constituent in the part of a water-sediment sample that is retained on a 0.45-micrometer membrane filter. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent determined. Knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to determine when the results should be reported as "suspended, total." Determinations of "suspended, total" constituents are made either by directly analyzing portions of the suspended material collected on the filter or, more commonly, by difference, on the basis of determinations of (1) dissolved and (2) total concentrations of the constituent. (See also "Suspended")

Taxa (Species) richness is the number of species (taxa) present in a defined area or sampling unit.

Thalweg is the line formed by connecting points of minimum streambed elevation (deepest part of the channel).

Thermograph is an instrument that continuously records variations of temperature on a chart. The more general term "temperature recorder" is used in the table descriptions and refers to any instrument that records temperature whether on a chart, a tape, or any other medium.

Time-weighted average is computed by multiplying the number of days in the sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the total number of days. A time-weighted average represents the composition of water that would be contained in a vessel or reservoir that had received equal quantities of water from the stream each day for the year.

Tons per acre-foot is the dry mass of dissolved solids in 1 acre-foot of water. It is computed by multiplying the concentration of the constituent, in milligrams per liter, by 0.00136.

Tons per day (T/DAY, tons/d) is the rate representing a mass of 1 ton of a constituent in streamflow passing a cross section in 1 day. It is equivalent to 2,000 pounds per day, or 0.9072 metric tons per day.

Total is the total amount of a given constituent in a representative suspended-sediment sample, regardless of the constituent's physical or chemical form. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent present in both the dissolved and suspended phases of the sample. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to judge when the results should be reported as "total." (Note that the word "total" does double duty here, indicating both that the sample consists of a suspended-sediment mixture and that the analytical method determined all of the constituent in the sample.)

Total discharge is the quantity of a given constituent, measured as dry mass or volume, that passes a stream cross section per unit of time. When referring to constituents other than water, this term needs to be qualified, such as "total sediment discharge," "total chloride discharge," and so on.

Total in bottom material is the total amount of a given constituent in a representative sample of bottom material. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent determined. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to judge when the results should be reported as "total in bottom material."

Total recoverable is the amount of a given constituent that is in solution after a representative suspended-sediment sample has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all particulate matter is not achieved by the digestion treatment, and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the dissolved and suspended phases of the sample. To achieve comparability of analytical data, equivalent digestion procedures are required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Turbidity is the reduction in the transparency of a solution because of the presence of suspended and some dissolved substances. The measurement technique records the collective optical properties of the solution that cause light to be scattered and attenuated rather than transmitted in straight lines; the higher the intensity of scattered or attenuated light, the higher the value of the turbidity. Turbidity is expressed in nephelometric turbidity units (NTU). Depending on the method used, the turbidity units as NTU can be defined as the intensity of light of a specified wavelength scattered or attenuated by suspended particles or absorbed at a method specified angle, usually 90 degrees, from the path of the incident light. Currently approved methods for the measurement of turbidity in the USGS include those that conform to USEPA Method 180.1, ASTM D1889-00, and ISO 7027. Measurements of turbidity by these different methods and different instruments are unlikely to yield equivalent values.

Ultraviolet (UV) absorbance (absorption) at 254 or 280 nanometers is a measure of the aggregate concentration of the mixture of UV absorbing organic materials dissolved in the analyzed water, such as lignin, tannin, humic substances, and various aromatic compounds. UV absorbance (absorption) at 254 or 280 nanometers is measured in UV absorption units per centimeter of path length of UV light through a sample.

Unconfined aquifer is an aquifer whose upper surface is a water table free to fluctuate under atmospheric pressure. (See "Water-table aquifer")

Vertical datum (See "Datum")

Water level is the water-surface elevation or stage of the free surface of a body of water above or below any datum (see "Gage height"), or the surface of water standing in a well, usually indicative of the position of the water table or other potentiometric surface.

Water table is the surface of a ground-water body at which the water is at atmospheric pressure.

Water-table aquifer is an unconfined aquifer within which is found the water table.

Water year in U.S. Geological Survey reports dealing with surface-water supply is the 12-month period October 1 through September 30. The water year is designated by the calendar year in which it ends and which includes 9 of the 12 months. Thus, the year ending September 30, 2003, is called the "2003 water year."

WDR is used as an abbreviation for "Water-Data Report" in the REVISED RECORDS paragraph to refer to State annual hydrologic-data reports. (WRD was used as an abbreviation for "Water-Resources Data" in reports published prior to 1976.)

Weighted average is used in this report to indicate discharge-weighted average. It is computed by multiplying the discharge for a sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the sum of the discharges. A discharge-weighted average approximates the composition of water that would be found in a reservoir containing all the water passing a given location during the water year after thorough mixing in the reservoir.

Well is an excavation (pit, hole, tunnel), generally cylindrical in form and often walled in, drilled, dug, driven, bored, or jetted into the ground to such a depth as to penetrate water-yielding geologic material and allow the water to flow or to be pumped to the surface.

Wet mass is the mass of living matter plus contained water. (See also "Biomass" and "Dry mass")

Wet weight refers to the weight of animal tissue or other substance including its contained water (See also "Dry weight").

WSP is used as an abbreviation for "Water-Supply Paper" in reference to previously published reports.

Zooplankton is the animal part of the plankton. Zooplankton are capable of extensive movements within the water column and often are large enough to be seen with the unaided eye. Zooplankton are secondary consumers feeding upon bacteria, phytoplankton, and detritus. Because they are the grazers in the aquatic environment, the zooplankton are a vital part of the aquatic food web. The zooplankton community is dominated by small crustaceans and rotifers. (See also "Plankton")

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Surface-Water Stations

Measurement of streamflow through ice.

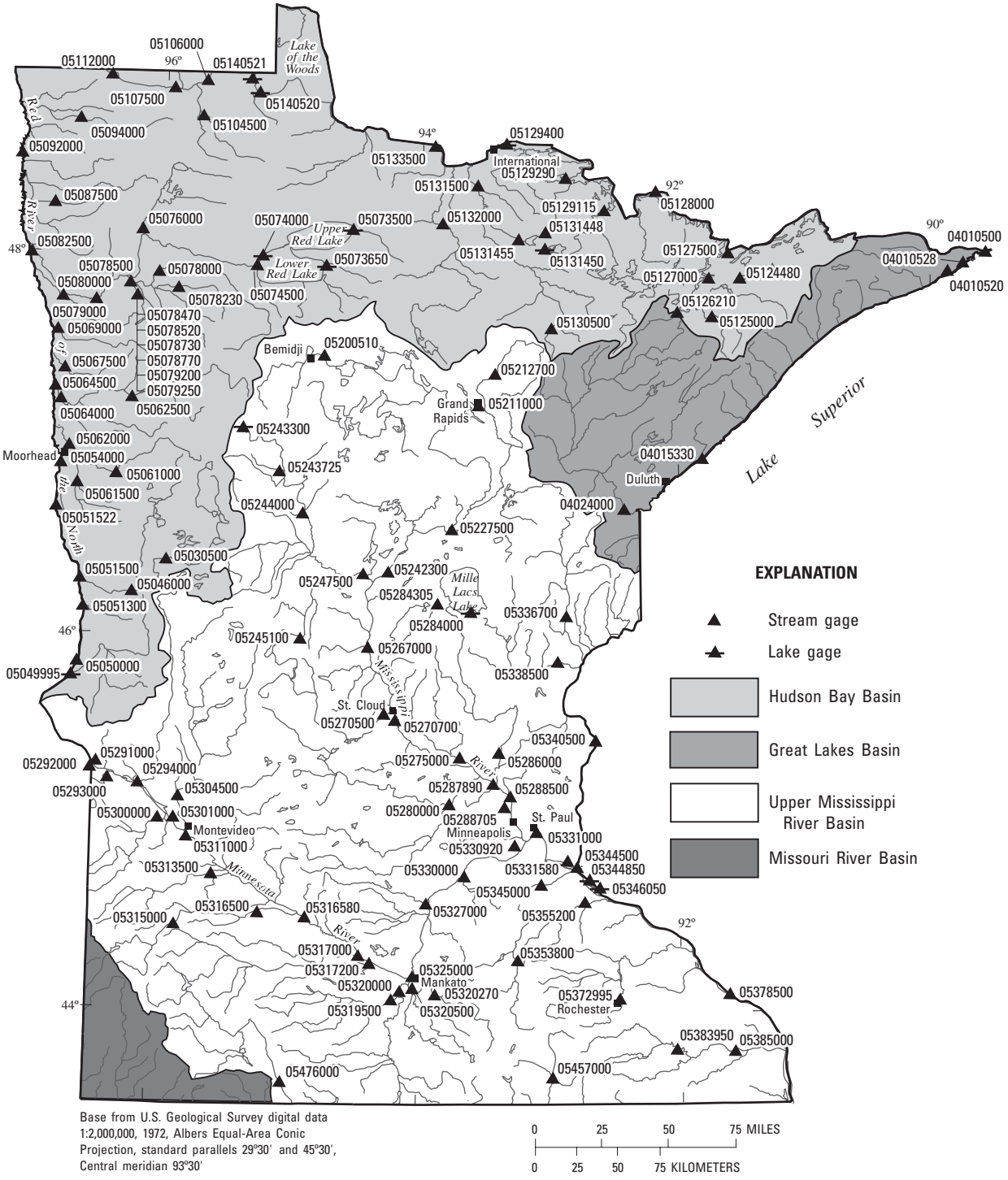


Figure 5. Location of lake and stream-gaging stations.

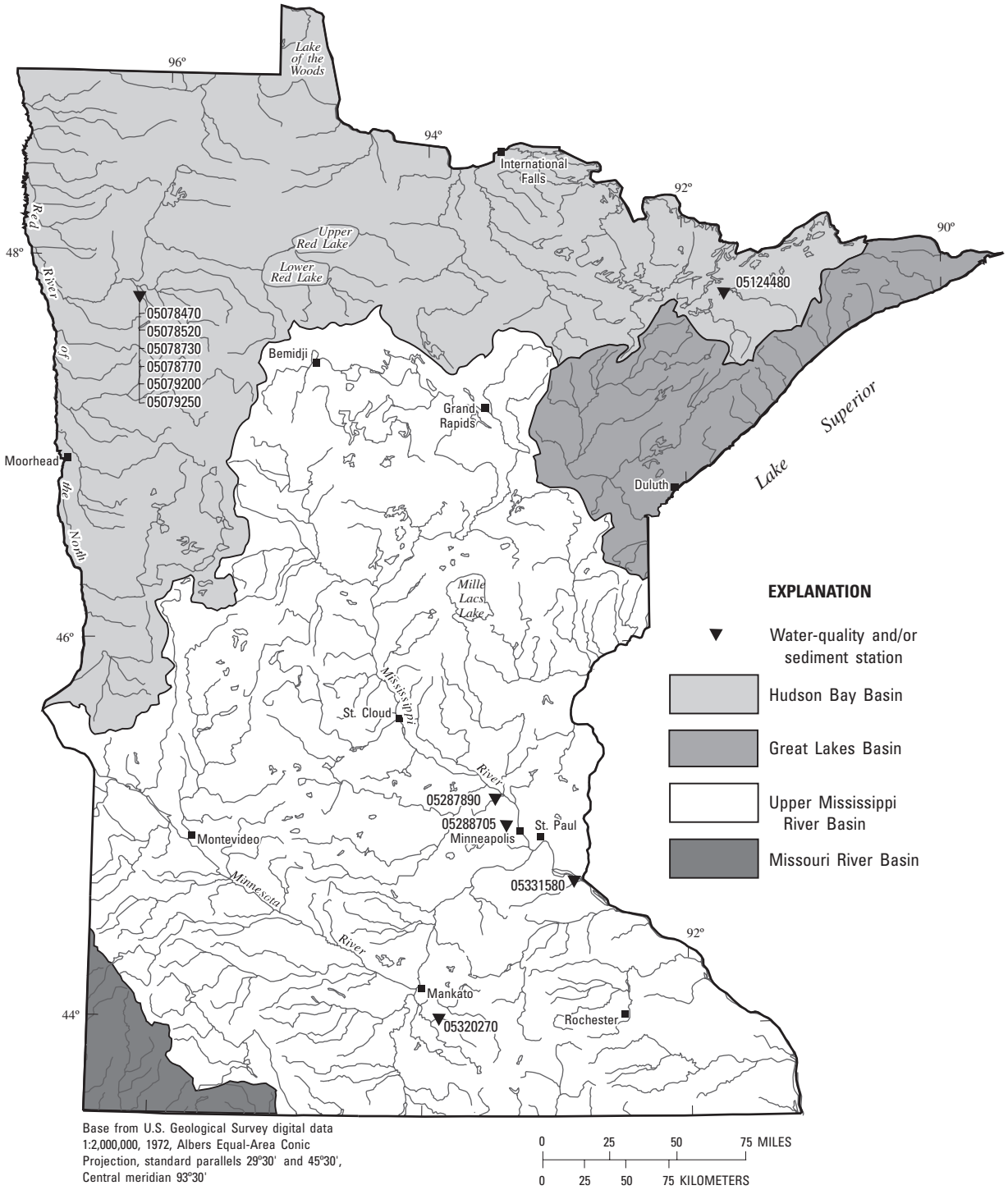


Figure 6. Location of surface-water quality stations.

04010500 PIGEON RIVER AT MIDDLE FALLS, NEAR GRAND PORTAGE, MN

LOCATION.--Lat 48°00'44", long 89°36'58", in SW¼NE¼ sec. 24, T.64 N., R.6 E., Cook County, Hydrologic Unit 04010101, on the Grand Portage Indian Reservation, on right bank 400 ft upstream from Middle Falls, 2.5 mi upstream from Grand Portage Port of Entry, 3.5 mi upstream from mouth, and 4.7 mi northeast of city of Grand Portage.

DRAINAGE AREA.--609 mi^2.

PERIOD OF RECORD.--June to October 1921, April to November 1922, March 1923 to current year. Published as "at International Bridge" April 1924 to September 1940; as "below International Bridge" October 1940 to September 1965. Monthly discharge only for some periods, published in WSP 1307.

REVISED RECORDS.--WSP 744:1927-28. WSP 804: 1934(M). WSP 974: Drainage area. WSP 1337:1924(M), 1925, 1926-28(M), 1931(M), 1938(M), 1941(M), 1945-46(M), 1947, 1948(M), 1950(M).

GAGE.--Water-stage recorder. Datum of gage is 787.58 ft above sea level (NGVD of 1929). Prior to Sept. 30, 1940, nonrecording gage at International Bridge, 5.8 mi upstream at datum 102.24 ft higher. Oct. 1, 1940 to Dec. 31, 1975, at present site at datum 2.00 ft higher.

REMARKS.--Records good except those for estimated daily discharges, which are poor.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,700 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Apr 9	0400	2,760	7.90	Jun 1	0300	3,450	8.56
Apr 19	1730	*3,680	*8.77				

Minimum discharge, 66 ft^3/s, Sept. 14, gage height, 2.30 ft.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	139	222	e240	e180	e162	e139	e440	1,470	3,300	510	207	90
2	140	222	e233	e179	e160	e139	e600	1,390	2,690	491	196	88
3	144	214	e227	e178	e159	e139	e750	1,320	2,050	474	187	87
4	145	e205	e222	e177	e158	e140	e900	1,260	1,630	573	179	84
5	141	e185	e220	e176	e158	e141	e990	1,210	1,400	782	170	81
6	135	e165	e214	e175	e157	e142	e1,130	1,170	1,280	729	161	92
7	128	e145	e210	e174	e156	e142	e1,520	1,110	1,370	619	152	87
8	122	e133	e204	e173	e155	e141	e2,300	1,080	1,620	557	145	84
9	120	e145	e200	e172	e153	e141	e2,630	1,030	1,650	505	149	88
10	119	e165	e185	e171	e151	e140	2,130	1,010	1,420	463	161	90
11	120	e170	e168	e172	e150	e140	1,650	977	1,230	447	176	82
12	152	e175	e169	e172	e149	e140	1,370	937	1,120	440	176	74
13	191	e208	e170	e171	e148	e141	1,240	914	1,070	428	174	70
14	207	e199	e171	e171	e147	e142	1,290	927	1,070	421	167	68
15	192	e175	e173	e171	e146	e143	1,360	909	1,020	401	158	104
16	180	e170	e175	e172	e145	e144	1,470	873	960	384	148	186
17	171	176	e176	e172	e145	e145	1,770	999	916	378	142	158
18	162	234	e177	e172	e146	e144	2,110	1,230	869	365	139	148
19	153	e285	e178	e171	e147	e143	3,510	1,160	819	369	135	135
20	145	e310	e179	e171	e148	e142	3,460	1,070	776	366	134	113
21	143	e325	e180	e172	e147	e141	2,970	997	746	349	136	106
22	141	e305	e179	e172	e146	e141	2,490	957	702	328	131	107
23	142	e280	e177	e171	e144	e140	2,170	960	668	316	121	104
24	141	e245	e175	e171	e142	e140	1,940	923	644	297	110	102
25	141	e260	e173	e170	e140	e139	1,800	885	627	276	103	98
26	142	e280	e174	e170	e140	e145	1,750	859	608	260	97	93
27	145	e270	e178	e169	e139	e170	1,650	906	588	248	90	95
28	162	e260	e183	e168	e139	e210	1,550	959	570	235	87	88
29	176	e250	e183	e167	e139	e235	1,530	888	559	227	87	81
30	187	e245	e182	e165	---	e270	1,540	836	541	220	97	79
31	217	---	e181	e163	---	e327	---	2,390	---	215	95	---
TOTAL	4,743	6,623	5,856	5,328	4,316	4,886	52,010	33,606	34,513	12,673	4,410	2,962
MEAN	153	221	189	172	149	158	1,734	1,084	1,150	409	142	98.7
MAX	217	325	240	180	162	327	3,510	2,390	3,300	782	207	186
MIN	119	133	168	163	139	139	440	836	541	215	87	68
AC-FT	9,410	13,140	11,620	10,570	8,560	9,690	103,200	66,660	68,460	25,140	8,750	5,880
CFSM	0.25	0.36	0.31	0.28	0.24	0.26	2.85	1.78	1.89	0.67	0.23	0.16
IN.	0.29	0.40	0.36	0.33	0.26	0.30	3.18	2.05	2.11	0.77	0.27	0.18

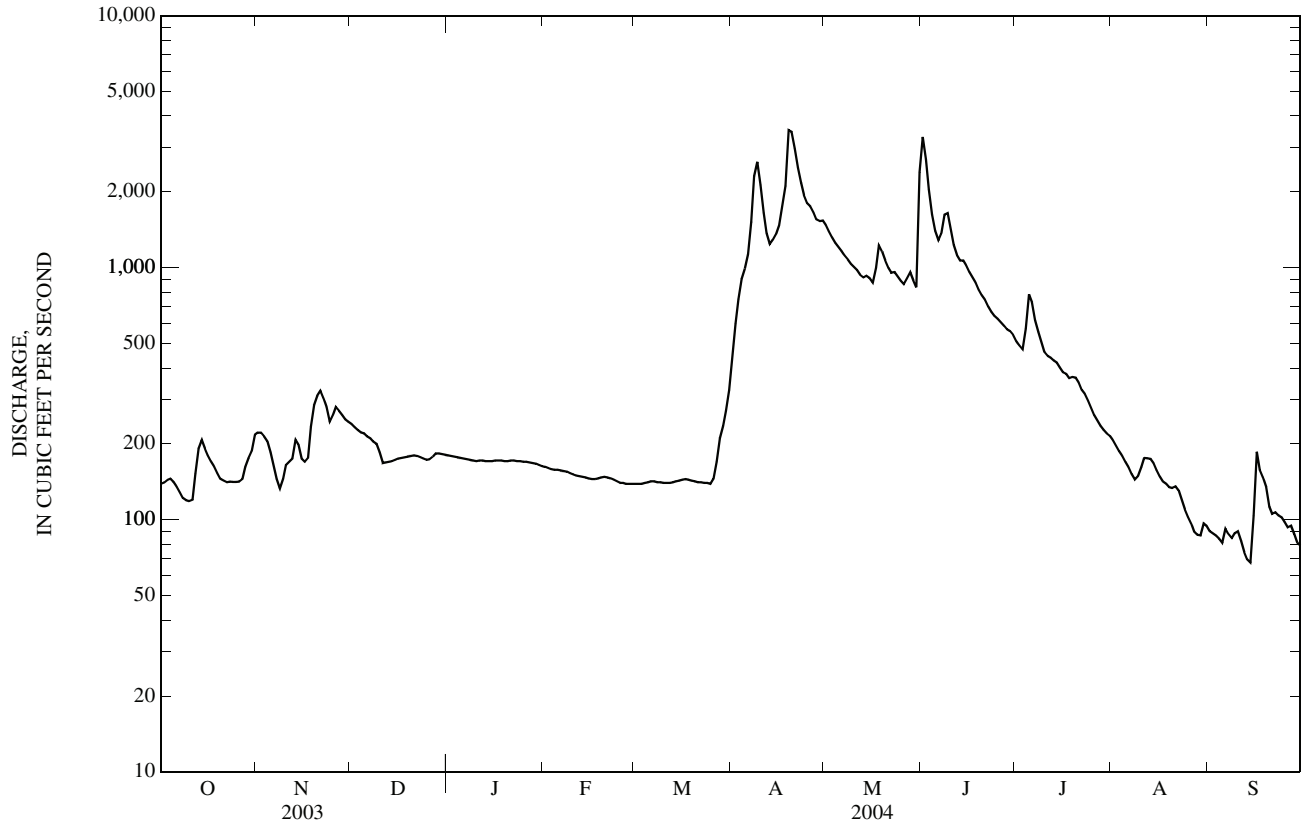
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1921 - 2004, BY WATER YEAR (WY)

MEAN	354	351	207	150	125	174	1,205	1,587	835	416	240	282
MAX	2,095	1,461	720	431	300	1,169	2,724	4,016	2,801	1,127	1,029	2,985
(WY)	(1978)	(1971)	(1978)	(1975)	(1969)	(1945)	(2001)	(1950)	(1947)	(1968)	(1950)	(1977)
MIN	17.4	11.4	2.85	2.18	8.02	60.0	290	138	125	78.0	46.5	40.2
(WY)	(1977)	(1977)	(1977)	(1977)	(1977)	(1941)	(1977)	(1977)	(1977)	(1958)	(1998)	(1976)

04010500 PIGEON RIVER AT MIDDLE FALLS, NEAR GRAND PORTAGE, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1921 - 2004	
ANNUAL TOTAL	110,832		171,926			
ANNUAL MEAN	304		470		496	
HIGHEST ANNUAL MEAN					840	1971
LOWEST ANNUAL MEAN					158	1958
HIGHEST DAILY MEAN	3,390	Apr 22	3,510	Apr 19	10,700	May 5, 1934
LOWEST DAILY MEAN	25	Jan 21	68	Sep 14	a1.0	Jan15-21,1977
ANNUAL SEVEN-DAY MINIMUM	25	Jan 20	79	Sep 8	1.0	Jan 15, 1977
MAXIMUM PEAK FLOW			3,680	Apr 19	b11,000	May 5, 1934
MAXIMUM PEAK STAGE			8.77	Apr 19	c12.37	Sep 24, 1977
INSTANTANEOUS LOW FLOW			66	Sep 14	a1.0	Jan 15, 1977
ANNUAL RUNOFF (AC-FT)	219,800		341,000		359,600	
ANNUAL RUNOFF (CFSM)	0.499		0.771		0.815	
ANNUAL RUNOFF (INCHES)	6.77		10.50		11.07	
10 PERCENT EXCEEDS	689		1,280		1,270	
50 PERCENT EXCEEDS	180		176		221	
90 PERCENT EXCEEDS	27		120		84	

a Minimum observed.
b Gage height 7.60 ft, site and datum then in use.
c At present site and datum, discharge 10,500 ft^3/s.
e Estimated.



04010520 HOLLOW ROCK CREEK NEAR RED ROCK, MN

LOCATION.--Lat 47°55'07", long 89°44'46", in SW¼SE¼ sec. 24, T.63 N., R.5 E., Cook County, Hydrologic Unit 04010101, on Grand Portage Indian Band property, on left bank, 800 ft upstream from U.S. Highway 61, 0.4 miles west of Red Rock, and 4.4 mi southwest of Grand Portage.

DRAINAGE AREA.--

PERIOD OF RECORD.--May 2003 to current year (no winter records).

GAGE.--Water-stage recorder. Elevation of gage is 670 ft above sea level (from topographic map).

REMARKS.--Records good.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

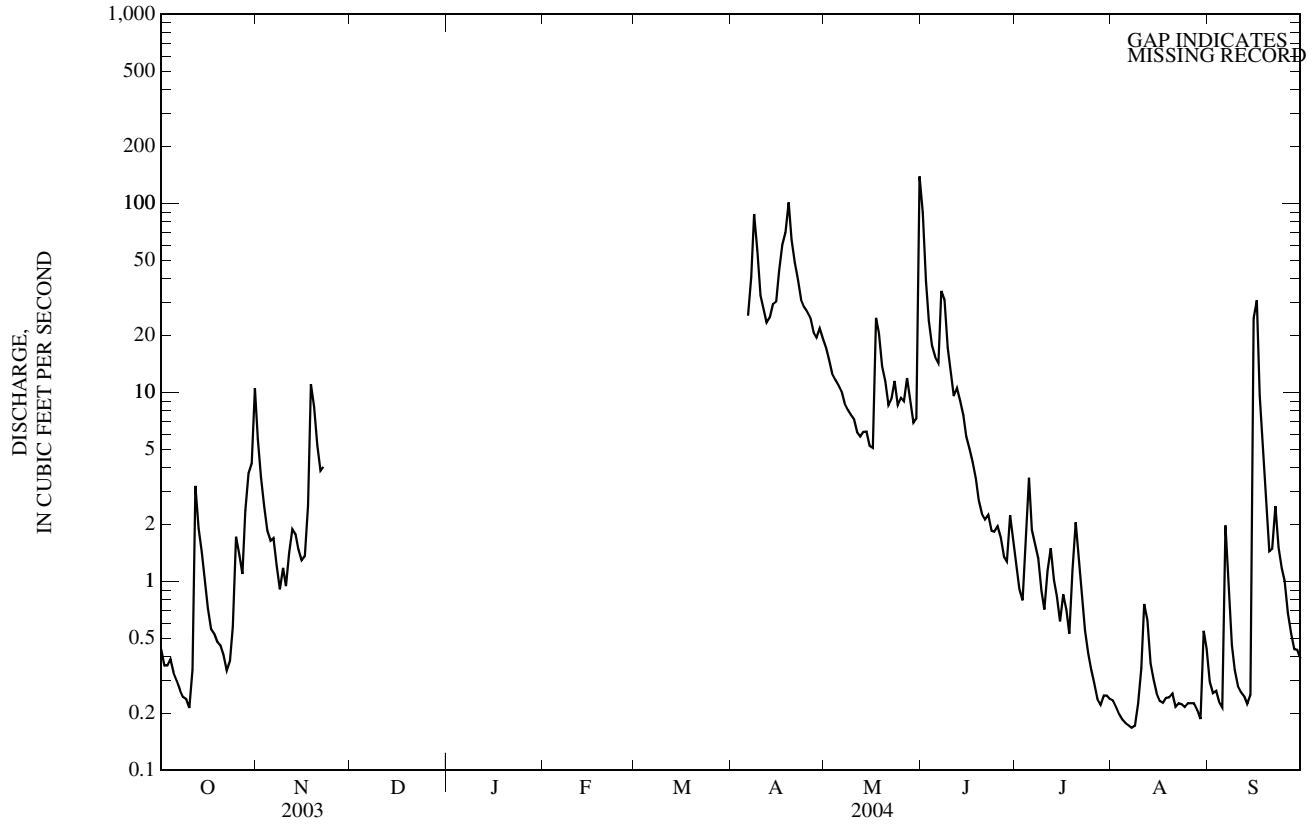
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.44	5.7	---	---	---	---	---	17	90	1.2	0.23	0.29
2	0.36	3.6	---	---	---	---	---	15	39	0.91	0.22	0.26
3	0.36	2.5	---	---	---	---	---	13	24	0.79	0.20	0.26
4	0.39	1.8	---	---	---	---	---	12	18	1.8	0.19	0.23
5	0.33	1.6	---	---	---	---	---	11	15	3.5	0.18	0.22
6	0.30	1.7	---	---	---	---	25	10	14	1.9	0.17	2.0
7	0.27	1.2	---	---	---	---	41	8.7	34	1.6	0.17	0.89
8	0.25	0.91	---	---	---	---	88	8.1	31	1.3	0.17	0.46
9	0.24	1.2	---	---	---	---	57	7.6	17	0.89	0.23	0.34
10	0.21	0.95	---	---	---	---	33	7.2	13	0.71	0.35	0.28
11	0.34	1.4	---	---	---	---	27	6.2	9.6	1.1	0.76	0.26
12	3.2	1.9	---	---	---	---	23	5.8	10	1.5	0.63	0.25
13	1.9	1.8	---	---	---	---	25	6.2	9.0	1.0	0.37	0.23
14	1.4	1.5	---	---	---	---	29	6.2	7.6	0.84	0.30	0.25
15	0.99	1.3	---	---	---	---	30	5.2	5.8	0.62	0.26	25
16	0.72	1.4	---	---	---	---	44	5.1	5.0	0.86	0.23	31
17	0.56	2.5	---	---	---	---	60	25	4.3	0.71	0.23	9.6
18	0.53	11	---	---	---	---	70	21	3.5	0.53	0.24	4.5
19	0.48	8.4	---	---	---	---	101	14	2.7	1.2	0.24	2.4
20	0.46	5.3	---	---	---	---	64	11	2.3	2.1	0.26	1.4
21	0.41	3.8	---	---	---	---	49	8.5	2.1	1.3	0.22	1.5
22	0.34	4.0	---	---	---	---	39	9.2	2.2	0.85	0.23	2.5
23	0.38	---	---	---	---	---	31	12	1.9	0.55	0.22	1.5
24	0.58	---	---	---	---	---	28	8.6	1.8	0.42	0.22	1.2
25	1.7	---	---	---	---	---	27	9.4	2.0	0.34	0.23	1.0
26	1.4	---	---	---	---	---	25	9.0	1.7	0.29	0.23	0.68
27	1.1	---	---	---	---	---	21	12	1.4	0.24	0.23	0.53
28	2.4	---	---	---	---	---	19	9.1	1.3	0.22	0.21	0.44
29	3.7	---	---	---	---	---	22	6.9	2.2	0.25	0.19	0.44
30	4.2	---	---	---	---	---	19	7.3	1.6	0.25	0.55	0.39
31	10	---	---	---	---	---	---	139	---	0.24	0.44	---
TOTAL	39.94	---	---	---	---	---	---	446.3	373.0	30.01	8.60	90.30
MEAN	1.29	---	---	---	---	---	---	14.4	12.4	0.97	0.28	3.01
MAX	10	---	---	---	---	---	139	90	3.5	0.76	31	
MIN	0.21	---	---	---	---	---	5.1	1.3	0.22	0.17	0.22	
AC-FT	79	---	---	---	---	---	---	885	740	60	17	179

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2003 - 2004, BY WATER YEAR (WY)

MEAN	1.29	---	---	---	---	---	---	14.4	7.83	1.10	0.36	1.66
MAX	1.29	---	---	---	---	---	---	14.4	12.4	1.23	0.44	3.01
(WY)	(2004)	---	---	---	---	---	---	(2004)	(2004)	(2003)	(2003)	(2004)
MIN	1.29	---	---	---	---	---	---	14.4	3.22	0.97	0.28	0.31
(WY)	(2004)	---	---	---	---	---	---	(2004)	(2003)	(2004)	(2004)	(2003)

04010520 HOLLOW ROCK CREEK NEAR RED ROCK, MN—Continued

SUMMARY STATISTICS	FOR 2004 WATER YEAR	WATER YEARS 2003 - 2004
HIGHEST DAILY MEAN	139 May 31	139 May 31, 2004
LOWEST DAILY MEAN	0.17 Aug 6-8	0.01 Aug 19, 2003
ANNUAL SEVEN-DAY MINIMUM	0.19 Aug 2	0.03 Aug 13, 2003
MAXIMUM PEAK FLOW	335 May 31	335 May 31, 2004
MAXIMUM PEAK STAGE	6.28 May 31	6.28 May 31, 2004
INSTANTANEOUS LOW FLOW	0.17 Aug 6	0.01 Aug 18, 2003



04010528 RESERVATION RIVER NEAR GRAND PORTAGE, MN

LOCATION.--Lat 47°54'49", long 89°51'15", in SW¼NE¼ sec. 30, T.63 N., R.5 E., Cook County, Hydrologic Unit 04010101, on Grand Portage Indian Band property, on left bank 3.4 miles upstream from mouth and 8.6 mi southwest of Grand Portage.

DRAINAGE AREA.--

PERIOD OF RECORD.--May 2003 to June 2004 (discontinued, no winter records).

GAGE.--Water-stage recorder. Elevation of gage is 1,080 ft above sea level (from topographic map).

REMARKS.--Records good.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.1	4.2	---	---	---	---	63	38	74	---	---	---
2	1.1	3.0	---	---	---	---	52	33	60	---	---	---
3	1.1	2.8	---	---	---	---	30	29	---	---	---	---
4	1.1	2.9	---	---	---	---	22	28	---	---	---	---
5	0.99	3.2	---	---	---	---	22	24	---	---	---	---
6	0.94	3.0	---	---	---	---	23	24	---	---	---	---
7	0.95	3.2	---	---	---	---	33	20	---	---	---	---
8	0.87	e3.1	---	---	---	---	61	19	---	---	---	---
9	0.86	e3.8	---	---	---	---	48	18	---	---	---	---
10	0.87	e4.3	---	---	---	---	40	18	---	---	---	---
11	1.2	4.1	---	---	---	---	36	16	---	---	---	---
12	4.0	3.8	---	---	---	---	33	14	---	---	---	---
13	1.9	3.2	---	---	---	---	34	14	---	---	---	---
14	1.6	2.8	---	---	---	---	36	14	---	---	---	---
15	1.3	2.6	---	---	---	---	38	12	---	---	---	---
16	1.2	2.8	---	---	---	---	49	12	---	---	---	---
17	1.1	3.9	---	---	---	---	57	22	---	---	---	---
18	1.1	9.0	---	---	---	---	79	19	---	---	---	---
19	1.1	6.2	---	---	---	---	112	17	---	---	---	---
20	1.1	5.0	---	---	---	---	98	17	---	---	---	---
21	1.2	4.6	---	---	---	---	96	14	---	---	---	---
22	1.1	---	---	---	---	---	86	15	---	---	---	---
23	1.1	---	---	---	---	---	75	15	---	---	---	---
24	1.3	---	---	---	---	---	66	13	---	---	---	---
25	2.1	---	---	---	---	---	60	14	---	---	---	---
26	1.8	---	---	---	---	---	55	13	---	---	---	---
27	1.5	---	---	---	---	---	45	15	---	---	---	---
28	2.8	---	---	---	---	---	42	13	---	---	---	---
29	3.2	---	---	---	---	---	45	12	---	---	---	---
30	2.5	---	---	---	---	108	41	12	---	---	---	---
31	5.8	---	---	---	---	77	---	95	---	---	---	---
TOTAL	49.88	---	---	---	---	---	1,577	639	---	---	---	---
MEAN	1.61	---	---	---	---	---	52.6	20.6	---	---	---	---
MAX	5.8	--	---	---	---	112	95	---	---	---		
MIN	0.86	--	---	---	---	22	12	---	---	---		
AC-FT	99	---	---	---	---	---	3,130	1,270	---	---	---	---

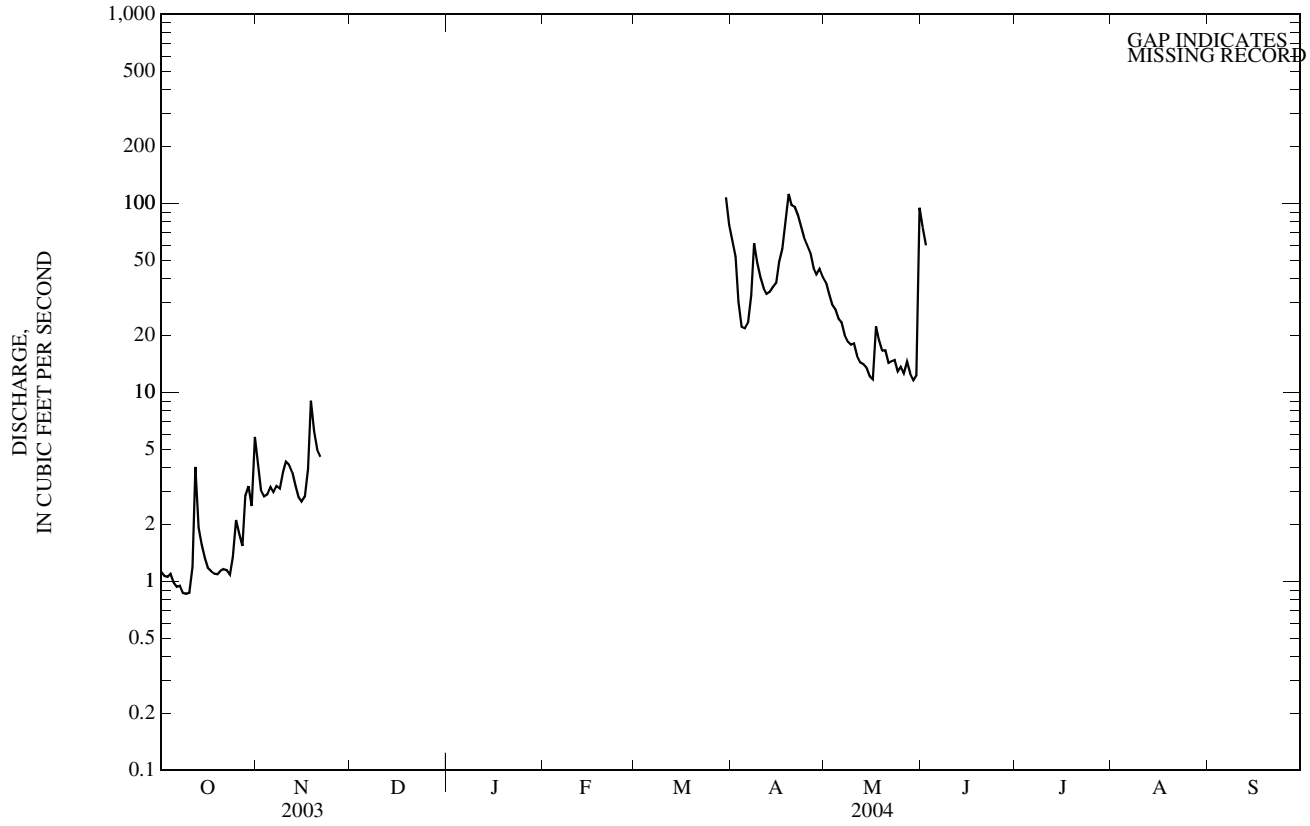
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2003 - 2004, BY WATER YEAR (WY)

MEAN	1.61	---	---	---	---	---	52.6	20.6	7.34	2.69	1.38	0.98
MAX	1.61	---	---	---	---	---	52.6	20.6	7.34	2.69	1.38	0.98
(WY)	(2004)	---	---	---	---	---	(2004)	(2004)	(2003)	(2003)	(2003)	(2003)
MIN	1.61	---	---	---	---	---	52.6	20.6	7.34	2.69	1.38	0.98
(WY)	(2004)	---	---	---	---	---	(2004)	(2004)	(2003)	(2003)	(2003)	(2003)

04010528 RESERVATION RIVER NEAR GRAND PORTAGE, MN—Continued

SUMMARY STATISTICS	FOR 2004 WATER YEAR	WATER YEARS 2003 - 2004
HIGHEST DAILY MEAN	112 Apr 19	112 Apr 19, 2004
LOWEST DAILY MEAN	0.86 Oct 9	0.60 Sep 11, 2003
ANNUAL SEVEN-DAY MINIMUM	0.94 Oct 4	0.66 Sep 5, 2003
MAXIMUM PEAK FLOW	220 May 31	220 May 31, 2004
MAXIMUM PEAK STAGE	6.09 May 31	6.09 May 31, 2004
INSTANTANEOUS LOW FLOW	0.80 Oct 8	0.49 Aug 27, 2003

e Estimated.



04015330 KNIFE RIVER NEAR TWO HARBORS, MN

LOCATION.--Lat 46°56'49", long 91°47'32", in SW¼NW¼ sec. 31, T.52 N., R.11 W., Lake County, Hydrologic Unit 04010102, on right bank 600 ft downstream from bridge on U.S. Highway 61, 0.5 mi upstream from bridge on County Highway 102, in town of Knife River, 0.8 mi upstream from Lake Superior, and 7.8 mi southwest of Two Harbors.

DRAINAGE AREA.--83.6 mi^2.

PERIOD OF RECORD.--July 1974 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 640 ft above sea level (from topographic map).

REMARKS.--Records good except those for estimated daily discharges, which are poor. Flow regulated intermittently by fish ladder operation just upstream of gage.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,800 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)
May 31	0900	*1,790	*6.29

Date	Time	Discharge (ft^3/s)	Gage height (ft)
No peak greater than base discharge.			

Minimum discharge, 3.0 ft^3/s, Jan 17 (estimated daily).

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.4	47	e9.0	e3.8	e3.2	e9.4	e66	80	669	9.8	9.1	6.8
2	8.8	37	e8.4	e3.7	e3.2	e9.4	e62	71	356	8.9	7.2	7.2
3	8.4	29	e8.0	e3.6	e3.2	e9.4	e80	62	202	8.4	5.8	6.4
4	8.3	26	e7.6	e3.5	e3.2	e9.4	e120	58	136	9.8	5.2	5.9
5	8.3	25	e7.3	e3.4	e3.2	e9.4	e220	54	117	30	4.6	8.6
6	8.2	e22	e7.0	e3.3	e3.2	e9.5	526	50	137	27	4.5	117
7	8.3	e19	e6.9	e3.2	e3.2	e9.6	691	45	100	19	4.4	76
8	8.3	e17	e6.7	e3.2	e3.2	e9.6	890	42	298	15	5.5	42
9	7.9	e14	e6.6	e3.2	e3.3	e9.6	644	40	175	12	13	26
10	8.0	e18	e6.5	e3.2	e3.3	e9.6	440	52	109	10	13	18
11	9.4	e22	e6.3	e3.2	e3.3	e9.6	287	50	79	37	20	14
12	18	e28	e6.3	e3.1	e3.4	e9.6	207	47	158	61	30	11
13	21	e21	e6.0	e3.1	e3.5	e9.7	174	49	112	34	16	9.8
14	16	e16	e5.5	e3.1	e3.6	e9.8	201	54	79	20	10	9.9
15	13	e20	e5.3	e3.1	e3.8	e9.9	192	48	56	13	8.2	24
16	11	e26	e5.2	e3.1	e4.0	e10	221	42	46	11	7.1	128
17	11	e32	e5.2	e3.0	e4.2	e10	240	316	38	9.6	6.5	68
18	10	e52	e5.2	e3.0	e4.5	e10	486	306	31	8.2	6.2	47
19	9.9	e56	e5.2	e3.0	e4.9	e10	824	174	25	7.6	5.4	32
20	9.7	e49	e5.2	e3.1	e5.4	e11	498	262	21	7.3	5.0	22
21	9.6	e40	e5.1	e3.1	e6.2	e11	331	171	18	7.1	4.6	38
22	9.3	e32	e5.0	e3.1	e6.8	e11	243	125	17	6.3	5.2	96
23	9.1	e26	e4.9	e3.1	e7.5	e11	177	125	15	5.6	6.0	68
24	9.5	e21	e4.8	e3.1	e8.2	e12	140	105	16	5.2	5.9	92
25	9.8	e18	e4.6	e3.1	e8.7	e13	163	121	15	4.9	5.5	76
26	9.6	e15	e4.4	e3.1	e9.1	e16	190	123	14	4.8	11	51
27	9.7	e13	e4.3	e3.1	e9.3	e27	144	96	13	4.6	15	46
28	13	e12	e4.2	e3.1	e9.4	e50	122	80	12	6.9	10	49
29	17	e11	e4.1	e3.1	e9.4	e100	106	68	11	9.6	7.9	35
30	24	e10	e4.0	e3.1	---	e86	92	511	11	11	7.0	27
31	48	---	e3.9	e3.2	---	e75	---	1,450	---	10	6.6	---
TOTAL	381.5	774	178.7	99.1	147.4	606.5	8,777	4,877	3,086	434.6	271.4	1,257.6
MEAN	12.3	25.8	5.76	3.20	5.08	19.6	293	157	103	14.0	8.75	41.9
MAX	48	56	9.0	3.8	9.4	100	890	1,450	669	61	30	128
MIN	7.9	10	3.9	3.0	3.2	9.4	62	40	11	4.6	4.4	5.9
AC-FT	757	1,540	354	197	292	1,200	17,410	9,670	6,120	862	538	2,490
CFSM	0.15	0.31	0.07	0.04	0.06	0.23	3.50	1.88	1.23	0.17	0.10	0.50
IN.	0.17	0.34	0.08	0.04	0.07	0.27	3.91	2.17	1.37	0.19	0.12	0.56

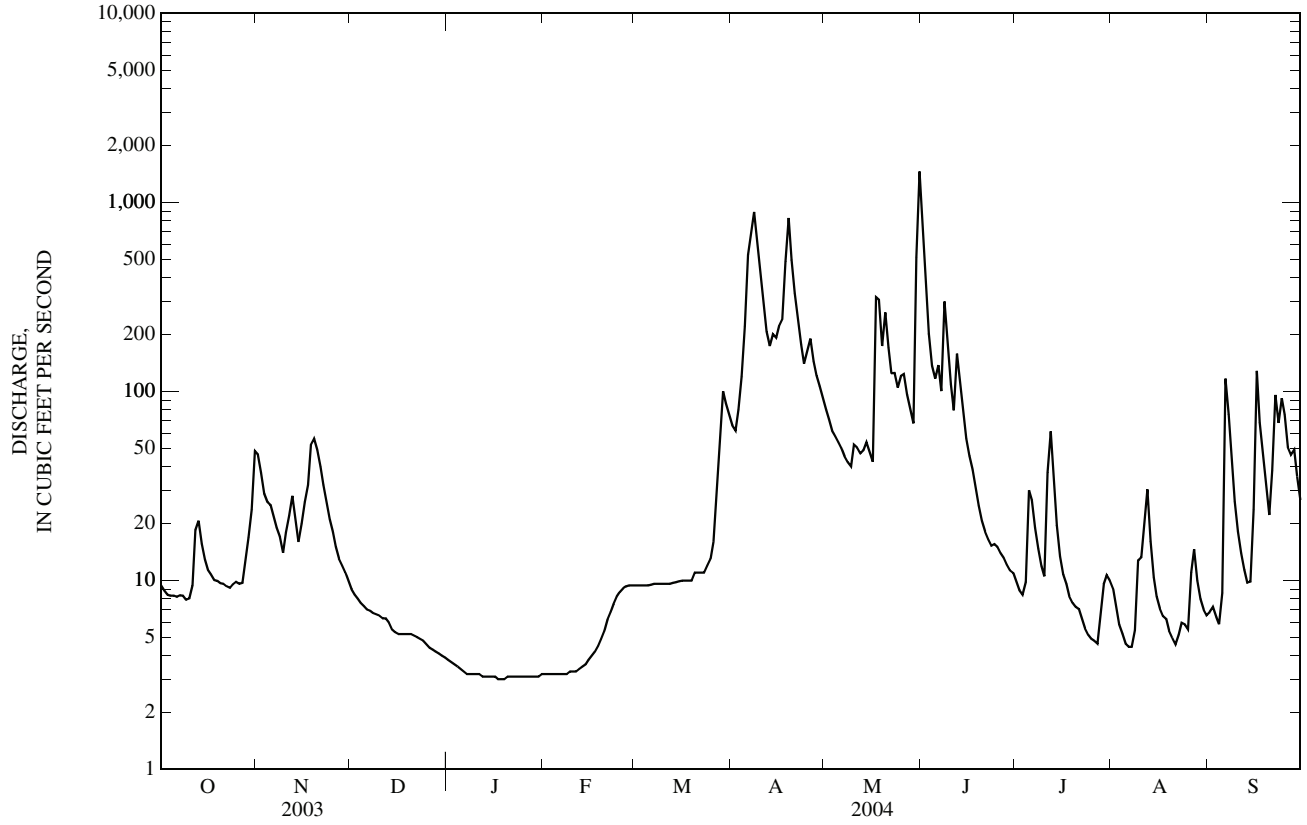
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1974 - 2004, BY WATER YEAR (WY)

MEAN	87.2	79.1	23.4	10.8	12.6	58.9	375	155	87.9	86.4	35.0	76.4
MAX	267	238	75.1	31.4	79.2	204	889	427	240	402	163	314
(WY)	(1996)	(1999)	(1999)	(1975)	(1998)	(1998)	(2001)	(1979)	(1984)	(1999)	(1988)	(1977)
MIN	3.06	1.58	0.00	0.00	0.00	6.30	73.6	16.0	13.0	4.87	2.95	1.43
(WY)	(1977)	(1977)	(1977)	(1977)	(1977)	(2002)	(1977)	(1976)	(1995)	(1988)	(1976)	(1976)

04015330 KNIFE RIVER NEAR TWO HARBORS, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1974 - 2004	
ANNUAL TOTAL	20,924.86		20,890.8			
ANNUAL MEAN	57.3		57.1		91.0	
HIGHEST ANNUAL MEAN					164	1999
LOWEST ANNUAL MEAN					44.2	1977
HIGHEST DAILY MEAN	1,280	Apr 10	1,450	May 31	4,840	Jul 5, 1999
LOWEST DAILY MEAN	0.00	Jan 17	3.0	Jan 17-19	a0.00	Dec 2, 1976
ANNUAL SEVEN-DAY MINIMUM	0.00	Jan 22	3.1	Jan 13	0.00	Dec 2, 1976
MAXIMUM PEAK FLOW			1,790	May 31	9,100	Jul 5, 1999
MAXIMUM PEAK STAGE			6.29	May 31	12.14	Jul 5, 1999
INSTANTANEOUS LOW FLOW			b3.0	Jan 17	a0.00	Dec 2, 1976
ANNUAL RUNOFF (AC-FT)	41,500		41,440		65,920	
ANNUAL RUNOFF (CFSM)	0.686		0.683		1.09	
ANNUAL RUNOFF (INCHES)	9.31		9.30		14.79	
10 PERCENT EXCEEDS	120		138		220	
50 PERCENT EXCEEDS	12		11		22	
90 PERCENT EXCEEDS	0.00		3.3		4.8	

a Many days in 1977 and 2003.
b Estimated, daily minimum.
e Estimated.



04024000 ST. LOUIS RIVER AT SCANLON, MN

LOCATION.--Lat 46°42'12", long 92°25'07", in NW$^1/_4$ sec. 30, T.49 N., R.16 W., Carlton County, Hydrologic Unit 04010201, on right bank 80 ft downstream from bridge on U.S. Highway 61 at Scanlon, 0.6 mi downstream from Minnesota Power Co. power plant, 3 mi upstream from Thomson Reservoir, and 3.2 mi upstream from Midway River.

DRAINAGE AREA.--3,430 mi^2 (approximately).

PERIOD OF RECORD.--January 1908 to current year. Monthly discharge only for some periods published in WSP 1307. Published as "near Thomson" 1908-50.

REVISED RECORDS.--WSP 1337: 1911-12.

GAGE.--Water-stage recorder. Datum of gage is 1,101.23 ft above sea level (NGVD of 1929). Oct. 5, 1909 to Sept. 5, 1914, nonrecording gage 3 mi downstream and 50 ft below power plant at datum about 420 ft lower. Sept. 6, 1914 to Aug. 4, 1953, power plant record at Thomson hydroelectric plant.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Diurnal fluctuation caused by power plant upstream. Flow regulated by Whiteface Reservoir and Boulder, Island, Rice and Fish Lakes, combined capacity, 332,160 acre-ft; the water-discharge table shows the monthly change in contents (+).

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1,740	1,150	1,580	e946	e717	e860	8,250	3,900	11,900	945	587	464
2	1,660	1,300	1,490	e942	e713	e854	8,790	3,640	11,400	896	612	482
3	1,540	1,240	1,430	e931	e710	e835	10,100	3,330	10,100	898	575	503
4	1,440	1,340	1,430	e863	e709	859	10,300	3,150	8,920	800	409	518
5	1,290	1,250	1,370	e814	e710	896	11,000	2,870	7,840	751	449	580
6	1,330	1,070	1,330	e779	e725	951	9,760	2,810	7,200	780	497	1,100
7	1,320	906	e1,270	e763	e742	869	8,520	2,530	6,520	804	449	1,460
8	1,180	1,000	e1,190	e748	e757	805	8,160	2,450	5,900	765	423	1,770
9	1,140	887	e1,100	e742	e765	e815	7,790	2,240	5,330	656	474	1,640
10	1,070	1,010	e1,020	e744	e769	e827	7,270	2,300	4,660	677	612	1,440
11	1,130	1,050	e969	e764	e773	e835	6,630	2,100	4,130	990	560	1,370
12	1,080	1,190	e996	e773	e773	e845	6,080	2,090	3,900	1,080	560	1,210
13	1,260	953	e1,010	e769	e773	e850	5,490	2,480	3,730	1,140	654	1,110
14	1,320	1,320	e1,020	e769	e770	e833	5,050	2,670	3,470	1,050	654	1,060
15	1,380	1,240	e1,030	e769	e765	e815	4,670	2,660	3,100	966	607	1,170
16	1,260	1,170	e1,020	e769	e764	817	4,470	2,490	2,800	861	585	1,250
17	1,150	1,220	e1,020	e771	e764	1,010	4,240	2,910	2,600	738	575	2,040
18	1,180	1,290	e1,030	e763	e771	991	4,210	4,410	2,320	727	594	2,280
19	1,170	1,380	e1,040	e755	e775	842	4,940	5,090	2,010	736	587	2,050
20	1,110	1,600	e1,030	e749	e781	e818	6,020	4,980	1,740	667	573	1,890
21	1,090	1,540	e1,020	e748	e784	e743	6,150	4,560	1,680	640	522	1,850
22	1,040	1,440	e1,020	e749	e784	e823	6,140	4,420	1,420	682	507	1,900
23	1,050	1,140	1,020	e746	e788	e834	6,030	3,940	1,370	615	568	2,050
24	965	703	1,020	e746	e789	e802	5,640	3,590	1,300	567	475	2,160
25	996	836	993	e745	e792	961	5,400	3,430	1,180	538	469	2,230
26	915	1,140	956	e744	e798	1,120	5,250	3,470	1,200	510	568	2,210
27	874	1,530	e970	e741	e815	1,430	4,980	3,550	1,110	492	519	2,070
28	967	1,660	e975	e737	e843	2,910	4,690	3,330	1,080	514	492	1,810
29	996	1,620	e971	e733	e854	6,480	4,410	3,300	1,090	555	473	1,720
30	982	1,600	e960	e727	---	7,790	4,210	3,360	943	459	457	1,520
31	1,140	---	e952	e722	---	7,930	---	7,920	---	561	455	---
TOTAL	36,765	36,775	34,232	24,061	22,273	49,050	194,640	105,970	121,943	23,060	16,541	44,907
MEAN	1,186	1,226	1,104	776	768	1,582	6,488	3,418	4,065	744	534	1,497
MAX	1,740	1,660	1,580	946	854	7,930	11,000	7,920	11,900	1,140	654	2,280
MIN	874	703	952	722	709	743	4,210	2,090	943	459	409	464
AC-FT	72,920	72,940	67,900	47,720	44,180	97,290	386,100	210,200	241,900	45,740	32,810	89,070
CFSM	0.35	0.36	0.32	0.23	0.22	0.46	1.89	1.00	1.19	0.22	0.16	0.44
IN.	0.40	0.40	0.37	0.26	0.24	0.53	2.11	1.15	1.32	0.25	0.18	0.49
+	-73.0	-12.7	-266	-266	-304	-55.6	1750	367	-269	-214	-147	139
MEAN ‡	1113	1213	838	510	464	1527	8238	3785	3796	530	387	1636
CFSM ‡	.32	.35	.24	.15	.14	.45	2.40	1.10	1.11	.15	.11	.48
IN ‡	.37	.39	.28	.17	.15	.52	2.68	1.27	1.24	.17	.13	.54

CAL. YR. 03 TOTAL 510,537 MEAN 1,399 MAX 5,740 MIN 321 MEAN ‡ 1,378 CFSM ‡ 0.40 IN ‡ 5.46
WTR. YR. 04 TOTAL 710,217 MEAN 1,940 MAX 11,900 MIN 409 MEAN ‡ 1,990 CFSM ‡ 0.58 IN ‡ 7.89

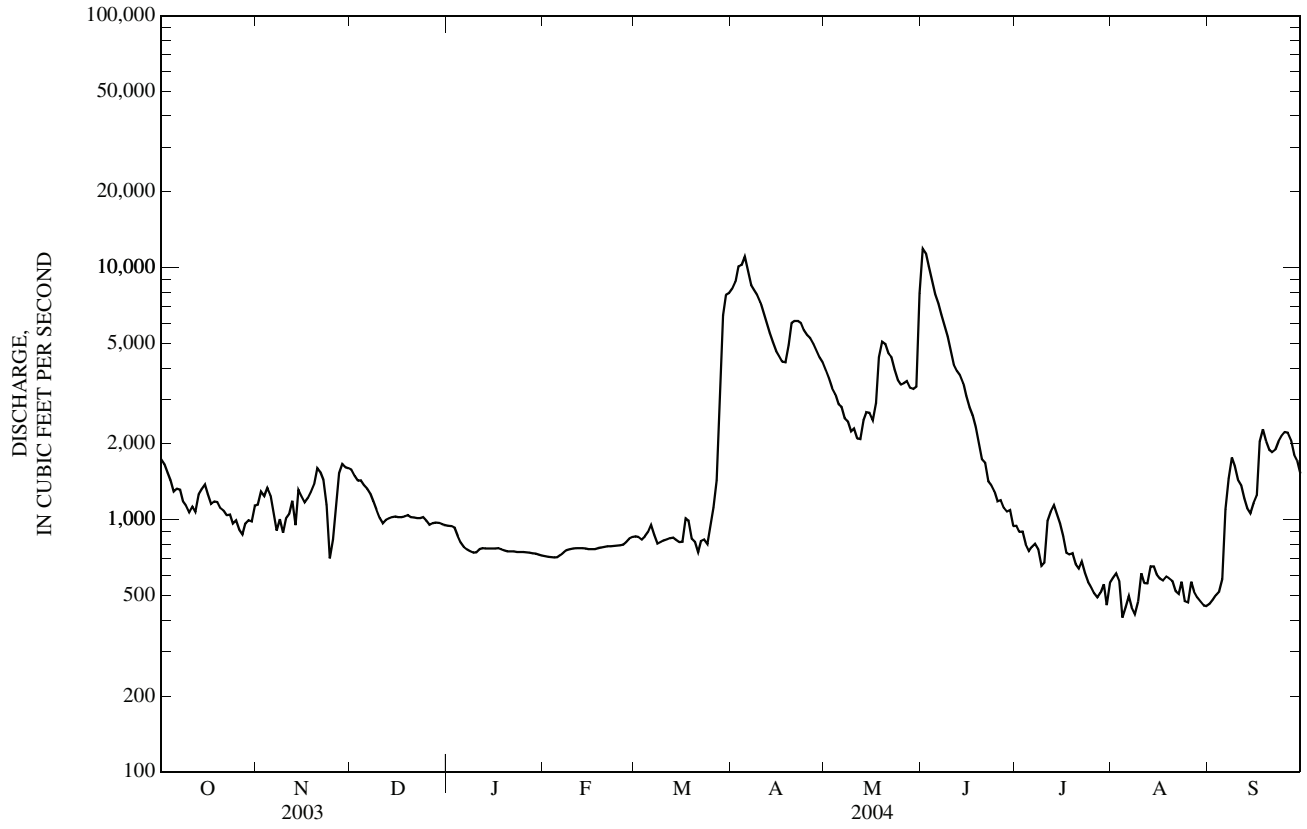
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1908 - 2004, BY WATER YEAR (WY)

MEAN	2,028	1,747	1,291	1,073	1,056	1,458	5,701	5,064	3,555	2,485	1,652	1,759
MAX	7,508	8,518	2,993	2,272	2,200	6,026	15,860	22,210	16,480	12,630	9,197	7,594
(WY)	(1974)	(1972)	(1972)	(1966)	(1966)	(1945)	(2001)	(1950)	(1908)	(1999)	(1953)	(1928)
MIN	407	473	282	265	249	301	667	593	458	199	377	402
(WY)	(1935)	(1935)	(1911)	(1911)	(1924)	(1924)	(1977)	(1977)	(1988)	(1988)	(1977)	(1934)

04024000 ST. LOUIS RIVER AT SCANLON, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1908 - 2004	
ANNUAL TOTAL	510,537		710,217			
ANNUAL MEAN	1,399		1,940		2,394	
HIGHEST ANNUAL MEAN					4,276	1972
LOWEST ANNUAL MEAN					945	1924
HIGHEST DAILY MEAN	5,740	Jul 12	11,900	Jun 1	37,900	May 9, 1950
LOWEST DAILY MEAN	321	Sep 11	409	Aug 4	88	Aug 24, 1977
ANNUAL SEVEN-DAY MINIMUM	438	Sep 5	468	Aug 3	134	Jul 26, 1988
MAXIMUM PEAK FLOW			13,600	Apr 5	37,900	May 9, 1950
MAXIMUM PEAK STAGE			8.77	Apr 5	15.80	May 9, 1950
INSTANTANEOUS LOW FLOW			379	Aug 4		
ANNUAL RUNOFF (AC-FT)	1,013,000		1,409,000		1,734,000	
ANNUAL RUNOFF (CFSM)	0.408		0.566		0.698	
ANNUAL RUNOFF (INCHES)	5.54		7.70		9.48	
10 PERCENT EXCEEDS	2,550		4,980		5,260	
50 PERCENT EXCEEDS	1,170		1,030		1,390	
90 PERCENT EXCEEDS	650		586		655	

+ Change in contents, equivalent in cubic feet per second, in Whiteface Reservoir, and Boulder, Island, Rice and Fish Lakes; records furnished by Minnesota Power Co.
‡ Adjusted for change in reservoir contents.
e Estimated.



05030500 OTTER TAIL RIVER NEAR ELIZABETH, MN

LOCATION.--Lat 46°22'10", long 96°01'02", in SW¼SE¼ sec. 31, T.134 N., R.42 W.,Otter Tail County, Hydrologic Unit 09020103, on right bank at County Highway 10, 2.5 miles below Taplin Gorge Dam, 5.0 miles above the Diversion Dam, 5.7 miles east of Elizabeth and 6.6 miles northeast of Fergus Falls.

DRAINAGE AREA.--1,230 mi^2 (approximately).

PERIOD OF RECORD.--May 1904 to September 1917, monthly discharge only, published as "at German Church near Fergus Falls" in WSP 1308. July 1992 to current year.

REVISED RECORD.--WDR MN-03-1: Minimum discharge, 2000 and 2001 water years.

GAGE.--Water-stage recorder. Elevation of gage is 1,250 ft above sea level (from topographic map). Nonrecording gage at same site November 1913 to September 1917 at elevation 1,265 ft (from topographic map).

REMARKS.--Records good except those for estimated daily discharge, which are fair. Flow regulated by power plant upstream.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	75	64	62	69	e50	149	204	270	464	359	274	172
2	69	64	62	69	e52	138	205	270	462	295	266	161
3	54	64	64	e68	e52	133	199	261	461	206	270	153
4	53	64	64	e68	e52	142	210	253	461	364	273	155
5	53	64	67	e68	e52	144	210	260	461	346	276	164
6	54	64	71	e68	e54	144	210	237	463	365	280	155
7	54	64	71	e68	e52	130	221	247	466	382	290	221
8	55	64	75	e68	e52	130	220	222	475	374	296	270
9	56	64	78	e68	e54	145	226	233	480	369	329	253
10	56	64	76	68	e54	e133	226	223	479	363	346	231
11	57	64	75	67	e54	e133	228	236	483	367	343	217
12	56	64	70	67	e52	e148	231	247	482	367	341	216
13	57	63	69	67	e52	147	243	251	480	368	327	199
14	58	63	69	67	e50	146	262	254	478	369	318	148
15	58	64	70	67	e50	161	269	257	480	372	317	136
16	63	64	71	67	e50	164	266	257	467	372	301	205
17	84	64	66	e62	e52	157	264	264	493	372	283	250
18	93	64	66	e60	e70	157	264	265	481	373	263	248
19	93	64	66	e58	e92	152	263	290	475	370	244	248
20	93	63	67	e56	e120	160	265	299	469	367	206	283
21	84	64	67	e58	121	169	273	298	456	362	192	323
22	78	64	67	e56	121	162	294	296	434	356	193	320
23	63	64	67	e56	121	157	304	288	423	337	211	345
24	69	e63	67	e58	122	166	304	297	425	329	222	351
25	69	62	67	e58	138	135	289	300	383	328	222	349
26	69	61	68	e58	150	195	274	303	371	313	193	350
27	69	61	71	e56	143	209	268	329	379	289	174	359
28	69	62	80	e53	137	206	282	360	378	272	172	364
29	69	62	74	e50	139	213	287	364	368	274	173	364
30	69	62	69	e48	---	206	277	473	365	276	174	363
31	66	---	e69	e49	---	200	---	465	---	276	173	---
TOTAL	2,065	1,902	2,145	1,920	2,358	4,931	7,538	8,869	13,442	10,532	7,942	7,573
MEAN	66.6	63.4	69.2	61.9	81.3	159	251	286	448	340	256	252
MAX	93	64	80	69	150	213	304	473	493	382	346	364
MIN	53	61	62	48	50	130	199	222	365	206	172	136
AC-FT	4,100	3,770	4,250	3,810	4,680	9,780	14,950	17,590	26,660	20,890	15,750	15,020
CFSM	0.05	0.05	0.06	0.05	0.07	0.13	0.20	0.23	0.36	0.28	0.21	0.21
IN.	0.06	0.06	0.06	0.06	0.07	0.15	0.23	0.27	0.41	0.32	0.24	0.23

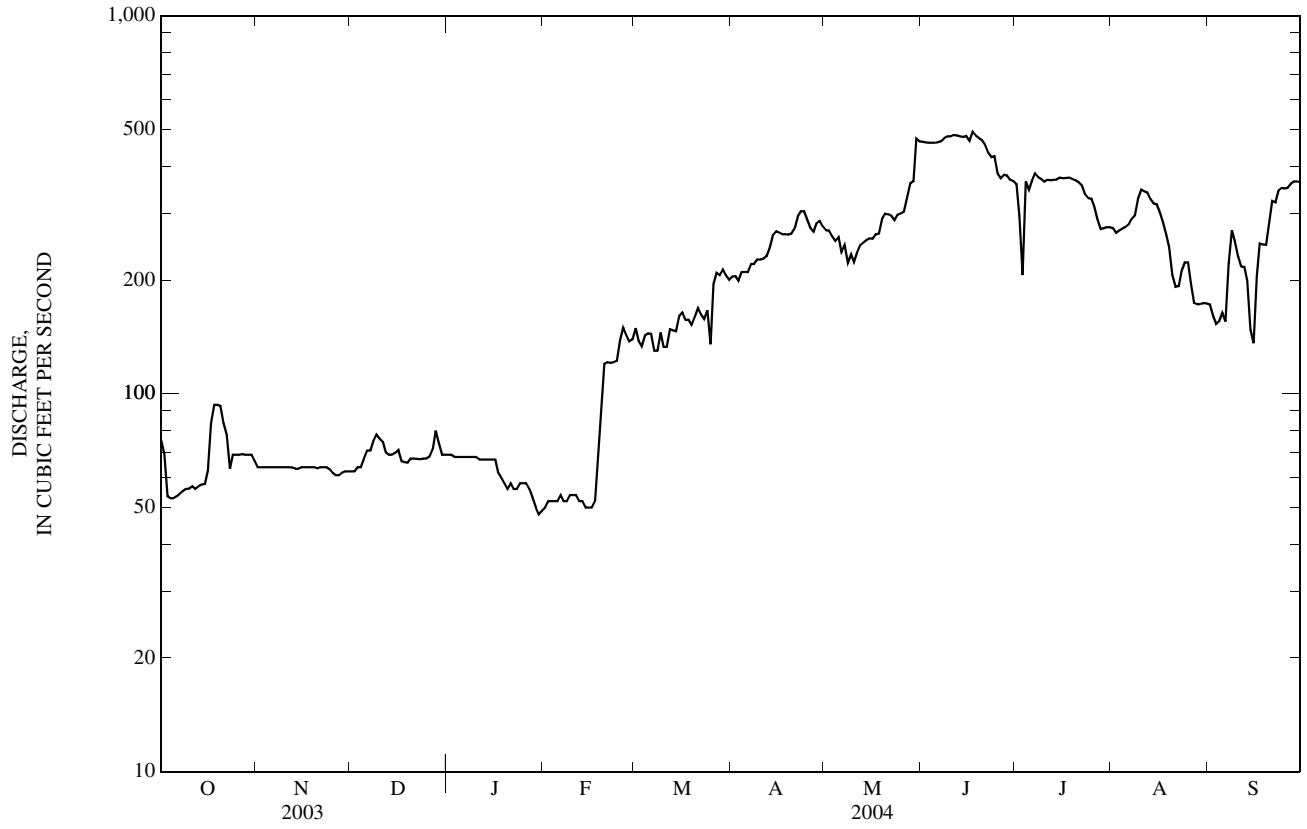
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1992 - 2004, BY WATER YEAR (WY)

MEAN	283	304	313	303	315	359	506	668	623	558	410	326
MAX	740	571	529	479	523	477	725	1,056	1,003	770	759	817
(WY)	(1994)	(1994)	(1999)	(1999)	(1999)	(1999)	(1999)	(2001)	(2001)	(1998)	(1993)	(1993)
MIN	66.6	63.4	69.2	61.9	81.3	159	251	286	429	340	218	97.8
(WY)	(2004)	(2004)	(2004)	(2004)	(2004)	(2004)	(2004)	(2004)	(2002)	(2004)	(1996)	(2003)

05030500 OTTER TAIL RIVER NEAR ELIZABETH, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1992 - 2004	
ANNUAL TOTAL	90,676		71,217			
ANNUAL MEAN	248		195		416	
HIGHEST ANNUAL MEAN					593	1999
LOWEST ANNUAL MEAN					195	2004
HIGHEST DAILY MEAN	601	Jul 11	a493	Jun 17	a1,110	May 23, 2001
LOWEST DAILY MEAN	53	Oct 4	b48	Jan 30	48	Jan 30, 2004
ANNUAL SEVEN-DAY MINIMUM	54	Oct 3	50	Jan 29	50	Jan 29, 2004
MAXIMUM PEAK FLOW			a505	Jun 16	a1,170	May 23, 2001
MAXIMUM PEAK STAGE			6.63	Jun 16	a9.37	May 23, 2001
INSTANTANEOUS LOW FLOW			c8.8	Mar 25	c8.8	Mar 25, 2004
ANNUAL RUNOFF (AC-FT)	179,900		141,300		301,700	
ANNUAL RUNOFF (CFSM)	0.202		0.158		0.339	
ANNUAL RUNOFF (INCHES)	2.74		2.15		4.60	
10 PERCENT EXCEEDS	475		370		722	
50 PERCENT EXCEEDS	220		168		378	
90 PERCENT EXCEEDS	64		58		174	

a Due in part to regulation.
b Estimated daily discharge, backwater from ice.
c Result of regulation.
e Estimated.



05046000 OTTER TAIL RIVER BELOW ORWELL DAM, NEAR FERGUS FALLS, MN

LOCATION.--Lat 46°12'35", long 96°11'05", in NE¼ sec. 34, T.132 N., R.44 W., Otter Tail County, Hydrologic Unit 09020103, on left bank 0.7 mi downstream from Orwell Dam on County Highway 15, 6.1 mi downstream from Dayton Hollow Dam, 8 mi southwest of Fergus Falls, and 11.1 mi downstream from Pelican River.

DRAINAGE AREA.--1,740 mi^2.

PERIOD OF RECORD.--October 1930 to current year. Prior to October 1952, published as "Otter Tail River below Pelican River, near Fergus Falls". Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 785: 1934(M). WSP 1208: 1947(M). WSP 1308: 1931(M).

GAGE.--Water-stage recorder. Datum of gage is 1,029.65 ft above sea level ((NGVD of 1912, levels by U.S. Army Corps of Engineers). Oct. 11, 1930 to Nov. 17, 1933, at same site at datum 2.00 ft higher; Nov. 18, 1933 to Mar. 21, 1953, at site 6.1 mi upstream at datum 40.30 ft higher.

REMARKS.--Records good. Flow regulated at Orwell Lake (station 05045950) beginning Mar. 21, 1953, and by power plant upstream.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	143	138	111	149	173	260	462	333	917	444	355	174
2	136	138	90	149	130	260	379	336	910	420	354	206
3	134	138	88	154	102	260	336	333	905	421	394	227
4	136	138	86	154	100	260	336	335	807	421	442	228
5	136	138	85	154	99	260	359	372	747	420	458	237
6	136	136	84	151	117	260	403	390	747	555	435	236
7	136	133	84	123	128	260	447	388	747	584	420	340
8	136	133	85	106	128	260	401	388	747	648	420	439
9	137	133	86	106	131	260	371	384	744	653	420	455
10	138	133	87	106	133	292	365	359	714	626	420	454
11	138	133	87	107	133	310	360	343	695	624	420	460
12	136	133	86	124	133	306	360	351	695	580	440	459
13	136	119	86	138	167	306	360	353	692	553	457	501
14	113	106	86	138	190	307	361	389	693	552	455	478
15	100	106	86	137	190	306	409	414	667	531	453	458
16	118	106	87	135	190	268	435	419	658	520	438	492
17	147	81	86	138	190	243	433	420	662	522	417	564
18	147	79	102	138	190	283	432	424	657	522	404	587
19	145	94	111	137	190	329	429	460	652	496	388	580
20	144	98	110	114	175	345	428	480	651	486	373	630
21	127	98	111	101	165	344	431	480	650	486	356	743
22	110	98	112	101	165	366	421	484	618	472	355	817
23	110	100	113	100	165	380	419	488	597	460	451	817
24	110	247	111	101	165	336	416	490	597	454	485	817
25	113	202	113	100	196	323	418	486	572	449	157	813
26	112	174	114	101	242	336	419	534	556	382	156	806
27	112	143	114	102	260	337	414	592	556	318	216	759
28	114	143	114	102	260	342	406	605	553	333	220	675
29	113	139	134	135	260	450	408	601	519	354	220	641
30	127	138	149	180	---	564	380	602	486	356	193	596
31	138	---	149	175	---	552	---	782	---	355	171	---
TOTAL	3,978	3,895	3,147	3,956	4,867	9,965	11,998	13,815	20,411	14,997	11,343	15,689
MEAN	128	130	102	128	168	321	400	446	680	484	366	523
MAX	147	247	149	180	260	564	462	782	917	653	485	817
MIN	100	79	84	100	99	243	336	333	486	318	156	174
AC-FT	7,890	7,730	6,240	7,850	9,650	19,770	23,800	27,400	40,490	29,750	22,500	31,120
CFSM	0.07	0.07	0.06	0.07	0.10	0.18	0.23	0.26	0.39	0.28	0.21	0.30
IN.	0.09	0.08	0.07	0.08	0.10	0.21	0.26	0.30	0.44	0.32	0.24	0.34

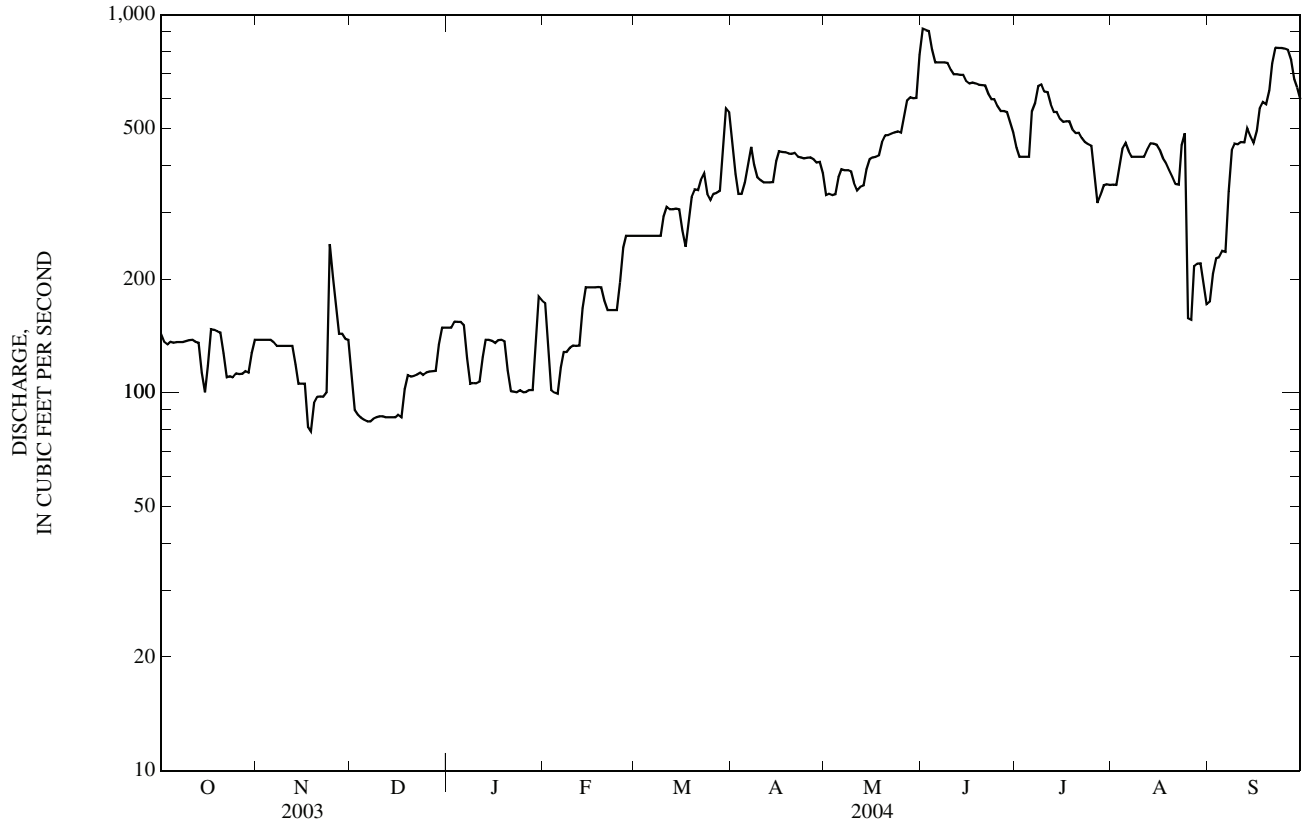
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1931 - 2004, BY WATER YEAR (WY)

MEAN	256	267	260	253	256	341	507	610	598	458	310	260
MAX	973	831	740	737	742	785	1,199	1,427	1,442	1,246	1,080	1,026
(WY)	(1994)	(1986)	(1999)	(1999)	(1999)	(1999)	(1997)	(1986)	(2001)	(1953)	(1985)	(1993)
MIN	9.15	8.42	8.10	15.1	10.8	23.5	39.5	14.1	14.2	12.8	11.5	7.99
(WY)	(1977)	(1977)	(1977)	(1937)	(1935)	(1937)	(1934)	(1977)	(1934)	(1936)	(1934)	(1934)

05046000 OTTER TAIL RIVER BELOW ORWELL DAM, NEAR FERGUS FALLS, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1931 - 2004	
ANNUAL TOTAL	132,121		118,061			
ANNUAL MEAN	362		323		365	
HIGHEST ANNUAL MEAN					846	1999
LOWEST ANNUAL MEAN					20.4	1934
HIGHEST DAILY MEAN	961	Jul 1	a917	Jun 1	1,670	Jun 20, 1953
LOWEST DAILY MEAN	75	Sep 23	a79	Nov 18	a1.6	Feb 7, 1937
ANNUAL SEVEN-DAY MINIMUM	77	Sep 20	85	Dec 4	5.9	Sep 15, 1934
MAXIMUM PEAK FLOW			924	May 31	2,040	May 29, 2001
MAXIMUM PEAK STAGE			3.77	May 31	5.60	Jun 17, 1953
INSTANTANEOUS LOW FLOW			a57	Nov 17	a0.70	Aug 5, 1970
ANNUAL RUNOFF (AC-FT)	262,100		234,200		264,400	
ANNUAL RUNOFF (CFSM)	0.208		0.185		0.210	
ANNUAL RUNOFF (INCHES)	2.82		2.52		2.85	
10 PERCENT EXCEEDS	691		620		786	
50 PERCENT EXCEEDS	345		314		300	
90 PERCENT EXCEEDS	100		105		39	

a Due in part to regulation.



05049995 MUD LAKE ABOVE WHITE ROCK DAM NEAR WHITE ROCK, SD

LOCATION.--Lat 45°51'41", long 96°34'20", in NW¼NW¼ sec. 34, T.128 N., R.47 W., Roberts County, Hydrologic Unit 09020101, on Sisseton Indian Reservation, on left bank, 10 ft west of White Rock Dam, 4 mi south of White Rock and 5 mi northwest of Wheaton, MN.

DRAINAGE AREA.--

PERIOD OF RECORD.--October 2000 to current year. Gage height record prior to October 2000 can be obtained from Corp of Engineers.

GAGE.--Water-stage recorder. Datum of gage is 960.00 ft, adjustment of 1912 (levels by U.S. Army Corps of Engineers).

REMARKS.--Records poor. Lake regulated by Lake Traverse-Boise de Sioux Flood Control and Water Conservation project.

EXTREMES FOR PERIOD OF RECORD.---Maximum gage-height, 80.90 ft, Apr. 29, 2001; maximum daily, 80.76 ft, Apr. 19, 2001; minimum gage-height recorded, 65.14 ft, many days, several years (due in part to regulation), stage was observed lower than the detection limits of gage but precise stage readings were not determined; minimum daily recorded, 65.22 ft, June 14, 2002.

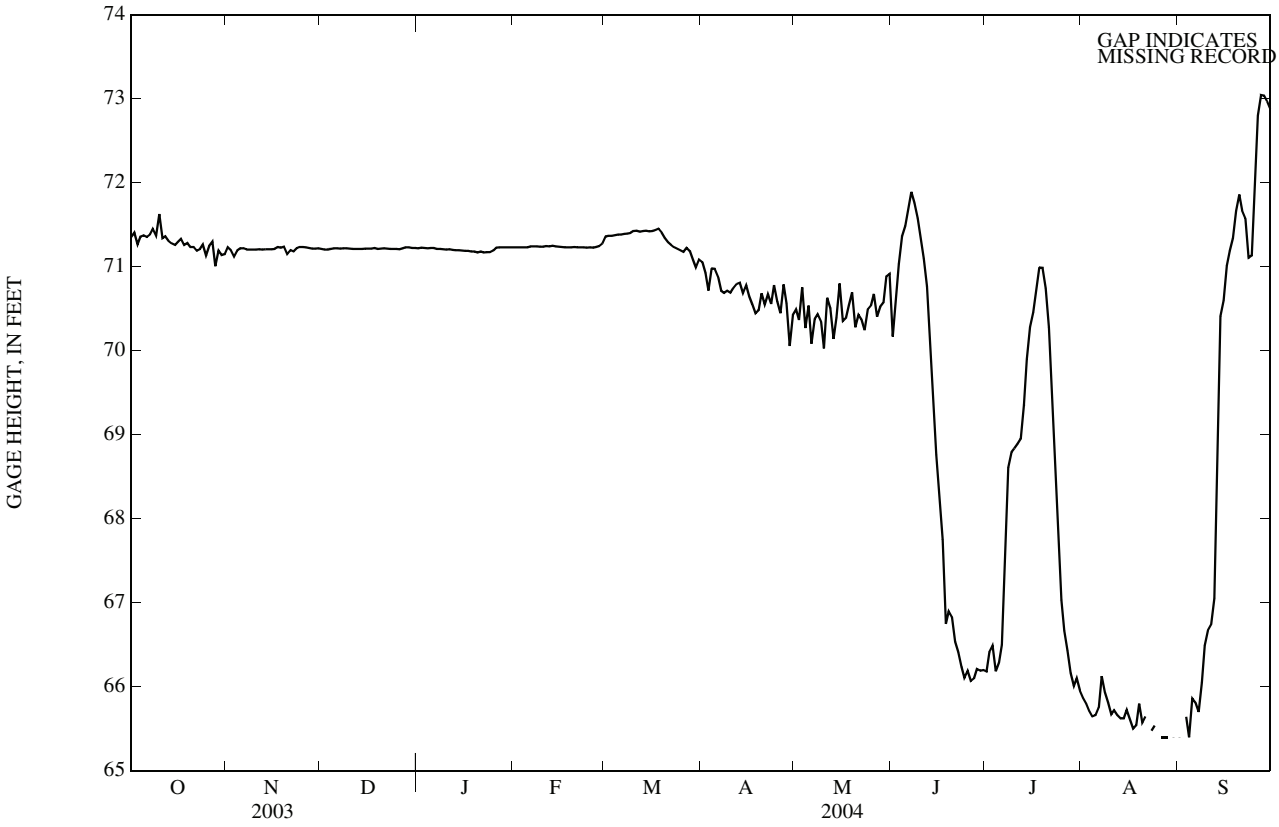
EXTREMES FOR CURRENT YEAR.--Maximum gage-height, 73.15 ft, Sep. 27; maximum daily, 73.04 ft, Sep. 27; minimum gage-height recorded, 65.39 ft. May have been lower at times between Aug. 22 and Sep. 4, but precise stage readings were not determined.

GAGE HEIGHT, FEET
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	71.35	71.23	71.21	71.22	71.23	71.36	71.06	70.49	70.17	66.18	65.87	<65.40
2	71.40	71.20	71.20	71.23	71.23	71.37	70.92	70.37	70.66	66.41	65.80	---
3	71.27	71.12	71.20	71.22	71.23	71.37	70.72	70.75	71.03	66.49	65.72	65.65
4	71.36	71.19	71.21	71.22	71.23	71.37	70.98	70.27	71.36	66.19	65.65	<65.40
5	71.37	71.22	71.22	71.22	71.23	71.38	70.97	70.54	71.48	66.29	65.66	65.86
6	71.35	71.22	71.22	71.22	71.24	71.38	70.88	70.08	71.69	66.50	65.75	65.81
7	71.38	71.20	71.22	71.21	71.24	71.39	70.71	70.37	71.89	67.50	66.13	65.70
8	71.45	71.20	71.22	71.21	71.24	71.39	70.69	70.43	71.75	68.61	65.93	66.05
9	71.37	71.20	71.22	71.21	71.24	71.40	70.71	70.35	71.58	68.79	65.81	66.49
10	71.63	71.20	71.22	71.20	71.24	71.42	70.69	70.03	71.33	68.83	65.67	66.67
11	71.34	71.21	71.21	71.21	71.25	71.43	70.75	70.63	71.10	68.89	65.72	66.74
12	71.36	71.20	71.21	71.20	71.24	71.42	70.79	70.50	70.76	68.95	65.66	67.05
13	71.31	71.21	71.21	71.19	71.25	71.42	70.81	70.14	70.21	69.36	65.62	69.04
14	71.27	71.21	71.21	71.20	71.24	71.43	70.68	70.39	69.53	69.90	65.62	70.41
15	71.26	71.21	71.21	71.19	71.24	71.42	70.78	70.80	68.76	70.28	65.73	70.60
16	71.30	71.21	71.22	71.19	71.23	71.42	70.65	70.35	68.20	70.46	65.61	71.01
17	71.33	71.23	71.21	71.19	71.23	71.43	70.55	70.39	67.75	70.74	65.50	71.19
18	71.26	71.23	71.22	71.18	71.23	71.45	70.44	70.54	66.75	70.99	65.54	71.34
19	71.28	71.24	71.21	71.18	71.23	71.41	70.48	70.69	66.90	70.98	65.80	71.66
20	71.24	71.15	71.21	71.17	71.23	71.34	70.68	70.28	66.83	70.74	65.57	71.86
21	71.23	71.20	71.22	71.18	71.23	71.29	70.55	70.43	66.53	70.28	65.65	71.67
22	71.19	71.18	71.22	71.17	71.23	71.26	70.67	70.37	66.41	69.35	---	71.58
23	71.21	71.22	71.21	71.17	71.23	71.23	70.56	70.24	66.23	68.61	65.48	71.11
24	71.26	71.23	71.21	71.17	71.23	71.21	70.78	70.49	66.11	67.72	65.54	71.13
25	71.13	71.23	71.21	71.19	71.23	71.19	70.59	70.54	66.19	67.03	---	72.00
26	71.25	71.23	71.21	71.23	71.23	71.17	70.45	70.67	66.07	66.67	<65.40	72.80
27	71.29	71.22	71.22	71.23	71.23	71.22	70.79	70.40	66.10	66.43	<65.40	73.04
28	71.00	71.22	71.23	71.23	71.25	71.18	70.56	70.52	66.21	66.16	<65.40	73.03
29	71.19	71.21	71.23	71.23	71.27	71.08	70.06	70.57	66.19	66.01	---	72.97
30	71.14	71.22	71.22	71.23	---	70.99	70.42	70.88	66.20	66.10	<65.40	72.88
31	71.15	---	71.22	71.23	---	71.09	---	70.91	---	65.96	---	---
MEAN	71.29	71.21	71.21	71.20	71.24	71.32	70.68	70.46	68.73	68.17	---	---
MAX	71.63	71.24	71.23	71.23	71.27	71.45	71.06	70.91	71.89	70.99	---	---
MIN	71.00	71.12	71.20	71.17	71.23	70.99	70.06	70.03	66.07	65.96	---	---

< Actual value is known to be less than the value shown

05049995 MUD LAKE ABOVE WHITE ROCK DAM NEAR WHITE ROCK, SD—Continued



05050000 BOIS DE SIOUX RIVER NEAR WHITE ROCK, SD

LOCATION.--Lat 45°51'45", long 96°34'25", in SW¼SW¼ sec. 27, T.128 N., R.47 W., Roberts County, Hydrologic Unit 09020101, on Sisseton Indian Reservation, on left bank at Big Slough Outlet, 300 ft downstream from White Rock Dam, 4 mi south of White Rock and 5 mi northwest of Wheaton, MN.

DRAINAGE AREA.--1,160 mi^2 (approximately).

PERIOD OF RECORD.--October 1941 to current year.

GAGE.--Water-stage recorder. Datum of gage is 960.00 ft. above sea level, (adjustment of 1912, levels by U.S. Army Corps of Engineers). Prior to Jan. 14, 1943, nonrecording gage at same site at datum 0.11 ft lower. Jan. 15, 1943 to Sept. 30, 1963, water-stage recorder at same site at datum 0.11 ft lower.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Flow regulated by Lake Traverse-Boise de Sioux Flood Control and Water Conservation project.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.00	0.47	e0.70	e0.00	e0.00	e2.0	69	8.4	485	72	35	2.1
2	0.00	0.56	e0.62	e0.00	e0.00	e1.8	62	8.5	497	101	27	26
3	0.00	0.68	e0.70	e0.00	e0.00	e1.6	48	10	492	110	20	18
4	0.00	e0.62	e0.76	e0.00	e0.00	e1.5	43	9.8	493	73	14	2.3
5	0.00	e0.54	e0.72	e0.00	e0.00	e1.5	32	7.8	494	85	15	55
6	0.00	e0.48	e0.72	e0.00	e0.00	e1.7	25	7.1	489	123	22	94
7	0.00	e0.46	e0.70	e0.00	e0.00	e2.1	19	7.7	493	234	67	73
8	0.00	e0.46	e0.90	e0.00	e0.00	e2.0	15	7.5	489	291	55	84
9	0.00	e0.52	e0.60	e0.00	e0.00	e3.0	14	6.1	479	298	35	131
10	0.00	0.58	e0.20	e0.00	e0.00	e4.0	14	5.4	465	296	21	156
11	0.00	0.91	e0.00	e0.00	e0.00	e3.2	14	5.4	452	323	23	167
12	0.00	1.3	e0.00	e0.00	e0.00	e3.0	14	16	434	316	17	203
13	0.00	1.2	e0.00	e0.00	e0.00	e4.1	14	22	405	323	13	160
14	0.00	1.2	e0.00	e0.00	e0.00	e4.6	14	13	358	335	13	66
15	0.00	1.3	e0.00	e0.00	e0.00	e4.0	15	9.5	312	344	20	26
16	0.00	1.5	e0.00	e0.00	e0.00	e4.3	17	7.2	275	351	12	33
17	0.00	1.6	e0.00	e0.00	e0.00	e4.0	15	18	250	357	5.8	27
18	0.00	1.7	e0.00	e0.00	e0.00	e4.0	15	31	168	360	7.6	21
19	0.00	1.7	e0.00	e0.00	e0.00	e5.0	11	9.4	179	361	24	21
20	0.00	1.7	e0.00	e0.00	e0.00	e15	9.9	8.0	170	351	9.6	56
21	0.00	1.5	e0.00	e0.00	e0.00	e12	28	10	124	336	13	121
22	0.00	e1.4	e0.00	e0.00	e0.00	e18	26	10	105	303	8.5	240
23	0.00	e0.80	e0.00	e0.00	e0.00	e29	21	13	e83	269	4.9	433
24	0.00	e0.40	e0.00	e0.00	e0.00	e47	12	17	68	228	7.0	515
25	0.00	0.21	e0.00	e0.00	e0.00	80	10	32	e74	181	3.8	532
26	0.00	0.15	e0.00	e0.00	e0.00	80	9.2	32	e66	130	2.9	539
27	0.00	e0.20	e0.00	e0.00	e0.00	91	8.7	20	e72	99	2.8	574
28	0.00	e0.18	e0.00	e0.00	e0.10	94	9.3	20	e80	66	2.6	624
29	0.00	e0.18	e0.00	e0.00	e0.19	91	8.4	9.6	e77	48	5.1	644
30	0.00	e0.40	e0.00	e0.00	---	85	8.8	87	e73	59	3.1	641
31	0.28	---	e0.00	e0.00	---	79	---	271	---	45	5.4	---
TOTAL	0.28	24.90	6.62	0.00	0.29	778.4	621.3	739.4	8,701	6,868	515.1	6,284.4
MEAN	0.01	0.83	0.21	0.00	0.01	25.1	20.7	23.9	290	222	16.6	209
MAX	0.28	1.7	0.90	0.00	0.19	94	69	271	497	361	67	644
MIN	0.00	0.15	0.00	0.00	0.00	1.5	8.4	5.4	66	45	2.6	2.1
AC-FT	0.6	49	13	0.00	0.6	1,540	1,230	1,470	17,260	13,620	1,020	12,470
CFSM	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.25	0.19	0.01	0.18
IN.	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.28	0.22	0.02	0.20

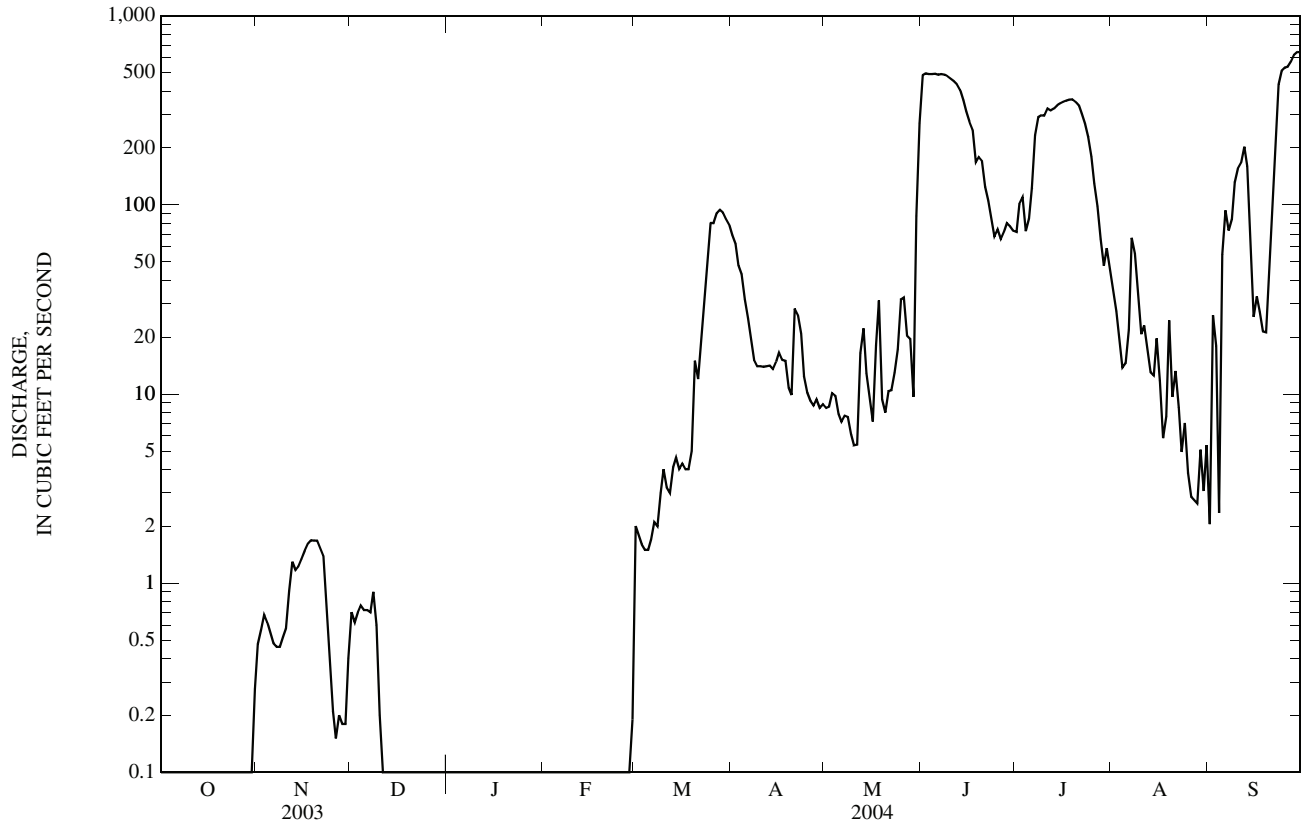
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1942 - 2004, BY WATER YEAR (WY)

MEAN	27.8	15.8	10.1	3.33	7.31	72.5	322	309	251	180	70.8	37.4
MAX	535	307	207	42.4	148	628	3,814	1,445	1,103	1,035	1,182	1,062
(WY)	(1994)	(1996)	(1999)	(1997)	(1997)	(1996)	(1997)	(1997)	(1986)	(1962)	(1993)	(1993)
MIN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.01	0.00	0.00	0.00
(WY)	(1942)	(1942)	(1942)	(1942)	(1942)	(1942)	(1942)	(1977)	(1977)	(1961)	(1970)	(1960)

05050000 BOIS DE SIOUX RIVER NEAR WHITE ROCK, SD—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1942 - 2004	
ANNUAL TOTAL	25,114.06		24,539.69			
ANNUAL MEAN	68.8		67.0		a109	
HIGHEST ANNUAL MEAN					536	1997
LOWEST ANNUAL MEAN					0.38	1977
HIGHEST DAILY MEAN	773	Jul 4	644	Sep 29	7,710	Apr 16, 1997
LOWEST DAILY MEAN	0.00	Jan 24	b0.00	Oct 1	c0.00	Oct 1, 1941
ANNUAL SEVEN-DAY MINIMUM	0.00	Jan 24	0.00	Oct 1	0.00	Oct 1, 1941
MAXIMUM PEAK FLOW			648	Sep 28	d8,750	Apr 20, 1997
MAXIMUM PEAK STAGE			7.74	Sep 28	16.90	Apr 20, 1997
INSTANTANEOUS LOW FLOW			0.00	Oct 1, Dec 11		
ANNUAL RUNOFF (AC-FT)	49,810		48,670		79,140	
ANNUAL RUNOFF (CFSM)	0.059		0.058		0.094	
ANNUAL RUNOFF (INCHES)	0.81		0.79		1.28	
10 PERCENT EXCEEDS	158		297		355	
50 PERCENT EXCEEDS	0.62		5.6		3.5	
90 PERCENT EXCEEDS	0.00		0.00		0.00	

a Median of annual mean discharges is 64 ft^3/s.
b Many days.
c Many days, several years; result of regulation.
d Estimated, from observed readings made under non-ideal conditions. Some evidence that peak occurred Apr. 16 at 7,930 ft^3/s.
e Estimated.



05051300 BOIS DE SIOUX RIVER NEAR DORAN, MN

LOCATION.--Lat 46°09'08", long 96°34'44", in NE¼ NE¼ sec. 21, T.131 N., R.47 W., Wilken County, MN, Hydrologic Unit 09020101, on right bank, 10 ft downstream from bridge on County Highway 6, 3 miles downstream from Rabbit River, 4.3 mi southwest of Doran.

DRAINAGE AREA.--1,880 mi^2 (approximately).

PERIOD OF RECORD.--October 12, 1989 to current year.

GAGE.--Water-stage recorder. Datum of gage is 943.90 ft above sea level (NGVD of 1929, elevation data obtained from Wilkin County Highway Engineers).

REMARKS.--Records good except for estimated daily discharges, which are poor. Flow regulated by Lake Traverse-Bois de Sioux Flood Control and Water Conservation project near White Rock, S.D.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.00	0.00	0.44	e0.00	0.00	e0.50	e120	10	1,080	69	43	5.1
2	0.00	0.00	e0.30	0.00	0.00	e2.3	e93	9.8	1,340	71	34	6.3
3	0.00	0.00	e0.30	0.00	0.00	e2.0	e74	9.9	1,170	103	29	6.5
4	0.00	0.00	0.32	0.00	0.00	e1.7	e56	9.6	867	112	24	27
5	0.00	<0.10	0.40	0.00	0.00	e1.9	e44	10	714	71	17	32
6	0.00	<0.10	0.39	0.00	0.00	e2.2	e32	11	659	110	14	573
7	0.00	<0.10	0.56	0.00	0.00	e2.5	e25	9.9	629	304	22	879
8	0.00	<0.10	0.75	0.00	0.00	e3.2	e20	9.3	599	509	50	644
9	0.00	<0.10	e0.70	0.00	0.00	e4.5	e18	9.6	581	489	49	402
10	0.00	0.12	e0.30	0.00	0.00	e6.0	e18	10	561	425	35	308
11	0.00	0.18	<0.10	0.00	0.00	e5.4	e17	7.2	549	470	26	257
12	0.00	0.30	e0.00	0.00	0.00	e5.0	15	21	690	764	22	235
13	0.00	0.98	e0.00	0.00	0.00	e5.8	15	36	615	913	21	246
14	0.00	1.2	e0.00	0.00	0.00	e7.0	14	48	525	804	16	142
15	0.00	1.2	e0.00	0.00	0.00	e6.4	14	45	451	630	14	67
16	0.00	1.6	e0.00	0.00	0.00	e6.8	13	36	385	547	14	124
17	0.00	1.5	e0.00	0.00	0.00	e6.0	14	35	339	534	15	340
18	0.00	1.6	e0.00	0.00	0.00	e6.0	15	41	281	524	9.9	277
19	0.00	1.7	e0.00	0.00	0.00	e12	14	49	206	501	7.3	149
20	0.00	1.6	e0.00	0.00	0.00	e27	15	39	216	480	8.9	140
21	0.00	1.5	e0.00	0.00	0.00	e24	16	33	199	449	19	1,010
22	0.00	e1.1	e0.00	0.00	0.00	e37	21	24	139	411	10	1,700
23	0.00	e0.70	e0.00	0.00	0.00	e60	25	21	112	356	14	2,060
24	0.00	e0.40	e0.00	0.00	0.00	e87	20	23	79	310	8.3	2,360
25	0.00	e0.22	e0.00	0.00	0.00	e130	15	30	58	247	5.7	2,380
26	0.00	e0.24	e0.00	0.00	0.00	e200	11	36	63	183	7.6	2,030
27	0.00	e0.26	e0.00	0.00	e0.00	e220	11	46	53	131	5.4	1,550
28	0.00	e0.24	e0.00	0.00	e0.00	e220	11	41	61	96	5.0	1,240
29	0.00	e0.24	e0.00	0.00	e0.10	e220	7.8	46	73	64	5.6	1,060
30	0.00	0.41	e0.00	0.00	---	e210	11	386	71	51	4.3	947
31	0.00	---	e0.00	0.00	---	e170	---	908	---	55	5.9	---
TOTAL	0.00	17.79	4.56	0.00	0.10	1,692.20	794.8	2,050.3	13,365	10,783	561.9	21,196.9
MEAN	0.00	0.59	0.15	0.00	0.00	54.6	26.5	66.1	446	348	18.1	707
MAX	0.00	1.7	0.75	0.00	0.10	220	120	908	1,340	913	50	2,380
MIN	0.00	0.00	0.00	0.00	0.00	0.50	7.8	7.2	53	51	4.3	5.1
AC-FT	0.00	35	9.0	0.00	0.2	3,360	1,580	4,070	26,510	21,390	1,110	42,040
CFSM	0.00	0.00	0.00	0.00	0.00	0.03	0.01	0.04	0.24	0.19	0.01	0.38
IN.	0.00	0.00	0.00	0.00	0.00	0.03	0.02	0.04	0.26	0.21	0.01	0.42

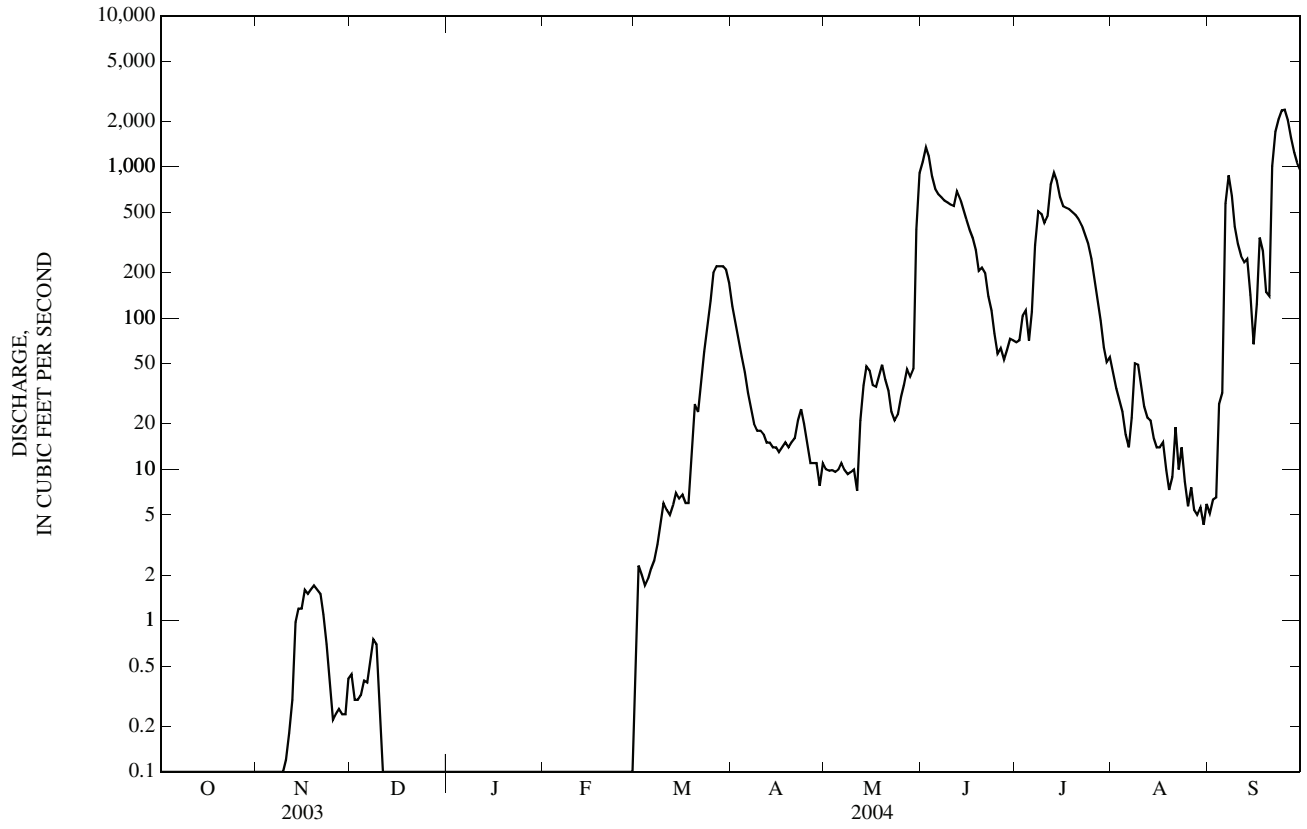
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1990 - 2004, BY WATER YEAR (WY)

MEAN	78.4	43.2	29.2	6.08	25.9	414	1,160	638	439	471	180	176
MAX	592	465	222	43.9	155	1,757	5,936	1,893	1,432	1,477	1,486	1,244
(WY)	(1994)	(1996)	(1999)	(1997)	(1998)	(1995)	(1997)	(1997)	(2001)	(1993)	(1993)	(1993)
MIN	0.00	0.59	0.15	0.00	0.00	25.5	12.6	11.8	12.6	4.37	0.00	0.00
(WY)	(2004)	(2004)	(2004)	(2004)	(1990)	(1990)	(1990)	(1990)	(1990)	(1990)	(1990)	(1990)

05051300 BOIS DE SIOUX RIVER NEAR DORAN, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1990 - 2004	
ANNUAL TOTAL	44,250.04		50,466.55			
ANNUAL MEAN	121		138		306	
HIGHEST ANNUAL MEAN					786	2001
LOWEST ANNUAL MEAN					8.77	1990
HIGHEST DAILY MEAN	2,640	Jun 26	2,380	Sep 25	11,500	Apr 16, 1997
LOWEST DAILY MEAN	0.00	Feb 27	a0.00	Oct 1	b0.00	Jan 7, 1990
ANNUAL SEVEN-DAY MINIMUM	0.00	Feb 27	0.00	Oct 1	0.00	Jan 7, 1990
MAXIMUM PEAK FLOW			2,450	Sep 24	12,300	Apr 16, 1997
MAXIMUM PEAK STAGE			17.01	Sep 24	24.42	Apr 16, 1997
INSTANTANEOUS LOW FLOW			a0.00	Oct 1	b0.00	Jan 7, 1990
ANNUAL RUNOFF (AC-FT)	87,770		100,100		221,300	
ANNUAL RUNOFF (CFSM)	0.064		0.073		0.163	
ANNUAL RUNOFF (INCHES)	0.88		1.00		2.21	
10 PERCENT EXCEEDS	258		503		1,050	
50 PERCENT EXCEEDS	0.56		8.1		13	
90 PERCENT EXCEEDS	0.00		0.00		0.15	

< Actual value in known to be less than the value shown.
a Many days.
b Many days, several years; result of regulation.
e Estimated.



05051500 RED RIVER OF THE NORTH AT WAHPETON, ND

LOCATION.--Lat 46°15'55", long 96°35'40", in NE$^1/_4$ sec.8, T.132 N., R.47 W., Richland County, Hydrologic Unit 09020104, on left bank in Wahpeton, 800 ft downstream from confluence of Bois de Sioux and Otter Tail Rivers, and at mile 548.6.

DRAINAGE AREA.--4,010 mi^2, approximately.

PERIOD OF RECORD.--May to October 1942, March 1943 to current year. Gage-height records collected in this vicinity since 1917 are contained in reports of the National Weather Service.

GAGE.--Water-stage recorder and concrete and wooden dam. Datum of gage is 942.97 ft above National Geodetic Vertical Datum of 1929. Prior to Aug. 6, 1943, National Weather Service nonrecording gage 800 ft upstream, converted to present datum. Aug. 6, 1943, to Oct. 27, 1950, nonrecording gage at present site and datum.

REMARKS.--Records good except for estimated daily discharges, which are poor. Flow regulated by; Orwell Reservoir, flood storage capacity, 13,300 acre-ft at elevation 1,070 ft above mean sea level, adjustment of 1912; Mud Lake, flood storage capacity, 78,600 acre-ft at elevation 981 ft above mean sea level, adjustment of 1912; Lake Traverse, flood storage capacity, 75,100 acre-ft at elevation 981 ft above mean sea level, adjustment of 1912; and numerous other controlled lakes and ponds and several powerplants.

EXTREMES OUTSIDE PERIOD OF RECORD.--A stage of 17.0 ft, discharge, 10,500 ft^3/s, occurred in the spring of 1897.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	123	129	137	e145	e92	e265	650	455	1,870	575	426	218
2	109	130	124	e150	e92	e265	557	403	2,260	534	413	213
3	102	130	99	e150	e92	e265	469	397	2,200	524	406	231
4	103	132	96	e150	e92	e265	418	393	1,880	554	430	274
5	104	140	96	e145	e92	e270	403	400	1,600	532	472	387
6	104	108	95	e145	e120	e270	412	424	1,400	622	490	738
7	104	103	95	e145	e130	e270	439	453	1,340	857	506	1,200
8	108	123	96	e145	e135	e270	487	448	1,300	1,100	493	1,080
9	111	131	97	e140	e135	e270	454	447	1,270	1,150	495	888
10	116	162	85	e125	e135	e270	415	448	1,250	1,110	488	780
11	117	154	80	e120	e140	e270	412	433	1,210	1,170	477	726
12	123	146	e78	e120	e140	e280	411	449	1,270	1,440	466	695
13	119	129	e77	e120	e140	e300	409	452	1,290	1,580	478	692
14	120	133	e77	e125	e145	e305	409	450	1,180	1,460	493	679
15	114	124	e76	e130	e160	e305	408	477	1,110	1,250	492	617
16	97	121	e75	e140	e180	e315	444	507	1,040	1,080	487	609
17	98	113	e74	e140	e180	e330	484	535	972	1,010	482	801
18	122	102	e81	e140	e185	e350	487	516	931	1,000	451	880
19	131	81	e92	e135	e185	e390	489	513	861	984	433	795
20	130	92	e100	e135	e190	e480	489	525	841	943	418	766
21	133	91	e110	e130	e195	e530	505	534	842	895	411	1,490
22	128	e90	e110	e115	e195	e570	497	522	811	867	392	2,420
23	111	e86	e110	e105	e195	e590	493	521	751	817	391	2,790
24	108	e85	e110	e95	e190	e600	489	538	705	767	457	3,030
25	107	e140	e110	e94	e190	600	479	559	666	720	499	3,140
26	111	e220	e110	e94	e190	575	476	550	651	665	253	2,920
27	112	e190	e115	e94	e210	588	478	590	637	557	200	2,500
28	113	155	e115	e93	e240	604	471	633	626	448	246	2,100
29	116	135	e115	e93	e260	556	470	660	634	433	254	1,870
30	112	136	e120	e92	---	604	475	876	617	434	254	1,730
31	116	---	e135	e92	---	671	---	1,540	---	437	235	---
TOTAL	3,522	3,811	3,090	3,842	4,625	12,493	13,979	16,648	34,015	26,515	12,888	37,259
MEAN	114	127	99.7	124	159	403	466	537	1,134	855	416	1,242
MAX	133	220	137	150	260	671	650	1,540	2,260	1,580	506	3,140
MIN	97	81	74	92	92	265	403	393	617	433	200	213
AC-FT	6,990	7,560	6,130	7,620	9,170	24,780	27,730	33,020	67,470	52,590	25,560	73,900

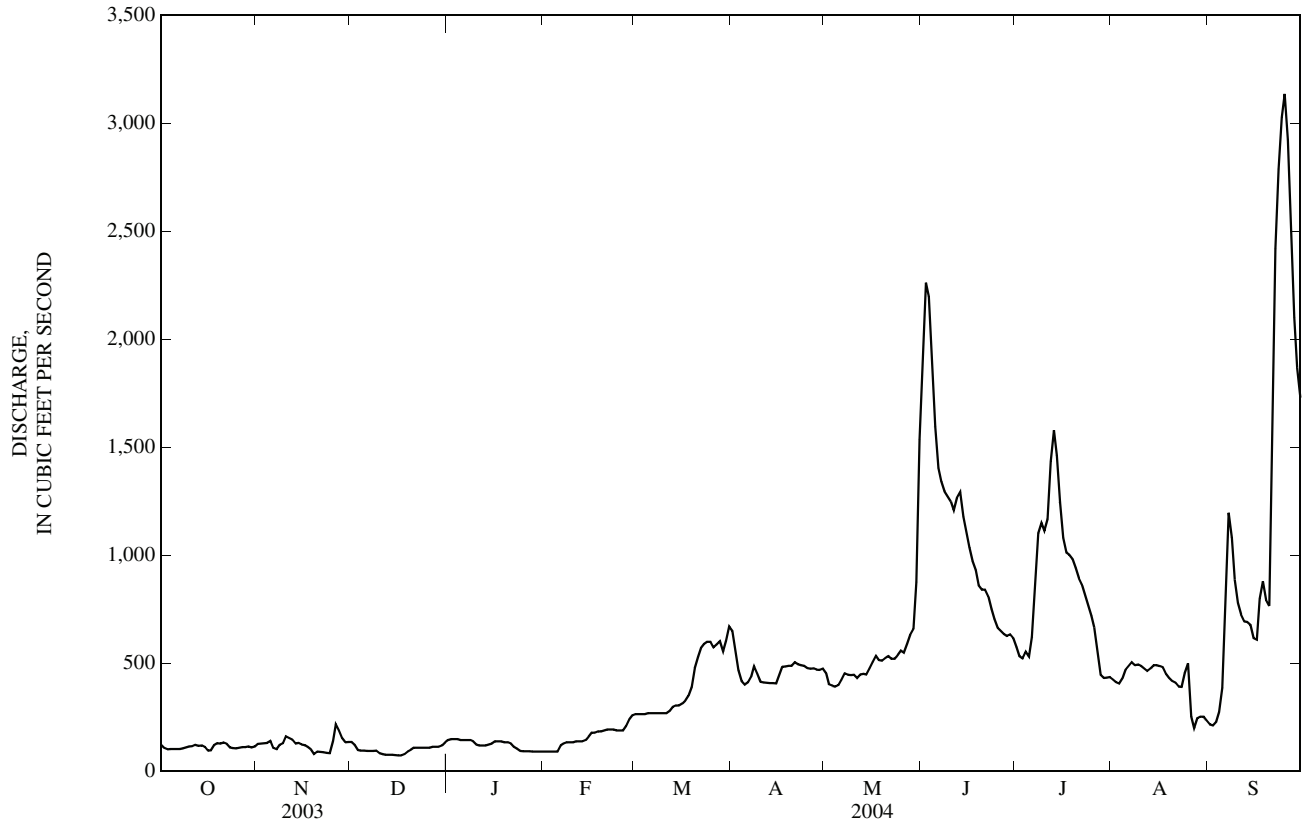
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1942 - 2004, BY WATER YEAR (WY)

MEAN	344	325	304	289	311	707	1,442	1,139	1,097	849	453	366
MAX	1,599	952	967	678	868	2,629	8,717	3,344	2,981	2,787	2,496	2,148
(WY)	(1994)	(1987)	(1999)	(1986)	(1998)	(1995)	(1997)	(1997)	(2001)	(1993)	(1993)	(1993)
MIN	5.72	7.40	6.60	8.81	18.0	84.3	138	22.5	90.0	65.6	53.5	2.18
(WY)	(1977)	(1977)	(1977)	(1977)	(1977)	(1977)	(1977)	(1977)	(1977)	(1977)	(1977)	(1976)

05051500 RED RIVER OF THE NORTH AT WAHPETON, ND—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1942 - 2004	
ANNUAL TOTAL	189,385		172,687			
ANNUAL MEAN	519		472		633	
HIGHEST ANNUAL MEAN					1,600	1997
LOWEST ANNUAL MEAN					54.0	1977
HIGHEST DAILY MEAN	3,740	Jun 26	3,140	Sep 25	12,700	Apr 15, 1997
LOWEST DAILY MEAN	74	Dec 17	74	Dec 17	1.7	Aug 28, 1976
ANNUAL SEVEN-DAY MINIMUM	77	Dec 11	77	Dec 11	1.7	Aug 28, 1976
MAXIMUM PEAK FLOW			3,160	Sep 25	12,800	Apr 15, 1997
MAXIMUM PEAK STAGE			10.03	Sep 25	19.42	Apr 6, 1997
INSTANTANEOUS LOW FLOW					1.7	Aug 28, 1976
ANNUAL RUNOFF (AC-FT)	375,600		342,500		458,500	
10 PERCENT EXCEEDS	1,040		1,080		1,450	
50 PERCENT EXCEEDS	330		392		396	
90 PERCENT EXCEEDS	100		98		110	

e Estimated



05051522 RED RIVER OF THE NORTH AT HICKSON, ND

LOCATION.--Lat 46°39'35", long 96°47'44", in SW$^1/_4$ sec.19, T.137 N., R.48 W., Clay County, MN, Hydrologic Unit 09020104, on right bank 60 ft downstream from bridge on township road and 1 mi southeast of Hickson.

DRAINAGE AREA.--4,300 mi^2, approximately.

PERIOD OF RECORD.--October 1975 to current year.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 877.06 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except for estimated daily discharges, which are poor. Flow regulated by Orwell Reservoir, flood storage capacity, 13,300 acre-ft at elevation 1,070 ft above mean sea level, adjustment of 1912; Mud Lake, flood storage capacity, 78,600 acre-ft at elevation 981 ft above mean sea level, adjustment of 1912; Lake Traverse, flood storage capacity, 75,100 acre-ft at elevation 981 ft above mean sea level, adjustment of 1912; and numerous other controlled lakes and ponds and several powerplants.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	97	122	e160	e120	e96	e255	758	484	2,510	678	467	267
2	100	120	e140	e135	e96	e270	775	484	2,720	644	484	235
3	124	140	e140	e150	e96	e275	690	436	2,570	610	452	212
4	123	139	e140	e150	e96	e275	591	405	2,530	580	437	241
5	114	136	e130	e150	e96	e275	496	396	2,350	603	448	428
6	110	121	e115	e150	e100	e280	453	397	1,960	633	497	643
7	108	92	e110	e145	e100	e290	436	407	1,550	678	537	753
8	106	103	e110	e145	e100	e305	456	445	1,360	881	567	1,250
9	102	107	e110	e145	e120	e330	494	468	1,330	1,130	541	1,300
10	100	140	e110	e140	e135	e350	509	464	1,330	1,220	540	1,120
11	115	181	e105	e130	e140	e355	460	471	1,320	1,240	538	961
12	123	214	e105	e130	e140	e405	436	552	1,290	1,290	530	866
13	126	204	e100	e130	e140	e425	434	521	1,290	1,440	518	810
14	123	158	e98	e130	e140	e430	432	495	1,350	1,630	514	781
15	116	176	e97	e130	e150	e435	430	487	1,280	1,570	532	773
16	122	207	e97	e140	e175	e455	426	496	1,200	1,380	537	729
17	123	e180	e96	e145	e180	e475	431	549	1,140	1,210	534	673
18	107	e150	e95	e145	e180	e500	484	584	1,060	1,100	528	779
19	102	e130	e95	e145	e180	e510	512	581	1,020	1,070	505	930
20	119	e120	e95	e140	e190	e550	510	563	979	1,050	482	929
21	132	e110	e100	e140	e200	e560	519	569	939	1,010	464	873
22	125	e100	e105	e140	e200	e610	530	581	934	958	459	1,210
23	127	e91	e110	e130	e200	e700	533	574	915	921	441	2,060
24	120	e89	e110	e115	e205	e760	535	567	853	885	425	2,510
25	107	e94	e110	e100	e205	e800	539	583	789	835	443	2,840
26	110	e97	e110	e98	e210	e810	527	613	741	788	542	3,060
27	107	e105	e110	e98	e215	e810	513	611	721	732	451	3,130
28	109	e125	e115	e98	e225	e785	503	617	704	668	250	3,000
29	118	e220	e115	e98	e240	e760	497	677	684	533	223	2,670
30	116	e185	e120	e96	---	e740	478	1,080	679	472	266	2,250
31	124	---	e120	e96	---	703	---	1,800	---	465	275	---
TOTAL	3,555	4,156	3,473	4,004	4,550	15,483	15,387	17,957	40,098	28,904	14,427	38,283
MEAN	115	139	112	129	157	499	513	579	1,337	932	465	1,276
MAX	132	220	160	150	240	810	775	1,800	2,720	1,630	567	3,130
MIN	97	89	95	96	96	255	426	396	679	465	223	212
AC-FT	7,050	8,240	6,890	7,940	9,020	30,710	30,520	35,620	79,530	57,330	28,620	75,930

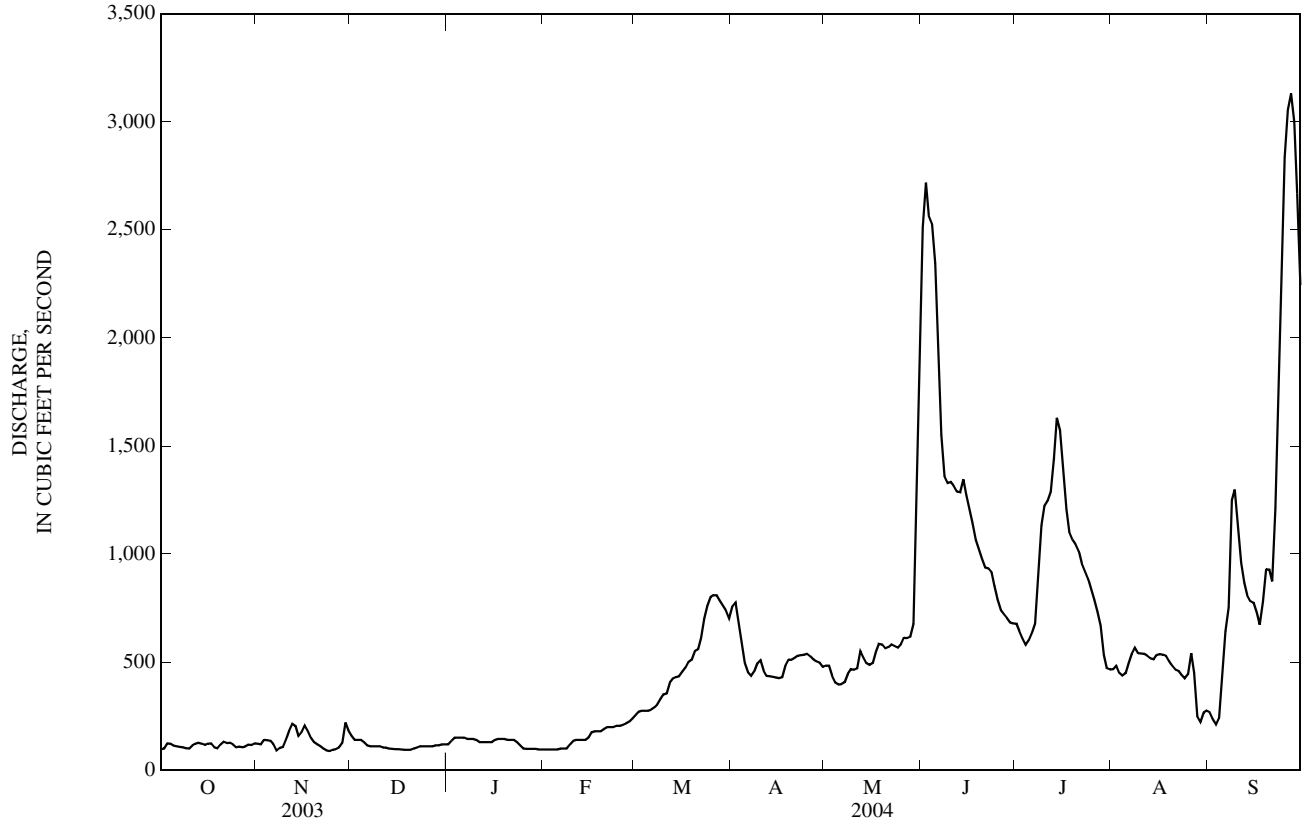
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1975 - 2004, BY WATER YEAR (WY)

MEAN	416	364	348	328	388	980	2,110	1,337	1,159	1,009	568	481
MAX	1,558	900	932	747	1,058	2,687	9,864	3,925	3,264	2,674	2,674	2,135
(WY)	(1994)	(1987)	(1999)	(1986)	(1998)	(1995)	(1997)	(1997)	(2001)	(1993)	(1993)	(1993)
MIN	2.02	0.00	0.00	4.95	14.0	75.9	165	22.0	86.4	73.4	35.6	12.6
(WY)	(1977)	(1977)	(1977)	(1977)	(1977)	(1977)	(1977)	(1977)	(1977)	(1977)	(1977)	(1976)

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1975 - 2004	
ANNUAL TOTAL	211,332		190,277			
ANNUAL MEAN	579		520		791	
HIGHEST ANNUAL MEAN					1,772	2001
LOWEST ANNUAL MEAN					53.1	1977
HIGHEST DAILY MEAN	4,350	Jun 29	3,130	Sep 27	13,100	Apr 15, 1997
LOWEST DAILY MEAN	85	Sep 26	89	Nov 24	0.00	Oct 26, 1976
ANNUAL SEVEN-DAY MINIMUM	92	Sep 24	96	Jan 30	0.00	Oct 26, 1976
MAXIMUM PEAK FLOW			a3,140	Sep 27	13,300	Apr 14, 1997
MAXIMUM PEAK STAGE			16.51	Jun 3	37.60	Apr 16, 1997
ANNUAL RUNOFF (AC-FT)	419,200		377,400		573,100	
10 PERCENT EXCEEDS	1,190		1,160		1,800	
50 PERCENT EXCEEDS	340		432		460	
90 PERCENT EXCEEDS	106		104		103	

05051522 RED RIVER OF THE NORTH AT HICKSON, ND—Continued

a Gage height, 16.46
e Estimated



05054000 RED RIVER OF THE NORTH AT FARGO, ND

LOCATION.--Lat 46°51'40", long 96°47'00", in NW¼NE¼ sec.18, T.139 N., R.48 W., Cass County, Hydrologic Unit 09020104, at waterplant on 4th Street South in Fargo, 25 mi upstream from mouth of Sheyenne River, and at mile 453.

DRAINAGE AREA.--6,800 mi^2, approximately.

PERIOD OF RECORD.--June 1901 to current year. Published as "at Moorhead, MN.", 1901. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 1308: 1902-4, 1906-7, 1910-14, 1916, 1918, 1924. WSP 1388: 1905-6, 1917-20(M), 1935(M), 1938-39(M), 1943.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 861.8 ft above National Geodetic Vertical Datum of 1929. Oct. 1, 1960, to Sept. 30, 1962, water-stage recorder at present site at datum 5.6 ft higher. See WSP 1728 or 1913 for history of changes prior to Oct. 1, 1960.

REMARKS.--Records good except for periods where discharge is less than 200 ft^3/s, which are fair and for estimated daily discharges, which are poor. Flow regulated by; Orwell Reservoir, flood storage capacity, 13,300 acre-ft at elevation 1,070 ft above mean sea level, adjustment of 1912; Mud Lake, flood storage capacity, 78,600 acre-ft at elevation 981 ft above mean sea level, adjustment of 1912; Lake Traverse, flood storage capacity, 75,100 acre-ft at elevation 981 ft above mean sea level, adjustment of 1912; and numerous other controlled lakes and ponds and several powerplants. Figures of daily discharge do not include diversions to cities of Fargo and Moorhead, MN, from the Sheyenne River.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Apr. 7, 1897, reached a stage of 39.1 ft present datum, discharge, 25,000 ft^3/s at site 1.5 mi downstream.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	63	e110	e185	e100	e90	e230	930	515	4,410	734	455	223
2	68	e115	e165	e100	e90	e245	933	522	5,100	709	578	216
3	82	e118	e155	e110	e90	e260	872	505	5,380	714	525	183
4	85	126	e150	e125	e92	e280	743	452	5,380	668	467	302
5	e75	134	e145	e130	e92	e300	612	433	5,030	632	432	1,330
6	e70	114	e135	e130	e94	e320	515	411	4,160	832	513	3,500
7	e70	101	e128	e130	e94	e320	469	422	3,190	744	658	3,000
8	e72	88	e118	e130	e94	e320	454	448	2,550	825	617	2,190
9	e75	88	e113	e130	e95	e330	467	499	2,180	1,150	583	1,850
10	e74	95	e110	e130	e110	e340	501	506	2,010	1,410	546	1,540
11	123	137	e110	e125	e130	e360	493	597	2,010	1,880	530	1,330
12	e100	188	e105	e120	e137	e400	445	611	2,060	2,060	525	1,150
13	e90	201	e97	e115	e137	e440	423	750	2,070	2,120	516	1,010
14	e100	178	e91	e115	e140	e490	416	778	2,100	1,980	508	902
15	e100	182	e88	e115	e142	e560	414	664	2,090	1,870	513	918
16	e89	187	e81	e115	e160	e640	410	595	1,950	1,700	529	847
17	e95	178	e81	e115	e175	e690	406	600	1,820	1,540	534	765
18	e105	154	e80	e120	e195	e730	428	618	1,690	1,390	530	737
19	e96	e140	e80	e120	e200	e840	475	691	1,590	1,310	520	885
20	e90	e125	e80	e115	e205	e950	492	717	1,510	1,270	479	1,040
21	e95	e115	e80	e115	e210	e990	496	646	1,440	1,230	466	947
22	106	e108	e83	e115	e210	e1,060	502	642	1,380	1,160	444	986
23	124	e98	e90	e115	e210	e1,200	515	655	1,330	1,090	433	1,570
24	132	e93	e92	e110	e210	e1,280	524	656	1,240	1,020	414	2,090
25	124	e90	e93	e94	e210	e1,310	527	657	1,090	950	394	2,470
26	111	e94	e94	e90	e210	e1,320	532	663	968	874	433	2,810
27	e100	e100	e94	e90	e210	e1,320	532	671	871	808	479	2,960
28	e95	e115	e94	e90	e220	e1,310	528	675	814	884	367	2,960
29	e100	e140	e95	e90	e225	e1,270	514	745	785	676	258	2,760
30	e108	e210	e97	e90	---	e1,150	514	1,260	752	527	214	2,300
31	e110	---	e99	e90	---	1,050	---	3,100	---	472	222	---
TOTAL	2,927	3,922	3,308	3,479	4,477	22,305	16,082	21,704	68,950	35,229	14,682	45,771
MEAN	94.4	131	107	112	154	720	536	700	2,298	1,136	474	1,526
MAX	132	210	185	130	225	1,320	933	3,100	5,380	2,120	658	3,500
MIN	63	88	80	90	90	230	406	411	752	472	214	183
AC-FT	5,810	7,780	6,560	6,900	8,880	44,240	31,900	43,050	136,800	69,880	29,120	90,790
+	1,400	1,290	1,280	1,300	1,310	1,320	1,280	1,420	1,430	1,540	1,460	1,260
*	7,210	9,070	7,840	8,200	10,190	45,560	33,180	44,470	138,230	71,420	30,580	92,050

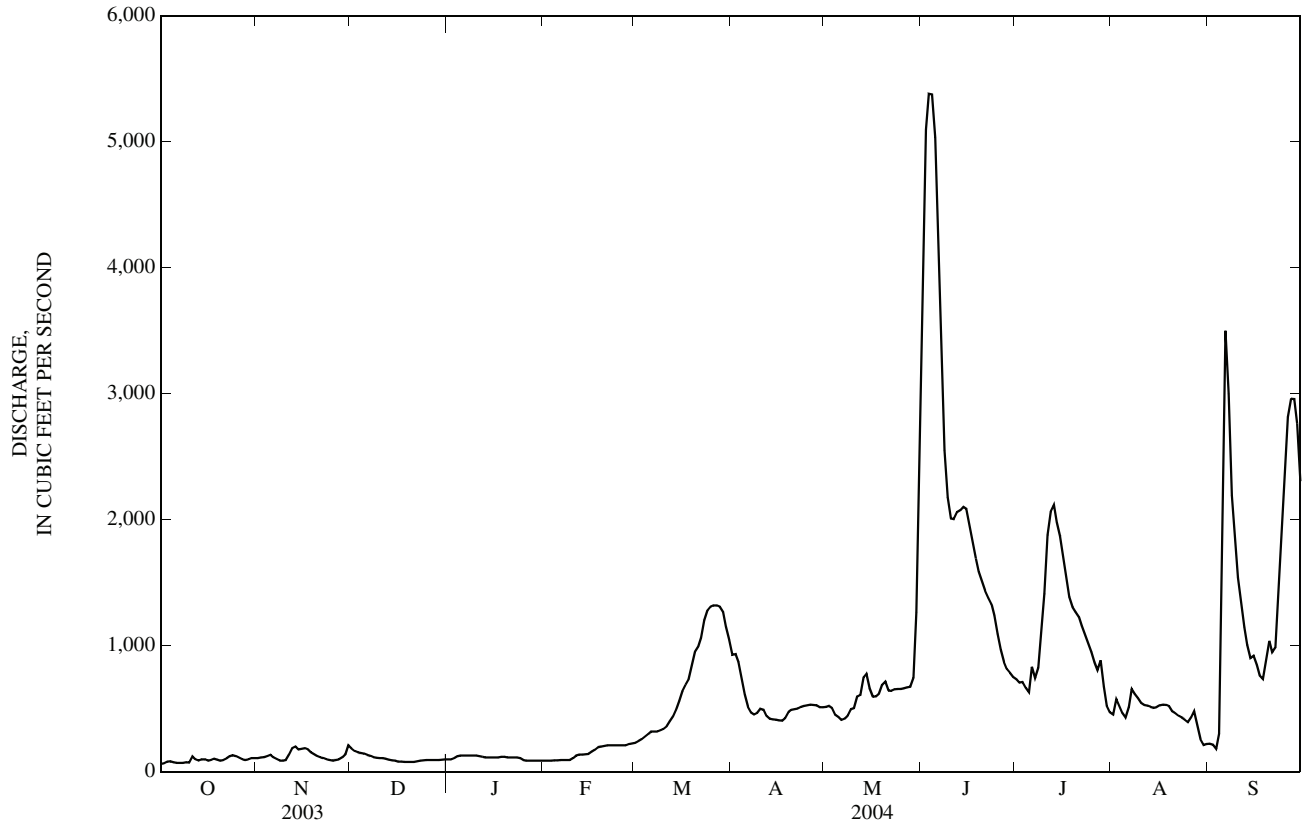
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1901 - 2004, BY WATER YEAR (WY)

MEAN	333	295	253	229	241	787	1,987	1,163	1,112	948	450	353
MAX	1,741	942	1,261	740	1,353	4,722	17,920	5,365	5,122	5,692	3,293	2,280
(WY)	(1994)	(1907)	(1999)	(1986)	(1998)	(1995)	(1997)	(1997)	(1962)	(1962)	(1993)	(1993)
MIN	0.00	0.00	0.00	0.00	0.18	26.8	102	8.12	2.87	0.00	0.00	0.00
(WY)	(1935)	(1937)	(1938)	(1933)	(1933)	(1937)	(1934)	(1934)	(1936)	(1934)	(1932)	(1934)

05054000 RED RIVER OF THE NORTH AT FARGO, ND—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1901 - 2004	
ANNUAL TOTAL	252,776		242,836			
ANNUAL MEAN	693	*(715)	663	*(688)	681	
HIGHEST ANNUAL MEAN					2,619	1997
LOWEST ANNUAL MEAN					17.5	1934
HIGHEST DAILY MEAN	6,680	Jun 30	5,380	Jun 3	27,800	Apr 17, 1997
LOWEST DAILY MEAN	46	Sep 27	63	Oct 1	0.00	Jul 25, 1932
ANNUAL SEVEN-DAY MINIMUM	53	Sep 24	73	Oct 1	0.00	Jul 25, 1932
MAXIMUM PEAK FLOW			5,430	Jun 3	28,000	Apr 17, 1997
MAXIMUM PEAK STAGE			20.47	Jun 3	39.72	Apr 18, 1997
ANNUAL RUNOFF (AC-FT)	501,400	*(517,800)	481,700	*(498,000)	493,000	
10 PERCENT EXCEEDS	1,400		1,620		1,520	
50 PERCENT EXCEEDS	340		432		335	
90 PERCENT EXCEEDS	90		92		43	

+ Diversions in acre-ft to cities of Fargo and Moorhead
* Adjusted for diversions to cities of Fargo and Moorhead
e Estimated



05061000 BUFFALO RIVER NEAR HAWLEY, MN

LOCATION.--Lat 46°51'00", long 96°19'45", in NW¼SE¼ sec. 14, T.139 N., R.45 W., Clay County, Hydrologic Unit 09020106, near left downstream end of bridge on farm lane, 2 mi southwest of Hawley.

DRAINAGE AREA.--325 mi^2.

PERIOD OF RECORD.--March 1945 to current year. Water year 1981 (annual maximum only); March 1982 to September 1985 (no winter records).

REVISED RECORDS.--WSP 1308: 1945-46(M), 1948(M).

GAGE.--Water-stage recorder. Datum of gage is 1,111.91 ft above sea level (NGVD of 1929). Prior to Jan. 29, 1953, nonrecording gage at bridge 1,800 ft upstream at datum 3.17 ft lower.

REMARKS.--Records good except those for estimated daily discharges, which are poor.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known, about 11.3 ft, present datum, spring of 1921, from information by local resident.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23	30	e36	e27	e26	50	428	52	384	52	29	25
2	24	29	e35	e26	e26	47	352	50	415	50	32	23
3	24	29	e34	e26	e26	48	302	52	403	50	28	21
4	23	28	e34	e25	e27	46	249	53	357	50	26	30
5	23	29	e33	e25	e27	43	220	51	314	51	25	78
6	27	e26	32	e25	e28	41	203	49	267	64	34	149
7	42	e26	32	e25	e28	40	168	47	232	66	51	164
8	41	e26	32	e26	e28	39	148	44	204	65	42	135
9	35	28	e32	e26	e28	42	135	41	185	60	41	119
10	33	28	e28	e26	e29	61	125	39	172	58	38	110
11	35	28	e22	e26	e29	e70	117	42	155	77	36	101
12	33	29	e22	e26	e29	e73	109	120	142	76	33	92
13	36	31	e23	e27	e29	57	102	346	126	81	31	83
14	38	30	e25	e27	e29	53	96	384	114	64	30	76
15	39	46	e26	e27	e29	53	90	335	110	59	28	78
16	58	61	e26	e27	e30	53	88	270	106	67	28	91
17	95	61	e26	e27	e30	52	92	237	101	60	26	106
18	94	59	e27	e27	e31	55	98	226	95	56	25	95
19	93	57	e28	e27	e32	83	107	212	88	53	29	88
20	85	54	e28	e27	e34	e130	105	203	82	50	30	87
21	66	49	e29	e27	e35	110	101	190	76	47	28	112
22	34	e42	e29	e27	e35	125	95	182	73	44	27	167
23	30	e36	e30	e27	e36	151	86	175	70	42	26	160
24	28	e32	e30	e27	e34	220	77	168	68	40	27	190
25	28	e31	e31	e27	33	330	71	166	64	38	27	216
26	28	e32	e31	e26	31	e580	66	166	63	41	28	212
27	29	e34	e31	e26	31	e790	62	155	61	35	27	187
28	32	e36	e31	e26	33	e760	59	143	59	36	25	184
29	32	e36	e30	e26	35	e680	57	142	56	34	25	180
30	33	e36	e29	e26	---	633	54	222	54	32	25	173
31	31	---	e28	e25	---	543	---	300	---	31	27	---
TOTAL	1,272	1,099	910	815	878	6,058	4,062	4,862	4,696	1,629	934	3,532
MEAN	41.0	36.6	29.4	26.3	30.3	195	135	157	157	52.5	30.1	118
MAX	95	61	36	27	36	790	428	384	415	81	51	216
MIN	23	26	22	25	26	39	54	39	54	31	25	21
AC-FT	2,520	2,180	1,800	1,620	1,740	12,020	8,060	9,640	9,310	3,230	1,850	7,010
CFSM	0.13	0.11	0.09	0.08	0.09	0.60	0.42	0.48	0.48	0.16	0.09	0.36
IN.	0.15	0.13	0.10	0.09	0.10	0.69	0.46	0.56	0.54	0.19	0.11	0.40

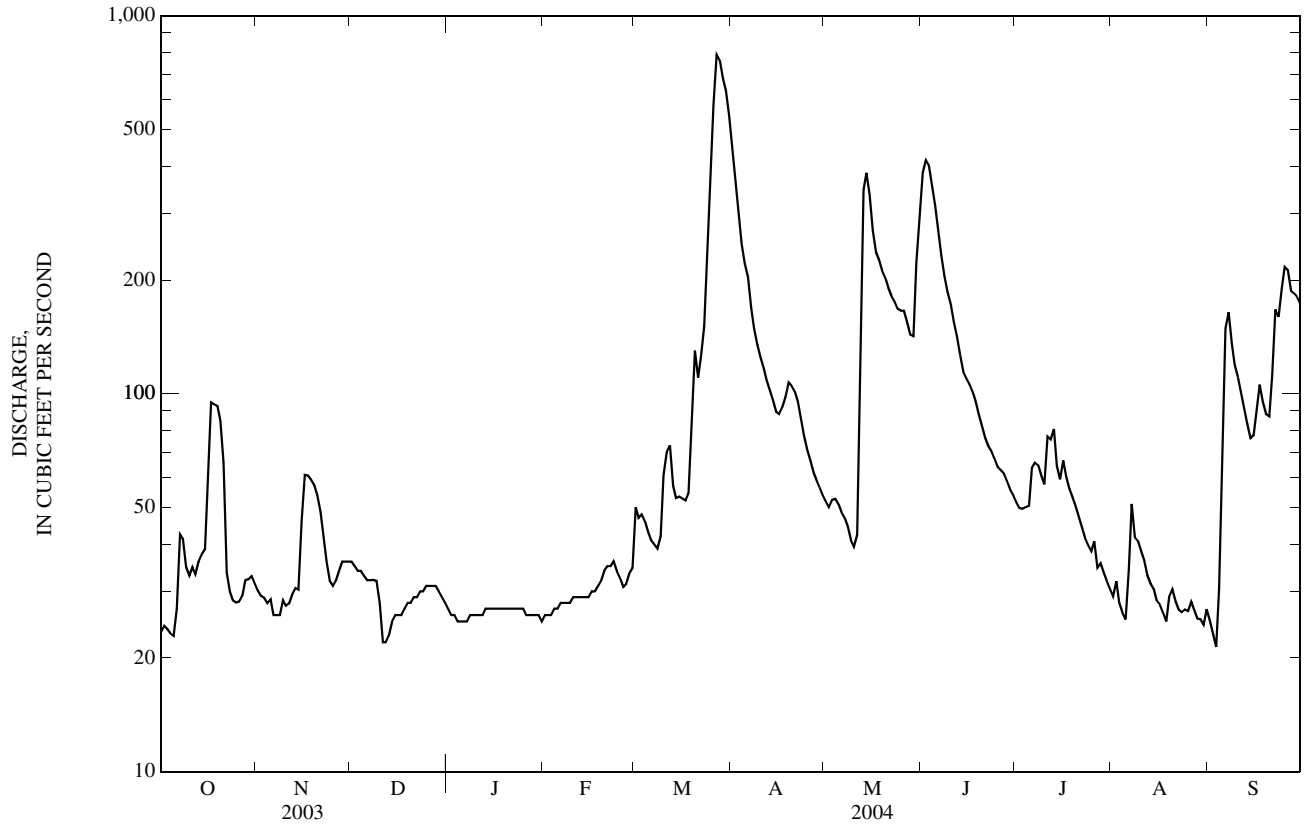
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1945 - 2004, BY WATER YEAR (WY)

MEAN	44.8	45.6	30.9	24.7	27.5	94.0	269	140	119	113	52.7	44.1
MAX	151	298	127	70.2	170	434	1,036	383	589	784	472	192
(WY)	(1974)	(2001)	(1999)	(2001)	(1998)	(1966)	(1997)	(1998)	(2000)	(1993)	(1955)	(1999)
MIN	11.6	12.2	10.6	9.94	9.88	15.0	33.3	21.5	12.7	10.1	5.87	8.52
(WY)	(1979)	(1977)	(1977)	(1962)	(1949)	(1969)	(1981)	(1977)	(1977)	(1976)	(1976)	(1976)

05061000 BUFFALO RIVER NEAR HAWLEY, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1945 - 2004	
ANNUAL TOTAL	22,097		30,747			
ANNUAL MEAN	60.5		84.0		84.4	
HIGHEST ANNUAL MEAN					188	1998
LOWEST ANNUAL MEAN					16.7	1977
HIGHEST DAILY MEAN	424	Jun 26	790	Mar 27	a2,360	Apr 6, 1997
LOWEST DAILY MEAN	17	Sep 6	21	Sep 3	3.2	Aug 25, 1976
ANNUAL SEVEN-DAY MINIMUM	17	Sep 3	24	Dec 11	4.3	Aug 22, 1976
MAXIMUM PEAK FLOW			b790	Mar 27	a2,360	Apr 6, 1997
MAXIMUM PEAK STAGE			c7.60	Mar 30	10.86	Jun 22, 2000
INSTANTANEOUS LOW FLOW			19	Sep 4	2.8	Aug 26, 1977
ANNUAL RUNOFF (AC-FT)	43,830		60,990		61,160	
ANNUAL RUNOFF (CFSM)	0.186		0.258		0.260	
ANNUAL RUNOFF (INCHES)	2.53		3.52		3.53	
10 PERCENT EXCEEDS	116		188		192	
50 PERCENT EXCEEDS	35		42		35	
90 PERCENT EXCEEDS	23		26		14	

a Estimated daily discharge, backwater from ice.
b Estimated daily-mean.
c Maximum recorded, discharge, 659 cfs; known to have been higher during period of no record on Mar. 27.
e Estimated.



05061500 SOUTH BRANCH BUFFALO RIVER AT SABIN, MN

LOCATION--Lat 46°46'20", long 96°37'40", in SW¼ SW¼ sec. 9, T.138 N., R.47 W., Clay County, Hydrologic Unit 09020106, on left bank, on downstream side of County Road 67 bridge, 0.3 mi downstream from Stony Creek and 1 mi east of Sabin.

DRAINAGE AREA.--454 mi^2.

PERIOD OF RECORD.--March 1945 to current year. Water year 1981, annual maximum only; March 1982 to September 1985, no winter records.

REVISED RECORDS.--WSP 1308: 1949(M). WRIR 97-4249: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 902.39 ft above sea level (NGVD of 1929, levels by Soil Conservation Service). Prior to April 17, 1948, nonrecording gage at site 1 mi downstream at different datum. Aug. 17, 1948 to Oct. 4, 1989, nonrecording gage at present site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.7	16	e12	e9.0	e6.7	e9.5	212	40	906	15	13	27
2	3.5	14	e13	e8.8	e6.7	e10	178	38	1,110	15	41	24
3	3.8	13	e13	e8.5	e6.8	e11	151	36	1,050	15	69	18
4	4.5	13	e13	e8.3	e6.8	e13	128	34	854	15	108	22
5	5.9	e13	e13	e8.1	e6.8	e21	110	32	667	16	113	208
6	6.6	e12	e13	e7.9	e6.8	e38	97	30	495	20	96	354
7	7.0	e12	e13	e7.9	e6.8	e47	88	30	342	33	75	485
8	4.4	e12	e13	e7.9	e6.7	e53	80	27	227	54	98	655
9	4.8	e12	e11	e8.0	e6.7	e60	75	27	152	67	132	845
10	6.1	e13	e10	e8.0	e6.7	e75	69	25	106	65	140	897
11	7.3	14	e8.8	e8.0	e6.7	e130	64	26	80	97	110	815
12	11	15	e8.8	e8.0	e6.7	e180	61	111	64	141	72	642
13	9.4	15	e9.2	e8.0	e6.7	e190	56	439	56	162	53	442
14	8.4	15	e9.7	e7.9	e6.7	e180	53	578	49	159	41	237
15	9.4	16	e9.8	e7.8	e6.7	e170	52	518	43	105	32	129
16	9.8	16	e9.9	e7.8	e6.7	e160	50	393	40	62	26	101
17	9.9	16	e10	e7.7	e6.7	e166	50	278	39	51	21	114
18	10	16	e10	e7.6	e6.7	e173	50	207	37	45	19	127
19	10	16	e10	e7.5	e6.7	e177	53	191	34	39	17	117
20	11	16	e10	e7.4	e6.9	e185	56	168	31	36	15	95
21	11	15	e10	e7.3	e7.2	e215	56	134	27	29	12	88
22	11	15	e10	e7.2	e7.6	e250	56	113	25	22	12	114
23	11	14	e10	e7.2	e8.1	e290	56	95	23	17	12	166
24	11	e13	e10	e7.1	e8.5	e400	55	79	20	15	13	202
25	11	e13	e10	e7.0	e8.7	e500	51	74	20	12	12	227
26	12	12	e10	e6.9	e8.9	462	47	81	19	11	13	237
27	12	12	e10	e6.8	e8.9	414	44	96	18	12	13	216
28	13	e12	e10	e6.8	e9.0	371	42	92	16	13	13	170
29	13	e12	e10	e6.7	e9.1	330	39	77	15	14	12	124
30	15	e12	e9.7	e6.7	---	293	40	141	15	13	14	97
31	16	---	e9.4	e6.7	---	257	---	455	---	13	16	---
TOTAL	282.5	415	329.3	236.5	210.7	5,830.5	2,219	4,665	6,580	1,383	1,433	7,995
MEAN	9.11	13.8	10.6	7.63	7.27	188	74.0	150	219	44.6	46.2	266
MAX	16	16	13	9.0	9.1	500	212	578	1,110	162	140	897
MIN	3.5	12	8.8	6.7	6.7	9.5	39	25	15	11	12	18
AC-FT	560	823	653	469	418	11,560	4,400	9,250	13,050	2,740	2,840	15,860
CFSM	0.02	0.03	0.02	0.02	0.02	0.41	0.16	0.33	0.48	0.10	0.10	0.59
IN.	0.02	0.03	0.03	0.02	0.02	0.48	0.18	0.38	0.54	0.11	0.12	0.66

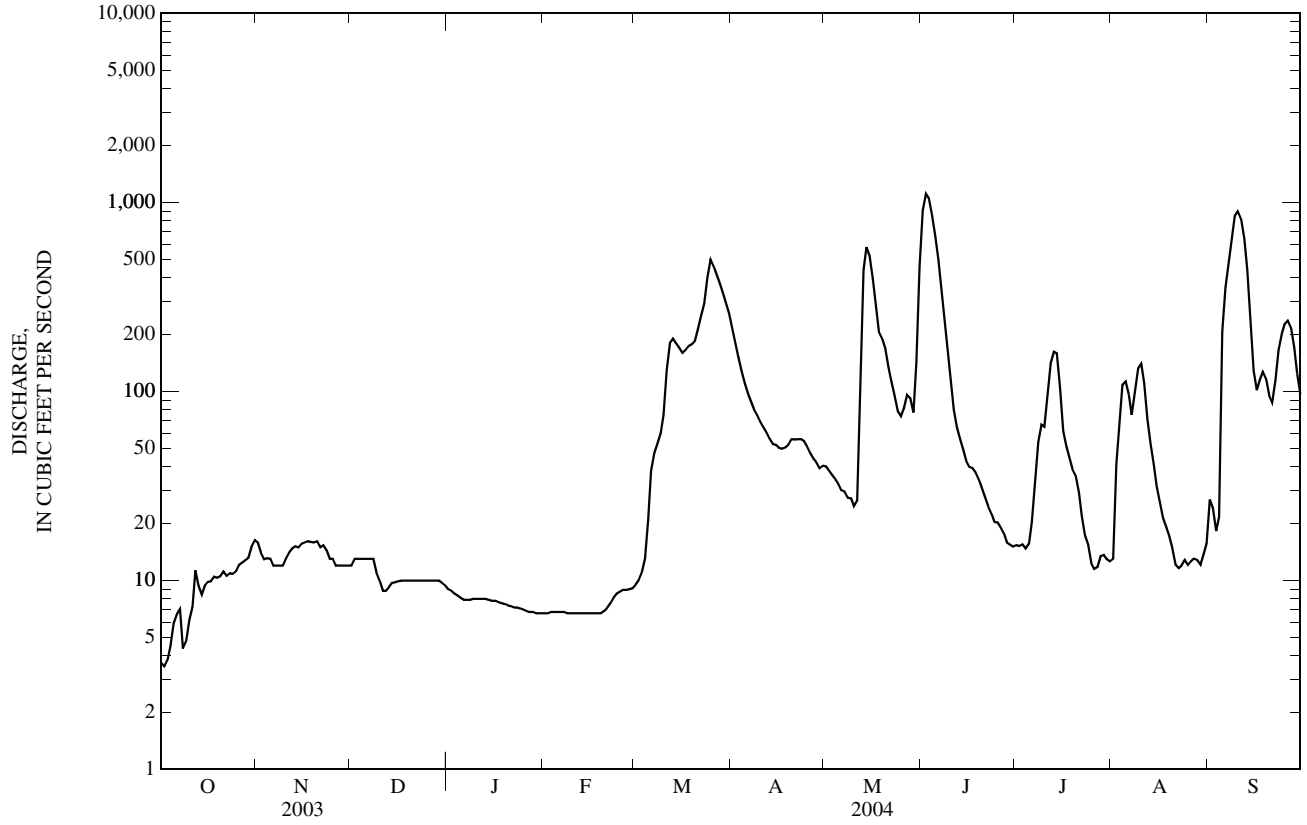
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1945 - 2004, BY WATER YEAR (WY)

MEAN	19.6	21.6	8.23	3.03	6.90	110	284	95.0	104	86.0	12.5	21.4
MAX	108	194	66.8	18.5	205	581	1,683	580	1,068	1,112	152	266
(WY)	(1999)	(2001)	(1999)	(2001)	(1998)	(1966)	(1997)	(1962)	(1962)	(1975)	(1993)	(2004)
MIN	0.02	2.05	0.01	0.00	0.00	0.00	27.9	8.28	1.30	0.00	0.00	0.00
(WY)	(1977)	(1977)	(1961)	(1946)	(1946)	(1951)	(1973)	(1980)	(1976)	(1988)	(1976)	(1976)

05061500 SOUTH BRANCH BUFFALO RIVER AT SABIN, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1945 - 2004	
ANNUAL TOTAL	20,349.76		31,579.5			
ANNUAL MEAN	55.8		86.3		a65.2	
HIGHEST ANNUAL MEAN					198	1962
LOWEST ANNUAL MEAN					12.2	1977
HIGHEST DAILY MEAN	1,030	Jun 29	1,110	Jun 2	8,200	Jul 1, 1975
LOWEST DAILY MEAN	0.09	Sep 10	3.5	Oct 2	b0.00	Dec 13, 1945
ANNUAL SEVEN-DAY MINIMUM	0.26	Sep 6	5.0	Oct 1	0.00	Dec 13, 1945
MAXIMUM PEAK FLOW			1,140	Jun 2	8,500	Jul 2, 1975
MAXIMUM PEAK STAGE			13.08	Jun 2	19.90	Jul 2, 1975
INSTANTANEOUS LOW FLOW			3.3	Oct 2	b0.00	Dec 13, 1945
ANNUAL RUNOFF (AC-FT)	40,360		62,640		47,220	
ANNUAL RUNOFF (CFSM)	0.123		0.190		0.144	
ANNUAL RUNOFF (INCHES)	1.67		2.59		1.95	
10 PERCENT EXCEEDS	142		215		120	
50 PERCENT EXCEEDS	11		16		8.9	
90 PERCENT EXCEEDS	4.2		7.0		0.10	

a Median of annual mean discharges is 53 ft^3/s.
b Many days, several years.
e Estimated.



05062000 BUFFALO RIVER NEAR DILWORTH, MN

LOCATION--Lat 46°57'40", long 96°39'40", in SW¼ SE¼ sec. 6, T.140 N., R.47 W., Clay County, Hydrologic Unit 09020106, on left bank, at County Road 94 bridge, 4.5 mi southeast of Kragnes, 6.5 mi northeast of Dilworth, and 9 mi downstream from South Branch.

DRAINAGE AREA.--975 mi^2.

PERIOD OF RECORD.--March 1931 to current year. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 1308: 1931(M).

GAGE.--Water-stage recorder. Datum of gage is 878.31 ft above sea level (NGVD of 1929, levels by U.S. Army Corps of Engineers). Prior to April 5, 1937, nonrecording gage at same site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32	40	e43	e38	e34	e77	904	116	941	73	70	40
2	31	e40	e43	e38	e34	e86	812	115	1,190	70	59	42
3	30	e39	e43	e38	e35	e94	676	111	1,400	68	65	48
4	29	e38	e43	e37	e36	e102	565	105	1,540	70	104	50
5	29	e37	e44	e37	e37	e104	477	104	1,580	69	138	210
6	29	e37	e44	e37	e38	e102	413	100	1,480	73	156	824
7	29	e36	e44	e37	e39	e100	372	95	1,250	89	190	1,210
8	29	e36	e43	e37	e40	e110	333	91	905	104	228	1,150
9	52	e37	e41	e37	e40	e120	297	89	605	115	203	1,020
10	50	e40	e38	e37	e41	e140	272	84	438	136	210	966
11	47	48	e35	e37	e42	e180	253	88	355	167	222	998
12	45	49	e35	e37	e42	e230	238	127	305	210	207	995
13	44	50	e36	e37	e43	e260	224	205	267	284	167	894
14	43	45	e37	e37	e44	e250	211	555	234	308	127	705
15	42	53	e38	e37	e45	e235	201	805	212	278	102	472
16	43	57	e39	e37	e45	e227	189	869	199	235	86	315
17	45	e70	e40	e37	e46	e227	183	791	185	189	72	251
18	83	e74	e40	e37	e47	e230	180	643	172	152	64	241
19	99	e73	e40	e37	e48	e235	183	522	159	131	55	243
20	99	e70	e41	e37	e49	e260	191	488	146	117	51	237
21	94	e64	e41	e37	e51	e290	197	481	133	106	51	229
22	86	e58	e41	e37	e53	e320	197	421	121	95	50	221
23	60	e50	e41	e37	e56	e350	190	376	113	85	47	274
24	48	e44	e42	e36	e58	e400	182	347	106	77	44	338
25	44	e39	e42	e36	e58	e520	169	327	100	70	43	390
26	41	e39	e42	e36	e59	e700	157	317	94	64	42	438
27	40	e40	e43	e35	e61	e1,000	146	313	91	57	42	454
28	39	e41	e42	e35	e65	e1,100	137	309	88	64	42	429
29	39	e42	e41	e34	e70	e1,050	127	299	83	188	41	385
30	40	e43	e40	e34	---	992	121	324	79	150	41	344
31	40	---	e38	e34	---	941	---	641	---	91	42	---
TOTAL	1,501	1,429	1,260	1,134	1,356	11,032	8,797	10,258	14,571	3,985	3,061	14,413
MEAN	48.4	47.6	40.6	36.6	46.8	356	293	331	486	129	98.7	480
MAX	99	74	44	38	70	1,100	904	869	1,580	308	228	1,210
MIN	29	36	35	34	34	77	121	84	79	57	41	40
AC-FT	2,980	2,830	2,500	2,250	2,690	21,880	17,450	20,350	28,900	7,900	6,070	28,590
CFSM	0.05	0.05	0.04	0.04	0.05	0.36	0.30	0.34	0.50	0.13	0.10	0.49
IN.	0.06	0.05	0.05	0.04	0.05	0.42	0.34	0.39	0.56	0.15	0.12	0.55

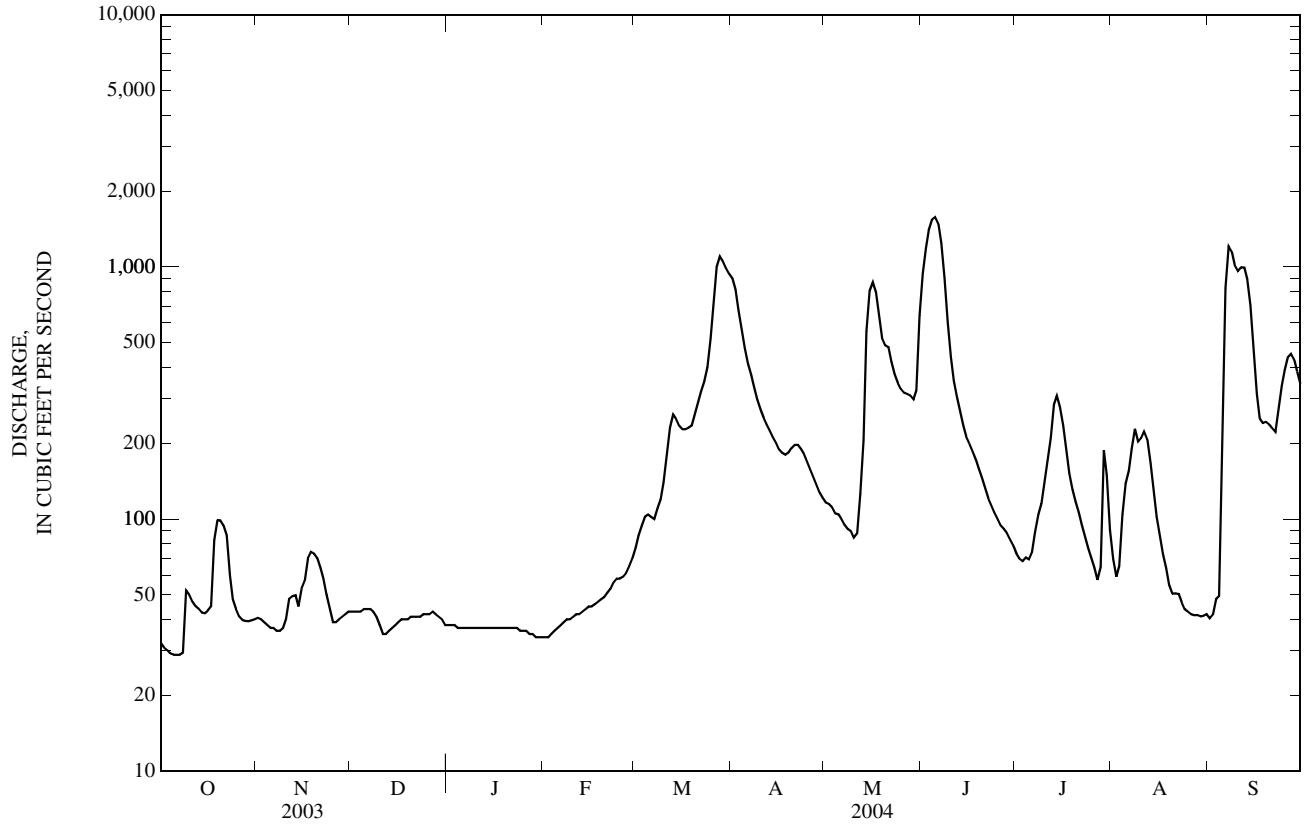
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1931 - 2004, BY WATER YEAR (WY)

MEAN	63.4	65.4	38.9	25.0	28.3	201	600	254	233	215	73.9	68.4
MAX	279	575	240	99.0	285	1,308	3,412	1,144	2,138	2,814	910	517
(WY)	(1999)	(2001)	(1999)	(2001)	(1998)	(1966)	(1997)	(1998)	(1962)	(1975)	(1993)	(1944)
MIN	5.48	8.74	4.75	0.87	0.76	2.26	33.5	27.2	15.1	2.23	0.00	0.79
(WY)	(1940)	(1937)	(1938)	(1940)	(1940)	(1940)	(1931)	(1931)	(1934)	(1936)	(1936)	(1936)

05062000 BUFFALO RIVER NEAR DILWORTH, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1931 - 2004	
ANNUAL TOTAL	50,619		72,797			
ANNUAL MEAN	139		199		157	
HIGHEST ANNUAL MEAN					477	1998
LOWEST ANNUAL MEAN					25.6	1934
HIGHEST DAILY MEAN	1,310	Jul 1	1,580	Jun 5	13,500	Jul 2, 1975
LOWEST DAILY MEAN	19	Sep 9	29	Oct 4-8	a0.00	Jul 22, 1936
ANNUAL SEVEN-DAY MINIMUM	20	Sep 6	29	Oct 2	0.00	Jul 28, 1936
MAXIMUM PEAK FLOW			1,590	Jun 5	13,600	Jul 2, 1975
MAXIMUM PEAK STAGE			14.52	Jun 5	27.10	Jul 2, 1975
INSTANTANEOUS LOW FLOW			29	Oct 4	a0.00	Jul 22, 1936
ANNUAL RUNOFF (AC-FT)	100,400		144,400		113,700	
ANNUAL RUNOFF (CFSM)	0.142		0.204		0.161	
ANNUAL RUNOFF (INCHES)	1.93		2.78		2.19	
10 PERCENT EXCEEDS	353		498		340	
50 PERCENT EXCEEDS	46		83		43	
90 PERCENT EXCEEDS	29		37		10	

a Occurred many days in 1936.
e Estimated.



05062500 WILD RICE RIVER AT TWIN VALLEY, MN

LOCATION.--Lat 47°16'00", long 96°14'40", in NW¼NE¼ sec. 27, T.144 N., R.44W., Norman County, Hydrologic Unit 09020108, on left bank, 100 ft upstream from County Highway 29 bridge, 0.8 mi northeast of Twin Valley, and 2 mi upstream from small tributary.

DRAINAGE AREA.--934 mi^2.

PERIOD OF RECORD.--June 1909 to September 1917, July 1930 to September 1983, October 1989 to current year. Monthly discharge only for some periods, published in WSP 1308. October 1983 to September 1989, annual maximums only.

REVISED RECORDS.--WSP 955: 1941. WSP 1308: 1915(M), 1917(M).

GAGE.--Water-stage recorder. Datum of gage is 1,008.16 ft above sea level (NGVD of 1929, U.S. Army Corps of Engineers bench mark). June 1909 to September 1917, nonrecording gage at site 0.2 mi downstream at different datum. July 23, 1930 to Nov. 24, 1934, nonrecording gage at highway bridge 100 ft downstream from present site at present datum. Nov. 25, 1934 to Aug. 2, 1950, water-stage recorder 80 ft upstream from present site at present datum.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Flow slightly regulated by Rice Lake and many other small lakes above station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32	54	e73	e70	e54	e81	1,210	279	642	74	92	38
2	30	58	e74	e69	e54	e83	1,250	271	656	72	81	35
3	29	51	e73	e66	e54	e85	990	255	570	73	71	31
4	27	43	e72	e64	e55	e88	795	245	481	125	62	33
5	29	e41	e71	e63	e55	e90	701	232	419	128	55	77
6	32	e40	e72	e64	e55	e94	647	216	369	121	52	366
7	38	e39	e71	e64	e56	e97	595	197	333	138	56	1,010
8	32	39	e70	e64	e56	e100	549	189	298	151	61	1,040
9	29	43	e68	e64	e57	e103	504	179	266	143	64	848
10	30	45	e65	e64	e57	e107	464	182	245	124	92	573
11	33	47	e64	e64	e58	e108	432	207	224	475	87	397
12	34	50	e64	e64	e58	e108	e410	711	210	435	82	312
13	30	47	e64	e64	e59	e111	e390	1,060	204	268	72	261
14	30	57	e65	e64	e60	e115	377	836	204	188	62	e205
15	32	60	e66	e64	e61	e119	364	613	191	148	55	166
16	35	63	e66	e64	e62	e123	362	494	179	262	50	166
17	37	67	e67	e63	e62	e130	e370	454	164	396	46	199
18	34	72	e69	e62	e63	e138	e390	443	153	243	42	190
19	34	77	e71	e61	e64	e145	e415	412	146	176	38	158
20	36	82	e73	e60	e65	e162	443	380	136	145	35	137
21	40	78	e73	e59	e66	e193	437	359	124	126	32	152
22	33	64	e72	e59	e67	e208	415	344	115	111	31	224
23	33	56	e71	e58	e68	e240	404	318	115	94	30	247
24	34	45	e71	e57	e70	e300	386	306	120	87	33	349
25	32	e52	e72	e56	e72	e432	368	317	114	77	31	502
26	31	e59	e74	e55	e74	e670	354	328	109	71	31	475
27	34	e65	e75	e55	e75	e1,460	340	326	103	65	30	405
28	42	e68	e73	e55	e77	e2,500	323	301	94	76	29	337
29	47	e74	e71	e54	e79	e2,350	309	282	86	173	32	303
30	55	e73	e69	e54	---	1,760	298	398	81	168	51	274
31	56	---	e69	e54	---	1,410	---	561	---	112	41	---
TOTAL	1,080	1,709	2,168	1,898	1,813	13,710	15,292	11,695	7,151	5,045	1,626	9,510
MEAN	34.8	57.0	69.9	61.2	62.5	442	510	377	238	163	52.5	317
MAX	56	82	75	70	79	2,500	1,250	1,060	656	475	92	1,040
MIN	27	39	64	54	54	81	298	179	81	65	29	31
AC-FT	2,140	3,390	4,300	3,760	3,600	27,190	30,330	23,200	14,180	10,010	3,230	18,860
CFSM	0.04	0.06	0.07	0.07	0.07	0.47	0.55	0.40	0.26	0.17	0.06	0.34
IN.	0.04	0.07	0.09	0.08	0.07	0.55	0.61	0.47	0.28	0.20	0.06	0.38

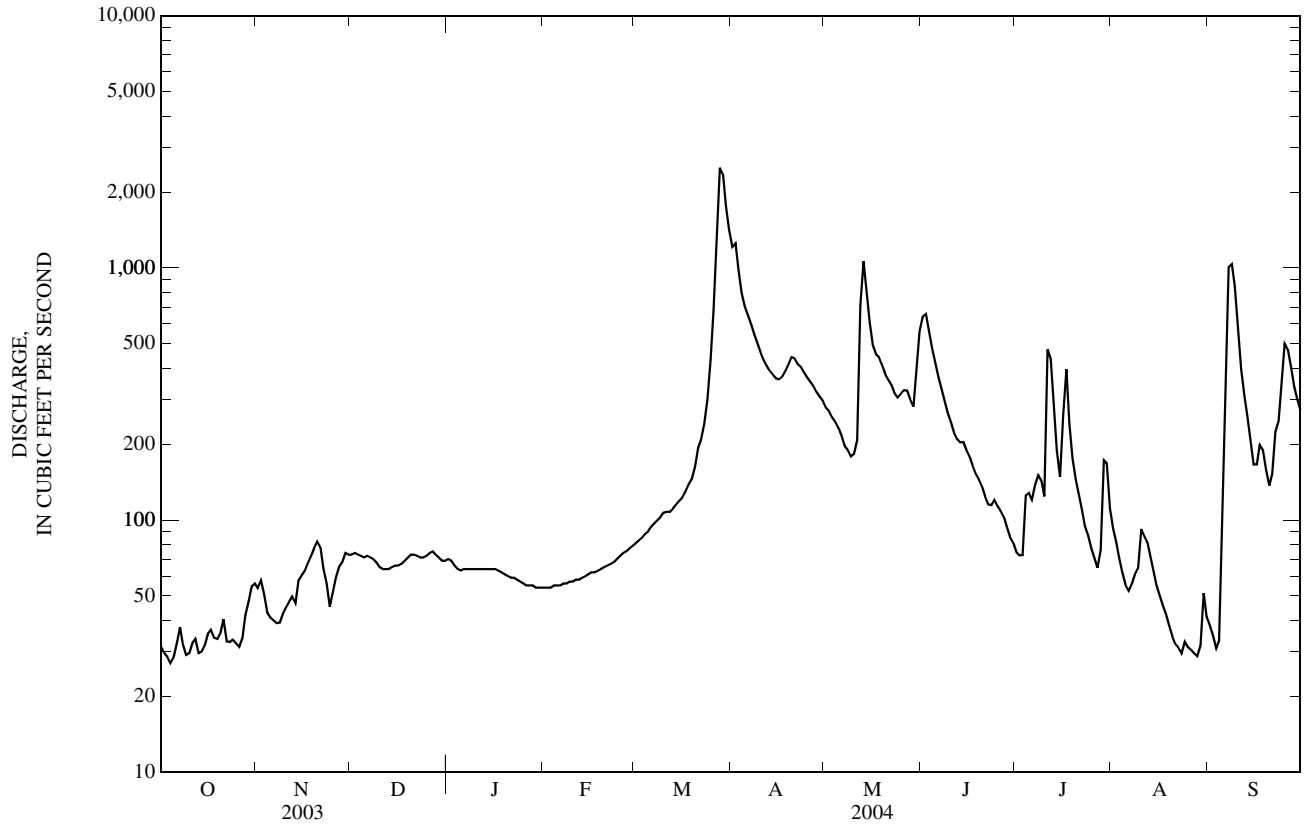
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1909 - 2004, BY WATER YEAR (WY)

MEAN	99.6	101	66.8	49.8	49.3	159	623	445	379	281	119	103
MAX	614	941	343	200	336	828	2,471	2,259	3,441	1,926	1,024	842
(WY)	(1974)	(2001)	(2001)	(2001)	(1998)	(1995)	(1997)	(1950)	(2002)	(1909)	(1993)	(1999)
MIN	6.10	9.31	6.00	4.00	4.00	12.8	73.8	30.9	26.4	8.04	3.02	2.96
(WY)	(1933)	(1933)	(1933)	(1933)	(1933)	(1940)	(1931)	(1977)	(1977)	(1934)	(1932)	(1936)

05062500 WILD RICE RIVER AT TWIN VALLEY, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1909 - 2004	
ANNUAL TOTAL	62,564		72,697			
ANNUAL MEAN	171		199		a204	
HIGHEST ANNUAL MEAN					656	2002
LOWEST ANNUAL MEAN					22.7	1977
HIGHEST DAILY MEAN	1,360	Jun 26	2,500	Mar 28	16,600	Jun 24, 2002
LOWEST DAILY MEAN	18	Sep 9	27	Oct 4	1.1	Aug 13, 1932
ANNUAL SEVEN-DAY MINIMUM	20	Sep 3	31	Aug 22	1.3	Aug 11, 1932
MAXIMUM PEAK FLOW			b2,500	Mar 28	20,300	Jun 24, 2002
MAXIMUM PEAK STAGE			c8.35	Mar 28	d17.96	Jun 24, 2002
INSTANTANEOUS LOW FLOW					0.50	Nov 4, 1939
ANNUAL RUNOFF (AC-FT)	124,100		144,200		147,400	
ANNUAL RUNOFF (CFSM)	0.184		0.213		0.218	
ANNUAL RUNOFF (INCHES)	2.49		2.90		2.96	
10 PERCENT EXCEEDS	379		439		510	
50 PERCENT EXCEEDS	89		76		77	
90 PERCENT EXCEEDS	31		36		16	

a Median of annual mean discharges is 170 ft^3/s.
b Maximum daily.
c From floodmark,
d From floodmark. Gage-height 20.00 ft., July 22, 1909; site and datum then in use.
e Estimated.



05064000 WILD RICE RIVER AT HENDRUM, MN

LOCATION.--Lat 47°16'05", long 96°47'50", in SE¼SE¼ sec. 19, T.144 N., R.48 W., Norman County, Hydrologic Unit 09020108, on right bank 30 ft downstream from County Highway 25 bridge, 0.5 mi east of Hendrum and 4 mi upstream from mouth.

DRAINAGE AREA.--1,560 mi^2.

PERIOD OF RECORD.--March 1944 to September 1984 and May 1985 to current year. Operated as a high-flow partial-record station October 1984 to April 1985.

REVISED RECORDS.--WSP 1728: 1958.

GAGE.--Water-stage recorder. Datum of gage is 836.75 ft above sea level (NGVD of 1929, levels by U.S. Army Corps of Engineers). Prior to July 18, 1989, nonrecording gage at same site and datum.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Large part of high flow diverted into Marsh River Basin at overflow section 3.5 mi east of Ada. Another diversion into the Marsh River basin formed in 1947, 1.5 mi southeast of Ada and diverted water at all stages 1947-51, after which it was closed except for a small regulated flow diverted for abatement of contamination from Ada sewage plant effluent. Amount of diversion not known.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	49	66	e74	e71	e66	e93	3,860	306	1,650	109	161	71
2	49	60	e75	e71	e66	e95	2,930	291	1,770	103	125	65
3	49	69	e74	e70	e66	e97	2,230	276	1,570	100	107	60
4	48	64	e72	e70	e66	e99	1,690	265	1,350	103	94	58
5	48	59	e72	e71	e66	e102	1,240	252	1,170	109	85	57
6	47	69	e73	e72	e67	e105	1,020	242	1,040	173	80	106
7	47	58	e74	e72	e67	e108	877	228	925	178	93	665
8	49	54	e72	e73	e68	e112	790	211	798	190	156	1,330
9	52	56	e71	e73	e68	e115	724	208	647	198	152	1,400
10	49	57	e70	e73	e69	e118	663	196	505	189	139	1,160
11	51	59	e70	e72	e70	e120	607	215	401	208	148	842
12	56	62	e70	e72	e70	e121	555	569	337	527	150	617
13	55	62	e70	e72	e71	e123	514	1,230	295	851	130	491
14	54	61	e69	e72	e72	e127	487	1,630	273	596	114	375
15	51	62	e69	e72	e72	e132	463	1,300	263	412	98	291
16	50	70	e69	e72	e73	e139	443	865	251	290	87	260
17	52	77	e68	e71	e74	e145	430	677	236	281	80	243
18	54	83	e68	e70	e75	e160	421	621	213	435	74	267
19	56	83	e68	e71	e76	e175	451	630	198	344	68	270
20	54	85	e71	e72	e77	e190	502	606	184	243	65	239
21	53	84	e73	e72	e79	e220	520	519	172	199	63	213
22	54	70	e72	e71	e80	e240	508	450	160	166	60	216
23	55	66	e72	e71	e81	e295	482	409	153	147	58	283
24	52	e64	e72	e70	e82	e560	451	374	146	130	59	334
25	52	64	e73	e69	e84	e900	421	360	150	117	61	418
26	52	65	e74	e68	e86	e1,950	394	368	147	107	59	588
27	52	e69	e74	e67	e88	e3,000	375	380	140	96	58	592
28	54	e74	e74	e66	e90	e3,900	360	381	134	92	56	528
29	58	e76	e73	e65	e92	4,770	337	352	126	94	56	450
30	63	e75	e73	e65	---	4,760	318	488	116	183	56	383
31	65	---	e72	e65	---	4,520	---	1,450	---	225	60	---
TOTAL	1,630	2,023	2,221	2,181	2,161	27,591	25,063	16,349	15,520	7,195	2,852	12,872
MEAN	52.6	67.4	71.6	70.4	74.5	890	835	527	517	232	92.0	429
MAX	65	85	75	73	92	4,770	3,860	1,630	1,770	851	161	1,400
MIN	47	54	68	65	66	93	318	196	116	92	56	57
AC-FT	3,230	4,010	4,410	4,330	4,290	54,730	49,710	32,430	30,780	14,270	5,660	25,530
CFSM	0.03	0.04	0.05	0.05	0.05	0.57	0.54	0.34	0.33	0.15	0.06	0.28
IN.	0.04	0.05	0.05	0.05	0.05	0.66	0.60	0.39	0.37	0.17	0.07	0.31

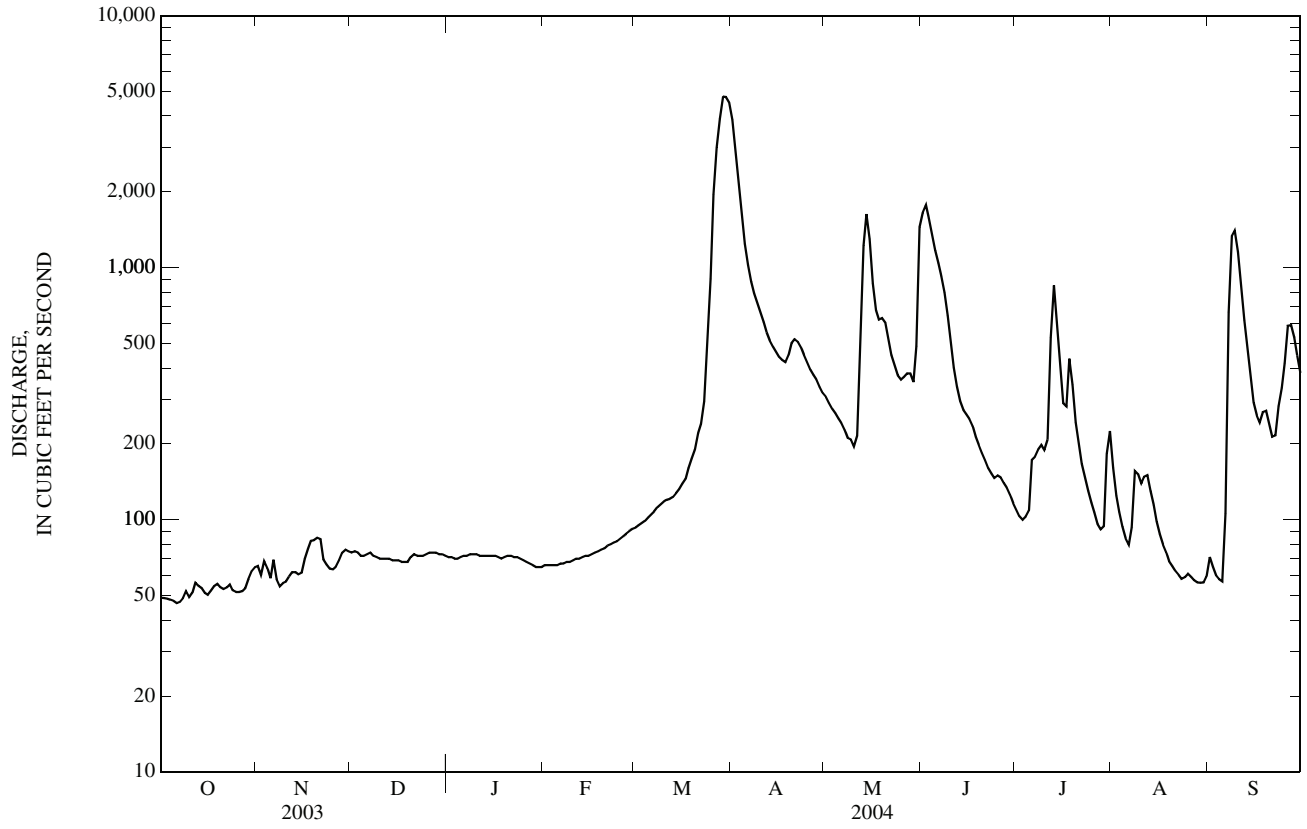
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1944 - 2004, BY WATER YEAR (WY)

MEAN	145	152	88.0	63.4	70.4	344	1,217	662	565	453	170	147
MAX	744	1,305	390	245	767	1,485	5,115	2,137	4,228	3,323	1,833	1,329
(WY)	(1972)	(2001)	(2001)	(2001)	(1998)	(1966)	(1997)	(1998)	(2002)	(2002)	(1993)	(1999)
MIN	0.44	3.32	1.08	0.09	0.22	0.46	106	56.1	9.15	8.82	1.07	0.18
(WY)	(1949)	(1949)	(1977)	(1977)	(1977)	(1949)	(1981)	(1977)	(1952)	(1951)	(1977)	(1948)

05064000 WILD RICE RIVER AT HENDRUM, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1944 - 2004	
ANNUAL TOTAL	98,589		117,658			
ANNUAL MEAN	270		321		a334	
HIGHEST ANNUAL MEAN					936	2002
LOWEST ANNUAL MEAN					28.9	1977
HIGHEST DAILY MEAN	2,970	Jun 27	4,770	Mar 29	10,300	Apr 18, 1997
LOWEST DAILY MEAN	38	Sep 9	47	Oct 6	a0.00	Sep 13, 1948
ANNUAL SEVEN-DAY MINIMUM	39	Sep 5	48	Oct 1	0.00	Sep 27, 1948
MAXIMUM PEAK FLOW			4,800	Mar 29	d10,600	Apr 18, 1997
MAXIMUM PEAK STAGE			22.75	Mar 29	c33.85	Apr 18, 1997
ANNUAL RUNOFF (AC-FT)	195,600		233,400		242,100	
ANNUAL RUNOFF (CFSM)	0.173		0.206		0.214	
ANNUAL RUNOFF (INCHES)	2.35		2.81		2.91	
10 PERCENT EXCEEDS	602		664		770	
50 PERCENT EXCEEDS	92		98		103	
90 PERCENT EXCEEDS	49		58		17	

a Median of annual mean discharges is 300 ft^3/s.
b Many days, September to October 1948.
c From measurement of discharge.
d Backwater from Red River of the North.
e Estimated.



05064500 RED RIVER OF THE NORTH AT HALSTAD, MN

LOCATION.--Lat 47°21'10", long 96°50'50", sec.25, T.145 N., R.49 W., Traill County, Hydrologic Unit 09020107, on left bank on downstream side of highway bridge, 0.5 mi west of Halstad, MN, 2.5 mi downstream from Wild Rice River, and at mile 375.2.

DRAINAGE AREA.--21,800 mi^2, approximately, including 3,800 mi^2 in closed basins.

PERIOD OF RECORD.--April 1936 to June 1937 (no winter records), April 1942 to September 1960 (spring and summer months only), June 1961 to current year.

REVISED RECORDS.--WSP 1388: 1936, 1950. WSP 1728: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 826.65 ft above National Geodetic Vertical Datum of 1929. Prior to July 17, 1961, nonrecording gage at same site and datum.

REMARKS.--Records good except for estimated daily discharges, which are poor.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1897 reached a stage of about 38.5 ft.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	271	379	e380	e370	e305	e420	11,000	2,000	8,170	1,980	1,370	509
2	264	377	e370	e370	e305	e445	8,950	1,870	9,970	1,900	1,190	465
3	259	380	e360	e385	e310	e475	7,240	1,780	10,700	1,780	e1,100	441
4	259	401	e350	e390	e315	e510	6,260	1,700	10,500	1,690	e1,030	430
5	256	409	e350	e390	e315	e540	5,720	1,580	9,960	1,690	e950	421
6	261	444	e340	e390	e320	e560	5,520	1,450	9,490	1,630	e930	977
7	286	471	e340	e390	e325	e570	5,450	1,370	9,010	1,760	e1,100	4,220
8	299	446	e330	e390	e330	e600	5,300	1,310	8,300	1,970	1,280	6,310
9	308	439	e330	e375	e330	e670	5,200	1,290	7,540	1,860	1,380	6,040
10	311	432	e320	e360	e330	e735	5,160	1,270	6,740	1,870	1,340	5,240
11	333	445	e300	e355	e330	e750	5,190	1,290	6,010	2,250	1,280	4,300
12	364	e460	e295	e355	e330	e760	5,160	1,960	5,470	4,400	1,230	3,520
13	483	e495	e290	e360	e330	e790	5,080	2,880	5,170	6,800	1,190	3,050
14	434	e525	e290	e360	e325	e850	5,020	3,310	5,010	7,180	1,160	2,690
15	e375	e560	e285	e355	e325	e950	4,930	3,190	4,920	6,310	e1,090	2,340
16	e370	e595	e285	e350	e325	e1,040	4,860	2,980	4,850	5,310	e1,000	2,070
17	e360	e628	e280	e340	e330	e1,140	4,800	2,800	4,720	4,520	e910	1,920
18	e370	e650	e285	e330	e330	e1,250	4,750	2,650	4,560	4,060	e845	1,730
19	e380	e650	e290	e325	e335	e1,350	4,740	2,570	4,370	3,610	e800	1,600
20	e390	e660	e295	e325	e340	e1,550	4,790	2,550	4,200	3,150	e700	1,550
21	389	e665	e300	e325	e340	e1,750	4,800	2,540	3,920	2,890	e660	1,670
22	407	e510	e305	e325	e350	e2,610	4,620	2,410	3,570	2,680	e640	1,740
23	410	e415	e310	e325	e355	e3,350	4,150	2,240	3,320	2,550	e680	1,690
24	416	e365	e320	e325	e365	e4,900	3,650	2,110	3,060	2,410	e755	1,960
25	403	e420	e330	e325	e370	e6,200	3,350	2,030	2,840	2,260	e720	2,740
26	388	e475	e340	e320	e380	e9,600	3,140	1,980	2,620	2,080	707	3,530
27	377	e475	e350	e320	e385	e12,100	2,940	1,890	2,430	1,900	683	4,110
28	371	e445	e360	e315	e395	e16,800	2,710	1,820	2,270	1,740	696	4,420
29	372	e410	e365	e310	e405	e18,000	2,460	1,770	2,130	1,660	720	4,440
30	383	e400	e370	e305	---	15,100	2,190	1,960	2,050	1,660	641	4,160
31	374	---	e370	e305	---	12,900	---	5,050	---	1,580	550	---
TOTAL	10,923	14,426	10,085	10,765	9,830	119,265	149,130	67,600	167,870	89,130	29,327	80,283
MEAN	352	481	325	347	339	3,847	4,971	2,181	5,596	2,875	946	2,676
MAX	483	665	380	390	405	18,000	11,000	5,050	10,700	7,180	1,380	6,310
MIN	256	365	280	305	305	420	2,190	1,270	2,050	1,580	550	421
AC-FT	21,670	28,610	20,000	21,350	19,500	236,600	295,800	134,100	333,000	176,800	58,170	159,200

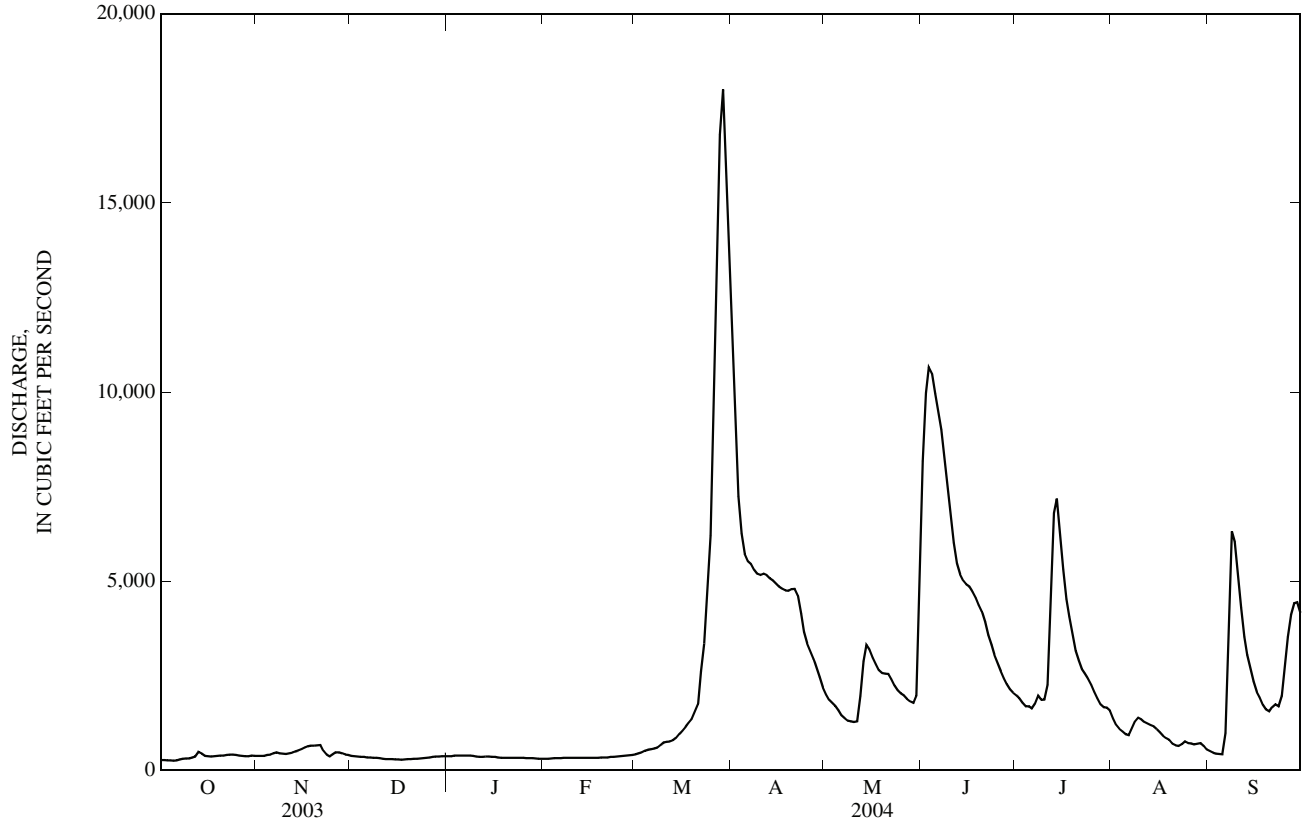
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1961 - 2004, BY WATER YEAR (WY)

MEAN	878	898	669	528	563	2,617	7,922	4,002	3,208	3,078	1,226	918
MAX	2,875	5,707	2,413	1,240	1,952	9,444	38,460	15,570	10,480	20,060	11,700	4,705
(WY)	(1995)	(2001)	(2001)	(2001)	(1998)	(1995)	(1997)	(1997)	(2000)	(1975)	(1993)	(1999)
MIN	61.5	92.3	51.2	32.1	45.9	249	705	449	242	153	59.5	38.4
(WY)	(1977)	(1977)	(1977)	(1977)	(1977)	(1962)	(1981)	(1977)	(1977)	(1988)	(1977)	(1976)

05064500 RED RIVER OF THE NORTH AT HALSTAD, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1961 - 2004	
ANNUAL TOTAL	561,006		758,634			
ANNUAL MEAN	1,537		2,073		2,223	
HIGHEST ANNUAL MEAN					6,028	1997
LOWEST ANNUAL MEAN					214	1977
HIGHEST DAILY MEAN	11,800	Jun 29	18,000	Mar 29	69,900	Apr 19, 1997
LOWEST DAILY MEAN	225	Sep 12	256	Oct 5	10	Sep 2, 1976
ANNUAL SEVEN-DAY MINIMUM	245	Sep 7	265	Oct 1	17	Aug 28, 1976
MAXIMUM PEAK FLOW			a18,200	Mar 29	71,500	Apr 19, 1997
MAXIMUM PEAK STAGE			b24.75	Mar 29	40.74	Apr 19, 1997
INSTANTANEOUS LOW FLOW					5.4	Oct 8, 1936
ANNUAL RUNOFF (AC-FT)	1,113,000		1,505,000		1,611,000	
10 PERCENT EXCEEDS	3,730		5,180		4,940	
50 PERCENT EXCEEDS	628		822		910	
90 PERCENT EXCEEDS	296		320		235	

a About
b Backwater from ice
e Estimated



05067500 MARSH RIVER NEAR SHELLY, MN

LOCATION.--Lat 47°24'45", long 96°45'50", in NE¼NW¼ sec. 3, T.145 N., R.48W., Norman County, Hydrologic Unit 09020107, on left bank, 10 ft downstream of County Road 129 bridge, 3.8 mi southeast of Shelly and 10 mi upstream from mouth.

DRAINAGE AREA.--220 mi^2.

PERIOD OF RECORD.--March 1944 to September 1983 and April 1985 to current year (no winter records since 1989). Monthly discharge only for March 1944, published in WSP 1308. Operated as a high-flow partial-record station October 1983 to March 1985.

GAGE.--Water-stage recorder. Datum of gage is 841.14 ft above sea level (NGVD of 1929, levels by U.S. Army Corps of Engineers). Prior to Oct. 1, 1965, nonrecording gage at datum 3.0 ft higher. Oct. 1, 1965 to May 17, 1989, nonrecording gage at present site and datum.

REMARKS.--Records good except those for discharges below 1.0 ft^3/s and those for estimated daily discharges, which are poor. Large part of high flow of Wild Rice River diverted into Marsh River Basin at overflow section 4.6 mi east of Ada. Another diversion from Wild Rice River Basin formed in 1947, 1.5 mi southeast of Ada and diverted water at all stages 1947- 51, after which it was closed except for a small regulated flow diverted for abatement of pollution from Ada sewage plant effluent.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.00	---	---	---	---	e0.04	666	5.2	647	1.6	0.23	3.2
2	0.00	---	---	---	---	e0.04	399	4.9	407	1.5	0.21	2.2
3	0.01	---	---	---	---	e0.04	195	4.4	214	1.7	0.22	1.5
4	0.30	---	---	---	---	e0.04	113	4.4	130	2.2	0.17	1.2
5	0.21	---	---	---	---	e0.05	79	3.9	72	2.0	0.08	1.6
6	0.02	---	---	---	---	e0.05	56	3.6	40	3.2	0.08	5.2
7	0.00	---	---	---	---	e0.05	46	3.2	26	4.1	0.59	7.0
8	0.00	---	---	---	---	e0.05	42	3.3	21	4.3	0.66	11
9	0.00	---	---	---	---	e0.05	35	3.5	18	9.5	1.1	13
10	0.00	---	---	---	---	e0.05	33	3.6	15	6.3	0.99	9.9
11	1.1	---	---	---	---	e0.05	e26	7.0	12	12	1.0	6.8
12	1.8	---	---	---	---	e0.06	e20	443	10	16	2.5	5.2
13	1.8	---	---	---	---	e0.06	14	576	9.7	24	2.2	4.4
14	2.0	---	---	---	---	e0.06	13	354	8.8	16	1.7	3.6
15	1.3	---	---	---	---	e0.07	12	248	7.9	12	0.95	2.8
16	0.81	---	---	---	---	e0.08	11	193	7.4	8.5	0.63	2.7
17	0.74	---	---	---	---	e0.09	11	151	6.5	5.8	0.43	3.2
18	0.67	---	---	---	---	e0.11	10	89	6.1	4.1	0.24	3.7
19	0.57	---	---	---	---	e0.14	10	54	5.6	3.1	0.07	3.1
20	0.46	---	---	---	---	e0.21	9.9	36	5.1	2.1	0.00	3.2
21	0.40	---	---	---	---	e0.50	9.5	29	4.3	1.6	0.00	3.5
22	0.41	---	---	---	---	e1.5	10	24	3.9	1.0	0.00	2.8
23	0.37	---	---	---	---	e5.0	9.1	21	3.6	0.71	0.00	3.1
24	0.31	---	---	---	---	e7.5	8.5	21	3.4	0.48	2.2	5.3
25	0.25	---	---	---	---	e20	7.7	20	3.4	0.26	11	9.0
26	0.34	---	---	---	---	e100	6.9	19	3.1	0.10	14	8.5
27	0.51	---	---	---	---	e400	6.9	17	2.7	0.00	10	5.4
28	1.1	---	---	---	---	1,380	6.4	16	2.5	0.25	6.4	3.7
29	3.1	---	---	---	---	1,690	5.8	17	2.2	0.33	3.8	2.5
30	3.2	---	---	---	---	1,300	6.4	240	1.9	0.33	3.4	1.2
31	2.1	---	---	---	---	939	---	837	---	0.32	4.0	---
TOTAL	23.88	---	---	---	---	5,844.89	1,878.1	3,452.0	1,700.1	145.38	68.85	139.5
MEAN	0.77	---	---	---	---	189	62.6	111	56.7	4.69	2.22	4.65
MAX	3.2	---	---	---	---	1,690	666	837	647	24	14	13
MIN	0.00	---	---	---	---	0.04	5.8	3.2	1.9	0.00	0.00	1.2
AC-FT	47	---	---	---	---	11,590	3,730	6,850	3,370	288	137	277
CFSM	0.00	---	---	---	---	0.86	0.28	0.51	0.26	0.02	0.01	0.02
IN.	0.00	---	---	---	---	0.99	0.32	0.58	0.29	0.02	0.01	0.02

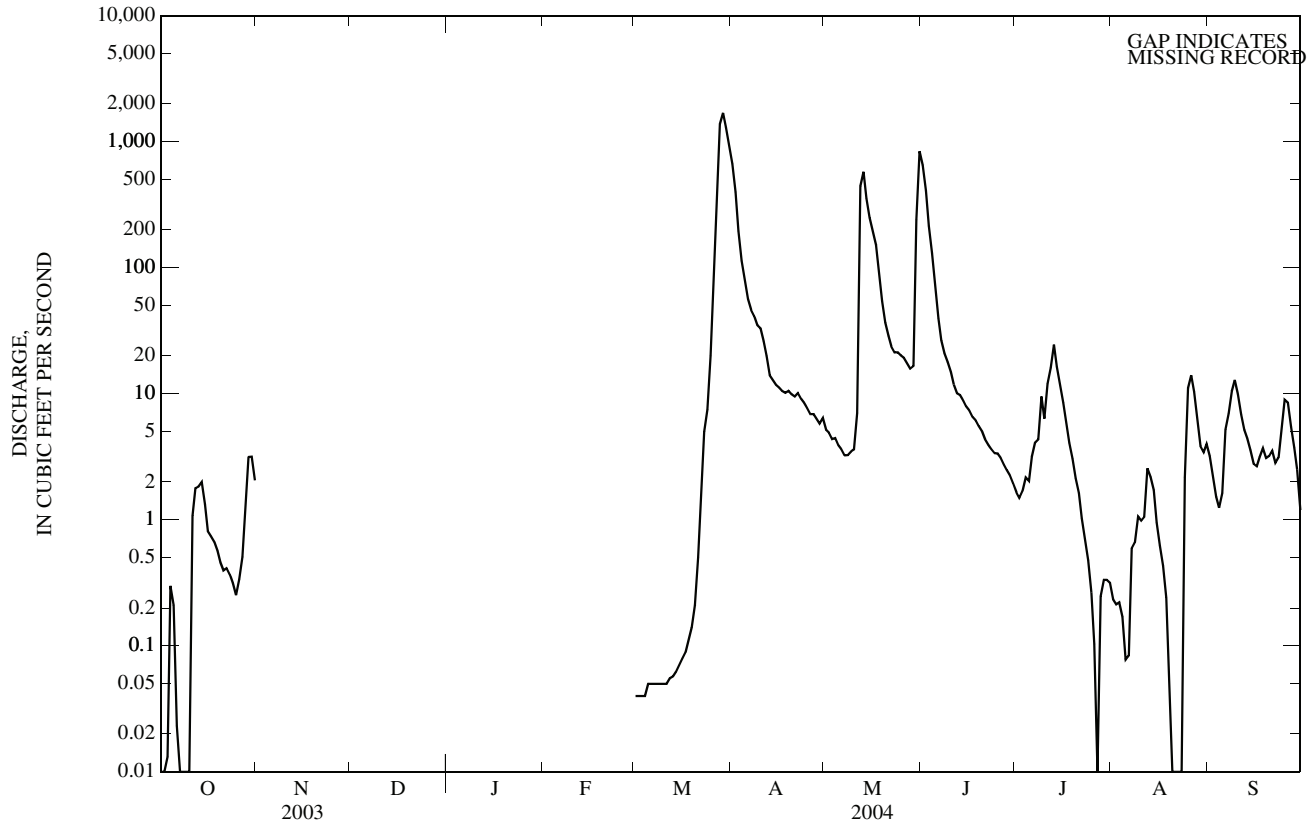
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1944 - 2004, BY WATER YEAR (WY)

MEAN	12.8	11.0	5.60	3.79	3.29	79.1	292	122	112	78.5	18.0	12.2
MAX	130	102	77.1	64.5	62.1	437	1,537	2,617	1,644	820	363	144
(WY)	(1952)	(1952)	(1951)	(1951)	(1951)	(1945)	(1950)	(1950)	(2002)	(1950)	(1949)	(1944)
MIN	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.87	0.00	0.00	0.00	0.00
(WY)	(1955)	(1956)	(1956)	(1946)	(1946)	(1964)	(1981)	(1980)	(1980)	(1961)	(1959)	(1954)

05067500 MARSH RIVER NEAR SHELLY, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR	FOR 2004 WATER YEAR	WATER YEARS 1944 - 2004	
ANNUAL MEAN			63.3	
HIGHEST ANNUAL MEAN			a543	1950
LOWEST ANNUAL MEAN			1.24	1977
HIGHEST DAILY MEAN	816 Jun 26	1690 Mar 29	5,290	Jun 27, 2002
LOWEST DAILY MEAN	b0.00 Mar 1	b0.00 Oct 1	c0.00	Sep 4, 1945
ANNUAL SEVEN-DAY MINIMUM	0.00 Mar 1	0.00 Oct 1	0.00	Sep 12, 1945
MAXIMUM PEAK FLOW	882 Jun 26	1730 Mar 29	d5,530	Jun 26, 2002
MAXIMUM PEAK STAGE	12.34 Jun 26	15.98 Mar 29	f25.45	Apr 18, 1997
ANNUAL RUNOFF (AC-FT)			45,850	
ANNUAL RUNOFF (CFSM)			0.288	
ANNUAL RUNOFF (INCHES)			3.91	
10 PERCENT EXCEEDS			106	
50 PERCENT EXCEEDS			0.80	
90 PERCENT EXCEEDS			0.00	

a Based on complete years only, 1945-83, 86-89.
b Many days, most years.
c Gage-height, 24.35 ft.
d From floodmark.
e Estimated.
f Many days.



05069000 SAND HILL RIVER AT CLIMAX, MN

LOCATION.--Lat 47°36'43", long 96°48'52", in NE¼NE¼ sec. 30, T.148 N., R.48 W., Polk County, Hydrologic Unit 09020301, on left bank 25 ft upstream from bridge on U.S. Highway 75 in Climax and 3.7 mi upstream from mouth.

DRAINAGE AREA.--420 mi^2.

PERIOD OF RECORD.--March 1943 to September 1984, June 1985 to current year (winter records incomplete prior to 1947). Monthly discharge only for some periods, published in WSP 1308 and 1728. October 1984 to May 1985, operated as a high-flow partial-record station.

REVISED RECORDS.--WSP 1388: 1943(M), 1944, 1947(M). WSP 1728: 1951(M), 1960 (average discharge).

GAGE.--Water-stage recorder. Datum of gage is 820.10 ft above sea level (NGVD or 1929, levels by U.S. Army Corps of Engineers). Prior to Oct. 1, 1966, nonrecording gage at site 3.2 mi upstream at datum 12.78 ft higher. Oct. 1, 1966 to Sept 5, 1989, nonrecording gage at present site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	24	e22	e14	e9.4	e16	2,540	53	608	26	29	29
2	24	31	e21	e13	e9.6	e16	2,260	50	315	26	28	27
3	24	29	e21	e13	e9.8	e16	1,470	48	221	28	25	24
4	23	18	e21	e12	e10	e17	720	47	176	31	23	23
5	22	28	e21	e12	e10	e17	426	46	145	40	23	29
6	21	e29	e20	e12	e11	e17	343	44	119	42	22	68
7	21	e24	e19	e12	e11	e17	293	42	99	46	24	68
8	23	e24	e18	e12	e12	e18	254	40	86	46	28	52
9	24	25	e17	e13	e12	e18	211	41	77	41	28	42
10	22	28	e16	e13	e12	e18	177	43	70	37	30	41
11	25	30	e16	e13	e12	e18	156	47	66	45	30	37
12	31	31	e16	e13	e12	e18	141	1,200	62	64	29	33
13	28	28	e16	e13	e12	e19	129	885	57	62	27	31
14	27	26	e17	e13	e13	e20	120	430	52	67	26	30
15	27	31	e17	e13	e14	e21	112	338	48	59	24	31
16	27	32	e17	e12	e14	e22	107	300	47	49	22	37
17	29	35	e18	e12	e15	e24	101	288	43	54	22	39
18	29	37	e18	e12	e15	e27	95	282	39	64	19	36
19	27	38	e18	e12	e15	e32	98	256	38	64	18	33
20	26	36	e18	e12	e15	e38	95	211	36	68	17	32
21	26	34	e18	e12	e15	e50	92	149	34	69	15	35
22	28	e23	e18	e12	e15	e70	85	117	33	66	19	35
23	25	e22	e18	e12	e15	e90	79	106	31	58	22	37
24	24	e22	e18	e11	e15	e150	75	101	33	51	27	58
25	23	e22	e18	e11	e16	e250	70	101	35	46	45	65
26	24	e22	e17	e10	e16	e400	68	112	33	39	38	61
27	26	e22	e16	e10	e16	e600	64	110	32	34	33	60
28	28	e22	e15	e9.7	e16	e850	60	101	30	35	31	56
29	35	e22	e14	e9.5	e16	e1,100	57	94	30	35	28	49
30	32	e22	e14	e9.3	---	e1,500	56	886	28	32	67	47
31	30	---	e14	e9.3	---	e2,000	---	1,370	---	30	37	---
TOTAL	807	817	547	366.8	383.8	7,469	10,554	7,938	2,723	1,454	856	1,245
MEAN	26.0	27.2	17.6	11.8	13.2	241	352	256	90.8	46.9	27.6	41.5
MAX	35	38	22	14	16	2,000	2,540	1,370	608	69	67	68
MIN	21	18	14	9.3	9.4	16	56	40	28	26	15	23
AC-FT	1,600	1,620	1,080	728	761	14,810	20,930	15,750	5,400	2,880	1,700	2,470
CFSM	0.06	0.06	0.04	0.03	0.03	0.57	0.84	0.61	0.22	0.11	0.07	0.10
IN.	0.07	0.07	0.05	0.03	0.03	0.66	0.93	0.70	0.24	0.13	0.08	0.11

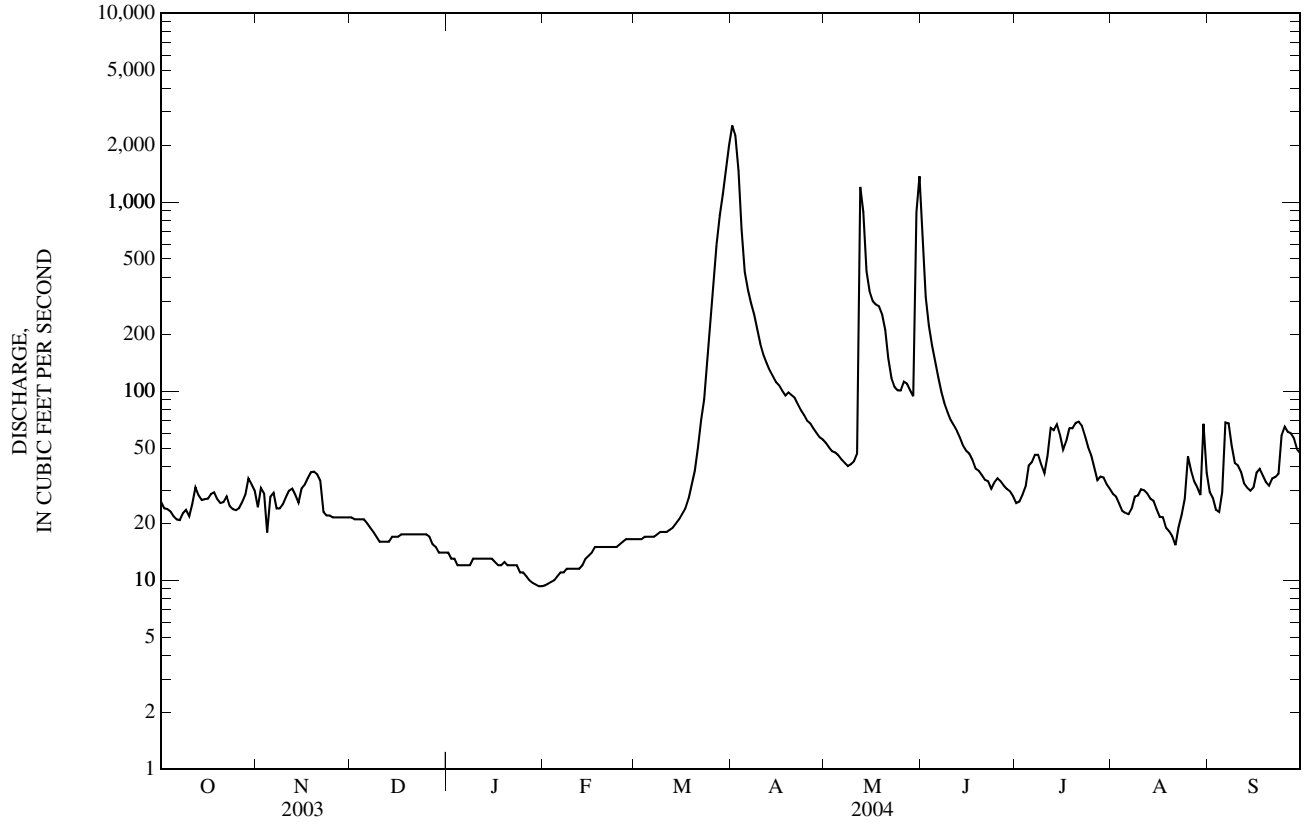
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1943 - 2004, BY WATER YEAR (WY)

MEAN	38.8	35.5	20.4	14.9	17.5	97.1	377	135	113	92.7	41.0	36.4
MAX	223	284	58.0	36.8	183	610	1,568	1,156	689	703	426	374
(WY)	(1972)	(2001)	(1999)	(2001)	(1998)	(1999)	(1997)	(1950)	(2002)	(2002)	(1993)	(1999)
MIN	9.43	8.64	5.11	2.02	3.55	5.81	25.3	23.7	11.5	8.95	6.30	6.49
(WY)	(1977)	(1956)	(1964)	(1962)	(1962)	(1948)	(1981)	(1958)	(1980)	(1980)	(1961)	(1955)

05069000 SAND HILL RIVER AT CLIMAX, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1943 - 2004	
ANNUAL TOTAL	20,998		35,160.6			
ANNUAL MEAN	57.5		96.1		a85.3	
HIGHEST ANNUAL MEAN					249	1999
LOWEST ANNUAL MEAN					18.4	1977
HIGHEST DAILY MEAN	542	Jun 23	2,540	Apr 1	4,360	Apr 14, 1965
LOWEST DAILY MEAN	14	Feb 22	9.3	Jan 30,31	1.0	Jan 17, 1962
ANNUAL SEVEN-DAY MINIMUM	14	Feb 22	9.5	Jan 28	1.1	Jan 12, 1962
MAXIMUM PEAK FLOW			2,610	Apr 1	b4,560	Apr 14, 1965
MAXIMUM PEAK STAGE			15.48	Apr 1	c39.40	Apr 20, 1997
ANNUAL RUNOFF (AC-FT)	41,650		69,740		61,760	
ANNUAL RUNOFF (CFSM)	0.137		0.229		0.203	
ANNUAL RUNOFF (INCHES)	1.86		3.11		2.76	
10 PERCENT EXCEEDS	129		142		163	
50 PERCENT EXCEEDS	26		29		25	
90 PERCENT EXCEEDS	16		13		9.1	

a Median of annual mean discharges is 65 ft^3/s.
b Gage-height, 17.81 ft, site and datum then in use.
c Backwater from Red River of the North.
e Estimated.



05073500 UPPER RED LAKE AT WASKISH, MN

LOCATION.--Lat 48°10'32", long 94°30'51", in SW¼NE¼NE¼ sec. 8, T.154 N., R. 30 W., Beltrami County, Hydrologic Unit 09020302, on east side of Upper Red Lake, near mouth of Tamarac River, on Minnesota Department of Natural Resources property, 500 feet west of State Highway 72 bridge on north edge of Waskish.

PERIOD OF RECORD.-- October 1921 to September 1929, fragmentary gage height record in files of Minnesota Department of Natural Resources, April 1930 to September 1933, published as "Red Lake at Waskish", May 1940 to July 1946, October 1995 to current year.

GAGE.-- Water-stage recorder. Datum of gage is 1,100.00 ft above sea level, adjustment of 1912. October 1921 to September 1929, non-recording gage at datum 1,170.00 ft (no winter readings). April 1930 to September 1933, non-recording gage at datum 1,100.00 ft (some winter readings). May 1940 to July 1946, non-recording gage at datum 1,170.00 ft.

REMARKS.-- Records good. Water level subject to fluctuation caused by seiches, and the stage of the Tamarac River.

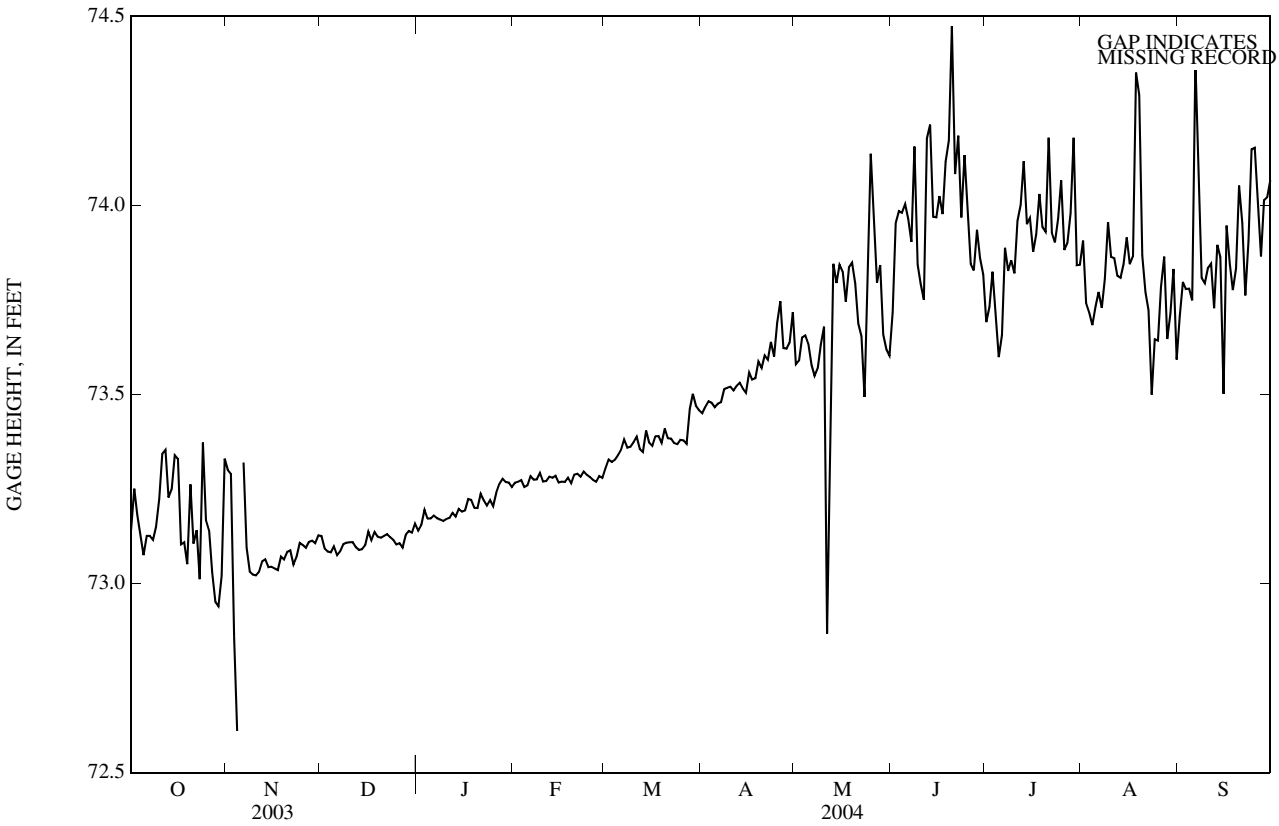
EXTREMES FOR PERIOD OF RECORD.-- Maximum gage height, 78.34 ft (present datum), June 28, 1943; minimum recorded, 72.10 ft, Oct. 17, 1932.

EXTREMES FOR CURRENT YEAR.-- Maximum gage height, 75.06 ft, Aug. 18; maximum daily, 74.47 ft, June 20; minimum gage height, 72.38 ft, May 11; minimum recorded daily, 72.61 ft, Nov. 4.

GAGE HEIGHT, FEET
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	73.14	73.30	73.13	73.14	73.27	73.30	73.45	73.58	73.72	73.69	73.91	73.71
2	73.25	73.29	73.09	73.16	73.27	73.33	73.47	73.59	73.95	73.73	73.74	73.80
3	73.18	72.86	73.08	73.19	73.27	73.32	73.48	73.65	73.98	73.82	73.72	73.78
4	73.12	72.61	73.08	73.17	73.26	73.33	73.48	73.66	73.98	73.72	73.68	73.78
5	73.08	---	73.10	73.17	73.26	73.34	73.47	73.63	74.00	73.60	73.73	73.75
6	73.13	73.32	73.08	73.18	73.28	73.35	73.48	73.58	73.97	73.66	73.77	74.38
7	73.13	73.10	73.09	73.17	73.27	73.38	73.48	73.55	73.90	73.89	73.73	74.06
8	73.12	73.03	73.10	73.17	73.28	73.36	73.51	73.57	74.16	73.83	73.81	73.81
9	73.15	73.02	73.11	73.17	73.29	73.36	73.52	73.63	73.84	73.85	73.96	73.79
10	73.22	73.02	73.11	73.17	73.27	73.37	73.52	73.68	73.79	73.82	73.86	73.83
11	73.34	73.03	73.11	73.17	73.27	73.39	73.51	72.87	73.75	73.96	73.86	73.85
12	73.35	73.06	73.10	73.19	73.28	73.36	73.52	73.47	74.18	74.00	73.81	73.73
13	73.23	73.06	73.09	73.18	73.28	73.35	73.53	73.85	74.21	74.12	73.81	73.90
14	73.25	73.04	73.09	73.20	73.29	73.40	73.52	73.79	73.97	73.95	73.84	73.86
15	73.34	73.04	73.10	73.19	73.27	73.37	73.50	73.84	73.97	73.97	73.92	73.50
16	73.33	73.04	73.14	73.19	73.27	73.36	73.56	73.82	74.02	73.88	73.84	73.95
17	73.10	73.04	73.11	73.22	73.27	73.39	73.54	73.75	73.98	73.92	73.87	73.85
18	73.11	73.07	73.14	73.22	73.28	73.39	73.54	73.84	74.12	74.03	74.35	73.78
19	73.05	73.06	73.12	73.20	73.27	73.37	73.59	73.85	74.17	73.94	74.29	73.83
20	73.26	73.08	73.12	73.20	73.29	73.41	73.57	73.79	74.47	73.93	73.87	74.05
21	73.11	73.09	73.13	73.24	73.29	73.38	73.60	73.69	74.08	74.18	73.77	73.95
22	73.14	73.05	73.13	73.22	73.28	73.38	73.59	73.65	74.18	73.93	73.72	73.76
23	73.01	73.07	73.12	73.21	73.30	73.37	73.64	73.49	73.97	73.90	73.50	73.91
24	73.37	73.11	73.12	73.22	73.29	73.37	73.60	73.81	74.13	73.96	73.65	74.15
25	73.17	73.10	73.10	73.20	73.28	73.38	73.69	74.14	73.97	74.07	73.64	74.15
26	73.14	73.09	73.11	73.24	73.27	73.38	73.75	73.94	73.84	73.88	73.78	74.03
27	73.03	73.11	73.10	73.26	73.27	73.37	73.62	73.80	73.83	73.90	73.86	73.87
28	72.95	73.11	73.13	73.28	73.28	73.46	73.62	73.84	73.94	73.98	73.65	74.01
29	72.94	73.11	73.14	73.27	73.28	73.50	73.64	73.66	73.86	74.18	73.71	74.02
30	73.02	73.13	73.13	73.27	---	73.47	73.72	73.62	73.82	73.84	73.83	74.07
31	73.33	---	73.16	73.26	---	73.46	---	73.60	---	73.84	73.59	---
MEAN	73.16	---	73.11	73.20	73.28	73.38	73.56	73.68	73.99	73.90	73.81	73.90
MAX	73.37	---	73.16	73.28	73.30	73.50	73.75	74.14	74.47	74.18	74.35	74.38
MIN	72.94	---	73.08	73.14	73.26	73.30	73.45	72.87	73.72	73.60	73.50	73.50

05073500 UPPER RED LAKE AT WASKISH, MN—Continued



05073650 LOWER RED LAKE AT BATTLE RIVER MOUTH NEAR SAUM, MN

LOCATION.-- Lat 47°57'35", long 94°44'31", in SE¼NE¼NE¼ sec. 28, T. 152 N., R. 32 W., Beltrami County, Hydrologic Unit 09020302, on east side of Lower Red Lake, 200 feet upstream of mouth of Battle River, 900 feet southwest of highway bridge, and 3.2 mi southwest of Saum.

PERIOD OF RECORD.--June 5, 1996 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,100.00 ft above sea level, adjustment of 1912.

REMARKS.--Records fair. Water level subject to the stage of the Battle River and ice pile up at the mouth; and by lake seiches.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 76.75 ft, Aug. 9, 2001; maximum daily, 76.12 ft, June 19, Aug. 9, 2001; minimum gage height, 73.12 ft, Oct. 17, 27, Nov. 8, 2003; minimum daily, 73.13 ft, Oct. 27, Nov. 9, 2003.

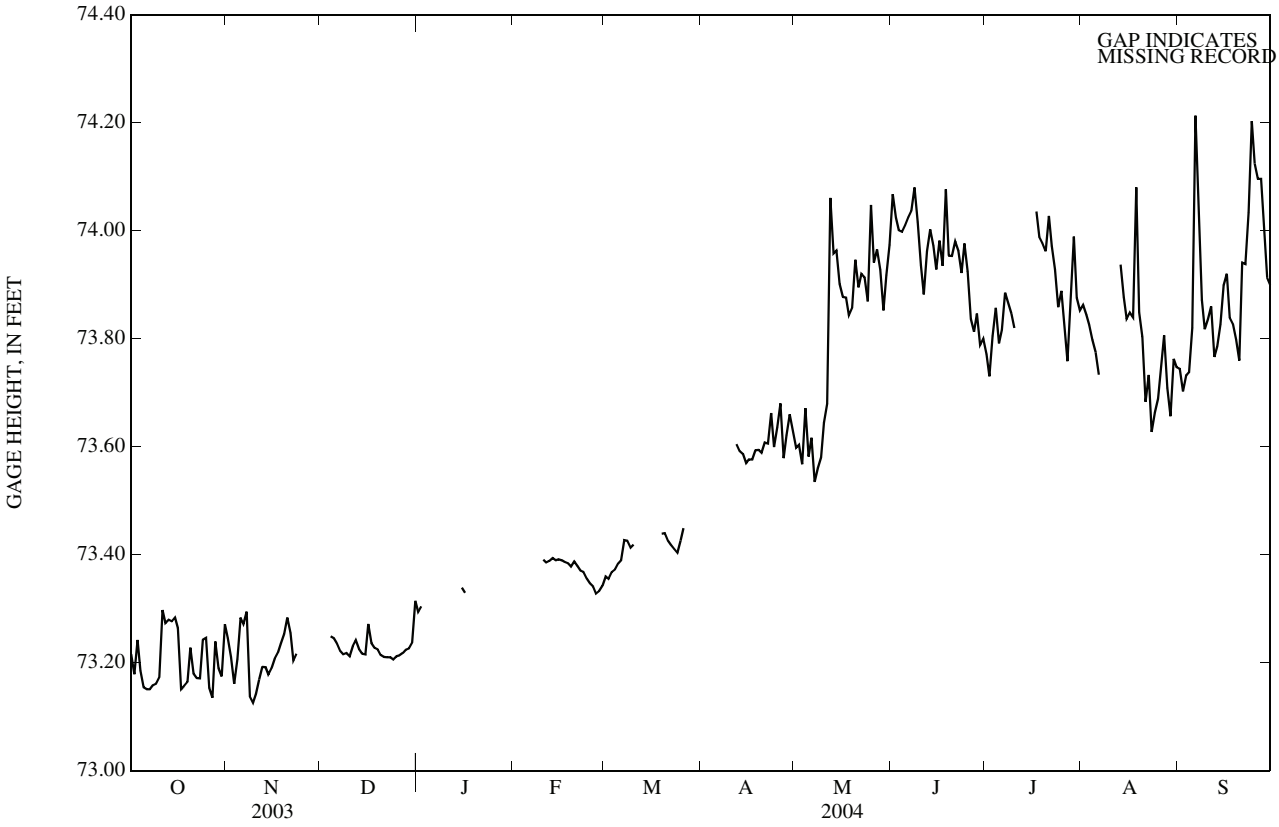
EXTREMES FOR CURRENT YEAR.--Maximum gage height, 74.64 ft, Aug. 18; maximum daily, 74.21 ft, Sept. 6; minimum gage height, 73.12 ft, Oct. 17, 27, Nov. 8; minimum daily, 73.13 ft, Oct. 27, Nov. 9.

REVISIONS.--Records prior to Oct. 1, 1997, daily-mean, daily-maximum, and daily-minimum gage heights revised upwards by 0.11 ft. Datum of gage had been established 0.11 ft too low.

GAGE HEIGHT, FEET
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES*

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	73.22	73.25	---	73.29	---	73.36	---	73.60	74.07	73.77	73.86	73.74
2	73.18	73.21	---	73.30	---	73.36	---	73.60	74.02	73.73	73.84	73.70
3	73.24	73.16	---	---	---	73.37	---	73.57	74.00	73.81	73.83	73.73
4	73.19	73.21	73.25	---	---	73.37	---	73.67	74.00	73.86	73.80	73.74
5	73.15	73.28	73.25	---	---	73.38	---	73.58	74.01	73.79	73.77	73.82
6	73.15	73.27	73.23	---	---	73.39	---	73.62	74.02	73.82	73.73	74.21
7	73.15	73.29	73.22	---	---	73.43	---	73.53	74.04	73.89	---	74.01
8	73.16	73.14	73.22	---	---	73.43	---	73.56	74.08	73.86	---	73.87
9	73.16	73.13	73.22	---	---	73.41	---	73.58	74.02	73.85	---	73.82
10	73.17	73.14	73.21	---	73.39	73.42	---	73.64	73.94	73.82	---	73.84
11	73.30	73.17	73.23	---	73.39	---	---	73.68	73.88	---	---	73.86
12	73.27	73.19	73.24	---	73.39	---	73.60	74.06	73.96	---	---	73.77
13	73.28	73.19	73.23	---	73.39	---	73.59	73.96	74.00	---	73.94	73.79
14	73.28	73.18	73.22	---	73.39	---	73.59	73.96	73.97	---	73.88	73.83
15	73.28	73.19	73.22	73.34	73.39	---	73.57	73.90	73.93	---	73.84	73.90
16	73.26	73.21	73.27	73.33	73.39	---	73.58	73.88	73.98	---	73.85	73.92
17	73.15	73.22	73.24	---	73.39	---	73.58	73.88	73.93	74.04	73.84	73.84
18	73.16	73.24	73.23	---	73.38	---	73.59	73.84	74.08	73.99	74.08	73.83
19	73.16	73.25	73.22	---	73.38	73.44	73.59	73.86	73.95	73.98	73.85	73.80
20	73.23	73.28	73.21	---	73.39	73.44	73.59	73.95	73.95	73.96	73.80	73.76
21	73.18	73.26	73.21	---	73.38	73.43	73.61	73.90	73.98	74.03	73.68	73.94
22	73.17	73.20	73.21	---	73.37	73.42	73.61	73.92	73.96	73.97	73.73	73.94
23	73.17	73.22	73.21	---	73.37	73.41	73.66	73.91	73.92	73.93	73.63	74.03
24	73.24	---	73.21	---	73.36	73.40	73.60	73.87	73.98	73.86	73.66	74.20
25	73.25	---	73.21	---	73.35	73.43	73.64	74.05	73.92	73.89	73.69	74.12
26	73.15	---	73.21	---	73.34	73.45	73.68	73.94	73.84	73.83	73.75	74.10
27	73.13	---	73.22	---	73.33	---	73.58	73.97	73.81	73.76	73.81	74.10
28	73.24	---	73.22	---	73.33	---	73.62	73.93	73.85	73.88	73.71	74.00
29	73.19	---	73.23	---	73.34	---	73.66	73.85	73.79	73.99	73.66	73.91
30	73.17	---	73.24	---	---	---	73.63	73.92	73.80	73.88	73.76	73.90
31	73.27	---	73.31	---	---	---	---	73.97	---	73.85	73.75	---
MEAN	73.20	---	---	---	---	---	---	73.81	73.96	---	---	73.90
MAX	73.30	---	---	---	---	---	---	74.06	74.08	---	---	74.21
MIN	73.13	---	---	---	---	---	---	73.53	73.79	---	---	73.70

05073650 LOWER RED LAKE AT BATTLE RIVER MOUTH NEAR SAUM, MN—Continued



05074000 LOWER RED LAKE NEAR RED LAKE, MN

LOCATION.--Lat 47°57'27", long 95°16'34", in SW¼NW¼ sec. 28, T.152 N., R.36 W., Clearwater County, Hydrologic Unit 09020302, on Red Lake Indian Reservation, on left bank just upstream from dam at outlet of Lower Red Lake, and 13 mi northwest of city of Red Lake.

DRAINAGE AREA.--1,950 mi^2 (approximately).

PERIOD OF RECORD.--June 1930 to November 1932, May 1933 to September 1997, October 1999 to current year. Published as "Red Lake at Redby" prior to May 1933 and as "Red Lake near Red Lake" May 1933 to September 1940. Fragmentary gage-height record, October 1921 to September 1929, for "Red Lake at Redby" in files of Minnesota Department of Natural Resources. Gage height record, October 1997 to September 1999, in files of U.S. Army Corps of Engineers.

GAGE.--Water-stage recorder. Datum of gage is 1,100.00 ft above sea level, adjustment of 1912 (levels by U.S. Army Corps of Engineers). May 1933 to Sept. 6, 1934, nonrecording gage. Sept. 7, 1934 to Sept. 30, 1986, water-stage recorder at present site at datum 69.00 ft higher.

REMARKS.--Records good. Water level subject to fluctuation caused by seiches, and by drawdown from dam gate changes.

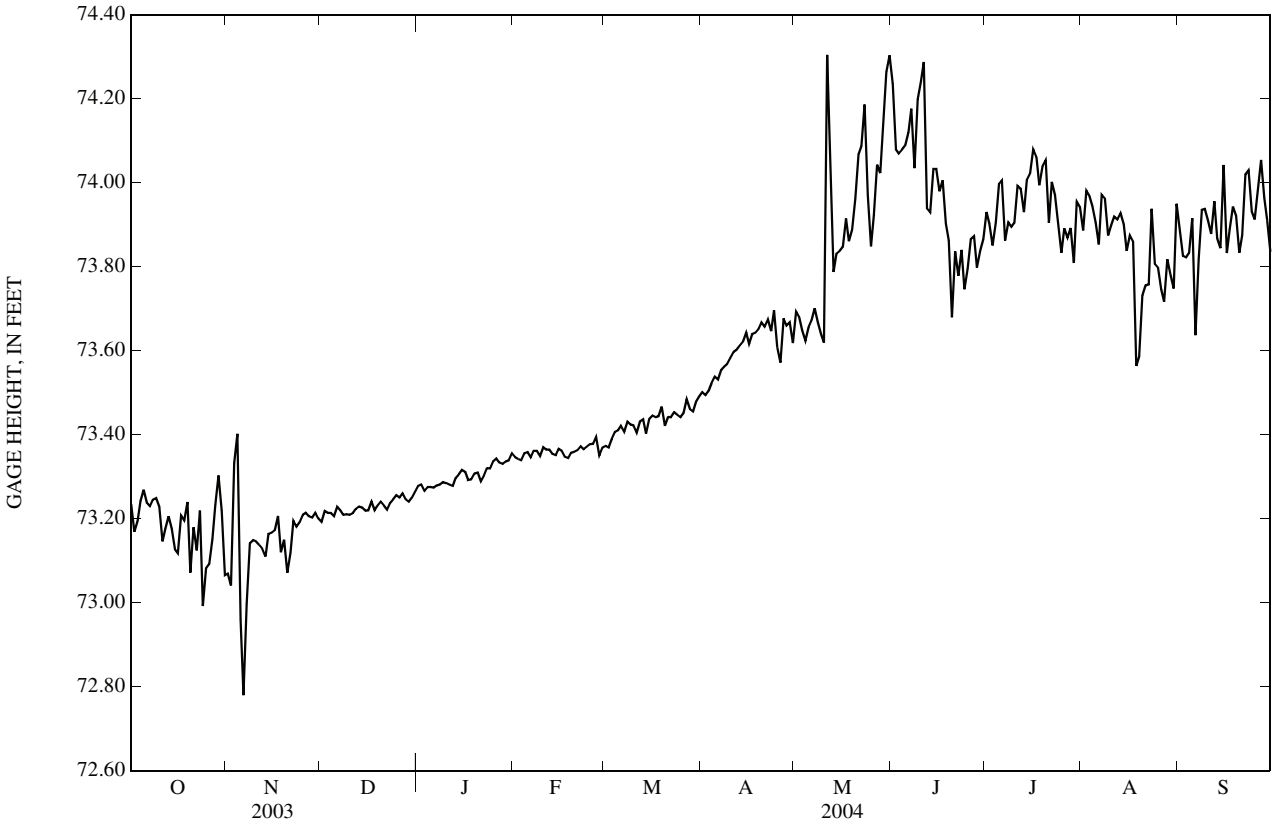
EXTREMES FOR PERIOD OF RECORD.--Maximum gage height recorded, 78.53 ft, June 25, 1950; minimum recorded, 69.80 ft, Nov. 20, 1936.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 74.80 ft, May 11; maximum daily, 74.30 ft, May 11, 31; minimum gage height, 72.59 ft, Nov. 6; minimum daily, 72.78 ft, Nov. 6.

GAGE HEIGHT, FEET
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	73.24	73.07	73.19	73.28	73.35	73.37	73.50	73.69	74.24	73.93	73.89	73.89
2	73.17	73.04	73.22	73.28	73.34	73.37	73.49	73.68	74.08	73.90	73.98	73.83
3	73.19	73.33	73.21	73.27	73.34	73.39	73.50	73.65	74.07	73.85	73.97	73.82
4	73.24	73.40	73.21	73.28	73.36	73.41	73.52	73.62	74.08	73.90	73.94	73.83
5	73.27	72.96	73.21	73.28	73.36	73.41	73.54	73.66	74.09	74.00	73.91	73.92
6	73.24	72.78	73.23	73.27	73.35	73.42	73.53	73.67	74.12	74.00	73.85	73.64
7	73.23	73.00	73.22	73.28	73.36	73.41	73.55	73.70	74.18	73.86	73.97	73.82
8	73.25	73.14	73.21	73.28	73.36	73.43	73.56	73.67	74.03	73.91	73.96	73.94
9	73.25	73.15	73.21	73.29	73.35	73.42	73.57	73.64	74.20	73.89	73.87	73.94
10	73.23	73.15	73.21	73.28	73.37	73.42	73.58	73.62	74.24	73.90	73.90	73.91
11	73.15	73.14	73.21	73.28	73.36	73.40	73.60	74.30	74.29	73.99	73.92	73.88
12	73.18	73.13	73.22	73.28	73.36	73.43	73.60	74.08	73.94	73.99	73.91	73.96
13	73.21	73.11	73.23	73.30	73.35	73.44	73.61	73.79	73.93	73.93	73.93	73.87
14	73.18	73.16	73.23	73.31	73.35	73.40	73.62	73.83	74.03	74.01	73.90	73.84
15	73.13	73.17	73.22	73.32	73.37	73.44	73.64	73.84	74.03	74.02	73.84	74.04
16	73.12	73.17	73.22	73.31	73.36	73.45	73.62	73.85	73.98	74.08	73.87	73.83
17	73.21	73.21	73.24	73.29	73.35	73.44	73.64	73.91	74.00	74.06	73.86	73.89
18	73.20	73.12	73.22	73.29	73.34	73.44	73.64	73.86	73.90	73.99	73.56	73.94
19	73.24	73.15	73.23	73.31	73.36	73.47	73.65	73.89	73.86	74.04	73.59	73.92
20	73.07	73.07	73.24	73.31	73.36	73.42	73.67	73.96	73.68	74.05	73.73	73.83
21	73.18	73.12	73.23	73.29	73.36	73.44	73.66	74.07	73.84	73.90	73.76	73.88
22	73.12	73.20	73.22	73.30	73.37	73.44	73.67	74.09	73.78	74.00	73.76	74.02
23	73.22	73.18	73.24	73.32	73.37	73.45	73.65	74.19	73.84	73.97	73.94	74.03
24	72.99	73.19	73.25	73.32	73.37	73.45	73.70	73.97	73.75	73.91	73.81	73.93
25	73.08	73.21	73.26	73.34	73.38	73.44	73.61	73.85	73.80	73.83	73.80	73.91
26	73.09	73.21	73.25	73.34	73.38	73.45	73.57	73.92	73.87	73.89	73.75	73.98
27	73.15	73.21	73.26	73.33	73.39	73.48	73.68	74.04	73.87	73.87	73.72	74.05
28	73.23	73.20	73.25	73.33	73.35	73.46	73.66	74.02	73.80	73.89	73.82	73.96
29	73.30	73.21	73.24	73.34	73.37	73.46	73.67	74.15	73.84	73.81	73.78	73.91
30	73.22	73.20	73.25	73.34	---	73.48	73.62	74.26	73.86	73.95	73.75	73.84
31	73.06	---	73.26	73.36	---	73.49	---	74.30	---	73.94	73.95	---
MEAN	73.18	73.15	73.23	73.30	73.36	73.43	73.60	73.90	73.97	73.94	73.84	73.90
MAX	73.30	73.40	73.26	73.36	73.39	73.49	73.70	74.30	74.29	74.08	73.98	74.05
MIN	72.99	72.78	73.19	73.27	73.34	73.37	73.49	73.62	73.68	73.81	73.56	73.64

05074000 LOWER RED LAKE NEAR RED LAKE, MN—Continued



05074500 RED LAKE RIVER NEAR RED LAKE, MN

LOCATION.--Lat 47°57'27", long 95°16'35", in SW¼NW¼ sec. 28, T.152 N., R.36 W., Clearwater County, Hydrologic Unit 09020302, on Red Lake Indian Reservation, on left bank 50 ft downstream from dam outlet at outlet of Lower Red Lake, and 13 mi northwest of city of Red Lake.

DRAINAGE AREA.--1,950 mi^2 (approximately).

PERIOD OF RECORD.--May 1933 to September 1994 (monthly discharge only for May 1933, published in WSP 1308), October 1999 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,100.00 ft above sea level, adjustment of 1912 (levels by U.S. Army Corps of Engineers). Prior to Sept. 7, 1934, nonrecording gage at site 50 ft upstream at datum 69.00 ft higher. Sept. 7, 1934 to Nov. 26, 1951, water-stage recorder at present site at datum 69.00 ft higher. Nov. 27,1951 to Sept. 30, 1986, water-stage recorder at present site at datum 67.00 ft higher.

REMARKS.--Records poor. Flow completely regulated by outlet dam on Lower Red Lake.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	76	51	e64	e72	e78	e80	90	108	159	130	148	129
2	73	51	e66	e73	e77	e80	95	108	148	126	153	126
3	73	59	e66	e74	e77	e80	97	107	149	122	152	126
4	74	72	e66	e74	e78	e81	92	112	150	126	147	127
5	74	57	e66	e74	e78	e82	93	112	154	128	141	133
6	73	50	e67	e74	e78	e82	95	114	155	129	134	135
7	73	53	e67	e75	e78	e83	100	111	163	124	139	128
8	72	66	e66	e76	e78	e84	103	111	154	123	143	135
9	71	68	e66	e76	e78	e84	99	114	158	125	142	135
10	69	67	e66	e76	e79	e84	98	116	153	126	141	135
11	66	64	e67	e76	e79	e82	96	135	152	135	141	133
12	64	64	e68	e76	e79	e84	99	153	141	137	142	134
13	66	70	e68	e77	e78	e84	99	128	139	134	141	129
14	65	66	e69	e77	e78	e82	96	127	141	139	141	128
15	62	65	e69	e77	e79	e84	95	127	141	142	136	145
16	59	63	e69	e76	e79	e85	99	126	137	148	139	133
17	61	61	e69	e75	e78	e85	98	133	139	150	139	131
18	60	55	e69	e75	e78	e85	98	133	135	148	129	133
19	61	54	e68	e76	e78	e86	101	134	132	155	115	132
20	61	54	e69	e76	e79	e85	101	140	122	157	120	127
21	59	e56	e69	e75	e80	e85	105	140	125	153	120	131
22	60	e58	e69	e74	e80	e85	103	138	121	150	121	140
23	59	e60	e69	e75	e80	e86	107	144	122	147	125	143
24	57	e63	e70	e76	e80	e86	106	136	118	146	121	143
25	54	e65	e72	e76	e80	e86	111	137	115	142	121	138
26	54	e66	e71	e76	e80	e86	109	135	119	148	126	141
27	55	e66	e71	e76	e81	e87	106	141	123	146	118	147
28	59	e65	e71	e76	e79	e87	110	138	124	146	122	141
29	59	e65	e70	e76	e80	e87	112	140	126	137	122	216
30	58	e65	e71	e77	---	e88	109	149	127	142	119	378
31	55	---	e71	e78	---	89	---	152	---	145	129	---
TOTAL	1,982	1,839	2,119	2,340	2,284	2,614	3,022	3,999	4,142	4,306	4,127	4,352
MEAN	63.9	61.3	68.4	75.5	78.8	84.3	101	129	138	139	133	145
MAX	76	72	72	78	81	89	112	153	163	157	153	378
MIN	54	50	64	72	77	80	90	107	115	122	115	126
AC-FT	3,930	3,650	4,200	4,640	4,530	5,180	5,990	7,930	8,220	8,540	8,190	8,630
CFSM	0.03	0.03	0.04	0.04	0.04	0.04	0.05	0.07	0.07	0.07	0.07	0.07
IN.	0.04	0.04	0.04	0.04	0.04	0.05	0.06	0.08	0.08	0.08	0.08	0.08

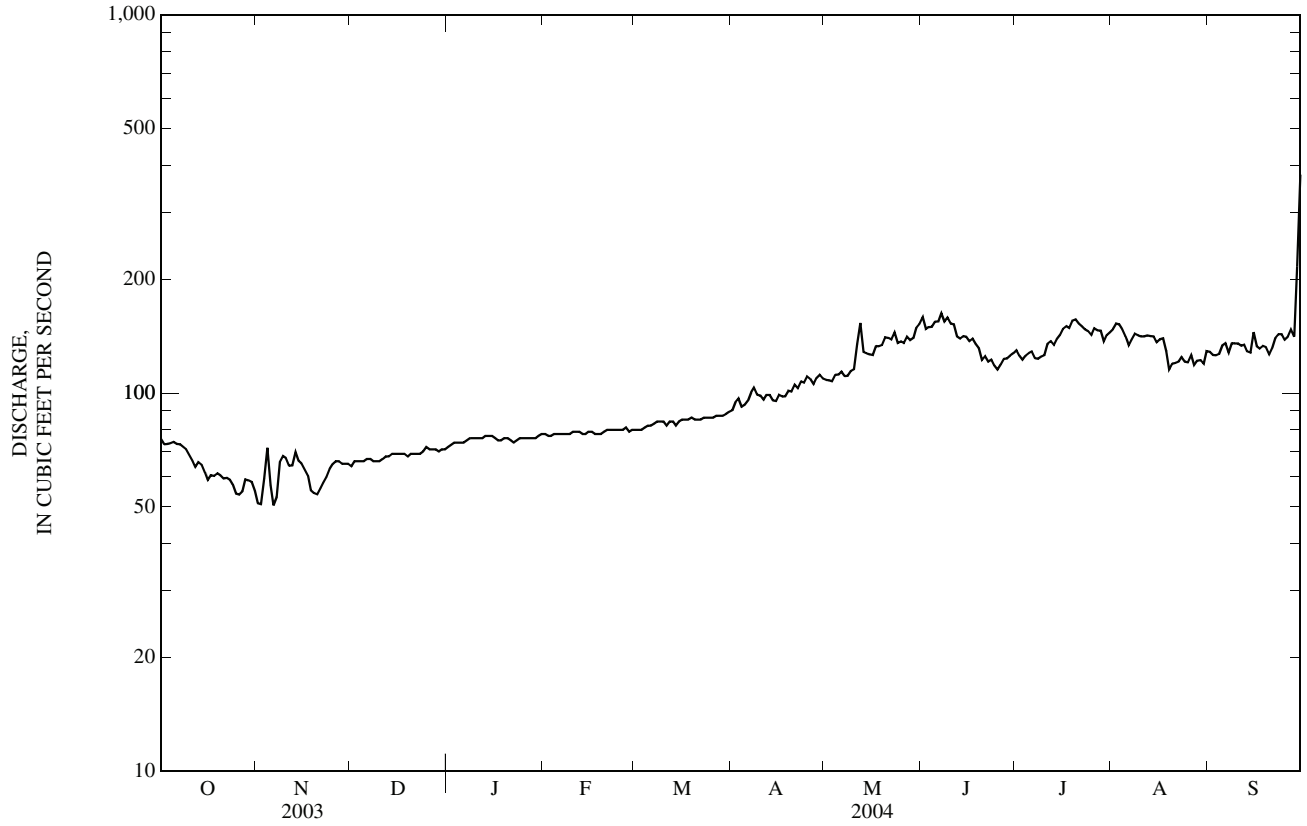
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1933 - 2004, BY WATER YEAR (WY)

MEAN	485	486	469	473	467	436	356	493	562	534	473	467
MAX	2,071	1,765	1,498	1,418	1,342	1,396	1,357	1,624	2,025	1,840	1,464	1,712
(WY)	(1951)	(2000)	(1951)	(1951)	(1951)	(1951)	(2000)	(1950)	(1950)	(1950)	(1975)	(1950)
MIN	5.10	3.57	0.95	0.35	0.40	0.60	4.00	0.60	2.15	4.63	2.73	1.61
(WY)	(1934)	(1934)	(1934)	(1934)	(1934)	(1936)	(1936)	(1933)	(1933)	(1934)	(1936)	(1934)

05074500 RED LAKE RIVER NEAR RED LAKE, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1933 - 2004	
ANNUAL TOTAL	33,658		37,126			
ANNUAL MEAN	92.2		101		478	
HIGHEST ANNUAL MEAN					1,292	1951
LOWEST ANNUAL MEAN					5.55	1936
HIGHEST DAILY MEAN	215	Jan 1	378	Sep 30	2,240	Oct 6, 1950
LOWEST DAILY MEAN	34	Aug 15	50	Nov 6	a0.00	Sep 19, 1933
ANNUAL SEVEN-DAY MINIMUM	47	Aug 12	55	Oct 27	0.00	Sep 1, 1934
MAXIMUM PEAK FLOW			b393	Sep 30	3,600	Jun 25, 1950
MAXIMUM PEAK STAGE			b71.29	Sep 30	78.19	Jun 25, 1950
ANNUAL RUNOFF (AC-FT)	66,760		73,640		346,500	
ANNUAL RUNOFF (CFSM)	0.047		0.052		0.245	
ANNUAL RUNOFF (INCHES)	0.64		0.71		3.33	
10 PERCENT EXCEEDS	143		143		1,020	
50 PERCENT EXCEEDS	86		90		400	
90 PERCENT EXCEEDS	62		65		43	

a Many days in 1933, 1934 and 1936.
b Rising stage.
e Estimated.



05076000 THIEF RIVER NEAR THIEF RIVER FALLS, MN

LOCATION.--Lat 48°11'08", long 96°10'11", in NW¼SW¼ sec. 3, T.154 N., R.43 W., Marshall County, Hydrologic Unit 09020304, on right bank, 0.2 mi upstream from highway bridge, 5 mi north of Thief River Falls, 7 mi upstream from mouth, and 9 mi downstream from Mud Lake National Wildlife Refuge.

DRAINAGE AREA.--985 mi^2.

PERIOD OF RECORD.--July 1909 to September 1917, April 1920 to September 1921, October 1922 to September 1924, October 1928 to September 1981, March 1982 to current year. Monthly discharge only for some periods, annual maximums for water years 1919, 1922, 1925, 1926, published in WSP 1308. October 1981 to February 1982, operated as a high-flow partial-record station.

REVISED RECORDS.--WSP 925: Drainage area. WSP 1308: 1917(M), 1924(M), 1929(M), 1931-33(M), 1935(M), 1937(M).

GAGE.--Water-stage recorder and control of grouted boulders. Datum of gage is 1,112.33 ft above sea level (NGVD of 1929, levels by Minnesota Department of Transportation). Prior to May 4, 1939, nonrecording gages at same site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Some regulation by Thief and Mud Lakes.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.8	10	e2.6	e2.0	e0.29	0.35	e1,150	587	2,770	733	37	178
2	2.3	10	e2.6	e1.9	e0.28	0.37	1,040	576	2,630	712	52	170
3	2.2	e9.0	e2.5	e1.8	e0.28	0.37	775	540	2,470	745	79	159
4	1.8	e7.5	2.4	e1.7	e0.27	0.37	545	325	2,210	795	116	155
5	1.5	e6.6	e2.3	e1.6	0.27	0.40	386	287	2,020	826	41	155
6	1.7	e5.8	e2.3	e1.5	e0.26	0.45	309	142	1,980	869	27	194
7	1.6	e4.8	e2.2	1.4	e0.26	0.48	292	122	1,920	974	25	289
8	1.4	e4.0	e2.2	1.3	e0.25	0.51	441	105	1,830	894	25	371
9	1.3	e3.2	e2.1	1.2	0.24	0.55	455	104	1,740	543	73	362
10	1.1	e3.4	e1.8	1.1	0.24	0.62	474	102	1,660	603	73	412
11	2.1	e3.7	e1.7	e0.97	0.24	0.72	418	116	1,590	597	144	407
12	3.4	e4.1	e1.5	0.88	0.24	0.64	396	1,870	1,510	580	70	387
13	6.2	e4.6	e1.5	0.88	0.24	0.56	462	2,610	1,480	681	102	363
14	7.0	5.3	e1.5	0.83	0.24	0.61	598	2,460	1,470	575	101	345
15	7.0	6.2	e1.6	0.79	e0.24	0.75	709	2,290	1,440	531	93	195
16	6.5	7.0	e1.6	0.77	0.24	0.85	838	2,230	1,420	388	88	447
17	6.2	7.8	e1.6	e0.69	0.23	0.89	831	2,090	1,380	363	64	559
18	5.9	9.5	e1.5	e0.65	0.22	0.94	814	1,920	1,350	355	56	569
19	5.2	12	e1.5	0.61	0.22	1.1	808	1,810	1,330	324	55	563
20	4.6	14	e1.6	0.56	0.22	1.3	797	1,830	1,300	87	53	588
21	4.0	16	e1.6	e0.51	0.22	1.4	803	1,720	1,280	62	52	893
22	4.0	13	e1.7	e0.47	0.23	1.4	791	1,650	1,270	138	51	1,040
23	3.6	9.4	e1.8	0.44	0.23	1.6	798	1,580	1,250	119	51	1,000
24	3.6	6.7	e1.8	0.39	0.24	2.3	865	1,550	1,210	120	53	1,060
25	3.7	5.0	e1.8	0.33	0.25	e5.0	858	1,540	1,080	115	51	1,090
26	13	3.9	e1.9	e0.32	0.26	e35	851	1,570	799	108	60	1,010
27	6.9	3.4	e2.0	e0.32	0.26	e160	827	1,590	751	59	74	935
28	7.0	e3.0	e2.2	e0.31	0.30	e1,400	740	1,550	789	55	76	934
29	7.2	e2.8	e2.2	e0.31	0.34	e1,330	732	1,540	947	37	73	923
30	9.1	e2.7	e2.2	e0.30	---	e1,200	698	2,580	901	35	91	897
31	11	---	e2.1	e0.30	---	e1,250	---	2,910	---	35	119	---
TOTAL	144.9	204.4	59.9	27.13	7.30	5,399.53	20,501	41,896	45,777	13,058	2,125	16,650
MEAN	4.67	6.81	1.93	0.88	0.25	174	683	1,351	1,526	421	68.5	555
MAX	13	16	2.6	2.0	0.34	1,400	1,150	2,910	2,770	974	144	1,090
MIN	1.1	2.7	1.5	0.30	0.22	0.35	292	102	751	35	25	155
AC-FT	287	405	119	54	14	10,710	40,660	83,100	90,800	25,900	4,210	33,030
CFSM	0.00	0.01	0.00	0.00	0.00	0.18	0.69	1.37	1.55	0.43	0.07	0.56
IN.	0.01	0.01	0.00	0.00	0.00	0.20	0.77	1.58	1.73	0.49	0.08	0.63

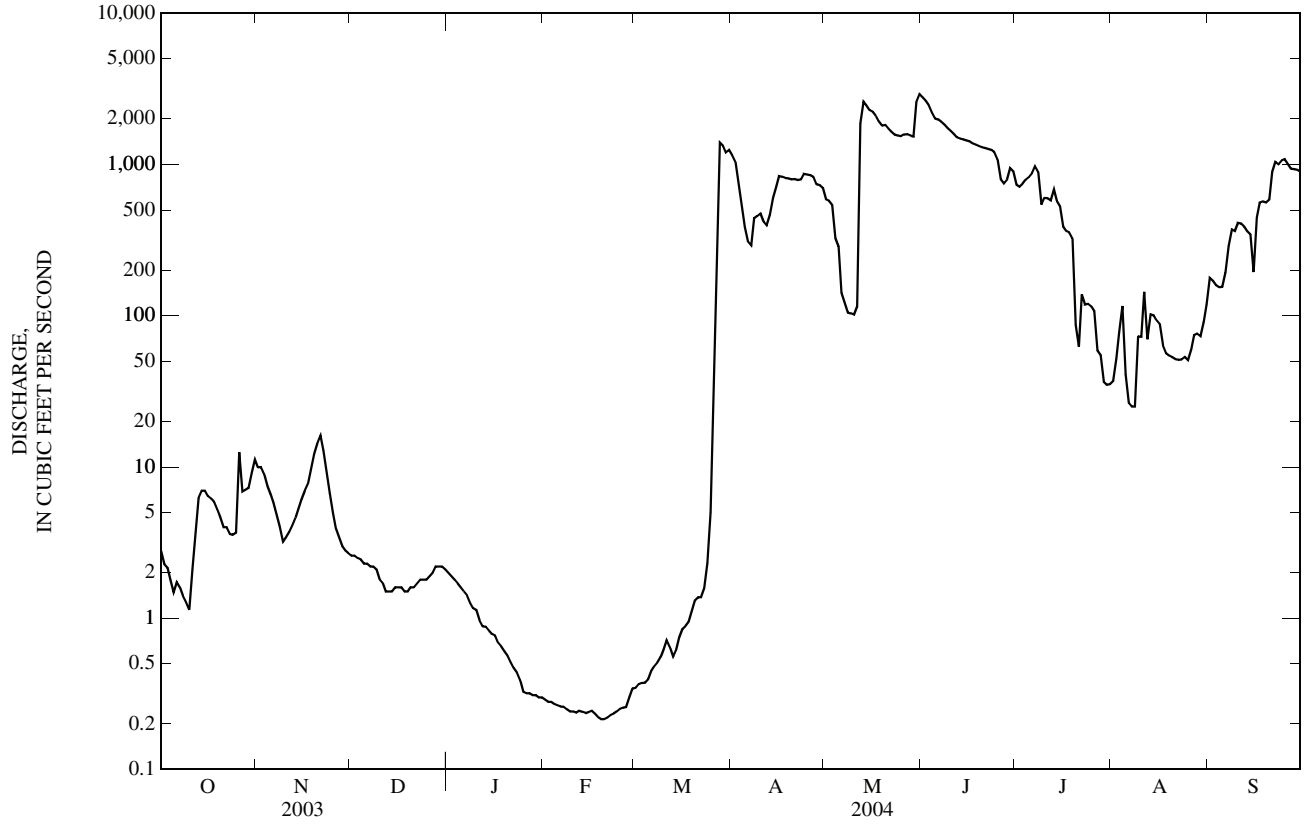
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1909 - 2004, BY WATER YEAR (WY)

MEAN	93.7	84.9	24.1	5.62	5.24	78.8	614	511	352	255	118	121
MAX	637	1,019	215	100	101	773	2,827	4,274	2,238	2,103	1,130	1,619
(WY)	(1986)	(2001)	(1999)	(1910)	(1998)	(1995)	(1966)	(1950)	(2002)	(1975)	(2001)	(1999)
MIN	0.00	0.00	0.00	0.00	0.00	0.00	7.75	1.83	0.03	0.00	0.00	0.00
(WY)	(1911)	(1911)	(1911)	(1911)	(1911)	(1930)	(1981)	(1990)	(1980)	(1932)	(1932)	(1929)

05076000 THIEF RIVER NEAR THIEF RIVER FALLS, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1909 - 2004	
ANNUAL TOTAL	16,759.85		145,850.16			
ANNUAL MEAN	45.9		398		a188	
HIGHEST ANNUAL MEAN					791	1999
LOWEST ANNUAL MEAN					1.28	1939
HIGHEST DAILY MEAN	895	Apr 30	2,910	May 31	5,580	May 13, 1950
LOWEST DAILY MEAN	0.04	Sep 9	0.22	Feb 18-21	b0.00	Oct 1, 1910
ANNUAL SEVEN-DAY MINIMUM	0.08	Sep 6	0.22	Feb 18	0.00	Oct 1, 1910
MAXIMUM PEAK FLOW			2,930	May 31	5,610	May 13, 1950
MAXIMUM PEAK STAGE			13.49	May 31	17.38	May 13, 1950
INSTANTANEOUS LOW FLOW			0.22	Feb 18	b0.00	Oct 1, 1910
ANNUAL RUNOFF (AC-FT)	33,240		289,300		136,500	
ANNUAL RUNOFF (CFSM)	0.047		0.405		0.191	
ANNUAL RUNOFF (INCHES)	0.63		5.51		2.60	
10 PERCENT EXCEEDS	115		1,410		588	
50 PERCENT EXCEEDS	6.9		36		10	
90 PERCENT EXCEEDS	0.39		0.35		0.00	

a Median of annual mean discharges is 150 ft^3/s.
b Many days, several years.
e Estimated.



05078000 CLEARWATER RIVER AT PLUMMER, MN

LOCATION.--Lat 47°55'24", long 96°02'46", in SE¼SW¼ sec. 4, T.151 N., R.42 W., Red Lake County, Hydrologic Unit 09020305, on right bank 200 ft downstream from Soo Line Railroad bridge, 300 ft downstream from bridge on U.S. Highway 59, 0.9 mi northwest of railroad depot in Plummer, and 8 mi upstream from Hill River.

DRAINAGE AREA.--555 mi^2.

PERIOD OF RECORD.--April 1939 to September 1979, March 1982 to current year. Annual maximums only, October 1979 to February 1982.

GAGE.--Water-stage recorder. Datum of gage is 1,098.57 ft above sea level (NGVD of 1929, levels by U.S. Army Corps of Engineers). Prior to Nov. 10, 1939, nonrecording gage at site 100 ft upstream at same datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Since 1968, undetermined amounts of water diverted for the flooding of wild rice paddies upstream.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 630 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Mar 29	(daily)	e670	*7.76	May 31	0600	741	6.10
May 13	0130	*859	6.54				

Minimum discharge, 28 ft^3/s, Nov. 4, (result of freezeup).

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34	41	e60	e67	e47	e59	e465	56	527	110	96	81
2	38	e33	e64	e65	e47	e60	e460	64	419	118	83	78
3	45	e32	e66	e64	e47	e49	e430	55	348	110	75	72
4	42	e31	e65	e63	e47	e50	361	57	300	108	82	66
5	35	e53	e64	e62	e47	e50	290	55	266	98	88	62
6	34	e73	e64	e61	e47	e51	246	52	218	101	98	93
7	40	e64	e63	e60	e47	e52	207	45	198	113	99	202
8	38	e54	e63	e59	e48	e54	197	47	172	131	119	192
9	44	e46	e62	e59	e48	e55	183	59	149	136	132	160
10	41	e49	e61	e58	e48	e51	169	51	145	139	166	137
11	49	e54	e60	e58	e48	e44	150	55	139	129	181	116
12	45	e42	e59	e58	e48	e39	133	522	136	154	158	101
13	40	e43	e58	e57	e48	e43	115	799	142	160	164	92
14	39	e45	e57	e57	e48	e48	101	653	135	151	151	83
15	39	e47	e56	e56	e48	e53	85	505	126	138	125	81
16	39	e51	e63	e56	e48	e57	88	426	116	133	101	84
17	39	e44	e62	e56	e49	e59	81	370	104	129	89	116
18	40	e48	e68	e56	e49	e61	83	331	106	132	79	120
19	43	e36	e73	e56	e50	e65	84	303	105	122	78	109
20	41	e60	e74	e55	e51	e67	78	349	101	121	73	103
21	39	e62	e74	e55	e53	e68	51	376	93	124	72	119
22	41	e55	e74	e54	e55	e68	57	371	87	128	68	139
23	38	e48	e73	e53	e57	e69	58	354	82	130	62	134
24	41	e56	e72	e53	e59	e76	54	315	76	133	62	167
25	38	e40	e73	e52	e61	e98	62	302	83	136	67	193
26	39	e45	e76	e51	e56	e400	72	315	75	118	92	173
27	44	e47	e77	e50	e56	e600	65	320	72	91	127	150
28	45	e49	e78	e49	e57	e690	61	303	74	89	113	130
29	45	e53	e76	e48	e58	e600	59	263	72	94	93	115
30	40	e57	e72	e47	---	e520	65	444	86	121	85	104
31	43	---	e70	e47	---	e471	---	703	---	104	88	---
TOTAL	1,258	1,458	2,077	1,742	1,472	4,727	4,610	8,920	4,752	3,801	3,166	3,572
MEAN	40.6	48.6	67.0	56.2	50.8	152	154	288	158	123	102	119
MAX	49	73	78	67	61	690	465	799	527	160	181	202
MIN	34	31	56	47	47	39	51	45	72	89	62	62
AC-FT	2,500	2,890	4,120	3,460	2,920	9,380	9,140	17,690	9,430	7,540	6,280	7,090
CFSM	0.07	0.09	0.12	0.10	0.09	0.27	0.28	0.52	0.29	0.22	0.18	0.21
IN.	0.08	0.10	0.14	0.12	0.10	0.32	0.31	0.60	0.32	0.25	0.21	0.24

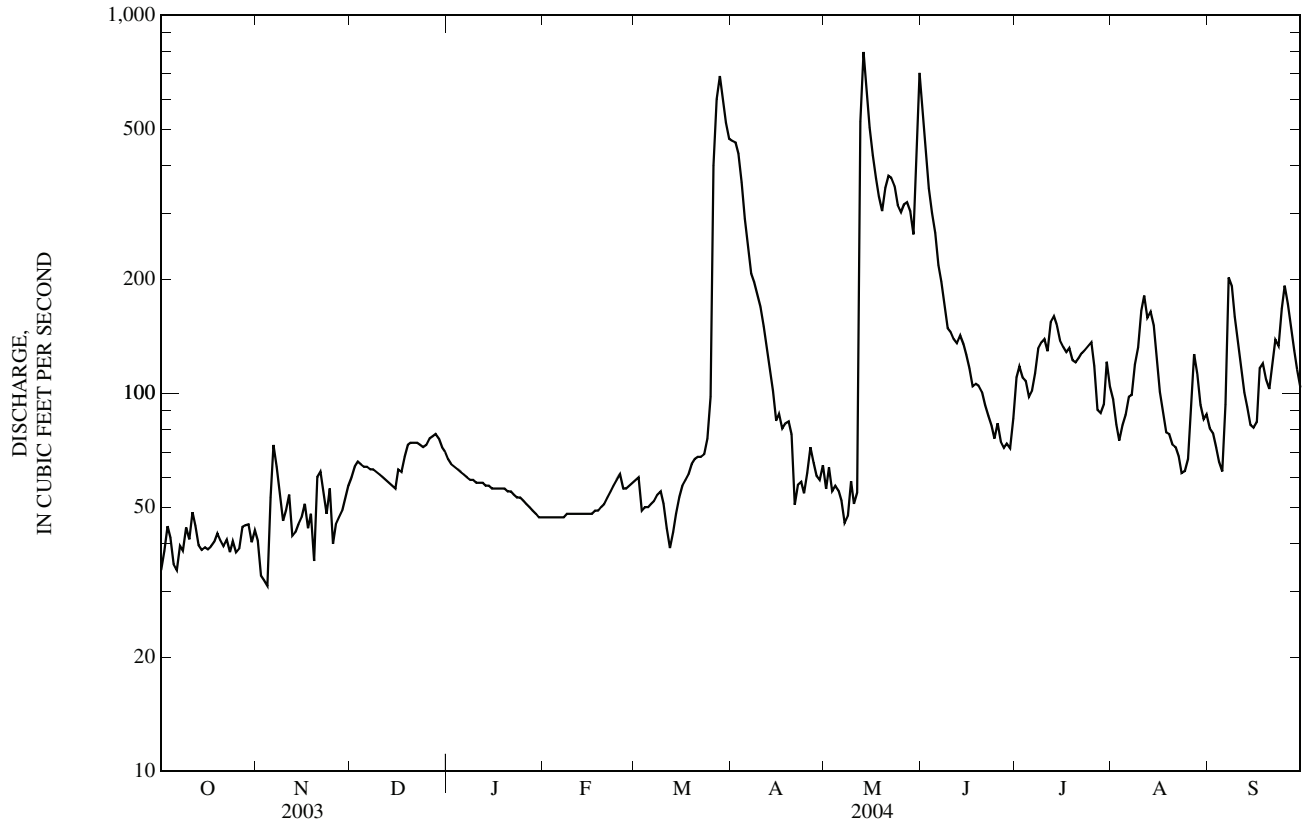
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 2004, BY WATER YEAR (WY)

MEAN	115	98.4	67.5	54.4	52.2	119	527	358	263	230	127	114
MAX	483	617	211	125	184	445	1,472	1,974	1,140	1,072	507	666
(WY)	(1972)	(2001)	(2001)	(2001)	(1998)	(1995)	(1997)	(1950)	(1962)	(1997)	(1985)	(1973)
MIN	21.5	23.8	24.4	18.4	19.0	22.8	26.8	7.52	30.1	16.0	13.3	14.1
(WY)	(1941)	(1991)	(1990)	(1940)	(1940)	(1940)	(1977)	(1977)	(1991)	(1940)	(1940)	(1940)

05078000 CLEARWATER RIVER AT PLUMMER, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1939 - 2004	
ANNUAL TOTAL	29,769		41,555			
ANNUAL MEAN	81.6		114		a178	
HIGHEST ANNUAL MEAN					354	1950
LOWEST ANNUAL MEAN					57.0	1990
HIGHEST DAILY MEAN	605	Jun 27	799	May 13	3,840	Apr 25, 1979
LOWEST DAILY MEAN	28	Sep 6	31	Nov 4	2.6	May 16, 1977
ANNUAL SEVEN-DAY MINIMUM	33	Sep 3	38	Oct 29	2.9	May 10, 1977
MAXIMUM PEAK FLOW			b859	May 13	c3,940	Apr 25, 1979
MAXIMUM PEAK STAGE			d7.76	Mar 29	d12.74	Apr 16, 1997
INSTANTANEOUS LOW FLOW			f28	Nov 4	2.5	May 16, 1977
ANNUAL RUNOFF (AC-FT)	59,050		82,420		128,900	
ANNUAL RUNOFF (CFSM)	0.147		0.205		0.320	
ANNUAL RUNOFF (INCHES)	2.00		2.79		4.35	
10 PERCENT EXCEEDS	174		251		411	
50 PERCENT EXCEEDS	49		68		79	
90 PERCENT EXCEEDS	36		44		34	

a Median of annual mean discharges is 170 ft^3/s.
b Gage-height, 6.54 ft.
c Gage-height, 12.31 ft.
d Backwater from ice.
e Estimated.
f Result of freezeup.



05078230 LOST RIVER AT OKLEE, MN

LOCATION.--Lat 47°50'35", long 95°51'30", in SE¼NE¼ sec. 2, T.150 N., R.41 W., Red Lake County, Hydrologic Unit 09020305, on left bank 30 ft upstream of bridge on State Highway 222 at northwest edge of Oklee, 12 mi upstream from mouth.

DRAINAGE AREA.--254 mi^2.

PERIOD OF RECORD.--April 1960 to September 1981, February 1982 to current year. Monthly and daily figures for April 1960 to June 1960, published in WSP 2113.

GAGE.--Water-stage recorder. Datum of gage is 1,126.94 ft above sea level, adjustment of 1912 (levels by U.S. Army Corps of Engineers). Prior to Sept. 9, 1960, reference points at same site at datum 8.00 ft higher. Sept. 9, 1960 to Sept. 30, 1964, nonrecording gage at same site at datum 8.00 ft higher. Oct. 1, 1964 to Sept. 30, 1981, and Feb. 24, 1982 to Sept. 6, 1989, nonrecording gage at same site and datum.

REMARKS.--Records fair except those for estimated daily discharges, which are poor.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known since at least 1897, 18.39 ft, present datum, Apr. 21, 1950, from floodmarks, discharge, 2,790 ft^3/s.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e2.4	e14	e10	e8.0	e5.2	e7.9	e240	36	201	8.2	26	19
2	e2.6	e15	e10	e7.5	e5.2	e7.9	e210	34	155	8.0	24	18
3	e2.9	e14	e10	e7.0	e5.3	e8.0	e190	32	125	9.1	19	17
4	e3.5	e13	e10	e6.6	e5.4	e8.0	e180	31	104	12	16	17
5	e3.6	e13	e10	e6.3	e5.5	e8.0	e165	30	86	13	13	18
6	e3.4	e12	e10	e6.0	e5.6	e8.0	158	28	67	13	11	38
7	e3.8	e11	e10	e5.8	e5.7	e8.0	143	26	58	18	9.2	63
8	e4.0	e11	e10	e5.5	e5.8	e8.0	137	24	53	27	9.0	58
9	e4.5	e10	e10	e5.4	e5.9	e8.0	122	21	48	31	14	50
10	e4.4	e10	e9.5	e5.4	e6.0	e8.0	109	19	43	30	20	43
11	e6.7	e11	e9.1	e5.3	e6.1	e8.1	99	47	40	70	25	38
12	e7.4	e11	e8.6	e5.2	e6.2	e8.2	91	418	38	117	26	32
13	e7.6	e12	e8.2	e5.2	e6.3	e8.4	83	475	36	85	23	31
14	e7.4	e13	e8.0	e5.2	e6.5	e8.7	68	334	46	63	19	29
15	e7.2	e15	e8.0	e5.2	e6.6	e9.2	63	249	47	50	16	27
16	e7.5	e16	e8.0	e5.1	e6.8	e9.8	62	197	40	50	13	30
17	e7.9	e17	e8.0	e5.1	e6.9	e11	62	162	35	42	11	35
18	e8.5	e19	e8.2	e5.1	e7.1	e13	60	131	31	35	9.6	35
19	e8.9	e20	e8.4	e5.1	e7.2	e15	60	121	28	32	8.9	32
20	e9.1	e19	e8.6	e5.1	e7.3	e17	60	318	26	30	9.2	31
21	e9.7	e17	e9.1	e5.0	e7.4	e19	59	223	23	29	8.7	34
22	e10	e16	e9.4	e5.0	e7.4	e22	57	175	21	27	7.9	43
23	e9.9	e14	e9.6	e5.0	e7.4	e30	54	147	17	23	7.3	51
24	e10	e13	e9.8	e5.0	e7.5	e60	50	123	14	19	8.5	76
25	e11	e12	e10	e5.0	e7.5	e130	49	123	13	15	9.6	85
26	e12	e11	e10	e5.1	e7.6	e250	49	128	12	12	38	73
27	e12	e10	e10	e5.1	e7.7	e340	46	113	11	10	35	62
28	e13	e10	e10	e5.1	e7.8	e420	44	97	10	9.0	27	53
29	e13	e10	e9.5	e5.1	e7.9	e380	42	85	9.6	10	23	47
30	e13	e10	e9.0	e5.1	---	e325	38	152	8.7	17	20	44
31	e14	---	e8.5	e5.1	---	e330	---	257	---	22	19	---
TOTAL	240.9	399	287.5	170.7	190.8	2,494.2	2,850	4,356	1,446.3	936.3	525.9	1,229
MEAN	7.77	13.3	9.27	5.51	6.58	80.5	95.0	141	48.2	30.2	17.0	41.0
MAX	14	20	10	8.0	7.9	420	240	475	201	117	38	85
MIN	2.4	10	8.0	5.0	5.2	7.9	38	19	8.7	8.0	7.3	17
AC-FT	478	791	570	339	378	4,950	5,650	8,640	2,870	1,860	1,040	2,440
CFSM	0.03	0.05	0.04	0.02	0.03	0.32	0.37	0.55	0.19	0.12	0.07	0.16
IN.	0.04	0.06	0.04	0.03	0.03	0.37	0.42	0.64	0.21	0.14	0.08	0.18

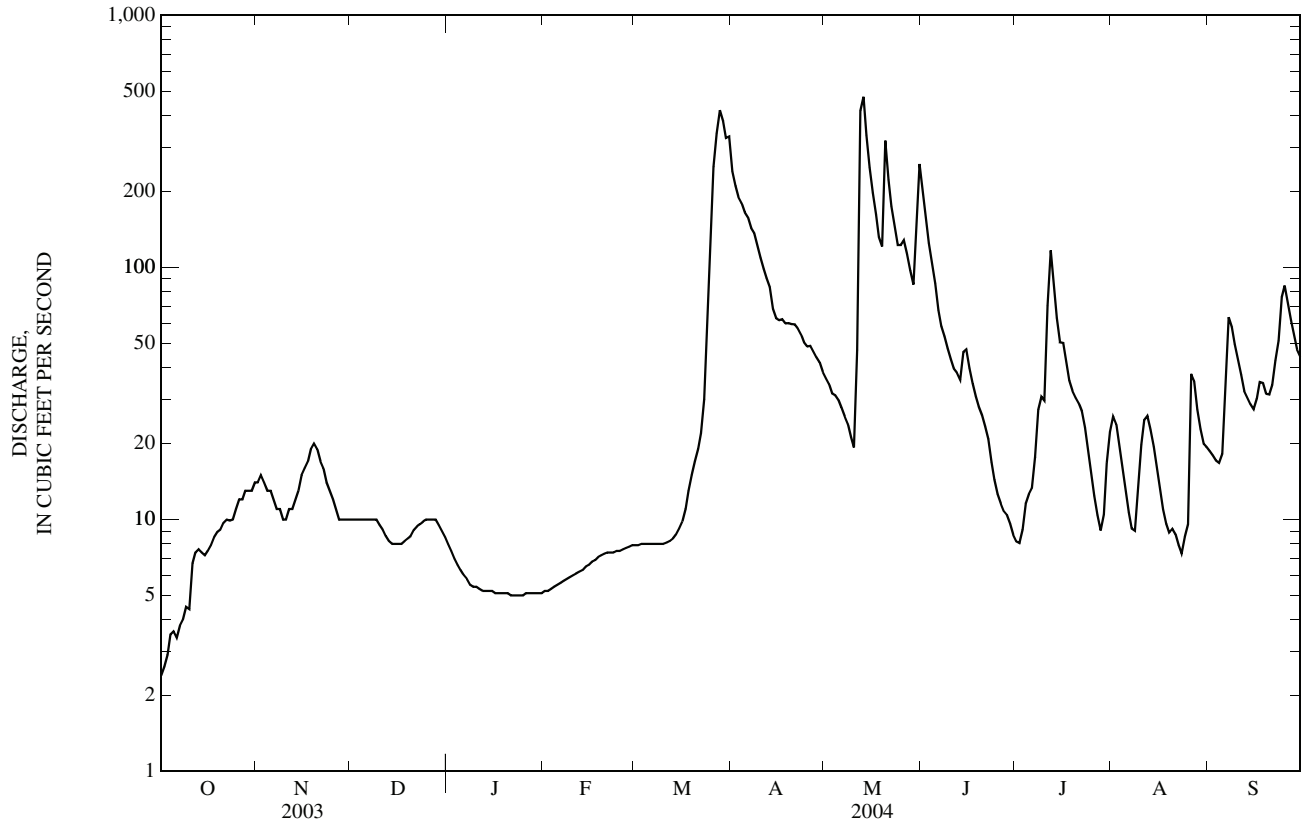
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1960 - 2004, BY WATER YEAR (WY)

MEAN	47.3	35.6	15.9	9.94	10.6	75.7	296	139	96.1	82.8	38.6	41.0
MAX	470	232	56.6	26.7	76.3	264	904	622	657	442	351	330
(WY)	(1972)	(1972)	(1978)	(1998)	(1998)	(1999)	(1996)	(1962)	(1962)	(1962)	(1985)	(1973)
MIN	1.02	1.11	0.05	0.00	0.00	0.19	29.5	10.5	8.20	1.99	1.17	0.00
(WY)	(1991)	(1977)	(1977)	(1977)	(1977)	(1964)	(1991)	(1980)	(1980)	(1961)	(1961)	(1990)

05078230 LOST RIVER AT OKLEE, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1960 - 2004	
ANNUAL TOTAL	12,237.5		15,126.6			
ANNUAL MEAN	33.5		41.3		74.0	
HIGHEST ANNUAL MEAN					177	1962
LOWEST ANNUAL MEAN					18.2	1990
HIGHEST DAILY MEAN	1,000	Jun 26	475	May 13	3,040	Apr 11, 1969
LOWEST DAILY MEAN	1.2	Sep 4	2.4	Oct 1	a0.00	Feb 16, 1963
ANNUAL SEVEN-DAY MINIMUM	1.6	Sep 4	3.2	Oct 1	0.00	Feb 16, 1963
MAXIMUM PEAK FLOW			b558	May 12	c3,210	Apr 11, 1969
MAXIMUM PEAK STAGE			d9.89	Mar 28	d16.91	Apr 8, 1997
INSTANTANEOUS LOW FLOW			f2.4	Oct 1	a0.00	Feb 16, 1963
ANNUAL RUNOFF (AC-FT)	24,270		30,000		53,610	
ANNUAL RUNOFF (CFSM)	0.132		0.163		0.291	
ANNUAL RUNOFF (INCHES)	1.79		2.22		3.96	
10 PERCENT EXCEEDS	81		118		162	
50 PERCENT EXCEEDS	10		13		20	
90 PERCENT EXCEEDS	2.8		5.4		2.8	

a Many days, several years.
b Gage-height, 8.49 ft.
c Gage-height, 14.91 ft, from floodmark.
d Backwater from ice.
e Estimated.
f Estimated daily-mean.



05078470 JUDICIAL DITCH 64 NEAR MENTOR, MN

LOCATION.--Lat 47°44'16", long 96°12'09", in SE¼NE¼ sec. 7, T.149 N., R.43 W., Polk County, Hydrologic Unit 09020303, at culvert on township road, 0.5 miles north of U.S. Highway 2, 4.2 miles northwest of Mentor.

DRAINAGE AREA.--9.6 mi^2.

PERIOD OF RECORD.--September 2002 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,120 ft above sea level (from topographic map).

REMARKS.--Records fair except those for estimated daily discharges, and discharges less than 1.0 ft^3/s, which are poor.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.02	0.28	e0.06	e0.02	e0.00	e0.03	13	0.57	17	0.19	0.15	1.5
2	0.02	0.23	e0.06	e0.02	e0.00	e0.01	11	0.52	14	0.18	0.12	1.1
3	0.02	0.17	e0.07	e0.02	e0.00	e0.00	9.7	0.49	11	0.26	0.09	0.68
4	0.02	0.14	0.07	e0.02	e0.00	e0.00	8.6	0.45	9.1	0.43	0.07	0.56
5	0.02	0.16	e0.07	e0.02	e0.00	e0.00	6.6	0.44	7.6	0.43	0.05	1.1
6	0.02	e0.13	e0.08	e0.02	e0.00	e0.00	5.2	0.59	6.3	0.75	0.06	6.9
7	0.02	e0.10	e0.08	e0.02	e0.00	e0.00	4.9	0.53	5.1	1.8	0.17	7.5
8	0.02	e0.08	0.08	e0.02	e0.00	e0.00	4.9	0.52	3.9	1.5	0.25	4.7
9	0.02	e0.08	e0.08	e0.02	e0.00	e0.01	4.0	0.61	2.9	1.3	0.32	3.3
10	0.02	e0.09	e0.06	e0.02	e0.00	e0.03	3.2	0.72	2.1	0.93	0.41	2.4
11	0.07	e0.10	e0.03	e0.02	e0.00	e0.02	2.6	4.8	1.6	1.8	0.36	1.7
12	0.05	e0.11	e0.02	e0.02	e0.00	e0.01	2.2	40	1.4	2.0	0.27	1.3
13	0.04	e0.07	0.02	e0.02	e0.00	e0.01	2.1	26	1.1	1.5	0.20	1.0
14	0.04	e0.08	0.02	e0.02	e0.00	e0.01	1.9	19	0.95	0.88	0.16	0.82
15	0.07	e0.10	0.02	e0.02	e0.00	e0.01	1.8	16	0.82	1.2	0.14	0.85
16	0.09	e0.11	0.02	e0.02	e0.00	e0.01	1.8	14	0.74	1.9	0.12	1.5
17	0.10	e0.12	0.02	e0.02	e0.00	e0.01	1.7	12	0.65	1.6	0.10	1.4
18	0.07	e0.14	0.02	e0.02	e0.00	e0.01	1.6	9.9	0.56	1.0	0.09	1.1
19	0.09	e0.16	0.02	e0.02	e0.00	e0.03	1.6	8.4	0.45	0.71	0.07	0.86
20	0.10	e0.14	0.02	e0.02	e0.00	e0.10	1.6	8.5	0.38	0.50	0.06	1.0
21	0.07	e0.12	0.02	e0.02	e0.00	e0.05	1.8	6.7	0.34	0.36	0.05	2.4
22	0.09	e0.10	0.02	e0.02	e0.00	e0.05	1.5	5.1	0.32	0.28	0.05	2.5
23	0.09	e0.08	0.02	e0.02	e0.00	e0.12	1.4	3.9	0.42	0.22	0.04	3.7
24	0.09	e0.07	e0.02	e0.02	e0.00	e1.3	1.2	3.2	0.48	0.18	0.12	7.5
25	0.07	e0.06	0.02	e0.02	e0.00	e14	1.1	4.9	0.54	0.16	0.11	6.4
26	0.06	e0.06	0.02	e0.02	e0.01	e13	0.98	4.9	0.47	0.13	4.7	4.9
27	0.12	e0.06	e0.02	e0.02	e0.02	e16	0.87	3.8	0.41	0.10	2.6	3.5
28	0.22	e0.06	e0.03	e0.01	e0.03	e20	0.79	3.0	0.34	0.18	1.5	2.5
29	0.37	e0.06	e0.03	e0.00	e0.03	e18	0.71	2.5	0.30	0.19	1.5	2.0
30	0.44	e0.06	e0.03	e0.00	---	e14	0.64	14	0.22	0.23	3.4	1.8
31	0.40	---	e0.02	e0.00	---	14	---	21	---	0.19	2.5	---
TOTAL	2.94	3.32	1.17	0.55	0.09	110.82	100.99	237.04	91.49	23.08	19.83	78.47
MEAN	0.09	0.11	0.04	0.02	0.00	3.57	3.37	7.65	3.05	0.74	0.64	2.62
MAX	0.44	0.28	0.08	0.02	0.03	20	13	40	17	2.0	4.7	7.5
MIN	0.02	0.06	0.02	0.00	0.00	0.00	0.64	0.44	0.22	0.10	0.04	0.56
AC-FT	5.8	6.6	2.3	1.1	0.2	220	200	470	181	46	39	156
CFSM	0.01	0.01	0.00	0.00	0.00	0.37	0.35	0.80	0.32	0.08	0.07	0.27
IN.	0.01	0.01	0.00	0.00	0.00	0.43	0.39	0.92	0.35	0.09	0.08	0.30

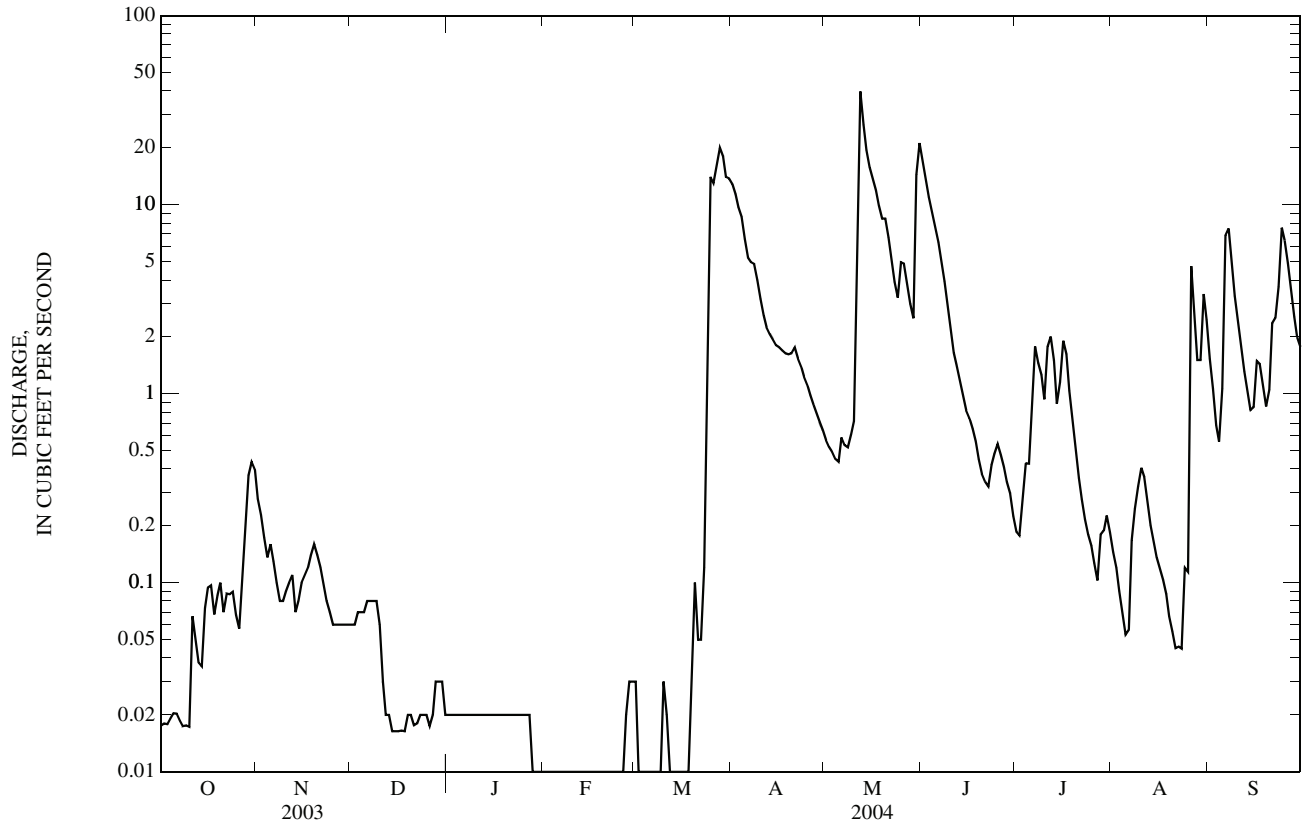
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2002 - 2004, BY WATER YEAR (WY)

MEAN	0.69	0.64	0.10	0.03	0.00	2.80	2.64	7.81	6.08	1.47	0.33	1.31
MAX	1.29	1.17	0.17	0.04	0.00	3.57	3.37	7.98	9.12	2.20	0.64	2.62
(WY)	(2003)	(2003)	(2003)	(2003)	(2004)	(2004)	(2004)	(2003)	(2003)	(2003)	(2004)	(2004)
MIN	0.09	0.11	0.04	0.02	0.00	2.02	1.91	7.65	3.05	0.74	0.03	0.01
(WY)	(2004)	(2004)	(2004)	(2004)	(2003)	(2003)	(2003)	(2004)	(2004)	(2004)	(2003)	(2003)

05078470 JUDICIAL DITCH 64 NEAR MENTOR, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 2002 - 2004	
ANNUAL TOTAL	718.69		669.79			
ANNUAL MEAN	1.97		1.83		2.00	
HIGHEST ANNUAL MEAN					2.17	2003
LOWEST ANNUAL MEAN					1.83	2004
HIGHEST DAILY MEAN	21	Jun 10	40	May 12	40	May 12, 2004
LOWEST DAILY MEAN	0.00	Jan 23	a0.00	Jan 29	b0.00	Jan 23, 2003
ANNUAL SEVEN-DAY MINIMUM	0.00	Jan 23	0.00	Jan 29	0.00	Jan 23, 2003
MAXIMUM PEAK FLOW			50	May 12	50	May 12, 2004
MAXIMUM PEAK STAGE			3.11	May 12	3.11	May 12, 2004
INSTANTANEOUS LOW FLOW			c0.00	Jan 29	b0.00	Jan 23, 2003
ANNUAL RUNOFF (AC-FT)	1,430		1,330		1,450	
ANNUAL RUNOFF (CFSM)	0.205		0.191		0.208	
ANNUAL RUNOFF (INCHES)	2.78		2.60		2.83	
10 PERCENT EXCEEDS	7.0		5.1		6.5	
50 PERCENT EXCEEDS	0.08		0.14		0.21	
90 PERCENT EXCEEDS	0.00		0.01		0.00	

a Many days.
b Many days, several years.
c Estimated, daily-mean discharge.
e Estimated.



05078470 JUDICIAL DITCH 64 NEAR MENTOR, MN (SW4)—Continued

GLACIAL RIDGE HYDROLOGY

WATER-QUALITY RECORDS

PERIOD OF RECORD.--September 2002 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Time	Sample type	Instantaneous discharge, cfs (00061)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf lab, uS/cm 25 degC (90095)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)
NOV												
04...	1030	Environmental	.14	735	12.0	8.3	8.0	654	666	-2.0	.0	97.4
DEC												
09...	1300	Environmental	.07	741	11.2	8.1	8.0	724	726	-6.0	.0	121
JAN												
21...	1100	Environmental	.02	736	9.6	8.6	7.8	597	616	E-17.0	.0	84.7
MAR												
25...	1450	Environmental	14	731	7.7	8.0	7.7	243	261	12.5	.0	28.8
APR												
15...	1030	Environmental	2.0	728	11.3	8.1	7.9	488	558	7.0	3.3	76.9
MAY												
13...	1245	Environmental	26	740	10.4	8.1	7.8	434	433	1.5	4.1	48.6
26...	1020	Environmental	5.3	723	11.2	8.1	8.0	602	623	16.5	8.9	77.6
JUL												
12...	1520	Environmental	2.1	732	9.6	8.2	8.2	503	548	28.5	24.0	66.6
AUG												
31...	1020	Environmental	2.5	737	7.9	7.8	8.0	498	544	18.5	15.1	69.2

Date	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	Alkalinity, wat flt inc tit field, mg/L as CaCO3 (39086)	Bicarbonate, wat flt incrm. titr., field, mg/L (00453)	Chloride, water, fltrd, mg/L (00940)	Sulfate water, fltrd, mg/L (00945)	Ammonia + org-N, water, fltrd, mg/L as N (00623)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Orthophosphate, water, fltrd, mg/L as P (00671)
NOV													
04...	33.5	5.19	8.57	324	395	9.71	44.0	.58	.62	<.04	.15	<.008	<.02
DEC													
09...	38.1	3.47	6.27	367	448	8.56	40.9	.51	.49	.05	.80	.010	<.02
JAN													
21...	34.0	3.50	6.88	289	353	10.2	37.6	.56	.76	.16	.23	E.005	<.02
MAR													
25...	10.4	7.83	7.23	103	126	9.20	9.0	1.2	1.5	.09	.20	.022	<.02
APR													
15...	31.2	6.62	7.78	243	296	7.56	42.4	.75	.79	<.04	E.04	<.008	<.02
MAY													
13...	24.3	5.23	9.06	161	196	8.50	47.8	1.2	1.2	<.04	.20	.009	<.02
26...	34.5	4.45	10.5	269	328	9.62	61.4	1.1	1.1	<.04	<.06	<.008	<.02
JUL													
12...	27.9	1.46	7.51	265	323	7.38	18.3	.79	.85	<.04	<.06	<.008	<.02
AUG													
31...	28.6	2.75	7.96	252	308	7.21	30.7	.84	.86	<.04	E.04	<.008	E.01

05078470 JUDICIAL DITCH 64 NEAR MENTOR, MN (SW4)—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Phosphorus, water, fltrd, mg/L (00666)	Phosphorus, water, unfltrd mg/L (00665)	Suspended sediment concentration mg/L (80154)	2-[(2-Ethyl-6methylphenyl) amino]2 oxoESA ug/L (62850)	CIAT, water, fltrd, ug/L (04040)	CEAT, water, fltrd, ug/L (04038)	Acetochlor ESA, water, fltrd 0.7u GF ug/L (61029)	Acetochlor OA, water, fltrd 0.7u GF ug/L (61030)	Acetochlor SAA, water, fltrd, ug/L (62847)	Acetochlor, water, fltrd, ug/L (49260)	Alachlor ESA SA, water, fltrd, ug/L (62849)	Alachlor ESA, water, fltrd 0.7u GF ug/L (50009)	Alachlor OA, water, fltrd 0.7u GF ug/L (61031)	Alachlor SAA, water, fltrd, ug/L (62848)
NOV														
04...	.006	.006	--	--	--	--	--	--	--	--	--	--	--	--
DEC														
09...	E.003	.007	--	--	--	--	--	--	--	--	--	--	--	--
JAN														
21...	E.004	.016	--	--	--	--	--	--	--	--	--	--	--	--
MAR														
25...	.046	.116	13	--	--	--	--	--	--	--	--	--	--	--
APR														
15...	.014	.017	70	--	--	--	--	--	--	--	--	--	--	--
MAY														
13...	.021	.044	6	--	--	--	--	--	--	--	--	--	--	--
26...	.011	.012	42	--	--	--	--	--	--	--	--	--	--	--
JUL														
12...	.014	.018	80	<.02	<.05	.07	.04	<.02	<.02	<.02	<.02	.02	<.02	<.02
AUG														
31...	.014	.020	--	--	--	--	--	--	--	--	--	--	--	--

Date	Alachlor, water, fltrd, ug/L (46342)	Ametryn water, fltrd, ug/L (38401)	Atrazine, water, fltrd, ug/L (39632)	Cyanazine amide, water, fltrd, ug/L (61709)	Cyanazine, water, fltrd, ug/L (04041)	Dimethenamid ESA, water, fltrd, ug/L (61951)	Dimethenamid OA, water, fltrd, ug/L (62482)	Dimethenamid water, fltrd, ug/L (61588)	Flufenacet ESA, water, fltrd, ug/L (61952)	Flufenacet OA, water, fltrd, ug/L (62483)	Flufenacet, water, fltrd, ug/L (62481)	Metolachlor ESA, water, fltrd 0.7u GF ug/L (61043)	Metolachlor OA, water, fltrd 0.7u GF ug/L (61044)
JUL													
12...	<.02	<.05	<.05	<.05	<.05	<.02	<.02	<.02	<.02	<.02	<.02	.02	<.02

Date	Metolachlor, water, fltrd, ug/L (39415)	Metribuzin, water, fltrd, ug/L (82630)	Pendimethalin, water, fltrd 0.7u GF ug/L (82683)	Prometon, water, fltrd, ug/L (04037)	Prometryn, water, fltrd, ug/L (04036)	Propachlor ESA, water, fltrd 0.7u GF ug/L (62766)	Propachlor OA, water, fltrd 0.7u GF ug/L (62767)	Propachlor, water, fltrd, ug/L (04024)	Propazine, water, fltrd, ug/L (38535)	Simazine, water, fltrd, ug/L (04035)	Terbutryn, water, fltrd, ug/L (38888)	Deuterium/ Protium ratio, water, unfltrd per mil (82082)	O-18 / O-16 ratio, water, unfltrd per mil (82085)
JUL													
12...	<.02	<.05	<.05	<.05	<.05	<.05	<.02	<.02	<.05	<.05	<.05	-68.80	-9.26

05078500 CLEARWATER RIVER AT RED LAKE FALLS, MN

LOCATION.--Lat 47°53'15", long 96°16'25", in NW¼NE¼ sec. 22, T.151 N., R.44 W., Red Lake County, Hydrologic Unit 09020305, on left bank 900 ft downstream from U.S. highway 59 bridge in Red Lake Falls, 1.4 mi upstream from mouth, and 3 mi downstream from Badger Creek.

DRAINAGE AREA.--1,380 mi^2.

PERIOD OF RECORD.--June 1909 to September 1917, October 1934 to September 1981, March 1982 to current year. Monthly-mean discharge only for October, November, 1934, published in WSP 1308.

REVISED RECORDS.--WSP 355: 1911-12. WSP 1438: 1910-11, 1917(M). WDR MN-84-1:1983.

GAGE.--Water-stage recorder. Datum of gage is 948.94 ft above sea level (NGVD of 1929, levels by U.S. Army Corps of Engineers). Prior to Sept. 12, 1911, nonrecording gage at site 0.5 mi upstream, and Sept. 12, 1911 to Sept. 30, 1917, nonrecording gage at site 40 ft upstream at different datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	58	93	e79	e97	e71	e94	e1,400	181	1,420	123	164	144
2	52	96	e86	e95	e71	e94	1,250	168	1,070	156	152	131
3	49	e52	e90	e93	e71	e93	1,170	171	890	167	133	127
4	63	e50	e92	e91	e70	e92	1,080	158	725	164	122	121
5	60	e49	e91	e89	e70	e92	956	153	634	181	131	118
6	51	e49	e91	e87	e70	e93	836	148	554	182	132	167
7	49	e90	e90	e86	e71	e95	764	140	469	195	152	294
8	56	e82	e88	e85	e71	e96	702	131	424	225	150	403
9	56	e72	e87	e84	e72	e98	656	136	368	249	193	341
10	53	e77	e86	e83	e73	e100	588	147	332	253	194	300
11	72	e83	e85	e82	e73	e90	535	161	310	263	243	247
12	72	e86	e84	e81	e73	e81	485	1,240	297	306	239	212
13	64	e76	e82	e80	e74	e81	439	2,090	288	391	216	188
14	61	e77	e81	e80	e74	e90	400	1,730	285	342	223	167
15	59	e79	e80	e79	e74	e100	361	1,370	279	310	198	154
16	57	e83	e79	e78	e74	e105	340	1,150	272	298	165	152
17	57	e88	e85	e78	e75	e108	324	1,020	247	285	139	160
18	57	e93	e91	e77	e76	e112	310	888	228	259	126	213
19	60	e83	e95	e77	e77	e113	309	762	226	240	109	204
20	61	e86	e100	e77	e78	e115	302	1,170	216	216	103	201
21	65	e99	e102	e76	e81	e117	282	1,080	206	212	95	218
22	62	e103	e102	e75	e83	e119	242	897	192	205	91	243
23	62	e80	e102	e74	e85	e130	238	803	181	202	89	284
24	64	e68	e101	e73	e88	e160	225	715	172	198	88	399
25	71	e66	e100	e72	e91	e190	212	674	159	201	88	493
26	64	e82	e102	e72	e94	e1,200	210	689	161	194	334	448
27	68	e59	e104	e72	e94	e1,820	216	682	143	168	330	377
28	86	e62	e105	e72	e93	e1,930	203	639	132	161	247	317
29	87	e67	e104	e71	e92	1,760	190	574	128	154	187	274
30	99	e73	e102	e71	---	e1,520	182	852	117	157	155	244
31	95	---	e100	e71	---	e1,420	---	1,600	---	182	151	---
TOTAL	1,990	2,303	2,866	2,478	2,259	12,308	15,407	22,319	11,125	6,839	5,139	7,341
MEAN	64.2	76.8	92.5	79.9	77.9	397	514	720	371	221	166	245
MAX	99	103	105	97	94	1,930	1,400	2,090	1,420	391	334	493
MIN	49	49	79	71	70	81	182	131	117	123	88	118
AC-FT	3,950	4,570	5,680	4,920	4,480	24,410	30,560	44,270	22,070	13,570	10,190	14,560
CFSM	0.05	0.06	0.07	0.06	0.06	0.29	0.37	0.52	0.27	0.16	0.12	0.18
IN.	0.05	0.06	0.08	0.07	0.06	0.33	0.42	0.60	0.30	0.18	0.14	0.20

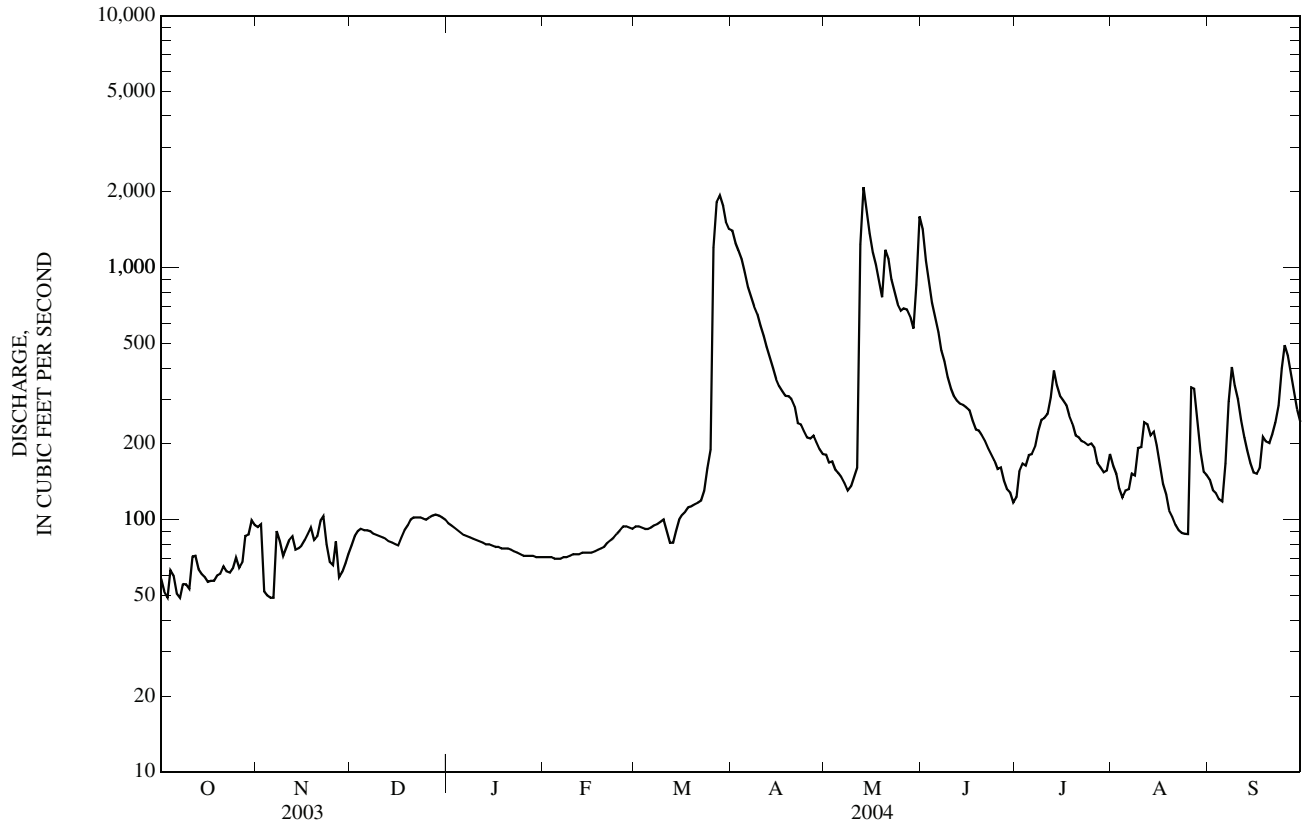
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1909 - 2004, BY WATER YEAR (WY)

MEAN	191	155	96.8	77.1	74.0	250	1,162	696	510	411	215	202
MAX	1,350	1,233	321	221	385	1,136	3,507	5,059	3,042	2,389	1,686	1,599
(WY)	(1972)	(1972)	(2001)	(1998)	(1998)	(1995)	(1997)	(1950)	(1962)	(1997)	(1985)	(1999)
MIN	10.0	19.0	21.4	21.4	19.1	13.6	61.0	32.2	26.5	8.34	1.49	2.92
(WY)	(1935)	(1935)	(1937)	(1940)	(1937)	(1937)	(1981)	(1977)	(1980)	(1936)	(1936)	(1936)

05078500 CLEARWATER RIVER AT RED LAKE FALLS, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1909 - 2004	
ANNUAL TOTAL	67,659		92,374			
ANNUAL MEAN	185		252		a334	
HIGHEST ANNUAL MEAN					855	1950
LOWEST ANNUAL MEAN					64.4	1939
HIGHEST DAILY MEAN	2,420	Jun 27	2,090	May 13	9,930	Apr 25, 1979
LOWEST DAILY MEAN	35	Sep 7	49	Oct 3-7,Nov.5-6	0.10	Sep 15, 1936
ANNUAL SEVEN-DAY MINIMUM	41	Sep 5	54	Oct 2	0.24	Sep 12, 1936
MAXIMUM PEAK FLOW			b2,210	May 12	c10,300	Apr 25, 1979
MAXIMUM PEAK STAGE			d8.72	Mar 27	f15.85	Mar 6, 1983
INSTANTANEOUS LOW FLOW			g30	Nov 3	h0.00	Sep 15, 1936
ANNUAL RUNOFF (AC-FT)	134,200		183,200		242,000	
ANNUAL RUNOFF (CFSM)	0.134		0.183		0.242	
ANNUAL RUNOFF (INCHES)	1.82		2.49		3.29	
10 PERCENT EXCEEDS	381		661		795	
50 PERCENT EXCEEDS	87		120		119	
90 PERCENT EXCEEDS	58		71		39	

a Median of annual mean discharges is 290 ft^3/s.
b Gage-height, 6.16 ft.
c Gage-height, 12.38 ft.
d Backwater from ice.
e Estimated.
f From highwater mark, backwater from ice.
g Also occurred Sep. 14, 1939, and Aug. 19-22, 1940.



05078520 CYR CREEK NEAR MARCOUX CORNERS, MN

LOCATION.--Lat 47°48'13", long 96°16'36", in NW¼NE¼ sec. 22, T.150 N., R.44 W., Red lake County, Hydrologic Unit 09020303, at culvert on County Highway 14, 0.5 miles west of State Highway 32, 3.0 miles north of Marcoux Corners.

DRAINAGE AREA.--11.4 mi^2.

PERIOD OF RECORD.--September 2002 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,057.88 ft above sea level (NAVD 1988).

REMARKS.--Records good except those for estimated daily discharges, or discharges less than 1.0 ft^3/s, which are poor.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.00	0.00	e0.00	e0.00	e0.00	e0.07	e7.0	0.08	33	0.03	6.6	3.0
2	0.00	0.00	e0.00	e0.00	e0.00	e0.05	5.9	0.06	21	0.04	6.2	1.6
3	0.00	0.00	e0.00	e0.00	e0.00	e0.04	4.5	0.07	13	0.04	5.5	0.89
4	0.00	0.00	e0.00	e0.00	e0.00	e0.04	6.8	0.08	7.9	0.03	5.7	0.70
5	0.00	0.00	e0.00	e0.00	e0.00	e0.04	4.4	0.08	5.2	0.03	5.5	1.6
6	0.00	0.00	e0.00	e0.00	e0.00	e0.04	3.1	0.08	3.5	0.05	6.2	23
7	0.00	0.00	e0.00	e0.00	e0.00	e0.04	2.8	0.05	2.5	0.11	2.9	35
8	0.00	0.00	e0.00	e0.00	e0.00	e0.04	2.8	0.06	1.6	0.16	0.41	19
9	0.00	0.00	e0.00	e0.00	e0.00	e0.06	2.1	0.11	1.4	0.58	2.4	11
10	0.00	0.00	e0.00	e0.00	e0.00	e0.09	1.5	0.10	0.99	0.18	8.3	6.8
11	0.00	0.00	e0.00	e0.00	e0.00	e0.07	1.2	1.9	0.78	0.37	7.9	3.9
12	0.00	0.00	e0.00	e0.00	e0.00	e0.07	1.1	56	0.50	0.33	6.8	2.3
13	0.00	0.00	e0.00	e0.00	e0.00	e0.08	0.90	30	0.33	0.24	6.0	1.5
14	0.00	0.00	e0.00	e0.00	e0.00	e0.08	0.90	15	0.25	0.15	1.3	1.0
15	0.00	0.00	e0.00	e0.00	e0.00	e0.09	0.84	9.0	0.25	1.2	0.19	1.4
16	0.00	0.00	e0.00	e0.00	e0.00	e0.10	0.74	6.6	0.23	2.1	0.11	2.5
17	0.00	0.00	e0.00	0.00	e0.00	e0.11	0.70	4.5	0.14	2.1	0.08	3.0
18	0.00	0.00	e0.00	0.00	e0.00	e0.14	0.85	3.0	0.11	0.44	0.08	1.8
19	0.00	0.00	e0.00	0.00	e0.00	e0.17	0.77	6.0	0.08	0.26	0.07	1.1
20	0.00	0.00	e0.00	0.00	e0.00	e0.24	0.76	14	0.06	2.2	0.07	5.2
21	0.00	0.05	e0.00	0.00	e0.00	e0.29	0.74	7.4	0.06	6.0	0.07	23
22	0.00	0.05	e0.00	0.00	e0.00	e0.30	0.57	4.5	0.05	6.0	0.07	19
23	0.00	0.05	e0.00	0.00	e0.00	e0.33	0.49	3.3	0.05	5.9	0.07	20
24	0.00	0.05	e0.00	0.00	e0.00	e1.5	0.34	2.5	0.04	4.9	0.07	44
25	0.00	e0.03	e0.00	0.00	e0.00	e28	0.28	4.9	0.04	0.90	0.06	31
26	0.00	e0.02	e0.00	e0.00	e0.00	e60	0.23	6.1	0.03	0.11	41	17
27	0.00	e0.01	e0.00	e0.00	e0.00	e32	0.16	3.9	0.03	2.2	41	11
28	0.00	e0.00	e0.00	e0.00	e0.00	e40	0.18	2.4	0.03	9.6	20	7.0
29	0.00	e0.00	e0.00	e0.00	e0.09	e16	0.19	2.5	0.03	6.8	11	4.8
30	0.00	e0.00	e0.00	e0.00	---	e10	0.15	67	0.03	7.3	7.0	3.2
31	0.00	---	e0.00	e0.00	---	e8.2	---	57	---	7.5	5.4	---
TOTAL	0.00	0.26	0.00	0.00	0.09	198.28	52.99	308.27	93.21	67.85	198.05	306.29
MEAN	0.00	0.01	0.00	0.00	0.00	6.40	1.77	9.94	3.11	2.19	6.39	10.2
MAX	0.00	0.05	0.00	0.00	0.09	60	7.0	67	33	9.6	41	44
MIN	0.00	0.00	0.00	0.00	0.00	0.04	0.15	0.05	0.03	0.03	0.06	0.70
AC-FT	0.00	0.5	0.00	0.00	0.2	393	105	611	185	135	393	608
CFSM	0.00	0.00	0.00	0.00	0.00	0.56	0.15	0.87	0.27	0.19	0.56	0.90
IN.	0.00	0.00	0.00	0.00	0.00	0.65	0.17	1.01	0.30	0.22	0.65	1.00

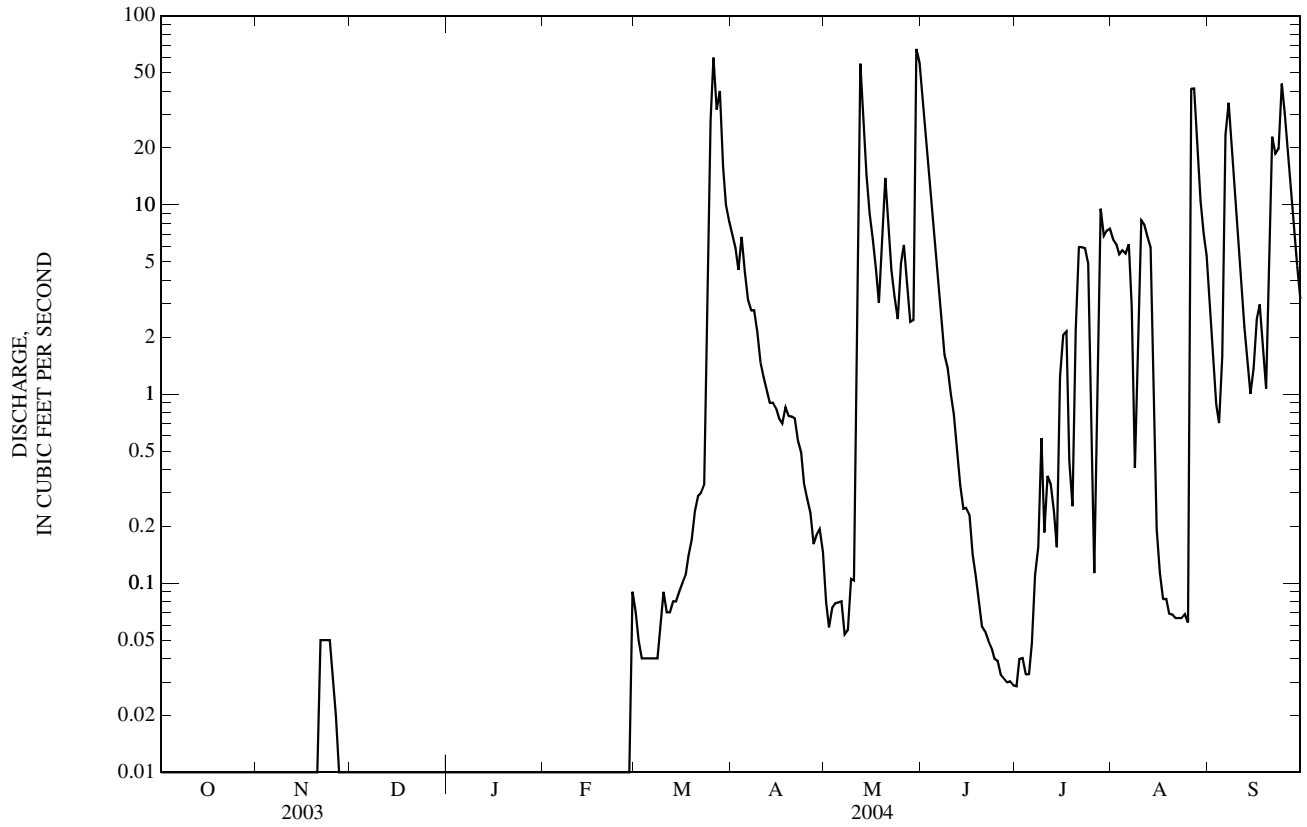
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2002 - 2004, BY WATER YEAR (WY)

MEAN	0.20	0.16	0.03	0.01	0.00	4.42	1.87	6.59	4.32	1.28	3.20	5.10
MAX	0.40	0.32	0.06	0.03	0.00	6.40	1.98	9.94	5.53	2.19	6.39	10.2
(WY)	(2003)	(2003)	(2003)	(2003)	(2004)	(2004)	(2003)	(2004)	(2003)	(2004)	(2004)	(2004)
MIN	0.00	0.01	0.00	0.00	0.00	2.45	1.77	3.24	3.11	0.37	0.00	0.00
(WY)	(2004)	(2004)	(2004)	(2004)	(2003)	(2003)	(2004)	(2003)	(2004)	(2003)	(2003)	(2003)

05078520 CYR CREEK NEAR MARCOUX CORNERS, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 2002 - 2004	
ANNUAL TOTAL	414.38		1,225.29			
ANNUAL MEAN	1.14		3.35		2.28	
HIGHEST ANNUAL MEAN					3.35	2004
LOWEST ANNUAL MEAN					1.20	2003
HIGHEST DAILY MEAN	30	Jun 23	67	May 30	67	May 30, 2004
LOWEST DAILY MEAN	0.00	Jan 23	a0.00	Oct 1	b0.00	Jan 23, 2003
ANNUAL SEVEN-DAY MINIMUM	0.00	Jan 23	0.00	Oct 1	0.00	Jan 23, 2003
MAXIMUM PEAK FLOW			c91	May 30	c91	May 30, 2004
MAXIMUM PEAK STAGE			d4.76	Mar 26	d4.76	Mar 26, 2004
INSTANTANEOUS LOW FLOW			a0.00	Oct 1	b0.00	Jan 23, 2003
ANNUAL RUNOFF (AC-FT)	822		2,430		1,650	
ANNUAL RUNOFF (CFSM)	0.100		0.294		0.200	
ANNUAL RUNOFF (INCHES)	1.35		4.00		2.71	
10 PERCENT EXCEEDS	3.0		7.6		6.0	
50 PERCENT EXCEEDS	0.00		0.07		0.08	
90 PERCENT EXCEEDS	0.00		0.00		0.00	

a Many days
b Many days, several years.
c Gage height, 4.04 ft.
d Backwater from ice.
e Estimated.



05078520 CYR CREEK NEAR MARCOUX CORNERS, MN (SW5)—Continued

GLACIAL RIDGE HYDROLOGY

WATER-QUALITY RECORDS

PERIOD OF RECORD.--September 2002 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Time	Sample type	Instantaneous discharge, cfs (00061)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf lab, uS/cm 25 degC (90095)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)
MAR												
03...	0810	Environmental	.04	741	12.1	7.5	6.9	399	418	-2.5	.0	26.2
25...	1230	Environmental	28	732	10.2	7.4	7.6	195	202	E10.0	.0	21.4
APR												
15...	0810	Environmental	.88	730	12.0	8.1	8.0	570	660	3.5	5.1	83.0
MAY												
13...	1450	Environmental	26	742	11.3	8.1	7.8	448	445	2.5	5.2	46.4
26...	0810	Environmental	6.4	726	10.0	8.1	8.0	626	654	9.0	8.4	76.3
JUL												
14...	1100	Environmental	.18	737	7.0	7.7	7.8	644	689	23.0	19.3	78.4
AUG												
31...	1330	Environmental	2.5	738	8.0	7.7	7.9	426	458	25.0	17.3	55.9

Date	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	Alkalinity, wat flt inc tit field, mg/L as CaCO3 (39086)	Bicarbonate, wat flt incrm. titr., field, mg/L (00453)	Chloride, water, fltrd, mg/L (00940)	Sulfate water, fltrd, mg/L (00945)	Ammonia + org-N, water, fltrd, mg/L as N (00623)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Orthophosphate, water, fltrd, mg/L as P (00671)
MAR													
03...	18.1	50.8	2.32	125	152	26.7	24.2	4.9	5.6	.86	1.30	.066	1.90
25...	8.45	6.75	5.85	80	98	9.99	9.4	.96	1.1	E.04	.17	.014	.07
APR													
15...	36.8	5.96	12.5	274	334	15.5	59.3	.63	.71	<.04	.17	<.008	<.02
MAY													
13...	24.9	5.47	10.9	164	200	11.9	55.2	1.0	1.1	E.02	.43	.021	.03
26...	36.2	4.12	13.5	269	328	13.3	67.1	.92	.92	<.04	<.06	E.004	E.01
JUL													
14...	36.8	2.50	12.4	310	378	12.6	42.0	.84	.97	E.02	<.06	<.008	.03
AUG													
31...	23.2	4.57	8.28	204	249	6.73	31.8	.83	.77	<.04	<.06	<.008	E.01

Date	Phosphorus, water, fltrd, mg/L (00666)	Phosphorus, water, unfltrd mg/L (00665)	Suspended sediment concentration mg/L (80154)	2-[(2-Ethyl-6methyl phenyl) amino]2 oxoESA ug/L (62850)	CIAT, water, fltrd, ug/L (04040)	CEAT, water, fltrd, ug/L (04038)	Acetochlor ESA, water, fltrd 0.7u GF ug/L (61029)	Acetochlor OA, water, fltrd 0.7u GF ug/L (61030)	Acetochlor SAA, water, fltrd, ug/L (62847)	Acetochlor, water, fltrd, ug/L (49260)	Alachlor ESA SA, water, fltrd, ug/L (62849)	Alachlor ESA, water, fltrd 0.7u GF ug/L (50009)	Alachlor OA, water, fltrd 0.7u GF ug/L (61031)
MAR													
03...	4.13	4.14	--	--	--	--	--	--	--	--	--	--	--
25...	.118	.161	13	--	--	--	--	--	--	--	--	--	--
APR													
15...	.015	.026	91	--	--	--	--	--	--	--	--	--	--
MAY													
13...	.054	.095	10	--	--	--	--	--	--	--	--	--	--
26...	.019	.027	83	--	--	--	--	--	--	--	--	--	--
JUL													
14...	.048	.075	93	<.02	<.05	.08	<.02	<.02	<.02	<.02	<.02	<.02	<.02
AUG													
31...	.033	.041	--	--	--	--	--	--	--	--	--	--	--

05078520 CYR CREEK NEAR MARCOUX CORNERS, MN (SW5)—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Alachlor SAA, water, fltrd, ug/L (62848)	Alachlor, water, fltrd, ug/L (46342)	Ametryn water, fltrd, ug/L (38401)	Atrazine, water, fltrd, ug/L (39632)	Cyanazine amide, water, fltrd, ug/L (61709)	Cyanazine, water, fltrd, ug/L (04041)	Dimethenamid ESA, water, fltrd, ug/L (61951)	Dimethenamid OA, water, fltrd, ug/L (62482)	Dimethenamid water, fltrd, ug/L (61588)	Flufenacet ESA, water, fltrd, ug/L (61952)	Flufenacet OA, water, fltrd, ug/L (62483)	Flufenacet, water, fltrd, ug/L (62481)	Metolachlor ESA, water, fltrd 0.7u GF ug/L (61043)
JUL													
14...	<.02	<.02	<.05	<.05	<.05	<.05	<.02	<.02	<.02	<.02	<.02	<.02	<.02

Date	Metolachlor OA, water, fltrd 0.7u GF ug/L (61044)	Metolachlor, water, fltrd, ug/L (39415)	Metribuzin, water, fltrd, ug/L (82630)	Pendimethalin, water, fltrd 0.7u GF ug/L (82683)	Prometon, water, fltrd, ug/L (04037)	Prometryn, water, fltrd, ug/L (04036)	Propachlor ESA, water, fltrd 0.7u GF ug/L (62766)	Propachlor OA, water, fltrd 0.7u GF ug/L (62767)	Propachlor, water, fltrd, ug/L (04024)	Propazine, water, fltrd, ug/L (38535)	Simazine, water, fltrd, ug/L (04035)	Terbutryn, water, fltrd, ug/L (38888)	Deuterium/Protium ratio, water, unfltrd per mil (82082)	O-18 / O-16 ratio, water, unfltrd per mil (82085)
JUL														
14...	<.02	<.02	<.05	<.05	<.05	<.05	<.05	<.02	<.02	<.05	<.05	<.05	-67.10	-8.63

05078730 COUNTY DITCH 140 NEAR BENOIT, MN

LOCATION.--Lat 47°41'15", long 96°22'22", in NW¼NW¼ sec. 36, T.149 N., R.45 W., Polk County, Hydrologic Unit 09020303, at culvert on field access road, 1.0 mile south of County Highway 45, 1.4 miles southeast of Benoit.

DRAINAGE AREA.--11.8 mi^2.

PERIOD OF RECORD.--September 2002 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,035.59 ft above sea level (NAVD of 1988).

REMARKS.--Records fair except those for estimated daily discharges and discharges less that 1.0 ft^3/s, which are poor.

REVISIONS.--Revised maximum discharge for 2003 water year and daily-mean discharges for selected days in June 2003, as follows: maximum dishcarge, 66 ft^3/s, June 25; daily-mean discharges, June 24, 25 ft^3/s; June 25, 64 ft^3/s; June 26, 57 ft^3/s; June 27, 50 ft^3/s; June 28, 42 ft^3/s.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.00	0.03	e0.09	e0.03	e0.00	e0.03	16	0.46	28	e0.16	0.11	0.83
2	0.00	0.03	e0.11	e0.02	e0.00	e0.02	12	0.37	21	e0.22	0.09	0.86
3	0.00	e0.00	e0.12	e0.02	e0.00	e0.01	10	0.46	16	e0.40	0.06	0.75
4	0.00	e0.00	e0.13	e0.01	e0.00	e0.00	8.6	0.28	12	e0.53	0.04	0.63
5	0.00	e0.00	e0.14	e0.01	e0.00	e0.00	7.7	0.29	9.7	e0.41	0.03	0.93
6	0.00	e0.00	e0.15	e0.00	e0.00	e0.00	6.6	0.16	8.0	e0.80	0.03	3.6
7	0.00	e0.00	0.16	e0.00	e0.00	e0.00	5.9	0.07	7.0	e1.5	0.04	7.6
8	0.00	e0.00	0.17	e0.00	e0.00	e0.01	5.5	0.10	e5.5	e1.3	0.03	7.4
9	0.00	e0.00	0.15	e0.00	e0.00	e0.03	5.1	0.09	e4.0	e1.1	0.03	6.0
10	0.00	e0.01	0.10	e0.00	e0.00	e0.05	4.6	0.12	e3.2	e0.99	0.03	5.0
11	0.19	e0.01	e0.05	e0.00	e0.00	e0.01	4.2	0.51	e2.4	e1.1	0.03	4.1
12	0.11	e0.02	e0.05	e0.00	e0.00	e0.00	3.9	19	e1.8	e0.77	0.03	3.6
13	0.04	e0.02	e0.06	e0.00	e0.00	e0.02	3.7	29	e1.5	e0.97	0.03	3.2
14	0.03	e0.02	e0.07	e0.00	e0.00	e0.03	3.5	27	e1.3	e0.76	0.02	2.5
15	0.02	e0.10	e0.07	e0.00	e0.00	e0.02	3.3	21	e1.1	e0.80	0.02	2.2
16	0.02	e0.17	e0.07	e0.00	e0.00	e0.01	3.0	15	e0.96	e0.85	0.02	2.3
17	0.01	e0.27	e0.08	e0.00	e0.00	e0.01	2.9	11	e0.85	e0.78	0.02	2.0
18	0.01	e0.30	e0.09	e0.00	e0.00	e0.01	2.7	9.1	e0.76	e0.81	0.02	1.8
19	0.01	e0.26	e0.11	e0.00	e0.00	e0.01	2.5	7.6	e0.66	e0.73	0.02	1.8
20	0.00	e0.22	e0.14	e0.00	e0.00	e0.10	2.4	6.3	e0.58	e0.58	0.01	3.2
21	0.00	e0.19	e0.16	e0.00	e0.00	e0.06	2.2	5.4	e0.49	e0.53	0.02	4.7
22	0.02	e0.13	e0.11	e0.00	e0.00	e0.04	2.0	4.6	e0.39	e0.33	0.00	4.8
23	0.01	e0.10	e0.09	e0.00	e0.00	e0.10	1.8	4.0	e0.55	e0.23	0.00	6.4
24	0.01	e0.08	e0.08	e0.00	e0.00	e1.5	1.8	3.7	e0.66	e0.28	0.02	10
25	0.00	e0.08	e0.08	e0.00	e0.00	e14	1.4	4.2	e0.57	e0.26	0.02	8.7
26	0.00	e0.08	e0.09	e0.00	e0.01	e11	1.1	4.2	e0.43	e0.22	0.57	7.2
27	0.03	e0.08	e0.12	e0.00	e0.03	e25	1.2	3.8	e0.36	e0.19	1.2	5.8
28	0.09	e0.08	e0.09	e0.00	e0.04	e39	0.90	3.4	e0.30	e0.15	1.1	4.9
29	0.03	e0.08	e0.06	e0.00	e0.04	e33	0.61	3.6	e0.25	0.18	1.1	4.3
30	0.04	e0.09	e0.05	e0.00	---	e30	0.57	21	e0.20	0.17	1.2	3.8
31	0.03	---	e0.04	e0.00	---	e22	---	31	---	0.13	0.94	---
TOTAL	0.70	2.45	3.08	0.09	0.12	176.07	127.68	236.81	130.51	18.23	6.88	120.90
MEAN	0.02	0.08	0.10	0.00	0.00	5.68	4.26	7.64	4.35	0.59	0.22	4.03
MAX	0.19	0.30	0.17	0.03	0.04	39	16	31	28	1.5	1.2	10
MIN	0.00	0.00	0.04	0.00	0.00	0.00	0.57	0.07	0.20	0.13	0.00	0.63
AC-FT	1.4	4.9	6.1	0.2	0.2	349	253	470	259	36	14	240
CFSM	0.00	0.01	0.01	0.00	0.00	0.48	0.36	0.65	0.37	0.05	0.02	0.34
IN.	0.00	0.01	0.01	0.00	0.00	0.56	0.40	0.75	0.41	0.06	0.02	0.38

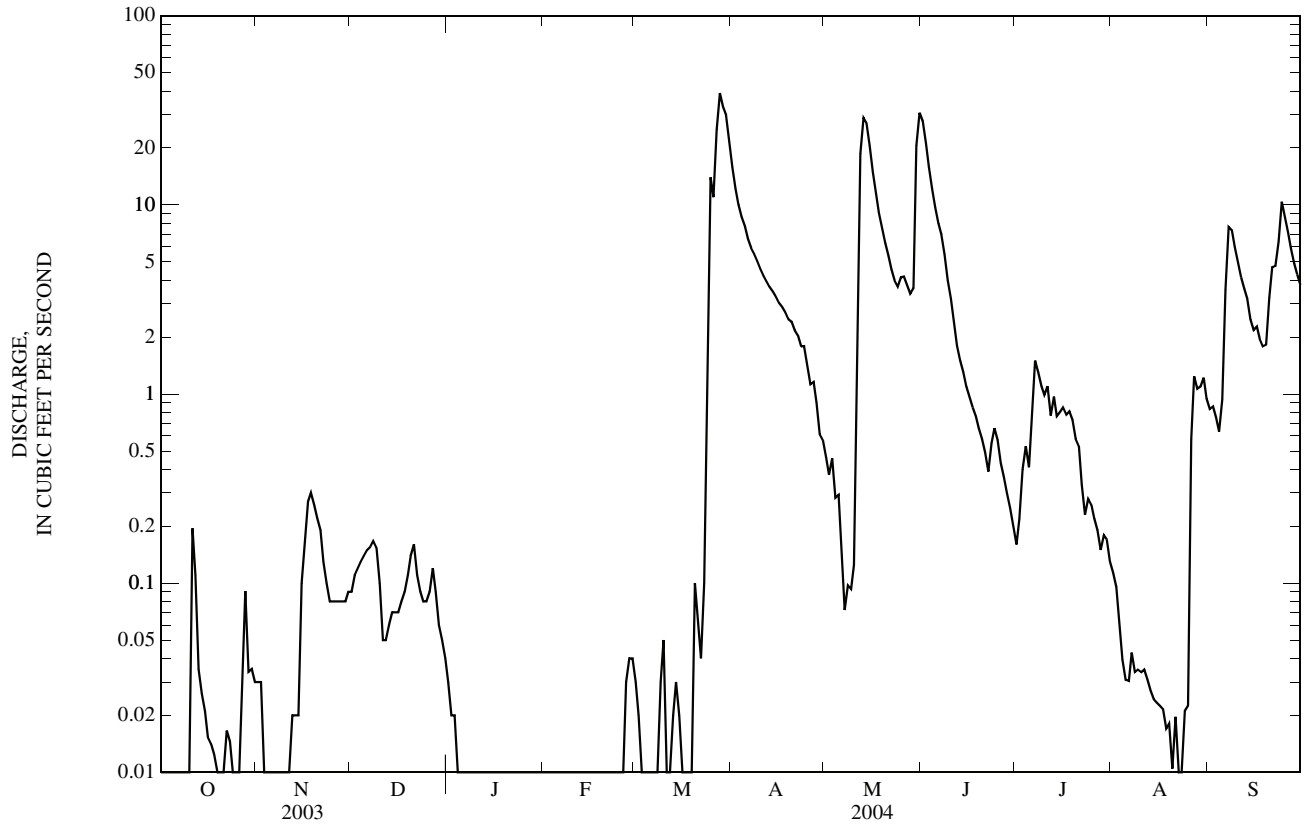
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2002 - 2004, BY WATER YEAR (WY)

MEAN	0.05	0.10	0.06	0.00	0.00	4.00	2.61	4.62	7.69	2.19	0.25	2.18
MAX	0.08	0.12	0.10	0.00	0.00	5.68	4.26	7.64	11.0	3.79	0.27	4.03
(WY)	(2003)	(2003)	(2004)	(2004)	(2004)	(2004)	(2004)	(2004)	(2003)	(2003)	(2003)	(2004)
MIN	0.02	0.08	0.03	0.00	0.00	2.32	0.96	1.60	4.35	0.59	0.22	0.34
(WY)	(2004)	(2004)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)	(2004)	(2004)	(2004)	(2003)

05078730 COUNTY DITCH 140 NEAR BENOIT, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 2002 - 2004	
ANNUAL TOTAL	623.59		823.52			
ANNUAL MEAN	1.71		2.25		1.98	
HIGHEST ANNUAL MEAN					2.25	2004
LOWEST ANNUAL MEAN					1.71	2003
HIGHEST DAILY MEAN	64	Jun 25	39	Mar 28	64	Jun 25, 2003
LOWEST DAILY MEAN	0.00	Jan 1	a0.00	Oct 1	b0.00	Dec 26, 2002
ANNUAL SEVEN-DAY MINIMUM	0.00	Jan 1	0.00	Oct 1	0.00	Dec 26, 2002
MAXIMUM PEAK FLOW			c39	Mar 28	66	Jun 25, 2003
MAXIMUM PEAK STAGE			d4.18	Mar 24	4.85	Jun 25, 2003
INSTANTANEOUS LOW FLOW			0.00	Oct 1	b0.00	Dec 26, 2002
ANNUAL RUNOFF (AC-FT)	1,240		1,630		1,430	
ANNUAL RUNOFF (CFSM)	0.145		0.191		0.168	
ANNUAL RUNOFF (INCHES)	1.97		2.60		2.28	
10 PERCENT EXCEEDS	3.5		6.3		5.0	
50 PERCENT EXCEEDS	0.07		0.11		0.09	
90 PERCENT EXCEEDS	0.00		0.00		0.00	

a Many days.
b Many days, several years.
c Estimated, daily-mean discharge.
d Backwater from ice.
e Estimated.



05078730 COUNTY DITCH 140 NEAR BENOIT, MN (SW1)—Continued

GLACIAL RIDGE HYDROLOGY

WATER-QUALITY RECORDS

PERIOD OF RECORD.--September 2002 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Time	Sample type	Instantaneous discharge, cfs (00061)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf lab, uS/cm 25 degC (90095)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, air, deg C (00020)
DEC										
09...	0830	Environmental	.16	742	9.6	7.8	7.9	771	778	-15.0
MAR										
02...	1200	Environmental	.02	742	10.4	7.8	6.8	262	268	-.5
26...	1340	Environmental	11	743	10.8	8.6	7.6	129	129	3.0
APR										
14...	1000	Environmental	3.2	740	11.9	8.1	7.6	463	527	6.0
MAY										
13...	1020	Environmental	29	742	11.5	8.3	7.8	523	520	.5
25...	1220	Environmental	4.3	732	12.1	8.5	8.1	581	595	9.5
JUL										
13...	1430	Environmental	.91	735	7.6	8.0	8.1	553	600	24.5
AUG										
30...	1500	Environmental	1.1	739	11.8	8.3	8.1	497	541	21.0

Date	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	Alkalinity, wat flt inc tit field, mg/L as CaCO3 (39086)	Bicarbonate, wat flt incrm. titr., field, mg/L (00453)	Chloride, water, fltrd, mg/L (00940)	Sulfate water, fltrd, mg/L (00945)	Ammonia + org-N, water, fltrd, mg/L as N (00623)	Ammonia + org-N, water, unfltrd mg/L as N (00625)
DEC											
09...	.0	91.8	52.8	7.05	15.3	334	407	13.2	96.5	1.5	1.8
MAR											
02...	.0	17.8	10.4	34.4	1.42	65	79	16.6	24.0	2.8	3.3
26...	.0	13.9	6.93	3.91	.28	48	58	.85	14.8	.75	.87
APR											
14...	3.2	60.1	32.8	7.03	9.31	223	272	7.83	55.8	1.1	1.5
MAY											
13...	4.9	52.4	31.4	5.04	11.4	161	197	7.71	101	.98	1.3
25...	10.4	65.5	38.5	5.91	12.9	214	261	8.97	93.8	.93	1.2
JUL											
13...	24.8	53.1	37.2	5.01	11.6	221	270	8.47	78.5	1.0	1.1
AUG											
30...	22.1	46.5	37.2	5.76	11.1	224	273	7.99	72.1	1.1	1.2

Date	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Orthophosphate, water, fltrd, mg/L as P (00671)	Phosphorus, water, fltrd, mg/L (00666)	Phosphorus, water, unfltrd mg/L (00665)	2-[(2-Ethyl-6methylphenyl) amino]2 oxoESA ug/L (62850)	CIAT, water, fltrd, ug/L (04040)	CEAT, water, fltrd, ug/L (04038)	Acetochlor ESA, water, fltrd 0.7u GF ug/L (61029)	Acetochlor OA, water, fltrd 0.7u GF ug/L (61030)
DEC											
09...	.15	.26	E.004	<.02	.016	.103	--	--	--	--	--
MAR											
02...	E.02	.82	.033	1.03	1.27	1.30	--	--	--	--	--
26...	<.04	.07	.008	<.02	.026	.058	--	--	--	--	--
APR											
14...	.06	<.06	<.008	<.02	.031	.095	--	--	--	--	--
MAY											
13...	.09	.28	.029	E.01	.030	.098	--	--	--	--	--
25...	<.04	<.06	<.008	<.02	.013	.044	--	--	--	--	--
JUL											
13...	E.02	<.06	<.008	<.02	.020	.046	<.02	.07	.10	.03	.04
AUG											
30...	<.04	<.06	<.008	<.02	.023	.049	--	--	--	--	--

05078730 COUNTY DITCH 140 NEAR BENOIT, MN (SW1)—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Acetochlor SAA, water, fltrd, ug/L (62847)	Acetochlor, water, fltrd, ug/L (49260)	Alachlor ESA SA, water, fltrd, ug/L (62849)	Alachlor ESA, water, fltrd 0.7u GF ug/L (50009)	Alachlor OA, water, fltrd 0.7u GF ug/L (61031)	Alachlor SAA, water, fltrd, ug/L (62848)	Alachlor, water, fltrd, ug/L (46342)	Ametryn water, fltrd, ug/L (38401)	Atrazine, water, fltrd, ug/L (39632)	Cyanazine amide, water, fltrd, ug/L (61709)	Cyanazine, water, fltrd, ug/L (04041)	Dimethenamid ESA, water, fltrd, ug/L (61951)
JUL 13...	.03	.02	<.02	<.02	<.02	<.02	<.02	<.05	.07	<.05	<.05	<.02

Date	Dimethenamid OA, water, fltrd, ug/L (62482)	Dimethenamid water, fltrd, ug/L (61588)	Flufenacet ESA, water, fltrd, ug/L (61952)	Flufenacet OA, water, fltrd, ug/L (62483)	Flufenacet, water, fltrd, ug/L (62481)	Metolachlor ESA, water, fltrd 0.7u GF ug/L (61043)	Metolachlor OA, water, fltrd 0.7u GF ug/L (61044)	Metolachlor, water, fltrd, ug/L (39415)	Metribuzin, water, fltrd, ug/L (82630)	Suspended sediment concentration mg/L (80154)
JUL 13...	<.02	<.02	<.02	<.02	<.02	<.02	<.02	<.02	<.05	140

Date	Prometon, water, fltrd, ug/L (04037)	Prometryn, water, fltrd, ug/L (04036)	Propachlor ESA, water, fltrd 0.7u GF ug/L (62766)	Propachlor OA, water, fltrd 0.7u GF ug/L (62767)	Propachlor, water, fltrd, ug/L (04024)	Propazine, water, fltrd, ug/L (38535)	Simazine, water, fltrd, ug/L (04035)	Terbutryn, water, fltrd, ug/L (38888)	Deuterium/Protium ratio, water, unfltrd per mil (82082)	O-18 / O-16 ratio, water, unfltrd per mil (82085)
JUL 13...	<.05	<.05	<.05	<.02	<.02	<.05	<.05	<.05	-57.80	-6.98

05078770 JUDICIAL DITCH 66 NEAR MARCOUX CORNERS, MN

LOCATION.--Lat 47°46'55", long 96°19'53", in SW¼NW¼ sec. 29, T.150 N., R.44 W., Red lake County, Hydrologic Unit 09020303, at culvert on township road, 1.5 miles north of U.S. Highway 2, 3.4 miles northwest of Marcoux Corners.

DRAINAGE AREA.--14.2 mi^2.

PERIOD OF RECORD.--September 2002 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,040.84 ft above sea level (NAVD 1988).

REMARKS.--Records fair except those for estimated daily discharges, and discharges less that 1.0 ft^3/s, which are poor.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e0.19	e0.63	e0.71	e0.09	e0.07	e0.26	e22	0.57	35	0.90	1.7	2.8
2	e0.19	e0.60	e0.75	e0.08	e0.07	e0.24	e21	0.53	24	2.5	1.8	2.1
3	e0.18	e0.57	e0.78	e0.07	e0.07	e0.21	19	0.74	15	0.96	1.5	1.6
4	e0.18	e0.54	e0.82	e0.06	e0.07	e0.20	17	0.80	22	0.96	0.94	1.5
5	e0.17	e0.50	e0.85	e0.06	e0.07	e0.19	13	0.94	14	1.0	0.91	1.9
6	e0.17	e0.48	e0.87	e0.06	e0.07	e0.19	11	0.78	8.7	1.9	0.91	23
7	e0.17	e0.46	e0.89	e0.06	e0.07	e0.19	17	0.79	6.0	2.0	1.1	38
8	e0.16	e0.44	e0.90	e0.06	e0.07	e0.19	10	0.80	4.6	1.8	1.1	23
9	e0.16	e0.46	e0.88	e0.06	e0.07	e0.22	7.4	1.0	3.7	2.5	2.1	12
10	e0.16	e0.52	e0.65	e0.06	e0.07	e0.27	5.9	1.0	3.2	1.7	2.6	7.2
11	e0.64	e0.61	e0.34	e0.06	e0.07	e0.29	4.7	3.2	2.7	2.2	2.1	e4.3
12	e0.53	e0.68	e0.24	e0.06	e0.07	e0.30	4.0	57	2.5	2.0	1.7	e2.5
13	e0.50	e0.58	e0.24	e0.06	e0.07	e0.31	3.5	33	2.3	1.9	1.6	e1.6
14	e0.49	e0.67	e0.24	e0.07	e0.07	e0.31	3.2	20	2.2	1.6	1.4	0.85
15	e0.49	e0.80	e0.24	e0.07	e0.07	e0.33	3.1	12	2.1	2.1	1.4	1.0
16	e0.48	e1.0	e0.25	e0.07	e0.08	e0.37	2.7	9.3	1.8	1.9	1.2	2.2
17	e0.47	e1.2	e0.25	e0.07	e0.08	e0.40	2.2	6.5	1.8	1.7	1.2	2.3
18	e0.46	e1.2	e0.25	e0.07	e0.09	e0.42	2.2	4.9	1.5	1.6	1.2	1.7
19	e0.46	e1.1	e0.26	e0.07	e0.10	e0.70	2.0	6.8	1.4	1.2	1.0	1.2
20	e0.45	e1.1	e0.26	e0.07	e0.11	e1.0	2.0	6.4	1.6	1.2	0.90	5.2
21	e0.45	e1.0	e0.26	e0.07	e0.12	e1.0	1.8	4.3	1.4	1.2	0.82	31
22	e0.44	e0.90	e0.26	e0.07	e0.13	e0.98	1.6	3.8	1.2	1.1	0.82	22
23	e0.43	e0.74	e0.26	e0.07	e0.14	e1.0	1.3	3.3	1.2	1.1	0.80	21
24	e0.42	e0.62	e0.26	e0.07	e0.15	e1.2	1.2	3.0	1.3	1.1	1.1	37
25	e0.41	e0.60	e0.26	e0.07	e0.17	e1.7	0.98	5.1	1.2	1.1	1.1	27
26	e0.41	e0.60	e0.27	e0.07	e0.18	e39	0.92	5.0	1.1	1.1	36	15
27	e0.47	e0.61	e0.31	e0.07	e0.20	e36	0.91	3.6	1.0	1.2	17	8.3
28	e0.54	e0.62	e0.25	e0.07	e0.23	e50	0.83	2.8	0.95	2.1	8.3	5.0
29	e0.64	e0.64	e0.15	e0.07	e0.27	e33	0.66	5.1	0.90	2.0	5.3	3.7
30	e0.70	e0.67	e0.13	e0.07	---	e26	0.65	51	0.88	1.6	5.8	3.2
31	e0.66	---	e0.11	e0.07	---	e24	---	51	---	1.6	4.4	---
TOTAL	12.27	21.14	13.19	2.10	3.10	220.47	183.75	305.05	167.23	48.82	109.80	309.15
MEAN	0.40	0.70	0.43	0.07	0.11	7.11	6.12	9.84	5.57	1.57	3.54	10.3
MAX	0.70	1.2	0.90	0.09	0.27	50	22	57	35	2.5	36	38
MIN	0.16	0.44	0.11	0.06	0.07	0.19	0.65	0.53	0.88	0.90	0.80	0.85
AC-FT	24	42	26	4.2	6.1	437	364	605	332	97	218	613
CFSM	0.03	0.05	0.03	0.00	0.01	0.50	0.43	0.69	0.39	0.11	0.25	0.73
IN.	0.03	0.06	0.03	0.01	0.01	0.58	0.48	0.80	0.44	0.13	0.29	0.81

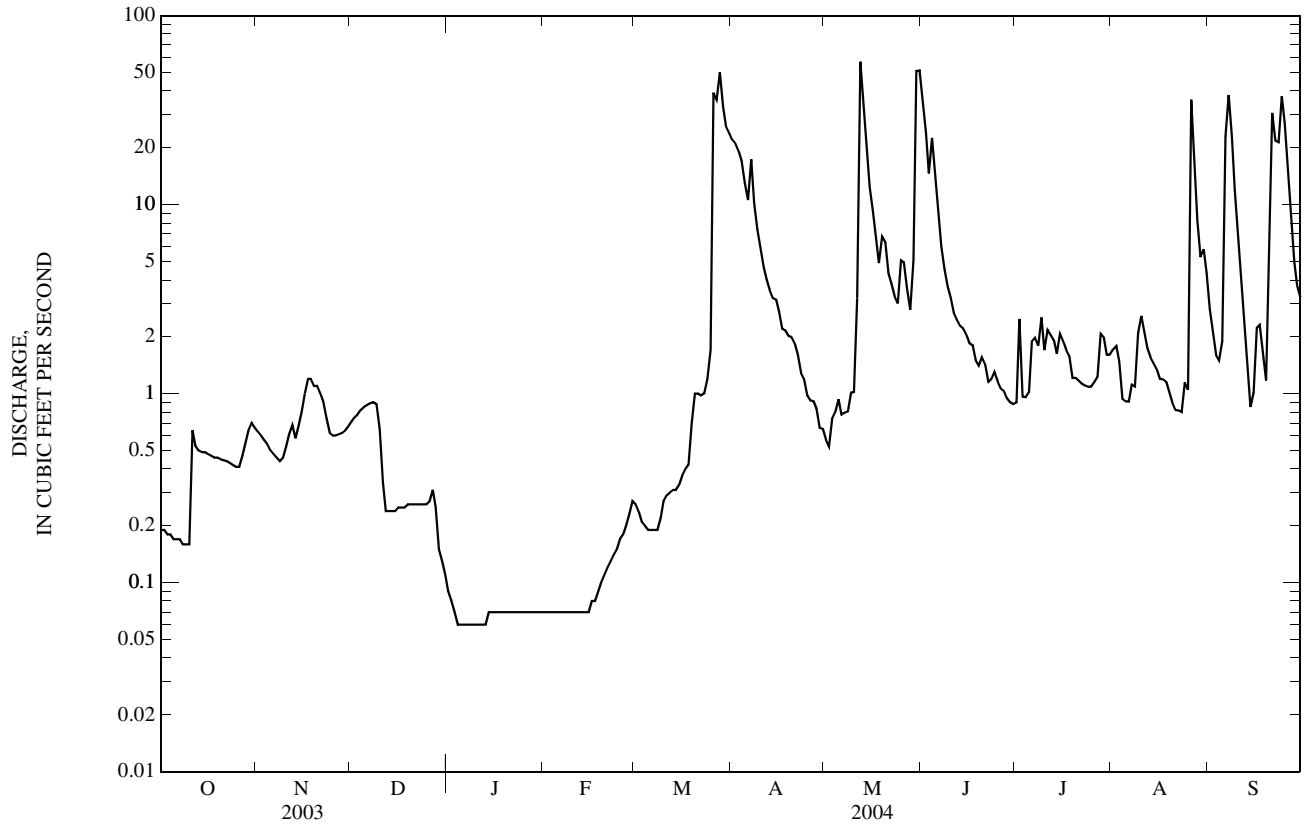
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2000 - 2004, BY WATER YEAR (WY)

MEAN	1.07	1.19	0.68	0.40	0.23	4.96	4.21	7.20	6.80	2.00	1.84	5.27
MAX	1.75	1.68	0.93	0.73	0.35	7.11	6.13	9.84	8.03	2.43	3.54	10.3
(WY)	(2003)	(2003)	(2003)	(2003)	(2003)	(2004)	(2004)	(2004)	(2003)	(2003)	(2004)	(2004)
MIN	0.40	0.70	0.43	0.07	0.11	2.80	2.30	4.55	5.57	1.57	0.13	0.23
(WY)	(2004)	(2004)	(2004)	(2004)	(2004)	(2003)	(2003)	(2003)	(2004)	(2004)	(2003)	(2003)

05078770 JUDICIAL DITCH 66 NEAR MARCOUX CORNERS, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 2000 - 2004	
ANNUAL TOTAL	703.41		1,396.07			
ANNUAL MEAN	1.93		3.81		2.99	
HIGHEST ANNUAL MEAN					3.81	2004
LOWEST ANNUAL MEAN					2.17	2003
HIGHEST DAILY MEAN	40	Jun 23	57	May 12	57	May 12, 2004
LOWEST DAILY MEAN	0.02	Sep 5	0.06	Jan 4-13	0.02	Sep 5, 2003
ANNUAL SEVEN-DAY MINIMUM	0.04	Aug 30	0.06	Jan 4	0.04	Aug 30, 2003
MAXIMUM PEAK FLOW			a67	May 12	a67	May 12, 2004
MAXIMUM PEAK STAGE			b7.06	Mar 26	b7.06	Mar 26, 2004
INSTANTANEOUS LOW FLOW			c0.06	Jan 4	0.00	Sep 3, 2003
ANNUAL RUNOFF (AC-FT)	1,400		2,770		2,170	
ANNUAL RUNOFF (CFSM)	0.136		0.269		0.211	
ANNUAL RUNOFF (INCHES)	1.84		3.66		2.86	
10 PERCENT EXCEEDS	4.7		10		5.8	
50 PERCENT EXCEEDS	0.63		0.90		1.0	
90 PERCENT EXCEEDS	0.11		0.07		0.08	

a Gage height, 4.08 ft; also occurred May 30, gage height, 4.09 ft.
b Backwater from ice.
c Estimated, daily-mean.
e Estimated.



05078770 JUDICIAL DITCH 66 NEAR MARCOUX CORNERS, MN (SW6)—Continued

GLACIAL RIDGE HYDROLOGY

WATER-QUALITY RECORDS

PERIOD OF RECORD.--September 2002 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Time	Sample type	Instantaneous discharge, cfs (00061)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf lab, uS/cm 25 degC (90095)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)
NOV												
04...	0830	Environmental	.54	738	12.2	8.2	7.8	531	541	-5.0	.0	66.0
DEC												
09...	1030	Environmental	.88	744	11.7	8.1	7.9	533	534	-12.0	.0	70.1
JAN												
20...	1550	Environmental	.07	737	12.4	8.7	7.9	571	558	12.0	.0	76.1
MAR												
02...	1400	Environmental	.23	741	9.5	7.8	6.9	434	512	-1.0	.0	45.9
30...	1500	Environmental	26	745	10.9	7.6	7.6	316	326	4.0	3.9	36.2
APR												
14...	1330	Environmental	3.4	739	11.7	8.3	8.0	454	519	9.5	7.0	63.9
MAY												
12...	1650	Environmental	63	731	11.2	8.1	7.5	432	431	5.5	6.6	42.9
25...	1450	Environmental	5.0	733	12.9	8.4	8.1	579	600	7.5	10.1	71.9
JUL												
14...	0800	Environmental	1.8	737	8.0	8.0	8.0	458	491	19.0	18.9	49.1
SEP												
01...	0840	Environmental	2.9	741	8.0	8.0	7.9	449	482	15.0	17.1	53.4

Date	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	Alkalinity, wat flt inc tit field, mg/L as CaCO3 (39086)	Bicarbonate, wat flt incrm. titr., field, mg/L (00453)	Chloride, water, fltrd, mg/L (00940)	Sulfate water, fltrd, mg/L (00945)	Ammonia + org-N, water, fltrd, mg/L as N (00623)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Orthophosphate, water, fltrd, mg/L as P (00671)
NOV													
04...	31.2	4.41	8.59	212	259	8.67	69.5	.40	.46	.08	.89	.010	<.02
DEC													
09...	30.2	4.01	7.96	215	262	9.07	63.4	.41	.41	.09	1.47	.012	<.02
JAN													
20...	30.9	3.84	8.66	220	268	12.0	53.5	.36	.52	.10	2.71	.010	E.01
MAR													
02...	16.8	17.4	13.4	133	162	30.5	31.5	2.0	2.1	.04	1.88	.032	.15
30...	16.3	8.02	5.58	125	152	5.76	33.4	1.4	1.6	.27	.52	.027	.18
APR													
14...	28.9	4.63	7.51	186	227	7.09	64.6	.38	.47	<.04	.61	E.004	<.02
MAY													
12...	22.5	5.35	10.2	110	134	11.6	78.5	1.4	2.5	.29	1.92	.056	.07
25...	33.3	3.89	12.8	227	277	17.3	70.2	.57	.67	<.04	.40	E.006	<.02
JUL													
14...	27.2	3.00	7.18	174	212	7.86	59.8	.49	.55	<.04	.28	E.007	<.02
SEP													
01...	26.4	4.10	8.08	187	228	8.87	51.5	.54	.70	E.02	.20	E.005	<.02

05078770 JUDICIAL DITCH 66 NEAR MARCOUX CORNERS, MN (SW6)—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Phosphorus, water, fltrd, mg/L (00666)	Phosphorus, water, unfltrd mg/L (00665)	Suspended sediment concentration mg/L (80154)	2-[(2-Ethyl-6methylphenyl)amino]2oxoESA ug/L (62850)	CIAT, water, fltrd, ug/L (04040)	CEAT, water, fltrd, ug/L (04038)	Acetochlor ESA, water, fltrd 0.7u GF ug/L (61029)	Acetochlor OA, water, fltrd 0.7u GF ug/L (61030)	Acetochlor SAA, water, fltrd, ug/L (62847)	Acetochlor, water, fltrd, ug/L (49260)	Alachlor ESA SA, water, fltrd, ug/L (62849)	Alachlor ESA, water, fltrd 0.7u GF ug/L (50009)	Alachlor OA, water, fltrd 0.7u GF ug/L (61031)
NOV													
04...	.008	.021	--	--	--	--	--	--	--	--	--	--	--
DEC													
09...	.004	.014	45	--	--	--	--	--	--	--	--	--	--
JAN													
20...	.008	.038	--	--	--	--	--	--	--	--	--	--	--
MAR													
02...	.25	.28	--	--	--	--	--	--	--	--	--	--	--
30...	.23	.42	329	--	--	--	--	--	--	--	--	--	--
APR													
14...	.013	.032	72	--	--	--	--	--	--	--	--	--	--
MAY													
12...	.113	.42	360	--	--	--	--	--	--	--	--	--	--
25...	.008	.020	77	--	--	--	--	--	--	--	--	--	--
JUL													
14...	.010	.025	32	<.02	<.05	<.05	<.02	<.02	<.02	<.02	<.02	<.02	<.02
SEP													
01...	.015	.052	--	--	--	--	--	--	--	--	--	--	--

Date	Alachlor, water, fltrd, ug/L (46342)	Alachlor SAA, water, fltrd, ug/L (62848)	Ametryn water, fltrd, ug/L (38401)	Atrazine, water, fltrd, ug/L (39632)	Cyanazine amide, water, fltrd, ug/L (61709)	Cyanazine, water, fltrd, ug/L (04041)	Dimethenamid ESA, water, fltrd, ug/L (61951)	Dimethenamid OA, water, fltrd, ug/L (62482)	Dimethenamid water, fltrd, ug/L (61588)	Flufenacet ESA, water, fltrd, ug/L (61952)	Flufenacet OA, water, fltrd, ug/L (62483)	Flufenacet, water, fltrd, ug/L (62481)	Metolachlor ESA, water, fltrd 0.7u GF ug/L (61043)
JUL													
14...	<.02	<.02	<.05	<.05	<.05	<.05	<.02	<.02	<.02	<.02	<.02	<.02	.04

Date	Metolachlor OA, water, fltrd 0.7u GF ug/L (61044)	Metolachlor, water, fltrd, ug/L (39415)	Metribuzin, water, fltrd, ug/L (82630)	Pendimethalin, water, fltrd 0.7u GF ug/L (82683)	Prometon, water, fltrd, ug/L (04037)	Prometryn, water, fltrd, ug/L (04036)	Propachlor ESA, water, fltrd 0.7u GF ug/L (62766)	Propachlor OA, water, fltrd 0.7u GF ug/L (62767)	Propachlor, water, fltrd, ug/L (04024)	Propazine, water, fltrd, ug/L (38535)	Simazine, water, fltrd, ug/L (04035)	Terbutryn, water, fltrd, ug/L (38888)	Deuterium/Protium ratio, water, unfltrd per mil (82082)	O-18 / O-16 ratio, water, unfltrd per mil (82085)
JUL														
14...	<.02	<.02	<.05	<.05	<.05	<.05	<.05	<.02	<.02	<.05	<.05	<.05	-72.20	-8.97

05079000 RED LAKE RIVER AT CROOKSTON, MN

LOCATION.--Lat 47°46'32", long 96°36'33", in SW¼SW¼ sec. 30, T.150 N., R.46 W., Polk County, Hydrologic Unit 09020303, on right bank 100 ft upstream from Sargent Street bridge in Crookston, 0.3 mi downstream from Interstate Power Co.'s dam, 0.6 mi downstream from bridge on U.S. Highway 75, and 53 mi upstream from mouth.

DRAINAGE AREA.--5,270 mi^2.

PERIOD OF RECORD.--May 1901 to current year. Monthly discharge only for some periods, published in WSP 1308. Figures of daily discharge for Apr. 3-30, 1904, published in WSP 130, have been found unreliable and should not be used.

REVISED RECORDS.--WSP 1115: 1906, 1915-16, 1919-20, 1922, 1925, 1927, 1929. WSP 1308: 1916(M), 1919(M), 1928(M), 1930(M). (See also PERIOD OF RECORD).

GAGE.--Water-stage recorder. Datum of gage is 832.72 ft above sea level (NGVD of 1929). May 18, 1901 to June 30, 1909, nonrecording gage at bridge 300 ft upstream at same datum. July 1, 1909 to Sept. 25, 1911, nonrecording gage, Sept. 26, 1911 to Sept. 30, 1919, water-stage recorder, Oct. 1, 1919 to Sept. 30, 1930, nonrecording gage, at present site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Diurnal fluctuation prior to 1975 caused by power plant 1,000 ft upstream. Runoff from 1,950 mi^2 in the headwaters of Red Lake River is completely controlled by dam at outlet of Lower Red Lake. Flow partially affected by occasional regulation at Thief and Mud Lakes in Thief River basin (see station 05076000).

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	122	169	e160	e165	e105	e125	e5,500	1,020	10,200	1,050	340	e352
2	145	184	e165	e165	e110	e125	e5,500	874	7,550	960	334	e340
3	128	171	e165	e160	e110	e125	4,060	824	5,870	1,020	319	e384
4	142	137	e160	e155	e110	e120	3,450	817	4,830	977	299	e381
5	134	e135	e165	e155	e110	e120	3,070	718	3,910	1,020	283	e370
6	113	131	e170	e155	e110	e125	2,440	513	3,520	1,090	331	e404
7	136	127	e170	e160	e110	e130	1,930	524	3,330	1,130	326	e542
8	108	114	e170	e165	e110	e130	1,650	341	3,130	1,290	312	798
9	138	e135	e165	e170	e110	e135	1,670	403	2,960	1,280	323	950
10	129	e145	e155	e170	e110	e140	1,620	385	2,780	1,000	352	941
11	178	182	e150	e170	e110	e140	1,370	370	2,610	993	376	850
12	153	188	e145	e170	e110	e140	1,220	3,520	2,500	954	434	827
13	166	146	e145	e170	e110	e145	1,080	9,840	2,340	1,020	446	790
14	181	154	e145	e170	e110	e150	1,030	9,030	2,210	1,040	412	729
15	162	181	e145	e165	e110	e160	1,220	6,550	2,090	1,000	402	700
16	137	177	e145	e155	e110	e160	1,260	5,300	2,020	916	380	595
17	116	173	e145	e145	e110	e160	1,530	4,750	1,990	852	346	563
18	138	193	e150	e140	e115	e160	1,510	4,060	1,830	664	343	830
19	133	207	e150	e135	e115	e165	1,430	3,570	1,770	695	312	945
20	163	209	e155	e140	e115	e185	1,420	3,980	1,730	663	289	969
21	166	170	e160	e140	e110	e205	1,390	4,190	1,680	582	278	1,130
22	166	152	e165	e140	e110	e235	1,330	3,600	1,610	409	270	1,450
23	144	e150	e165	e140	e110	e300	1,260	3,240	1,520	389	254	e1,740
24	130	e145	e165	e140	e115	e390	1,240	3,000	1,510	400	273	e1,970
25	155	e140	e170	e140	e115	e670	1,310	2,900	1,480	430	269	e2,140
26	159	e130	e170	e140	e120	e1,800	1,240	2,900	1,340	399	782	e2,190
27	155	e130	e170	e135	e120	e4,800	1,230	2,900	1,050	389	1,050	e2,020
28	141	e130	e175	e125	e125	e7,200	1,220	2,880	927	401	724	e1,730
29	162	e130	e175	e120	e125	e7,000	1,110	2,780	940	379	564	e1,600
30	181	e140	e170	e110	---	e6,600	1,030	5,820	982	342	455	1,490
31	174	---	e165	e105	---	e5,700	---	10,900	---	340	394	---
TOTAL	4,555	4,675	4,970	4,615	3,260	37,740	56,320	102,499	82,209	24,074	12,272	30,720
MEAN	147	156	160	149	112	1,217	1,877	3,306	2,740	777	396	1,024
MAX	181	209	175	170	125	7,200	5,500	10,900	10,200	1,290	1,050	2,190
MIN	108	114	145	105	105	120	1,030	341	927	340	254	340
AC-FT	9,030	9,270	9,860	9,150	6,470	74,860	111,700	203,300	163,100	47,750	24,340	60,930
CFSM	0.03	0.03	0.03	0.03	0.02	0.23	0.36	0.63	0.52	0.15	0.08	0.19
IN.	0.03	0.03	0.04	0.03	0.02	0.27	0.40	0.72	0.58	0.17	0.09	0.22

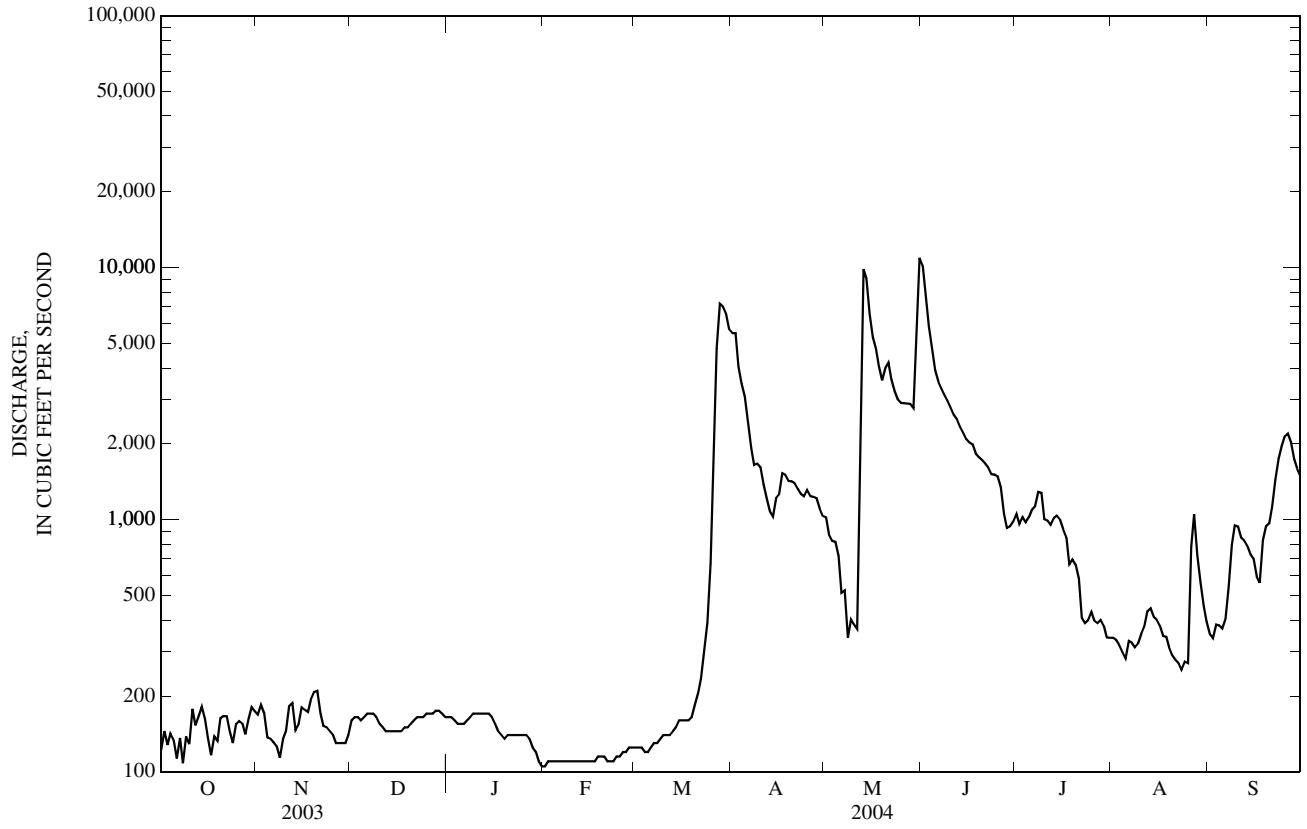
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1901 - 2004, BY WATER YEAR (WY)

MEAN	858	749	600	527	508	1,022	3,091	2,154	1,763	1,393	882	881
MAX	2,836	3,620	1,900	1,663	1,778	4,257	11,870	15,290	7,205	6,851	3,868	5,408
(WY)	(1972)	(2001)	(1904)	(1951)	(1998)	(1995)	(1997)	(1950)	(1962)	(1975)	(1985)	(1999)
MIN	8.02	10.1	5.34	15.6	17.8	24.9	232	154	80.4	26.2	12.3	8.87
(WY)	(1937)	(1937)	(1937)	(1934)	(1937)	(1936)	(1981)	(1934)	(1934)	(1936)	(1934)	(1934)

05079000 RED LAKE RIVER AT CROOKSTON, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1901 - 2004	
ANNUAL TOTAL	172,467		367,909			
ANNUAL MEAN	473		1,005		1,199	
HIGHEST ANNUAL MEAN					3,129	1950
LOWEST ANNUAL MEAN					83.6	1934
HIGHEST DAILY MEAN	4,110	Jun 27	10,900	May 31	27,500	Apr 18, 1997
LOWEST DAILY MEAN	89	Sep 8	105	Jan 31 - Feb 1	2.5	Sep 29, 1936
ANNUAL SEVEN-DAY MINIMUM	117	Sep 4	109	Jan 30	3.9	Sep 28, 1936
MAXIMUM PEAK FLOW			11,300	May 31	a28,400	Apr 12, 1969
MAXIMUM PEAK STAGE			17.80	May 31	b28.40	Apr 17, 1997
INSTANTANEOUS LOW FLOW					c0.00	Jul 13, 1960
ANNUAL RUNOFF (AC-FT)	342,100		729,700		868,700	
ANNUAL RUNOFF (CFSM)	0.090		0.191		0.228	
ANNUAL RUNOFF (INCHES)	1.22		2.60		3.09	
10 PERCENT EXCEEDS	918		2,900		2,630	
50 PERCENT EXCEEDS	235		306		738	
90 PERCENT EXCEEDS	142		121		120	

a Gage height 27.33 ft.
b From highwater mark, backwater from ice.
c From regulation by power plant upstream.
e Estimated.



05079200 COUNTY DITCH 72 NEAR MAPLE BAY, MN

LOCATION.--Lat 47°48'13", long 96°16'36", in NW¼NE¼ sec. 22, T.150 N., R.44 W., Polk County, Hydrologic Unit 09020303, at culvert on State Highway 32, 2.4 miles west of Maple Bay.

DRAINAGE AREA.--10.3 mi^2.

PERIOD OF RECORD.--September 2002 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,133.55 ft above sea level (NAVD of 1988).

REMARKS.--Records poor.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.06	0.10	e0.02	e0.00	e0.00	e0.04	16	0.64	19	0.19	e0.04	0.19
2	0.06	0.11	e0.02	e0.00	e0.00	e0.03	5.5	0.60	15	0.20	e0.03	0.12
3	0.05	0.08	e0.02	e0.00	e0.00	e0.02	3.5	0.56	11	e0.25	e0.03	0.06
4	0.05	0.06	e0.02	e0.00	e0.00	e0.02	2.6	0.55	5.6	e0.30	e0.03	0.07
5	0.04	e0.05	e0.02	e0.00	e0.00	e0.02	2.3	0.48	3.1	e0.24	e0.03	0.18
6	0.04	e0.04	e0.02	e0.00	e0.00	e0.02	2.2	0.46	2.2	e0.35	e0.05	3.0
7	0.04	e0.03	e0.02	e0.00	e0.00	e0.02	2.2	0.40	2.0	e0.50	0.09	2.6
8	0.03	e0.02	e0.02	e0.00	e0.00	e0.02	2.1	0.40	1.6	e0.46	0.10	1.9
9	0.03	e0.02	e0.02	e0.00	e0.00	e0.03	1.7	0.53	1.4	e0.40	0.11	1.1
10	0.03	e0.02	e0.01	e0.00	e0.00	e0.05	1.5	0.69	1.1	e0.35	0.12	0.58
11	0.10	e0.03	e0.00	e0.00	e0.00	e0.04	1.2	4.2	0.96	e8.8	0.10	0.42
12	0.08	e0.04	e0.00	e0.00	e0.00	e0.03	1.1	31	0.88	5.6	0.08	0.22
13	0.07	e0.03	e0.00	e0.00	e0.00	e0.04	1.1	24	0.71	3.4	0.06	0.24
14	0.07	e0.03	e0.00	e0.00	e0.00	e0.05	1.1	16	0.64	1.8	0.05	0.31
15	0.08	e0.03	e0.00	e0.00	e0.00	e0.04	1.1	5.6	0.58	e2.0	0.03	0.30
16	0.08	e0.04	e0.00	e0.00	e0.00	e0.04	1.1	3.4	0.56	e3.0	0.03	0.42
17	0.07	e0.05	e0.00	e0.00	e0.00	e0.04	1.1	2.4	0.48	e2.6	0.02	0.35
18	0.06	e0.05	e0.00	e0.00	e0.00	e0.04	1.1	1.7	0.44	e2.0	0.02	0.25
19	0.07	e0.04	e0.00	e0.00	e0.00	e0.05	1.1	1.5	0.39	e1.3	0.01	0.17
20	0.07	e0.03	e0.00	e0.00	e0.00	e0.10	1.1	1.4	0.35	e0.90	0.00	0.20
21	0.07	e0.03	e0.01	e0.00	e0.00	e0.08	1.2	1.2	0.31	e0.65	0.00	0.56
22	0.06	e0.02	e0.02	e0.00	e0.00	e0.07	1.0	1.1	0.29	e0.48	0.00	0.60
23	0.06	e0.02	e0.01	e0.00	e0.00	e0.15	0.97	0.96	0.30	e0.35	0.00	1.00
24	0.07	e0.02	e0.00	e0.00	e0.00	e0.60	0.84	0.93	0.30	e0.27	0.11	1.9
25	0.06	e0.02	e0.00	e0.00	e0.00	e3.4	2.8	1.7	0.28	e0.21	0.06	1.4
26	0.06	e0.02	e0.01	e0.00	e0.01	e3.2	4.5	1.7	0.27	e0.16	0.25	0.81
27	0.08	e0.02	e0.02	e0.00	e0.03	e13	1.7	1.4	0.27	e0.13	0.21	0.66
28	0.11	e0.02	e0.02	e0.00	e0.05	e41	1.1	1.2	0.24	e0.10	0.17	0.54
29	0.10	e0.02	e0.01	e0.00	e0.05	36	0.84	1.1	0.22	e0.08	0.17	0.43
30	0.12	e0.02	e0.00	e0.00	---	31	0.71	17	0.21	e0.06	0.26	0.40
31	0.13	---	e0.00	e0.00	---	24	---	20	---	e0.05	0.27	---
TOTAL	2.10	1.11	0.29	0.00	0.14	153.24	66.36	144.80	70.68	37.18	2.53	20.98
MEAN	0.07	0.04	0.01	0.00	0.00	4.94	2.21	4.67	2.36	1.20	0.08	0.70
MAX	0.13	0.11	0.02	0.00	0.05	41	16	31	19	8.8	0.27	3.0
MIN	0.03	0.02	0.00	0.00	0.00	0.02	0.71	0.40	0.21	0.05	0.00	0.06
AC-FT	4.2	2.2	0.6	0.00	0.3	304	132	287	140	74	5.0	42
CFSM	0.01	0.00	0.00	0.00	0.00	0.46	0.21	0.44	0.22	0.11	0.01	0.07
IN.	0.01	0.00	0.00	0.00	0.00	0.53	0.23	0.50	0.25	0.13	0.01	0.07

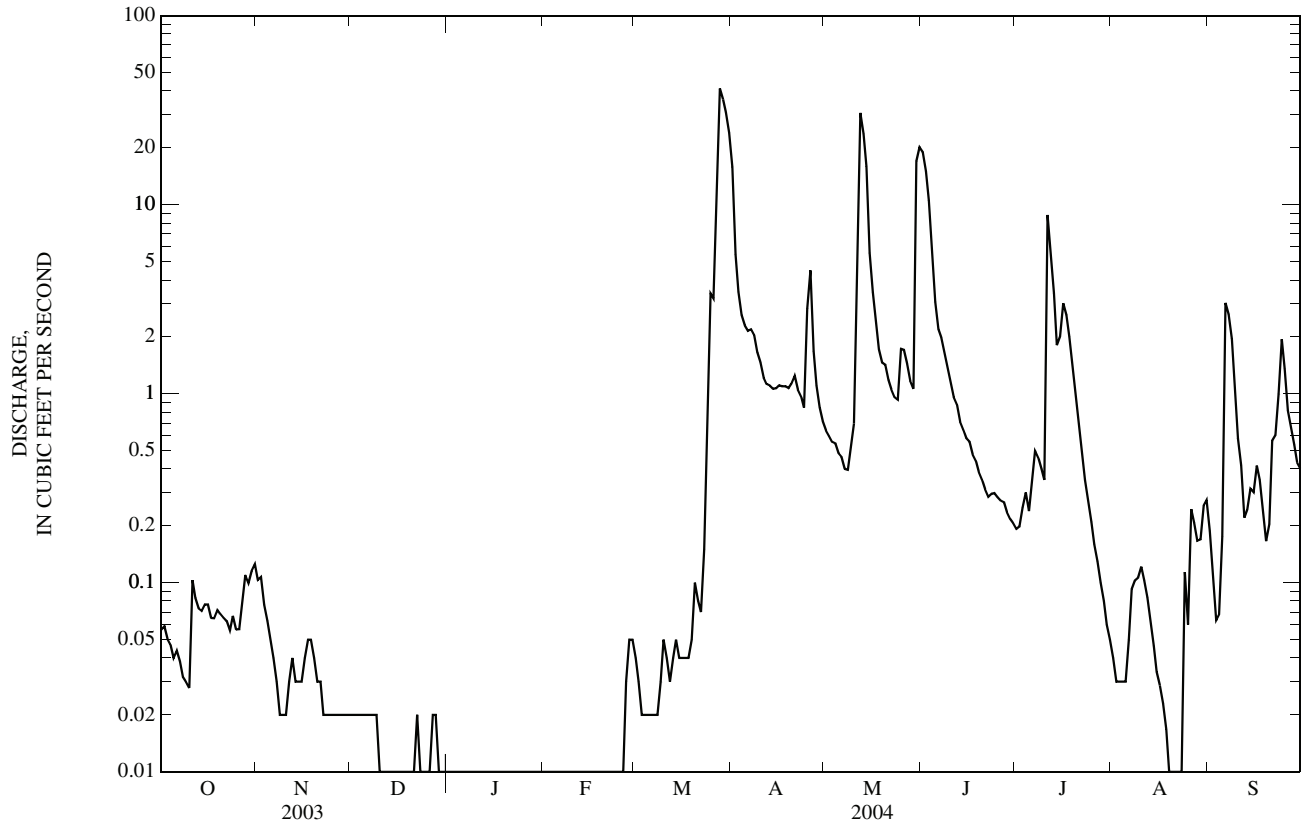
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2002 - 2004, BY WATER YEAR (WY)

MEAN	0.32	0.28	0.02	0.00	0.00	2.86	1.70	3.79	4.05	1.48	0.06	0.38
MAX	0.57	0.53	0.03	0.00	0.00	4.94	2.21	4.67	5.74	1.75	0.08	0.70
(WY)	(2003)	(2003)	(2003)	(2003)	(2004)	(2004)	(2004)	(2004)	(2003)	(2003)	(2004)	(2004)
MIN	0.07	0.04	0.01	0.00	0.00	0.79	1.19	2.91	2.36	1.20	0.04	0.06
(WY)	(2004)	(2004)	(2004)	(2003)	(2003)	(2003)	(2003)	(2003)	(2004)	(2004)	(2003)	(2003)

05079200 COUNTY DITCH 72 NEAR MAPLE BAY, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 2002 - 2004	
ANNUAL TOTAL	383.21		499.41			
ANNUAL MEAN	1.05		1.36		1.25	
HIGHEST ANNUAL MEAN					1.36	2004
LOWEST ANNUAL MEAN					1.13	2003
HIGHEST DAILY MEAN	20	Jun 25	a41	Mar 28	a41	Mar 28, 2004
LOWEST DAILY MEAN	0.00	Jan 1	b0.00	Dec 11	b0.00	Dec 26, 2002
ANNUAL SEVEN-DAY MINIMUM	0.00	Jan 1	0.00	Dec 11	0.00	Dec 26, 2002
MAXIMUM PEAK FLOW			a41	Mar 28	a41	Mar 28, 2004
MAXIMUM PEAK STAGE			c3.94	Mar 28	c3.94	Mar 28, 2004
INSTANTANEOUS LOW FLOW			0.00	Dec 11	b0.00	Dec 26, 2002
ANNUAL RUNOFF (AC-FT)	760		991		905	
ANNUAL RUNOFF (CFSM)	0.098		0.128		0.117	
ANNUAL RUNOFF (INCHES)	1.33		1.74		1.59	
10 PERCENT EXCEEDS	2.7		2.2		2.6	
50 PERCENT EXCEEDS	0.06		0.08		0.14	
90 PERCENT EXCEEDS	0.00		0.00		0.00	

a Estimated daily-mean discharge, backwater from ice
b Many days.
c Backwater from ice.
e Estimated.



05079200 COUNTY DITCH 72 (BURNHAM CK) NR. MAPLE BAY (SW3)—Continued

GLACIAL RIDGE HYDROLOGY

WATER-QUALITY RECORDS

PERIOD OF RECORD.--September 2002 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Time	Sample type	Instantaneous discharge, cfs (00061)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf lab, uS/cm 25 degC (90095)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)
NOV												
03...	1430	Environmental	.07	742	14.2	8.3	7.7	796	811	.0	.5	119
DEC												
08...	1350	Environmental	.02	731	3.3	7.1	7.5	538	538	-2.5	.0	90.9
MAR												
02...	0820	Environmental	.03	738	10.9	8.0	7.2	296	306	-2.5	.0	30.7
26...	1050	Environmental	3.2	741	5.8	7.7	6.9	170	173	-2.0	.0	20.6
APR												
14...	0730	Environmental	1.1	737	10.3	8.2	8.0	530	607	2.5	2.3	93.2
MAY												
12...	1420	Environmental	31	726	10.7	8.0	7.4	435	437	5.5	5.7	54.7
25...	1005	Environmental	1.7	728	10.7	8.1	7.8	558	577	7.0	8.6	85.0
JUL												
13...	1100	Environmental	3.5	732	8.2	8.0	7.9	485	519	21.0	21.0	70.0
AUG												
31...	0810	Environmental	.31	737	5.5	7.7	7.8	585	634	15.0	14.7	85.6

Date	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	Alkalinity, wat flt inc tit field, mg/L as CaCO3 (39086)	Bicarbonate, wat flt incrm. titr., field, mg/L (00453)	Chloride, water, fltrd, mg/L (00940)	Sulfate water, fltrd, mg/L (00945)	Ammonia + org-N, water, fltrd, mg/L as N (00623)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Orthophosphate, water, fltrd, mg/L as P (00671)
NOV													
03...	38.5	4.87	9.45	314	383	21.2	113	.69	.67	<.04	<.06	<.008	<.02
DEC													
08...	24.8	2.05	6.85	270	329	9.84	19.9	.36	.35	.04	.14	E.006	<.02
MAR													
02...	10.9	12.8	8.66	104	127	17.3	13.5	2.3	2.5	.43	1.44	.034	<.02
26...	7.07	7.65	.61	76	93	3.93	7.0	1.5	1.8	.31	.24	.017	.09
APR													
14...	28.6	3.73	6.31	260	317	11.3	56.0	.58	.58	<.04	E.04	<.008	<.02
MAY													
12...	21.4	3.74	5.61	112	137	10.9	78.7	1.2	1.2	.05	.62	.014	<.02
25...	27.8	1.97	6.22	256	313	10.0	44.8	.67	.74	<.04	<.06	<.008	<.02
JUL													
13...	23.1	1.60	5.37	223	272	7.83	39.2	.93	.95	<.04	<.06	<.008	<.02
AUG													
31...	30.0	3.86	7.79	286	349	15.4	44.9	.77	.84	<.04	<.06	<.008	<.02

05079200 COUNTY DITCH 72 (BURNHAM CK) NR. MAPLE BAY (SW3)—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Phosphorus, water, fltrd, mg/L (00666)	Phosphorus, water, unfltrd mg/L (00665)	2-[(2-Ethyl-6methyl phenyl) amino]2 oxoESA ug/L (62850)	CIAT, water, fltrd, ug/L (04040)	CEAT, water, fltrd, ug/L (04038)	Acetochlor ESA, water, fltrd 0.7u GF ug/L (61029)	Acetochlor OA, water, fltrd 0.7u GF ug/L (61030)	Acetochlor SAA, water, fltrd, ug/L (62847)	Acetochlor, water, fltrd, ug/L (49260)	Alachlor ESA SA, water, fltrd, ug/L (62849)	Alachlor ESA, water, fltrd 0.7u GF ug/L (50009)	Alachlor OA, water, fltrd 0.7u GF ug/L (61031)	Alachlor SAA, water, fltrd, ug/L (62848)
NOV													
03...	.008	.010	--	--	--	--	--	--	--	--	--	--	--
DEC													
08...	.005	.008	--	--	--	--	--	--	--	--	--	--	--
MAR													
02...	.052	.100	--	--	--	--	--	--	--	--	--	--	--
26...	.190	.24	--	--	--	--	--	--	--	--	--	--	--
APR													
14...	.010	.012	--	--	--	--	--	--	--	--	--	--	--
MAY													
12...	.031	.075	--	--	--	--	--	--	--	--	--	--	--
25...	.008	.013	--	--	--	--	--	--	--	--	--	--	--
JUL													
13...	.018	.027	<.02	<.05	<.05	<.02	<.02	<.02	<.02	<.02	.08	<.02	<.02
AUG													
31...	<.04	E.03	--	--	--	--	--	--	--	--	--	--	--

Date	Alachlor, water, fltrd, ug/L (46342)	Ametryn water, fltrd, ug/L (38401)	Atrazine, water, fltrd, ug/L (39632)	Cyanazine amide, water, fltrd, ug/L (61709)	Cyanazine, water, fltrd, ug/L (04041)	Dimethenamid ESA, water, fltrd, ug/L (61951)	Dimethenamid OA, water, fltrd, ug/L (62482)	Dimethenamid water, fltrd, ug/L (61588)	Flufenacet ESA, water, fltrd, ug/L (61952)	Flufenacet OA, water, fltrd, ug/L (62483)	Flufenacet, water, fltrd, ug/L (62481)	Metolachlor ESA, water, fltrd 0.7u GF ug/L (61043)	Metolachlor OA, water, fltrd 0.7u GF ug/L (61044)
JUL													
13...	<.02	<.05	<.05	<.05	<.05	<.02	<.02	<.02	<.02	<.02	<.02	.43	<.02

Date	Metolachlor, water, fltrd, ug/L (39415)	Metribuzin, water, fltrd, ug/L (82630)	Pendimethalin, water, fltrd 0.7u GF ug/L (82683)	Prometon, water, fltrd, ug/L (04037)	Prometryn, water, fltrd, ug/L (04036)	Propachlor ESA, water, fltrd 0.7u GF ug/L (62766)	Propachlor OA, water, fltrd 0.7u GF ug/L (62767)	Propachlor, water, fltrd, ug/L (04024)	Propazine, water, fltrd, ug/L (38535)	Simazine, water, fltrd, ug/L (04035)	Terbutryn, water, fltrd, ug/L (38888)	Deuterium/Protium ratio, water, unfltrd per mil (82082)	O-18 / O-16 ratio, water, unfltrd per mil (82085)	Suspended sediment concentration mg/L (80154)
MAR														
26...	--	--	--	--	--	--	--	--	--	--	--	--	--	7
APR														
14...	--	--	--	--	--	--	--	--	--	--	--	--	--	93
MAY														
12...	--	--	--	--	--	--	--	--	--	--	--	--	--	16
25...	--	--	--	--	--	--	--	--	--	--	--	--	--	94
JUL														
13...	<.02	<.05	<.05	<.05	<.05	<.05	<.02	<.02	<.05	<.05	<.05	-68.00	-9.10	--

05079250 COUNTY DITCH 65 NEAR MAPLE BAY, MN

LOCATION.--Lat 47°36'43", long 96°16'45", in SE¼NE¼ sec. 29, T.148 N., R.44 W., Polk County, Hydrologic Unit 09020303, at culvert on State Highway 32, 3.0 miles west of Maple Bay.

DRAINAGE AREA.--10.4 mi^2.

PERIOD OF RECORD.--September 2002 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,138.95 ft above sea level (NAVD of 1988).

REMARKS.--Records fair except those for estimated daily discharges and discharges less that 1.0 ft^3/s, which are poor.

REVISIONS.--Revised maximum discharge for 2003 water year and daily-mean discharges for selected days in June 2003, as follows: maximum discharge, 62 ft^3/s, June 25; daily-mean discharges, June 25, 54 ft^3/s; June 26, 52 ft^3/s; June 27, 40 ft^3/s.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.02	e0.06	e0.05	e0.05	e0.04	e0.15	14	0.64	20	0.06	0.15	0.33
2	0.02	e0.06	e0.05	e0.06	e0.04	e0.15	12	0.60	12	0.10	0.10	0.25
3	0.02	e0.06	0.06	e0.07	e0.04	e0.14	11	0.52	8.5	0.48	0.07	0.20
4	0.02	e0.06	0.06	e0.05	e0.04	e0.13	8.7	0.52	6.2	0.64	0.04	0.23
5	0.02	e0.06	0.07	e0.04	e0.04	e0.14	7.0	0.72	4.4	0.33	0.03	0.52
6	0.02	0.06	0.08	e0.04	e0.04	e0.15	5.8	0.38	3.2	1.4	0.04	4.5
7	0.02	0.05	0.08	e0.04	e0.04	e0.16	5.3	0.76	2.5	1.9	0.13	3.1
8	0.02	e0.05	0.09	e0.05	e0.04	e0.17	4.7	0.62	2.0	1.1	0.14	1.8
9	0.02	0.05	0.08	e0.06	e0.05	e0.18	3.6	0.53	1.7	1.5	0.19	1.3
10	0.02	0.07	e0.07	e0.07	e0.05	e0.19	3.0	0.58	1.3	0.91	0.25	0.95
11	0.05	0.07	e0.05	e0.07	e0.05	e0.18	2.4	5.6	1.1	40	0.24	0.73
12	0.04	0.06	e0.05	e0.08	e0.05	e0.18	2.1	44	0.91	30	0.19	0.58
13	0.03	0.06	e0.05	e0.08	e0.05	e0.18	2.1	36	0.71	15	0.15	0.49
14	0.03	0.07	e0.06	e0.08	e0.05	e0.19	2.0	24	0.58	7.1	0.08	0.46
15	0.03	0.08	e0.06	e0.07	e0.05	e0.21	1.9	14	0.48	10	0.06	0.59
16	0.03	0.10	e0.06	e0.07	e0.06	e0.31	1.8	9.9	0.43	28	0.04	1.0
17	0.03	0.14	e0.05	e0.07	e0.06	e0.30	1.7	7.5	0.35	7.8	0.04	0.89
18	0.03	0.13	e0.05	e0.06	e0.07	e0.28	1.7	5.4	0.32	3.8	0.37	0.65
19	0.03	0.10	e0.05	e0.06	e0.09	e0.34	1.6	4.4	0.25	2.4	0.07	0.51
20	0.03	0.09	e0.06	e0.06	e0.10	e0.50	1.7	3.8	0.22	1.4	0.05	0.58
21	0.03	0.08	e0.10	e0.06	e0.11	e0.46	1.8	2.8	0.20	1.1	0.05	0.88
22	0.03	e0.06	e0.14	e0.05	e0.11	e0.44	1.6	2.3	0.19	0.78	0.06	0.96
23	0.02	e0.05	e0.10	e0.05	e0.11	e0.57	1.4	1.9	0.20	0.61	0.06	1.6
24	0.03	e0.04	e0.08	e0.05	e0.11	e1.0	1.3	14	0.23	0.43	0.71	5.0
25	0.03	e0.04	e0.09	e0.05	e0.11	e2.0	1.1	24	0.19	0.33	0.57	3.0
26	0.08	e0.04	e0.10	e0.05	e0.11	e1.4	1.1	13	0.14	0.25	0.80	1.8
27	e0.03	e0.04	e0.12	e0.04	e0.12	e8.0	1.0	8.0	0.13	0.18	0.65	1.3
28	e0.09	e0.04	e0.13	e0.04	e0.13	e70	0.95	5.2	0.10	0.22	0.47	0.99
29	e0.08	e0.05	e0.10	e0.04	e0.14	e45	0.83	4.0	0.08	0.29	0.49	0.76
30	e0.07	e0.05	e0.07	e0.04	---	e32	0.66	29	0.07	0.25	0.49	0.71
31	e0.06	---	e0.06	e0.04	---	e18	---	26	---	0.19	0.40	---
TOTAL	1.08	1.97	2.32	1.74	2.10	183.10	105.84	290.67	68.68	158.55	7.18	36.66
MEAN	0.03	0.07	0.07	0.06	0.07	5.91	3.53	9.38	2.29	5.11	0.23	1.22
MAX	0.09	0.14	0.14	0.08	0.14	70	14	44	20	40	0.80	5.0
MIN	0.02	0.04	0.05	0.04	0.04	0.13	0.66	0.38	0.07	0.06	0.03	0.20
AC-FT	2.1	3.9	4.6	3.5	4.2	363	210	577	136	314	14	73
CFSM	0.00	0.01	0.01	0.01	0.01	0.57	0.34	0.90	0.22	0.49	0.02	0.12
IN.	0.00	0.01	0.01	0.01	0.01	0.65	0.38	1.04	0.25	0.57	0.03	0.13

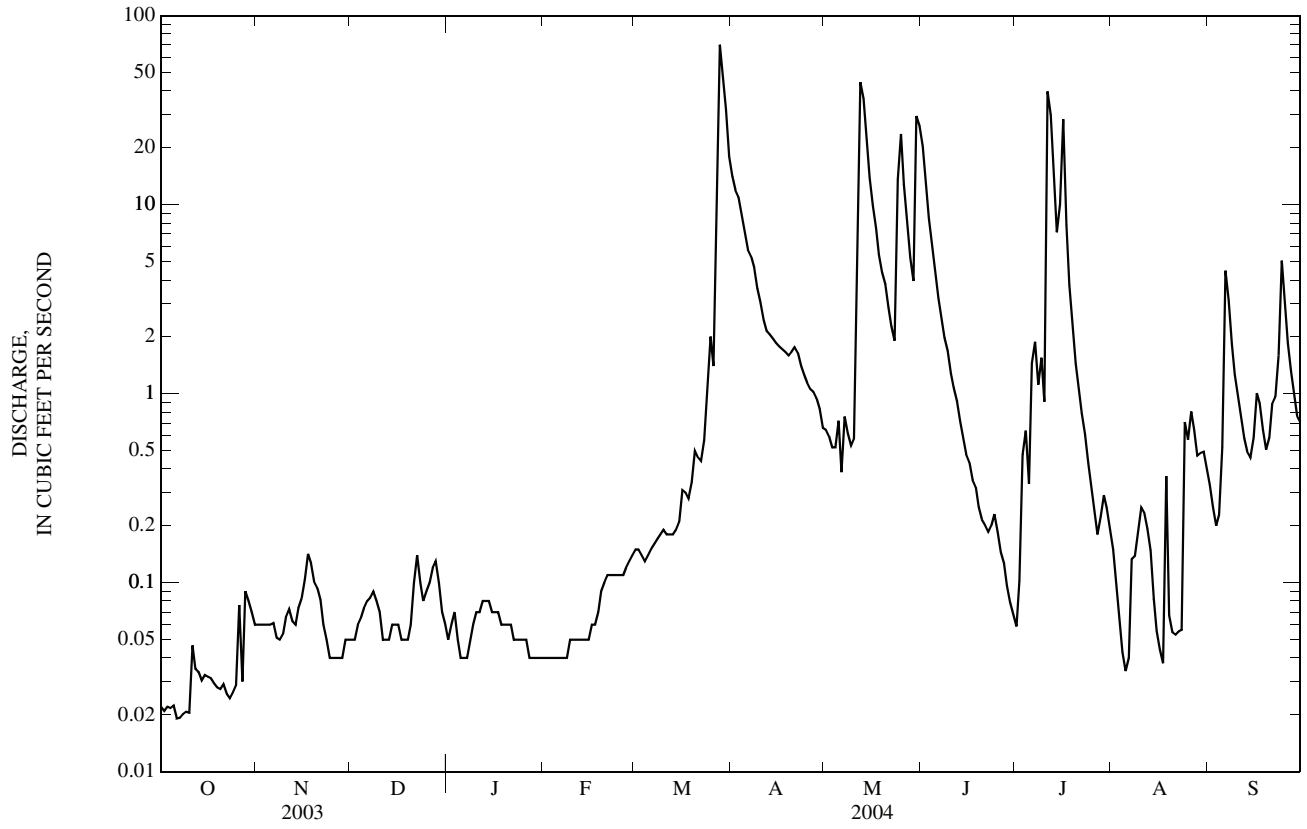
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2002 - 2004, BY WATER YEAR (WY)

MEAN	0.21	0.44	0.15	0.07	0.05	3.55	2.95	8.40	8.01	3.33	0.13	0.62
MAX	0.39	0.81	0.22	0.09	0.07	5.91	3.53	9.38	13.7	5.11	0.23	1.22
(WY)	(2003)	(2003)	(2003)	(2003)	(2004)	(2004)	(2004)	(2004)	(2003)	(2004)	(2004)	(2004)
MIN	0.03	0.07	0.07	0.06	0.02	1.20	2.36	7.42	2.29	1.54	0.03	0.01
(WY)	(2004)	(2004)	(2004)	(2004)	(2003)	(2003)	(2003)	(2003)	(2004)	(2003)	(2003)	(2003)

05079250 COUNTY DITCH 65 NEAR MAPLE BAY, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 2002 - 2004	
ANNUAL TOTAL	807.85		859.89			
ANNUAL MEAN	2.21		2.35		2.33	
HIGHEST ANNUAL MEAN					2.35	2004
LOWEST ANNUAL MEAN					2.32	2003
HIGHEST DAILY MEAN	54	Jun 25	70	Mar 28	a70	Mar 28, 2004
LOWEST DAILY MEAN	0.00	Aug 22	0.02	Oct 1-10,23	b0.00	Aug 22, 2003
ANNUAL SEVEN-DAY MINIMUM	0.00	Sep 3	0.02	Oct 1	0.00	Sep 3, 2003
MAXIMUM PEAK FLOW			a70	Mar 28	a70	Mar 28, 2004
MAXIMUM PEAK STAGE			c4.37	Mar 25	c4.37	Mar 25, 2004
INSTANTANEOUS LOW FLOW			0.01	Oct 6	b0.00	Aug 18, 2003
ANNUAL RUNOFF (AC-FT)	1,600		1,710		1,690	
ANNUAL RUNOFF (CFSM)	0.213		0.226		0.224	
ANNUAL RUNOFF (INCHES)	2.89		3.08		3.05	
10 PERCENT EXCEEDS	6.6		5.3		6.4	
50 PERCENT EXCEEDS	0.07		0.16		0.22	
90 PERCENT EXCEEDS	0.02		0.04		0.02	

a Estimated daily-mean discharge, backwater from ice.
b Many days.
c Backwater from ice.
e Estimated.



05079250 COUNTY DITCH 65 NEAR MAPLE BAY, MN (SW2)—Continued

GLACIAL RIDGE HYDROLOGY

WATER-QUALITY RECORDS

PERIOD OF RECORD.--September 2002 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Time	Sample type	Instantaneous discharge, cfs (00061)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf lab, uS/cm 25 degC (90095)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)
NOV												
03...	1230	Environmental	.06	743	6.5	7.7	7.2	585	585	-4.5	2.2	81.1
DEC												
08...	1520	Environmental	.10	733	6.0	7.2	7.5	668	662	-4.0	.0	98.6
JAN												
20...	1150	Environmental	.06	739	5.3	8.3	7.6	543	544	-14.0	.0	79.0
MAR												
02...	1010	Environmental	.15	738	4.6	7.6	7.1	492	518	-1.0	.0	70.5
30...	1230	Environmental	32	744	9.2	7.4	7.5	250	252	2.0	.3	28.7
APR												
13...	1440	Environmental	2.3	735	10.1	8.2	7.9	431	497	9.5	5.7	65.0
MAY												
13...	0750	Environmental	41	737	9.1	8.0	7.7	421	420	-1.0	4.0	46.5
25...	0815	Environmental	27	727	6.7	7.6	7.4	440	456	5.5	8.9	55.6
JUL												
13...	0750	Environmental	17	732	4.5	7.7	7.8	392	418	17.5	19.8	47.9
AUG												
30...	1240	Environmental	.50	737	12.8	8.2	8.2	602	647	20.0	18.8	74.3

Date	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	Alkalinity, wat flt inc tit field, mg/L as CaCO3 (39086)	Bicarbonate, wat flt incrm. titr., field, mg/L (00453)	Chloride, water, fltrd, mg/L (00940)	Sulfate water, fltrd, mg/L (00945)	Ammonia + org-N, water, fltrd, mg/L as N (00623)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Orthophosphate, water, fltrd, mg/L as P (00671)
NOV													
03...	29.8	2.66	8.16	312	381	5.62	17.9	.51	.54	<.04	<.06	<.008	<.02
DEC													
08...	36.0	2.48	11.8	366	446	5.12	23.6	.51	.48	.06	<.06	E.007	<.02
JAN													
20...	28.8	2.22	8.90	298	364	3.61	11.6	.70	.88	.41	<.06	<.008	<.02
MAR													
02...	23.3	2.98	6.38	278	339	4.13	1.4	1.4	1.5	.87	E.04	E.006	E.01
30...	12.3	6.11	2.56	112	137	4.71	9.5	.87	1.2	.09	.67	.018	.04
APR													
13...	27.7	5.19	7.61	239	292	6.81	21.9	.73	.80	<.04	<.06	<.008	<.02
MAY													
13...	25.9	5.16	7.43	184	224	6.68	27.3	1.2	1.2	.06	.26	.018	<.02
25...	26.4	6.07	6.18	222	271	8.30	10.2	1.3	1.6	E.04	<.06	E.004	E.01
JUL													
13...	23.0	2.58	4.98	206	251	3.79	8.6	1.2	1.3	<.04	<.06	E.004	E.01
AUG													
30...	38.0	3.99	14.7	329	401	4.35	25.4	.66	.72	<.04	<.06	<.008	<.02

05079250 COUNTY DITCH 65 NEAR MAPLE BAY, MN (SW2)—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Phosphorus, water, fltrd, mg/L (00666)	Phosphorus, water, unfltrd mg/L (00665)	Suspended sediment concentration mg/L (80154)	2-[(2-Ethyl-6methyl phenyl) amino]2 oxoESA ug/L (62850)	CIAT, water, fltrd, ug/L (04040)	CEAT, water, fltrd, ug/L (04038)	Acetochlor ESA, water, fltrd 0.7u GF ug/L (61029)	Acetochlor OA, water, fltrd 0.7u GF ug/L (61030)	Acetochlor SAA, water, fltrd, ug/L (62847)	Acetochlor, water, fltrd, ug/L (49260)	Alachlor ESA SA, water, fltrd, ug/L (62849)	Alachlor ESA, water, fltrd 0.7u GF ug/L (50009)	Alachlor OA, water, fltrd 0.7u GF ug/L (61031)	Alachlor SAA, water, fltrd, ug/L (62848)
NOV														
03...	.009	.018	--	--	--	--	--	--	--	--	--	--	--	--
DEC														
08...	E.004	.013	--	--	--	--	--	--	--	--	--	--	--	--
JAN														
20...	.005	.035	--	--	--	--	--	--	--	--	--	--	--	--
MAR														
02...	.031	.117	--	--	--	--	--	--	--	--	--	--	--	--
30...	.076	.127	14	--	--	--	--	--	--	--	--	--	--	--
APR														
13...	.016	.020	52	--	--	--	--	--	--	--	--	--	--	--
MAY														
13...	.026	.052	14	--	--	--	--	--	--	--	--	--	--	--
25...	.034	.074	36	--	--	--	--	--	--	--	--	--	--	--
JUL														
13...	.041	.074	--	<.02	<.05	<.05	<.02	<.02	<.02	<.02	<.02	<.02	<.02	<.02
AUG														
30...	.008	.018	--	--	--	--	--	--	--	--	--	--	--	--

Date	Alachlor, water, fltrd, ug/L (46342)	Ametryn water, fltrd, ug/L (38401)	Atrazine, water, fltrd, ug/L (39632)	Cyanazine amide, water, fltrd, ug/L (61709)	Cyanazine, water, fltrd, ug/L (04041)	Dimethenamid ESA, water, fltrd, ug/L (61951)	Dimethenamid OA, water, fltrd, ug/L (62482)	Dimethenamid water, fltrd, ug/L (61588)	Flufenacet ESA, water, fltrd, ug/L (61952)	Flufenacet OA, water, fltrd, ug/L (62483)	Flufenacet, water, fltrd, ug/L (62481)	Metolachlor ESA, water, fltrd 0.7u GF ug/L (61043)	Metolachlor OA, water, fltrd 0.7u GF ug/L (61044)
JUL													
13...	<.02	<.05	<.05	<.05	<.05	<.02	<.02	<.02	<.02	<.02	<.02	<.02	<.02

Date	Metolachlor, water, fltrd, ug/L (39415)	Metribuzin, water, fltrd, ug/L (82630)	Pendimethalin, water, fltrd 0.7u GF ug/L (82683)	Prometon, water, fltrd, ug/L (04037)	Prometryn, water, fltrd, ug/L (04036)	Propachlor ESA, water, fltrd 0.7u GF ug/L (62766)	Propachlor OA, water, fltrd 0.7u GF ug/L (62767)	Propachlor, water, fltrd, ug/L (04024)	Propazine, water, fltrd, ug/L (38535)	Simazine, water, fltrd, ug/L (04035)	Terbutryn, water, fltrd, ug/L (38888)	Deuterium/Protium ratio, water, unfltrd per mil (82082)	O-18 / O-16 ratio, water, unfltrd per mil (82085)
JUL													
13...	<.02	<.05	<.05	<.05	<.05	<.05	<.02	<.02	<.05	<.05	<.05	-60.40	-7.57

05080000 RED LAKE RIVER AT FISHER, MN

LOCATION.--Lat 47°48'01", long 96°48'31", in SW¼NE¼ sec. 21, T.150 N., R.48 W., Polk County, Hydrologic Unit 09020303, on left bank 10 ft upstream from bridge on county highway, 0.3 mile west of Fisher and at river mile 27.6.

DRAINAGE AREA.--5,680 mi^2.

PERIOD OF RECORD.--Mar. to Sep. 1999 (gage heights and maximum discharge only), Oct. 1, 1999 to current year.

GAGE.--Water-stage recorder. Datum of gage is 800.00 ft above sea level (levels by Minnesota Department of Transportation).

REMARKS.-- Records good except those for estimated daily discharges, which are poor. Runoff from 1,950 mi^2 of Red Lake River basin above Lower Red Lake outlet is completely comtrolled by dam at outlet of Lower Red Lake. Flow partially affected by occasional runoff of Thief and Mud Lakes in Thief River basin.

EXTREMES OUTSIDE PERIOD OF RECORD.-- A stage of 41.00 ft occurred in spring of 1997 (from information provided by the National Weather Service).

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	149	174	e140	e170	e115	e125	6,890	1,040	10,800	1,300	460	494
2	147	175	e155	e170	e115	e125	6,220	1,030	9,760	1,290	460	460
3	150	e175	e165	e165	e110	e125	5,410	884	7,380	1,250	448	509
4	147	e165	e165	e160	e110	e120	4,310	892	5,610	1,290	424	512
5	153	e150	e165	e160	e110	e120	3,520	835	4,420	1,260	403	492
6	139	e140	e165	e160	e110	e125	2,820	694	3,710	1,300	410	533
7	130	e130	e165	e160	e110	e130	2,090	606	3,440	1,390	476	562
8	141	e130	e165	e165	e110	e135	1,800	509	3,270	1,440	425	737
9	119	e130	e165	e170	e110	e140	1,640	439	3,110	1,480	424	1,010
10	144	e145	e160	e175	e110	e140	1,690	447	2,940	1,440	450	1,080
11	142	e160	e155	e175	e115	e140	1,530	454	2,730	1,200	467	989
12	195	e190	e145	e175	e115	e145	1,420	1,480	2,620	1,220	516	949
13	153	e190	e145	e170	e115	e145	1,320	6,870	2,470	1,240	566	909
14	190	e150	e145	e170	e110	e155	1,220	9,410	2,330	1,310	544	886
15	191	e170	e145	e165	e110	e165	1,250	8,680	2,250	1,320	515	814
16	168	e175	e145	e165	e110	e175	1,280	6,760	2,200	1,190	516	769
17	140	e180	e150	e160	e110	e175	1,370	5,420	2,150	1,150	458	663
18	123	e190	e150	e150	e115	e175	1,480	4,730	2,080	997	441	789
19	134	e200	e150	e145	e115	e180	1,430	4,040	1,970	914	421	965
20	132	e210	e150	e145	e115	e180	1,360	3,890	1,920	903	387	1,070
21	164	e210	e155	e145	e115	e190	1,400	4,440	1,880	856	367	1,100
22	165	e175	e160	e140	e115	e210	1,300	4,140	1,840	744	361	1,320
23	161	e160	e165	e135	e115	e250	1,280	3,600	1,790	556	345	1,620
24	133	e155	e165	e135	e115	e350	1,230	3,250	1,730	643	353	1,840
25	131	e155	e170	e135	e120	e550	1,250	3,080	1,720	572	352	2,130
26	153	e150	e170	e135	e120	e1,150	1,250	3,000	1,650	572	653	2,240
27	159	e135	e170	e130	e120	e2,150	1,250	2,960	1,490	539	1,260	2,170
28	160	e135	e175	e125	e125	e5,200	1,200	2,950	1,250	534	1,090	1,870
29	139	e135	e175	e120	e125	e8,200	1,210	2,890	1,220	549	834	1,680
30	174	e140	e175	e115	---	e8,100	1,080	4,110	1,190	490	661	1,580
31	181	---	e170	e115	---	e7,800	---	8,510	---	466	570	---
TOTAL	4,707	4,879	4,940	4,705	3,310	37,070	62,500	102,040	92,920	31,405	16,057	32,742
MEAN	152	163	159	152	114	1,196	2,083	3,292	3,097	1,013	518	1,091
MAX	195	210	175	175	125	8,200	6,890	9,410	10,800	1,480	1,260	2,240
MIN	119	130	140	115	110	120	1,080	439	1,190	466	345	460
AC-FT	9,340	9,680	9,800	9,330	6,570	73,530	124,000	202,400	184,300	62,290	31,850	64,940
CFSM	0.03	0.03	0.03	0.03	0.02	0.21	0.37	0.58	0.55	0.18	0.09	0.19
IN.	0.03	0.03	0.03	0.03	0.02	0.24	0.41	0.67	0.61	0.21	0.11	0.21

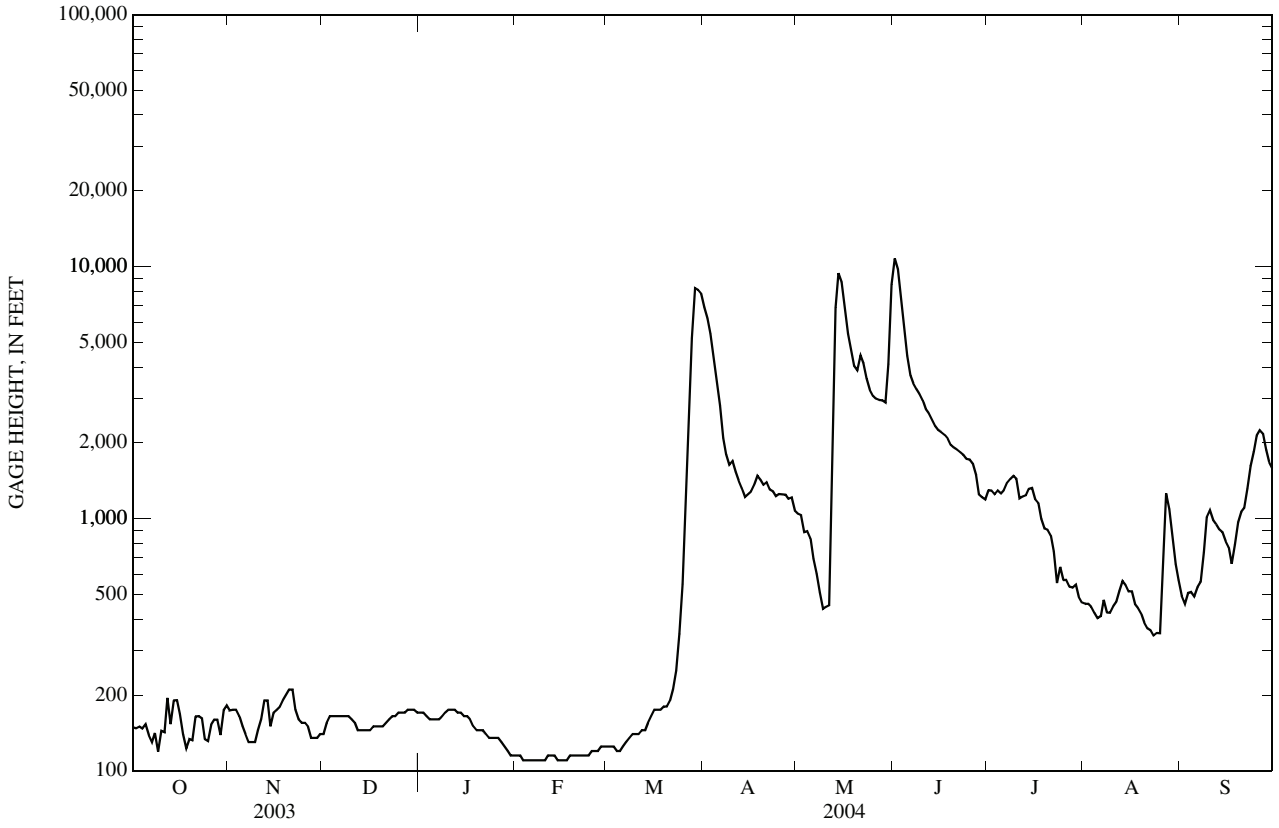
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2000 - 2004, BY WATER YEAR (WY)

MEAN	1,193	1,801	1,007	751	677	1,323	2,954	2,262	3,312	2,338	1,555	1,292
MAX	2,261	4,103	1,582	1,187	1,106	2,280	8,063	3,666	6,374	5,711	3,188	2,878
(WY)	(2000)	(2001)	(2002)	(2001)	(2001)	(2000)	(2001)	(2001)	(2002)	(2002)	(2001)	(2002)
MIN	152	163	159	152	114	917	594	750	1,398	674	208	164
(WY)	(2004)	(2004)	(2004)	(2004)	(2004)	(2002)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)

05080000 RED LAKE RIVER AT FISHER, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 2000 - 2004	
ANNUAL TOTAL	178,351		397,275			
ANNUAL MEAN	489		1,085		1,706	
HIGHEST ANNUAL MEAN					2,591	2001
LOWEST ANNUAL MEAN					672	2003
HIGHEST DAILY MEAN	4,060	Jun 27	10,800	Jun 1	22,200	Apr 10, 2001
LOWEST DAILY MEAN	101	Sep 9	a110	Feb 3	101	Sep 9, 2003
ANNUAL SEVEN-DAY MINIMUM	126	Sep 5	110	Feb 3	110	Feb 3, 2004
MAXIMUM PEAK FLOW			11,000	Jun 1	24,500	Apr 10, 2001
MAXIMUM PEAK STAGE			30.23	Jun 1	38.00	Apr 10, 2001
ANNUAL RUNOFF (AC-FT)	353,800		788,000		1,236,000	
ANNUAL RUNOFF (CFSM)	0.086		0.191		0.300	
ANNUAL RUNOFF (INCHES)	1.17		2.60		4.08	
10 PERCENT EXCEEDS	1,010		2,940		3,480	
50 PERCENT EXCEEDS	235		406		1,200	
90 PERCENT EXCEEDS	145		125		175	

a Also occurred Feb. 4-10, 14-17.
e Estimated.



05082500 RED RIVER OF THE NORTH AT GRAND FORKS, ND

LOCATION.--Lat 47°55'39", long 97°01'40", in sec.2, T.151 N., R.50 W., Polk County, MN, Hydrologic Unit 09020301, on right bank 30 ft downstream from the DeMers Avenue bridge, 0.4 mi downstream from Red Lake River, and at mile 297.6.

DRAINAGE AREA.--30,100 mi^2, approximately, including 3,800 mi^2 in closed basins.

PERIOD OF RECORD.--April 1882 to current year. Prior to January 1904 monthly discharge only, published in WSP 1308.

REVISED RECORDS.--WSP 855: 1936(M). WSP 1115: 1942. WSP 1175: 1897(M). WSP 1388: 1904, 1914-15, 1917-19, 1921-22, 1927, 1950. WSP 1728: Drainage area. WRD-ND-81-1: 1882, 1897 (M).

GAGE.--Acoustic doppler velocity meter and water stage recorder. Datum of gage is 779.00 ft above National Geodetic Vertical Datum of 1929. Oct. 1, 1983, to Sept. 30, 1986, datum of gage was 780.00 ft at same site. Apr. 14, 1965, to Sept. 30, 1983, water-stage recorder 1.9 mi downstream at a datum of 778.35 ft. Nov. 3, 1933, to Apr. 13, 1965, water-stage recorder 0.3 mi upstream at 778.35 ft datum. See WSP 1728 or 1913 for history of changes prior to Nov. 3, 1933.

REMARKS.--Records good except those for Nov. 27 to Jan. 17, which are fair and for estimated daily discharges, which are poor.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	536	653	494	e580	e430	e550	32,800	3,690	17,700	3,300	1,970	1,070
2	476	628	515	e590	e430	e557	31,100	3,440	21,200	3,320	1,730	1,020
3	429	676	526	e600	e440	e567	28,800	3,190	21,900	3,280	1,640	918
4	e405	665	502	e600	e450	e570	25,000	3,100	20,700	3,180	1,490	933
5	e385	637	617	e600	e455	e635	21,500	2,950	19,100	3,050	1,440	887
6	363	616	557	e590	e444	e700	16,700	2,830	17,600	3,100	1,340	1,040
7	376	615	519	e580	e444	e725	13,900	2,370	16,600	3,100	1,170	1,130
8	361	648	529	e570	e444	e760	11,700	2,240	15,400	3,160	1,180	3,500
9	373	646	e529	e560	e472	e800	10,300	2,090	14,700	3,540	1,430	4,760
10	405	563	e527	e550	e472	e830	9,820	2,000	13,200	3,410	e1,660	6,610
11	520	573	e524	e530	e472	e840	9,850	1,890	12,200	3,390	e1,670	6,290
12	566	648	e524	e520	e470	e850	9,860	2,670	11,000	e3,730	e1,660	5,430
13	640	673	506	e510	e455	e890	8,710	8,130	10,000	5,100	1,570	4,710
14	654	679	483	e500	e450	1,020	7,560	12,700	9,530	7,350	1,540	4,170
15	745	e687	459	e500	e455	e1,120	6,990	15,200	9,180	8,260	1,500	3,750
16	699	e695	e460	e500	e470	e1,240	6,830	14,700	8,840	8,250	1,480	3,290
17	593	702	462	e498	e470	e1,350	6,650	11,100	8,280	7,240	1,510	2,890
18	578	772	445	e498	e470	e1,480	6,640	9,650	7,740	6,210	1,170	2,600
19	535	791	428	e497	e470	e1,560	6,590	8,440	7,230	5,460	1,060	2,610
20	517	859	402	e497	e465	e1,710	6,490	7,670	6,870	4,830	1,050	2,700
21	541	977	434	e485	e460	e1,890	6,480	7,720	6,430	4,370	968	2,720
22	571	875	475	e477	e465	e2,240	6,450	7,740	6,150	3,910	957	2,800
23	625	e680	526	e493	e465	e2,650	6,450	6,990	5,680	3,490	873	3,170
24	653	429	532	e487	e481	e3,220	5,840	6,340	5,390	3,210	984	3,520
25	621	e530	524	e470	e499	e4,280	5,630	5,930	4,990	3,090	915	3,810
26	634	633	508	e460	e510	e7,680	5,280	5,520	4,730	2,850	1,410	4,660
27	606	646	516	e455	e523	15,400	4,860	5,450	4,440	2,680	1,660	5,620
28	603	611	e560	e450	e536	19,400	4,670	5,300	3,970	2,570	1,990	6,020
29	599	517	e580	e450	e543	29,100	4,570	5,150	3,670	2,420	1,870	5,690
30	593	460	e580	e445	---	31,200	4,050	5,840	3,460	2,210	1,450	5,960
31	579	---	e580	e435	---	32,900	---	12,100	---	2,130	1,390	---
TOTAL	16,781	19,784	15,823	15,977	13,610	168,714	332,070	194,130	317,880	125,190	43,727	104,278
MEAN	541	659	510	515	469	5,442	11,070	6,262	10,600	4,038	1,411	3,476
MAX	745	977	617	600	543	32,900	32,800	15,200	21,900	8,260	1,990	6,610
MIN	361	429	402	435	430	550	4,050	1,890	3,460	2,130	873	887
AC-FT	33,290	39,240	31,380	31,690	27,000	334,600	658,700	385,100	630,500	248,300	86,730	206,800

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1904 - 2004, BY WATER YEAR (WY)

MEAN	1,495	1,376	1,077	891	870	2,813	10,230	5,590	4,378	3,782	1,888	1,623
MAX	5,127	9,971	3,832	2,656	3,520	15,370	56,210	36,510	19,340	25,270	17,050	11,340
(WY)	(1995)	(2001)	(2001)	(2001)	(1998)	(1995)	(1997)	(1950)	(1962)	(1975)	(1993)	(1999)
MIN	12.1	30.5	17.8	18.8	2.87	42.1	954	373	151	88.8	30.6	20.3
(WY)	(1937)	(1937)	(1937)	(1937)	(1937)	(1937)	(1938)	(1934)	(1934)	(1936)	(1934)	(1936)

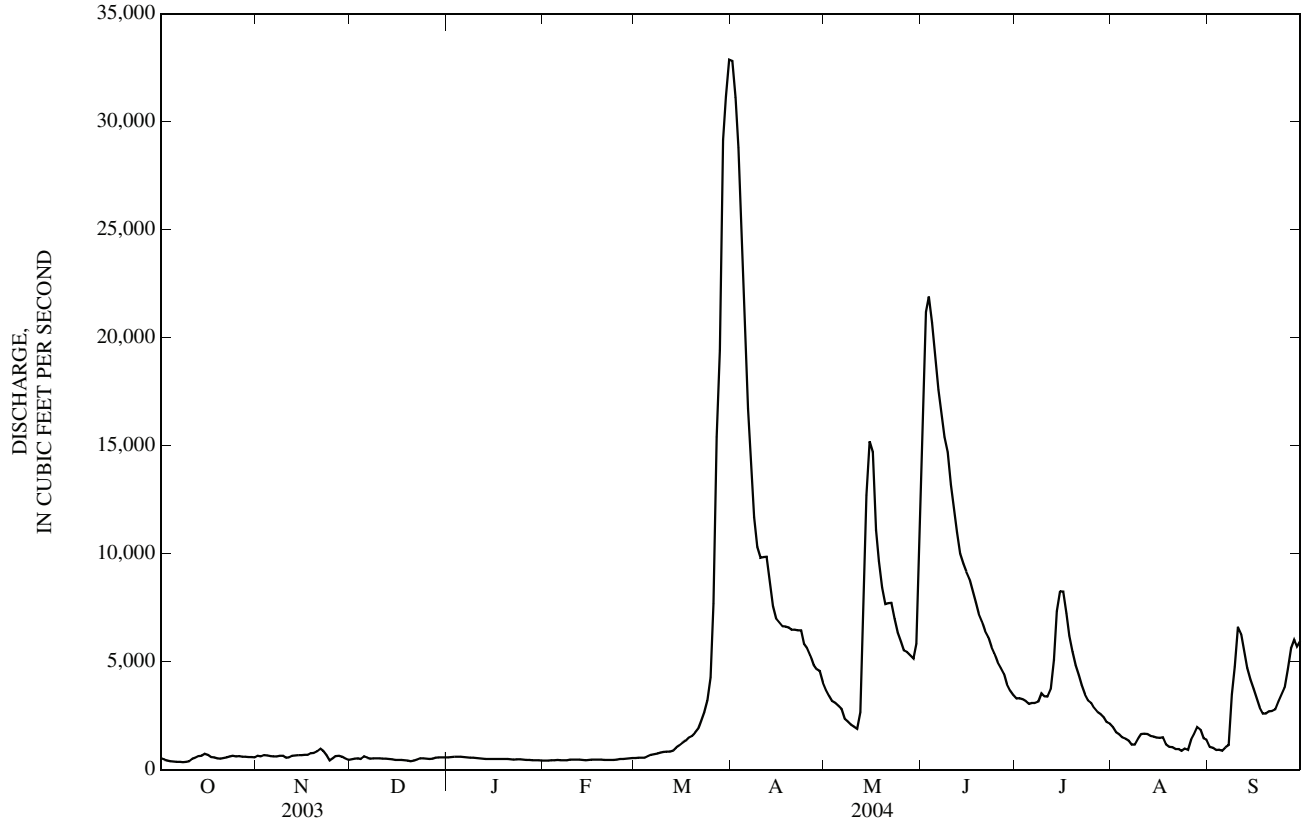
SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1904 - 2004	
ANNUAL TOTAL	816,997		1,367,964			
ANNUAL MEAN	2,238		3,738		2,986	
HIGHEST ANNUAL MEAN					10,070	1997
LOWEST ANNUAL MEAN					244	1934
HIGHEST DAILY MEAN	16,200	Jun 29	32,900	Mar 31	127,000	Apr 18, 1997
LOWEST DAILY MEAN	318	Sep 10	361	Oct 8	1.80	Sep 2, 1977
ANNUAL SEVEN-DAY MINIMUM	365	Sep 6	381	Oct 4	2.5	Feb 12, 1937
MAXIMUM PEAK FLOW			34,300	Apr 1	a137,000	Apr 18, 1997
MAXIMUM PEAK STAGE			38.34	Apr 1	b54.35	Apr 22, 1997
ANNUAL RUNOFF (AC-FT)	1,621,000		2,713,000		2,163,000	
10 PERCENT EXCEEDS	5,300		9,570		6,500	
50 PERCENT EXCEEDS	906		1,180		1,440	
90 PERCENT EXCEEDS	484		465		290	

05082500 RED RIVER OF THE NORTH AT GRAND FORKS, ND—Continued

a Maximum observed, affected by breakout from Red River of the North about 20 mi upstream of gage that entered Red Lake River about 2 mi upstream of confluence with the Red River of the North

b From floodmark

e Estimated



05087500 MIDDLE RIVER AT ARGYLE, MN

LOCATION.--Lat 48°20'25", long 96°48'58", in NE¼NW¼ sec. 15, T.156 N., R.48 W., Marshall County, Hydrologic Unit 09020309, on left bank 30 ft upstream of bridge on County Highway 4 in Argyle and 14 mi upstream from mouth.

DRAINAGE AREA.--255 mi^2.

PERIOD OF RECORD.--March to September 1945, November 1950 to September 1981, February 1982 to current year. Monthly discharge only for some periods, published in WSP 1728.

GAGE.--Water-stage recorder. Datum of gage is 828.53 ft above sea level (NGVD of 1929). Prior to Nov. 8, 1951, nonrecording gage and Nov. 8, 1951 to Sept. 18, 1952, water-stage recorder at site 800 ft downstream at datum 1.0 ft higher. Sept. 19, 1952 to June 28, 1982, recording gage at site 800 feet downstream at present datum. June 29, 1982 to Sept. 20, 1983, nonrecording gage at present site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of April 1950 reached a stage of 15.25 ft present datum, site then in use, from floodmarks, discharge, 2,790 ft^3/s.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.13	3.6	e2.5	e0.52	e0.50	e0.95	789	24	1,410	23	10	13
2	0.11	3.8	e2.4	e0.52	e0.52	e0.95	562	24	1,660	22	9.7	10
3	0.10	e4.1	e2.2	e0.53	e0.52	e0.96	447	20	1,260	21	9.6	7.0
4	0.14	e4.2	e2.2	e0.53	e0.53	e0.98	405	18	920	33	9.4	5.9
5	0.17	e4.2	e2.1	e0.53	e0.53	e1.0	384	16	665	51	9.0	6.4
6	0.20	e4.2	e2.1	e0.53	e0.56	e1.1	322	16	490	38	9.5	11
7	0.22	e4.1	e1.7	e0.53	e0.59	e1.1	271	14	393	30	12	17
8	0.25	e4.1	e1.4	e0.54	e0.61	e1.1	248	13	343	42	12	34
9	0.25	4.1	e1.1	e0.56	e0.62	e1.1	250	12	313	43	14	65
10	0.24	4.1	e0.82	e0.58	e0.63	e1.0	232	12	284	51	13	69
11	0.40	4.6	e0.80	e0.59	e0.64	e1.0	199	28	227	49	13	59
12	0.53	4.9	e0.77	e0.60	e0.63	e1.0	161	370	183	46	13	51
13	0.56	4.6	e0.74	e0.61	e0.62	e1.0	127	1,120	151	46	14	46
14	0.58	4.4	e0.74	e0.61	e0.63	e1.0	103	1,730	130	41	24	39
15	0.71	4.2	e0.74	e0.61	e0.66	e1.0	91	1,950	116	34	23	38
16	0.75	4.3	e0.74	e0.61	e0.70	e1.0	82	1,490	104	28	20	45
17	0.66	4.5	e0.72	e0.61	e0.74	e1.0	74	1,280	92	25	17	40
18	0.68	4.9	e0.71	e0.60	e0.82	e1.0	68	1,210	79	23	13	35
19	0.79	4.8	e0.71	e0.59	e0.90	e1.0	62	985	70	21	10	30
20	0.95	4.9	e0.71	e0.58	e0.96	e1.1	58	771	61	19	9.0	26
21	1.1	4.8	e0.71	e0.56	e1.0	e1.1	60	649	53	17	8.3	23
22	1.3	e4.7	e0.70	e0.53	e1.0	e1.1	65	556	46	16	7.2	24
23	1.7	e4.5	e0.70	e0.49	e1.0	e1.6	67	478	41	15	8.0	98
24	2.0	e4.2	e0.68	e0.47	e1.1	e2.8	63	389	38	14	10	150
25	2.0	e3.6	e0.65	e0.45	e1.1	e7.0	54	320	36	13	8.1	171
26	2.7	e3.3	e0.63	e0.44	e1.1	e14	45	297	33	12	7.5	182
27	3.4	e3.1	e0.62	e0.44	e1.1	e28	38	294	31	11	6.6	171
28	3.7	e3.1	e0.62	e0.44	e1.0	e350	33	279	29	12	6.4	142
29	3.4	e2.9	e0.60	e0.44	e1.0	e700	30	250	27	12	5.8	115
30	3.7	e2.7	e0.56	e0.45	---	e1,000	27	328	25	11	5.7	92
31	3.6	---	e0.54	e0.47	---	1,080	---	875	---	10	11	---
TOTAL	37.02	123.5	32.91	16.56	22.31	3,205.94	5,417	15,818	9,310	829	348.8	1,815.3
MEAN	1.19	4.12	1.06	0.53	0.77	103	181	510	310	26.7	11.3	60.5
MAX	3.7	4.9	2.5	0.61	1.1	1,080	789	1,950	1,660	51	24	182
MIN	0.10	2.7	0.54	0.44	0.50	0.95	27	12	25	10	5.7	5.9
AC-FT	73	245	65	33	44	6,360	10,740	31,380	18,470	1,640	692	3,600
CFSM	0.00	0.02	0.00	0.00	0.00	0.41	0.71	2.00	1.22	0.10	0.04	0.24
IN.	0.01	0.02	0.00	0.00	0.00	0.47	0.79	2.31	1.36	0.12	0.05	0.26

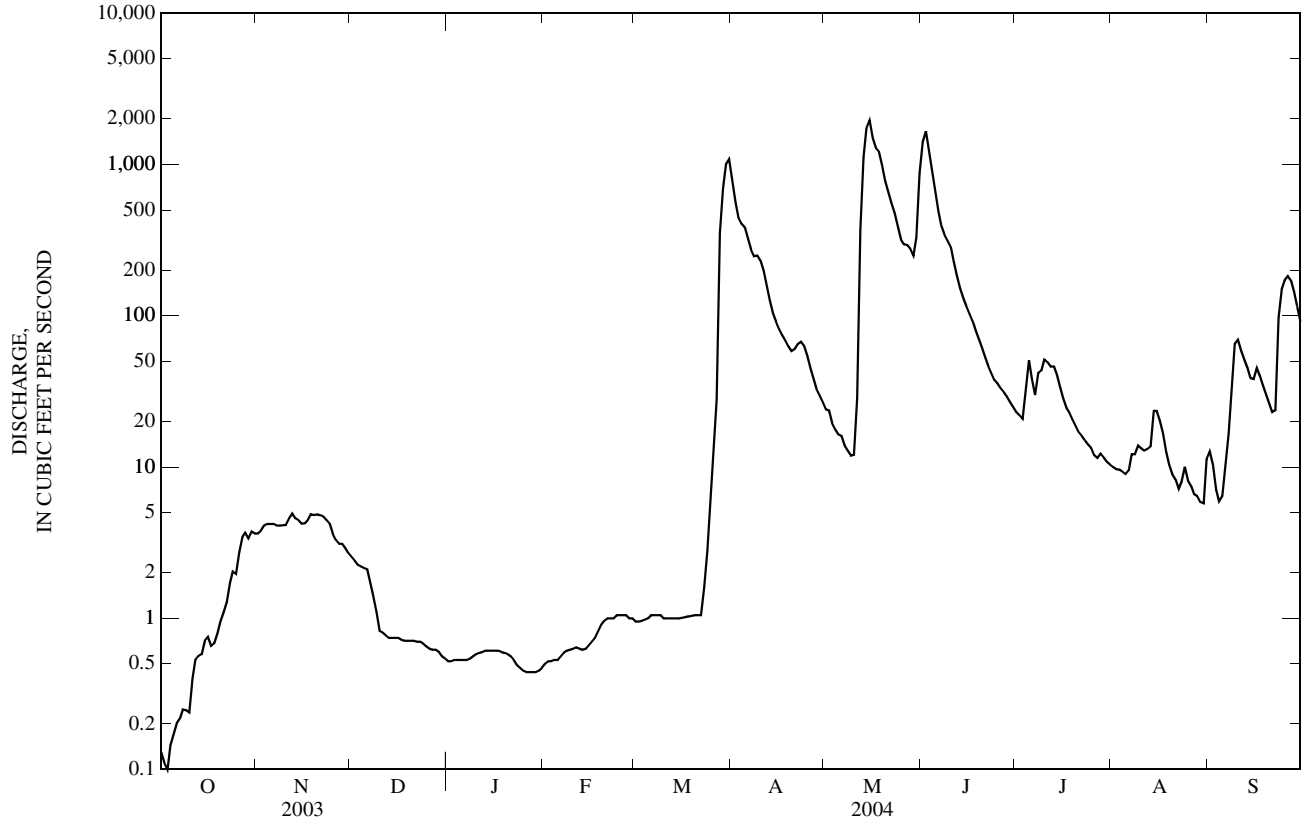
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1945 - 2004, BY WATER YEAR (WY)

MEAN	12.5	18.6	3.76	1.54	2.90	38.0	232	101	95.5	60.9	14.7	19.0
MAX	94.1	535	22.2	8.77	69.8	335	966	896	660	688	265	272
(WY)	(1983)	(2001)	(1995)	(1995)	(2000)	(1995)	(1997)	(1996)	(1970)	(1975)	(1993)	(1993)
MIN	0.00	0.00	0.00	0.00	0.00	0.00	0.20	2.12	0.37	0.00	0.00	0.00
(WY)	(1954)	(1954)	(1954)	(1953)	(1953)	(1954)	(1991)	(1981)	(1973)	(1961)	(1961)	(1952)

05087500 MIDDLE RIVER AT ARGYLE, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1945 - 2004	
ANNUAL TOTAL	7,089.07		36,976.34			
ANNUAL MEAN	19.4		101		a50.2	
HIGHEST ANNUAL MEAN					198	1999
LOWEST ANNUAL MEAN					1.60	1977
HIGHEST DAILY MEAN	320	Jun 15	1,950	May 15	4,800	May 19, 1996
LOWEST DAILY MEAN	0.05	Sep 9	0.10	Oct 3	b0.00	Aug 18, 1952
ANNUAL SEVEN-DAY MINIMUM	0.09	Sep 22	0.15	Oct 1	0.00	Aug 18, 1952
MAXIMUM PEAK FLOW			2,090	May 15	5,020	May 19, 1996
MAXIMUM PEAK STAGE			14.91	May 15	c18.27	May 19, 1996
ANNUAL RUNOFF (AC-FT)	14,060		73,340		36,390	
ANNUAL RUNOFF (CFSM)	0.076		0.396		0.197	
ANNUAL RUNOFF (INCHES)	1.03		5.39		2.68	
10 PERCENT EXCEEDS	55		295		102	
50 PERCENT EXCEEDS	2.9		7.0		3.0	
90 PERCENT EXCEEDS	0.25		0.55		0.00	

a Median of annual mean discharges is 41 ft^3/s.
b Many days, several years.
c From floodmark.
e Estimated.



05092000 RED RIVER OF THE NORTH AT DRAYTON, ND

LOCATION.--Lat 48°34'20", long 97°08'50", in SE¼SE¼SE¼ sec.24, T.159 N., R.51 W., Pembina County, Hydrologic Unit 09020311, on downstream side of bridge on North Dakota State Highway 66, at the North Dakota-Minnesota border, 1.5 mi northeast of Drayton, and at mile 206.7.

DRAINAGE AREA.--34,800 mi^2, approximately, includes 3,800 mi^2 in closed basins.

PERIOD OF RECORD.--April 1936 to June 1937, April 1941 to current year (fragmentary prior to April 1949).

REVISED RECORDS.--WSP 1388: 1949-50. WSP 1728: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 755.00 ft above National Geodetic Vertical Datum of 1929 (Minnesota highway bench mark). Prior to Nov. 30, 1954, nonrecording gage at site 1.5 mi upstream at datum 1.59 ft higher.

REMARKS.--Records good except for estimated daily discharges, which are poor.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of April 1897 reached a stage of about 41 ft at site and datum in use prior to Nov. 30, 1954.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	642	650	e540	e570	e450	e545	e35,000	4,980	12,700	3,890	2,640	2,270
2	612	623	e545	e590	e435	e550	37,000	4,620	17,400	3,750	2,550	2,070
3	575	636	e545	e600	e430	e560	36,900	4,310	21,200	3,680	2,450	1,850
4	571	638	e530	e605	e430	e575	36,100	4,050	22,900	3,710	2,300	1,680
5	533	628	e530	e620	e430	e585	35,000	3,830	23,300	3,700	2,120	1,580
6	511	578	e535	e620	e430	e600	33,700	3,680	22,900	3,650	2,020	1,680
7	496	553	e560	e610	e430	e620	32,100	3,550	21,900	3,630	2,000	2,070
8	495	e530	e570	e600	e435	e670	30,400	3,330	20,400	3,620	1,930	2,150
9	483	e550	e580	e590	e445	e735	28,400	3,130	18,700	3,690	1,920	2,860
10	460	e570	e580	e580	e450	e780	26,200	2,960	17,200	3,810	1,940	4,920
11	473	e580	e565	e560	e450	e800	23,800	2,820	16,300	3,890	2,060	6,320
12	506	e595	e560	e540	e450	e865	21,200	3,990	15,400	3,870	2,190	6,710
13	520	605	e550	e530	e460	e895	18,700	6,590	14,200	3,820	2,240	6,350
14	564	619	e545	e520	e470	e915	17,900	9,880	12,900	4,390	2,230	5,630
15	600	642	e540	e520	e470	e960	17,100	13,800	11,700	5,890	2,230	4,920
16	687	643	e520	e530	e480	e1,060	16,000	16,700	10,700	7,470	2,210	4,410
17	821	646	e500	e530	e480	e1,160	14,500	e17,000	9,940	8,060	2,160	4,030
18	788	698	e490	e530	e480	e1,260	12,900	e16,500	9,380	7,800	2,060	3,740
19	714	781	e490	e530	e480	e1,360	11,400	e15,000	8,930	7,070	1,990	3,480
20	605	871	e490	e530	e480	e1,460	9,960	e13,000	8,530	6,170	1,860	3,350
21	585	896	e490	e530	e480	e1,600	9,350	e11,500	8,290	5,360	1,750	3,310
22	556	e860	e490	e515	e480	e1,750	e8,900	e10,300	8,050	4,770	1,630	3,340
23	570	e750	e490	e515	e485	e1,930	e8,300	e9,500	7,460	4,300	1,580	3,360
24	569	e630	e505	e515	e490	e2,160	e7,800	e8,700	6,870	3,910	1,540	3,590
25	587	e530	e525	e515	e490	e2,550	e7,300	e7,900	6,270	3,650	1,520	3,910
26	631	e560	e535	e530	e495	e3,600	e6,800	e7,400	5,770	3,490	1,560	4,190
27	643	e600	e530	e530	e505	e4,650	e6,500	e6,900	5,300	3,340	1,660	4,700
28	651	e610	e530	e520	e520	e8,000	6,220	e6,500	4,930	3,220	1,980	5,390
29	671	e600	e530	e485	e530	e17,500	5,800	6,060	4,550	3,050	2,370	5,970
30	652	e540	e535	e450	---	e25,000	5,340	6,490	4,160	2,910	2,530	6,320
31	650	---	e550	e450	---	e31,000	---	8,780	---	2,760	2,440	---
TOTAL	18,421	19,212	16,475	16,860	13,540	116,695	566,570	243,750	378,230	136,320	63,660	116,150
MEAN	594	640	531	544	467	3,764	18,890	7,863	12,610	4,397	2,054	3,872
MAX	821	896	580	620	530	31,000	37,000	17,000	23,300	8,060	2,640	6,710
MIN	460	530	490	450	430	545	5,340	2,820	4,160	2,760	1,520	1,580
AC-FT	36,540	38,110	32,680	33,440	26,860	231,500	1,124,000	483,500	750,200	270,400	126,300	230,400

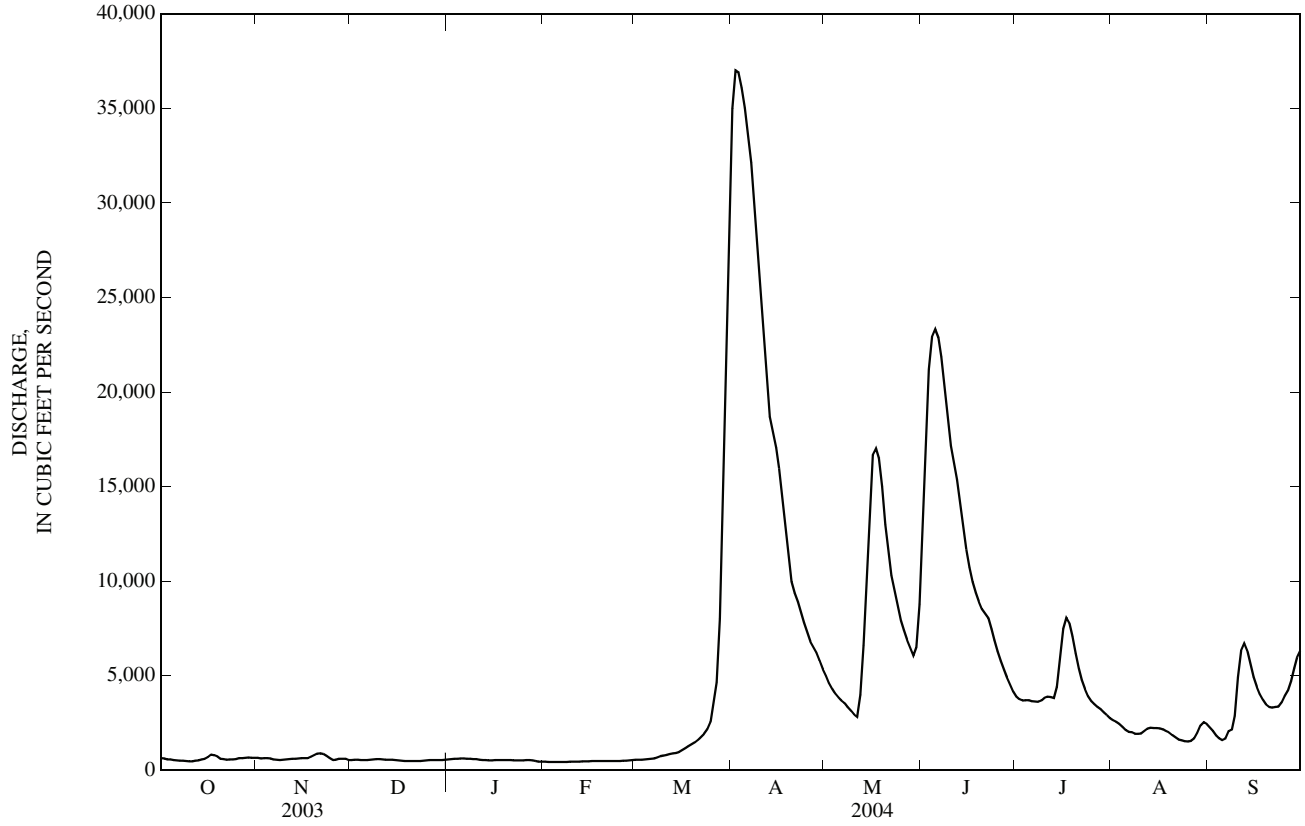
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1949 - 2004, BY WATER YEAR (WY)

MEAN	1,960	1,885	1,441	1,185	1,146	3,379	15,320	9,533	6,193	5,553	2,664	2,189
MAX	5,194	11,840	4,168	2,679	2,598	16,290	54,710	58,890	23,420	28,240	21,580	12,140
(WY)	(1995)	(2001)	(1999)	(2001)	(1998)	(1998)	(1997)	(1950)	(1962)	(1975)	(1993)	(1999)
MIN	317	277	149	174	201	280	1,275	938	676	348	243	329
(WY)	(1991)	(1977)	(1977)	(1990)	(1977)	(1962)	(1981)	(1977)	(1977)	(1988)	(1977)	(1988)

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1949 - 2004	
ANNUAL TOTAL	909,317		1,705,883			
ANNUAL MEAN	2,491		4,661		4,393	
HIGHEST ANNUAL MEAN					11,280	1997
LOWEST ANNUAL MEAN					536	1977
HIGHEST DAILY MEAN	15,300	Jul 2	37,000	Apr 2	124,000	Apr 24, 1997
LOWEST DAILY MEAN	351	Sep 14	430	Feb 3	110	Dec 23, 1989
ANNUAL SEVEN-DAY MINIMUM	399	Sep 10	431	Feb 2	118	Dec 28, 1989
MAXIMUM PEAK FLOW			a37,400	Apr 2	124,000	Apr 24, 1997
MAXIMUM PEAK STAGE			39.55	Apr 5	45.55	Apr 24, 1997
INSTANTANEOUS LOW FLOW					7.7	Oct 16, 1936
ANNUAL RUNOFF (AC-FT)	1,804,000		3,384,000		3,183,000	
10 PERCENT EXCEEDS	5,890		13,900		10,100	
50 PERCENT EXCEEDS	984		1,750		1,930	
90 PERCENT EXCEEDS	530		490		498	

05092000 RED RIVER OF THE NORTH AT DRAYTON, ND—Continued

a Gage height, 38.65 ft
e Estimated



05094000 SOUTH BRANCH TWO RIVERS AT LAKE BRONSON, MN

LOCATION.--Lat 48°43'50", long 96°39'50", in SW¼SW¼ sec. 30, T.161 N., R.46 W., Kittson County, Hydrologic Unit 09020312, on left bank 70 ft upstream from culvert on U.S. Highway 59 at Lake Bronson and 3.4 mi downstream from dam at outlet of Bronson Lake.

DRAINAGE AREA.--422 mi^2.

PERIOD OF RECORD.--September 1928 to November 1936, April to September 1937, April 1941 to October 1943, April to December 1944, April 1945 to September 1947, October 1953 to September 1981, April 1985 to current year. Monthly discharge only for some periods, published in WSP 1308. October 1981 to March 1985, annual maximums only. Published as South Fork Two Rivers at Bronson prior to 1941.

REVISED RECORDS.--WSP 1308: 1929(M), 1931(M), 1936(M), 1944(M), 1947(M).

GAGE.--Water-stage recorder. Datum of gage is 928.53 ft above sea level (NGVD of 1929, Minnesota Department of Transportation benchmark). Prior to Nov. 23, 1953, nonrecording gage at bridge 100 ft downstream at datum 2.00 ft higher. Nov 23, 1953 to Oct. 5, 1963, water-stage recorder at same site at datum 2.00 ft higher.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Flow partly regulated since 1937 at Bronson Lake; usable capacity, 3,700 acre-ft.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	6.3	4.9	e3.2	e3.4	e4.2	1,280	163	e2,480	238	20	30
2	9.7	6.3	4.7	e3.1	e3.5	e4.2	1,050	156	e2,060	268	21	18
3	10	6.4	4.7	e3.1	e3.8	e4.3	1,030	82	e1,640	267	21	18
4	6.0	7.2	4.5	e3.0	e4.2	e4.4	959	33	1,460	240	20	17
5	4.3	7.4	4.3	e3.0	e4.4	e4.5	870	34	1,230	203	19	19
6	4.8	6.9	4.2	e3.3	e4.5	e4.6	655	61	911	194	21	128
7	5.2	6.2	4.1	e3.6	e4.5	e4.6	625	90	888	209	29	126
8	4.5	5.9	4.0	e3.9	e4.5	e4.6	845	80	1,030	217	63	158
9	3.7	5.7	e3.8	e4.2	e4.5	e4.5	1,240	79	918	217	331	200
10	3.7	5.6	e3.7	e4.4	e4.4	e4.3	1,230	54	782	213	510	155
11	4.0	5.2	e3.6	e4.7	e4.4	e4.3	1,200	40	717	187	337	72
12	4.5	5.0	e3.7	e4.9	e4.4	e4.3	1,160	1,080	581	169	240	52
13	4.5	4.9	e3.8	e5.0	e4.2	e4.4	1,020	2,370	e525	138	224	52
14	4.1	4.7	e3.9	e5.0	e4.1	e4.5	830	2,870	e505	99	175	51
15	4.0	4.5	e4.0	e4.9	e4.1	e4.6	627	3,190	e510	109	88	51
16	4.0	4.5	e3.9	e4.8	e4.1	e4.7	640	3,510	e510	168	51	54
17	4.0	4.7	e3.8	e4.8	e4.2	e4.7	666	3,160	e515	176	35	57
18	4.0	5.0	e3.7	e4.8	e4.3	e4.8	632	2,590	e470	142	39	69
19	4.0	5.2	e3.6	e4.8	e4.4	e4.8	508	2,120	462	92	42	74
20	3.9	5.4	3.5	e4.7	e4.4	e4.9	395	1,870	369	53	41	77
21	3.9	6.4	3.4	e4.6	e4.4	e4.9	414	1,600	397	54	48	91
22	4.0	7.8	3.3	e4.4	e4.4	e5.0	435	1,380	535	50	51	109
23	4.0	8.2	3.1	e4.2	e4.4	e5.2	440	1,130	375	49	50	236
24	4.2	8.4	3.2	e4.2	e4.4	e7.2	280	846	266	51	36	68
25	4.2	8.6	3.2	e4.1	e4.4	e17	299	843	316	50	24	207
26	4.4	8.4	3.2	e4.0	e4.4	e160	316	831	358	49	21	272
27	5.6	6.7	3.3	e3.7	e4.4	e410	284	710	346	48	12	228
28	9.9	6.0	e3.3	e3.5	e4.3	e690	224	679	312	35	11	198
29	8.3	5.6	e3.3	e3.4	e4.3	e900	163	674	237	15	27	117
30	7.5	5.2	e3.2	e3.3	---	e1,060	164	1,140	212	16	80	56
31	6.7	---	e3.2	e3.3	---	1,150	---	2,520	---	18	56	---
TOTAL	175.6	184.3	116.1	125.9	123.7	4,499.5	20,481	35,985	21,917	4,034	2,743	3,060
MEAN	5.66	6.14	3.75	4.06	4.27	145	683	1,161	731	130	88.5	102
MAX	20	8.6	4.9	5.0	4.5	1,150	1,280	3,510	2,480	268	510	272
MIN	3.7	4.5	3.1	3.0	3.4	4.2	163	33	212	15	11	17
AC-FT	348	366	230	250	245	8,920	40,620	71,380	43,470	8,000	5,440	6,070
CFSM	0.01	0.01	0.01	0.01	0.01	0.34	1.62	2.75	1.73	0.31	0.21	0.24
IN.	0.02	0.02	0.01	0.01	0.01	0.40	1.81	3.17	1.93	0.36	0.24	0.27

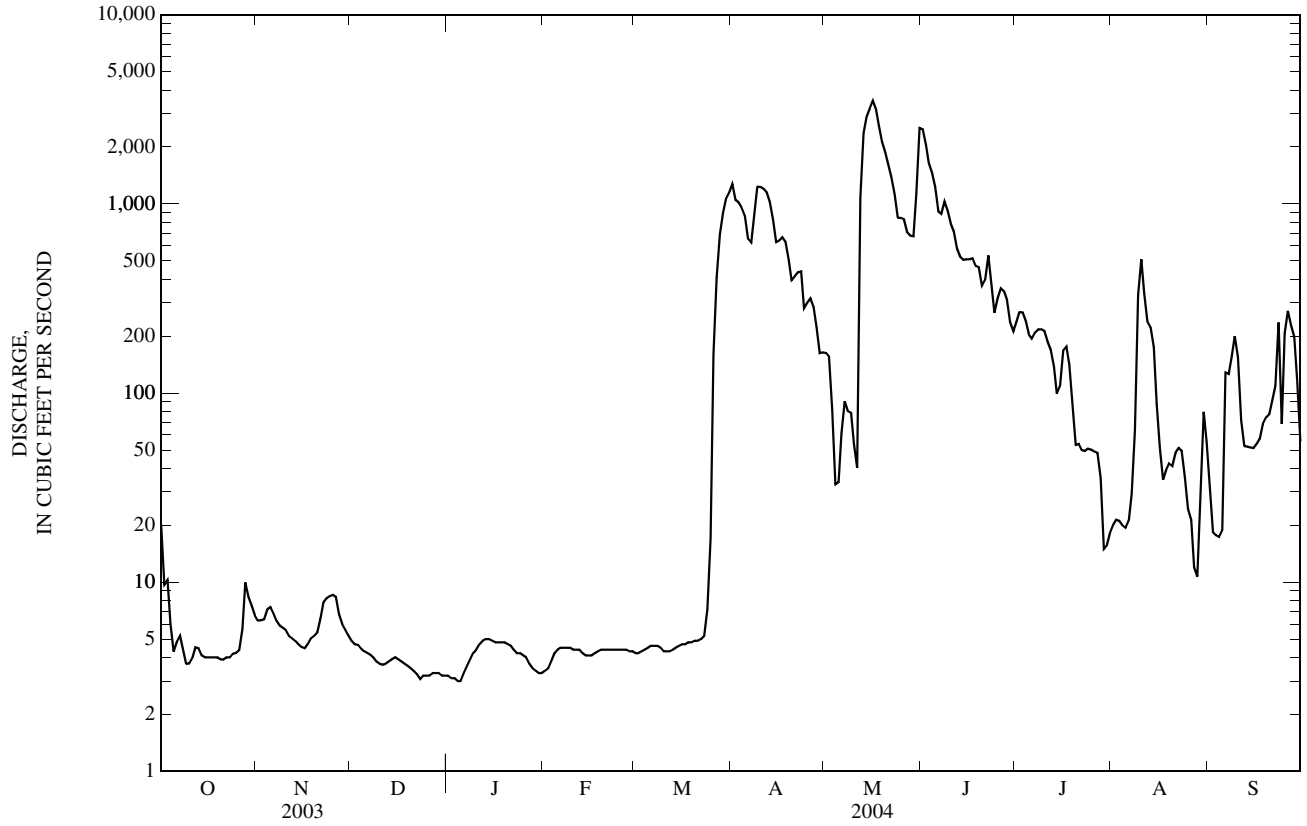
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 2004, BY WATER YEAR (WY)

MEAN	21.8	32.3	6.00	3.51	6.01	79.2	449	233	196	119	53.8	45.1
MAX	153	1,132	37.9	15.3	93.1	689	1,977	1,500	1,336	1,136	1,349	525
(WY)	(1958)	(2001)	(2001)	(2001)	(1998)	(1995)	(1966)	(1996)	(1970)	(1956)	(1993)	(1957)
MIN	0.40	0.38	0.13	0.12	0.12	0.66	0.54	0.98	1.43	0.44	0.09	0.00
(WY)	(1991)	(1990)	(1987)	(1987)	(1987)	(1934)	(1991)	(1991)	(1980)	(1988)	(1988)	(1937)

05094000 SOUTH BRANCH TWO RIVERS AT LAKE BRONSON, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1929 - 2004	
ANNUAL TOTAL	11,723.80		93,445.1			
ANNUAL MEAN	32.1		255		a105	
HIGHEST ANNUAL MEAN					314	2001
LOWEST ANNUAL MEAN					2.89	1934
HIGHEST DAILY MEAN	514	Jun 12	3,510	May 16	5,290	Apr 5, 1966
LOWEST DAILY MEAN	0.95	Mar 14	3.0	Jan 4,5	b0.00	Jul 25, 1937
ANNUAL SEVEN-DAY MINIMUM	0.96	Mar 11	3.1	Dec 30	0.00	Aug 2, 1937
MAXIMUM PEAK FLOW			3,610	May 16	5,410	Apr 5, 1966
MAXIMUM PEAK STAGE			12.95	May 16	18.23	Apr 5, 1966
ANNUAL RUNOFF (AC-FT)	23,250		185,300		75,960	
ANNUAL RUNOFF (CFSM)	0.076		0.605		0.248	
ANNUAL RUNOFF (INCHES)	1.03		8.24		3.38	
10 PERCENT EXCEEDS	86		853		249	
50 PERCENT EXCEEDS	6.1		18		5.4	
90 PERCENT EXCEEDS	1.8		3.8		0.90	

a Median of annual mean discharges is 67 ft^3/s.
b Many days, several years.
e Estimated.



05104500 ROSEAU RIVER BELOW SOUTH FORK NEAR MALUNG, MN

LOCATION.--Lat 48°47'30", long 95°44'40", in NW¼SW¼ sec. 6, T.161 N., R.39 W., Roseau County, Hydrologic Unit 09020314, on left bank 0.3 mi downstream from South Fork and 1.5 mi northwest of Malung.

DRAINAGE AREA.--430 mi^2.

PERIOD OF RECORD.--October 1946 to current year.

REVISED RECORDS.--WSP 2113: 1948, 1950, 1951, 1956(M), 1957(M), 1962(M). WRIR 97-4249: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,029.67 ft above sea level (NGVD of 1912).

REMARKS.--Records good except those for estimated daily discharges, which are poor. Some flow bypasses the gaging station through a natural overflow channel 0.8 mi. upstream and returns to river 0.5 mi downstream. Overflow begins at stage of about 13.0 ft, discharge, 1,800 ft^3/s. These records include any flow in the overflow channel.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29	32	e21	e12	e8.1	8.0	e1,400	216	2,030	52	24	95
2	27	35	e20	e12	e8.0	8.1	e1,200	197	1,820	46	22	92
3	32	31	e19	e12	e7.9	8.2	e1,050	184	1,350	47	19	91
4	30	36	e18	12	e7.8	8.2	914	172	1,000	82	17	88
5	26	34	e17	12	e7.8	8.2	882	162	785	144	15	88
6	24	e28	e17	12	e7.7	8.4	863	155	646	160	14	89
7	21	e26	e16	11	e7.7	8.2	1,280	144	919	162	53	128
8	18	e24	e16	11	e7.7	8.3	2,370	137	938	175	131	219
9	16	e23	e15	10	e7.6	8.4	2,230	129	718	179	306	278
10	16	e22	e14	10	e7.6	8.6	1,650	121	578	165	374	294
11	18	e22	e14	11	7.5	e8.6	1,200	132	457	145	420	272
12	20	e23	e13	11	7.5	e8.7	895	2,150	387	119	423	240
13	22	e23	e13	11	e7.4	e8.8	704	6,220	339	99	396	209
14	24	e24	e13	11	e7.4	8.9	600	6,230	294	81	350	179
15	19	e26	e13	11	e7.4	e9.0	529	4,510	255	67	291	159
16	19	e28	e13	10	e7.3	e9.3	492	3,530	233	56	230	148
17	19	32	e12	10	e7.3	9.4	464	2,800	205	53	188	152
18	18	39	e12	10	e7.3	9.5	441	2,140	195	51	156	163
19	18	50	e12	9.7	e7.3	9.6	431	1,640	184	50	125	168
20	19	73	e12	9.3	7.2	e9.7	416	1,480	167	48	105	165
21	23	89	e12	9.2	7.3	e9.8	412	1,270	156	49	92	194
22	23	81	e12	9.2	7.3	e9.8	409	1,030	130	49	80	365
23	21	65	e12	9.2	7.4	e9.9	395	833	113	46	71	480
24	17	50	e12	9.2	7.4	10	373	685	103	44	64	549
25	15	e41	e12	8.9	7.4	11	348	624	94	39	59	602
26	15	e34	12	8.8	7.4	12	326	610	88	37	59	628
27	15	e30	e12	8.8	7.4	e15	301	602	83	33	60	608
28	17	e26	e12	8.8	7.5	e210	273	564	77	32	66	544
29	19	e24	e12	8.6	7.7	e1,850	248	502	69	29	84	462
30	22	e22	e12	8.2	---	e1,750	240	870	61	26	97	391
31	27	---	e12	e8.2	---	e1,560	---	1,780	---	26	100	---
TOTAL	649	1,093	432	315.1	218.3	5,621.6	23,336	41,819	14,474	2,391	4,491	8,140
MEAN	20.9	36.4	13.9	10.2	7.53	181	778	1,349	482	77.1	145	271
MAX	32	89	21	12	8.1	1,850	2,370	6,230	2,030	179	423	628
MIN	15	22	12	8.2	7.2	8.0	240	121	61	26	14	88
AC-FT	1,290	2,170	857	625	433	11,150	46,290	82,950	28,710	4,740	8,910	16,150
CFSM	0.05	0.08	0.03	0.02	0.02	0.42	1.81	3.14	1.12	0.18	0.34	0.63
IN.	0.06	0.09	0.04	0.03	0.02	0.49	2.02	3.62	1.25	0.21	0.39	0.70

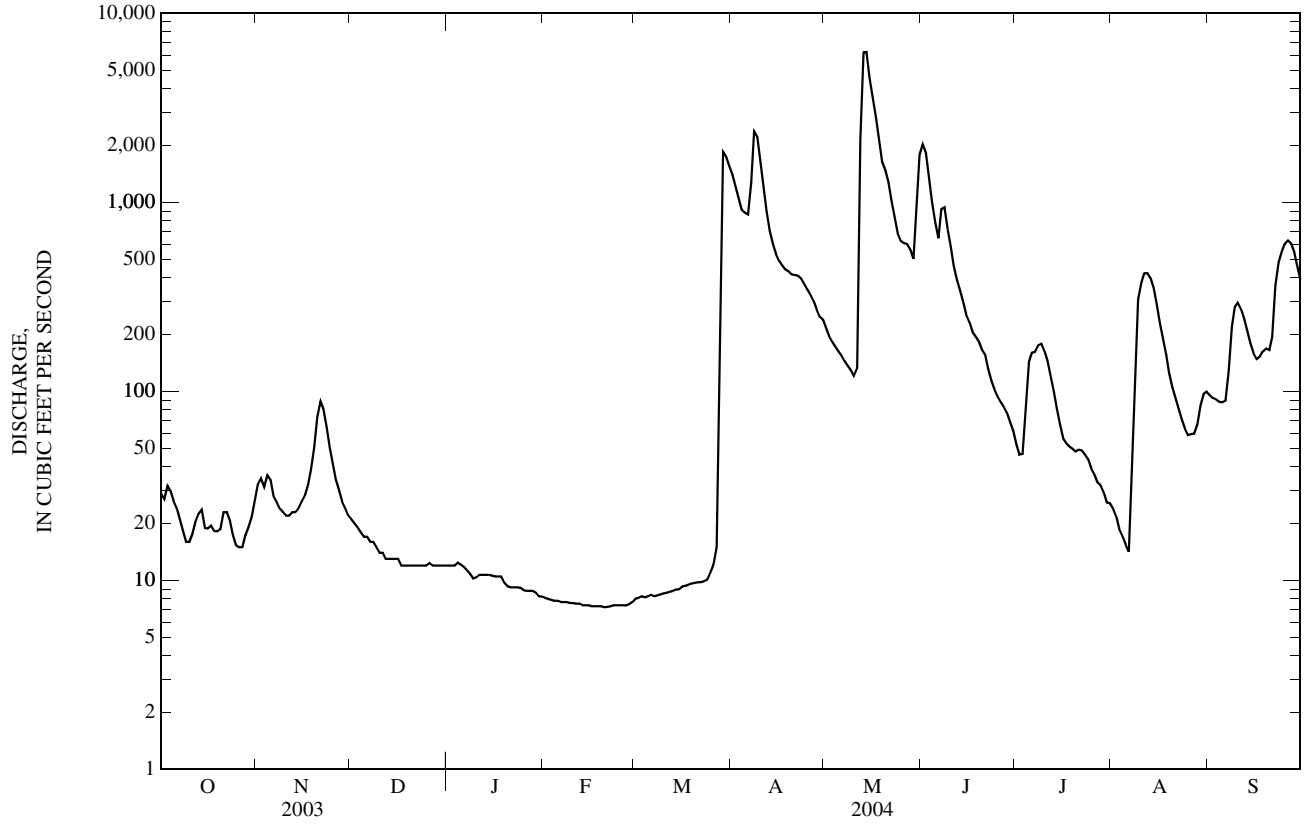
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1947 - 2004, BY WATER YEAR (WY)

MEAN	64.4	63.6	17.3	7.99	8.65	68.5	604	345	279	157	74.6	83.3
MAX	351	848	65.6	22.2	102	524	2,035	1,589	2,787	1,152	896	710
(WY)	(1983)	(2001)	(1995)	(1997)	(1998)	(1995)	(1966)	(1950)	(2002)	(1968)	(2001)	(1957)
MIN	0.03	0.16	0.01	0.00	0.00	0.83	5.60	8.77	4.17	0.09	0.00	0.02
(WY)	(1991)	(1991)	(1977)	(1977)	(1977)	(1977)	(1991)	(1990)	(1980)	(1980)	(1961)	(1988)

05104500 ROSEAU RIVER BELOW SOUTH FORK NEAR MALUNG, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1947 - 2004	
ANNUAL TOTAL	16,489.24		102,980.0			
ANNUAL MEAN	45.2		281		a148	
HIGHEST ANNUAL MEAN					355	2001
LOWEST ANNUAL MEAN					7.28	1990
HIGHEST DAILY MEAN	325	Jun 15	6,230	May 14	15,800	Jun 12, 2002
LOWEST DAILY MEAN	0.00	Aug 23	7.2	Feb 20	b0.00	Jul 23, 1961
ANNUAL SEVEN-DAY MINIMUM	0.02	Aug 20	7.3	Feb 16	0.00	Jul 23, 1961
MAXIMUM PEAK FLOW			7,280	May 13	16,000	Jun 12, 2002
MAXIMUM PEAK STAGE			22.43	May 13	26.96	Jun 12, 2002
INSTANTANEOUS LOW FLOW			7.2	Feb 19	b0.00	Jul 23, 1961
ANNUAL RUNOFF (AC-FT)	32,710		204,300		106,900	
ANNUAL RUNOFF (CFSM)	0.105		0.654		0.343	
ANNUAL RUNOFF (INCHES)	1.43		8.91		4.66	
10 PERCENT EXCEEDS	119		738		339	
50 PERCENT EXCEEDS	19		38		20	
90 PERCENT EXCEEDS	3.9		8.2		2.0	

a Median of annual mean discharges is 130 ft^3/s.
b Many days, several years.
e Estimated.



05106000 SPRAGUE CREEK NEAR SPRAGUE, MANITOBA

LOCATION.--Lat 48°59'33", long 95°39'43", in NE¼NE1/4sec. 34, T.164 N., R.39 W., Roseau County, Hydrologic Unit 09020314, on left bank 0.5 mi south of international boundary, 3.5 mi south of Sprague, Manitoba, 8 mi upstream from mouth, and 10.5 mi northeast of Roseau, MN.

DRAINAGE AREA.--176 mi^2.

PERIOD OF RECORD.--September 1928 to December 1981, October, 1999 to current year.

REVISED RECORDS.--WSP 1055: 1944. WSP 1308: 1931(M). WDR MN-81-1: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,038.40 ft above sea level, 1928 datum, (levels by Geodetic Survey of Canada). Prior to Mar. 15, 1929, nonrecording gage at same site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	102	58	e6.6	e4.5	e3.7	e3.4	e213	201	1,140	95	18	152
2	95	52	6.3	e4.5	3.7	e3.4	e280	183	1,010	86	16	133
3	89	e47	6.0	e4.4	3.7	e3.4	e320	172	786	94	14	116
4	80	40	e5.8	e4.4	3.6	e3.4	375	170	610	98	13	107
5	71	34	e5.6	e4.3	3.6	3.5	395	164	517	92	13	103
6	65	e31	e5.5	4.3	3.6	e3.5	425	197	470	86	11	127
7	58	e29	e5.3	e4.3	3.5	e3.5	543	185	661	78	34	162
8	53	e27	e5.2	e4.2	3.5	e3.6	653	172	862	68	86	149
9	53	25	e5.1	4.2	3.6	e3.6	579	165	646	68	120	131
10	48	24	e5.0	e4.2	3.6	3.7	442	156	512	73	142	114
11	58	25	e4.9	e4.2	3.6	e3.7	375	179	433	104	164	102
12	94	23	e4.9	e4.2	e3.6	3.8	314	1,190	399	95	152	93
13	93	22	e4.8	e4.1	e3.6	e3.8	287	1,990	363	77	134	85
14	91	e21	e4.7	e4.1	3.6	e3.8	269	1,530	326	65	116	108
15	80	21	e4.6	e4.1	3.6	e3.8	258	1,240	297	57	100	108
16	66	20	e4.6	e4.1	3.6	e3.8	285	1,080	274	52	88	104
17	56	23	e4.5	e4.0	e3.6	3.9	300	977	256	47	73	103
18	53	41	e4.5	e4.0	e3.6	e3.9	311	829	243	41	67	97
19	49	49	e4.6	e4.0	e3.6	e4.0	336	685	223	37	86	90
20	47	43	e4.7	e4.0	3.6	4.1	338	821	204	33	69	103
21	46	33	e4.8	e3.9	3.5	e4.1	347	789	187	35	59	273
22	44	25	e4.8	e3.9	3.5	e4.1	348	681	173	31	53	245
23	42	18	e4.8	e3.9	3.5	4.1	325	566	159	28	50	206
24	39	15	e4.8	e3.8	3.5	4.0	304	463	148	25	48	316
25	40	13	e4.8	e3.8	3.5	e4.8	285	469	146	22	56	325
26	38	11	e4.7	e3.8	3.5	e7.0	272	502	142	19	81	282
27	36	9.3	e4.7	e3.8	3.4	e25	254	509	131	18	126	256
28	46	e8.3	e4.7	e3.8	e3.4	e76	244	474	122	18	112	218
29	57	e7.7	e4.6	e3.7	e3.4	e180	232	434	113	18	103	184
30	58	e7.1	e4.6	e3.7	---	e130	215	620	104	17	169	162
31	63	---	e4.6	e3.7	---	e150	---	1,110	---	17	171	---
TOTAL	1,910	802.4	155.1	125.9	103.3	662.7	10,124	18,903	11,657	1,694	2,544	4,754
MEAN	61.6	26.7	5.00	4.06	3.56	21.4	337	610	389	54.6	82.1	158
MAX	102	58	6.6	4.5	3.7	180	653	1,990	1,140	104	171	325
MIN	36	7.1	4.5	3.7	3.4	3.4	213	156	104	17	11	85
AC-FT	3,790	1,590	308	250	205	1,310	20,080	37,490	23,120	3,360	5,050	9,430
CFSM	0.35	0.15	0.03	0.02	0.02	0.12	1.92	3.46	2.21	0.31	0.47	0.90
IN.	0.40	0.17	0.03	0.03	0.02	0.14	2.14	4.00	2.46	0.36	0.54	1.00

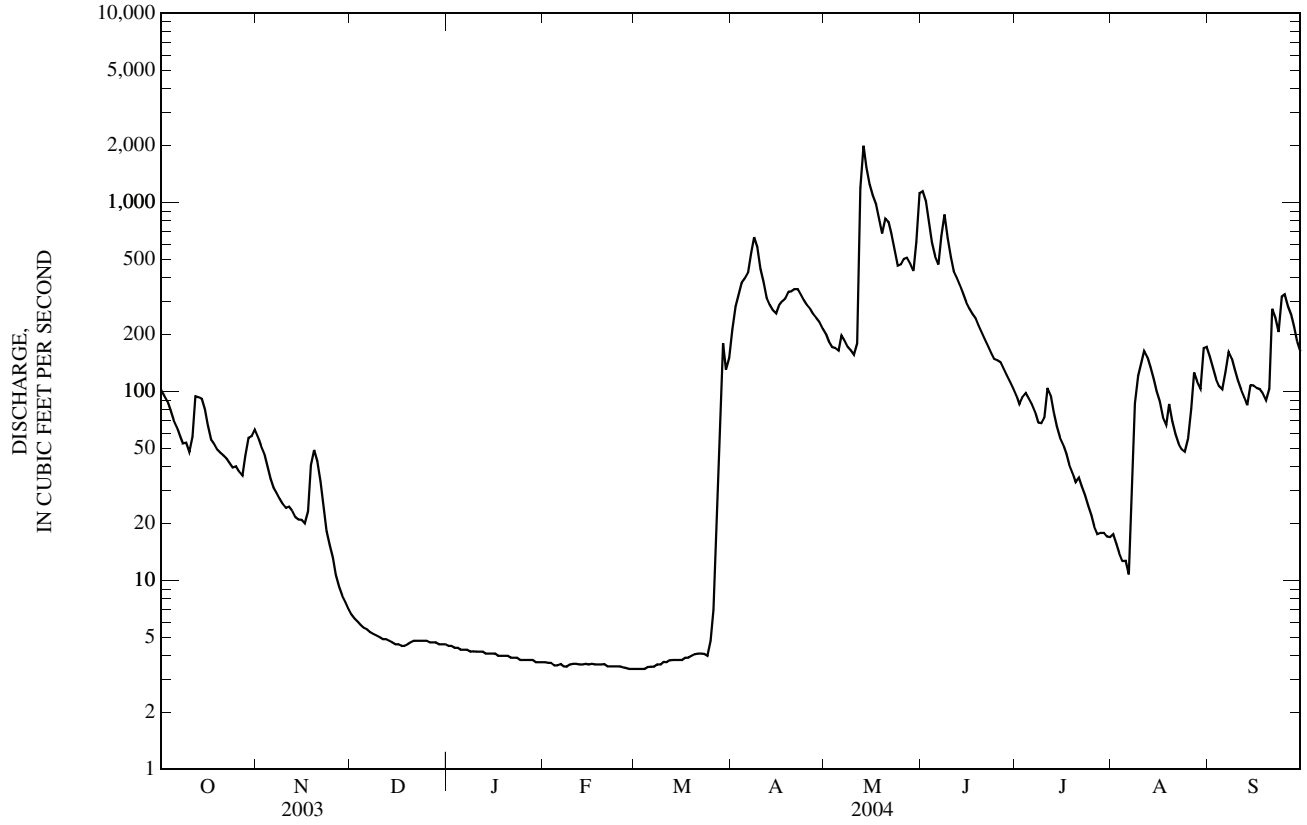
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 2004, BY WATER YEAR (WY)

MEAN	34.5	30.1	5.62	2.25	1.88	17.0	175	169	131	51.3	27.3	44.4
MAX	259	460	30.1	10.3	7.32	193	633	709	1,238	315	160	419
(WY)	(1942)	(2001)	(2001)	(1966)	(2000)	(1945)	(1966)	(1950)	(2002)	(1937)	(1968)	(1941)
MIN	0.95	1.10	0.20	0.23	0.13	0.53	7.16	2.21	0.11	0.03	0.09	0.39
(WY)	(1953)	(1977)	(1977)	(1977)	(1977)	(1964)	(1981)	(1980)	(1980)	(1980)	(1961)	(1934)

05106000 SPRAGUE CREEK NEAR SPRAGUE, MANITOBA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1929 - 2004	
ANNUAL TOTAL	16,888.4		53,435.4			
ANNUAL MEAN	46.3		146		62.0	
HIGHEST ANNUAL MEAN					150	2002
LOWEST ANNUAL MEAN					4.07	1980
HIGHEST DAILY MEAN	366	May 19	1,990	May 13	8,070	Jun 11, 2002
LOWEST DAILY MEAN	1.8	Jan 22	3.4	Feb 27 - Mar 4	a0.00	Apr 1, 1930
ANNUAL SEVEN-DAY MINIMUM	1.9	Jan 20	3.4	Feb 27	0.00	Aug 7, 1936
MAXIMUM PEAK FLOW			2,160	May 13	b8,440	Jun 11, 2002
MAXIMUM PEAK STAGE			14.25	May 13	17.08	Jun 11, 2002
INSTANTANEOUS LOW FLOW			3.4	Feb 7		
ANNUAL RUNOFF (AC-FT)	33,500		106,000		44,950	
ANNUAL RUNOFF (CFSM)	0.263		0.830		0.352	
ANNUAL RUNOFF (INCHES)	3.57		11.29		4.79	
10 PERCENT EXCEEDS	110		407		171	
50 PERCENT EXCEEDS	34		52		9.5	
90 PERCENT EXCEEDS	2.2		3.7		1.1	

a Many days, several years.
b From rating curve extended above 2,560 ft^3/s.
e Estimated.



05107500 ROSEAU RIVER AT ROSS, MN

LOCATION.--Lat 48°54'37", long 95°55'18", in NE¼SE¼ sec. 27, T. 163 N., R. 41 W., Roseau County, Hydrologic Unit 09020314, on left bank 300 ft downstream from State Highway 89 bridge, 0.2 mi. north of Ross, and 2.3 mi downstream from Pine Creek.

DRAINAGE AREA.--1,090 mi^2.

PERIOD OF RECORD.--July 1928 to September 1991, April 1995 to current year.

REVISED RECORDS.--WSP 1055: 1945. WSP 1175: Drainage area. WSP 1308: 1936(m). WSP 1508: 1848-49(P).

GAGE.--Water-stage recorder. Datum of gage is 1,018.61 ft above sea level (NGVD of 1929, levels by Geodetic Survey of Canada). Prior to Mar. 13, 1929, nonrecording gage at same site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. High flow affected by natural storage in Roseau Lake.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known, about 19 ft in 1896. Other floods reached the following stages, from information by local residents: flood of July 1919, 17.5 ft; flood of 1927, about 16 ft.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	330	178	e55	e29	e20	e20	e1,110	1,480	3,470	1,280	63	373
2	286	174	e53	e29	e20	e20	e1,550	1,400	3,530	1,190	58	349
3	250	165	e50	e28	e20	e20	e1,750	1,330	3,570	1,120	52	313
4	227	e156	e48	e28	e20	e20	e1,900	1,260	3,520	1,040	45	285
5	207	e147	e47	e27	e19	e20	e2,000	1,200	3,440	982	40	268
6	189	e128	e45	e26	e19	e20	2,110	1,150	3,330	928	38	281
7	174	e117	e44	e26	e19	e20	2,160	1,100	3,380	864	230	360
8	159	e108	e43	e25	e19	e20	2,260	1,050	3,320	806	642	443
9	146	e100	e42	e25	e19	e20	2,370	998	3,390	763	796	497
10	134	e92	e41	e25	e19	e21	2,460	945	3,330	718	870	506
11	131	e87	e39	e25	e19	e21	2,500	947	3,230	673	882	497
12	178	e86	e38	e24	e19	e21	2,490	1,390	2,960	626	866	467
13	207	e87	e37	e24	e19	e21	2,480	1,690	2,820	566	847	422
14	204	e91	e36	e24	e19	e21	2,450	2,000	2,760	502	834	412
15	196	e94	e36	e24	e19	e22	2,410	2,410	2,660	441	800	400
16	190	e99	e35	e23	e19	e22	2,340	2,900	2,570	387	756	371
17	177	e105	e34	e23	e19	e22	2,310	3,460	2,480	322	705	346
18	164	e115	e34	e23	e18	e22	2,270	3,810	2,390	245	654	337
19	156	e145	e33	e23	e18	e23	2,200	4,050	2,310	183	607	330
20	147	e185	e33	e22	e19	e23	2,160	4,180	2,230	144	553	326
21	142	e190	e33	e22	e19	e23	2,110	4,280	2,170	132	491	473
22	136	e180	e33	e22	e20	e23	2,060	4,230	2,080	134	432	618
23	132	e140	e32	e22	e20	e24	2,010	4,140	2,000	120	377	687
24	123	e115	e32	e22	e20	e24	1,940	3,940	1,910	108	328	791
25	119	e95	e32	e22	e20	e25	1,880	3,750	1,830	97	281	886
26	115	e84	e32	e21	e20	e28	1,830	3,640	1,740	84	266	902
27	114	e73	e32	e21	e20	e50	1,760	3,530	1,650	73	302	902
28	120	e66	e32	e21	e20	e90	1,690	3,370	1,550	65	306	895
29	144	e62	e31	e21	e20	e180	1,620	3,260	1,460	63	286	887
30	166	e58	e30	e21	---	e650	1,540	3,290	1,370	61	315	869
31	174	---	e30	e21	---	e900	---	3,410	---	61	372	---
TOTAL	5,337	3,522	1,172	739	561	2,436	61,720	79,590	78,450	14,778	14,094	15,493
MEAN	172	117	37.8	23.8	19.3	78.6	2,057	2,567	2,615	477	455	516
MAX	330	190	55	29	20	900	2,500	4,280	3,570	1,280	882	902
MIN	114	58	30	21	18	20	1,110	945	1,370	61	38	268
AC-FT	10,590	6,990	2,320	1,470	1,110	4,830	122,400	157,900	155,600	29,310	27,960	30,730
CFSM	0.16	0.11	0.03	0.02	0.02	0.07	1.89	2.36	2.40	0.44	0.42	0.47
IN.	0.18	0.12	0.04	0.03	0.02	0.08	2.11	2.72	2.68	0.50	0.48	0.53

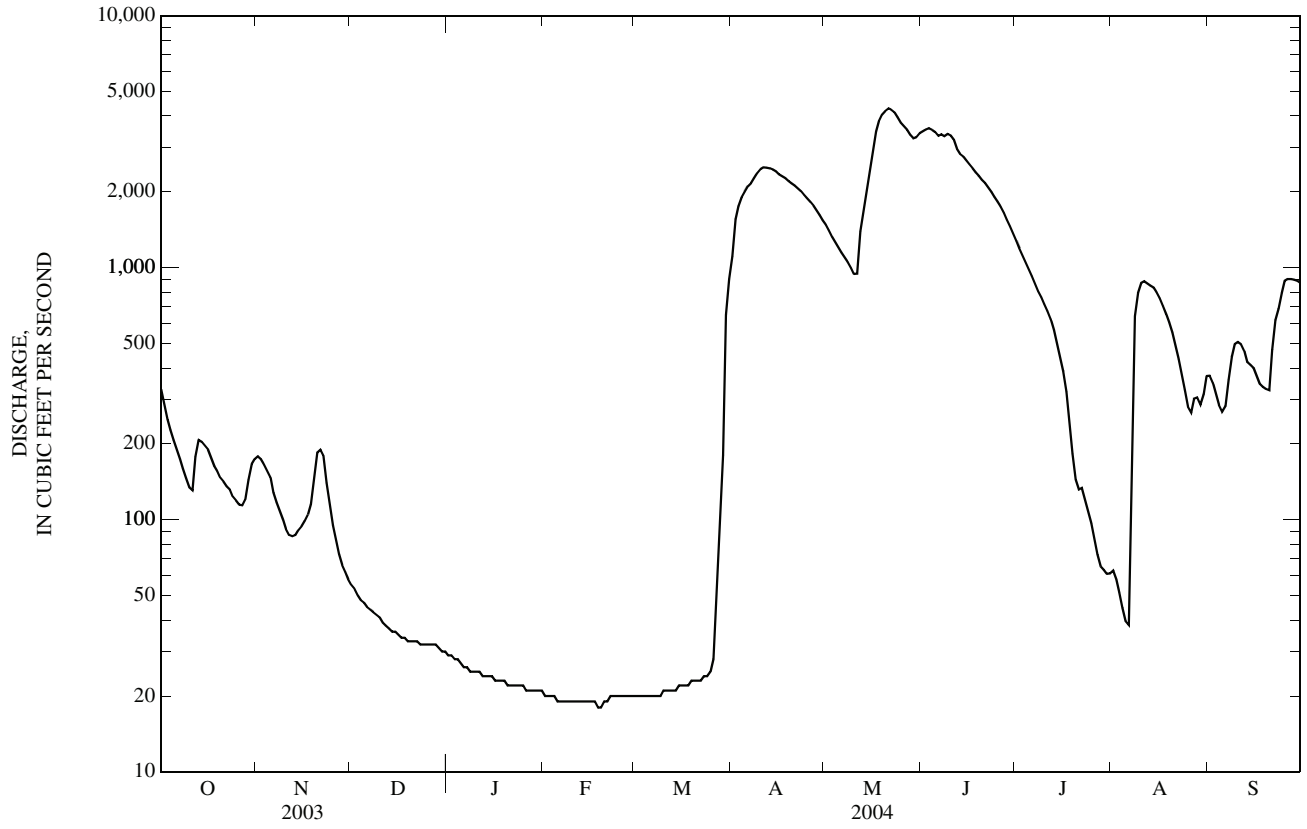
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1928 - 2004, BY WATER YEAR (WY)

MEAN	134	119	37.4	16.5	14.6	86.3	891	937	599	335	141	139
MAX	974	1,926	395	66.5	99.2	551	3,234	4,583	4,553	2,300	1,352	1,041
(WY)	(1942)	(2001)	(2001)	(1997)	(1998)	(1946)	(1966)	(1950)	(2002)	(2002)	(1968)	(1968)
MIN	1.91	1.63	0.27	0.00	0.00	2.76	32.1	29.5	6.83	1.39	0.84	0.38
(WY)	(1991)	(1977)	(1977)	(1977)	(1977)	(1989)	(1991)	(1988)	(1980)	(1980)	(1961)	(1990)

05107500 ROSEAU RIVER AT ROSS, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1928 - 2004	
ANNUAL TOTAL	57,997.8		277,892			
ANNUAL MEAN	159		759		a288	
HIGHEST ANNUAL MEAN					759	2004
LOWEST ANNUAL MEAN					28.9	1934
HIGHEST DAILY MEAN	706	Sep 20	4,280	May 21	10,100	Jun 16, 2002
LOWEST DAILY MEAN	9.0	Aug 25	b18	Feb 18,19	c0.00	Aug 29, 1961
ANNUAL SEVEN-DAY MINIMUM	9.1	Feb 16	19	Feb 13	0.00	Jan 3, 1977
MAXIMUM PEAK FLOW			4,300	May 21	10,500	Jun 16, 2002
MAXIMUM PEAK STAGE			16.77	May 21	18.89	Jun 16, 2002
INSTANTANEOUS LOW FLOW			b18	Feb 18	c0.00	Aug 29, 1961
ANNUAL RUNOFF (AC-FT)	115,000		551,200		208,900	
ANNUAL RUNOFF (CFSM)	0.146		0.697		0.265	
ANNUAL RUNOFF (INCHES)	1.98		9.48		3.59	
10 PERCENT EXCEEDS	459		2,470		912	
50 PERCENT EXCEEDS	90		178		42	
90 PERCENT EXCEEDS	9.6		20		6.1	

a Median of annual mean discharges is 240 ft^3/s.
b Estimated, daily-mean.
c Many days, several years.
e Estimated.



05112000 ROSEAU RIVER BELOW STATE DITCH 51, NEAR CARIBOU, MN

LOCATION.--Lat 48°58'54", long 96°27'46", in SE¼SW¼ sec. 34, T.164 N., R.45 W., Kittson County, Hydrologic Unit 09020314, on left bank 400 ft downstream from State ditch 51 (known locally as Caribou cutoff ditch) and 0.6 mi west of Caribou.

DRAINAGE AREA.--1,420 mi^2.

PERIOD OF RECORD.--April to October 1917, April 1920 to current year (no winter records in water years 1931, 1932, 1934-36, 1938-40, 1944-72). Published as "at Caribou," prior to April 1929; as "below Cutoff ditch, near Cariboü April 1929 to September 1936. Records published for both sites April 1929 to September 1930. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 1308: 1938(M). WSP 1508: 1917(M), 1920, 1932(M), 1934-35(M). WSP 1913: 1954(M).

GAGE.--Water-stage recorder. Datum of gage is 1,002.31 ft above sea level (NGVD of 1929, levels by Geodetic Survey of Canada). Prior to Apr. 1, 1929, nonrecording gage at site at Caribou 0.6 mi upstream at datum 0.95 ft lower.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Some regulation from wildlife management impoundments several miles upstream of gage. Occasionally, at high stages, there is some natural diversion of flow above station to headwaters of Two Rivers.

COOPERATION.--Red Lake Watershed Management Board.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of 1916 is reported to have reached a stage of about 15.5 ft at former site.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	385	173	e66	e36	e23	e23	e756	2,180	3,460	2,380	101	488
2	335	e178	e63	e36	e23	e23	e1,060	2,130	3,410	2,320	98	523
3	291	e175	e60	e35	e23	e23	e1,220	2,080	3,360	2,280	89	498
4	254	e168	e57	e35	e23	e23	e1,400	2,040	3,320	2,200	78	443
5	230	e158	e55	e34	e23	e23	1,550	1,980	3,290	2,120	66	400
6	211	e147	e53	e34	e23	e24	1,620	1,930	3,260	2,060	58	537
7	194	e136	e52	e33	e22	e24	1,770	1,870	3,350	2,000	108	590
8	181	e124	e50	e32	e22	e24	1,910	1,820	3,380	1,920	321	641
9	169	e115	e48	e31	e22	e24	1,980	1,760	3,330	1,870	735	691
10	156	e105	e47	e31	e22	e24	2,060	1,690	3,280	1,800	961	731
11	146	e98	e46	e30	e22	e25	2,170	1,680	3,240	1,710	1,080	738
12	138	e97	e45	e30	e22	e25	2,290	1,930	3,220	1,620	1,120	729
13	166	e98	e44	e29	e22	e26	2,380	1,940	3,190	1,510	1,150	704
14	197	e99	e43	e28	e21	e26	2,460	1,870	3,160	1,390	1,160	678
15	199	e103	e43	e28	e21	e27	2,540	1,860	3,150	1,280	1,160	691
16	196	e108	e42	e27	e21	e27	2,630	1,940	3,140	1,130	1,160	701
17	191	e117	e42	e27	e22	e27	2,660	1,980	3,120	953	1,150	675
18	181	e130	e41	e26	e22	e28	2,670	2,050	3,090	736	1,130	617
19	171	e142	e41	e26	e22	e29	2,670	2,160	3,040	544	1,090	565
20	161	e180	e40	e25	e22	e30	2,670	2,370	2,990	384	1,030	544
21	153	e191	e40	e25	e22	e31	2,650	2,500	2,950	294	928	574
22	146	e187	e40	e25	e22	e32	2,610	2,620	2,900	252	781	712
23	141	e170	e39	e25	e22	e33	2,570	2,700	2,840	227	629	862
24	136	e138	e39	e25	e22	e35	2,510	2,780	2,790	201	513	979
25	128	e117	e38	e24	e22	e37	2,460	2,880	2,760	179	429	1,050
26	123	e103	e38	e24	e22	e46	2,400	2,960	2,710	162	388	1,100
27	121	e93	e38	e24	e22	e85	2,350	3,010	2,660	142	377	1,120
28	124	e82	e38	e24	e23	e140	2,320	3,050	2,600	140	389	1,120
29	123	e74	e37	e23	e23	e190	2,270	3,070	2,530	130	383	1,120
30	140	e68	e37	e23	---	e350	2,220	3,300	2,460	117	375	1,130
31	163	---	e37	e23	---	e540	---	3,460	---	107	405	---
TOTAL	5,650	3,874	1,399	878	643	2,024	64,826	71,590	91,980	34,158	19,442	21,951
MEAN	182	129	45.1	28.3	22.2	65.3	2,161	2,309	3,066	1,102	627	732
MAX	385	191	66	36	23	540	2,670	3,460	3,460	2,380	1,160	1,130
MIN	121	68	37	23	21	23	756	1,680	2,460	107	58	400
AC-FT	11,210	7,680	2,770	1,740	1,280	4,010	128,600	142,000	182,400	67,750	38,560	43,540
CFSM	0.13	0.09	0.03	0.02	0.02	0.05	1.52	1.63	2.16	0.78	0.44	0.52
IN.	0.15	0.10	0.04	0.02	0.02	0.05	1.70	1.88	2.41	0.89	0.51	0.58

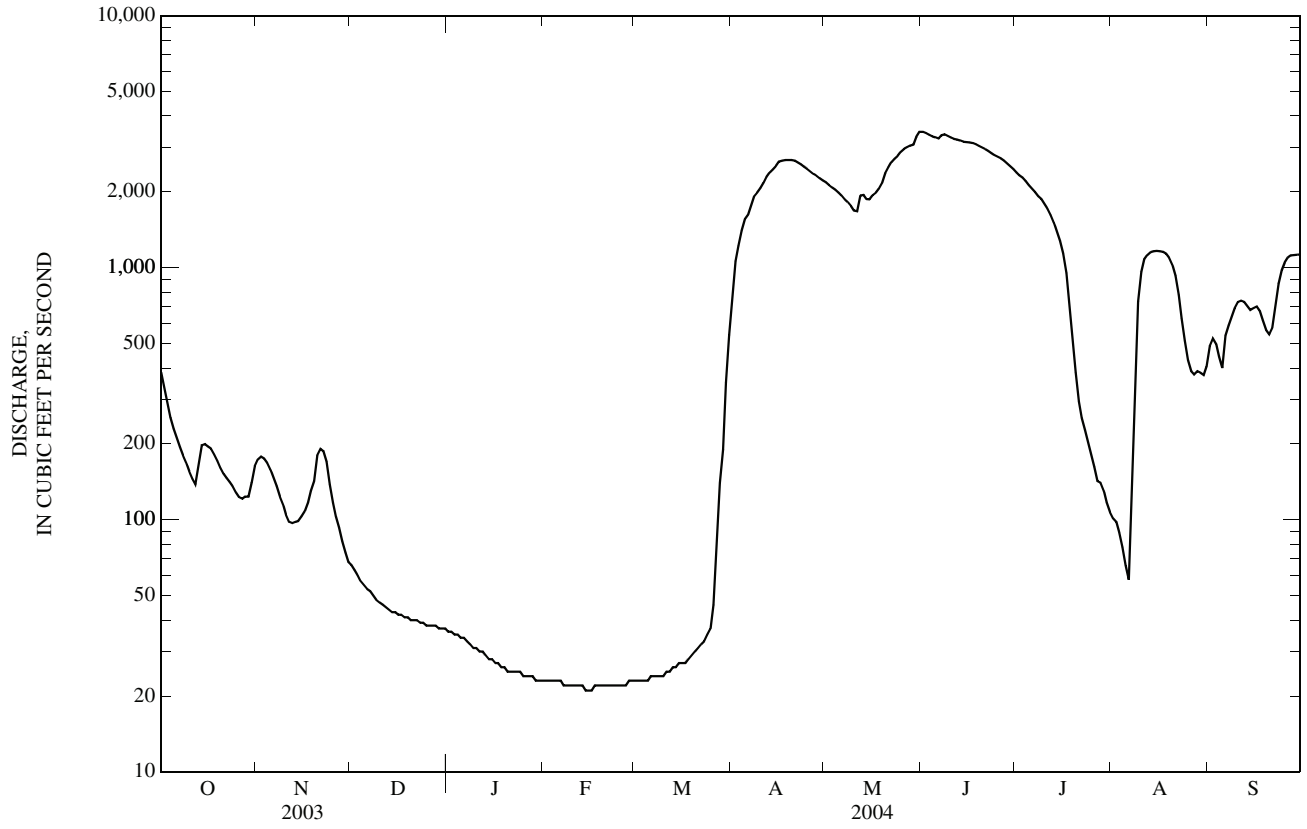
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1917 - 2004, BY WATER YEAR (WY)

MEAN	172	170	69.9	27.5	23.1	130	845	983	674	463	182	188
MAX	1,302	2,022	813	134	75.4	793	2,168	3,029	3,066	3,080	1,582	1,451
(WY)	(1942)	(2001)	(2001)	(1927)	(1997)	(1995)	(1966)	(1950)	(2004)	(2002)	(1993)	(1968)
MIN	0.12	0.26	0.53	0.09	0.06	1.57	38.2	26.9	6.70	0.65	2.09	0.30
(WY)	(1991)	(1991)	(1991)	(1991)	(1991)	(1989)	(1981)	(1988)	(1980)	(1980)	(1936)	(1990)

05112000 ROSEAU RIVER BELOW STATE DITCH 51, NEAR CARIBOU, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1917 - 2004	
ANNUAL TOTAL	65,408		318,415			
ANNUAL MEAN	179		870		349	
HIGHEST ANNUAL MEAN					933	2001
LOWEST ANNUAL MEAN					35.9	1977
HIGHEST DAILY MEAN	780	May 24	3,460	May 31, June 1	4,320	Jun 25, 2002
LOWEST DAILY MEAN	11	Feb 11	a21	Feb 14-16	b0.00	Sep 15, 1990
ANNUAL SEVEN-DAY MINIMUM	11	Feb 10	22	Feb 10	0.04	Sep 12, 1990
MAXIMUM PEAK FLOW			3,480	May 31	4,320	Jun 24, 2002
MAXIMUM PEAK STAGE			10.78	May 31	11.91	Jun 24, 2002
INSTANTANEOUS LOW FLOW			21	Feb 14	c0.00	Aug 13, 1936
ANNUAL RUNOFF (AC-FT)	129,700		631,600		252,700	
ANNUAL RUNOFF (CFSM)	0.126		0.613		0.246	
ANNUAL RUNOFF (INCHES)	1.71		8.34		3.34	
10 PERCENT EXCEEDS	527		2,670		1,200	
50 PERCENT EXCEEDS	103		190		68	
90 PERCENT EXCEEDS	12		23		9.0	

a Estimated, daily-mean discharge.
b Also occurred, Sept. 16,17, 1990.
c Also occurred, Sept. 15-17, 1990.
e Estimated.



05124480 KAWISHIWI RIVER NEAR ELY, MN

LOCATION.--Lat 47°55'22", long 91°32'06", in SE¼SE¼ sec. 24, T.63 N., R.10 W., Lake County, Hydrologic Unit 09030001, in Superior National Forest, on left bank 100 ft upstream from rapids, 2 mi upstream from South Kawishiwi River, 2.2 mi southwest of Fernberg Lookout Tower and 14 mi east of Ely.

DRAINAGE AREA.--254 mi^2.

PERIOD OF RECORD.--June 1966 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,450 ft above sea level, from topographic map.

REMARKS.--Records good.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	95	76	88	95	81	65	82	797	403	236	108	52
2	93	75	87	95	83	67	86	790	410	225	103	50
3	92	74	87	94	84	67	92	777	418	214	99	49
4	91	75	87	93	82	67	97	761	422	207	93	47
5	89	75	87	91	82	66	102	738	426	197	88	50
6	88	74	87	90	83	65	109	710	429	186	84	60
7	87	73	87	89	83	66	121	684	440	177	81	61
8	86	73	87	88	81	65	142	654	451	171	79	58
9	85	72	88	86	81	64	150	624	451	162	81	56
10	84	72	88	86	80	64	154	596	448	155	86	54
11	84	72	88	88	79	64	158	569	444	184	96	52
12	88	74	88	89	77	63	164	547	442	176	92	50
13	88	75	88	88	77	63	170	528	437	176	86	49
14	85	75	89	90	76	65	179	503	431	178	80	51
15	83	75	89	89	75	64	188	482	423	174	76	56
16	80	75	93	88	74	63	204	463	428	177	74	65
17	78	77	94	89	74	63	225	469	419	176	72	66
18	77	79	93	87	73	62	271	461	405	173	71	64
19	75	79	93	86	72	61	362	453	390	172	68	62
20	74	79	93	84	71	60	439	444	374	169	65	61
21	73	78	93	85	71	59	512	433	363	163	62	61
22	73	77	93	84	70	58	581	422	352	163	60	61
23	74	80	92	83	70	57	636	413	338	152	58	59
24	74	86	92	82	69	e56	674	401	323	143	56	61
25	75	87	91	81	68	62	709	398	307	135	55	59
26	74	87	92	84	68	67	740	391	297	129	55	57
27	74	86	93	86	67	68	762	394	284	123	54	55
28	75	87	94	84	66	71	782	384	271	120	52	52
29	75	87	94	82	65	78	794	373	259	123	50	50
30	76	88	94	81	---	79	799	368	249	117	51	48
31	77	---	96	79	---	80	---	392	---	114	51	---
TOTAL	2,522	2,342	2,805	2,696	2,182	2,019	10,484	16,419	11,534	5,167	2,286	1,676
MEAN	81.4	78.1	90.5	87.0	75.2	65.1	349	530	384	167	73.7	55.9
MAX	95	88	96	95	84	80	799	797	451	236	108	66
MIN	73	72	87	79	65	56	82	368	249	114	50	47
AC-FT	5,000	4,650	5,560	5,350	4,330	4,000	20,800	32,570	22,880	10,250	4,530	3,320
CFSM	0.32	0.31	0.36	0.34	0.30	0.26	1.38	2.09	1.51	0.66	0.29	0.22
IN.	0.37	0.34	0.41	0.39	0.32	0.30	1.54	2.40	1.69	0.76	0.33	0.25

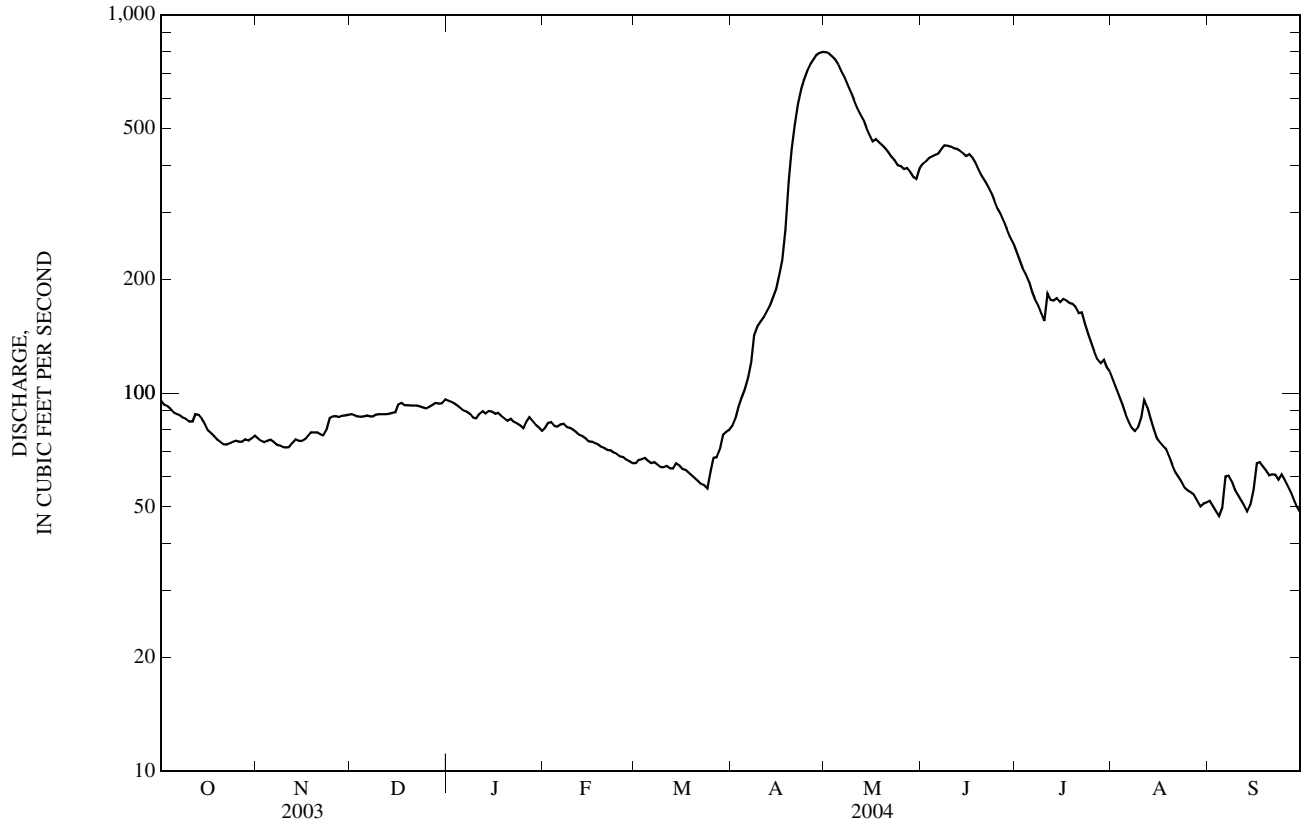
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 2004, BY WATER YEAR (WY)

MEAN	145	156	133	92.9	67.7	56.5	240	630	365	208	145	132
MAX	881	684	345	163	107	85.2	785	1,133	1,070	523	758	698
(WY)	(1978)	(1971)	(1983)	(1984)	(1971)	(1969)	(1976)	(1979)	(1970)	(1999)	(1988)	(1988)
MIN	12.1	9.43	7.25	5.32	4.77	5.87	8.95	13.3	115	65.1	36.0	18.5
(WY)	(1977)	(1977)	(1977)	(1977)	(1977)	(1977)	(1977)	(1977)	(1977)	(1998)	(1998)	(1976)

05124480 KAWISHIWI RIVER NEAR ELY, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1966 - 2004	
ANNUAL TOTAL	39,776		62,132			
ANNUAL MEAN	109		170		199	
HIGHEST ANNUAL MEAN					313	1971
LOWEST ANNUAL MEAN					81.3	1998
HIGHEST DAILY MEAN	267	Jul 20	799	Apr 30	1,850	May 3, 2001
LOWEST DAILY MEAN	32	Mar 13	47	Sep 4	a4.5	Jan 31, 1977
ANNUAL SEVEN-DAY MINIMUM	32	Mar 10	50	Aug 29	4.6	Jan 29, 1977
MAXIMUM PEAK FLOW			801	Apr 30	1,870	May 4, 2001
MAXIMUM PEAK STAGE			5.01	Apr 30	6.07	May 4, 2001
INSTANTANEOUS LOW FLOW			46	Sep 4	4.5	Jan 30, 1977
ANNUAL RUNOFF (AC-FT)	78,900		123,200		143,800	
ANNUAL RUNOFF (CFSM)	0.429		0.668		0.782	
ANNUAL RUNOFF (INCHES)	5.83		9.10		10.62	
10 PERCENT EXCEEDS	207		439		483	
50 PERCENT EXCEEDS	88		87		107	
90 PERCENT EXCEEDS	38		61		38	

a Occurred Jan. 31 to Feb. 2, 1977.
e Estimated.



05124480 KAWISHIWI RIVER NEAR ELY, MN—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1966-69, 2001, 2003, 2004.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Time	Sample type	pH, water, unfltrd lab, std units (00403)	Specif. conduc-tance, wat unf lab, uS/cm 25 degC (90095)	Temper-ature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Magnes-ium, water, fltrd, mg/L (00925)	Potas-sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)
OCT									
29...	1045	Environmental	6.9	29	6.0	3.17	1.52	.31	1.05
JAN									
09...	1000	Environmental	6.5	31	.0	3.19	1.41	.34	1.15
FEB									
24...	0940	Environmental	6.8	31	.5	3.39	1.57	.33	1.10
MAR									
25...	1010	Environmental	6.7	32	--	3.38	1.53	.32	1.12
APR									
03...	1030	Environmental	6.9	33	1.9	3.37	1.54	.37	1.13
23...	1745	Environmental	7.0	28	--	2.73	1.25	--	--
28...	1045	Environmental	6.5	28	6.0	3.23	1.51	--	--
MAY									
21...	1630	Environmental	6.9	29	12.6	2.95	1.37	--	--
JUN									
08...	1100	Environmental	7.0	28	18.0	2.88	1.33	--	--
09...	1030	Environmental	6.8	28	17.3	2.89	1.32	--	--
20...	1415	Environmental	6.8	28	18.6	3.00	1.34	--	--
JUL									
24...	1845	Environmental	7.0	29	23.4	2.92	1.33	--	--
29...	1415	Environmental	6.7	29	21.0	2.86	1.29	--	--
AUG									
29...	1230	Environmental	6.7	30	18.4	3.03	1.31	--	--
SEP									
01...	1130	Environmental	6.7	29	17.2	2.88	1.33	--	--
08...	1745	Environmental	6.9	28	19.2	2.99	1.38	--	--
15...	0930	Environmental	6.7	27	18.0	3.39	1.37	--	--
16...	1744	Environmental	7.0	29	17.6	2.99	1.38	--	--
26...	1700	Environmental	7.0	30	17.6	2.97	1.38	--	--

Date	ANC, water, unfltrd Gran titr., ueq/L (00409)	Chlor-ide, water, fltrd, mg/L (00940)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water, fltrd, mg/L as N (00618)	Organic carbon, water, fltrd, mg/L (00681)	Alum-inum, water, fltrd, ug/L (01106)	Organic mono-meric alum-inum, wat unf ug/L (49288)
OCT									
29...	188	.3	1.15	1.7	<.028	.05	9.1	<27	<40
JAN									
09...	197	.3	1.15	2.0	<.028	.06	10.1	<27	<40
FEB									
24...	220	.3	1.33	1.9	<.028	.09	9.5	27	<40
MAR									
25...	206	.3	1.42	1.9	<.028	.10	9.7	<27	<40
APR									
03...	217	.3	1.54	2.0	<.028	.12	10.0	<27	<40
23...	190	.3	1.59	2.1	.058	.10	9.5	45	<40
28...	182	.3	1.74	2.0	<.028	.09	9.5	70	<40
MAY									
21...	198	.2	1.65	1.9	.054	.05	9.2	104	<40
JUN									
08...	183	.2	1.60	1.8	.036	.03	9.8	42	<40
09...	194	.3	1.52	1.9	.055	.04	9.4	44	<40
20...	194	.3	1.50	1.9	.039	.03	9.4	95	<40
JUL									
24...	204	.2	1.24	1.8	<.028	<.03	10.3	61	--
29...	223	.2	1.26	2.2	.061	<.03	10.0	<27	--
AUG									
29...	237	.3	1.26	2.3	.032	<.03	9.3	58	--
SEP									
01...	224	.2	1.27	1.9	.038	<.03	9.3	<27	--
08...	206	.2	1.26	1.9	.040	<.03	8.9	<27	--
15...	187	.2	1.23	1.8	--	<.03	9.2	224	--
16...	206	.2	1.26	1.9	.037	<.03	8.7	35	--
26...	207	.2	1.30	1.9	.066	<.03	9.1	34	--

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05125000 SOUTH KAWISHIWI RIVER NEAR ELY, MN

LOCATION.--Lat 47°50'24", long 91°41'43", in NE¼SW¼ sec. 23, T.62 N., R.11 W., Lake County, Hydrologic Unit 09030001, on left bank, 2.5 mi northeast of State Highway 1, 5 mi upstream from Birch Lake, and 9 mi southeast of Ely.

DRAINAGE AREA.--

PERIOD OF RECORD.--October 1951 to September 1961, April 1976 to September 1978, May 2003 to current year.

REMARKS.--Records good.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

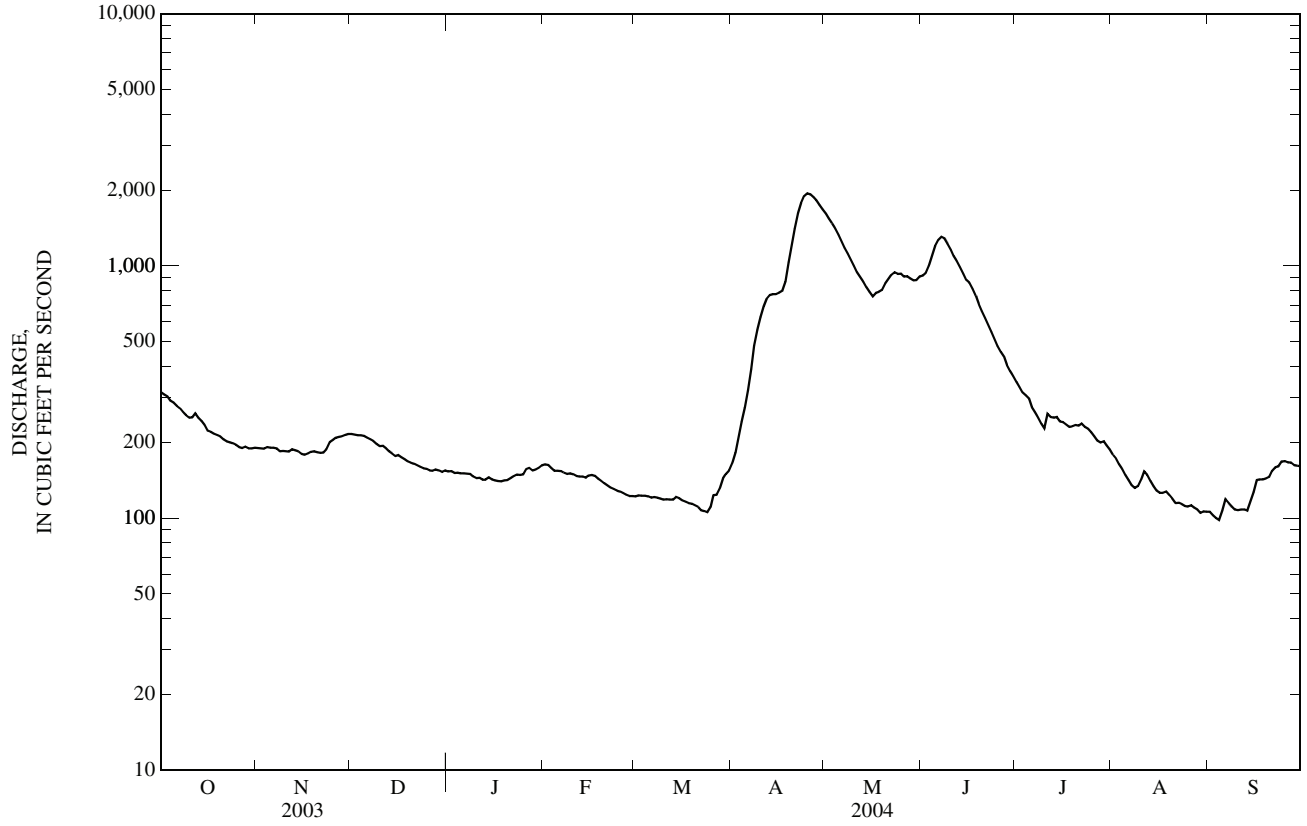
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	315	190	216	153	163	122	165	1,610	915	348	178	106
2	309	189	214	154	162	123	182	1,540	940	332	172	103
3	303	189	213	151	158	123	209	1,480	1,000	316	163	100
4	292	191	213	152	154	123	241	1,410	1,090	307	156	98
5	287	190	212	151	154	122	274	1,330	1,200	298	148	107
6	279	190	208	150	154	121	321	1,260	1,270	276	141	119
7	273	189	205	150	152	121	390	1,180	1,300	263	135	115
8	263	184	202	150	150	120	483	1,120	1,290	250	132	111
9	256	184	197	146	150	119	557	1,060	1,220	237	134	108
10	250	184	193	144	149	119	627	1,000	1,160	227	142	107
11	251	183	193	144	147	119	693	944	1,090	260	153	108
12	260	187	190	142	146	118	741	902	1,050	252	148	108
13	250	186	184	142	146	118	767	865	988	250	140	107
14	242	184	180	145	145	121	774	824	933	252	133	116
15	233	180	176	142	147	120	774	789	883	241	128	127
16	222	178	178	141	148	117	782	758	859	240	126	141
17	219	180	174	140	147	116	796	784	812	235	126	142
18	215	183	171	140	143	115	867	789	762	230	127	143
19	213	184	168	141	141	114	1,040	804	709	231	124	144
20	211	183	166	142	137	112	1,200	852	662	234	119	146
21	205	182	164	144	135	111	1,410	888	623	232	115	154
22	202	182	162	147	132	108	1,620	922	584	237	115	159
23	200	188	160	149	130	107	1,780	942	547	230	114	161
24	198	200	158	148	129	105	1,890	930	516	226	112	168
25	195	204	157	149	128	111	1,940	933	482	219	111	168
26	191	208	154	156	126	123	1,930	909	457	211	112	166
27	189	210	154	158	124	124	1,870	911	437	203	110	166
28	192	211	156	154	122	131	1,820	893	405	199	108	163
29	189	214	154	156	122	143	1,750	878	384	202	105	162
30	189	215	152	158	---	150	1,670	879	366	194	106	160
31	190	---	155	162	---	154	---	908	---	187	106	---
TOTAL	7,283	5,722	5,579	4,601	4,141	3,750	29,563	31,294	24,934	7,619	4,039	3,983
MEAN	235	191	180	148	143	121	985	1,009	831	246	130	133
MAX	315	215	216	162	163	154	1,940	1,610	1,300	348	178	168
MIN	189	178	152	140	122	105	165	758	366	187	105	98
AC-FT	14,450	11,350	11,070	9,130	8,210	7,440	58,640	62,070	49,460	15,110	8,010	7,900

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1952 - 2004, BY WATER YEAR (WY)

MEAN	389	291	233	173	133	116	714	1,231	761	440	280	367
MAX	1,733	757	456	295	179	150	2,278	3,141	1,440	885	1,125	1,099
(WY)	(1978)	(1978)	(1952)	(1978)	(1957)	(1953)	(1976)	(1954)	(1978)	(1952)	(1952)	(1977)
MIN	36.0	49.0	45.8	37.1	33.5	57.4	130	179	290	152	80.7	45.0
(WY)	(1961)	(1977)	(1977)	(1977)	(1977)	(1977)	(1977)	(1977)	(1958)	(1958)	(1961)	(1976)

05125000 SOUTH KAWISHIWI RIVER NEAR ELY, MN—Continued

SUMMARY STATISTICS	FOR 2004 WATER YEAR		WATER YEARS 1952 - 2004	
ANNUAL TOTAL	132,508			
ANNUAL MEAN	362		434	
HIGHEST ANNUAL MEAN			673	1978
LOWEST ANNUAL MEAN			233	1958
HIGHEST DAILY MEAN	1,940	Apr 25	5,110	May 5, 1954
LOWEST DAILY MEAN	98	Sep 4	27	Oct 10, 1960
ANNUAL SEVEN-DAY MINIMUM	103	Aug 29	29	Oct 6, 1960
MAXIMUM PEAK FLOW	1,970	Apr 25	5,130	May 4, 1954
MAXIMUM PEAK STAGE	5.17	Apr 25	7.25	May 4, 1954
INSTANTANEOUS LOW FLOW	95	Sep 4	25	Oct 12, 1960
ANNUAL RUNOFF (AC-FT)	262,800		314,300	
10 PERCENT EXCEEDS	935		1,080	
50 PERCENT EXCEEDS	184		223	
90 PERCENT EXCEEDS	119		105	



05126210 SOUTH KAWISHIWI RIVER ABOVE WHITE IRON LAKE NEAR ELY, MN

LOCATION.--Lat 47°50'31", long 91°47'56", in SW¼NW¼ sec. 19, T.62 N., R.11 W., Lake County, Hydrologic Unit 09030001, on right bank 0.5 mi above inlet to White Iron Lake, 1.9 mi downstream (north) of dam at State Highway 1, and 5 mi southeast of Ely.

DRAINAGE AREA.--837 mi^2.

PERIOD OF RECORD.--August 1975 to September 1978, May 2003 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,420 ft above mean sea level (from topographic map).

REMARKS.--Records good. Flow regulated by Minnesota Power Co. dam located 2.1 mi above gage at outlet of Birch Lake.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

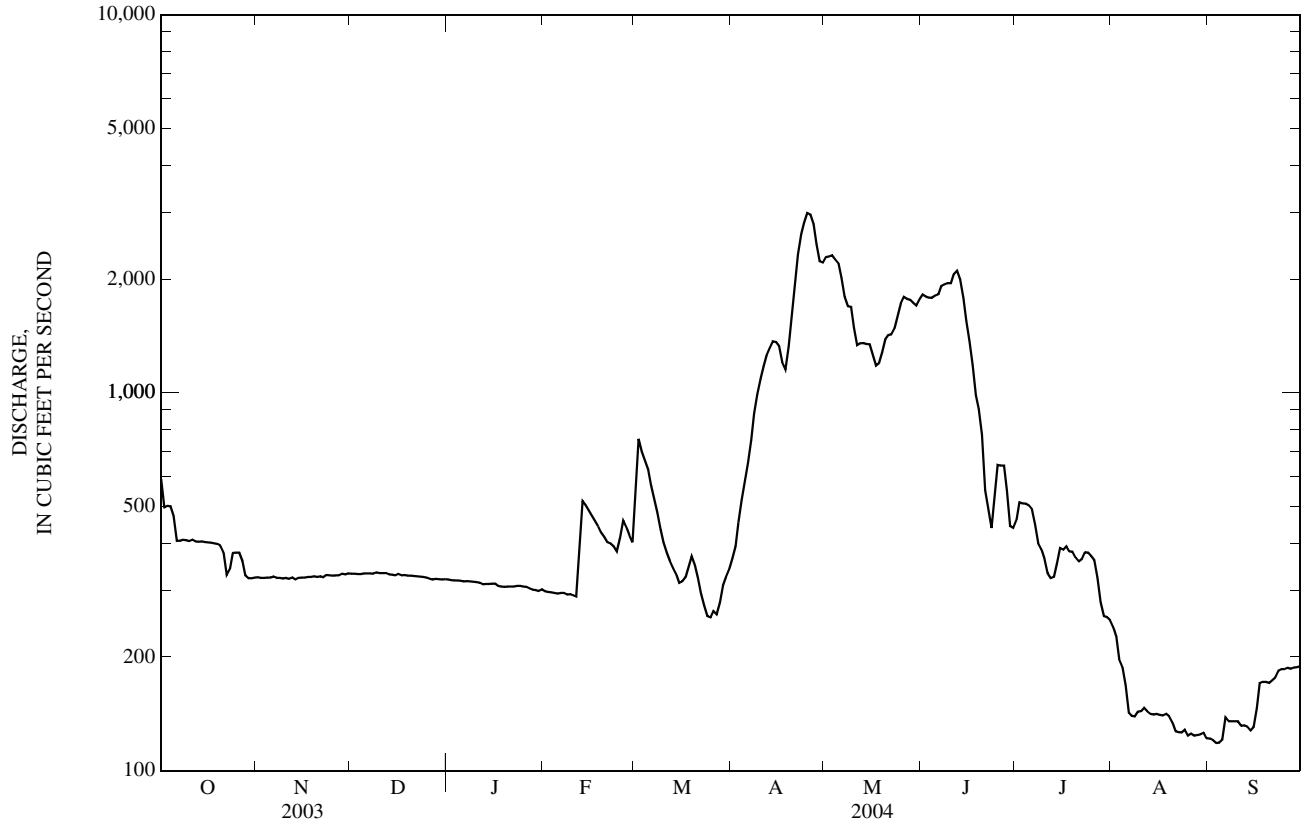
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	591	325	332	321	299	565	364	2,280	1,820	461	240	122
2	497	324	332	320	297	754	392	2,290	1,790	513	226	121
3	502	324	331	319	296	698	454	2,310	1,780	510	198	118
4	501	325	331	319	296	661	520	2,250	1,780	509	189	119
5	472	324	333	318	294	625	584	2,200	1,800	503	168	121
6	406	326	332	317	296	569	653	2,010	1,820	493	143	138
7	406	324	333	317	295	521	750	1,790	1,920	449	140	135
8	408	324	332	317	293	480	881	1,690	1,930	400	139	135
9	407	322	335	316	293	434	991	1,690	1,950	385	143	135
10	405	324	333	316	291	401	1,080	1,490	1,950	365	144	135
11	408	322	334	314	289	378	1,180	1,330	2,060	333	147	131
12	405	324	334	312	377	359	1,260	1,350	2,100	323	144	132
13	403	321	331	312	516	344	1,310	1,350	1,990	326	142	131
14	404	324	330	312	504	332	1,370	1,340	1,780	352	141	128
15	403	324	329	312	490	314	1,360	1,340	1,550	388	141	131
16	402	325	332	312	473	317	1,330	1,260	1,370	384	141	147
17	401	326	329	308	458	325	1,200	1,180	1,180	393	140	170
18	399	326	329	307	443	345	1,150	1,190	984	381	141	172
19	398	327	328	307	427	369	1,320	1,280	907	380	140	172
20	394	326	328	307	416	349	1,580	1,380	775	366	134	171
21	379	327	328	307	402	322	1,930	1,420	552	358	127	174
22	330	325	327	307	399	294	2,320	1,430	491	363	126	177
23	342	329	327	308	392	273	2,620	1,480	439	378	126	184
24	377	329	326	308	381	256	2,810	1,600	534	378	128	186
25	378	328	325	307	413	254	2,980	1,730	645	370	124	186
26	378	329	322	307	460	264	2,950	1,790	641	361	125	187
27	359	329	320	304	443	259	2,790	1,770	641	324	124	186
28	329	332	322	301	420	278	2,470	1,760	552	279	124	188
29	323	331	321	301	402	309	2,220	1,730	444	257	125	188
30	323	332	321	299	---	325	2,210	1,700	438	255	126	189
31	324	---	321	302	---	341	---	1,760	---	251	122	---
TOTAL	12,454	9,778	10,188	9,634	11,055	12,315	45,029	51,170	38,613	11,788	4,518	4,609
MEAN	402	326	329	311	381	397	1,501	1,651	1,287	380	146	154
MAX	591	332	335	321	516	754	2,980	2,310	2,100	513	240	189
MIN	323	321	320	299	289	254	364	1,180	438	251	122	118
AC-FT	24,700	19,390	20,210	19,110	21,930	24,430	89,320	101,500	76,590	23,380	8,960	9,140
CFSM	0.48	0.39	0.39	0.37	0.46	0.47	1.79	1.97	1.54	0.45	0.17	0.18
IN.	0.55	0.43	0.45	0.43	0.49	0.55	2.00	2.27	1.72	0.52	0.20	0.20

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1975 - 2004, BY WATER YEAR (WY)

MEAN	941	551	502	381	281	273	1,574	1,335	1,270	843	344	631
MAX	2,831	1,325	871	666	381	397	3,730	2,125	2,394	1,253	842	1,934
(WY)	(1978)	(1978)	(1978)	(1978)	(2004)	(2004)	(1976)	(1978)	(1978)	(1978)	(1978)	(1977)
MIN	84.4	78.3	84.4	80.4	70.2	97.7	138	187	758	380	94.3	104
(WY)	(1977)	(1977)	(1977)	(1977)	(1977)	(1977)	(1977)	(1977)	(2003)	(2004)	(1976)	(1976)

05126210 SOUTH KAWISHIWI RIVER ABOVE WHITE IRON LAKE NEAR ELY, MN—Continued

SUMMARY STATISTICS	FOR 2004 WATER YEAR		WATER YEARS 1975 - 2004	
ANNUAL TOTAL	221,151			
ANNUAL MEAN	604		765	
HIGHEST ANNUAL MEAN			1,241	1978
LOWEST ANNUAL MEAN			408	1977
HIGHEST DAILY MEAN	2,980	Apr 25	8,040	Apr 22, 1976
LOWEST DAILY MEAN	118	Sep 3	27	Mar 22, 1977
ANNUAL SEVEN-DAY MINIMUM	121	Aug 30	34	Aug 13, 1976
MAXIMUM PEAK FLOW	3,050	Apr 26	8,080	Apr 22, 1976
MAXIMUM PEAK STAGE	7.55	Apr 26	11.42	Apr 22, 1976
INSTANTANEOUS LOW FLOW	115	Sep 5	19	Mar 22, 1977
ANNUAL RUNOFF (AC-FT)	438,700		554,200	
ANNUAL RUNOFF (CFSM)	0.000		0.000	
ANNUAL RUNOFF (INCHES)	0.00		0.00	
10 PERCENT EXCEEDS	1,730		1,810	
50 PERCENT EXCEEDS	332		406	
90 PERCENT EXCEEDS	143		84	



05127000 KAWISHIWI RIVER NEAR WINTON, MN

LOCATION.--Lat 47°56'05", long 91°45'50", in NE¼NW¼ sec. 20, T.63 N., R.11 W., Lake County, Hydrologic Unit 09030001, Superior National Forest, at power plant of Minnesota Power Co., just upstream from Fall Lake, and 1.8 mi east of Winton.

DRAINAGE AREA.--1,230 mi^2.

PERIOD OF RECORD.--June 1905 to June 1907, October 1912 to September 1919 (fragmentary), September 1923 to current year. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WDR MN-77-1: Drainage area.

REMARKS.--No estimated daily discharges. Records fair. Daily discharge computed from power plant records. Flow regulated by power plant and by Camp Six, Bald Eagle, Gabbro, Little Gabbro, Birch, White Iron, South Farm, and Garden Lakes.

COOPERATION.--Records collected by Minnesota Power Co., under general supervision of the Geological Survey, in connection with a Federal Energy Regulatory Commission project.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	554	287	451	381	370	673	634	2,640	2,250	625	253	149
2	555	252	451	381	373	861	550	2,660	2,220	559	253	178
3	555	379	434	380	357	866	499	2,660	2,250	556	254	185
4	555	379	406	376	360	819	514	2,670	2,240	555	236	169
5	555	379	406	378	346	721	582	2,670	2,240	555	191	275
6	555	379	406	379	335	624	740	2,650	2,230	555	127	419
7	556	379	406	379	334	578	849	2,340	2,230	556	117	262
8	519	379	406	379	332	536	883	2,160	2,240	557	117	205
9	491	330	406	380	330	492	1,020	2,140	2,240	531	204	205
10	491	330	357	382	353	490	1,320	2,030	2,240	437	440	182
11	491	330	357	383	417	480	1,320	1,950	2,240	588	402	161
12	490	333	361	383	432	409	1,320	1,890	2,240	676	272	161
13	406	356	361	383	446	378	1,330	1,770	2,210	493	230	158
14	442	356	361	383	445	379	1,450	1,770	1,930	495	201	139
15	442	370	361	383	445	588	1,530	1,760	1,770	509	184	148
16	442	379	361	383	447	702	1,540	1,660	1,760	508	184	309
17	442	387	361	382	447	661	1,540	1,570	1,500	509	184	398
18	442	402	361	382	449	588	1,540	1,570	1,060	509	177	307
19	442	401	383	383	452	588	1,550	1,570	847	509	163	230
20	442	397	385	395	449	589	1,770	1,570	847	509	163	230
21	442	353	385	380	447	589	2,010	1,670	767	502	163	230
22	442	354	385	378	447	588	2,310	1,780	599	460	163	229
23	442	372	385	372	446	574	2,690	1,770	603	460	151	230
24	442	402	385	361	446	543	2,850	1,780	602	460	139	230
25	441	450	385	342	446	589	2,990	1,890	675	460	132	230
26	422	451	377	299	446	695	3,100	1,960	754	460	117	230
27	422	451	381	295	446	639	3,160	2,070	755	439	117	230
28	422	451	381	295	446	703	3,180	2,130	725	358	117	230
29	422	451	381	336	446	679	2,840	2,130	697	354	117	230
30	422	451	381	362	---	660	2,640	2,120	654	354	117	229
31	422	---	381	365	---	641	---	2,200	---	276	121	---
TOTAL	14,608	11,370	11,988	11,420	11,935	18,922	50,251	63,200	45,615	15,374	5,806	6,768
MEAN	471	379	387	368	412	610	1,675	2,039	1,520	496	187	226
MAX	556	451	451	395	452	866	3,180	2,670	2,250	676	440	419
MIN	406	252	357	295	330	378	499	1,570	599	276	117	139
AC-FT	28,970	22,550	23,780	22,650	23,670	37,530	99,670	125,400	90,480	30,490	11,520	13,420
CFSM	0.38	0.31	0.31	0.30	0.33	0.50	1.36	1.66	1.24	0.40	0.15	0.18
IN.	0.44	0.34	0.36	0.35	0.36	0.57	1.52	1.91	1.38	0.46	0.18	0.20
+	0.00	20.4	-42.3	-98.7	-204	-184	496	-36.0	43.0	-105	271	116
MEAN ‡	471	399	344	270	208	426	2171	2003	1564	391	190	342
CFSM ‡	0.38	0.32	0.28	0.22	0.17	0.35	1.77	1.63	1.27	0.32	0.15	0.28
IN ‡	0.44	0.36	0.32	0.25	0.18	0.40	1.97	1.88	1.42	0.37	0.17	0.31

CAL YR 03 TOTAL 177,622 MEAN 487 MAX 1490 MIN 0.00 MEAN‡ 493 CFSM‡ 0.40 IN‡ 5.44
WTR YR 04 TOTAL 267,257 MEAN 730 MAX 3180 MIN 117 MEAN‡ 730 CFSM‡ 0.59 IN‡ 8.06

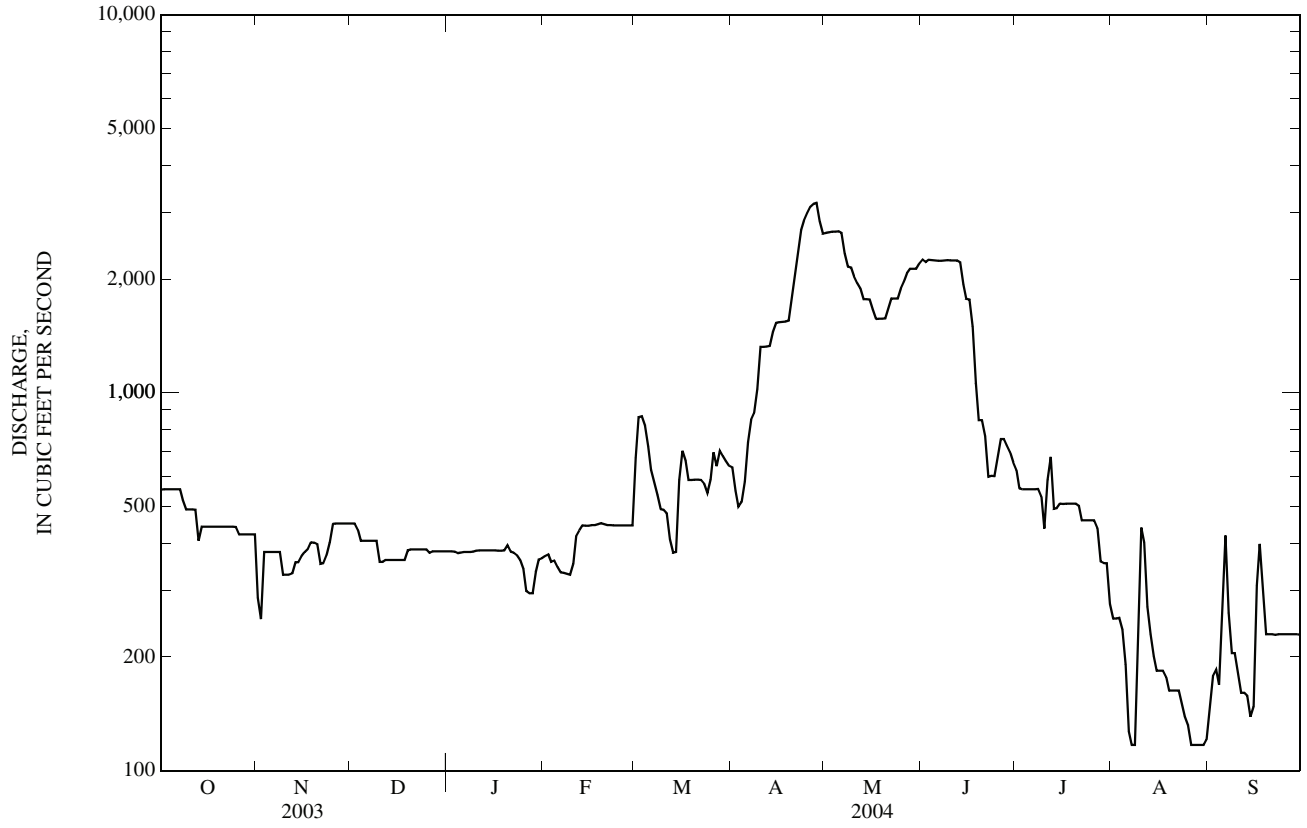
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1905 - 2004, BY WATER YEAR (WY)

MEAN	877	756	594	453	349	379	1,216	3,069	1,882	1,156	686	723
MAX	4,277	3,572	1,422	862	770	844	5,020	9,278	5,661	3,382	3,775	3,149
(WY)	(1947)	(1971)	(1983)	(1978)	(1927)	(1945)	(1945)	(1950)	(1968)	(1999)	(1988)	(1928)
MIN	66.5	8.97	76.1	80.3	74.5	103	19.3	111	519	217	51.7	38.1
(WY)	(1924)	(1924)	(1977)	(1977)	(1977)	(1924)	(1924)	(1924)	(1980)	(1961)	(1919)	(1919)

05127000 KAWISHIWI RIVER NEAR WINTON, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1905 - 2004	
ANNUAL TOTAL	177,622.00		267,257			
ANNUAL MEAN	487		730		1,021	
HIGHEST ANNUAL MEAN					1,967	1950
LOWEST ANNUAL MEAN					240	1924
HIGHEST DAILY MEAN	1,490	Jul 11	3,180	Apr 28	16,000	May 18, 1950
LOWEST DAILY MEAN	0.00	Aug 19	117	Aug 7,8,26-30	a0.00	Aug 24, 1905
ANNUAL SEVEN-DAY MINIMUM	45	Sep 1	120	Aug 25	0.00	Oct 13, 1923
ANNUAL RUNOFF (AC-FT)	352,300		530,100		739,900	
ANNUAL RUNOFF (CFSM)	0.396		0.594		0.830	
ANNUAL RUNOFF (INCHES)	5.37		8.08		11.28	
10 PERCENT EXCEEDS	897		2,040		2,400	
50 PERCENT EXCEEDS	401		442		597	
90 PERCENT EXCEEDS	127		229		200	

+ Change in contents, equivalent in cubic feet per second, in Camp Six, Bald Eagle, Gabbro, Little Gabbro, Birch, White Iron, Farm, South Farm, and Garden Lakes.
‡ Adjusted for change in reservoir contents.
a Many days, several years.



05127500 BASSWOOD RIVER NEAR WINTON, MN
(International Gaging Station)

LOCATION.--Lat 48°04'57", long 91°39'09", in SE¼SE¼ sec. 30, T.65 N., R.10 W., Lake County, Hydrologic Unit 09030001, in Superior National Forest, on island in Jackfish Bay of Basswood Lake, used to determine discharge at outlet (lat 48°06'21", long 91°38'51", in sec. 19, T.65 N., R.10 W., on international boundary 14 mi northeast of Winton).

DRAINAGE AREA.--1,740 mi^2, approximately, (above outlet of Basswood Lake).

PERIOD OF RECORD.--March to June 1924, September 1925 to March 1928, January 1930 to current year. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 955: Drainage area. WSP 1145: 1935, 1937.

GAGE.--Water-stage recorder. Datum of gage is 1,296.80 ft above sea level (NGVD of 1928, levels by Geodetic Survey of Canada). Prior to Oct. 27, 1938, nonrecording gages at several sites in vicinity of gage, at datum 3.0 ft higher. Oct. 28, 1938 to Sept. 30, 1966, water-stage recorder at datum 3.0 ft higher.

REMARKS.--Records good. Some regulation by power plant on Kawishiwi River at Winton, and by many lakes located upstream from station.

COOPERATION.--This station is one of the international gaging stations maintained by the United States under agreement with Canada.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	810	676	623	624	651	641	870	3,640	2,850	1,510	691	381
2	808	664	633	624	651	650	884	3,670	2,860	1,460	670	372
3	802	653	634	618	651	663	899	3,690	2,880	1,410	652	367
4	798	652	634	617	651	694	921	3,690	2,890	1,370	629	363
5	792	635	631	617	651	711	938	3,730	2,900	1,320	598	377
6	782	621	633	616	652	724	953	3,710	2,920	1,260	585	399
7	778	603	629	614	657	729	1,010	3,710	3,020	1,210	559	398
8	775	602	625	609	654	744	1,110	3,680	3,030	1,160	543	400
9	776	595	625	609	651	747	1,180	3,630	3,040	1,130	530	400
10	775	591	620	609	651	749	1,240	3,550	3,030	1,100	526	396
11	768	581	616	616	644	742	1,310	3,500	3,000	1,180	549	386
12	786	583	612	624	642	740	1,380	3,440	3,000	1,160	544	386
13	787	583	609	617	637	740	1,440	3,350	2,980	1,130	537	380
14	771	579	607	629	634	742	1,500	3,250	2,960	1,120	525	380
15	760	576	600	640	634	739	1,560	3,170	2,930	1,100	509	399
16	745	576	614	647	634	737	1,630	3,080	2,900	1,100	495	412
17	738	582	620	646	634	738	1,700	3,070	2,840	1,070	487	417
18	723	580	616	643	637	739	1,850	3,020	2,710	1,040	479	415
19	720	577	609	642	641	749	2,070	2,960	2,610	1,010	463	417
20	708	575	613	642	639	739	2,190	2,880	2,490	991	444	416
21	702	572	608	642	636	739	2,300	2,810	2,360	944	437	426
22	700	575	606	642	643	740	2,410	2,740	2,240	903	426	427
23	697	583	600	642	642	740	2,540	2,710	2,130	870	423	425
24	702	606	601	642	642	740	2,680	2,640	2,020	847	410	431
25	695	619	600	642	642	756	2,850	2,640	1,910	815	400	428
26	688	623	599	642	643	775	3,010	2,640	1,830	793	399	424
27	691	624	596	651	642	780	3,170	2,660	1,740	773	396	414
28	692	625	600	651	639	808	3,320	2,660	1,680	760	390	406
29	685	630	600	651	637	831	3,490	2,670	1,620	744	381	401
30	685	628	600	651	---	845	3,590	2,700	1,560	727	378	400
31	684	---	613	651	---	859	---	2,810	---	712	381	---
TOTAL	23,023	18,169	19,026	19,610	18,662	23,070	55,995	98,100	76,930	32,719	15,436	12,043
MEAN	743	606	614	633	644	744	1,866	3,165	2,564	1,055	498	401
MAX	810	676	634	651	657	859	3,590	3,730	3,040	1,510	691	431
MIN	684	572	596	609	634	641	870	2,640	1,560	712	378	363
AC-FT	45,670	36,040	37,740	38,900	37,020	45,760	111,100	194,600	152,600	64,900	30,620	23,890
CFSM	0.43	0.35	0.35	0.36	0.37	0.43	1.07	1.82	1.47	0.61	0.29	0.23
IN.	0.49	0.39	0.41	0.42	0.40	0.49	1.20	2.10	1.64	0.70	0.33	0.26

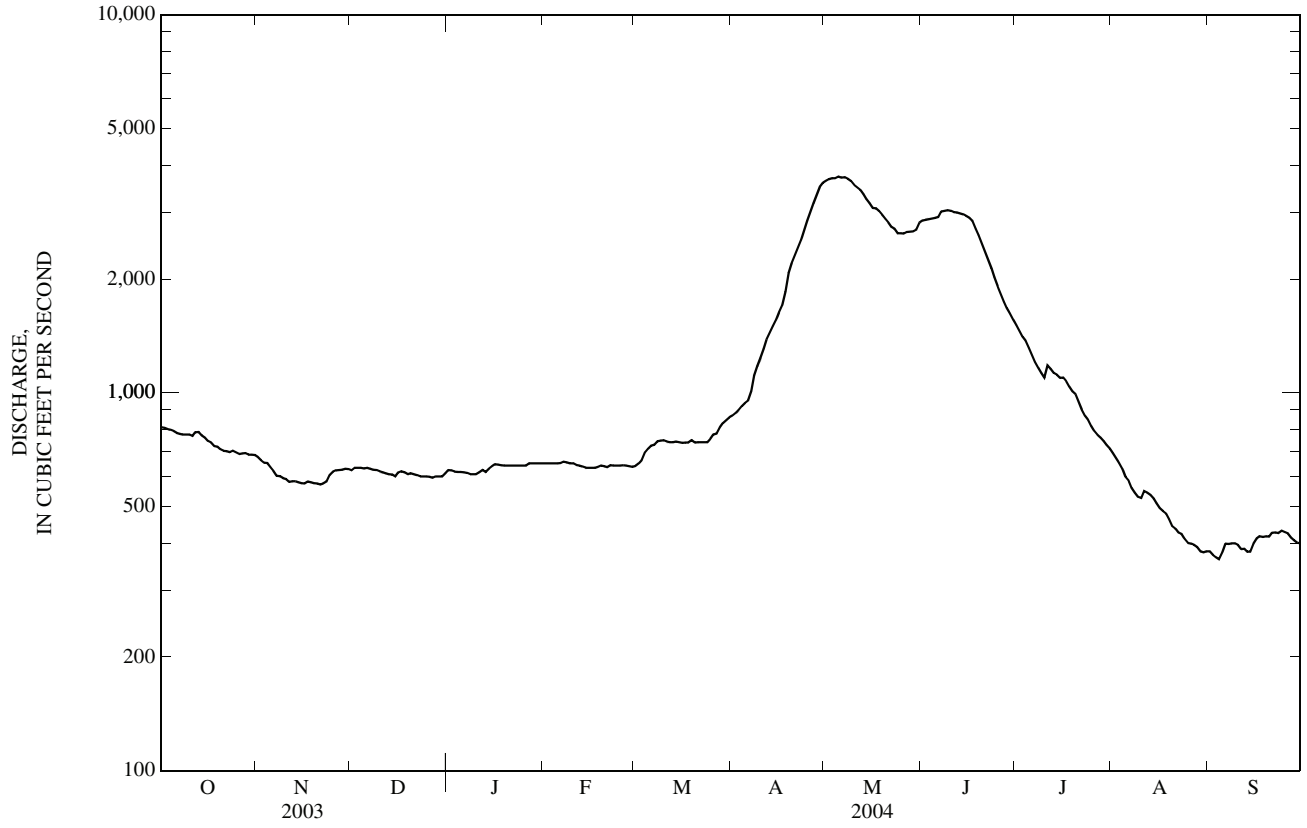
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1931 - 2004, BY WATER YEAR (WY)

MEAN	1,066	1,006	879	730	599	572	1,232	3,671	2,797	1,814	1,124	971
MAX	5,320	3,879	2,510	1,475	1,229	1,143	5,069	9,114	7,332	4,453	3,487	5,034
(WY)	(1978)	(1971)	(1983)	(1966)	(1966)	(1966)	(1945)	(1950)	(1950)	(1944)	(1944)	(1988)
MIN	65.1	60.2	76.2	86.2	95.0	135	269	225	696	512	278	120
(WY)	(1977)	(1977)	(1977)	(1977)	(1977)	(1977)	(1977)	(1977)	(1980)	(1980)	(1998)	(1976)

05127500 BASSWOOD RIVER NEAR WINTON, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1931 - 2004	
ANNUAL TOTAL	247,849		412,783			
ANNUAL MEAN	679		1,128		1,383	
HIGHEST ANNUAL MEAN					2,643	1950
LOWEST ANNUAL MEAN					557	1958
HIGHEST DAILY MEAN	1,830	Jul 21	3,730	May 5	15,200	May 24, 1950
LOWEST DAILY MEAN	276	Mar 19	363	Sep 4	58	Nov 3, 1976
ANNUAL SEVEN-DAY MINIMUM	281	Mar 15	374	Aug 30	58	Nov 7, 1976
MAXIMUM PEAK FLOW			3,760	May 5	15,600	May 24, 1950
MAXIMUM PEAK STAGE			5.30	May 5	a9.94	May 24, 1950
INSTANTANEOUS LOW FLOW			355	Sep 5	55	Nov 18, 1976
ANNUAL RUNOFF (AC-FT)	491,600		818,800		1,002,000	
ANNUAL RUNOFF (CFSM)	0.390		0.648		0.795	
ANNUAL RUNOFF (INCHES)	5.30		8.83		10.80	
10 PERCENT EXCEEDS	1,300		2,890		3,200	
50 PERCENT EXCEEDS	609		673		867	
90 PERCENT EXCEEDS	305		426		371	

a Present datum.



05128000 NAMAKAN RIVER AT OUTLET OF LAC LA CROIX, ONTARIO
(International Gaging Station)

LOCATION.--Lat 48°21'14", long 92°13'01", at Campbell's Camp, on Lac La Croix Lake, used to determine discharge at outlet [Lat 48°23'00", long 92°10'40", 2.5 mi east of Campbell's Camp].

DRAINAGE AREA.--5,170 mi^2.

PERIOD OF RECORD.--September 1921 to January 1922, April 1922 to current year, in reports of U.S. Geological Survey. Monthly discharge only for some periods, published in WSP 1308. August 1921 to current year, in reports of Water Survey of Canada.

GAGE.--Water-stage recorder. Datum of gage is sea level (United States and Canadian Boundary Survey). Prior to October 1933, nonrecording gages at various sites on Lac la Croix. October 1933 to Mar. 13, 1963, nonrecording gage at present site and datum.

REMARKS.--Records furnished by Water Survey of Canada.

COOPERATION.--This station is one of the international stations maintained by Canada under agreement with the United States.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3,260	2,930	2,360	e2,100	e2,130	e2,070	e2,390	7,870	7,770	6,570	3,570	2,090
2	3,280	2,910	2,350	e2,100	e2,140	e2,090	e2,430	8,020	7,770	6,430	3,490	2,050
3	3,280	2,880	2,340	e2,090	e2,140	e2,140	e2,460	8,120	7,730	6,360	3,400	2,000
4	3,320	2,870	2,320	e2,090	e2,150	e2,150	e2,490	8,190	7,700	6,390	3,320	1,970
5	3,340	2,810	2,310	e2,090	e2,150	e2,150	e2,510	8,330	7,700	6,360	3,230	1,960
6	3,350	2,740	2,300	e2,090	e2,160	e2,150	e2,540	8,330	7,730	6,250	3,160	1,970
7	3,350	2,690	2,280	e2,090	e2,160	e2,150	e2,570	8,440	7,870	6,110	3,080	1,950
8	3,350	2,700	2,260	e2,090	e2,160	e2,150	e2,850	8,470	7,870	6,000	3,010	1,950
9	3,350	2,660	2,250	e2,090	e2,150	e2,160	e3,040	8,510	7,980	5,860	2,930	1,920
10	3,350	2,630	2,240	e2,080	e2,150	e2,160	e3,230	8,440	8,020	5,760	2,890	1,880
11	3,330	2,590	2,220	e2,090	2,140	e2,150	e3,430	8,550	8,050	5,900	2,890	1,820
12	3,360	2,570	2,220	e2,090	e2,130	e2,160	e3,600	8,620	7,980	5,760	2,840	1,830
13	3,400	2,550	2,210	e2,100	e2,120	e2,160	e3,780	8,580	7,940	5,580	2,780	1,780
14	3,380	2,530	2,190	e2,100	e2,110	e2,160	e3,920	8,580	7,940	5,510	2,700	1,730
15	3,350	2,510	2,180	e2,110	e2,110	e2,210	e4,030	8,550	7,980	5,400	2,640	1,750
16	3,320	2,480	2,210	e2,120	e2,100	e2,190	e4,240	8,510	7,980	5,260	2,590	1,830
17	3,350	2,480	2,210	e2,120	e2,100	e2,200	e4,410	8,510	7,940	5,050	2,540	1,860
18	3,300	2,450	2,200	e2,120	e2,090	e2,210	e4,560	8,470	7,770	4,940	2,490	1,840
19	3,300	2,420	2,190	e2,120	e2,090	e2,200	e4,730	8,400	7,730	4,840	2,490	1,830
20	3,240	2,380	2,180	e2,120	e2,090	e2,200	e4,870	8,330	7,630	4,770	2,420	1,810
21	3,210	2,370	2,160	e2,120	e2,090	e2,190	e5,080	8,300	7,560	4,630	2,390	1,810
22	3,200	2,380	2,150	e2,120	e2,080	e2,190	e5,580	8,190	7,450	4,480	2,340	1,830
23	3,160	2,380	2,140	e2,120	e2,080	e2,190	e5,900	8,120	7,420	4,380	2,330	1,830
24	3,190	2,410	2,130	e2,130	e2,080	e2,200	e6,250	7,980	7,340	4,310	2,290	1,840
25	3,140	2,430	2,120	e2,130	e2,070	e2,210	e6,570	7,910	7,270	4,170	2,250	1,830
26	3,120	2,430	2,120	e2,130	e2,080	e2,230	e6,890	7,870	7,170	4,100	2,230	1,830
27	3,130	2,400	2,110	e2,130	e2,070	e2,260	e7,130	7,870	7,060	3,990	2,210	1,800
28	3,120	2,390	2,100	e2,130	e2,070	e2,300	e7,380	7,800	6,920	3,880	2,190	1,790
29	3,060	2,390	2,090	2,130	e2,070	e2,310	7,520	7,730	6,810	3,810	2,160	1,780
30	3,040	2,380	2,090	2,130	---	e2,340	7,660	7,730	6,670	3,740	2,130	1,780
31	2,970	---	2,100	e2,130	---	e2,380	---	7,800	---	3,670	2,120	---
TOTAL	100,900	76,740	68,330	65,400	61,260	68,010	134,040	255,120	228,750	160,260	83,100	55,940
MEAN	3,255	2,558	2,204	2,110	2,112	2,194	4,468	8,230	7,625	5,170	2,681	1,865
MAX	3,400	2,930	2,360	2,130	2,160	2,380	7,660	8,620	8,050	6,570	3,570	2,090
MIN	2,970	2,370	2,090	2,080	2,070	2,070	2,390	7,730	6,670	3,670	2,120	1,730
AC-FT	200,100	152,200	135,500	129,700	121,500	134,900	265,900	506,000	453,700	317,900	164,800	111,000
CFSM	0.63	0.49	0.43	0.41	0.41	0.42	0.86	1.59	1.47	1.00	0.52	0.36
IN.	0.73	0.55	0.49	0.47	0.44	0.49	0.96	1.84	1.65	1.15	0.60	0.40

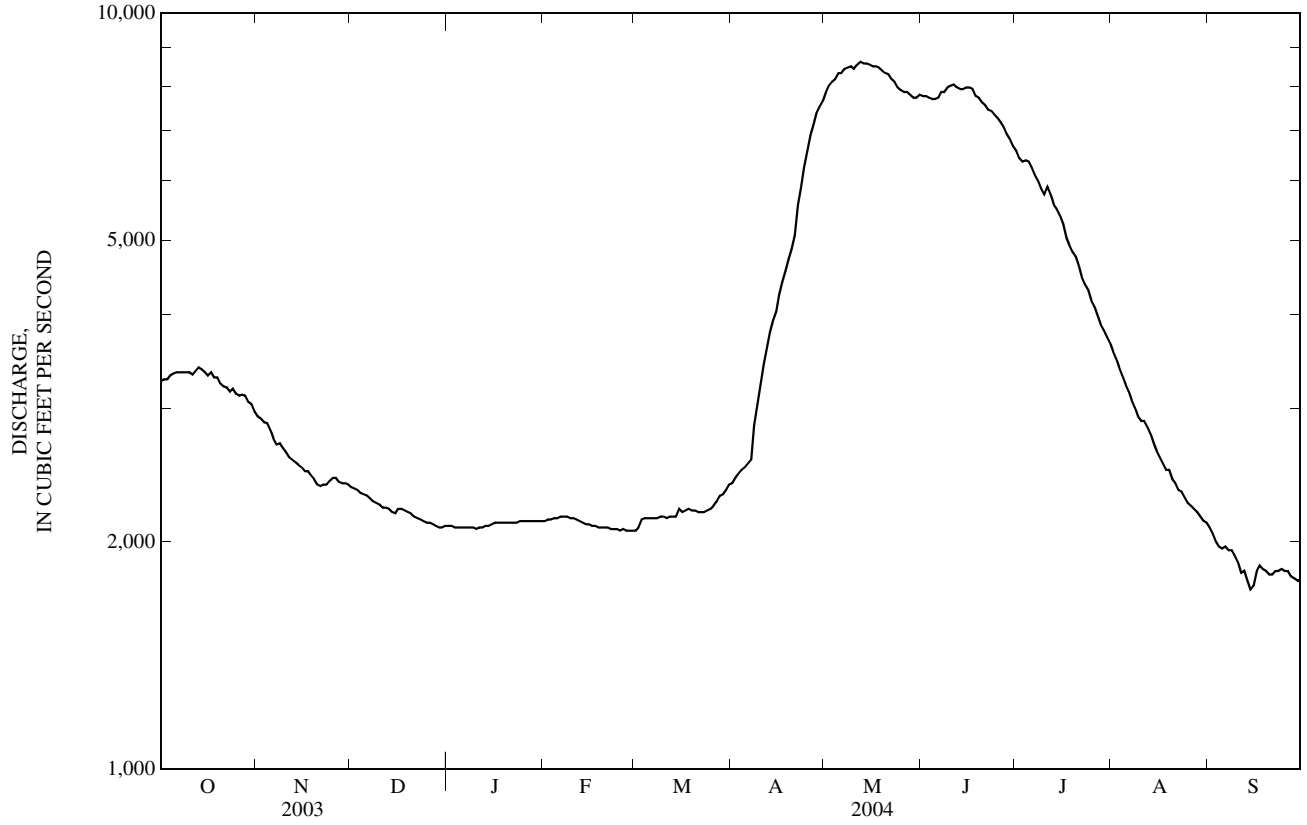
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1921 - 2004, BY WATER YEAR (WY)

MEAN	3,041	2,892	2,593	2,195	1,891	1,681	2,600	7,618	7,870	6,019	4,052	3,151
MAX	14,200	10,610	7,189	4,568	3,432	2,996	9,071	16,900	22,120	15,930	11,200	13,140
(WY)	(1978)	(1978)	(1972)	(1978)	(1966)	(1966)	(1945)	(1938)	(1950)	(1968)	(1944)	(1988)
MIN	744	624	567	547	540	535	614	899	1,475	1,263	1,123	774
(WY)	(1999)	(1977)	(1977)	(1977)	(1924)	(1924)	(1977)	(1977)	(1924)	(1924)	(1998)	(1998)

05128000 NAMAKAN RIVER AT OUTLET OF LAC LA CROIX, ONTARIO—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1921 - 2004	
ANNUAL TOTAL	711,723		1,357,850			
ANNUAL MEAN	1,950		3,710		3,818	
HIGHEST ANNUAL MEAN					7,270	1950
LOWEST ANNUAL MEAN					964	1924
HIGHEST DAILY MEAN	3,670	Aug 3	8,620	May 12	a28,200	May 31, 1950
LOWEST DAILY MEAN	904	Mar 16	1,730	Sep 14	535	Feb 4, 1924
ANNUAL SEVEN-DAY MINIMUM	905	Mar 14	1,800	Sep 11	535	Feb 4, 1924
MAXIMUM PEAK FLOW			8,860	May 12	28,200	May 31, 1950
MAXIMUM PEAK STAGE			1,187.07	May 12	a1,193.30	May 31, 1950
INSTANTANEOUS LOW FLOW			1,700	Sep 14	b535	Feb 1, 1924
ANNUAL RUNOFF (AC-FT)	1,412,000		2,693,000		2,766,000	
ANNUAL RUNOFF (CFSM)	0.377		0.718		0.738	
ANNUAL RUNOFF (INCHES)	5.12		9.77		10.03	
10 PERCENT EXCEEDS	3,290		7,870		8,220	
50 PERCENT EXCEEDS	1,940		2,490		2,680	
90 PERCENT EXCEEDS	925		2,080		1,180	

a Occurred May 31 to June 2, 1950.
b Many days in 1924.
e Estimated



05129115 VERMILION RIVER NEAR CRANE LAKE, MN

LOCATION.--Lat 48°15'53", long 92°33'57", in NE¼NE¼ sec. 30, T.67 N., R.17 W., St. Louis County, Hydrologic Unit 09030002, in Superior National Forest, on left bank 350 ft downstream from bridge on Forest Route 491, 3.5 mi upstream from mouth, and 3.5 mi west of city of Crane Lake.

DRAINAGE AREA.-- 905 mi^2.

PERIOD OF RECORD.--August 1979 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,180 ft above sea level (from topographic map).

REMARKS.--Records good.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of April 1979 reached a stage of 15.15 ft, from high-water mark, discharge approximately 4,600 ft^3/s.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	500	373	415	322	272	223	954	1,510	1,760	604	252	98
2	490	374	405	325	284	226	1,090	1,450	1,850	580	237	100
3	476	363	404	323	290	226	1,290	1,420	1,840	569	223	99
4	463	356	399	311	286	226	1,460	1,370	1,770	689	209	97
5	450	358	395	302	282	229	1,570	1,320	1,690	719	197	102
6	434	344	385	293	285	228	1,650	1,270	1,620	643	187	154
7	412	334	380	291	286	228	1,770	1,220	1,610	586	178	173
8	398	318	378	291	290	229	2,040	1,180	1,630	542	175	186
9	392	307	373	288	294	229	2,280	1,150	1,610	509	179	198
10	387	317	363	288	288	230	2,370	1,100	1,560	485	181	203
11	380	324	350	291	279	230	2,350	1,050	1,500	588	186	197
12	412	330	337	297	268	226	2,220	1,090	1,460	651	180	184
13	433	329	332	297	259	230	2,080	1,200	1,400	634	175	180
14	441	327	335	297	250	237	1,960	1,220	1,330	614	170	172
15	435	327	333	295	235	238	1,860	1,190	1,270	582	164	182
16	419	327	336	297	231	237	1,810	1,150	1,260	547	158	321
17	405	344	335	300	238	239	1,780	1,150	1,240	515	157	402
18	395	399	333	297	244	239	1,770	1,210	1,180	493	168	421
19	386	441	330	289	248	237	1,860	1,210	1,110	473	156	417
20	374	461	327	280	248	237	1,960	1,200	1,050	451	145	401
21	358	457	327	283	245	234	2,020	1,170	996	429	134	396
22	351	438	325	283	241	231	2,040	1,130	955	405	126	383
23	344	419	322	280	238	230	2,000	1,080	893	386	118	375
24	349	382	318	282	237	229	1,940	1,060	852	364	117	408
25	347	413	315	280	234	238	1,860	1,090	803	346	115	440
26	339	430	313	290	228	287	1,790	1,150	764	328	110	436
27	334	431	311	288	224	332	1,730	1,210	731	310	105	410
28	345	429	317	293	219	417	1,670	1,230	697	298	98	381
29	357	424	320	289	219	606	1,610	1,200	665	297	93	359
30	359	425	321	e283	---	737	1,560	1,190	637	280	93	344
31	368	---	327	273	---	849	---	1,470	---	266	94	---
TOTAL	12,333	11,301	10,761	9,098	7,442	9,014	54,344	37,640	37,733	15,183	4,880	8,219
MEAN	398	377	347	293	257	291	1,811	1,214	1,258	490	157	274
MAX	500	461	415	325	294	849	2,370	1,510	1,850	719	252	440
MIN	334	307	311	273	219	223	954	1,050	637	266	93	97
AC-FT	24,460	22,420	21,340	18,050	14,760	17,880	107,800	74,660	74,840	30,120	9,680	16,300
CFSM	0.44	0.42	0.38	0.32	0.28	0.32	2.00	1.34	1.39	0.54	0.17	0.30
IN.	0.51	0.46	0.44	0.37	0.31	0.37	2.23	1.55	1.55	0.62	0.20	0.34

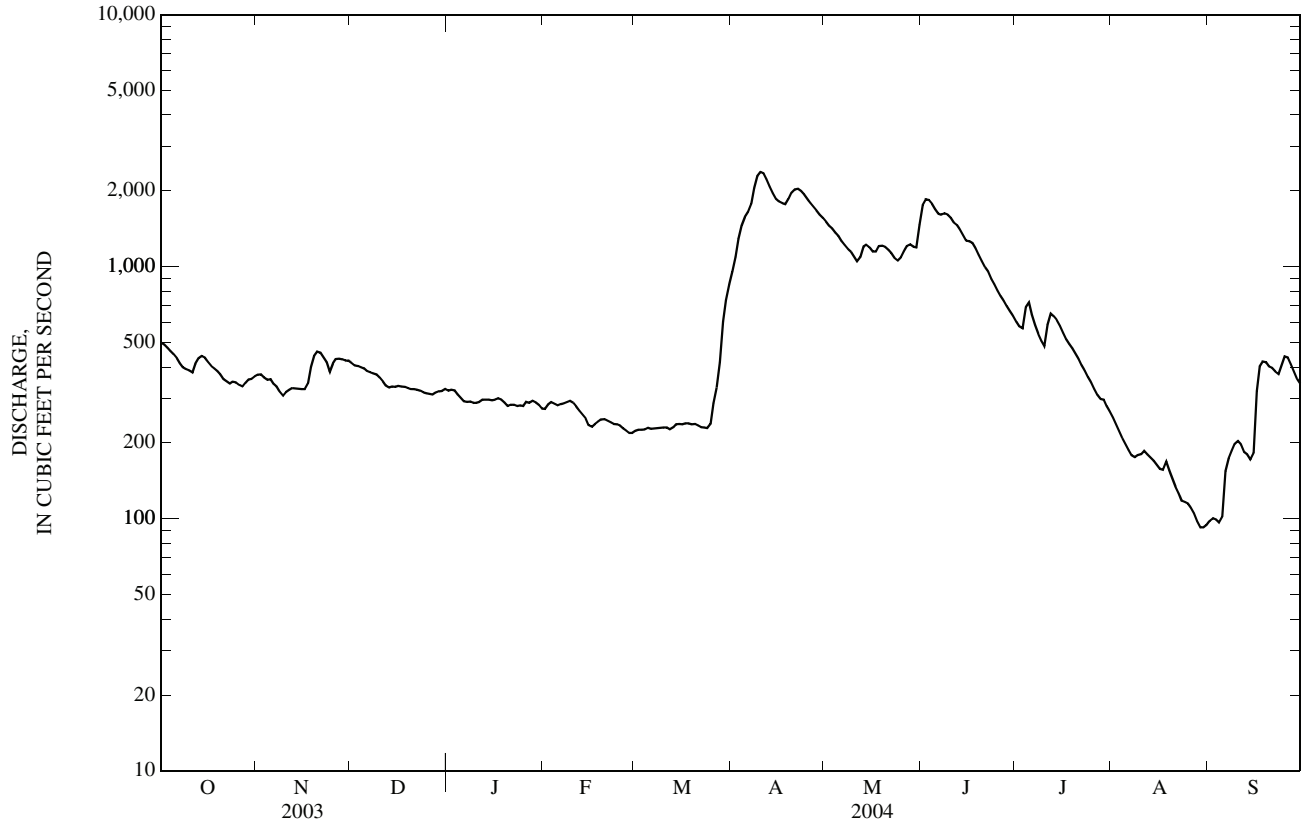
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1979 - 2004, BY WATER YEAR (WY)

MEAN	547	532	414	286	233	283	1,181	1,363	949	753	527	464
MAX	1,436	1,138	872	476	374	574	2,286	3,012	2,234	1,609	2,225	1,880
(WY)	(1996)	(1983)	(1983)	(1996)	(1997)	(1995)	(2001)	(2001)	(2001)	(1985)	(2001)	(1988)
MIN	110	132	106	84.4	63.9	89.5	294	363	205	113	60.0	69.1
(WY)	(1998)	(2003)	(2003)	(2003)	(2003)	(1988)	(2003)	(2003)	(1980)	(1980)	(1980)	(1998)

05129115 VERMILION RIVER NEAR CRANE LAKE, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1979 - 2004	
ANNUAL TOTAL	100,127		217,948			
ANNUAL MEAN	274		595		630	
HIGHEST ANNUAL MEAN					1,132	2001
LOWEST ANNUAL MEAN					213	2003
HIGHEST DAILY MEAN	718	Sep 22	2,370	Apr 10	4,300	Apr 25, 1985
LOWEST DAILY MEAN	53	Mar 11	93	Aug 29,30	38	Aug 13, 1980
ANNUAL SEVEN-DAY MINIMUM	54	Mar 5	96	Aug 29	40	Aug 10, 1980
MAXIMUM PEAK FLOW			2,390	Apr 10	4,360	Apr 25, 1985
MAXIMUM PEAK STAGE			12.03	Apr 10	15.20	Apr 25, 1985
INSTANTANEOUS LOW FLOW			89	Aug 31	38	Aug 13, 1980
ANNUAL RUNOFF (AC-FT)	198,600		432,300		456,400	
ANNUAL RUNOFF (CFSM)	0.303		0.658		0.696	
ANNUAL RUNOFF (INCHES)	4.12		8.96		9.46	
10 PERCENT EXCEEDS	463		1,520		1,430	
50 PERCENT EXCEEDS	294		356		420	
90 PERCENT EXCEEDS	67		186		154	

e Estimated.



05129290 GOLD PORTAGE OUTLET FROM KABETOGAMA LAKE NEAR RAY, MN

LOCATION.--Lat 48°31'28", long 93°04'29", in SW¼NE¼ sec. 30, T.70 N., R.21 W., St. Louis County, Hydrologic Unit 09030003, on right bank in bay at head of Gold Portage Outlet from Kabetogama Lake, 9.8 mi northeast of Ray.

PERIOD OF RECORD.--October 1982 to September 1993, October 1993 to September 1994 (peak gage height and discharge only), October 1997 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,100 ft above sea level (NGVD of 1912, U.S. Army Corp of Engineers benchmark), water surface transfer.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Flow completely regulated by outlet dam on Namakan Lake.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e1.0	e0.00	e0.00	e0.00	e0.00	e0.00	e0.00	e0.00	e310	538	439	413
2	e2.0	e0.00	e0.00	e0.00	e0.00	e0.00	e0.00	e0.00	e390	541	435	413
3	e1.0	e0.00	e0.00	e0.00	e0.00	e0.00	e0.00	e0.00	e485	542	430	404
4	e0.40	e0.00	e0.00	e0.00	e0.00	e0.00	e0.00	e0.00	575	540	430	402
5	e0.17	e0.00	e0.00	e0.00	e0.00	e0.00	e0.00	e0.00	590	545	424	409
6	e0.12	e0.00	e0.00	e0.00	e0.00	e0.00	e0.00	e0.00	602	536	424	410
7	e0.10	e0.00	e0.00	e0.00	e0.00	e0.00	e0.00	e0.00	640	529	430	408
8	e0.08	e0.00	e0.00	e0.00	e0.00	e0.00	e0.00	e0.01	625	526	426	417
9	e0.07	e0.00	e0.00	e0.00	e0.00	e0.00	e0.00	e0.02	635	518	417	412
10	e0.06	e0.00	e0.00	e0.00	e0.00	e0.00	e0.00	e0.02	643	520	413	406
11	e0.05	e0.00	e0.00	e0.00	e0.00	e0.00	e0.00	e0.03	652	543	415	388
12	e0.05	e0.00	e0.00	e0.00	e0.00	e0.00	e0.00	e0.03	629	538	417	404
13	e0.04	e0.00	e0.00	e0.00	e0.00	e0.00	e0.00	e0.04	612	515	415	409
14	e0.03	e0.00	e0.00	e0.00	e0.00	e0.00	e0.00	e0.05	606	513	414	393
15	e0.03	e0.00	e0.00	e0.00	e0.00	e0.00	e0.00	e0.06	613	508	415	398
16	e0.03	e0.00	e0.00	e0.00	e0.00	e0.00	e0.00	e0.08	607	497	413	417
17	e0.02	e0.00	e0.00	e0.00	e0.00	e0.00	e0.00	e0.10	604	492	407	441
18	e0.02	e0.00	e0.00	e0.00	e0.00	e0.00	e0.00	e0.12	570	484	388	445
19	e0.02	e0.00	e0.00	e0.00	e0.00	e0.00	e0.00	e0.40	578	472	395	447
20	e0.02	e0.00	e0.00	e0.00	e0.00	e0.00	e0.00	e1.2	573	469	390	447
21	e0.02	e0.00	e0.00	e0.00	e0.00	e0.00	e0.00	e5.0	568	446	403	427
22	e0.01	e0.00	e0.00	e0.00	e0.00	e0.00	e0.00	e7.0	564	436	398	430
23	e0.01	e0.00	e0.00	e0.00	e0.00	e0.00	e0.00	e10	568	442	412	429
24	e0.01	e0.00	e0.00	e0.00	e0.00	e0.00	e0.00	e16	555	449	415	423
25	e0.01	e0.00	e0.00	e0.00	e0.00	e0.00	e0.00	e24	555	443	413	419
26	e0.01	e0.00	e0.00	e0.00	e0.00	e0.00	e0.00	e35	557	448	421	416
27	e0.01	e0.00	e0.00	e0.00	e0.00	e0.00	e0.00	e50	554	448	414	399
28	e0.00	e0.00	e0.00	e0.00	e0.00	e0.00	e0.00	e69	549	448	423	401
29	e0.00	e0.00	e0.00	e0.00	e0.00	e0.00	e0.00	e120	548	446	423	400
30	e0.00	e0.00	e0.00	e0.00	---	e0.00	e0.00	e180	538	449	409	398
31	e0.00	---	e0.00	e0.00	---	e0.00	---	e245	---	446	413	---
TOTAL	5.39	0.00	0.00	0.00	0.00	0.00	0.00	763.16	17,095	15,267	12,881	12,425
MEAN	0.17	0.00	0.00	0.00	0.00	0.00	0.00	24.6	570	492	416	414
MAX	2.0	0.00	0.00	0.00	0.00	0.00	0.00	245	652	545	439	447
MIN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	310	436	388	388
AC-FT	11	0.00	0.00	0.00	0.00	0.00	0.00	1,510	33,910	30,280	25,550	24,640

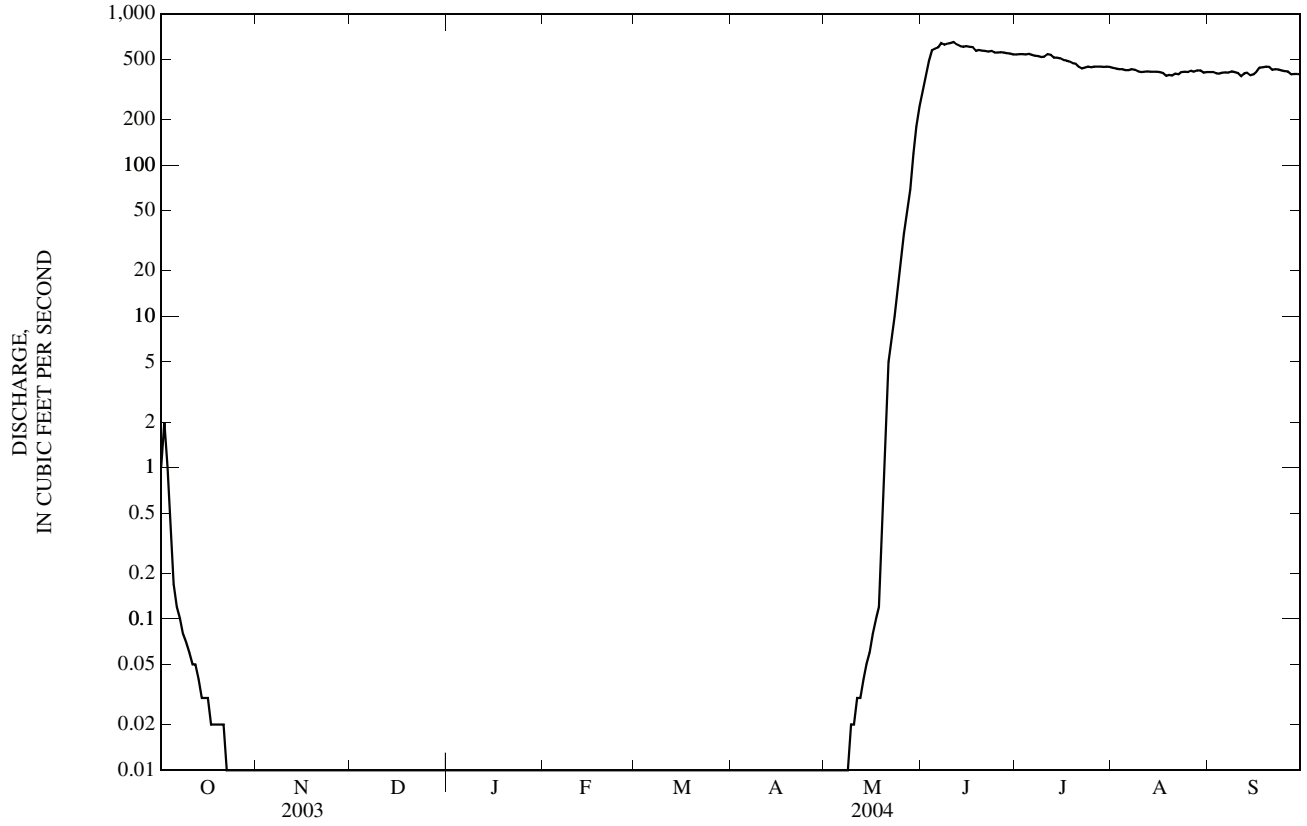
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1983 - 2004, BY WATER YEAR (WY)

MEAN	354	189	81.5	20.5	3.92	0.50	6.24	148	417	535	520	476
MAX	530	267	149	57.2	32.7	4.48	98.9	798	950	690	686	787
(WY)	(1986)	(1990)	(1992)	(2000)	(2000)	(2000)	(2001)	(2001)	(2001)	(2002)	(1988)	(1988)
MIN	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.1	32.5	0.23	0.12
(WY)	(2004)	(2004)	(2004)	(2004)	(1983)	(1983)	(1983)	(1987)	(2003)	(2003)	(2003)	(2003)

05129290 GOLD PORTAGE OUTLET FROM KABETOGAMA LAKE NEAR RAY, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1983 - 2004	
ANNUAL TOTAL	3,158.28		58,436.55			
ANNUAL MEAN	8.65		160		230	
HIGHEST ANNUAL MEAN					340	2001
LOWEST ANNUAL MEAN					67.1	2003
HIGHEST DAILY MEAN	86	Jan 1	652	Jun 11	1,310	May 30, 2001
LOWEST DAILY MEAN	0.00	Mar 20	0.00	Oct 28 - May 7	a0.00	Jan 21, 1983
ANNUAL SEVEN-DAY MINIMUM	0.00	Mar 20	0.00	Oct 28	0.00	Jan 21, 1983
MAXIMUM PEAK FLOW			680	Jun 11	1,310	May 29, 2001
MAXIMUM PEAK STAGE			18.45	Jun 7, 11	20.53	May 31, 2001
ANNUAL RUNOFF (AC-FT)	6,260		115,900		167,000	
10 PERCENT EXCEEDS	34		527		588	
50 PERCENT EXCEEDS	0.12		0.00		133	
90 PERCENT EXCEEDS	0.00		0.00		0.00	

a Many days, several years.
e Estimated.



05129400 RAINY LAKE NEAR FORT FRANCES, ONTARIO
(International Gaging Station)

LOCATION.--Lat 48°38'30", long 93°20'00", at Five Mile dock, approximately 5 mi northeast of city of Fort Frances.

PERIOD OF RECORD.--January 1910 to September 1917 and October 1934 to current year, in reports of Geological Survey. August 1911 to current year, in reports of Water Survey of Canada. Prior to October 1949, published as "at Ranier, Minn.", and as "at Fort Frances, Ontario" October 1949 to September 1964.

GAGE.--Water-stage recorder. Datum of gage is sea level (United States and Canadian Boundary Survey). January 1910 to December 1949, nonrecording gage 3 mi northeast at Ranier, Minn., at same datum. January 1950 to October 1964, water-stage recorder on Government dock at Pither's Point at Fort Frances, and supplementary gage in town pumping station, 0.5 mi south, used during winter months, at same datum.

REMARKS.-- Records furnished by Water Survey of Canada.

COOPERATION.--This station is one of the international gaging stations maintained by Canada under agreement with the United States.

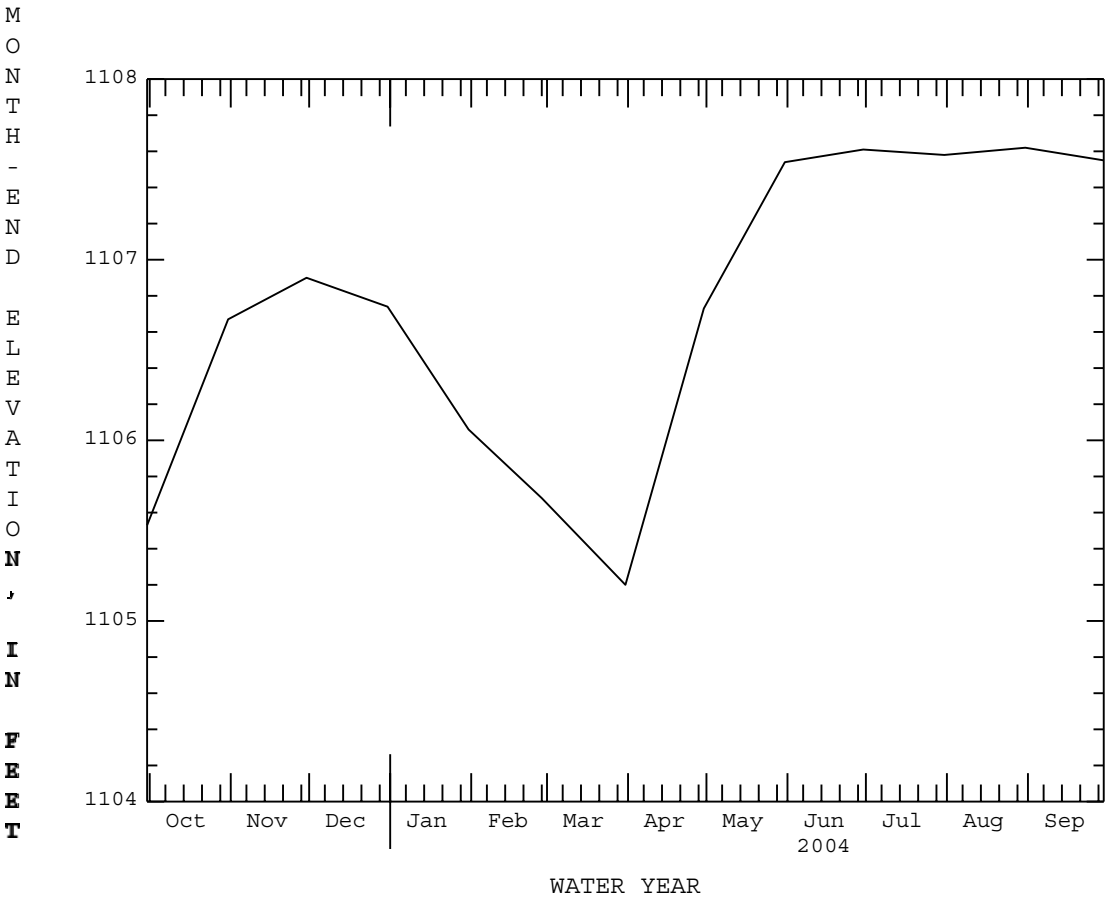
EXTREMES FOR PERIOD OF RECORD.--Maximum elevation observed, 1,112.97 ft, July 5, 1950; minimum observed, 1,101.26 ft, Apr. 17, 1923, Apr. 2, 1930.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 1,107.97 ft, Sept. 6; maximum daily, 1107.79 ft, Sept. 6; minimum elevation, 1,105.18 ft, Apr. 3; minimum daily, 1105.20 ft, Mar. 31, Apr. 1, 2.

MONTH-END ELEVATION, IN FEET ABOVE SEA LEVEL,
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Oct. 31	1106.67	Apr. 30	1106.33
Nov. 30	1106.90	May 31	1107.54
Dec. 31	1106.74	June 30	1107.61
Jan. 31	1106.06	July 31	1107.58
Feb. 29	1105.68	Aug. 31	1107.62
Mar. 31	1105.20	Sep. 30	1107.55

05129400 RAINY LAKE NEAR FORT FRANCES, ONTARIO—Continued



05130500 STURGEON RIVER NEAR CHISHOLM, MN

LOCATION.--Lat 47°40'25", long 92°54'00", in NE¼NW¼ sec. 20, T.60 N., R.20 W., St. Louis County, Hydrologic Unit 09030005, on left bank 1,000 ft upstream from County Highway 65 bridge, 0.6 mi downstream from East Branch Sturgeon River, and 11.5 mi north of Chisholm.

DRAINAGE AREA.--180 mi^2.

PERIOD OF RECORD.--August 1942 to current year.

REVISED RECORDS.--WSP 1438: 1946.

GAGE.--Water-stage recorder. Datum of gage is 1,305.7 ft above sea level (NGVD of 1929). Prior to Aug. 24, 1944, nonrecording gage at site 1,000 ft downstream at different datum. Aug. 25, 1944 to Sept. 30, 1975 at present site at datum 1.00 ft higher.

REMARKS.--Records good except those for estimated daily discharges, which are fair.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 500 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Apr 3	1930	*695	*4.28	Jun 2	0500	603	4.08

Minimum discharge, 17 ft^3/s, Aug. 31, gage height, 1.38 ft.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	68	71	e67	e37	e27	e26	e530	164	556	37	27	22
2	65	73	e66	e37	e27	e26	e550	153	599	35	25	22
3	61	70	e65	e36	e27	e26	667	143	541	37	24	21
4	58	e66	e64	e36	e26	e26	664	138	428	49	23	20
5	57	e65	e62	e35	e26	e26	628	132	355	48	22	36
6	53	e61	e61	e35	e26	e27	583	127	335	49	20	121
7	48	e57	e59	e35	e26	e27	541	122	313	50	20	133
8	48	e55	e57	e34	e25	e27	537	114	279	48	21	148
9	47	e54	e56	e34	e25	e27	510	108	243	45	24	158
10	45	56	e54	e34	e25	e28	464	106	205	43	25	140
11	50	59	e53	e33	e25	e28	402	99	176	111	28	116
12	63	65	e51	e33	e25	e28	347	105	167	134	27	98
13	68	66	e50	e33	e25	e28	303	124	152	138	26	84
14	71	66	e49	e33	e25	e28	272	131	135	119	26	77
15	73	67	e48	e32	e25	e29	249	127	121	97	26	94
16	70	69	e47	e32	e25	e29	238	119	114	81	25	200
17	67	79	e47	e32	e25	e29	228	158	104	70	25	230
18	65	99	e46	e32	e25	e29	241	204	94	61	25	258
19	63	121	e45	e31	e25	e29	285	220	86	55	24	249
20	61	129	e44	e31	e25	e30	294	235	79	50	23	218
21	59	122	e43	e31	e25	e32	299	229	72	45	22	206
22	59	119	e42	e30	e25	e34	298	212	68	42	22	192
23	57	105	e41	e30	e25	e37	282	189	63	38	21	181
24	57	86	e41	e30	e25	e40	259	168	63	35	21	189
25	57	e78	e40	e30	e25	e45	239	182	58	33	20	192
26	55	e75	e40	e29	e25	e56	224	196	55	31	20	188
27	55	e73	e39	e29	e25	e74	209	203	51	29	20	172
28	58	e72	e39	e29	e25	e110	196	194	47	29	19	155
29	61	e70	e38	e28	e25	e200	187	171	44	30	18	138
30	64	e69	e38	e28	---	e340	178	187	41	28	18	124
31	68	---	e37	e28	---	e470	---	429	---	27	19	---
TOTAL	1,851	2,317	1,529	997	735	1,991	10,904	5,189	5,644	1,724	706	4,182
MEAN	59.7	77.2	49.3	32.2	25.3	64.2	363	167	188	55.6	22.8	139
MAX	73	129	67	37	27	470	667	429	599	138	28	258
MIN	45	54	37	28	25	26	178	99	41	27	18	20
AC-FT	3,670	4,600	3,030	1,980	1,460	3,950	21,630	10,290	11,190	3,420	1,400	8,290
CFSM	0.33	0.43	0.27	0.18	0.14	0.36	2.02	0.93	1.05	0.31	0.13	0.77
IN.	0.38	0.48	0.32	0.21	0.15	0.41	2.25	1.07	1.17	0.36	0.15	0.86

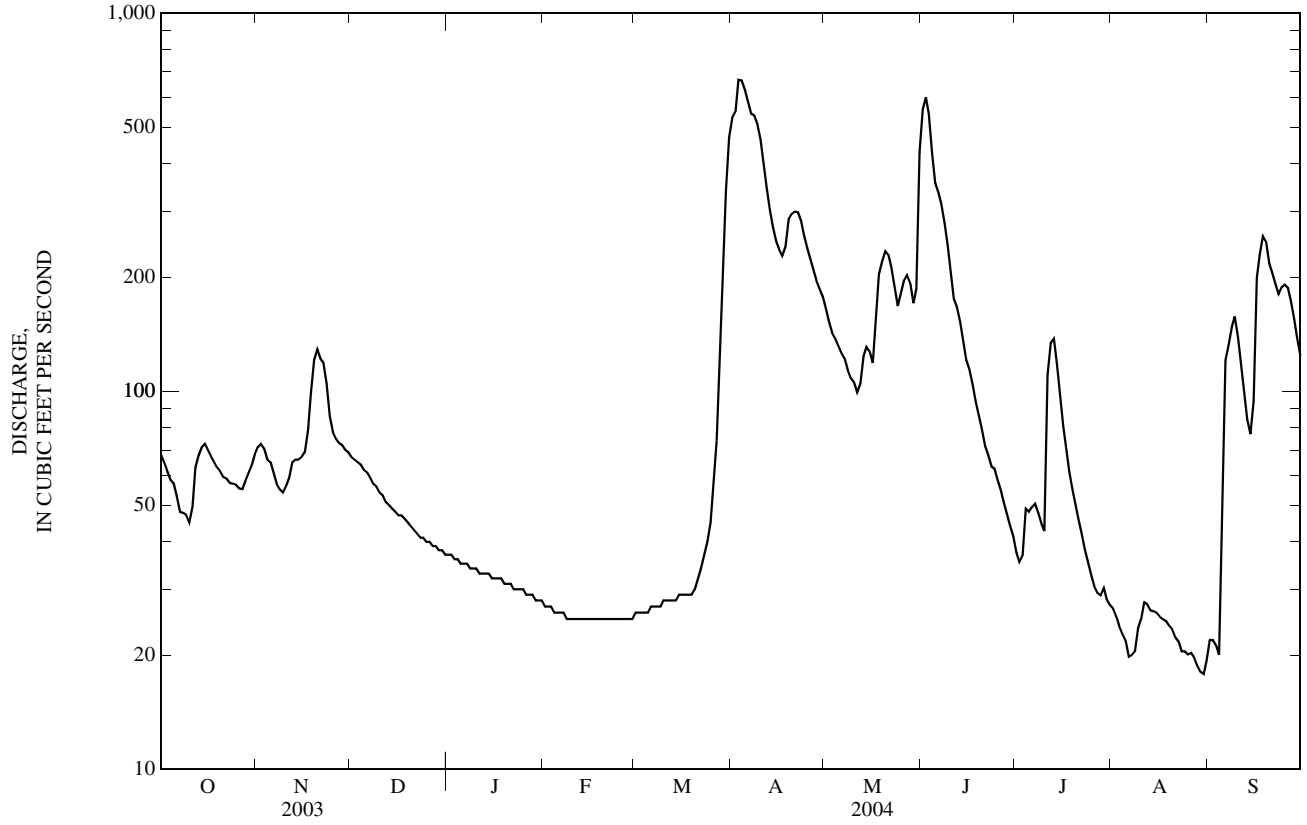
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1942 - 2004, BY WATER YEAR (WY)

MEAN	120	94.9	50.3	29.5	23.7	50.8	363	293	182	124	72.5	92.1
MAX	600	264	135	66.0	47.7	337	868	1,451	528	623	268	424
(WY)	(1996)	(1978)	(1999)	(1966)	(1984)	(1945)	(1948)	(1950)	(1944)	(1993)	(1988)	(1977)
MIN	7.85	8.90	4.82	3.98	4.54	10.0	41.0	22.9	14.7	5.99	12.6	4.60
(WY)	(1977)	(1977)	(1977)	(1977)	(1977)	(1957)	(1977)	(1977)	(1988)	(1988)	(1961)	(1976)

05130500 STURGEON RIVER NEAR CHISHOLM, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1942 - 2004	
ANNUAL TOTAL	25,095.6		37,769			
ANNUAL MEAN	68.8		103		125	
HIGHEST ANNUAL MEAN					218	1996
LOWEST ANNUAL MEAN					63.1	1977
HIGHEST DAILY MEAN	255	Jul 15	667	Apr 3	3,530	May 8, 1950
LOWEST DAILY MEAN	8.4	Feb 10	18	Aug 29,30	2.5	Jul 30, 1988
ANNUAL SEVEN-DAY MINIMUM	8.7	Feb 6	19	Aug 25	3.0	Jul 24, 1988
MAXIMUM PEAK FLOW			695	Apr 3	a3,630	May 7, 1950
MAXIMUM PEAK STAGE			4.28	Apr 3	b7.41	May 7, 1950
INSTANTANEOUS LOW FLOW			17	Aug 31		
ANNUAL RUNOFF (AC-FT)	49,780		74,910		90,460	
ANNUAL RUNOFF (CFSM)	0.382		0.573		0.694	
ANNUAL RUNOFF (INCHES)	5.19		7.81		9.43	
10 PERCENT EXCEEDS	139		240		291	
50 PERCENT EXCEEDS	62		56		60	
90 PERCENT EXCEEDS	10		25		18	

a From rating curve extended above 1,600 ft^3/s, on basis of slope-area measurement of peak flow.
b Present datum.
e Estimated.



05131448 WOOD DUCK CREEK NEAR NETT LAKE, MN

LOCATION.--Lat 48°09'24", long 93°08'20", in SW¼SW¼ sec. 35, T.66 N., R.22 W., Koochiching County, Hydrologic Unit 09030005, at bridge on Tribal Service Road, 2.9 miles above mouth at Nett Lake, and 3.5 miles northwest of the town of Nett Lake.

DRAINAGE AREA.--31.8 mi^2.

PERIOD OF RECORD.--October 1995 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,200.00 ft above sea level (NGVD of 1929), from GPS survey. Prior to Oct. 1, 2002 at datum 71.92 ft higher.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Backwater from Nett Lake occurs at times.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e0.27	e0.71	e3.1	e2.9	1.0	e0.76	e44	42	220	7.3	0.87	0.76
2	e0.32	e0.70	e3.0	e2.7	e0.95	e0.77	e52	38	175	7.0	0.82	0.80
3	e0.26	e0.67	e3.0	e2.6	0.87	e0.78	e60	37	137	7.0	0.79	0.74
4	e0.30	e0.65	e2.9	e2.4	e0.86	e0.78	e66	32	106	7.0	0.73	0.73
5	e0.31	e0.62	e2.9	e2.3	0.85	e0.79	e70	33	90	6.6	0.71	1.3
6	e0.32	e0.58	e2.8	2.2	e0.84	e0.79	e76	28	84	6.0	0.71	14
7	e0.32	e0.56	e2.8	2.0	e0.84	e0.79	e110	29	85	5.8	0.73	28
8	e0.33	e0.55	e2.8	1.9	e0.84	e0.80	174	27	84	5.4	0.67	27
9	e0.36	e0.56	e2.7	1.8	e0.83	e0.81	183	27	70	4.7	0.66	27
10	e0.46	e0.61	e2.6	1.8	e0.82	e0.85	165	24	60	4.5	0.69	25
11	e0.36	e0.70	e2.6	1.9	e0.81	e0.86	145	24	49	7.0	0.76	22
12	e0.40	e0.85	e2.6	2.0	e0.80	e0.88	110	27	40	7.5	0.77	21
13	e0.43	e1.0	e2.6	2.5	e0.80	e0.89	80	34	33	5.3	0.76	20
14	e0.42	e1.2	e2.6	e2.5	e0.80	e0.89	62	34	29	4.6	0.75	17
15	e0.37	e1.3	e2.5	e2.5	0.79	e0.90	51	31	26	3.9	0.75	20
16	e0.36	e1.5	e2.4	e2.4	e0.77	e0.90	54	28	26	3.4	0.73	53
17	e0.42	e1.7	e2.4	e2.3	e0.76	e0.91	64	34	24	3.1	0.68	64
18	e0.40	e2.0	e2.3	e2.1	e0.75	e0.92	80	36	20	2.9	0.58	58
19	e0.46	e2.7	e2.3	e1.7	e0.74	e0.94	106	29	19	2.4	0.62	50
20	e0.39	e3.9	e2.3	1.5	e0.74	e0.98	109	27	17	2.3	0.58	46
21	e0.37	e4.2	e2.2	1.4	e0.74	e1.0	108	23	16	1.8	0.65	45
22	e0.42	e4.0	e2.2	e1.3	e0.74	e1.1	99	19	15	1.6	0.59	42
23	e0.39	e3.8	e2.2	e1.2	e0.73	e1.1	89	15	13	1.4	0.69	42
24	e0.49	e3.6	e2.2	1.2	e0.72	e1.2	78	13	12	1.3	0.70	46
25	e0.40	e3.4	e2.2	1.2	e0.72	e1.4	69	22	12	1.1	0.64	47
26	e0.44	e3.3	2.2	e1.2	e0.73	e1.8	61	33	11	1.1	0.66	46
27	e0.61	e3.3	e2.3	e1.2	e0.73	e2.5	60	44	10	1.1	0.58	47
28	e0.62	e3.2	e2.5	e1.1	e0.74	e4.0	56	42	9.6	1.0	0.63	41
29	e0.64	e3.2	e2.8	1.1	e0.75	e9.0	49	35	8.7	0.93	0.67	38
30	e0.68	e3.1	e3.1	1.1	---	e15	46	49	7.7	0.93	0.63	36
31	e0.64	---	e3.0	e1.0	---	e35	---	189	---	0.92	0.70	---
TOTAL	12.96	58.16	80.1	57.0	23.06	90.09	2,576	1,105	1,509.0	116.88	21.50	926.33
MEAN	0.42	1.94	2.58	1.84	0.80	2.91	85.9	35.6	50.3	3.77	0.69	30.9
MAX	0.68	4.2	3.1	2.9	1.0	35	183	189	220	7.5	0.87	64
MIN	0.26	0.55	2.2	1.0	0.72	0.76	44	13	7.7	0.92	0.58	0.73
AC-FT	26	115	159	113	46	179	5,110	2,190	2,990	232	43	1,840
CFSM	0.01	0.06	0.08	0.06	0.03	0.09	2.70	1.12	1.58	0.12	0.02	0.97
IN.	0.02	0.07	0.09	0.07	0.03	0.11	3.01	1.29	1.77	0.14	0.03	1.08

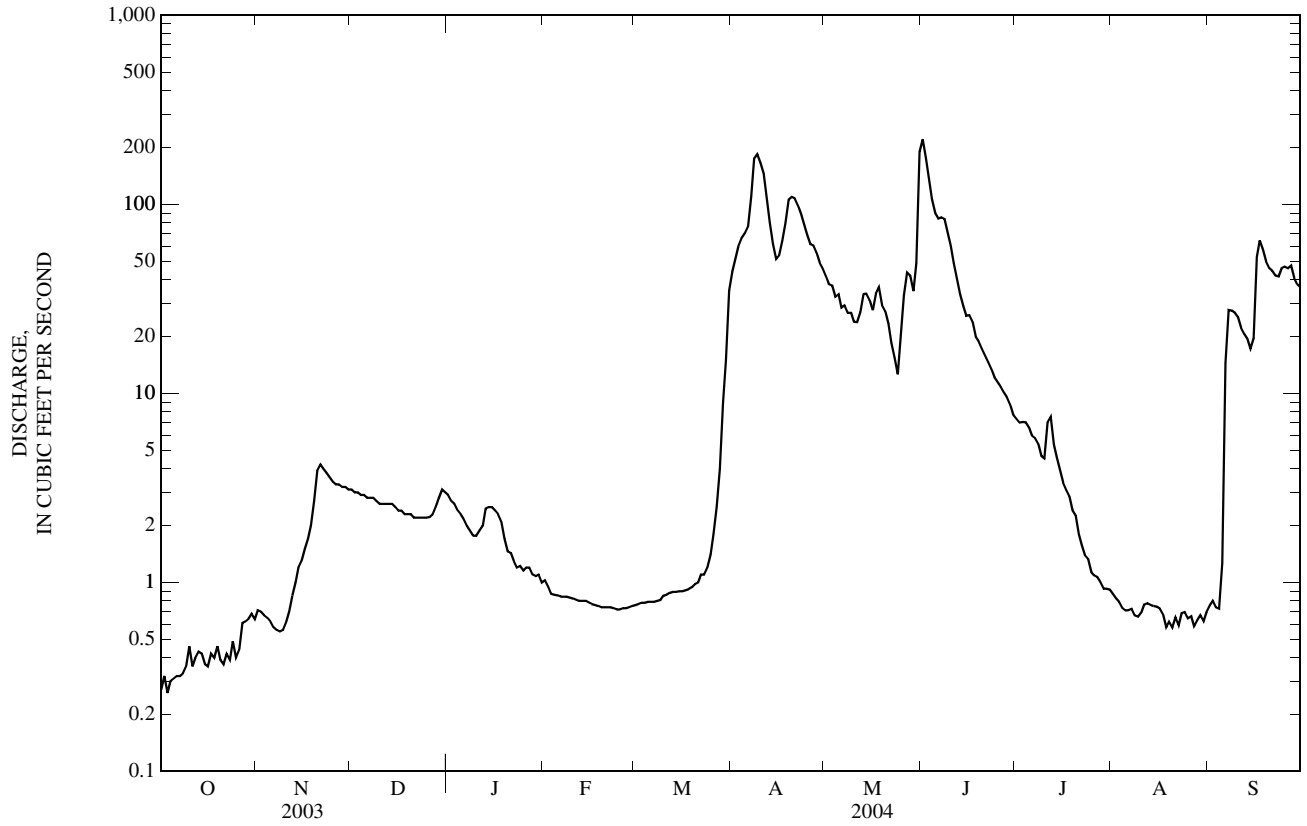
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1996 - 2004, BY WATER YEAR (WY)

MEAN	17.5	16.5	6.61	2.25	1.55	3.79	76.9	58.1	20.9	12.4	16.0	13.1
MAX	65.4	43.0	18.6	6.18	4.61	10.9	148	136	58.8	32.5	75.7	48.0
(WY)	(1996)	(2001)	(2002)	(1997)	(1998)	(1998)	(2001)	(1996)	(2002)	(1996)	(2001)	(1999)
MIN	0.42	1.94	0.64	0.11	0.00	0.47	7.09	11.9	6.78	3.70	0.69	0.04
(WY)	(2004)	(2004)	(2003)	(2003)	(1999)	(2002)	(2003)	(2003)	(1998)	(2001)	(2004)	(1998)

05131448 WOOD DUCK CREEK NEAR NETT LAKE, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1996 - 2004	
ANNUAL TOTAL	1,501.20		6,576.08			
ANNUAL MEAN	4.11		18.0		20.5	
HIGHEST ANNUAL MEAN					38.3	2001
LOWEST ANNUAL MEAN					4.13	2003
HIGHEST DAILY MEAN	28	May 23	220	Jun 1	432	May 23, 2001
LOWEST DAILY MEAN	0.00	Feb 1	0.26	Oct 3	a0.00	Sep 8, 1998
ANNUAL SEVEN-DAY MINIMUM	0.00	Feb 1	0.30	Oct 1	0.00	Sep 8, 1998
MAXIMUM PEAK FLOW			234	Jun 1	bc445	May 23, 2001
MAXIMUM PEAK STAGE			81.82	Jun 1	cd84.80	Apr 7, 1997
INSTANTANEOUS LOW FLOW			f0.26	Oct 3	a0.00	Sep 7, 1998
ANNUAL RUNOFF (AC-FT)	2,980		13,040		14,850	
ANNUAL RUNOFF (CFSM)	0.129		0.565		0.644	
ANNUAL RUNOFF (INCHES)	1.76		7.69		8.76	
10 PERCENT EXCEEDS	12		57		53	
50 PERCENT EXCEEDS	1.4		2.3		5.4	
90 PERCENT EXCEEDS	0.00		0.62		0.40	

a Many days, several years.
b Gage height, 83.42 ft.
c Present datum.
d From highwater mark, backwater from ice.
e Estimated.
f Estimated, daily-mean, backwater from Nett Lake.



05131450 NETT LAKE AT NETT LAKE, MN

LOCATION.-- Lat 48°06'57", long 93°05'58", in NE¼SE¼ sec. 13, T.65 N., R.22 W., Koochiching County, Hydrologic Unit 09030005, on Bois Forte Indian Reservation at Nett Lake town boat ramp.

PERIOD OF RECORD.-- June 1998 to September 2001 (no winter record), October 2001 to current year.

GAGE.-- Water-stage recorder. Datum of gage 1,200.00 ft above sea level (NGVD of 1929). Prior to Oct. 1, 2002, at datum 71.43 ft higher.

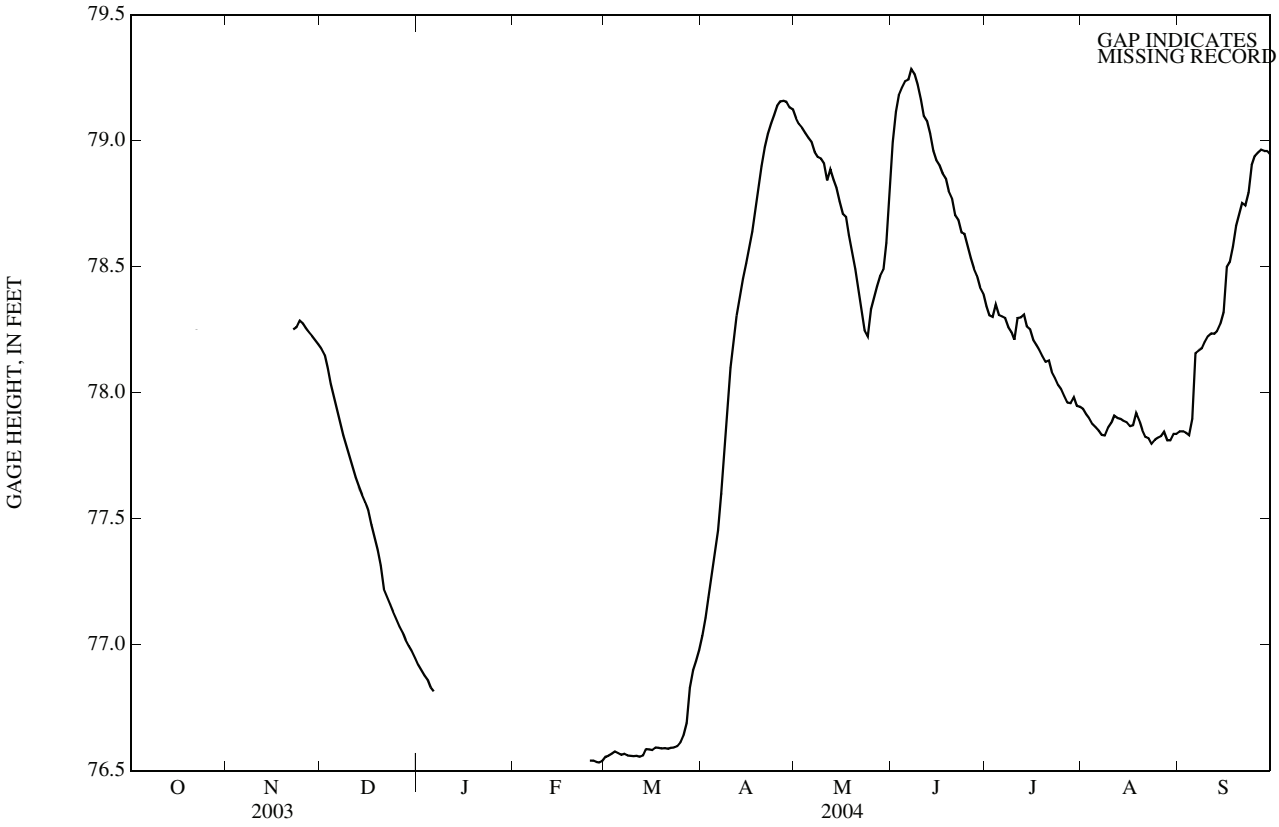
EXTREMES FOR PERIOD OF RECORD.--Maximum-recorded gage height, 80.00 ft., Apr. 18, 2001; maximum daily, 79.95 ft., Apr. 21, 2001; minimum-recorded gage height, 76.53 ft, Feb. 26-29, 2004, but may have been lower during period of no gage-height record, Feb. 16-25, 2004; minimum daily, 76.53 ft, Feb. 28, 2004.

EXTREMES FOR CURRENT YEAR.--Maximum-recorded gage height, 79.38 ft., June 7; maximum daily, 79.28 ft., June 7; minimum-recorded gage height, 76.53 ft, Feb. 26-29, but may have been lower during period of no gage-height record, Feb. 16-25; minimum daily, 76.53 ft, Feb. 28.

GAGE HEIGHT, FEET
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	78.17	76.92	---	76.56	77.04	79.09	78.99	78.34	77.94	77.85
2	---	---	78.15	76.90	---	76.56	77.11	79.07	79.11	78.31	77.91	77.85
3	---	---	78.09	76.88	---	76.57	77.19	79.05	79.18	78.30	77.90	77.84
4	---	---	78.03	76.86	---	76.58	77.27	79.03	79.21	78.35	77.88	77.83
5	---	---	77.98	76.83	---	76.57	77.36	79.01	79.24	78.31	77.86	77.90
6	---	---	77.93	76.81	---	76.56	77.45	79.00	79.24	78.30	77.85	78.16
7	---	---	77.87	---	---	76.57	77.60	78.96	79.28	78.30	77.83	78.17
8	---	---	77.83	---	---	76.56	77.77	78.94	79.26	78.26	77.83	78.18
9	---	---	77.79	---	---	76.56	77.94	78.93	79.22	78.24	77.86	78.20
10	---	---	77.74	---	---	76.56	78.10	78.91	79.16	78.21	77.88	78.22
11	---	---	77.70	---	---	76.56	78.22	78.84	79.10	78.30	77.91	78.23
12	---	---	77.66	---	---	76.56	78.30	78.89	79.08	78.30	77.90	78.23
13	---	---	77.63	---	---	76.56	78.38	78.84	79.03	78.31	77.90	78.24
14	---	---	77.59	---	---	76.59	78.45	78.81	78.96	78.26	77.89	78.27
15	---	---	77.56	---	---	76.59	78.51	78.76	78.92	78.25	77.88	78.32
16	---	---	77.53	---	---	76.58	78.58	78.71	78.90	78.21	77.87	78.50
17	---	---	77.48	---	---	76.59	78.64	78.70	78.87	78.19	77.87	78.52
18	---	---	77.42	---	---	76.59	78.73	78.63	78.85	78.17	77.92	78.58
19	---	---	77.37	---	---	76.59	78.82	78.56	78.80	78.15	77.89	78.66
20	---	---	77.31	---	---	76.59	78.90	78.49	78.77	78.12	77.85	78.71
21	---	---	77.22	---	---	76.59	78.97	78.41	78.70	78.13	77.82	78.75
22	78.25	78.25	77.19	---	---	76.59	79.03	78.33	78.69	78.08	77.82	78.74
23	---	78.26	77.16	---	---	76.59	79.07	78.25	78.63	78.06	77.80	78.79
24	---	78.29	77.13	---	---	76.60	79.10	78.22	78.63	78.03	77.81	78.90
25	---	78.27	77.10	---	76.54	76.61	79.14	78.33	78.58	78.01	77.82	78.94
26	---	78.26	77.07	---	76.54	76.64	79.16	78.37	78.53	77.99	77.83	78.95
27	---	78.24	77.05	---	76.54	76.69	79.16	78.42	78.49	77.96	77.84	78.96
28	---	78.22	77.02	---	76.53	76.83	79.15	78.46	78.46	77.96	77.81	78.96
29	---	78.21	77.00	---	76.54	76.90	79.13	78.49	78.42	77.98	77.81	78.96
30	---	78.19	76.97	---	---	76.93	79.12	78.59	78.39	77.95	77.84	78.94
31	---	---	76.95	---	---	76.98	---	78.81	---	77.94	77.84	---
MEAN	---	---	77.51	---	---	76.63	78.38	78.71	78.89	78.17	77.86	78.44
MAX	---	---	78.17	---	---	76.98	79.16	79.09	79.28	78.35	77.94	78.96
MIN	---	---	76.95	---	---	76.56	77.04	78.22	78.39	77.94	77.80	77.83

05131450 NETT LAKE AT NETT LAKE, MN—Continued



05131455 NETT LAKE RIVER NEAR NETT LAKE, MN

LOCATION.--Lat 48°06'38", long 93°11'13", in NE¼NE¼ sec. 20, T.65 N., R.22 W., Koochiching County, Hydrologic Unit 09030005, downstream from dam at outlet of Nett Lake, 4 miles west of the town of Nett Lake.

DRAINAGE AREA.--128 mi^2.

PERIOD OF RECORD.--October 1995 to current year.

GAGE.--Water-stage recorder. Datum of gage 1,200.00 ft above sea level (NGVD of 1929). Prior to October 2002, water stage recorder at site 450 ft downstream at datum 70.05 ft higher.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Regulation from Nett Lake Dam upstream of gage.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.11	13	92	96	22	4.3	1.8	e159	e69	e120	4.5	0.04
2	0.11	15	185	91	19	4.5	2.2	e157	e114	e118	6.0	0.07
3	0.12	15	315	90	17	5.1	0.29	e142	e130	e105	3.1	0.07
4	0.13	17	285	87	15	5.5	0.56	e137	e137	e120	3.0	0.06
5	0.22	18	261	82	14	5.7	0.33	e137	e142	e120	0.44	0.06
6	0.21	18	242	82	14	5.5	1.3	e125	e149	e115	0.22	0.05
7	0.23	18	223	e78	14	5.5	1.9	e135	e178	e83	0.90	0.08
8	0.24	18	205	e74	15	5.3	1.8	e125	e202	108	0.39	1.4
9	0.17	18	189	e69	15	5.4	1.0	e123	e214	94	0.45	3.7
10	0.14	18	174	e65	14	5.3	0.85	e147	e277	94	0.67	4.6
11	0.12	18	163	e62	13	6.9	0.94	e252	e310	110	0.91	2.8
12	0.08	48	153	60	12	6.2	1.5	e234	e261	103	1.9	8.7
13	0.07	66	144	58	11	5.0	1.7	e214	e243	89	1.9	5.3
14	0.06	63	135	59	11	5.3	1.9	e283	e240	98	1.3	5.6
15	0.05	60	181	56	11	5.2	2.2	e323	e231	89	0.95	6.6
16	0.05	59	239	52	7.3	3.1	2.0	e313	e222	92	0.65	0.52
17	0.05	60	225	51	5.9	3.7	3.4	e379	e216	83	0.62	0.40
18	0.05	59	206	50	6.0	3.8	9.4	e431	e188	71	0.17	2.1
19	0.06	90	192	e50	4.5	3.9	12	e412	e175	75	0.10	2.9
20	0.06	130	179	e46	4.2	3.7	21	e394	e154	73	0.08	3.8
21	0.06	122	165	e44	4.4	3.7	26	e386	e167	e53	0.07	6.4
22	0.05	117	154	e43	4.4	3.8	37	e365	e149	e56	0.06	13
23	0.05	113	145	e41	4.3	3.8	37	e368	e152	e50	0.05	17
24	0.05	126	137	e38	4.2	e1.7	55	e125	e145	e46	0.05	18
25	0.03	123	129	e34	4.2	0.63	46	e2.0	e140	e42	0.05	23
26	0.03	115	122	e32	4.2	0.48	48	e1.4	e138	33	0.06	27
27	0.04	109	118	e32	4.1	0.33	96	e1.6	e133	19	0.04	34
28	0.04	104	113	e34	4.3	0.40	160	e1.8	e130	7.7	0.03	33
29	0.03	101	107	e32	4.0	0.16	e164	e2.1	e125	5.4	0.03	31
30	5.3	97	102	e29	---	0.29	e154	e15	e120	7.6	0.02	34
31	11	---	100	25	---	0.38	---	e32	---	6.3	0.02	---
TOTAL	19.01	1,948	5,380	1,742	283.0	114.57	891.07	5,921.9	5,251	2,286.0	28.73	285.25
MEAN	0.61	64.9	174	56.2	9.76	3.70	29.7	191	175	73.7	0.93	9.51
MAX	11	130	315	96	22	6.9	164	431	310	120	6.0	34
MIN	0.03	13	92	25	4.0	0.16	0.29	1.4	69	5.4	0.02	0.04
AC-FT	38	3,860	10,670	3,460	561	227	1,770	11,750	10,420	4,530	57	566
CFSM	0.00	0.51	1.36	0.44	0.08	0.03	0.23	1.49	1.37	0.58	0.01	0.07
IN.	0.01	0.57	1.56	0.51	0.08	0.03	0.26	1.72	1.53	0.66	0.01	0.08

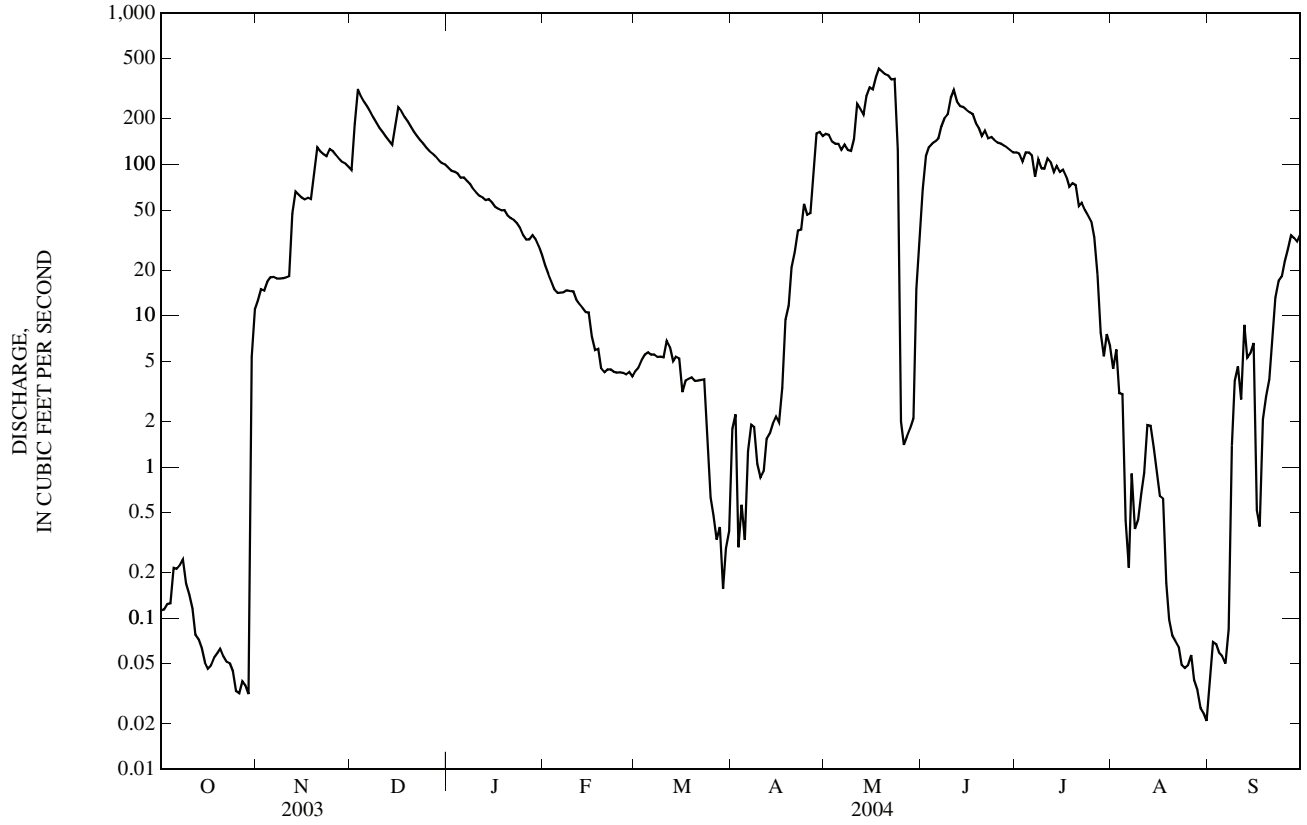
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1996 - 2004, BY WATER YEAR (WY)

MEAN	62.5	91.5	77.1	32.6	16.2	13.7	240	284	116	64.3	20.7	30.7
MAX	187	211	174	56.2	37.3	40.1	464	566	322	142	98.0	154
(WY)	(2001)	(2002)	(2004)	(2004)	(1996)	(1998)	(1999)	(2001)	(2001)	(2003)	(2001)	(1999)
MIN	0.22	0.06	1.38	1.50	0.01	0.08	0.65	0.71	11.9	1.41	0.06	0.00
(WY)	(1999)	(1999)	(1999)	(1999)	(2003)	(2003)	(2003)	(2003)	(2000)	(1996)	(1998)	(1998)

05131455 NETT LAKE RIVER NEAR NETT LAKE, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1996 - 2004	
ANNUAL TOTAL	13,320.78		24,150.53			
ANNUAL MEAN	36.5		66.0		87.6	
HIGHEST ANNUAL MEAN					162	2001
LOWEST ANNUAL MEAN					29.2	2003
HIGHEST DAILY MEAN	315	Dec 3	431	May 18	1,470	Apr 13, 1999
LOWEST DAILY MEAN	0.00	Feb 9	0.02	Aug 30,31	a0.00	Jun 21, 1996
ANNUAL SEVEN-DAY MINIMUM	0.00	Feb 9	0.03	Aug 26	0.00	Aug 13, 1996
MAXIMUM PEAK FLOW			b458	May 17	1,490	Apr 13, 1999
MAXIMUM PEAK STAGE					c7.26	Apr 13, 1999
ANNUAL RUNOFF (AC-FT)	26,420		47,900		63,460	
ANNUAL RUNOFF (CFSM)	0.285		0.516		0.684	
ANNUAL RUNOFF (INCHES)	3.87		7.02		9.30	
10 PERCENT EXCEEDS	152		182		258	
50 PERCENT EXCEEDS	1.8		18		24	
90 PERCENT EXCEEDS	0.01		0.08		0.14	

a Many days, several years.
b Estimated from Nett Lake Dam record.
c Site and datum then in use.
e Estimated.



05131500 LITTLE FORK RIVER AT LITTLEFORK, MN

LOCATION.--Lat 48°23'45", long 93°32'57", in NE¼SE¼ sec. 9, T.68 N., R.25 W., Koochiching County, Hydrologic Unit 09030005, on right bank at town of Littlefork, 0.9 mi upstream from bridge on State Highway 217, 2.8 mi upstream from Beaver Creek, and 19 mi upstream from mouth.

DRAINAGE AREA.--1,680 mi^2.

PERIOD OF RECORD.--June to November 1909, April to November 1910, April 1911 to June 1917, September 1917, October 1917 to March 1919 (gage heights only), June 1928 to current year.

REVISED RECORDS.--WSP 955: Drainage area. WSP 1508: 1913, 1916, 1928-32, 1934. WRD MN-74: 1963.

GAGE.--Water-stage recorder. Datum of gage is 1,083.59 ft above sea level (NGVD of 1929). June 23, 1909 to March 4, 1917, nonrecording gage, and July 21, 1937 to October 23, 1979, water-stage recorder at site 1.2 mi downstream at datum 10.53 ft lower; March 5 to September 30, 1917, and June 22, 1928 to July 20, 1937, non-recording gage at site 1.18 mi downstream at datum 10.53 ft lower.

REMARKS.--Records good except those for estimated daily discharges, which are fair.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	534	337	e610	e330	e138	e115	e3,000	1,710	6,070	448	179	126
2	502	358	e570	e320	e135	e115	e3,900	1,550	6,800	409	173	125
3	451	386	e550	e310	e132	e115	e4,350	1,420	6,350	401	168	125
4	429	e380	e550	e300	e130	e116	e4,650	1,300	5,410	396	160	128
5	410	e360	e570	e295	e128	e117	e4,950	1,210	4,550	380	155	143
6	392	e330	e600	e285	e126	e118	e5,400	1,130	4,120	416	145	426
7	380	e310	e590	e275	e124	e120	e5,650	1,060	4,100	497	135	1,310
8	354	e290	e580	e270	e122	e120	e5,750	993	4,090	501	126	1,810
9	335	e305	e558	e260	e120	e122	e5,650	941	3,650	452	124	1,720
10	319	e375	e540	e255	e120	e124	5,380	905	3,050	443	133	1,510
11	311	e420	e530	e250	e118	e125	4,810	864	2,510	624	142	1,290
12	306	e390	e520	e240	e116	e126	4,260	1,110	2,160	753	158	1,100
13	302	e365	e510	e235	e115	e127	3,740	1,710	1,920	1,520	171	918
14	319	e365	e500	e230	e115	e128	3,210	1,610	1,700	1,620	185	760
15	372	e385	e480	e220	e115	e129	2,760	1,530	1,560	1,400	186	675
16	418	e415	e475	e215	e115	e130	2,510	1,550	1,440	1,150	177	1,450
17	438	e435	e470	e210	e115	e135	2,420	1,570	1,390	935	165	4,070
18	425	e470	e460	e200	e115	e140	2,340	1,730	1,340	769	161	4,100
19	399	e520	e450	e195	e115	e150	2,500	1,970	1,240	656	168	3,620
20	376	e610	e445	e185	e115	e160	3,450	2,150	1,070	562	155	3,030
21	354	e720	e435	e180	e115	e170	3,880	2,160	959	491	145	2,650
22	334	e820	e425	e175	e115	e180	3,860	2,020	850	446	138	2,460
23	324	e750	e415	e170	e115	e190	3,660	1,850	784	400	130	2,370
24	314	e600	e410	e165	e115	e205	3,290	1,700	715	358	129	2,470
25	304	e530	e395	e160	e115	e225	2,860	1,670	677	328	137	2,720
26	299	e500	e385	e158	e115	e245	2,510	1,780	625	302	138	2,500
27	294	e560	e375	e153	e115	e265	2,220	1,920	590	273	126	2,150
28	301	e650	e365	e150	e115	e300	2,030	2,000	557	250	119	1,840
29	313	e650	e355	e148	e115	e360	1,930	1,860	531	236	117	1,560
30	322	e640	e350	e145	---	e540	1,840	1,730	497	213	117	1,340
31	330	---	e340	e142	---	e1,100	---	3,200	---	190	120	---
TOTAL	11,261	14,226	14,808	6,826	3,464	6,312	108,760	49,903	71,305	17,819	4,582	50,496
MEAN	363	474	478	220	119	204	3,625	1,610	2,377	575	148	1,683
MAX	534	820	610	330	138	1,100	5,750	3,200	6,800	1,620	186	4,100
MIN	294	290	340	142	115	115	1,840	864	497	190	117	125
AC-FT	22,340	28,220	29,370	13,540	6,870	12,520	215,700	98,980	141,400	35,340	9,090	100,200
CFSM	0.22	0.28	0.28	0.13	0.07	0.12	2.16	0.96	1.41	0.34	0.09	1.00
IN.	0.25	0.32	0.33	0.15	0.08	0.14	2.41	1.10	1.58	0.39	0.10	1.12

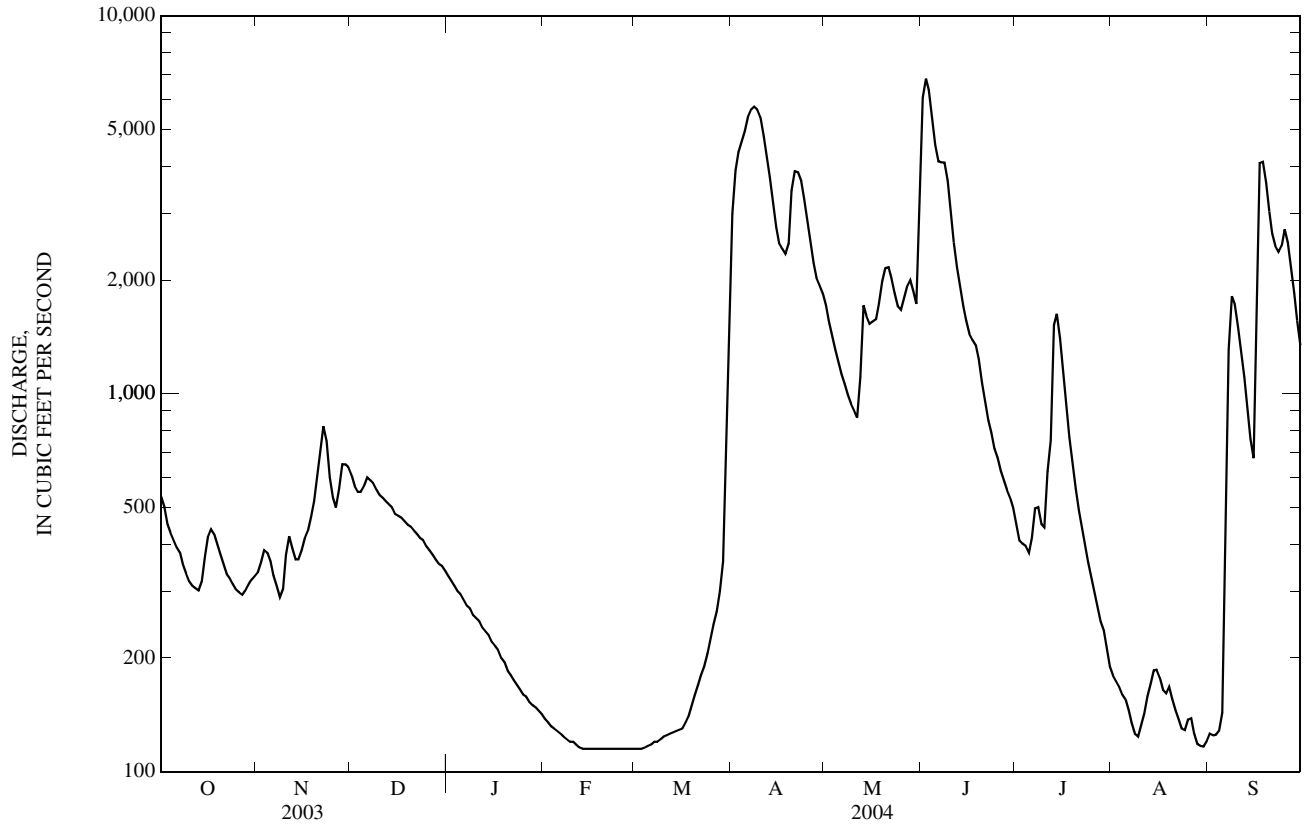
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1909 - 2004, BY WATER YEAR (WY)

MEAN	893	730	330	154	115	281	3,186	2,834	1,749	992	567	739
MAX	4,450	3,044	1,186	477	270	3,022	8,421	12,190	5,490	3,643	2,679	5,189
(WY)	(1996)	(1972)	(2002)	(1966)	(1969)	(1945)	(1966)	(1950)	(1944)	(1944)	(1988)	(1977)
MIN	43.4	60.8	52.6	43.5	42.2	50.2	292	173	182	75.4	34.3	29.2
(WY)	(1977)	(1977)	(1977)	(1931)	(1963)	(1940)	(1977)	(1977)	(1988)	(1988)	(1936)	(1976)

05131500 LITTLE FORK RIVER AT LITTLEFORK, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1909 - 2004	
ANNUAL TOTAL	189,875		359,762			
ANNUAL MEAN	520		983		1,062	
HIGHEST ANNUAL MEAN					1,912	1966
LOWEST ANNUAL MEAN					306	1931
HIGHEST DAILY MEAN	2,130	Apr 23	6,800	Jun 2	25,000	Apr 18, 1916
LOWEST DAILY MEAN	68	Feb 9	115	Feb 13-Mar 3	21	Aug 26, 1936
ANNUAL SEVEN-DAY MINIMUM	68	Feb 8	115	Feb 13	22	Aug 21, 1936
MAXIMUM PEAK FLOW			a6,880	Jun 2	25,000	Apr 18, 1916
MAXIMUM PEAK STAGE			b17.77	Apr 7	c37.00	Apr 18, 1916
INSTANTANEOUS LOW FLOW			111	Aug 29	21	Aug 26, 1936
ANNUAL RUNOFF (AC-FT)	376,600		713,600		769,100	
ANNUAL RUNOFF (CFSM)	0.310		0.585		0.632	
ANNUAL RUNOFF (INCHES)	4.20		7.97		8.59	
10 PERCENT EXCEEDS	1,080		2,730		2,800	
50 PERCENT EXCEEDS	432		410		376	
90 PERCENT EXCEEDS	71		124		88	

a Gage height, 9.38 ft.
b Backwater from ice.
c Also occurred May 11, 1950, site and datum then in use.
e Estimated.



05132000 BIG FORK RIVER AT BIG FALLS, MN

LOCATION.--Lat 48°11'45", long 93°48'25", in SW¼SE¼ sec.35, T.155 N., R.25 W., Koochiching County, Hydrologic Unit 09030006, on left bank at town of Big Falls, 700 ft downstream from falls, 0.3 mi downstream from bridge on U.S. Highway 71, and 4.8 mi upstream from Sturgeon River.

DRAINAGE AREA.--1,480 mi^2.

PERIOD OF RECORD.--August to November 1909, April to November 1910, April 1911 to September 1912 (gage heights and discharge measurements only), June 1928 to September 1979, October 1979 to September 1982 (annual maximum only), October 1982 to September 1993, October 1993 to September 1994 (annual maximum only) and October 1997 to current year.

REVISED RECORDS.--WSP 1308:1935 (M).

GAGE.--Water-stage recorder. Datum of gage is 1,144.71 ft above sea level (NGVD of 1929). Prior to June 10, 1911, nonrecording gage at railroad bridge about 0.4 mi upstream at different datum. June 10, 1911 to Sept. 30, 1912, and June 22, 1928 to Dec. 17, 1937, nonrecording gage at site 200 ft upstream at same datum.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Prior to 1971, a powerplant, located 0.3 mi upstream, caused some diurnal fluctuation at low flows.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	179	302	e340	e203	e148	e135	e2,000	1,140	3,440	207	132	98
2	180	312	e335	e200	e146	e135	e2,200	1,070	3,120	189	125	98
3	171	318	e330	e198	e144	e137	e2,400	1,010	2,700	177	118	94
4	170	e200	e325	e196	e144	e137	e2,300	958	2,280	195	113	92
5	166	e170	e320	e193	e142	e138	e2,250	921	1,910	216	108	114
6	166	e160	e315	e190	e142	e138	e2,700	891	1,780	205	106	187
7	164	e150	e315	e188	e140	e139	e2,800	853	1,900	207	101	539
8	164	e150	e310	e186	e138	e139	e2,750	805	1,780	209	99	971
9	165	e185	e305	e184	e136	e140	2,690	782	1,560	196	99	826
10	167	e260	e300	e182	e135	e140	2,510	745	1,350	186	103	796
11	169	e295	e295	e180	e135	e142	2,300	731	1,160	316	111	734
12	186	e285	e290	e178	e135	e144	2,070	971	1,010	990	119	659
13	192	e270	e280	e176	e135	e146	1,850	1,460	900	1,050	121	576
14	211	e260	e275	e174	e135	e148	1,660	1,580	815	1,010	121	498
15	232	e260	e270	e172	e135	e148	1,520	1,620	733	972	119	461
16	239	e270	e265	e170	e135	e150	1,440	1,540	685	806	116	866
17	237	e290	e260	e170	e135	e150	1,430	1,490	650	605	112	2,430
18	229	e325	e255	e168	e135	e152	1,420	1,620	611	493	111	2,380
19	228	e385	e253	e168	e135	e154	1,510	1,660	556	421	109	2,210
20	226	e450	e250	e166	e135	e156	1,860	1,670	497	367	105	2,020
21	219	e465	e245	e166	e135	e158	1,980	1,630	449	321	102	2,000
22	213	e455	e240	e164	e135	e158	1,990	1,550	415	289	98	2,060
23	211	e430	e235	e162	e135	e160	1,950	1,410	371	260	97	2,130
24	213	e405	e230	e160	e135	e165	1,810	1,270	348	232	99	2,130
25	215	e385	e228	e160	e135	e175	1,660	1,280	328	208	107	2,280
26	222	e380	e223	e158	e135	e190	1,520	1,430	306	185	98	2,270
27	235	e370	e220	e156	e135	e220	1,420	1,580	285	167	94	2,060
28	257	e360	e218	e154	e135	e260	1,340	1,520	266	156	93	1,810
29	269	e355	e213	e152	e135	e350	1,260	1,370	246	150	93	1,570
30	278	e345	e210	e150	---	e480	1,180	1,310	224	141	93	1,370
31	289	---	e208	e150	---	e1,000	---	2,230	---	136	95	---
TOTAL	6,462	9,247	8,358	5,374	3,980	6,184	57,770	40,097	32,675	11,262	3,317	36,329
MEAN	208	308	270	173	137	199	1,926	1,293	1,089	363	107	1,211
MAX	289	465	340	203	148	1,000	2,800	2,230	3,440	1,050	132	2,430
MIN	164	150	208	150	135	135	1,180	731	224	136	93	92
AC-FT	12,820	18,340	16,580	10,660	7,890	12,270	114,600	79,530	64,810	22,340	6,580	72,060
CFSM	0.14	0.21	0.18	0.12	0.09	0.13	1.30	0.87	0.74	0.25	0.07	0.82
IN.	0.16	0.23	0.21	0.14	0.10	0.16	1.45	1.01	0.82	0.28	0.08	0.91

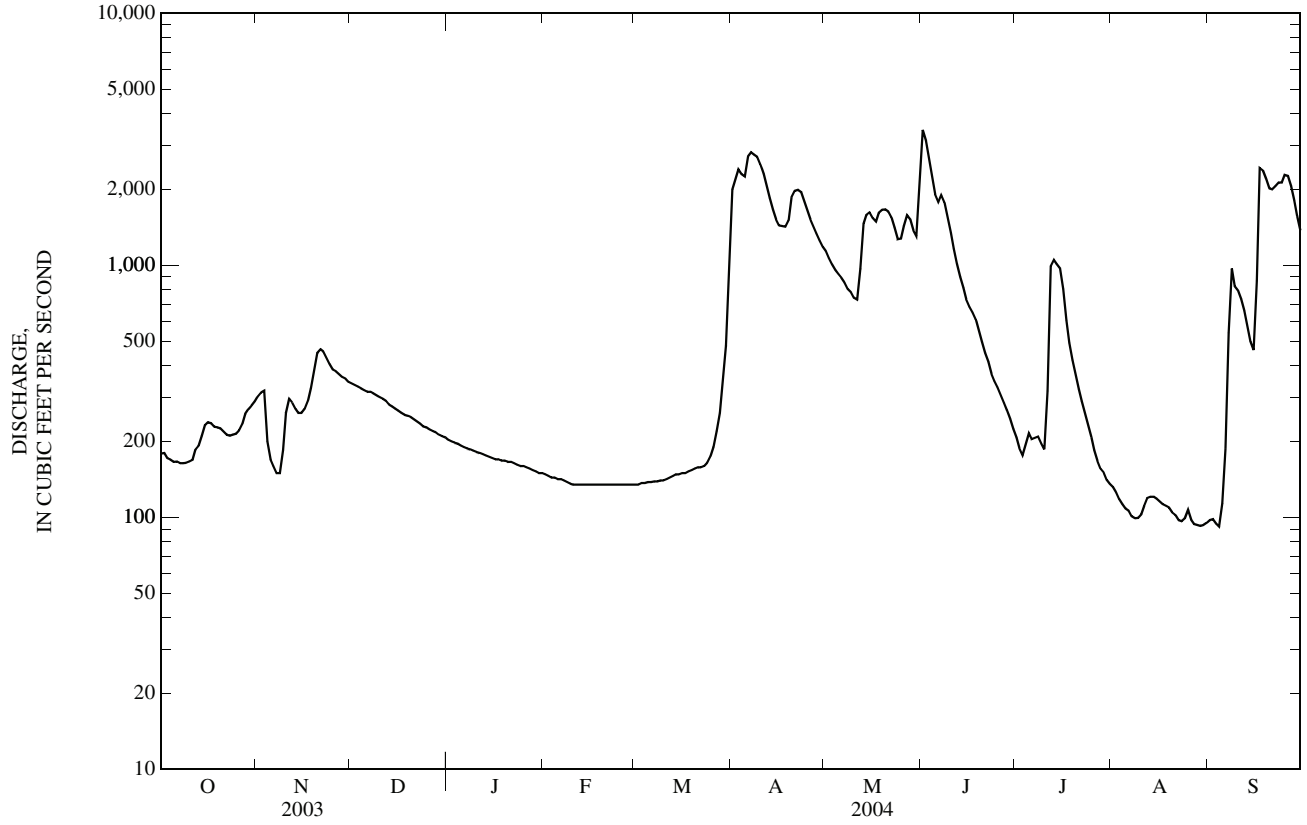
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1909 - 2004, BY WATER YEAR (WY)

MEAN	659	548	293	178	141	252	1,895	1,977	1,176	649	411	570
MAX	2,247	2,034	685	399	335	1,928	5,186	7,496	2,890	2,321	1,799	2,989
(WY)	(1970)	(1972)	(1970)	(1969)	(1969)	(1945)	(1966)	(1950)	(1974)	(1944)	(1978)	(1937)
MIN	38.3	44.5	31.6	22.2	22.9	32.9	175	138	180	46.0	26.7	22.4
(WY)	(1932)	(1935)	(1935)	(1935)	(1935)	(1940)	(1931)	(1931)	(1934)	(1931)	(1934)	(1934)

05132000 BIG FORK RIVER AT BIG FALLS, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1909 - 2004	
ANNUAL TOTAL	117,561		221,055			
ANNUAL MEAN	322		604		729	
HIGHEST ANNUAL MEAN					1,362	1950
LOWEST ANNUAL MEAN					92.0	1931
HIGHEST DAILY MEAN	1,780	Jun 29	3,440	Jun 1	14,800	May 9, 1950
LOWEST DAILY MEAN	61	Feb 10	92	Sep 4	14	Jan 10, 1940
ANNUAL SEVEN-DAY MINIMUM	61	Feb 8	95	Aug 29	18	Jan 22, 1935
MAXIMUM PEAK FLOW			a3,550	Jun 1	14,800	May 8, 1950
MAXIMUM PEAK STAGE			b7.89	Apr 7	17.08	May 8, 1950
INSTANTANEOUS LOW FLOW			91	Aug 28	7.0	Aug 7, 1939
ANNUAL RUNOFF (AC-FT)	233,200		438,500		528,400	
ANNUAL RUNOFF (CFSM)	0.218		0.408		0.493	
ANNUAL RUNOFF (INCHES)	2.95		5.56		6.70	
10 PERCENT EXCEEDS	574		1,810		1,790	
50 PERCENT EXCEEDS	270		236		335	
90 PERCENT EXCEEDS	65		134		82	

a Gage-height, 7.25 ft.
b Backwater from ice.
e Estimated.



05133500 RAINY RIVER AT MANITOU RAPIDS, MN
(International Gaging Station)

LOCATION.--Lat 48°38'04", long 93°54'47", in NW¼SE¼ sec. 36, T.160 N., R.26 W., Koochiching County, Hydrologic Unit 09030004, on left bank at Manitou Rapids, 4 mi west of Indus.

DRAINAGE AREA.--19,400 mi^2 (approximately).

PERIOD OF RECORD.--July 1928 to current year. Monthly discharge only for some periods, published in WSP 1308. October 1911 to October 1924 (gage heights only) at site near Birchdale in files of U.S. Army Corps of Engineers. Published as "near Birchdale" 1932-34.

GAGE.--Water-stage recorder. Datum of gage is 1,062.48 ft above sea level (NGVD of 1929). Prior to Nov. 10, 1934, nonrecording gage at site near Birchdale, 7 mi. downstream at different datum.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Diurnal fluctuation caused by power plants at International Falls. Some regulation at Rainy and Namakan Lakes affects low and medium flows.

COOPERATION.--This station is one of the international gaging stations maintained by the United States under agreement with Canada.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4,010	4,760	e8,650	e9,260	e9,680	e5,240	13,700	16,800	36,400	14,600	7,060	6,650
2	3,910	4,750	e8,300	e9,020	e9,670	e5,630	13,400	16,400	38,500	14,000	7,000	6,710
3	3,780	4,780	e8,000	e9,100	e9,790	e6,050	13,200	16,000	38,300	13,700	6,980	7,070
4	3,840	4,720	e8,000	e8,980	e9,200	e5,750	12,600	14,900	37,000	13,600	6,940	7,190
5	3,830	4,630	e8,000	e8,920	e9,080	e5,990	13,100	14,900	35,900	13,600	6,500	7,310
6	3,810	4,690	e7,900	e8,800	e8,570	e6,560	14,200	15,000	34,900	13,600	5,680	8,370
7	3,830	6,230	e7,700	e8,580	e8,880	e8,280	16,300	15,000	34,600	13,800	4,900	9,930
8	3,860	e5,850	e7,800	e8,330	e9,260	e8,290	20,200	13,900	35,300	13,900	4,580	13,800
9	3,860	e4,850	e7,800	e8,170	e9,360	e8,400	24,600	12,900	35,000	13,800	4,540	16,400
10	3,840	e4,800	e7,800	e8,160	e9,280	e8,370	24,700	12,600	34,100	13,900	4,630	15,600
11	3,800	e5,800	e7,800	e8,100	e9,550	e8,600	23,600	13,400	33,100	15,300	4,780	13,900
12	3,870	6,090	e7,700	e8,170	e9,500	e8,500	23,000	16,100	32,100	15,300	4,850	13,200
13	3,850	6,380	e7,400	e8,950	e9,110	e8,720	22,100	20,100	31,200	16,100	4,850	12,300
14	3,830	6,380	e7,600	e9,790	e8,390	e8,380	21,200	24,800	30,600	17,100	4,830	10,800
15	3,820	6,370	e7,700	e10,000	e8,190	e8,350	20,300	26,100	30,200	16,800	4,790	9,030
16	3,890	6,390	e7,700	e10,700	e7,090	e9,230	19,700	25,900	29,700	15,700	4,760	8,960
17	3,970	6,490	e7,700	e10,600	e6,240	10,300	19,400	25,500	29,000	14,900	4,710	11,100
18	3,960	6,570	e7,700	e10,500	e5,360	9,740	19,100	26,900	27,100	14,300	4,700	14,100
19	4,000	7,080	e7,700	e10,300	e5,090	9,570	19,200	27,600	26,300	13,800	e4,650	14,700
20	3,920	7,380	e7,700	e9,590	e5,130	9,370	19,700	27,900	23,300	13,300	e4,650	14,500
21	4,320	7,700	e7,800	e9,850	e5,160	9,470	20,500	29,400	20,300	13,200	e4,600	15,800
22	4,580	7,770	e7,600	e9,880	e5,160	9,340	21,200	29,600	19,200	13,100	e4,650	17,500
23	4,630	7,530	e7,400	e10,300	e5,160	8,690	21,100	28,900	16,800	12,100	4,750	18,300
24	4,640	e7,350	e7,200	e10,200	e5,130	7,770	20,900	28,000	15,700	11,300	4,720	18,900
25	4,600	e6,900	e7,050	e10,200	e5,130	7,480	20,200	27,600	15,400	10,600	4,700	19,600
26	4,620	e7,000	e7,100	e10,100	e5,130	7,520	19,800	27,200	15,200	10,300	4,850	20,100
27	4,620	e7,100	e7,100	e10,200	e5,240	7,480	19,300	26,400	15,100	8,840	4,940	19,800
28	4,590	e7,150	e7,150	e10,400	e5,210	8,050	18,700	26,300	15,000	7,650	4,970	19,400
29	4,630	e8,300	e7,200	e10,000	e5,210	9,090	17,900	25,200	14,900	7,320	4,910	17,900
30	4,660	e8,600	e8,700	e10,200	---	10,200	17,500	25,300	14,800	7,300	4,950	16,800
31	4,690	---	e9,300	e9,880	---	12,400	---	31,100	---	7,210	6,050	---
TOTAL	128,060	190,390	240,250	295,230	212,950	256,810	570,400	687,700	815,000	400,020	160,470	405,720
MEAN	4,131	6,346	7,750	9,524	7,343	8,284	19,010	22,180	27,170	12,900	5,176	13,520
MAX	4,690	8,600	9,300	10,700	9,790	12,400	24,700	31,100	38,500	17,100	7,060	20,100
MIN	3,780	4,630	7,050	8,100	5,090	5,240	12,600	12,600	14,800	7,210	4,540	6,650
AC-FT	254,000	377,600	476,500	585,600	422,400	509,400	1,131,000	1,364,000	1,617,000	793,400	318,300	804,700
CFSM	0.21	0.33	0.40	0.49	0.38	0.43	0.98	1.14	1.40	0.67	0.27	0.70
IN.	0.25	0.37	0.46	0.57	0.41	0.49	1.09	1.32	1.56	0.77	0.31	0.78

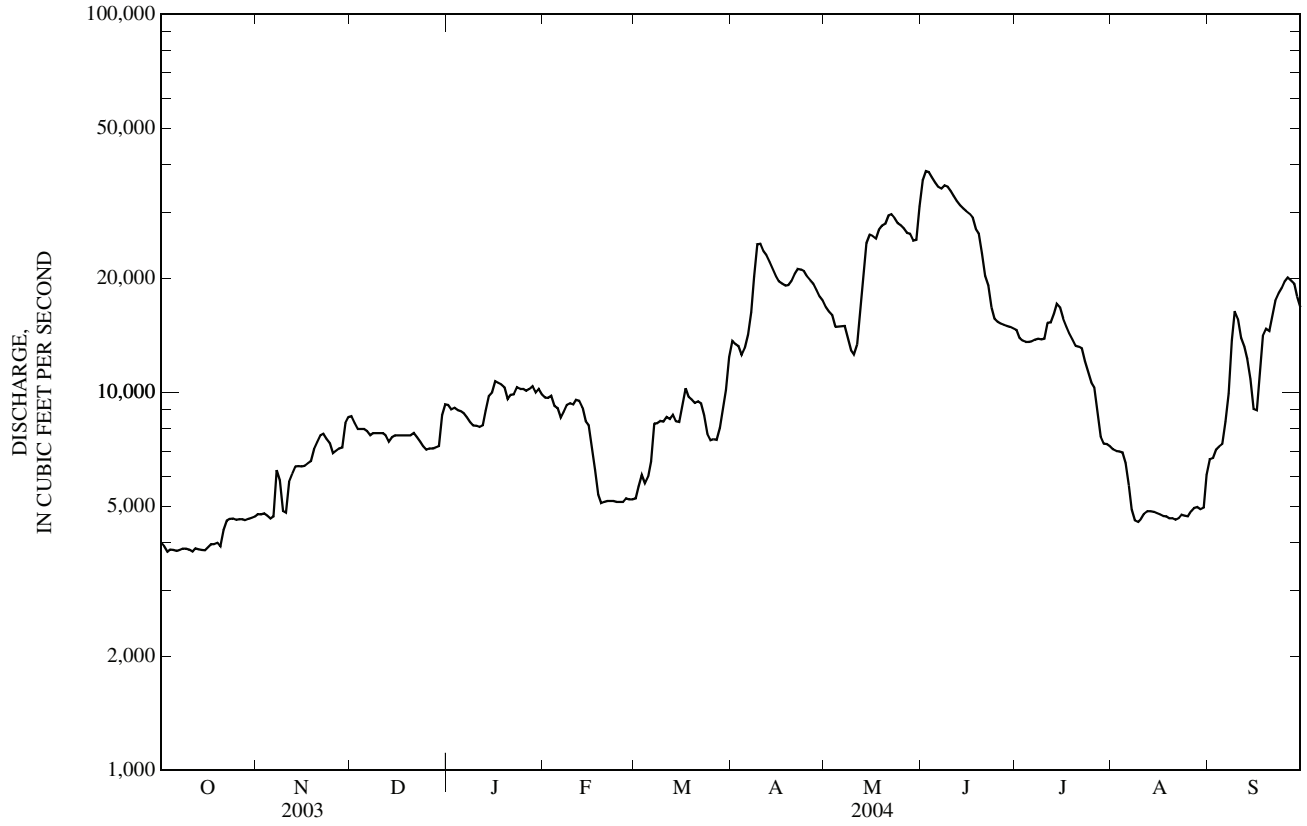
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 2004, BY WATER YEAR (WY)

MEAN	11,710	11,350	10,170	9,158	8,678	8,903	15,510	19,580	20,240	16,750	11,510	11,060
MAX	42,410	37,280	27,790	18,430	17,240	16,640	38,100	52,880	49,480	47,970	33,700	30,620
(WY)	(1942)	(1972)	(1972)	(1972)	(1969)	(1945)	(1966)	(1950)	(1950)	(1950)	(1944)	(1988)
MIN	4,131	3,796	3,190	2,900	3,129	2,926	4,378	4,106	3,676	3,483	3,422	3,746
(WY)	(2004)	(1977)	(1930)	(1931)	(1931)	(1931)	(1977)	(1977)	(1980)	(1980)	(1980)	(1998)

05133500 RAINY RIVER AT MANITOU RAPIDS, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1929 - 2004	
ANNUAL TOTAL	2,047,370		4,363,000			
ANNUAL MEAN	5,609		11,920		12,900	
HIGHEST ANNUAL MEAN					23,260	1950
LOWEST ANNUAL MEAN					4,470	1931
HIGHEST DAILY MEAN	9,340	Jul 1	38,500	Jun 2	71,300	May 11, 1950
LOWEST DAILY MEAN	3,450	Sep 12	3,780	Oct 3	928	Dec 26, 1929
ANNUAL SEVEN-DAY MINIMUM	3,570	Sep 9	3,830	Oct 3	1,500	Dec 24, 1929
MAXIMUM PEAK FLOW			38,700	Jun 2	71,600	May 12, 1950
MAXIMUM PEAK STAGE			14.09	Jun 2	21.04	May 12, 1950
ANNUAL RUNOFF (AC-FT)	4,061,000		8,654,000		9,344,000	
ANNUAL RUNOFF (CFSM)	0.289		0.614		0.665	
ANNUAL RUNOFF (INCHES)	3.93		8.37		9.03	
10 PERCENT EXCEEDS	7,700		24,900		25,500	
50 PERCENT EXCEEDS	5,530		9,000		10,300	
90 PERCENT EXCEEDS	3,890		4,650		5,000	

e Estimated.



05140520 LAKE OF THE WOODS AT WARROAD, MN
(International gaging station)

LOCATION.--Lat 48°54'15", long 95°18'57", in SW¼SE¼ sec.29, T. 163 N., R. 36 W., Roseau County, Hydrologic Unit 09030009, on left bank of Warroad River in Warroad, 300 ft downstream from Canadian National railroad bridge, 1,000 ft downstream from bridge on State Highway 11, and 4,000 ft upstream from mouth of Warroad River.

DRAINAGE AREA.--27,200 mi^2.

PERIOD OF RECORD.--April to September 1978, month-end elevations only. October 1978 to September 1985, daily-mean elevations; October 1985 to December 1994 and October 1997 to current year, daily-mean elevations (gage heights). Records collected prior to April 1978 are in reports of the Water Survey of Canada.

GAGE.--Water-stage recorder. Datum at gage is 1,000.00 ft above sea level (Lake of the Woods datum).

REMARKS.--Records good. Runoff conditions of the Warroad River can affect water levels at this station. Water level subject to fluctuation caused by changes in direction and velocity of wind and resulting seiches.

COOPERATION.--This station is one of the international gaging stations maintained by the United States under agreement with Canada.

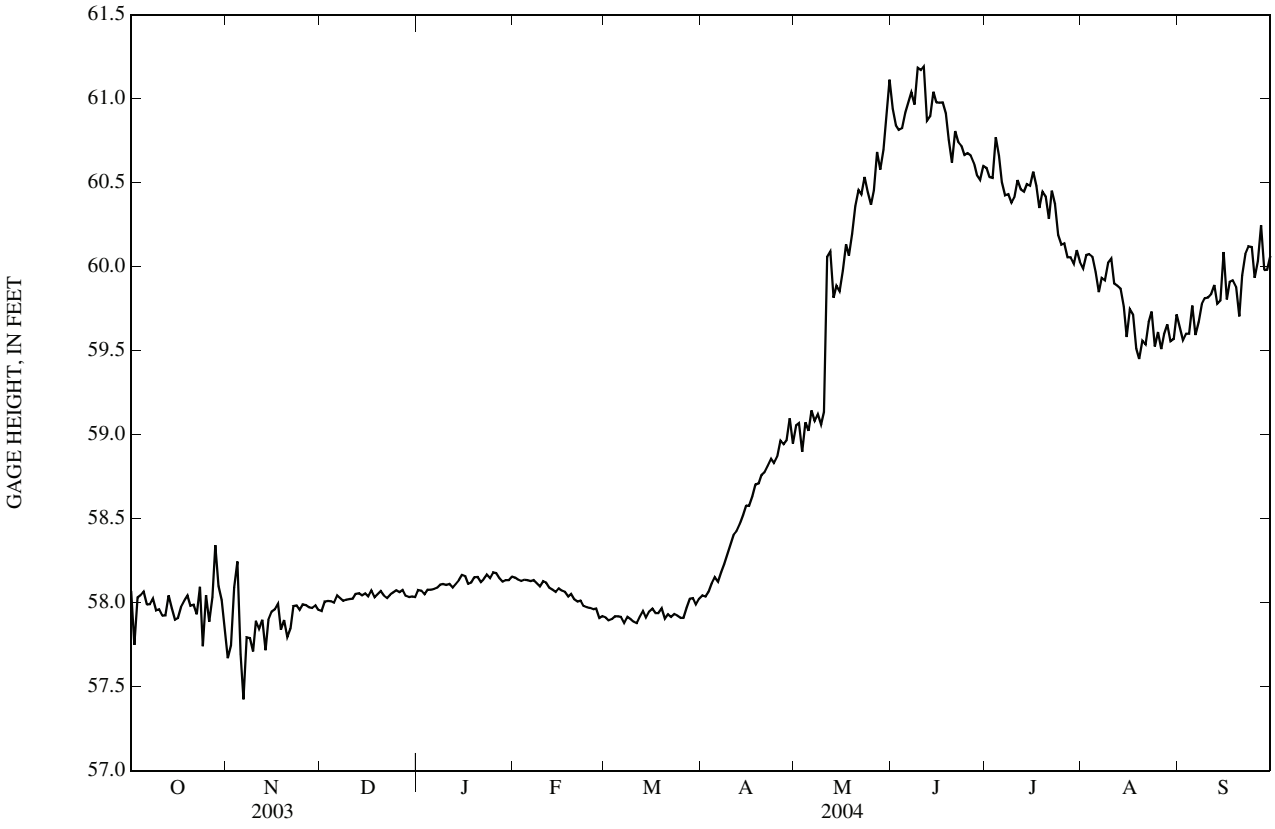
EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 62.55 ft, June 27, 2001; maximum daily, 62.31 ft, Jul. 9, 2002; minimum gage height recorded, 55.94 ft, Sept. 4, 1980; minimum daily recorded, 56.52 ft, Apr. 15, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 61.79 ft, June 7; maximum daily, 61.19 ft, June 11; minimum gage height, 57.18 ft, Nov. 6; minimum daily, 57.42 ft, Nov. 6.

GAGE HEIGHT, FEET
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	58.07	57.67	57.95	58.08	58.15	57.91	58.04	59.05	60.94	60.59	59.99	59.64
2	57.75	57.75	58.01	58.07	58.14	57.89	58.04	59.07	60.84	60.53	60.07	59.56
3	58.03	58.09	58.01	58.05	58.13	57.90	58.06	58.90	60.81	60.53	60.08	59.60
4	58.04	58.24	58.01	58.08	58.14	57.92	58.11	59.07	60.82	60.77	60.06	59.60
5	58.07	57.69	58.00	58.08	58.13	57.92	58.15	59.02	60.91	60.66	59.97	59.77
6	57.99	57.42	58.04	58.08	58.13	57.92	58.12	59.14	60.98	60.50	59.85	59.59
7	57.99	57.79	58.03	58.09	58.13	57.88	58.18	59.08	61.04	60.42	59.93	59.67
8	58.02	57.79	58.01	58.11	58.12	57.92	58.23	59.12	60.96	60.43	59.92	59.78
9	57.95	57.71	58.02	58.11	58.10	57.90	58.29	59.06	61.18	60.38	60.02	59.81
10	57.96	57.89	58.02	58.11	58.13	57.89	58.35	59.13	61.17	60.41	60.05	59.82
11	57.92	57.85	58.02	58.11	58.12	57.88	58.40	60.06	61.19	60.51	59.90	59.84
12	57.93	57.90	58.05	58.09	58.09	57.92	58.43	60.09	60.87	60.46	59.89	59.89
13	58.04	57.72	58.06	58.11	58.08	57.95	58.47	59.81	60.89	60.45	59.87	59.78
14	57.97	57.90	58.04	58.13	58.06	57.91	58.52	59.89	61.04	60.49	59.76	59.80
15	57.90	57.95	58.05	58.16	58.08	57.95	58.58	59.85	60.98	60.48	59.58	60.09
16	57.91	57.96	58.04	58.16	58.07	57.96	58.58	59.98	60.98	60.56	59.75	59.80
17	57.98	57.99	58.07	58.11	58.06	57.94	58.63	60.13	60.98	60.48	59.71	59.91
18	58.01	57.84	58.03	58.12	58.04	57.94	58.70	60.07	60.91	60.35	59.51	59.92
19	58.04	57.90	58.05	58.15	58.05	57.96	58.71	60.19	60.75	60.45	59.45	59.88
20	57.98	57.80	58.07	58.15	58.02	57.90	58.76	60.36	60.62	60.42	59.56	59.70
21	57.99	57.85	58.04	58.12	58.01	57.93	58.78	60.46	60.81	60.28	59.54	59.95
22	57.93	57.98	58.03	58.14	58.01	57.92	58.82	60.43	60.74	60.45	59.67	60.07
23	58.10	57.98	58.05	58.17	57.98	57.93	58.86	60.53	60.72	60.37	59.73	60.12
24	57.74	57.96	58.06	58.15	57.97	57.92	58.83	60.44	60.66	60.19	59.52	60.12
25	58.04	57.99	58.07	58.18	57.97	57.91	58.87	60.37	60.67	60.13	59.61	59.93
26	57.89	57.99	58.06	58.18	57.96	57.91	58.97	60.45	60.66	60.14	59.51	60.03
27	58.03	57.97	58.08	58.15	57.97	57.97	58.94	60.68	60.62	60.06	59.60	60.25
28	58.34	57.97	58.04	58.13	57.91	58.02	58.96	60.58	60.55	60.06	59.66	59.98
29	58.10	57.98	58.03	58.14	57.92	58.03	59.10	60.70	60.52	60.02	59.56	59.98
30	58.01	57.96	58.04	58.14	---	57.99	58.95	60.88	60.60	60.10	59.57	60.06
31	57.83	---	58.03	58.16	---	58.02	---	61.11	---	60.03	59.72	---
MEAN	57.99	57.88	58.04	58.12	58.06	57.93	58.55	59.93	60.85	60.38	59.76	59.86
MAX	58.34	58.24	58.08	58.18	58.15	58.03	59.10	61.11	61.19	60.77	60.08	60.25
MIN	57.74	57.42	57.95	58.05	57.91	57.88	58.04	58.90	60.52	60.02	59.45	59.56

05140520 LAKE OF THE WOODS AT WARROAD, MN—Continued



05140521 LAKE OF THE WOODS AT SPRINGSTEEL ISLAND NEAR WARROAD, MN

LOCATION.--Lat 48°56'45", long 95°18'24", in SW¼SW¼ sec. 9, T. 163 N., R. 36 W., Roseau County, Hydrologic Unit 09030009, at Springsteel Resort on Springsteel Island, 2.8 mi north of Warroad.

DRAINAGE AREA.--27,200 mi^2.

PERIOD OF RECORD.--June 1985 to current year.

GAGE.--Water-stage recorder. Datum at gage is 1,000.00 ft above sea level (Lake of the Woods datum).

REMARKS.--Records fair. Water level subject to fluctuation caused by changes in direction and velocity of wind and resulting seiches.

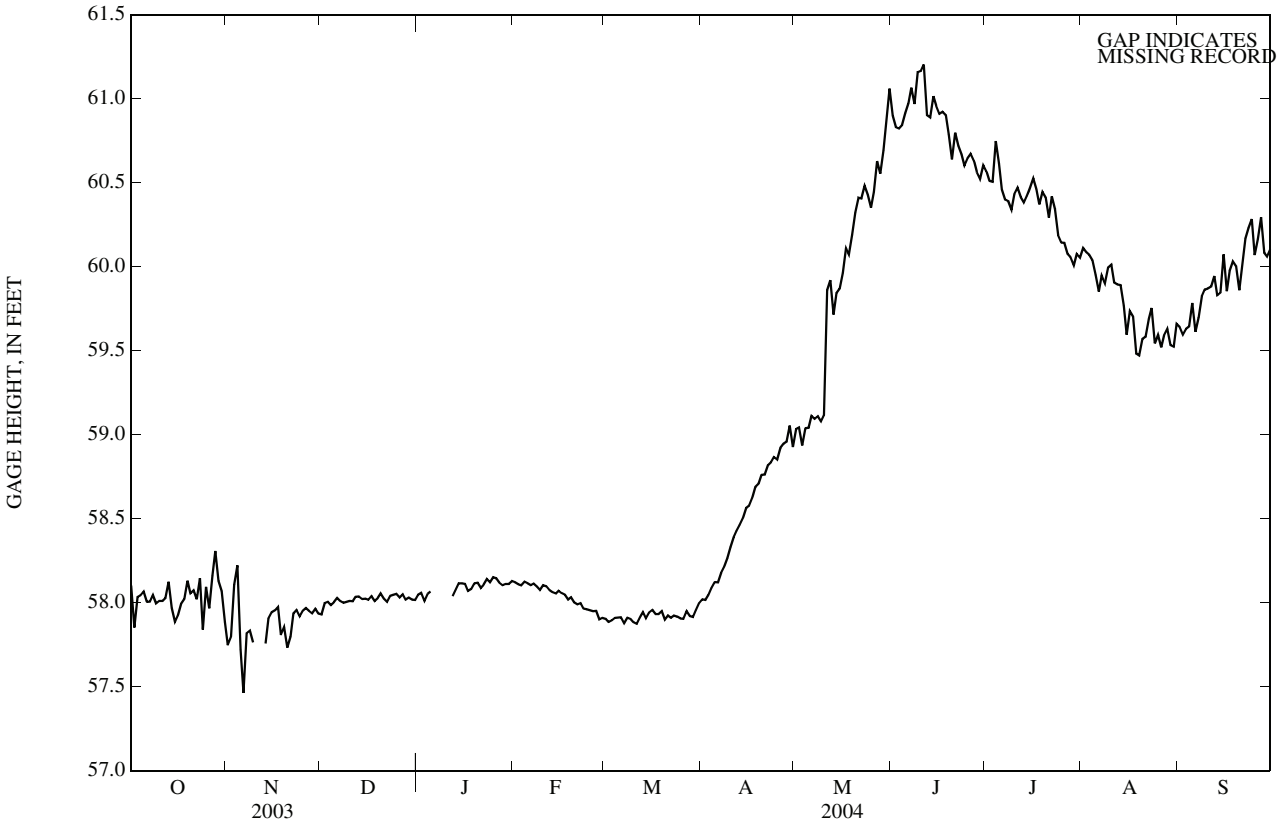
EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 62.53 ft, July 5, 2002; maximum daily, 62.25 ft, July 9, 2002; minimum gage height, 57.22 ft, Nov. 22, 1990; minimum daily, 57.43 ft, Mar. 18, 19, 20, 1988.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 61.80 ft, June 7; maximum daily, 61.20 ft, June 11; minimum gage height, 57.24 ft, Nov. 6; minimum daily, 57.46 ft., Nov. 6.

GAGE HEIGHT, FEET
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	58.10	57.75	57.93	58.05	58.12	57.90	58.02	59.03	60.90	60.57	60.11	59.64
2	57.85	57.80	58.00	58.06	58.11	57.89	58.02	59.04	60.83	60.51	60.09	59.60
3	58.03	58.11	58.01	58.01	58.10	57.90	58.04	58.94	60.82	60.51	60.07	59.63
4	58.04	58.22	57.99	58.05	58.12	57.91	58.09	59.04	60.84	60.75	60.04	59.64
5	58.07	57.72	58.00	58.07	58.12	57.91	58.12	59.04	60.91	60.61	59.95	59.78
6	58.01	57.46	58.03	---	58.10	57.91	58.12	59.11	60.97	60.46	59.85	59.61
7	58.01	57.82	58.01	---	58.11	57.88	58.18	59.09	61.07	60.40	59.95	59.70
8	58.05	57.83	58.00	---	58.10	57.91	58.21	59.11	60.97	60.39	59.90	59.82
9	58.00	57.76	58.01	---	58.07	57.90	58.26	59.08	61.16	60.34	60.00	59.86
10	58.01	---	58.01	---	58.10	57.88	58.33	59.11	61.16	60.43	60.01	59.87
11	58.01	---	58.01	---	58.10	57.87	58.39	59.86	61.20	60.47	59.90	59.88
12	58.03	---	58.04	58.04	58.08	57.91	58.43	59.92	60.90	60.41	59.89	59.94
13	58.13	57.76	58.04	58.08	58.06	57.95	58.46	59.72	60.89	60.38	59.89	59.83
14	57.97	57.91	58.02	58.12	58.05	57.91	58.50	59.84	61.01	60.42	59.77	59.84
15	57.89	57.94	58.02	58.12	58.07	57.94	58.56	59.87	60.96	60.47	59.59	60.07
16	57.92	57.95	58.02	58.11	58.06	57.96	58.58	59.96	60.91	60.52	59.74	59.85
17	57.99	57.98	58.04	58.07	58.05	57.93	58.62	60.11	60.92	60.46	59.70	59.98
18	58.02	57.81	58.01	58.08	58.02	57.93	58.69	60.07	60.90	60.37	59.48	60.03
19	58.13	57.85	58.03	58.12	58.03	57.95	58.71	60.19	60.79	60.44	59.47	60.00
20	58.06	57.73	58.05	58.12	58.00	57.90	58.76	60.32	60.64	60.41	59.57	59.86
21	58.07	57.80	58.03	58.09	57.99	57.92	58.76	60.41	60.80	60.29	59.58	60.00
22	58.02	57.94	58.01	58.11	58.00	57.91	58.82	60.41	60.72	60.42	59.69	60.17
23	58.15	57.96	58.04	58.14	57.97	57.92	58.84	60.48	60.67	60.34	59.75	60.23
24	57.84	57.92	58.05	58.12	57.96	57.92	58.87	60.43	60.60	60.19	59.54	60.28
25	58.10	57.95	58.05	58.15	57.96	57.91	58.85	60.35	60.64	60.14	59.59	60.07
26	57.97	57.97	58.03	58.15	57.95	57.90	58.92	60.44	60.67	60.14	59.52	60.16
27	58.16	57.95	58.05	58.12	57.95	57.95	58.95	60.63	60.63	60.08	59.59	60.29
28	58.31	57.94	58.02	58.10	57.90	57.92	58.96	60.55	60.56	60.06	59.63	60.08
29	58.13	57.96	58.03	58.11	57.91	57.92	59.06	60.69	60.52	60.01	59.53	60.06
30	58.07	57.94	58.02	58.11	---	57.96	58.93	60.87	60.60	60.07	59.52	60.10
31	57.89	---	58.02	58.13	---	58.00	---	61.06	---	60.05	59.66	---
MEAN	58.03	---	58.02	---	58.04	57.92	58.53	59.90	60.84	60.36	59.76	59.93
MAX	58.31	---	58.05	---	58.12	58.00	59.06	61.06	61.20	60.75	60.11	60.29
MIN	57.84	---	57.93	---	57.90	57.87	58.02	58.94	60.52	60.01	59.47	59.60

05140521 LAKE OF THE WOODS AT SPRINGSTEEL ISLAND NEAR WARROAD, MN—Continued



05200510 MISSISSIPPI RIVER NEAR BEMIDJI, MN

LOCATION.--Lat 47°29'00", long 94°43'40", in SE¼SW¼ sec. 3, T.146 N., R.32 W., Beltrami County, Hydrologic Unit 07010101, on right bank 100 ft upstream of County Highway 12, 400 ft downstream from Stump Lake dam, and 3.5 mi east of Bemidji .

DRAINAGE AREA.--610 mi^2 (approximately).

PERIOD OF RECORD.--September 1987 to September 2002 (no winter records). December 2003 to current year (some winter record available upon request).

GAGE.--Water-stage recorder. Elevation of gage is 1,315 ft above sea level (from topographic map).

REMARKS.--Records good. Flow regulated by Stump Lake Dam upstream from station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	129	144	337	114	123	123	63
2	---	---	---	---	---	148	246	330	118	122	120	64
3	---	---	---	---	---	102	246	325	120	124	e116	68
4	---	---	---	---	---	96	249	325	122	126	e116	67
5	---	---	---	---	---	96	318	319	125	125	e116	75
6	---	---	---	---	---	96	377	317	128	126	95	74
7	---	---	---	---	---	98	380	311	131	166	58	73
8	---	---	213	---	---	98	381	309	134	193	60	76
9	---	---	168	---	---	158	381	308	137	189	60	87
10	---	---	149	---	---	225	381	308	139	188	84	85
11	---	---	153	---	---	210	381	302	141	191	104	84
12	---	---	145	---	---	210	381	308	145	190	95	82
13	---	---	136	---	---	208	381	311	145	189	94	81
14	---	---	135	---	---	211	e379	308	142	186	95	81
15	---	---	135	---	---	201	377	306	141	183	91	84
16	---	---	137	---	---	148	326	304	143	181	91	89
17	---	---	137	---	---	219	298	308	135	181	91	88
18	---	---	136	---	---	219	300	308	136	181	88	88
19	---	---	135	---	---	219	325	307	135	178	84	94
20	---	---	135	---	---	221	355	308	135	178	82	192
21	---	---	135	---	---	220	354	308	134	175	81	238
22	---	---	133	---	---	192	354	310	133	174	80	236
23	---	---	133	---	---	155	353	311	129	172	69	306
24	---	---	133	---	---	144	348	303	130	171	57	337
25	---	---	133	---	---	137	348	185	129	169	64	332
26	---	---	133	---	---	139	347	100	128	149	65	328
27	---	---	127	---	---	140	347	102	128	120	65	386
28	---	---	140	---	---	140	347	104	128	123	64	407
29	---	---	117	---	---	142	345	104	127	124	63	403
30	---	---	104	---	---	142	340	107	125	124	65	402
31	---	---	109	---	---	142	---	111	---	124	64	---
TOTAL	---	---	---	---	---	5,005	10,089	8,304	3,957	4,945	2,600	5,070
MEAN	---	---	---	---	---	161	336	268	132	160	83.9	169
MAX	---	---	---	---	225	381	337	145	193	123	407	
MIN	---	---	---	---	96	144	100	114	120	57	63	
AC-FT	---	---	---	---	---	9,930	20,010	16,470	7,850	9,810	5,160	10,060
CFSM	---	---	---	---	---	0.26	0.55	0.44	0.22	0.26	0.14	0.28
IN.	---	---	---	---	---	0.31	0.62	0.51	0.24	0.30	0.16	0.31

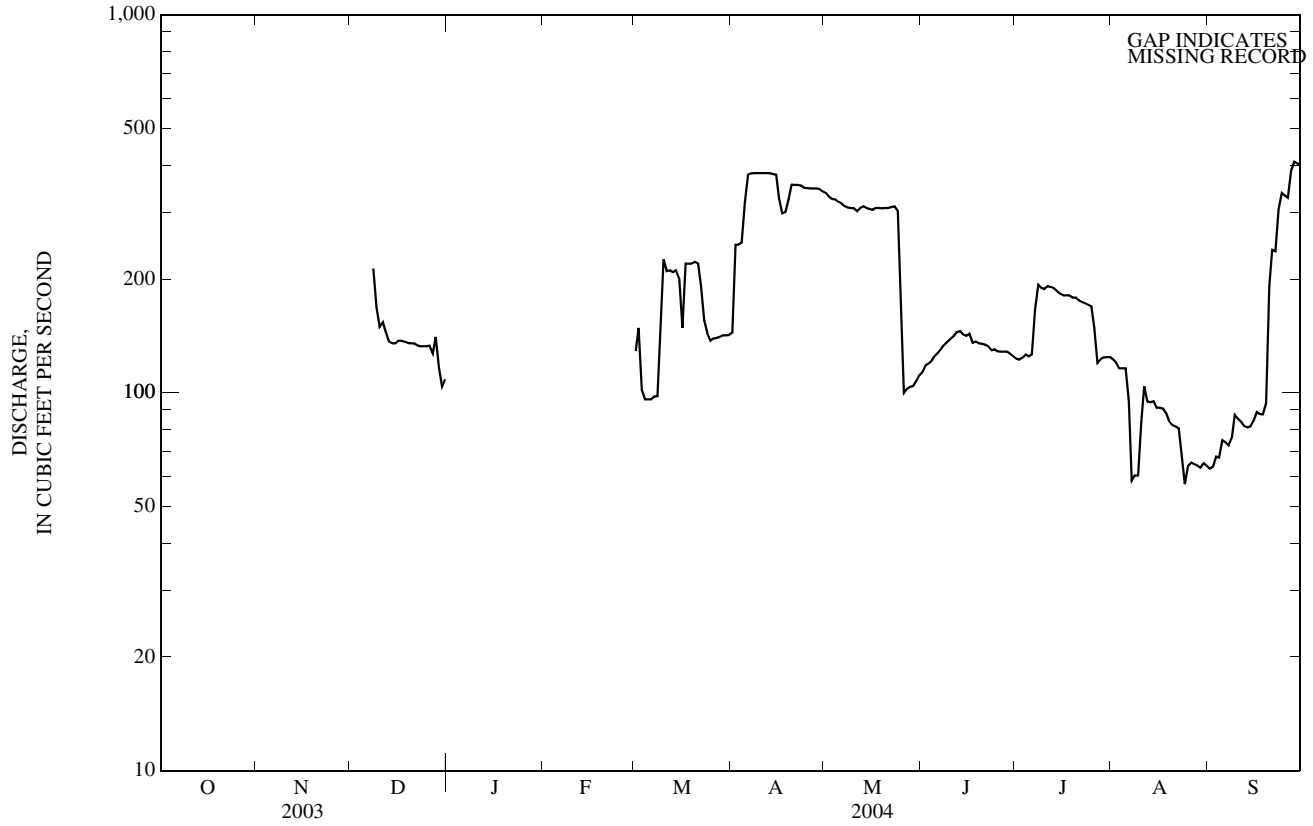
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1987 - 2004, BY WATER YEAR (WY)

MEAN	233	469	330	---	---	213	429	452	317	333	212	257
MAX	471	790	406	---	---	247	889	858	866	912	477	837
(WY)	(2000)	(2001)	(2001)	---	---	(1998)	(1997)	(2001)	(2001)	(1997)	(1999)	(1999)
MIN	75.5	322	254	---	---	161	148	181	104	62.2	61.9	62.3
(WY)	(1991)	(2000)	(2000)	---	---	(2004)	(1992)	(1992)	(1988)	(1988)	(1989)	(1990)

05200510 MISSISSIPPI RIVER NEAR BEMIDJI, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR	FOR 2004 WATER YEAR	WATER YEARS 1987 - 2004
HIGHEST DAILY MEAN	213 Dec 8	407 Sep 28	1,320 Jul 14, 1997
LOWEST DAILY MEAN	104 Dec 30	a57 Aug 24	a22 Jul 12, 1988
ANNUAL SEVEN-DAY MINIMUM	123 Dec 25	63 Aug 24	24 Jul 7, 1988
MAXIMUM PEAK FLOW		496 Sep 27	1,820 Jul 11, 1997
MAXIMUM PEAK STAGE		4.00 Sep 27	5.98 Jul 11, 1997
INSTANTANEOUS LOW FLOW		a51 Aug 24	

a Minimum recorded.
e Estimated.



05211000 MISSISSIPPI RIVER AT GRAND RAPIDS, MN

LOCATION.--Lat 47°13'56", long 93°31'48", in SW¼NW¼ sec. 27, T.55 N., R.25 W., Itasca County, Hydrologic Unit 07010103, on left bank, 650 ft downstream from Blandin Dam, 150 ft upstream from bridge on U.S. Highway 169, 2.5 mi upstream from Prairie River, and at mile 1,182 upstream from Ohio River.

DRAINAGE AREA.--3,370 mi^2 (approximately).

PERIOD OF RECORD.--October 1883 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,242.03 ft above sea level (NGVD of 1929). See WSP 1914 for history of changes prior to Jan. 17, 1951.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Flow regulated by Winnibigoshish Lake, Leech Lake, Pokegama Lake, Blandin Paper Mill (up to 16 ft^3/s diverted for paper production), and occasionally at low flow by power plant at Blandin Dam. Backwater from Prairie River occurs at times in most years.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	367	389	597	791	664	579	937	635	1,010	813	382	369
2	377	360	603	793	656	548	1,020	610	1,180	750	394	255
3	370	361	631	852	651	529	e1,100	587	1,180	638	397	234
4	345	376	653	868	650	547	e1,080	535	1,170	671	390	233
5	346	403	649	888	626	616	e1,100	332	e1,200	737	302	311
6	368	424	630	889	601	664	e1,170	391	e1,210	647	410	548
7	357	402	621	897	601	618	e1,160	303	e1,210	626	395	359
8	354	409	554	883	651	604	e1,160	216	e1,210	662	360	739
9	372	428	591	838	638	664	e1,160	283	e1,200	679	388	809
10	376	428	711	751	607	594	e1,160	354	e1,080	683	394	1,030
11	397	445	590	724	586	649	e1,140	319	e1,070	860	350	1,190
12	433	448	636	790	547	629	e1,130	294	1,050	828	385	1,150
13	353	353	796	767	576	617	e1,000	294	e1,040	967	372	930
14	317	382	743	777	574	613	e940	284	e1,030	905	373	966
15	355	503	724	855	575	648	e930	419	e1,020	903	370	1,210
16	352	479	776	838	563	617	e920	424	999	797	370	1,300
17	371	443	738	790	557	629	e880	444	1,140	848	348	1,420
18	390	498	733	873	558	664	873	613	955	745	336	1,410
19	388	605	796	888	572	625	858	726	799	689	298	1,310
20	367	687	837	806	578	626	837	741	1,170	735	291	1,460
21	340	708	799	716	576	638	681	717	760	767	270	1,810
22	351	705	800	805	570	634	669	690	860	637	277	1,870
23	353	689	805	691	549	636	797	685	800	402	309	1,830
24	357	e650	811	667	555	642	721	690	682	564	310	1,990
25	378	612	840	724	559	658	659	755	695	599	296	2,010
26	400	613	771	734	550	663	699	708	797	474	296	2,060
27	370	676	829	725	555	724	766	673	772	363	293	2,000
28	360	691	858	724	632	753	683	747	737	344	289	1,670
29	358	603	770	712	528	738	587	868	749	450	257	1,830
30	358	600	850	711	---	730	650	763	882	397	222	1,730
31	382	---	845	675	---	915	---	927	---	345	298	---
TOTAL	11,362	15,370	22,587	24,442	17,105	20,011	27,467	17,027	29,657	20,525	10,422	36,033
MEAN	367	512	729	788	590	646	916	549	989	662	336	1,201
MAX	433	708	858	897	664	915	1,170	927	1,210	967	410	2,060
MIN	317	353	554	667	528	529	587	216	682	344	222	233
AC-FT	22,540	30,490	44,800	48,480	33,930	39,690	54,480	33,770	58,820	40,710	20,670	71,470
CFSM	0.11	0.15	0.22	0.23	0.18	0.19	0.27	0.16	0.29	0.20	0.10	0.36
IN.	0.13	0.17	0.25	0.27	0.19	0.22	0.30	0.19	0.33	0.23	0.12	0.40

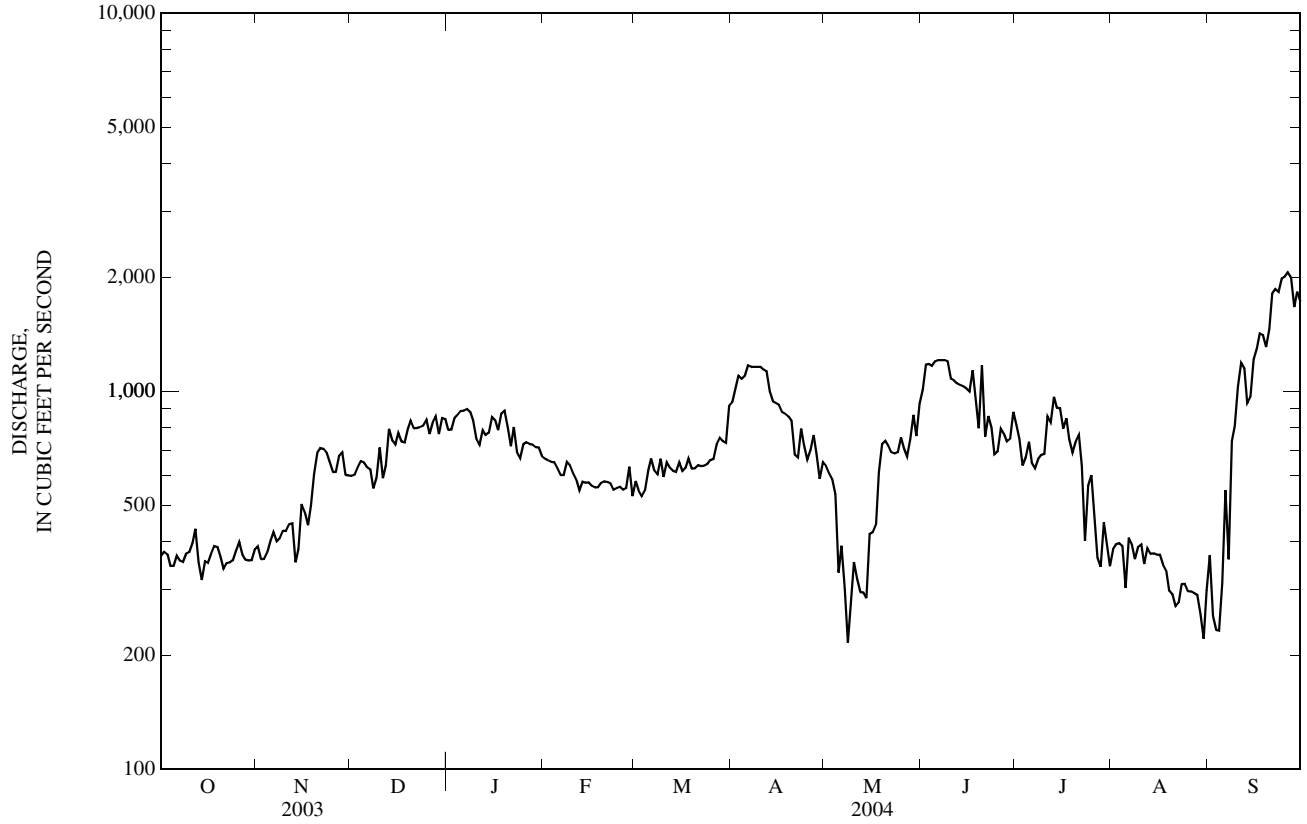
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1884 - 2004, BY WATER YEAR (WY)

MEAN	1,446	1,350	1,154	1,138	1,120	1,065	1,034	1,151	1,235	1,361	1,335	1,384
MAX	3,544	3,259	2,608	2,410	2,729	2,762	3,622	3,668	3,271	3,363	4,505	4,438
(WY)	(1902)	(1903)	(2000)	(1952)	(1945)	(1945)	(1901)	(1901)	(1962)	(1962)	(1905)	(1905)
MIN	103	122	150	165	155	129	106	32.5	185	125	88.3	89.2
(WY)	(1937)	(1937)	(1937)	(1937)	(1934)	(1937)	(1937)	(1949)	(1936)	(1961)	(1934)	(1934)

05211000 MISSISSIPPI RIVER AT GRAND RAPIDS, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1884 - 2004	
ANNUAL TOTAL	210,442		252,008			
ANNUAL MEAN	577		689		a1,240	
HIGHEST ANNUAL MEAN					2,429	1906
LOWEST ANNUAL MEAN					193	1934
HIGHEST DAILY MEAN	1,440	Jan 1	2,060	Sep 26	8,900	Sep 29, 1914
LOWEST DAILY MEAN	234	Jun 27	216	May 8	b0.00	Oct 2, 1948
ANNUAL SEVEN-DAY MINIMUM	278	May 12	267	Aug 29	24	May 9, 1949
MAXIMUM PEAK FLOW			2,260	Sep 28	c12,500	Sep 3, 1948
MAXIMUM PEAK STAGE			6.78	Sep 28	d15.20	Sep 3, 1948
INSTANTANEOUS LOW FLOW			f92	Jun 16	b0.00	Sep 3, 1948
ANNUAL RUNOFF (AC-FT)	417,400		499,900		898,200	
ANNUAL RUNOFF (CFSM)	0.171		0.204		0.368	
ANNUAL RUNOFF (INCHES)	2.32		2.78		5.00	
10 PERCENT EXCEEDS	1,080		1,100		2,350	
50 PERCENT EXCEEDS	503		651		1,140	
90 PERCENT EXCEEDS	313		352		312	

a Median of annual mean discharges is 1220 ft^3/s.
b Many days, several years.
c From rating curve extended above 4500 ft^3/s; result of dam failure.
d From floodmark; result of dam failure.
e Estimated.
f Result of regulation.



05212700 PRAIRIE RIVER NEAR TACONITE, MN

LOCATION.--Lat 47°23'20", long 93°22'50", in NW¼SW¼ sec. 27, T.57 N., R.24 W., Itasca County, Hydrologic Unit 07010103, on left bank 125 ft upstream from bridge on County Highway 7, 1.5 mi downstream from outlet of Lawrence Lake and 5 mi north of Taconite.

DRAINAGE AREA.--371 mi^2 (revised).

PERIOD OF RECORD.--April 1967 to September 1983, February 2001 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,294.81 ft above sea level (NGVD of 1929). Prior to Aug. 31, 1967, nonrecording gage at site 125 ft downstream (same datum).

REMARKS.--Records good except those for estimated daily discharges, which are poor.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	57	68	119	e75	e60	e78	333	336	398	93	79	38
2	53	68	e114	e73	e61	e78	409	318	457	86	75	38
3	53	70	113	e71	e61	e77	498	296	532	87	70	39
4	51	73	108	e68	e61	e76	573	276	607	115	66	40
5	50	71	107	e66	e60	e77	636	249	676	117	62	57
6	48	71	e103	e66	e60	e75	683	234	729	119	58	118
7	48	e68	101	e66	e60	e73	718	207	749	123	55	133
8	48	e66	101	e66	e60	e71	744	191	752	123	54	147
9	49	e64	101	e65	e60	e69	751	178	732	122	55	169
10	48	e67	e101	e65	e60	67	747	171	697	118	55	190
11	52	73	e100	e64	e59	e66	735	159	655	130	55	204
12	58	e74	e98	e64	e59	e65	713	154	612	140	52	207
13	58	e75	e98	e63	e59	e65	685	147	562	156	50	208
14	58	76	e96	e63	e58	e64	651	140	506	176	48	209
15	58	78	e94	e63	e58	e64	612	135	451	192	47	217
16	58	81	e93	e62	e59	e63	573	133	405	202	45	246
17	e58	83	e91	e62	e59	63	532	155	364	202	44	253
18	e58	90	e90	e62	e60	62	498	160	327	197	42	265
19	e58	95	e89	e62	e64	62	472	162	289	190	40	276
20	58	99	e89	e61	e71	61	446	180	256	177	39	291
21	58	102	e89	e61	e78	e60	444	188	231	165	37	316
22	56	105	e89	e60	e82	e59	444	194	203	153	37	327
23	57	e117	e89	e59	e84	e57	444	202	184	140	36	332
24	57	e124	e88	e58	e85	56	437	204	170	128	36	347
25	59	e121	e87	e57	e85	60	433	218	155	119	36	353
26	59	e118	e87	e57	e84	65	424	219	142	110	36	353
27	58	116	e86	e57	e84	75	405	226	130	101	35	357
28	67	117	e86	e56	e83	133	389	223	119	95	35	351
29	66	115	e83	e57	e80	175	373	220	109	92	34	344
30	67	116	e80	e58	---	215	350	237	100	87	35	334
31	68	---	e77	e59	---	267	---	330	---	83	37	---
TOTAL	1,751	2,661	2,947	1,946	1,954	2,598	16,152	6,442	12,299	4,138	1,485	6,759
MEAN	56.5	88.7	95.1	62.8	67.4	83.8	538	208	410	133	47.9	225
MAX	68	124	119	75	85	267	751	336	752	202	79	357
MIN	48	64	77	56	58	56	333	133	100	83	34	38
AC-FT	3,470	5,280	5,850	3,860	3,880	5,150	32,040	12,780	24,400	8,210	2,950	13,410
CFSM	0.15	0.24	0.26	0.17	0.18	0.23	1.45	0.56	1.11	0.36	0.13	0.61
IN.	0.18	0.27	0.30	0.20	0.20	0.26	1.62	0.65	1.23	0.41	0.15	0.68

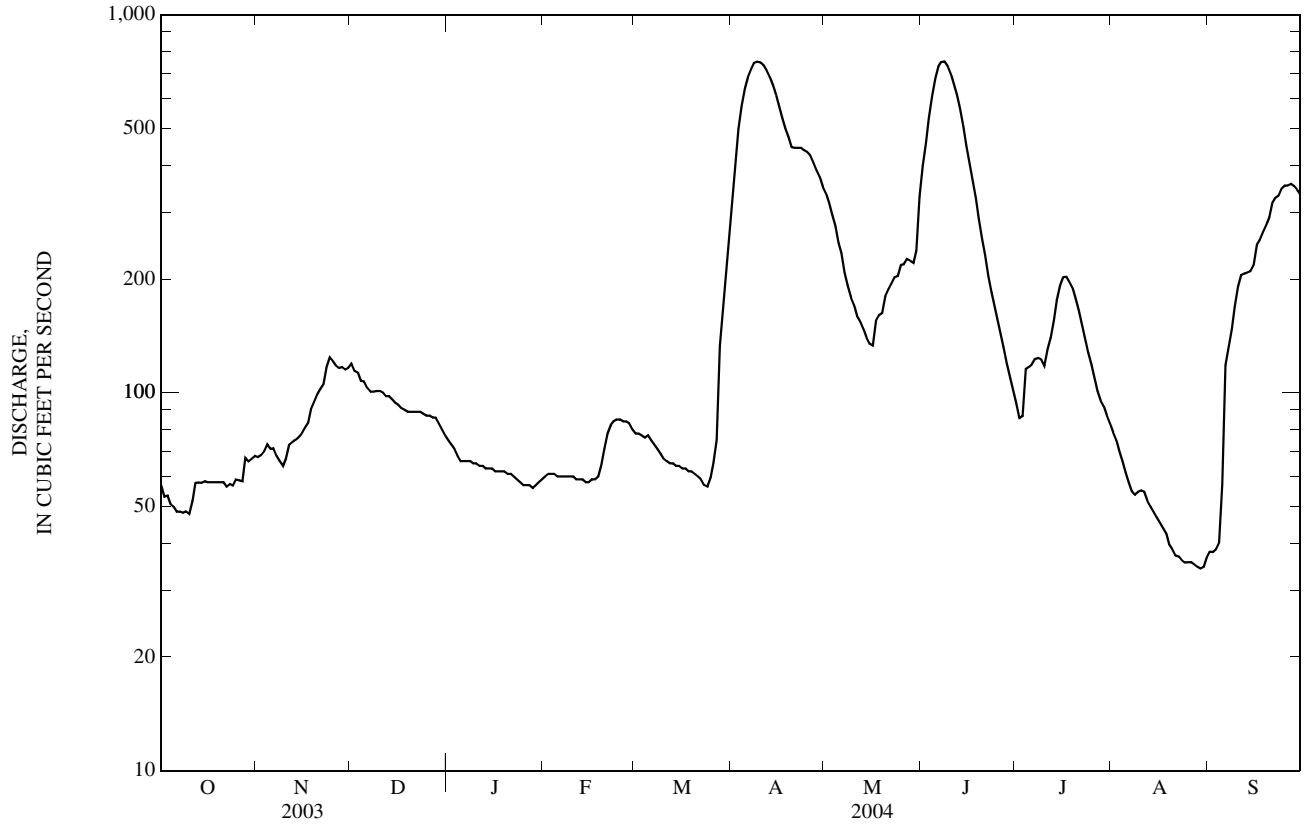
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1967 - 2004, BY WATER YEAR (WY)

MEAN	188	192	108	74.2	70.2	91.7	585	510	355	233	111	129
MAX	586	605	222	110	106	170	1,329	1,094	866	618	295	482
(WY)	(1974)	(1972)	(1978)	(1978)	(1969)	(1983)	(1969)	(1975)	(1974)	(1975)	(1978)	(1977)
MIN	11.4	14.0	15.5	24.1	37.0	60.1	86.9	57.0	69.7	61.3	24.3	15.4
(WY)	(1977)	(1977)	(1977)	(1977)	(1968)	(1977)	(1977)	(1977)	(1980)	(1980)	(1976)	(1976)

05212700 PRAIRIE RIVER NEAR TACONITE, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1967 - 2004	
ANNUAL TOTAL	39,701		61,132			
ANNUAL MEAN	109		167		217	
HIGHEST ANNUAL MEAN					327	1974
LOWEST ANNUAL MEAN					89.1	1977
HIGHEST DAILY MEAN	353	Jul 15	752	Jun 8	3,240	Apr 17, 1969
LOWEST DAILY MEAN	46	Sep 10	34	Aug 29	8.0	Oct 5, 1970
ANNUAL SEVEN-DAY MINIMUM	48	Mar 6	35	Aug 24	11	Oct 17, 1976
MAXIMUM PEAK FLOW			757	Jun 8	3,260	Apr 17, 1969
MAXIMUM PEAK STAGE			7.17	Jun 8	11.81	Apr 17, 1969
INSTANTANEOUS LOW FLOW			34	Aug 28	7.0	Oct 5, 1970
ANNUAL RUNOFF (AC-FT)	78,750		121,300		157,600	
ANNUAL RUNOFF (CFSM)	0.293		0.450		0.586	
ANNUAL RUNOFF (INCHES)	3.98		6.13		7.97	
10 PERCENT EXCEEDS	211		434		502	
50 PERCENT EXCEEDS	89		88		111	
90 PERCENT EXCEEDS	51		55		49	

e Estimated.



05227500 MISSISSIPPI RIVER AT AITKIN, MN

LOCATION.--Lat 46°32'26", long 93°42'26", in SW¼NW¼ sec. 24, T.47 N., R.27 W., Aitkin County, Hydrologic Unit 07010104, on right bank upstream side of highway bridge at north edge of Aitkin, 1 mi downstream from Ripple River and at mile 1,055.9 upstream from Ohio River.

DRAINAGE AREA.--6,140 mi^2 (approximately).

PERIOD OF RECORD.--March 1945 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,182.41 ft above sea level (NGVD of 1929, levels by U.S. Army Corps of Engineers). Mar. 1, 1945 to Mar. 14, 1961, nonrecording gage, and Mar. 15, 1961 to Sept. 30, 1967, water-stage recorder at same site at datum 3.0 ft higher. Diversion channel: Non-recording gage and crest-stage gage. Datum of gage is 1,182.02 ft above sea level (NGVD of 1929). Apr. 9, 1955 to Apr. 10, 1956, nonrecording gage at site 4 mi downstream at different datum. Apr. 11, 1956 to Sept. 30, 1967, non-recording gage at same site at datum 3.0 ft higher.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Flow regulated by Winnibigoshish Lake, Leech Lake, Pokegama Lake, and Sandy Lake. Water diverted at medium and high stages into Aitkin diversion channel 6.5 mi above station, bypasses station and returns to river 15.5 mi below station. Diversion began Apr. 2, 1955. These records include flow in diversion channel.

EXTREMES FOR CURRENT YEAR.--Main channel: maximum discharge, 3,570 ft^3/s, Apr. 4; gage height, 9.22 ft. Diversion channel: maximum discharge, 1,200 ft^3/s, Apr. 4, gage height,7.55 ft (determined based on change in stage at main gage).

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	695	844	e1,340	e1,240	e950	e1,050	e3,000	2,840	2,960	1,350	754	481
2	698	847	e1,350	e1,210	e950	e1,060	e3,840	2,700	3,550	1,290	770	454
3	700	858	e1,350	e1,160	e950	e1,060	e4,380	2,580	3,870	1,280	731	447
4	682	894	e1,350	e1,110	e950	e1,060	e4,700	2,480	4,050	1,280	688	519
5	682	903	e1,340	e1,140	e940	e1,040	4,590	2,330	4,180	1,200	672	612
6	688	853	e1,330	e1,160	e930	e1,040	4,420	2,190	4,240	1,130	660	830
7	690	829	e1,310	e1,170	e920	e1,030	4,540	2,010	4,260	1,160	651	1,160
8	680	e820	e1,290	e1,160	e920	e1,020	4,720	1,790	4,270	1,220	626	1,660
9	666	e900	e1,270	e1,150	e920	e1,010	4,740	1,670	4,180	1,210	629	1,930
10	646	e980	e1,240	e1,140	e920	e1,000	4,680	1,570	3,970	1,170	689	1,930
11	638	e1,030	e1,220	e1,120	e910	e1,000	4,600	1,470	3,740	1,260	709	1,990
12	649	e1,120	e1,200	e1,100	e910	e1,000	4,510	1,440	3,530	1,420	710	2,040
13	682	e1,100	e1,170	e1,060	e910	e1,010	4,350	1,500	3,390	1,610	738	2,070
14	762	e1,070	e1,160	e1,030	e920	e1,030	4,120	1,590	3,250	1,840	729	2,100
15	858	1,240	e1,180	e1,020	e920	e1,050	3,900	1,630	3,040	1,900	706	2,120
16	854	1,150	e1,210	e1,020	e920	e1,060	3,670	1,650	2,880	1,850	686	2,170
17	786	1,090	e1,230	e1,020	e930	e1,080	3,450	1,690	2,740	1,770	662	2,390
18	753	1,130	e1,250	e1,030	e930	e1,120	3,250	1,830	2,580	1,690	645	2,710
19	746	1,180	e1,250	e1,030	e940	e1,140	3,180	2,090	2,450	1,590	612	2,870
20	756	1,190	e1,250	e1,030	e950	e1,160	3,230	2,260	2,330	1,520	582	2,880
21	780	1,210	e1,240	e1,040	e960	e1,180	3,390	2,360	2,150	1,440	557	2,820
22	802	e1,190	e1,240	e1,040	e970	e1,200	3,440	2,420	2,000	1,350	547	2,780
23	805	e1,100	e1,240	e1,030	e980	e1,200	3,440	2,420	1,930	1,310	520	2,900
24	791	e730	e1,250	e1,030	e990	e1,210	3,410	2,390	1,830	1,250	497	3,110
25	785	e650	e1,260	e1,030	e1,000	e1,260	3,380	2,330	1,710	1,160	485	3,280
26	768	e900	e1,260	e1,020	e1,010	e1,350	3,340	2,280	1,610	1,010	492	3,390
27	754	e1,060	e1,260	e1,010	e1,030	e1,450	3,220	2,330	1,510	915	505	3,460
28	771	e1,180	e1,260	e990	e1,040	e1,650	3,100	2,390	1,440	925	497	3,470
29	792	e1,260	e1,260	e970	e1,050	e1,900	3,050	2,390	1,420	910	481	3,430
30	804	e1,300	e1,250	e960	---	e2,200	2,970	2,400	1,400	832	479	3,330
31	823	---	e1,250	e950	---	e2,600	---	2,490	---	761	482	---
TOTAL	22,986	30,608	39,060	33,170	27,620	38,220	114,610	65,510	86,460	40,603	19,191	65,333
MEAN	741	1,020	1,260	1,070	952	1,233	3,820	2,113	2,882	1,310	619	2,178
MAX	858	1,300	1,350	1,240	1,050	2,600	4,740	2,840	4,270	1,900	770	3,470
MIN	638	650	1,160	950	910	1,000	2,970	1,440	1,400	761	479	447
AC-FT	45,590	60,710	77,480	65,790	54,780	75,810	227,300	129,900	171,500	80,540	38,070	129,600
CFSM	0.12	0.17	0.21	0.17	0.16	0.20	0.62	0.34	0.47	0.21	0.10	0.35
IN.	0.14	0.19	0.24	0.20	0.17	0.23	0.69	0.40	0.52	0.25	0.12	0.40

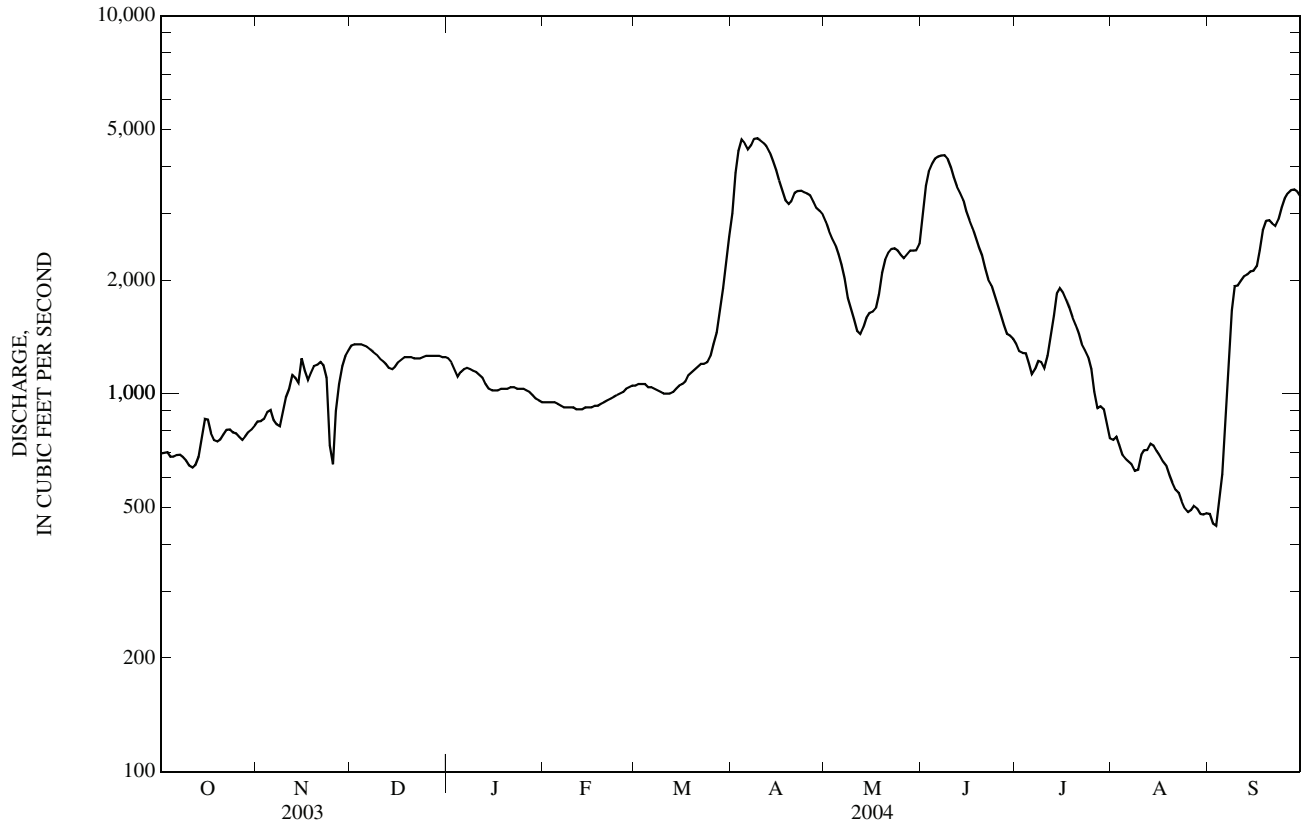
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1945 - 2004, BY WATER YEAR (WY)

MEAN	2,671	2,797	2,300	1,981	1,878	2,220	5,134	5,186	3,646	3,122	2,329	2,210
MAX	6,534	6,756	4,498	3,525	3,196	5,415	10,830	15,510	8,072	8,201	8,270	6,689
(WY)	(1966)	(1972)	(1997)	(1966)	(1966)	(1945)	(1966)	(1950)	(1965)	(1993)	(1953)	(1986)
MIN	313	328	324	345	398	638	1,074	669	540	346	273	321
(WY)	(1977)	(1977)	(1977)	(1977)	(1977)	(1977)	(1977)	(1958)	(1988)	(1961)	(1961)	(1976)

05227500 MISSISSIPPI RIVER AT AITKIN, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1945 - 2004	
ANNUAL TOTAL	508,933		583,371			
ANNUAL MEAN	1,394		1,594		2,949	
HIGHEST ANNUAL MEAN					4,985	1966
LOWEST ANNUAL MEAN					796	1977
HIGHEST DAILY MEAN	4,070	Jul 13	4,740	Apr 9	19,900	May 20, 1950
LOWEST DAILY MEAN	531	Sep 9	447	Sep 3	153	Sep 1, 1961
ANNUAL SEVEN-DAY MINIMUM	568	Sep 5	474	Aug 28	195	Aug 26, 1961
MAXIMUM PEAK FLOW			a4,770	Apr 4	20,000	May 20, 1950
MAXIMUM PEAK STAGE			b9.76	Apr 3	c22.49	May 20, 1950
INSTANTANEOUS LOW FLOW			439	Sep 2	151	Sep 1, 1961
ANNUAL RUNOFF (AC-FT)	1,009,000		1,157,000		2,137,000	
ANNUAL RUNOFF (CFSM)	0.227		0.260		0.480	
ANNUAL RUNOFF (INCHES)	3.08		3.53		6.53	
10 PERCENT EXCEEDS	2,420		3,380		5,780	
50 PERCENT EXCEEDS	1,240		1,180		2,350	
90 PERCENT EXCEEDS	713		688		968	

a Gage height, 9.22 ft.
b Backwater from ice.
c Present datum.
e Estimated.



05242300 MISSISSIPPI RIVER AT BRAINERD, MN

LOCATION.--Lat 46°22'40", long 94°10'59", in SE¼/SW¼ sec. 18, T.45 N., R.30 W., Crow Wing County, Hydrologic Unit 07010104, on left bank in hydropower plant of Wausau Paper Corporation in Brainerd, 12.7 mi upstream from Crow Wing River, and at mile 1,003.7 upstream from Ohio River.

DRAINAGE AREA.--7,320 mi^2 (approximately).

PERIOD OF RECORD.--October 1987 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,146.96 ft above sea level (NGVD of 1929).

REMARKS.--Records good except those for estimated daily discharges, which are fair. Flow regulated by Winnibigoshish Lake, Leech Lake, Pokegama Lake, Sandy Lake, Pine River Reservoir at Cross Lake, and by hydropower plant in Brainerd.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	818	976	1,830	e1,710	e1,300	e1,370	3,630	3,290	3,370	1,780	927	634
2	781	958	1,830	e1,680	e1,310	e1,380	3,980	3,200	3,850	1,520	929	629
3	751	961	1,840	e1,640	e1,310	e1,370	4,470	2,930	4,340	1,430	935	627
4	811	1,070	1,830	e1,560	e1,300	e1,340	4,990	2,920	4,710	1,520	916	613
5	804	957	1,820	e1,450	e1,280	1,280	5,740	2,640	4,990	1,560	850	1,160
6	798	971	1,750	e1,500	e1,270	1,400	5,160	2,860	4,940	1,630	798	1,070
7	798	976	1,780	e1,570	e1,260	1,400	5,060	2,210	5,010	1,380	796	1,360
8	798	867	1,760	e1,580	e1,250	1,320	5,370	2,310	5,160	1,510	818	1,740
9	800	826	1,750	1,600	e1,240	1,290	5,340	1,980	4,840	1,470	798	2,070
10	791	1,020	1,680	1,540	e1,230	e1,290	5,330	1,960	4,680	1,380	793	2,360
11	799	1,230	1,590	1,510	e1,220	e1,280	5,330	1,790	4,470	1,840	842	2,310
12	799	1,390	e1,530	1,510	e1,210	e1,290	5,160	1,690	4,120	1,660	842	2,300
13	792	1,130	e1,500	1,520	e1,200	e1,320	5,170	1,690	3,990	1,840	842	2,300
14	795	1,190	1,470	1,510	e1,190	e1,360	4,920	1,720	3,850	2,250	854	2,470
15	814	1,530	1,540	1,410	e1,170	1,380	4,450	1,810	3,700	2,440	905	2,630
16	914	1,400	1,520	1,350	e1,170	1,320	4,450	2,040	3,450	2,460	856	2,640
17	1,100	1,410	1,550	1,350	e1,180	1,430	4,030	2,130	3,190	2,330	840	2,680
18	870	1,360	1,750	e1,370	e1,200	1,340	3,930	1,980	3,220	2,240	808	3,190
19	838	1,440	1,670	e1,390	e1,220	1,390	3,600	2,290	2,920	2,220	714	3,280
20	845	1,510	1,730	e1,400	e1,240	1,410	3,770	2,510	2,830	2,080	679	3,490
21	852	1,410	1,740	e1,390	e1,250	1,420	3,980	2,830	2,790	1,920	693	3,560
22	884	1,700	1,670	e1,380	e1,260	1,410	3,930	2,750	2,390	1,840	790	3,490
23	947	1,580	1,740	e1,380	e1,270	1,440	4,050	2,860	2,320	1,610	802	3,420
24	887	888	1,670	e1,370	e1,290	1,450	4,000	2,660	2,320	1,470	734	3,780
25	902	807	e1,690	e1,370	e1,300	1,670	3,890	2,840	2,040	1,560	629	3,870
26	872	1,270	1,700	e1,370	e1,330	1,670	3,870	2,600	1,900	1,300	614	4,030
27	900	1,470	1,750	e1,360	e1,350	1,800	3,770	2,790	1,830	1,020	621	4,240
28	932	1,730	1,780	e1,360	e1,360	2,230	3,510	2,690	1,750	1,330	626	4,120
29	957	1,660	1,770	e1,350	e1,370	2,720	3,570	2,920	1,540	1,030	630	4,110
30	956	1,750	1,730	e1,300	---	2,930	3,340	3,010	1,650	1,190	632	4,110
31	987	---	e1,720	e1,290	---	3,280	---	2,950	---	1,030	638	---
TOTAL	26,592	37,437	52,680	45,070	36,530	48,980	131,790	76,850	102,160	51,840	24,151	78,283
MEAN	858	1,248	1,699	1,454	1,260	1,580	4,393	2,479	3,405	1,672	779	2,609
MAX	1,100	1,750	1,840	1,710	1,370	3,280	5,740	3,290	5,160	2,460	935	4,240
MIN	751	807	1,470	1,290	1,170	1,280	3,340	1,690	1,540	1,020	614	613
AC-FT	52,750	74,260	104,500	89,400	72,460	97,150	261,400	152,400	202,600	102,800	47,900	155,300
CFSM	0.12	0.17	0.23	0.20	0.17	0.22	0.60	0.34	0.47	0.23	0.11	0.36
IN.	0.14	0.19	0.27	0.23	0.19	0.25	0.67	0.39	0.52	0.26	0.12	0.40

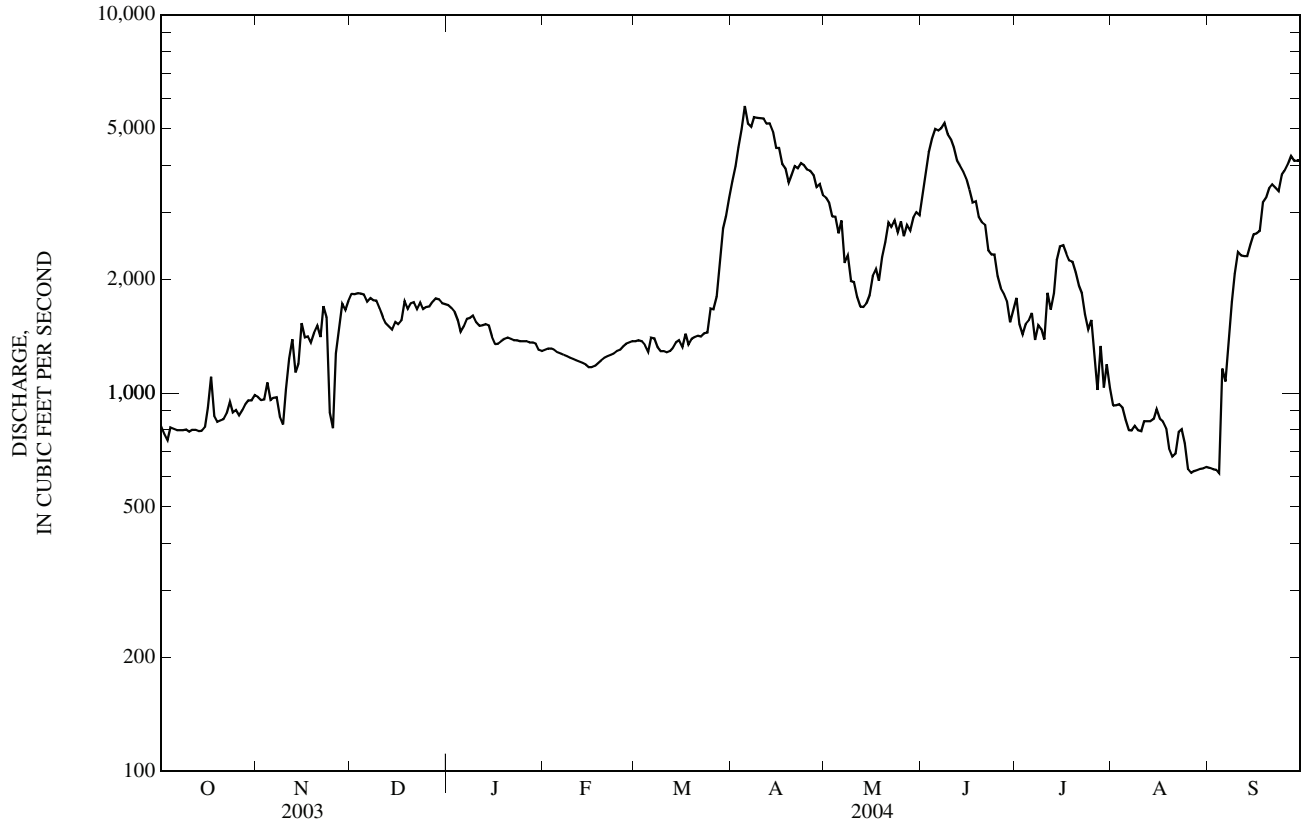
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1987 - 2004, BY WATER YEAR (WY)

MEAN	3,225	3,586	3,070	2,586	2,361	2,714	5,902	5,682	4,032	4,348	2,563	2,465
MAX	8,002	6,655	5,926	4,081	3,973	4,306	12,890	12,890	10,100	10,260	6,950	6,925
(WY)	(1996)	(2001)	(1997)	(1997)	(1997)	(2000)	(1997)	(2001)	(2001)	(1993)	(1999)	(1999)
MIN	858	1,248	1,362	1,140	1,040	1,385	2,184	1,928	662	442	779	831
(WY)	(2004)	(2004)	(1991)	(1991)	(1991)	(2003)	(2003)	(1988)	(1988)	(1988)	(2004)	(2003)

05242300 MISSISSIPPI RIVER AT BRAINERD, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1987 - 2004	
ANNUAL TOTAL	668,779		712,363			
ANNUAL MEAN	1,832		1,946		3,581	
HIGHEST ANNUAL MEAN					5,707	2001
LOWEST ANNUAL MEAN					1,946	2004
HIGHEST DAILY MEAN	5,150	Jul 13	5,740	Apr 5	17,400	Apr 28, 2001
LOWEST DAILY MEAN	614	Sep 10	613	Sep 4	348	Jul 30, 1988
ANNUAL SEVEN-DAY MINIMUM	670	Sep 4	627	Aug 25	357	Jul 29, 1988
MAXIMUM PEAK FLOW			6,020	Apr 5	17,500	Apr 30, 2001
MAXIMUM PEAK STAGE			8.88	Apr 5	16.70	Apr 30, 2001
INSTANTANEOUS LOW FLOW			a490	Aug 19	a273	Jul 12, 1988
ANNUAL RUNOFF (AC-FT)	1,327,000		1,413,000		2,594,000	
ANNUAL RUNOFF (CFSM)	0.250		0.266		0.489	
ANNUAL RUNOFF (INCHES)	3.40		3.62		6.65	
10 PERCENT EXCEEDS	3,270		3,930		6,570	
50 PERCENT EXCEEDS	1,650		1,520		3,030	
90 PERCENT EXCEEDS	820		813		1,350	

a Result of regulation.
e Estimated.



05243300 LONG LOST LAKE, SOUTHWEST BAY, NEAR ZERKEL, MN

LOCATION.--Lat 47°10'48", long 95°25'08", in NW¼/NW¼ sec. 30, T. 143 N., R.37 W., Clearwater County, Hydrologic Unit 07010106, on White Earth Indian Reservation just west of Itasca State Park.

DRAINAGE AREA.--

PERIOD OF RECORD.--August 2003 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,603.78 ft above sea level (NGVD of 1929). Prior to Oct. 1, 2003 at datum 13.78 ft lower.

REMARKS.-- Records good.

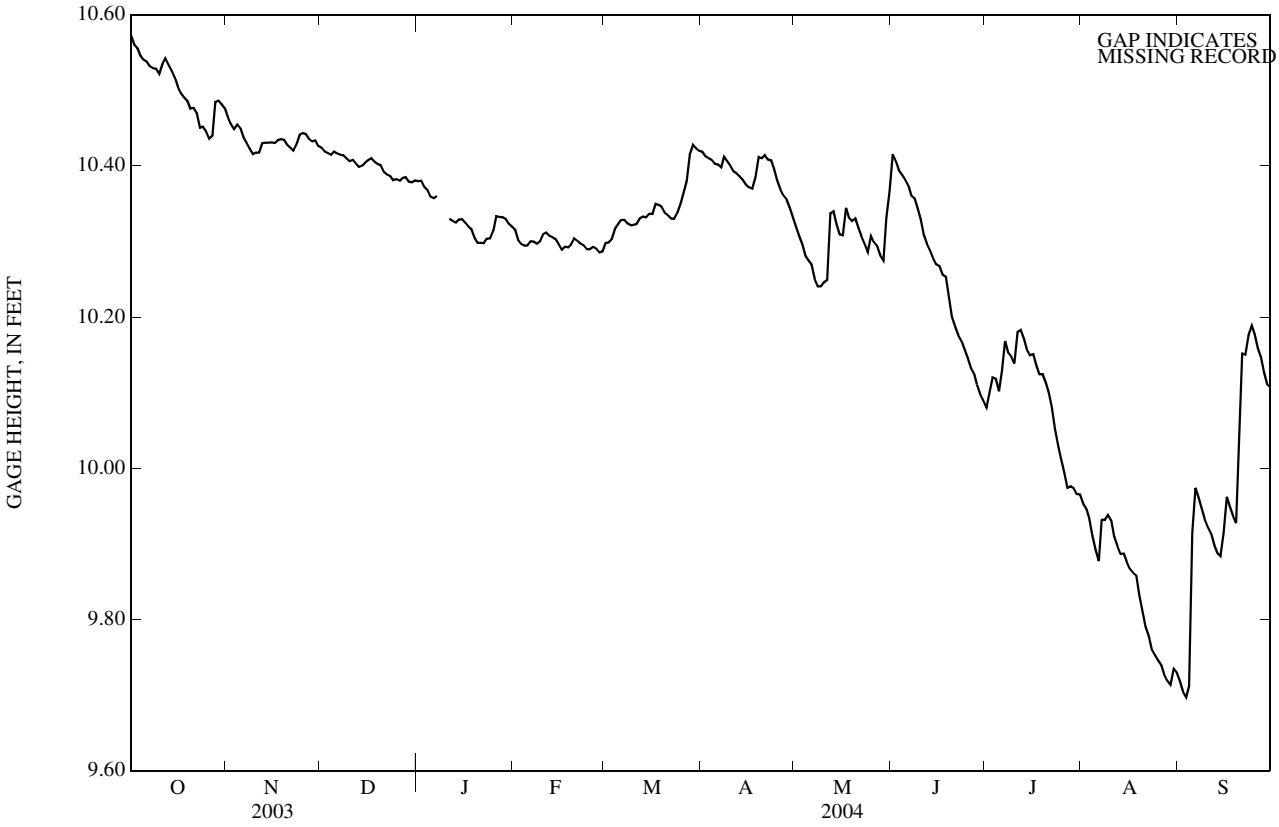
EXTREMES FOR PERIOD OF RECORD.-- Maximum-recorded gage height, 11.19 ft, Aug. 5, 2003; maximum daily, 11.19 ft, Aug. 5, 2003; minimum-recorded, 9.67 ft, Sept. 4, 2004; minimum daily, 9.70 ft, Sept. 3, 2004.

EXTREMES FOR CURRENT YEAR.-- Maximum-recorded gage height, 10.58 ft, Oct. 1; maximum daily, 10.57 ft, Oct. 1; minimum-recorded, 9.67 ft, Sept. 4; minimum daily, 9.70 ft, Sept. 3.

GAGE HEIGHT, FEET
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10.57	10.46	10.42	10.38	10.32	10.30	10.42	10.32	10.42	10.08	9.95	9.72
2	10.56	10.46	10.42	10.38	10.30	10.30	10.41	10.31	10.41	10.10	9.95	9.71
3	10.56	10.45	10.42	10.37	10.30	10.30	10.41	10.30	10.39	10.12	9.93	9.70
4	10.55	10.45	10.41	10.37	10.29	10.32	10.41	10.28	10.39	10.12	9.91	9.71
5	10.54	10.45	10.42	10.36	10.29	10.32	10.40	10.27	10.38	10.10	9.89	9.91
6	10.54	10.44	10.42	10.36	10.30	10.33	10.40	10.27	10.37	10.13	9.88	9.97
7	10.53	10.43	10.41	10.36	10.30	10.33	10.40	10.25	10.36	10.17	9.93	9.96
8	10.53	10.42	10.41	---	10.30	10.32	10.41	10.24	10.36	10.15	9.93	9.95
9	10.53	10.42	10.41	---	10.30	10.32	10.41	10.24	10.34	10.15	9.94	9.93
10	10.52	10.42	10.41	---	10.31	10.32	10.40	10.25	10.33	10.14	9.93	9.92
11	10.53	10.42	10.41	10.33	10.31	10.32	10.39	10.25	10.31	10.18	9.91	9.91
12	10.54	10.43	10.40	10.33	10.31	10.33	10.39	10.34	10.30	10.18	9.90	9.90
13	10.53	10.43	10.40	10.32	10.31	10.33	10.39	10.34	10.29	10.17	9.89	9.89
14	10.53	10.43	10.40	10.33	10.30	10.33	10.38	10.32	10.28	10.16	9.89	9.88
15	10.52	10.43	10.40	10.33	10.30	10.34	10.37	10.31	10.27	10.15	9.88	9.91
16	10.50	10.43	10.41	10.32	10.29	10.34	10.37	10.31	10.27	10.15	9.87	9.96
17	10.50	10.43	10.41	10.32	10.29	10.35	10.37	10.34	10.26	10.14	9.86	9.95
18	10.49	10.44	10.41	10.32	10.29	10.35	10.38	10.33	10.25	10.12	9.86	9.94
19	10.49	10.43	10.40	10.30	10.30	10.35	10.41	10.33	10.23	10.12	9.83	9.93
20	10.48	10.43	10.40	10.30	10.30	10.34	10.41	10.33	10.20	10.11	9.81	10.04
21	10.48	10.42	10.39	10.30	10.30	10.33	10.41	10.32	10.19	10.10	9.79	10.15
22	10.47	10.42	10.39	10.30	10.30	10.33	10.41	10.31	10.18	10.08	9.78	10.15
23	10.45	10.43	10.39	10.30	10.29	10.33	10.41	10.30	10.17	10.05	9.76	10.18
24	10.45	10.44	10.38	10.30	10.29	10.34	10.40	10.29	10.16	10.03	9.75	10.19
25	10.45	10.44	10.38	10.31	10.29	10.35	10.38	10.31	10.15	10.01	9.75	10.18
26	10.44	10.44	10.38	10.33	10.29	10.36	10.37	10.30	10.13	9.99	9.74	10.16
27	10.44	10.44	10.38	10.33	10.29	10.38	10.36	10.29	10.13	9.97	9.73	10.15
28	10.48	10.43	10.38	10.33	10.29	10.42	10.36	10.28	10.11	9.98	9.72	10.13
29	10.49	10.43	10.38	10.33	10.29	10.43	10.34	10.28	10.10	9.97	9.71	10.11
30	10.48	10.43	10.38	10.32	---	10.42	10.33	10.33	10.09	9.97	9.73	10.11
31	10.48	---	10.38	10.32	---	10.42	---	10.37	---	9.97	9.73	---
MEAN	10.50	10.43	10.40	---	10.30	10.34	10.39	10.30	10.26	10.09	9.84	9.98
MAX	10.57	10.46	10.42	---	10.32	10.43	10.42	10.37	10.42	10.18	9.95	10.19
MIN	10.44	10.42	10.38	---	10.29	10.30	10.33	10.24	10.09	9.97	9.71	9.70

05243300 LONG LOST LAKE, SOUTHWEST BAY, NEAR ZERKEL, MN—Continued



05243725 STRAIGHT RIVER NEAR PARK RAPIDS, MN

LOCATION.--Lat 46°52'30", long 95°03'56", in NW¼NE¼ sec. 11, T. 139 N., R. 35 W., Hubbard County, Hydrologic Unit 07010106, upstream from culvert on U.S. Highway 71, 3.2 mi south of Park Rapids.

DRAINAGE AREA.--53.2 mi^2.

PERIOD OF RECORD.--Occasional low-flow measurements, water years 1970-71, 1973, 1975-76. October 1986 to current year (no winter records in 1987, 1990-91). May 1988 through August 1989, records of hourly water temperature (available in files of the Geological Survey).

GAGE.--Water-stage recorder. Datum of gage is 1,399.55 ft above sea level (NGVD of 1929, levels by Minnesota Department of Natural Resources).

REMARKS.--Records good except those for estimated daily discharges, which are fair. Diurnal flucations in flow due to ground-water withdrawals.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	38	49	e39	e38	e38	e48	57	43	62	40	42	39
2	39	48	e39	e38	e38	e49	56	43	61	43	41	37
3	38	48	e41	e39	e38	49	56	43	58	43	41	37
4	40	49	e42	e39	e38	50	55	42	55	47	38	38
5	41	50	e42	e39	e38	49	55	42	53	48	39	56
6	41	e47	e41	e39	e38	49	55	47	51	51	40	65
7	44	e46	e41	e39	e39	49	54	49	49	55	43	69
8	44	e46	e41	e40	e39	49	52	46	48	55	43	67
9	44	e47	e40	e41	e40	48	51	46	47	51	43	63
10	43	e50	e37	e42	e40	48	50	45	46	51	44	58
11	44	e52	e37	e42	e40	e43	49	45	45	51	41	55
12	46	50	e37	e42	e40	e50	49	67	45	52	41	53
13	45	49	e38	e42	e41	e48	48	72	45	50	42	51
14	45	47	e39	e42	e41	e47	48	64	45	47	45	48
15	44	46	e40	e42	e42	e47	48	60	45	46	42	55
16	44	47	e40	e41	e42	47	47	57	45	43	42	64
17	43	48	e40	e39	e43	47	46	62	45	44	42	65
18	43	48	e41	e38	e43	48	46	60	44	43	43	61
19	44	47	e40	e38	e44	47	46	57	43	43	40	57
20	45	47	e40	e38	e44	48	46	59	43	44	38	67
21	44	46	e41	e38	e45	47	48	55	44	43	36	75
22	45	46	e41	e38	e45	48	46	53	43	43	38	80
23	44	35	e40	e38	e45	47	46	51	43	41	39	82
24	45	e40	e40	e38	e46	47	45	52	45	39	38	84
25	45	e44	e40	e38	e46	49	44	56	43	38	39	80
26	45	e45	e40	e38	e46	51	44	54	41	38	39	74
27	45	e43	e40	e38	e47	54	44	52	42	37	39	69
28	50	e43	e39	e38	e47	64	44	51	42	41	37	64
29	52	e42	e39	e38	e47	61	44	49	43	40	38	61
30	50	e41	e38	e38	---	57	44	53	42	41	39	58
31	50	---	e38	e38	---	57	---	58	---	42	41	---
TOTAL	1,370	1,386	1,231	1,216	1,220	1,542	1,463	1,633	1,403	1,390	1,253	1,832
MEAN	44.2	46.2	39.7	39.2	42.1	49.7	48.8	52.7	46.8	44.8	40.4	61.1
MAX	52	52	42	42	47	64	57	72	62	55	45	84
MIN	38	35	37	38	38	43	44	42	41	37	36	37
AC-FT	2,720	2,750	2,440	2,410	2,420	3,060	2,900	3,240	2,780	2,760	2,490	3,630
CFSM	0.83	0.87	0.75	0.74	0.79	0.93	0.92	0.99	0.88	0.84	0.76	1.15
IN.	0.96	0.97	0.86	0.85	0.85	1.08	1.02	1.14	0.98	0.97	0.88	1.28

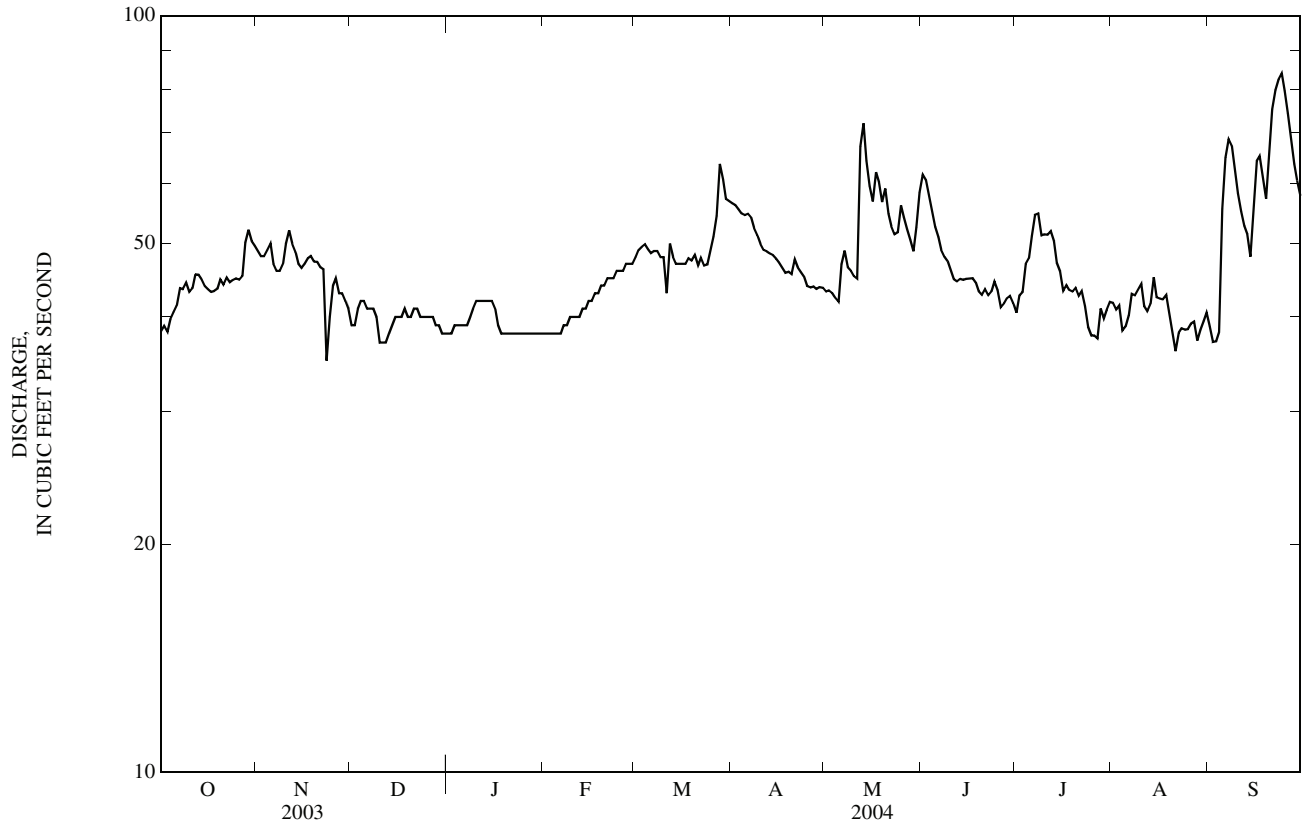
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1987 - 2004, BY WATER YEAR (WY)

MEAN	62.1	62.8	59.1	54.8	55.0	61.4	69.6	66.2	60.3	57.5	54.7	58.7
MAX	83.1	77.6	74.5	77.7	69.8	76.8	101	86.6	76.1	81.5	81.2	81.4
(WY)	(1996)	(1998)	(1995)	(1999)	(1998)	(1995)	(1997)	(1999)	(1999)	(1997)	(1999)	(1999)
MIN	42.2	46.2	39.7	39.2	42.1	48.8	48.8	46.2	41.9	39.5	35.9	38.0
(WY)	(1993)	(2004)	(2004)	(2004)	(2004)	(2003)	(2004)	(1992)	(1992)	(1988)	(1990)	(2003)

05243725 STRAIGHT RIVER NEAR PARK RAPIDS, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1987 - 2004	
ANNUAL TOTAL	17,271		16,939			
ANNUAL MEAN	47.3		46.3		61.0	
HIGHEST ANNUAL MEAN					78.3	1999
LOWEST ANNUAL MEAN					46.3	2004
HIGHEST DAILY MEAN	81	Jun 26	84	Sep 24	144	Apr 6, 1997
LOWEST DAILY MEAN	34	Aug 15	a35	Nov 23	b28	Jan 9, 1992
ANNUAL SEVEN-DAY MINIMUM	35	Aug 13	38	Jan 18	34	Aug 5, 1990
MAXIMUM PEAK FLOW			c87	Sep 24	149	Apr 6, 1997
MAXIMUM PEAK STAGE			d2.77	Feb 29	d3.42	Mar 15, 2003
INSTANTANEOUS LOW FLOW			a21	Nov 23	a21	Nov 23, 2003
ANNUAL RUNOFF (AC-FT)	34,260		33,600		44,170	
ANNUAL RUNOFF (CFSM)	0.889		0.870		1.15	
ANNUAL RUNOFF (INCHES)	12.08		11.84		15.57	
10 PERCENT EXCEEDS	59		57		78	
50 PERCENT EXCEEDS	45		44		60	
90 PERCENT EXCEEDS	38		38		44	

a Result of freezeup.
b Estimated, result of freezeup.
c Gage height, 1.86 ft.
d Backwater from ice.
e Estimated.



05244000 CROW WING RIVER AT NIMROD, MN

LOCATION.--Lat 46°38'25", long 94°52'44", in SE¼NW¼ sec. 32, T. 137 N., R. 33 W., Wadena County, Hydrologic Unit 07010106, on right bank 200 ft upstream from County Highway 227 bridge, 0.2 mi north of Nimrod, and 0.7 mi upstream from Cat River.

DRAINAGE AREA.--1,030 mi^2.

PERIOD OF RECORD.--April 1910 to September 1914, July 1930 to September 1981, October 1991 to current year (winter records incomplete prior to 1940). October 1981 to September 1987, annual maximums only.

REVISED RECORDS.--WSP 1508: 1910-11, 1913-14, 1937, 1942(M), 1944(M).

GAGE.--Water-stage recorder. Datum of gage is 1,313.27 ft above sea level (NGVD of 1929, levels by Wadena County Highway Department from Minnesota Department of Transportation benchmark). Apr. 15, 1910 to Sept. 30, 1914, nonrecording gage at same site, at datum 2.2 ft lower. July 28, 1930 to Nov. 4, 1949, nonrecording gages at same site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Flow affected by natural storage in many lakes.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	195	241	e295	e234	e202	e268	e576	372	646	197	236	181
2	193	242	e293	e233	e204	e267	558	370	646	223	241	177
3	194	239	e290	e230	e206	e266	568	362	619	285	229	167
4	191	e243	e283	e229	e206	e268	566	361	599	333	230	161
5	188	e225	e280	e227	e206	e268	548	337	601	301	226	240
6	185	e194	e280	e226	e207	e268	529	308	611	327	223	318
7	182	e187	e282	e223	e207	e269	506	289	594	440	242	318
8	179	e183	e285	e220	e208	e270	485	278	570	443	244	316
9	176	e205	e283	e218	e209	e274	484	271	524	428	260	329
10	178	e235	e275	e217	e209	e278	484	264	467	414	258	357
11	202	e270	e260	e215	e208	e286	470	256	427	477	256	359
12	222	e280	e257	e212	e208	e295	458	345	412	486	253	331
13	225	e278	e259	e211	e208	e304	447	394	391	472	250	300
14	216	e272	e264	e210	e208	e318	430	426	386	435	241	283
15	209	e270	e267	e209	e209	e327	414	455	376	403	237	344
16	204	e264	e269	e208	e210	e341	403	481	369	382	238	431
17	202	234	e269	e207	e210	e342	393	587	362	357	242	443
18	204	232	e272	e207	e215	e342	394	604	356	337	237	451
19	203	230	e270	e206	e217	e342	385	584	349	319	228	450
20	201	226	e270	e205	e225	e343	364	591	338	301	222	502
21	200	217	e268	e204	e234	e343	417	573	327	277	215	649
22	198	e240	e262	e203	e243	e343	437	543	309	254	215	667
23	198	e210	e260	e203	e248	e347	433	520	286	242	211	672
24	200	e180	e256	e202	e253	e353	427	509	278	229	202	694
25	196	e269	e251	e202	e257	e367	425	546	267	216	195	702
26	195	e275	e249	e202	e263	e388	421	551	261	203	191	701
27	203	e300	e247	e201	e266	e442	413	576	257	195	189	695
28	223	e302	e245	e200	e266	e483	409	587	253	199	185	690
29	228	e298	e242	e200	e267	e510	399	556	233	218	183	683
30	232	e290	e240	e201	---	e540	385	559	212	241	184	677
31	240	---	e236	e201	---	e565	---	602	---	242	184	---
TOTAL	6,262	7,331	8,259	6,566	6,479	10,617	13,628	14,057	12,326	9,876	6,947	13,288
MEAN	202	244	266	212	223	342	454	453	411	319	224	443
MAX	240	302	295	234	267	565	576	604	646	486	260	702
MIN	176	180	236	200	202	266	364	256	212	195	183	161
AC-FT	12,420	14,540	16,380	13,020	12,850	21,060	27,030	27,880	24,450	19,590	13,780	26,360
CFSM	0.20	0.24	0.26	0.21	0.22	0.34	0.45	0.45	0.41	0.32	0.22	0.44

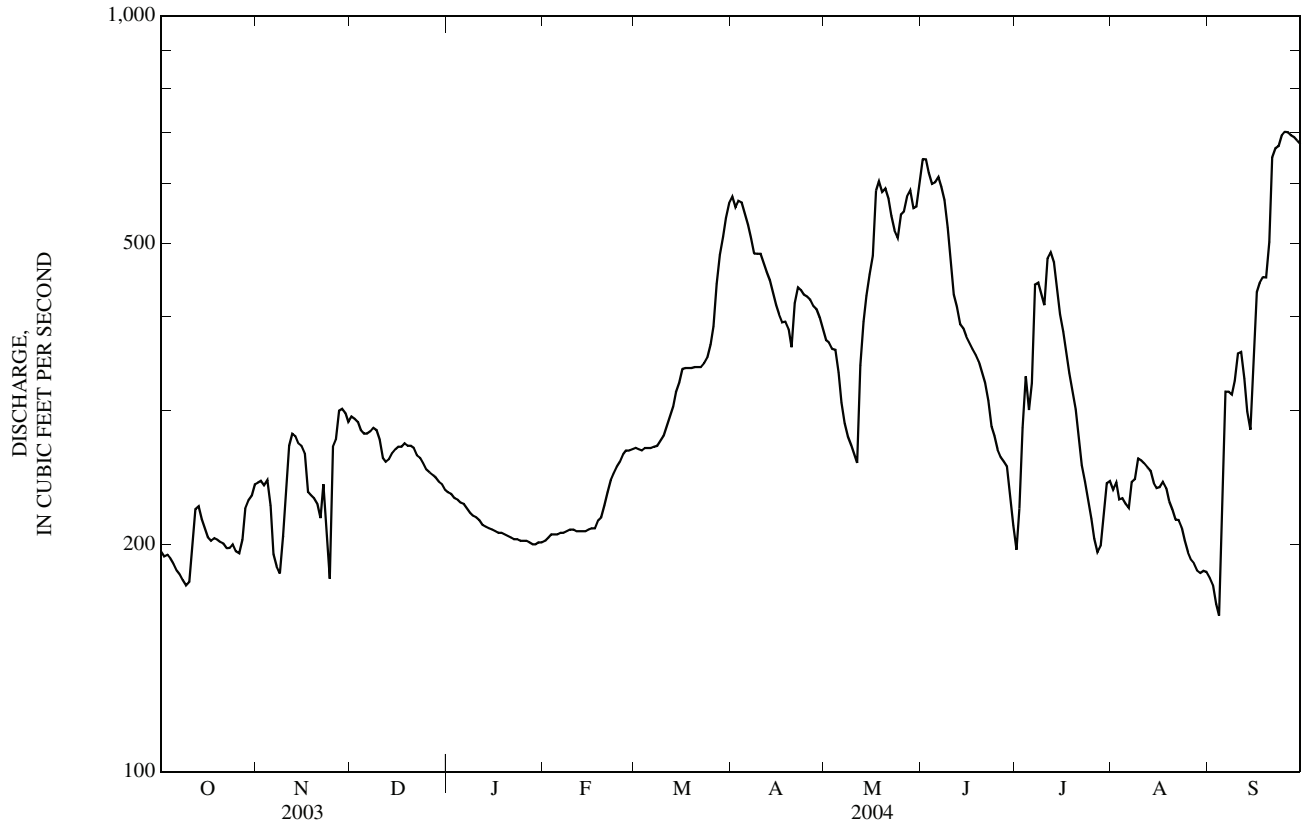
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1910 - 2004, BY WATER YEAR (WY)

MEAN	414	414	352	305	311	412	759	678	574	454	376	384
MAX	1,463	871	692	462	527	780	1,624	1,615	1,354	1,124	1,452	929
(WY)	(1974)	(1972)	(1999)	(1966)	(2000)	(1995)	(1966)	(1950)	(1965)	(1997)	(1944)	(1944)
MIN	137	146	131	125	170	171	202	181	149	84.0	74.3	131
(WY)	(1937)	(1937)	(1940)	(1940)	(1940)	(1940)	(1911)	(1911)	(1934)	(1936)	(1936)	(1934)

05244000 CROW WING RIVER AT NIMROD, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1910 - 2004	
ANNUAL TOTAL	117,092		115,636			
ANNUAL MEAN	321		316		481	
HIGHEST ANNUAL MEAN					757	1999
LOWEST ANNUAL MEAN					230	1940
HIGHEST DAILY MEAN	732	May 11	702	Sep 25	3,580	Oct 10, 1973
LOWEST DAILY MEAN	176	Oct 9	161	Sep 4	45	Aug 7, 1936
ANNUAL SEVEN-DAY MINIMUM	183	Oct 4	177	Aug 29	55	Aug 3, 1936
MAXIMUM PEAK FLOW			a704	Sep 25	b3,700	Oct 10, 1973
MAXIMUM PEAK STAGE			4.95	Mar 31	c7.64	Apr 20, 1950
INSTANTANEOUS LOW FLOW			d62	Nov 24	45	Aug 7, 1936
ANNUAL RUNOFF (AC-FT)	232,300		229,400		348,100	
ANNUAL RUNOFF (CFSM)	0.318		0.313		0.476	
10 PERCENT EXCEEDS	520		544		822	
50 PERCENT EXCEEDS	269		268		400	
90 PERCENT EXCEEDS	199		201		240	

a Gage-height, 3.50 ft.
b Gage-height, 7.35 ft.
c Backwater from ice.
d Result of freezeup.
e Estimated.



05245100 LONG PRAIRIE RIVER AT LONG PRAIRIE, MN

LOCATION.--Lat 45°58'30", long 94°51'56", in NE¼NW¼ sec. 20, T. 129 N., R. 33 W., Todd County, Hydrologic Unit 07010108, on right bank 90 ft upstream from bridge on First Avenue at Long Prairie and 400 ft downstream from Venewitz Creek.

DRAINAGE AREA.--434 mi^2.

PERIOD OF RECORD.--October 1971 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,281.74 ft above sea level (NGVD of 1929).

REMARKS.--Records good except those for estimated daily discharges, which are fair to poor.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	116	113	88	e56	e40	e76	215	146	281	94	76	71
2	114	111	88	e60	e40	e76	198	140	310	91	86	68
3	112	108	84	e58	e37	e76	187	135	316	98	86	67
4	110	108	85	e52	e36	e77	177	131	292	93	86	65
5	108	106	87	e47	e37	e77	170	128	267	91	85	83
6	106	e82	88	e45	e39	e78	165	126	250	109	86	91
7	104	e76	88	e47	e41	e80	162	121	226	117	97	81
8	103	e82	87	e52	e41	e78	159	119	206	111	96	82
9	103	e94	e79	e55	e43	e75	153	118	196	108	94	81
10	106	105	e72	e56	e43	e72	149	117	193	102	97	75
11	117	114	e54	e56	e44	e72	143	112	191	110	100	74
12	125	120	e45	e57	e44	e73	139	117	187	108	99	70
13	128	105	e51	e56	e45	e75	134	137	180	115	96	66
14	129	104	e57	e55	e46	e81	129	151	177	114	91	65
15	128	105	e64	e56	e42	e82	126	140	172	109	85	96
16	123	100	e67	e55	e46	e85	125	131	166	106	81	118
17	117	100	e69	e53	e49	e89	125	142	161	100	77	112
18	114	104	e68	e50	e53	e93	175	160	153	93	73	120
19	111	103	e67	e48	e55	e96	177	168	145	89	71	116
20	110	101	e65	e45	e56	e101	177	159	138	85	68	110
21	110	97	e65	e43	e58	e105	223	148	131	82	67	143
22	110	90	e64	e43	e61	e112	257	140	126	78	67	168
23	108	59	e61	e43	e65	e116	257	138	123	76	62	193
24	108	46	e59	e43	e69	e124	222	141	123	74	65	219
25	107	80	e59	e44	e70	e134	199	148	118	72	64	229
26	106	100	e67	e44	e73	e154	184	161	112	70	67	230
27	107	100	e71	e41	e73	e225	172	180	111	68	70	218
28	112	93	e67	e39	e74	341	164	190	108	69	72	196
29	112	91	e64	e37	e75	349	158	183	105	70	71	172
30	115	88	e59	e34	---	311	155	191	100	72	77	155
31	117	---	e56	e37	---	249	---	226	---	75	72	---
TOTAL	3,496	2,885	2,145	1,507	1,495	3,832	5,176	4,544	5,364	2,849	2,484	3,634
MEAN	113	96.2	69.2	48.6	51.6	124	173	147	179	91.9	80.1	121
MAX	129	120	88	60	75	349	257	226	316	117	100	230
MIN	103	46	45	34	36	72	125	112	100	68	62	65
AC-FT	6,930	5,720	4,250	2,990	2,970	7,600	10,270	9,010	10,640	5,650	4,930	7,210
CFSM	0.26	0.22	0.16	0.11	0.12	0.28	0.40	0.34	0.41	0.21	0.18	0.28
IN.	0.30	0.25	0.18	0.13	0.13	0.33	0.44	0.39	0.46	0.24	0.21	0.31

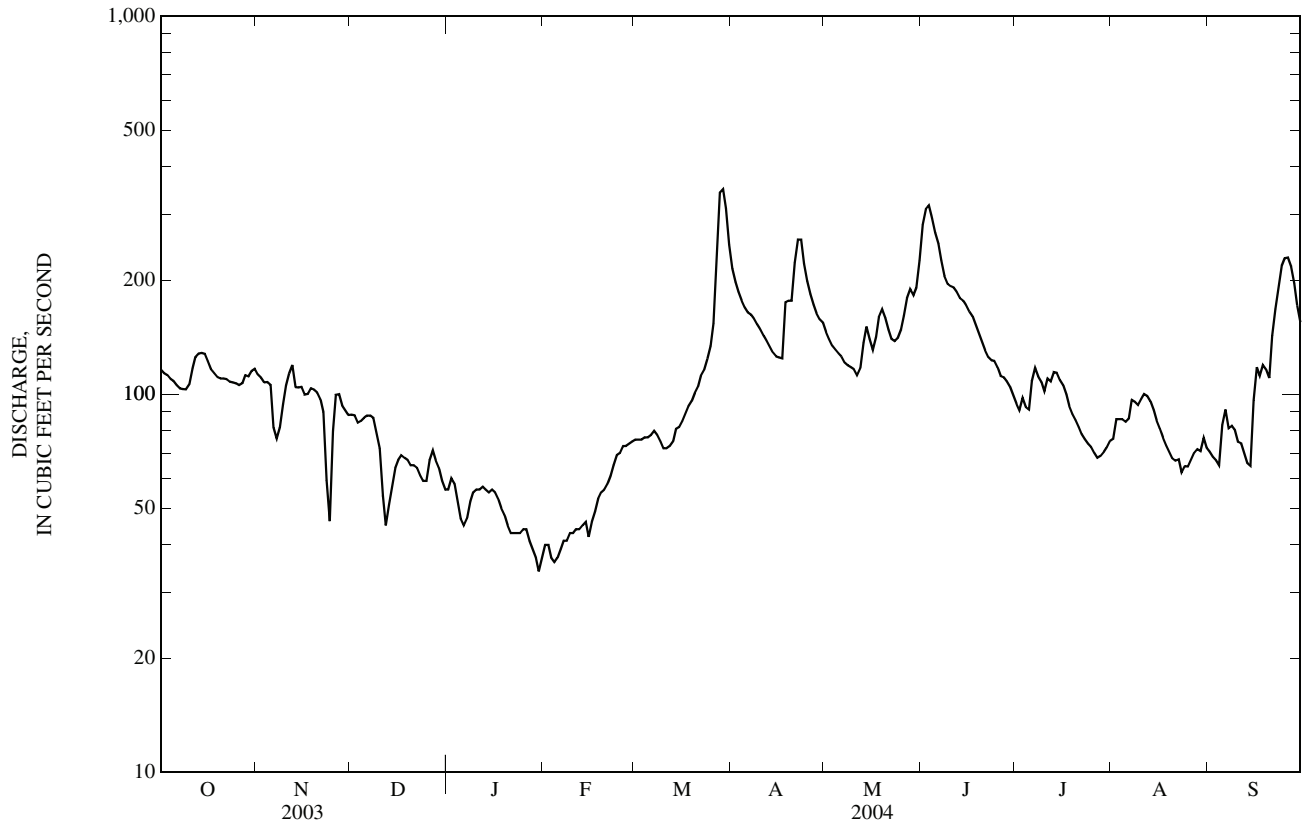
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1972 - 2004, BY WATER YEAR (WY)

MEAN	130	117	76.2	63.0	66.3	168	369	280	238	207	140	122
MAX	512	425	270	217	208	441	1,062	653	774	777	715	607
(WY)	(1987)	(1972)	(1987)	(1987)	(1987)	(1985)	(2001)	(1986)	(2001)	(1972)	(1972)	(1986)
MIN	13.4	8.69	3.19	1.05	1.62	19.8	71.8	45.5	27.5	4.73	10.0	5.32
(WY)	(1977)	(1977)	(1977)	(1977)	(1977)	(1989)	(1977)	(1977)	(1988)	(1988)	(1989)	(1976)

05245100 LONG PRAIRIE RIVER AT LONG PRAIRIE, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1972 - 2004	
ANNUAL TOTAL	75,420		39,411			
ANNUAL MEAN	207		108		165	
HIGHEST ANNUAL MEAN					366	1972
LOWEST ANNUAL MEAN					25.2	1977
HIGHEST DAILY MEAN	2,350	Jun 26	349	Mar 29	2,900	Jul 22, 1972
LOWEST DAILY MEAN	45	Dec 12	34	Jan 30	a0.84	Jan 12, 1977
ANNUAL SEVEN-DAY MINIMUM	51	Feb 5	37	Jan 29	0.84	Jan 12, 1977
MAXIMUM PEAK FLOW			355	Mar 29	3,270	Jul 22, 1972
MAXIMUM PEAK STAGE			4.09	Mar 29	9.37	Jul 22, 1972
INSTANTANEOUS LOW FLOW			a34	Jan 30	a0.84	Jan 12, 1977
ANNUAL RUNOFF (AC-FT)	149,600		78,170		119,500	
ANNUAL RUNOFF (CFSM)	0.476		0.248		0.380	
ANNUAL RUNOFF (INCHES)	6.46		3.38		5.16	
10 PERCENT EXCEEDS	397		181		367	
50 PERCENT EXCEEDS	117		97		106	
90 PERCENT EXCEEDS	59		51		28	

a Estimated daily-mean discharge, backwater from ice.
e Estimated.



05247500 CROW WING RIVER NEAR PILLAGER, MN

LOCATION.--Lat 46°18'18", long 94°22'38", in SW¼NE¼ sec. 30, T. 133 N., R. 29 W., Cass County, Hydrologic Unit 07010106, at Sylvan Dam power plant of Minnesota Power Co., 3.6 mi above mouth and 4.9 mi southeast of Pillager.

DRAINAGE AREA.--3,760 mi^2 (revised).

PERIOD OF RECORD.--October 1968 to September 1986, October 1987 to current year. Records for August 1924 to September 1968 available in files of the Minnesota District Office.

GAGE.--Water-stage recorder. Datum of gage is 1,151.00 ft above sea level, adjustment of 1912. Prior to January 16, 1991, staff gage attached to retaining wall approximately 20 ft below the turbine outlet bays, at datum 1,150.00 ft, adjustment of 1912.

REMARKS.--Records good. Discharge computed on the basis of power plant records prior to January 16, 1991. Records for Oct. 1, 1968 to Sept. 30, 1975, were adjusted for storage change in the Sylvan dam reservoir. Flow partly regulated by Sylvan Dam power plant and Gull Lake reservoir.

COOPERATION.--Prior to February 1991, records collected by Minnesota Power Company in connection with a Federal Energy Regulatory Commision project.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum daily discharge since 1924, 18,300 ft^3/s, Apr. 14, 1965.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	600	884	836	730	e490	806	3,050	1,380	2,130	749	792	540
2	626	839	755	804	e440	861	2,950	1,380	2,550	702	853	564
3	636	831	689	791	e425	841	2,580	1,300	2,610	711	869	564
4	641	843	689	751	e410	843	2,260	1,260	2,530	966	856	564
5	647	799	658	696	e400	847	2,130	1,250	2,450	1,060	805	981
6	646	685	611	648	e410	946	2,030	1,190	2,430	1,130	809	1,160
7	641	509	961	617	e430	925	1,740	965	2,310	1,440	778	972
8	637	369	844	572	e460	850	1,830	1,130	2,100	1,750	743	1,140
9	641	422	524	475	e470	849	1,790	1,090	1,990	1,800	796	1,080
10	642	933	690	472	e470	843	1,730	1,080	1,830	1,620	842	996
11	680	850	886	474	e475	863	1,650	981	1,680	1,610	834	963
12	727	1,080	766	553	e500	865	1,570	978	1,620	1,660	827	953
13	743	673	670	620	e560	929	1,500	1,090	1,610	1,900	776	886
14	773	636	641	612	e590	916	1,410	1,420	1,480	2,120	710	874
15	787	875	626	603	e600	929	1,330	1,490	1,190	1,900	703	891
16	784	1,010	683	609	e570	928	1,300	1,490	1,380	1,670	708	1,210
17	786	1,000	735	608	e560	904	1,280	1,600	1,430	1,510	716	1,590
18	729	952	760	609	e580	926	1,290	1,860	1,120	1,410	696	1,860
19	681	913	771	608	e600	980	1,310	2,130	1,060	1,180	659	1,850
20	677	846	772	575	e620	1,060	1,560	2,150	1,130	1,120	633	1,710
21	624	790	767	544	641	1,130	1,790	1,980	1,180	1,120	517	1,780
22	618	792	770	521	653	1,330	1,880	1,940	1,080	1,010	463	2,360
23	628	625	813	e480	654	1,370	2,150	1,870	910	870	468	2,650
24	697	226	808	e440	652	1,270	1,980	1,680	941	760	585	2,760
25	736	191	797	e420	733	1,640	1,830	1,720	1,010	761	608	2,890
26	687	483	751	e415	759	1,930	1,690	1,900	954	714	604	2,850
27	697	752	733	e416	720	2,430	1,760	1,950	870	660	601	2,590
28	730	751	710	e475	723	2,720	1,750	2,030	907	643	599	2,770
29	815	796	807	e540	748	2,920	1,510	2,110	952	620	582	2,710
30	877	833	850	e530	---	3,030	1,370	2,140	891	661	539	2,380
31	878	---	805	e520	---	3,010	---	1,970	---	722	517	---
TOTAL	21,711	22,188	23,178	17,728	16,343	40,691	54,000	48,504	46,325	36,549	21,488	47,088
MEAN	700	740	748	572	564	1,313	1,800	1,565	1,544	1,179	693	1,570
MAX	878	1,080	961	804	759	3,030	3,050	2,150	2,610	2,120	869	2,890
MIN	600	191	524	415	400	806	1,280	965	870	620	463	540
AC-FT	43,060	44,010	45,970	35,160	32,420	80,710	107,100	96,210	91,890	72,490	42,620	93,400
CFSM	0.21	0.22	0.23	0.17	0.17	0.40	0.55	0.47	0.47	0.36	0.21	0.48
IN.	0.24	0.25	0.26	0.20	0.18	0.46	0.61	0.55	0.52	0.41	0.24	0.53

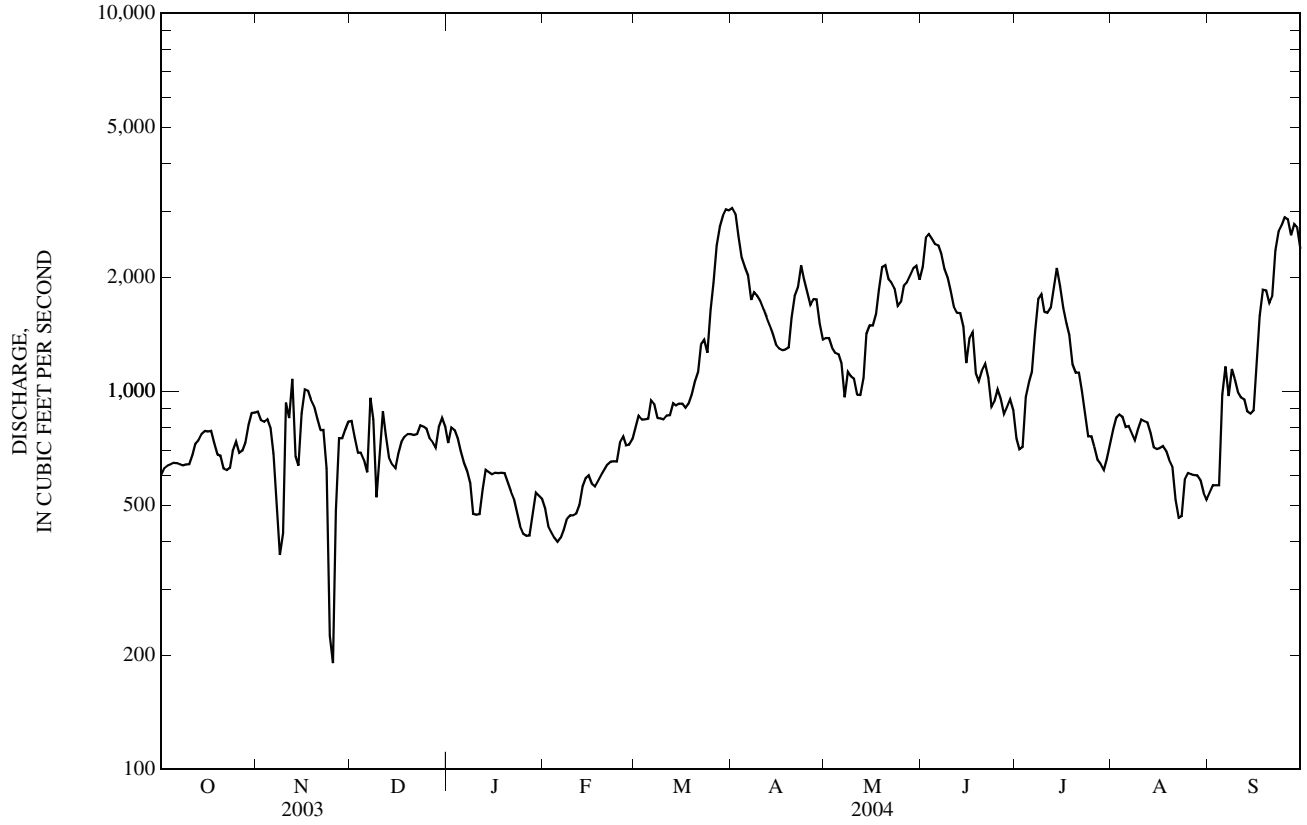
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1969 - 2004, BY WATER YEAR (WY)

MEAN	1,223	1,228	884	719	731	1,377	3,360	2,467	1,796	1,547	1,014	972
MAX	3,771	3,674	1,699	1,188	1,360	2,996	8,266	5,671	5,307	3,295	3,520	3,309
(WY)	(1974)	(1972)	(1999)	(1986)	(1998)	(1972)	(2001)	(1986)	(2001)	(1972)	(1972)	(1986)
MIN	215	215	199	218	255	548	882	545	447	206	120	161
(WY)	(1977)	(1977)	(1977)	(1977)	(1977)	(1981)	(1981)	(1977)	(1988)	(1988)	(1976)	(1976)

05247500 CROW WING RIVER NEAR PILLAGER, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1969 - 2004	
ANNUAL TOTAL	507,672		395,793			
ANNUAL MEAN	1,391		1,081		1,444	
HIGHEST ANNUAL MEAN					2,564	1972
LOWEST ANNUAL MEAN					446	1977
HIGHEST DAILY MEAN	6,950	Jun 28	3,050	Apr 1	16,900	Apr 12, 2001
LOWEST DAILY MEAN	191	Nov 25	191	Nov 25	60	Aug 10, 1976
ANNUAL SEVEN-DAY MINIMUM	546	Nov 22	425	Feb 2	68	Aug 9, 1976
MAXIMUM PEAK FLOW			3,150	Sep 25	17,500	Apr 12, 2001
MAXIMUM PEAK STAGE			5.26	Sep 25	a12.11	Apr 12, 2001
INSTANTANEOUS LOW FLOW			b87	Nov 24	b78	Jul 17, 2001
ANNUAL RUNOFF (AC-FT)	1,007,000		785,100		1,046,000	
ANNUAL RUNOFF (CFSM)	0.421		0.328		0.438	
ANNUAL RUNOFF (INCHES)	5.72		4.46		5.95	
10 PERCENT EXCEEDS	3,100		1,980		2,920	
50 PERCENT EXCEEDS	833		844		986	
90 PERCENT EXCEEDS	587		540		462	

a Since stage record began, Jan. 16, 1991.
b Result of regulation.
e Estimated.



05267000 MISSISSIPPI RIVER NEAR ROYALTON, MN

LOCATION.--Lat 45°49'34", long 94°21'18", sec. 32, T. 39 N., R. 32 W., Morrison County, Hydrologic Unit 07010201, on left bank at upstream side of bridge on County Highway 26, 2.5 mi west of Royalton, and at mile 954 upstream from Ohio River.

DRAINAGE AREA.--11,600 mi^2 (approximately).

PERIOD OF RECORD.--March 1924 to Sept. 30, 1993, discharges obtained from Minnesota Power and adjusted to U.S. Geological Survey streamflow measurements; Oct. 1993 to Sept. 30, 2000, discharges flow-averaged between Mississippi River at Ft. Ripley (05261000) and Mississippi River at St. Cloud (05270700); Oct. 2000 to July, 2001, discharges obtained from Minnesota Power and adjusted to U.S. Geological Survey streamflow measurements; July 2001 to current year.

GAGE.--Water-stage recorder.

REMARKS.--Records good except those for estimated days, which are fair to poor. Flow partly regulated by power plants and Winnibigoshish, Leech, Pokegama, Sandy, and Gull Lakes and by Pine River Reservoir.

COOPERATION.--Minnesota Power Co. in connection with a Federal Energy Regulatory Commission project.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1,780	2,020	2,630	1,580	e2,020	e2,460	7,550	4,750	5,500	2,390	2,010	1,420
2	1,720	1,960	2,750	1,490	e2,040	e2,520	7,890	4,960	6,080	2,460	1,870	1,450
3	1,710	2,020	2,750	e1,450	e2,070	e2,550	7,610	4,510	6,880	2,050	1,910	1,470
4	1,710	2,040	2,680	e1,400	e2,070	e2,540	7,420	4,240	7,200	2,110	1,920	1,470
5	1,720	2,100	2,710	e1,360	e2,050	e2,560	7,900	4,250	7,420	2,380	1,860	1,740
6	1,730	2,000	2,660	e1,650	e2,030	e2,520	7,890	4,190	7,500	2,710	1,840	3,040
7	1,740	1,690	2,490	e1,750	e1,970	e2,650	7,050	4,010	7,330	3,090	1,740	2,760
8	1,780	1,770	2,930	e1,930	e1,950	e2,610	7,030	3,300	7,300	3,050	1,630	2,480
9	1,780	1,470	e2,800	e2,050	e1,930	e2,570	7,490	3,390	7,020	3,310	1,560	3,460
10	1,710	1,790	e2,550	e2,170	e1,930	e2,500	7,140	3,380	6,460	3,420	1,610	3,580
11	1,650	2,200	e2,350	e2,230	e1,930	e2,500	6,980	2,870	6,550	3,090	1,620	3,890
12	1,800	2,240	e2,220	e2,280	e1,930	e2,480	7,190	3,010	6,230	3,660	1,670	3,560
13	1,800	2,490	e2,200	e2,300	e1,940	e2,530	6,650	2,820	5,440	3,640	1,820	3,780
14	1,670	2,250	e2,200	e2,300	e1,910	e2,540	6,650	2,810	5,550	3,760	1,790	4,060
15	1,170	2,100	2,140	e2,280	e1,910	e2,570	6,300	3,030	5,320	4,730	1,590	3,730
16	1,740	2,500	e2,250	e2,270	e1,950	e2,630	5,730	3,590	4,860	4,290	1,580	3,950
17	1,920	2,510	e2,270	e2,240	e2,020	e2,680	5,810	3,880	4,840	4,040	1,710	4,480
18	1,970	2,510	2,250	e2,220	e2,030	e2,710	5,440	3,940	4,460	3,790	1,720	4,720
19	1,960	2,690	e2,230	e2,210	e1,960	e2,750	5,280	4,010	4,140	3,440	1,640	5,350
20	1,680	2,460	2,200	e2,200	e1,940	e2,860	5,280	4,880	3,970	3,290	1,430	5,180
21	1,670	2,390	2,280	e2,200	e2,100	e2,970	6,270	4,550	3,740	3,080	1,340	5,210
22	1,740	2,410	2,190	e2,180	e2,130	e2,990	6,300	4,870	3,910	3,000	1,450	5,650
23	1,780	2,330	2,210	e2,170	e2,160	e3,190	6,630	5,010	3,500	2,720	1,420	6,250
24	1,850	e1,100	e2,050	e2,170	e2,210	e3,500	6,580	4,850	3,070	2,200	1,430	6,330
25	1,840	e1,200	e1,850	e2,180	e2,260	e3,850	6,510	4,440	3,090	2,050	1,520	6,700
26	1,840	e1,300	1,700	e2,200	e2,320	4,550	6,060	4,830	3,120	2,140	1,640	7,080
27	1,840	1,920	1,980	e2,190	e2,360	5,280	5,770	5,270	2,730	2,060	1,390	6,730
28	1,820	2,400	1,690	e2,150	e2,380	6,250	5,670	4,970	2,590	1,830	1,480	7,040
29	1,830	2,520	e1,650	e2,050	e2,430	6,880	5,540	5,040	2,590	1,790	1,440	6,880
30	2,140	2,780	e1,500	e1,970	---	7,280	5,140	5,400	2,430	1,860	1,550	6,790
31	2,210	---	e1,540	e2,000	---	7,350	---	5,600	---	1,740	1,580	---
TOTAL	55,300	63,160	69,900	62,820	59,930	105,820	196,750	130,650	150,820	89,170	50,760	130,230
MEAN	1,784	2,105	2,255	2,026	2,067	3,414	6,558	4,215	5,027	2,876	1,637	4,341
MAX	2,210	2,780	2,930	2,300	2,430	7,350	7,900	5,600	7,500	4,730	2,010	7,080
MIN	1,170	1,100	1,500	1,360	1,910	2,460	5,140	2,810	2,430	1,740	1,340	1,420
AC-FT	109,700	125,300	138,600	124,600	118,900	209,900	390,300	259,100	299,200	176,900	100,700	258,300
CFSM	0.15	0.18	0.19	0.17	0.18	0.29	0.57	0.36	0.43	0.25	0.14	0.37
IN.	0.18	0.20	0.22	0.20	0.19	0.34	0.63	0.42	0.48	0.29	0.16	0.42

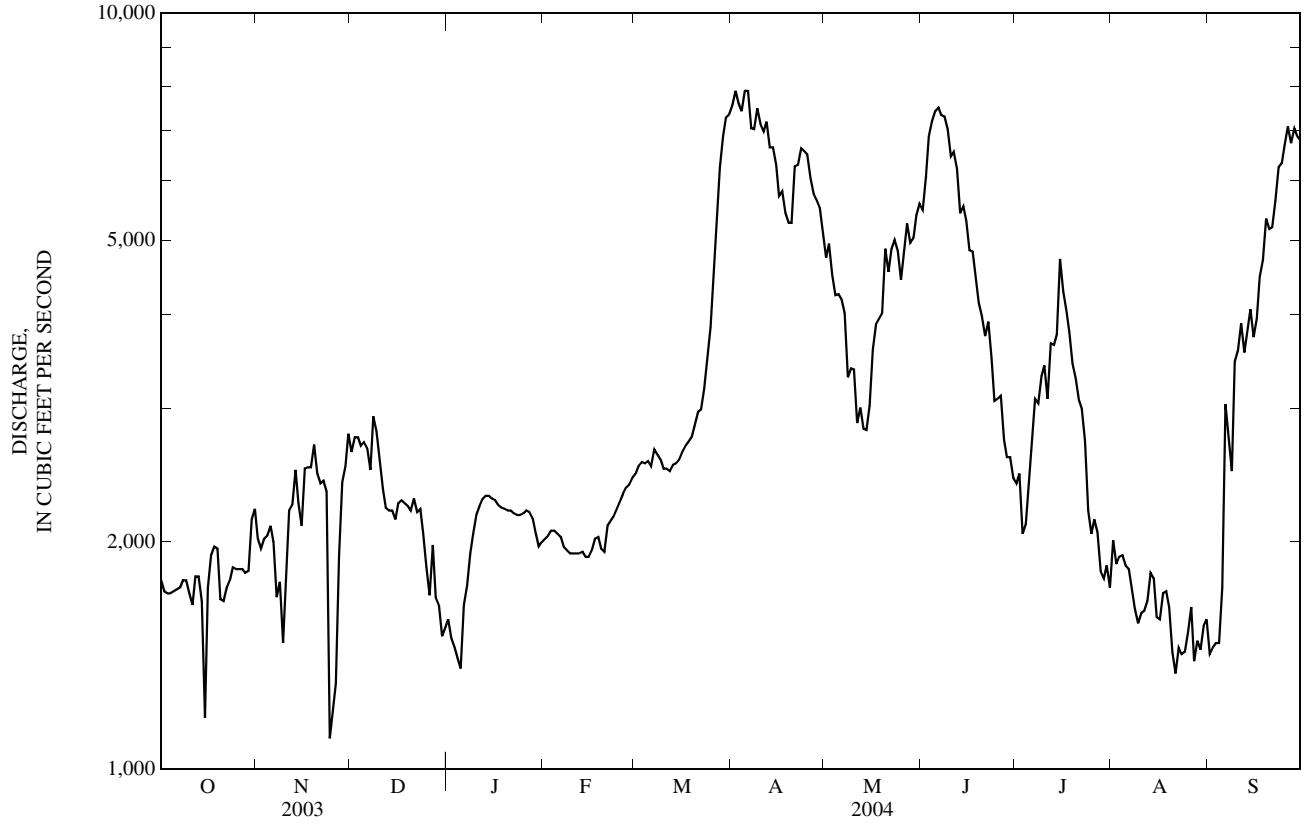
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1924 - 2004, BY WATER YEAR (WY)

MEAN	4,170	4,045	3,189	2,798	2,680	3,876	9,278	8,679	6,527	5,055	3,721	3,578
MAX	12,930	14,640	7,297	5,713	5,480	12,290	25,430	24,600	18,160	15,250	15,230	12,940
(WY)	(1966)	(1972)	(1997)	(1966)	(1997)	(1966)	(1997)	(1950)	(1965)	(1993)	(1953)	(1986)
MIN	632	618	627	534	758	968	1,924	1,663	1,071	648	449	535
(WY)	(1937)	(1937)	(1935)	(1935)	(1937)	(1940)	(1931)	(1977)	(1988)	(1988)	(1934)	(1934)

05267000 MISSISSIPPI RIVER NEAR ROYALTON, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1924 - 2004	
ANNUAL TOTAL	1,381,180		1,165,310			
ANNUAL MEAN	3,784		3,184		4,825	
HIGHEST ANNUAL MEAN					9,555	1966
LOWEST ANNUAL MEAN					1,213	1934
HIGHEST DAILY MEAN	14,300	Jun 29	7,900	Apr 5	38,200	Apr 8, 1997
LOWEST DAILY MEAN	1,100	Nov 24	1,100	Nov 24	254	Nov 25, 1936
ANNUAL SEVEN-DAY MINIMUM	1,650	Oct 10	1,460	Aug 21	358	Sep 3, 1936
MAXIMUM PEAK FLOW			a8,740	Apr 5		
MAXIMUM PEAK STAGE			a11.10	Apr 5		
INSTANTANEOUS LOW FLOW			b1,110	Oct 15		
ANNUAL RUNOFF (AC-FT)	2,740,000		2,311,000		3,496,000	
ANNUAL RUNOFF (CFSM)	0.326		0.274		0.416	
ANNUAL RUNOFF (INCHES)	4.43		3.74		5.65	
10 PERCENT EXCEEDS	8,140		6,310		9,830	
50 PERCENT EXCEEDS	2,580		2,440		3,550	
90 PERCENT EXCEEDS	1,780		1,650		1,360	

a Due in part to regulation.
b Due to regulation.
e Estimated.



05270500 SAUK RIVER NEAR ST. CLOUD, MN

LOCATION.--Lat 45°33'35", long 94°14'00", in SW¼SW¼ sec. 8, T. 124 N., R. 28 W., Stearns County, Hydrologic Unit 07010203, on right bank 0.5 mi northwest of Waite Park, 3 mi west of St. Cloud, and 5 mi upstream from mouth.

DRAINAGE AREA.--1,030 mi^2.

PERIOD OF RECORD.--July 1909 to December 1912, April to December 1913, May to November 1929, March 1930 to September 1931, April to November 1932, March to November 1933, March 1934 to September 1981, October 1990 to current year. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORD--WSP 895: Drainage area. WSP 1308: 1912(M), 1932 (M). WSP 1508: 1937(m).

GAGE.--Water-stage recorder. Datum of gage is 1,034.63 ft above sea level (NGVD of 1929). Prior to Nov. 22, 1934, nonrecording gage on highway bridge 1 mi downstream at datum 6.77 ft lower.

REMARKS.--Records good except those for estimated daily discharge, which are fair to poor. Flow may be influenced by regulation from power plant and small lakes upstream from gage.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	144	256	179	e111	e60	e123	575	190	649	325	178	140
2	136	258	170	e109	e58	e126	556	180	627	310	185	126
3	144	259	175	e97	e56	e126	536	175	614	308	185	130
4	138	259	178	e88	e55	e127	508	177	590	295	171	121
5	133	285	178	e82	e58	e131	482	166	563	276	168	149
6	135	280	176	e81	e59	e134	462	164	530	271	168	215
7	142	256	174	e85	e59	e138	437	148	502	310	178	185
8	143	229	167	e86	e60	e141	427	142	505	297	186	161
9	144	210	157	e92	e62	e141	382	149	579	286	188	158
10	147	195	e141	e93	e62	e145	362	165	567	286	196	156
11	157	208	e127	e95	e63	e148	335	155	596	375	176	156
12	181	212	e116	e97	e65	e150	311	167	693	379	161	151
13	171	212	e127	e97	e68	e154	306	184	727	420	160	165
14	168	201	e139	e97	e68	e157	287	160	755	440	162	202
15	166	196	e147	e97	e64	e162	267	151	739	427	164	182
16	165	196	e146	e93	e72	e172	273	161	752	415	169	218
17	159	198	e149	e85	e78	e179	252	268	698	392	176	201
18	159	205	e148	e76	e83	e191	232	282	644	367	183	222
19	158	208	e145	e71	e88	e202	251	280	588	351	187	233
20	157	198	e143	e67	e91	e214	236	279	545	336	182	248
21	165	192	e139	e65	e95	e230	261	266	501	312	172	287
22	150	175	e139	e64	e102	e246	266	276	452	292	182	310
23	154	e121	e130	e63	e108	e261	259	369	418	263	178	314
24	152	e102	e130	e63	e111	e284	247	434	396	244	158	352
25	169	e150	e129	e62	e118	e311	252	433	369	230	172	341
26	174	203	e136	e64	e119	e356	258	438	345	212	179	344
27	181	197	e137	e60	e120	523	232	493	339	199	176	339
28	221	187	e127	e56	e120	600	218	495	334	189	159	328
29	224	185	e113	e54	e121	608	217	553	331	194	151	320
30	227	188	e105	e53	---	599	200	615	331	189	144	311
31	250	---	e107	e57	---	592	---	654	---	184	149	---
TOTAL	5,114	6,221	4,474	2,460	2,343	7,671	9,887	8,769	16,279	9,374	5,343	6,765
MEAN	165	207	144	79.4	80.8	247	330	283	543	302	172	226
MAX	250	285	179	111	121	608	575	654	755	440	196	352
MIN	133	102	105	53	55	123	200	142	331	184	144	121
AC-FT	10,140	12,340	8,870	4,880	4,650	15,220	19,610	17,390	32,290	18,590	10,600	13,420
CFSM	0.16	0.20	0.14	0.08	0.08	0.24	0.32	0.27	0.53	0.29	0.17	0.22
IN.	0.18	0.22	0.16	0.09	0.08	0.28	0.36	0.32	0.59	0.34	0.19	0.24

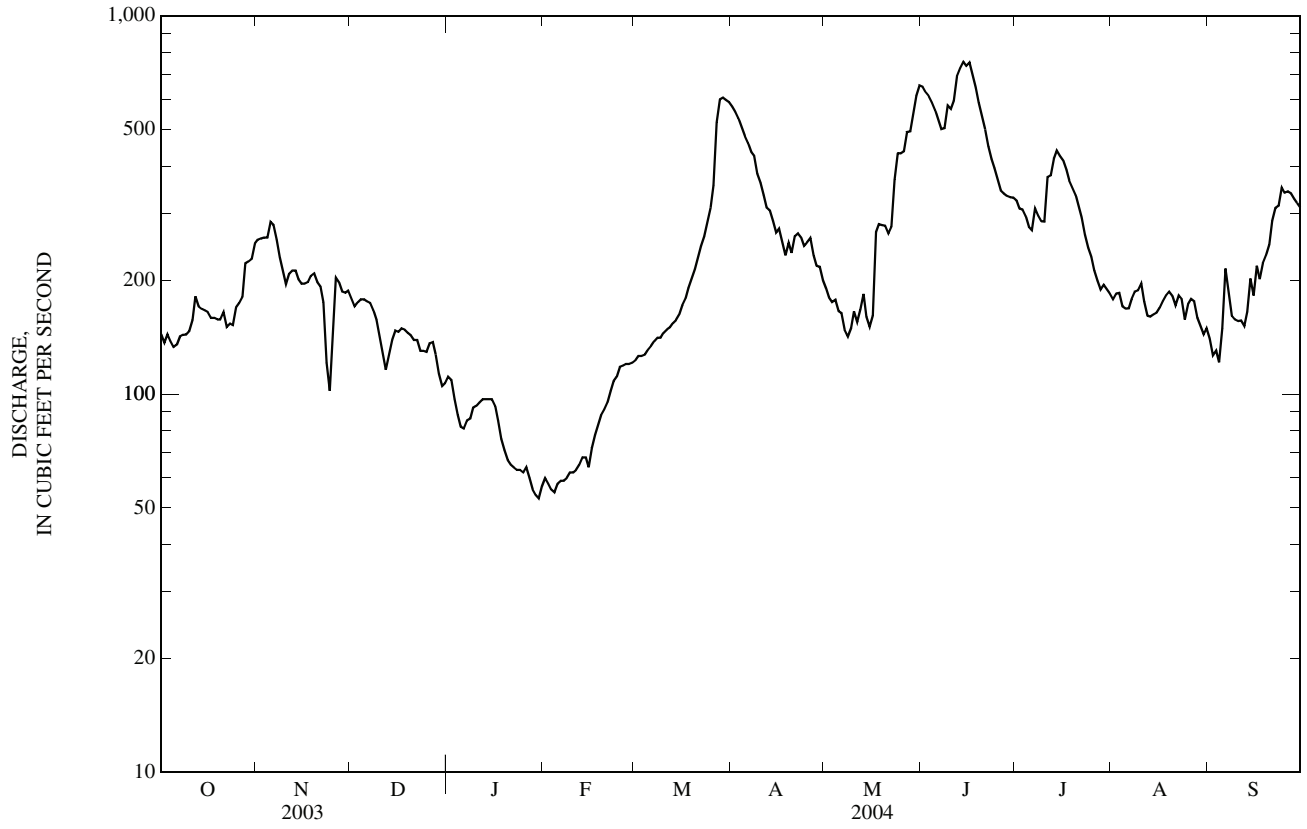
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1909 - 2004, BY WATER YEAR (WY)

MEAN	176	186	138	102	110	310	836	529	421	338	218	186
MAX	1,154	1,091	528	336	568	1,380	2,997	1,862	1,333	1,262	1,250	1,136
(WY)	(1996)	(1972)	(1972)	(1980)	(1966)	(1966)	(1997)	(2001)	(1957)	(1993)	(1972)	(1957)
MIN	6.22	6.18	5.15	3.25	7.61	28.7	16.5	7.84	15.9	10.6	10.5	10.7
(WY)	(1934)	(1934)	(1935)	(1935)	(1935)	(1940)	(1934)	(1934)	(1934)	(1934)	(1933)	(1933)

05270500 SAUK RIVER NEAR ST. CLOUD, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1909 - 2004	
ANNUAL TOTAL	136,877		84,700			
ANNUAL MEAN	375		231		a311	
HIGHEST ANNUAL MEAN					732	1972
LOWEST ANNUAL MEAN					51.0	1931
HIGHEST DAILY MEAN	1,480	Jul 7	755	Jun 14	7,940	Apr 14, 1965
LOWEST DAILY MEAN	102	Nov 24	53	Jan 30	1.3	Jan 6, 1935
ANNUAL SEVEN-DAY MINIMUM	113	Feb 7	56	Jan 29	1.5	Jan 2, 1935
MAXIMUM PEAK FLOW			b787	Jun 16	9,100	Apr 13, 1965
MAXIMUM PEAK STAGE			c4.43	Mar 12	10.68	Apr 13, 1965
INSTANTANEOUS LOW FLOW			d53	Jan 30	0.30	Nov 25, 1936
ANNUAL RUNOFF (AC-FT)	271,500		168,000		225,300	
ANNUAL RUNOFF (CFSM)	0.364		0.225		0.302	
ANNUAL RUNOFF (INCHES)	4.94		3.06		4.10	
10 PERCENT EXCEEDS	915		468		776	
50 PERCENT EXCEEDS	203		180		155	
90 PERCENT EXCEEDS	131		86		41	

a Median of annual mean discharges is 300 ft^3/s.
b Gage height, 3.29 ft.
c Backwater from ice.
d Daily-mean discharge, backwater from ice.
e Estimated.



05270700 MISSISSIPPI RIVER AT ST. CLOUD, MN

LOCATION.--Lat 45°32'50", long 94°08'44", in SE¼SW¼ sec. 1, T. 35 N., R. 31 W., Sherburne County, Hydrologic Unit 07010203, on left bank about 250 ft below the left downstream end of the City of St. Cloud hydropower dam and at mile 926.3 upstream from Ohio River.

DRAINAGE AREA.--13,320 mi^2 (approximately).

PERIOD OF RECORD.--October 1988 to current year.

GAGE.--Water-stage recorder. Datum of gage is 958.49 ft above sea level (NGVD of 1929).

REMARKS.--Records good except those for estimated daily discharge, which are fair to poor. Flow partly regulated by power plants and reservoirs.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1,980	2,560	2,940	e2,350	e2,230	2,730	8,670	5,320	7,280	3,350	1,920	1,400
2	1,730	2,230	2,700	e2,510	e2,230	2,810	8,840	5,620	7,310	3,640	2,490	1,220
3	1,900	2,450	3,010	e2,410	e2,180	2,900	8,540	5,180	8,040	3,160	2,170	1,300
4	1,710	2,410	2,940	e2,310	e2,180	3,030	8,080	4,890	8,540	3,060	2,210	1,350
5	1,650	2,360	3,100	e2,290	e2,180	3,430	8,380	4,740	8,910	3,300	2,190	1,590
6	1,760	2,490	2,910	e2,210	e2,190	3,740	8,750	5,030	8,900	3,740	2,120	3,510
7	1,780	1,990	2,820	e2,210	e2,200	3,010	7,550	4,350	8,740	3,970	2,180	3,580
8	1,810	1,970	3,150	e2,140	e2,200	3,310	7,500	4,160	8,790	4,060	1,870	2,830
9	1,890	1,730	3,190	e2,210	e2,180	2,960	7,650	3,640	8,900	4,030	1,840	3,350
10	1,760	1,680	e2,040	2,180	e2,180	3,220	7,780	4,120	8,340	4,370	2,060	4,100
11	1,920	2,210	e2,020	2,220	e2,180	2,740	7,430	3,190	8,120	4,640	1,840	4,210
12	1,870	2,700	e2,120	2,240	e2,220	2,780	7,450	3,590	8,280	4,350	1,880	3,910
13	2,010	2,810	2,450	2,190	e2,210	3,440	7,260	3,480	7,540	4,690	2,110	4,090
14	1,940	2,690	2,960	2,430	e2,160	3,230	7,070	3,180	7,290	4,410	2,040	4,490
15	1,290	2,420	2,480	2,360	e2,170	3,190	6,720	3,310	7,150	5,240	1,820	4,330
16	1,350	2,730	2,190	2,320	e2,210	3,090	6,540	4,130	6,820	5,030	1,780	4,110
17	2,180	2,940	2,680	2,200	e2,270	e3,420	6,260	4,910	6,550	4,680	1,770	4,590
18	2,170	2,970	2,450	2,070	e2,270	e3,700	6,180	4,830	6,300	4,330	1,910	5,230
19	2,200	2,930	2,660	2,080	e2,520	e4,000	5,860	4,780	5,610	4,210	1,820	5,490
20	2,020	2,840	2,710	2,280	2,610	e4,250	5,970	5,560	5,580	3,980	1,740	5,660
21	1,710	2,720	2,750	2,260	2,650	e4,450	6,680	5,620	5,130	3,590	1,190	5,940
22	1,820	2,600	2,910	e2,140	e2,800	e4,750	7,290	5,470	5,240	3,620	1,410	5,950
23	1,960	e2,470	2,820	e1,890	2,760	e5,000	7,140	6,110	5,050	3,220	1,460	6,800
24	1,820	e1,690	2,560	e2,030	2,640	4,820	7,340	6,150	4,350	2,880	1,250	6,920
25	2,130	e1,470	2,660	e2,200	e2,580	5,010	7,460	5,560	4,340	2,230	1,550	7,220
26	1,960	1,320	2,660	e2,280	e2,490	5,470	6,890	5,850	4,280	2,500	1,900	7,720
27	1,980	1,660	2,890	e2,170	2,410	6,260	6,380	6,640	4,100	2,700	1,620	7,550
28	2,260	2,600	2,900	e2,130	2,670	7,210	6,410	6,310	3,770	2,390	1,410	7,490
29	2,030	2,580	2,610	e2,150	2,600	8,180	6,220	6,540	3,710	2,080	1,440	7,430
30	2,400	2,880	e2,490	e2,120	---	8,620	5,970	7,070	3,640	2,290	1,480	7,430
31	2,590	---	e2,430	e2,190	---	8,570	---	7,330	---	2,060	1,600	---
TOTAL	59,580	71,100	83,200	68,770	68,370	133,320	216,260	156,660	196,600	111,800	56,070	140,790
MEAN	1,922	2,370	2,684	2,218	2,358	4,301	7,209	5,054	6,553	3,606	1,809	4,693
MAX	2,590	2,970	3,190	2,510	2,800	8,620	8,840	7,330	8,910	5,240	2,490	7,720
MIN	1,290	1,320	2,020	1,890	2,160	2,730	5,860	3,180	3,640	2,060	1,190	1,220
AC-FT	118,200	141,000	165,000	136,400	135,600	264,400	429,000	310,700	390,000	221,800	111,200	279,300
CFSM	0.14	0.18	0.20	0.17	0.18	0.32	0.54	0.38	0.49	0.27	0.14	0.35
IN.	0.17	0.20	0.23	0.19	0.19	0.37	0.60	0.44	0.55	0.31	0.16	0.39

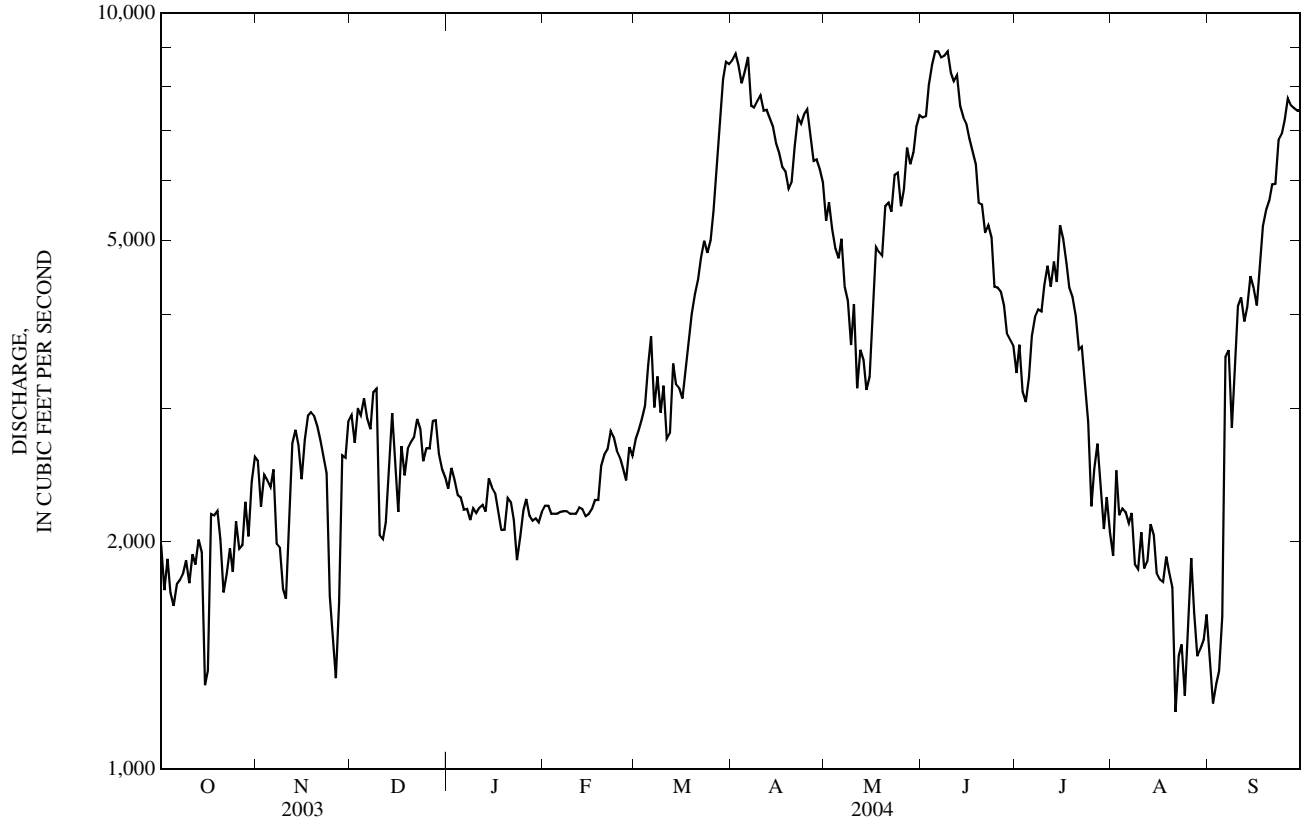
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 2004, BY WATER YEAR (WY)

MEAN	5,506	5,743	4,642	3,949	3,801	6,052	13,180	11,400	8,318	8,324	4,699	4,664
MAX	15,680	9,675	7,434	5,616	5,796	10,600	29,710	22,020	20,310	16,830	9,687	9,763
(WY)	(1996)	(1996)	(1997)	(1997)	(1997)	(1995)	(2001)	(2001)	(2001)	(1993)	(1999)	(1999)
MIN	1,922	2,370	2,310	1,927	1,815	3,075	6,134	5,054	3,743	3,606	1,535	2,064
(WY)	(2004)	(2004)	(1991)	(1991)	(1990)	(2003)	(2000)	(2004)	(1992)	(2004)	(1989)	(2003)

05270700 MISSISSIPPI RIVER AT ST. CLOUD, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1988 - 2004	
ANNUAL TOTAL	1,689,560		1,362,520			
ANNUAL MEAN	4,629		3,723		6,684	
HIGHEST ANNUAL MEAN					9,947	2001
LOWEST ANNUAL MEAN					3,723	2004
HIGHEST DAILY MEAN	19,600	Jun 29	8,910	Jun 5	45,100	Apr 9, 1997
LOWEST DAILY MEAN	1,290	Oct 15	1,190	Aug 21	1,010	Aug 24, 1989
ANNUAL SEVEN-DAY MINIMUM	1,730	Oct 10	1,400	Aug 29	1,250	Aug 13, 1989
MAXIMUM PEAK FLOW			a9,750	Jun 5	46,900	Apr 8, 1997
MAXIMUM PEAK STAGE			6.09	Jun 5	11.44	Apr 8, 1997
INSTANTANEOUS LOW FLOW			b478	Aug 22	b478	Aug 22, 2004
ANNUAL RUNOFF (AC-FT)	3,351,000		2,703,000		4,842,000	
ANNUAL RUNOFF (CFSM)	0.348		0.279		0.502	
ANNUAL RUNOFF (INCHES)	4.72		3.81		6.82	
10 PERCENT EXCEEDS	10,500		7,290		12,400	
50 PERCENT EXCEEDS	2,940		2,820		5,380	
90 PERCENT EXCEEDS	1,930		1,820		2,510	

a Due in part to regulation.
b Due to rgulation.
e Estimated.



05275000 ELK RIVER NEAR BIG LAKE, MN

LOCATION.--Lat 45°20'02", long 93°40'00", in NE¼SW¼ sec. 23, T.33 N., R.27 W., Sherburne County, Hydrologic Unit 07010203, on right bank at upstream side of County Highway 15 bridge, 4 mi east of Big Lake and 4 mi downstream from St. Francis River.

DRAINAGE AREA.--559 mi^2.

PERIOD OF RECORD.--April 1911 to September 1917, April to September 1931, April to November 1932, March to November 1933, March 1934 to September 1987, October 1990 to current year.

REVISED RECORDS.--WSP 895: 1939. WSP 1308: 1912(M), 1915-17(M).

GAGE.--Water-stage recorder. Datum of gage is 899.60 ft above sea level (NGVD of 1929). April 1911 to Sept. 30, 1917, April 1, 1931 to July 26, 1934, nonrecording gage at same site and datum.

REMARKS.--Records good except those for periods of estimated daily discharge, which are fair to poor.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	127	153	e141	e95	e57	e131	490	218	937	289	167	160
2	126	151	e132	e90	e56	e143	477	209	962	282	167	152
3	124	152	e133	e80	e54	e146	448	200	996	268	168	142
4	120	153	e134	e76	e54	e140	411	190	1,010	252	163	134
5	120	155	e132	e71	e55	e142	387	184	1,020	234	157	142
6	119	145	e128	e71	e57	e147	361	179	1,110	227	150	214
7	121	e135	e125	e72	e58	e152	337	173	1,000	245	151	236
8	119	e126	e123	e76	e58	e157	331	169	904	227	151	203
9	113	e138	e119	e78	e60	e163	347	167	976	215	145	184
10	115	e149	e115	e80	e60	e174	332	209	1,080	205	138	171
11	126	149	e106	e86	e61	e174	283	200	1,110	276	137	167
12	138	145	e94	e90	e63	e167	248	183	1,080	312	134	169
13	149	139	e104	e90	e66	e178	227	174	1,020	281	127	162
14	141	134	e111	e91	e66	e191	211	171	955	284	123	163
15	138	133	e114	e90	e62	e202	204	165	877	288	121	189
16	136	141	e119	e89	e68	e215	197	161	811	e274	124	227
17	134	143	e122	e82	e76	e237	193	261	755	e256	123	231
18	132	144	e122	e72	e80	e264	195	294	698	239	122	226
19	129	144	e121	e68	e86	e285	214	268	638	223	118	222
20	131	145	e118	e64	e88	e276	238	276	585	213	115	216
21	123	143	e117	e62	e92	e285	279	299	544	201	110	258
22	127	142	e116	e61	e98	308	297	314	505	e193	110	342
23	129	e101	e116	e61	e104	337	287	339	472	185	107	345
24	131	e81	e114	e60	e108	371	273	400	451	176	110	345
25	132	e118	e114	e60	e113	399	287	415	411	167	122	343
26	129	e142	e116	e60	e116	429	288	422	371	159	225	333
27	130	e145	e116	e57	e116	451	271	503	345	152	211	318
28	135	e142	e110	e53	e123	487	253	573	331	151	184	303
29	138	e139	e96	e51	e127	501	239	637	317	166	175	293
30	147	e141	e90	e50	---	497	230	764	302	170	171	281
31	156	---	e90	e54	---	490	---	903	---	171	164	---
TOTAL	4,035	4,168	3,608	2,240	2,282	8,239	8,835	9,620	22,573	6,981	4,490	6,871
MEAN	130	139	116	72.3	78.7	266	294	310	752	225	145	229
MAX	156	155	141	95	127	501	490	903	1,110	312	225	345
MIN	113	81	90	50	54	131	193	161	302	151	107	134
AC-FT	8,000	8,270	7,160	4,440	4,530	16,340	17,520	19,080	44,770	13,850	8,910	13,630
CFSM	0.23	0.25	0.21	0.13	0.14	0.48	0.53	0.56	1.35	0.40	0.26	0.41
IN.	0.27	0.28	0.24	0.15	0.15	0.55	0.59	0.64	1.50	0.46	0.30	0.46

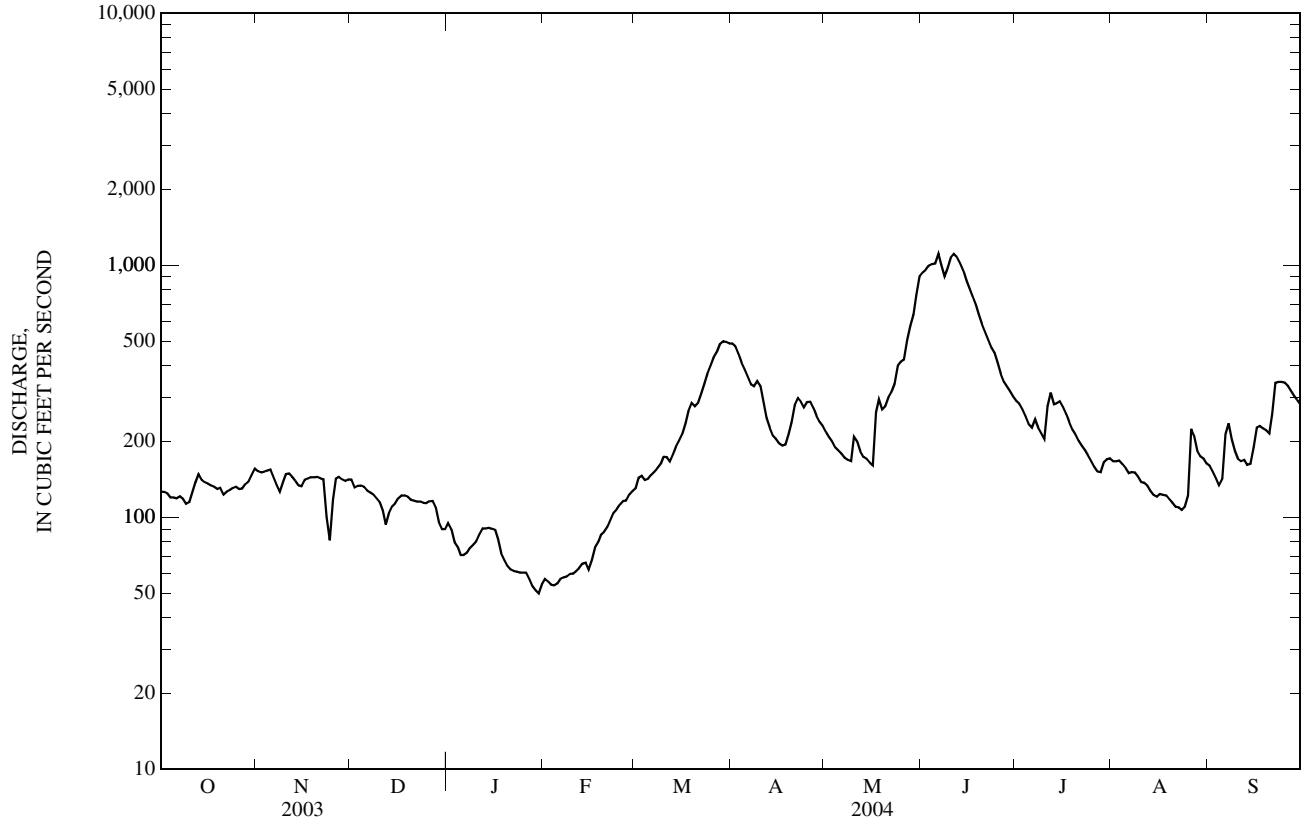
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1911 - 2004, BY WATER YEAR (WY)

MEAN	210	211	149	111	117	297	661	444	343	274	184	205
MAX	778	794	410	290	392	1,125	1,823	1,620	1,647	1,026	926	1,050
(WY)	(1985)	(1972)	(1966)	(1979)	(1984)	(1966)	(1969)	(1986)	(1984)	(1978)	(1972)	(1986)
MIN	32.7	56.3	44.1	38.4	29.8	58.8	75.5	37.5	20.5	8.94	8.74	23.4
(WY)	(1934)	(1935)	(1935)	(1935)	(1936)	(1934)	(1934)	(1934)	(1934)	(1934)	(1934)	(1932)

05275000 ELK RIVER NEAR BIG LAKE, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1911 - 2004	
ANNUAL TOTAL	106,074		83,942			
ANNUAL MEAN	291		229		a277	
HIGHEST ANNUAL MEAN					669	1986
LOWEST ANNUAL MEAN					88.0	1935
HIGHEST DAILY MEAN	1,610	Apr 24	1,110	Jun 6	7,170	Apr 16, 1965
LOWEST DAILY MEAN	81	Nov 24	50	Jan 30	4.0	Aug 1, 1934
ANNUAL SEVEN-DAY MINIMUM	89	Sep 4	54	Jan 28	4.5	Jul 27, 1934
MAXIMUM PEAK FLOW			1,130	Jun 6	7,360	Apr 16, 1965
MAXIMUM PEAK STAGE			3.95	Jun 6	10.86	Apr 16, 1965
INSTANTANEOUS LOW FLOW			b50	Jan 30	3.6	Jul 31, 1934
ANNUAL RUNOFF (AC-FT)	210,400		166,500		200,600	
ANNUAL RUNOFF (CFSM)	0.520		0.410		0.495	
ANNUAL RUNOFF (INCHES)	7.06		5.59		6.73	
10 PERCENT EXCEEDS	690		449		578	
50 PERCENT EXCEEDS	153		154		170	
90 PERCENT EXCEEDS	117		77		72	

a Median of annual mean discharges is 260 ft^3/s.
b Estimated daily-mean discharge, backwater from ice.
e Estimated.



05280000 CROW RIVER AT ROCKFORD, MN

LOCATION.--Lat 45°05'12", long 93°44'02", in sec. 29, T.119 N., R.24 W., Hennepin County, Hydrologic Unit 07010204, on right bank at Rockford, 150 ft downstream from bridge on State Highway 55, 2 miles downstream from confluence of North and South Forks, and 23 miles upstream from confluence with the Mississippi River.

DRAINAGE AREA.--2,640 mi^2.

PERIOD OF RECORD.--April to July 1906 (published as "near Dayton"), June 1909 to September 1917, April to November 1929, March 1930 to September 1931, April to November 1932, March to November 1933, March 1934 to current year. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 1115: 1932. WSP 1508: 1933. WDR MN-77-2: 1972 (M)(m).

GAGE.--Water-stage recorder. Datum of gage is 893.08 ft above sea level (NGVD of 1929). Apr. 13 to July 21, 1906, nonrecording gage at Berning Mill 14 mi downstream at different datum. June 4, 1909 to Sept. 30, 1917, nonrecording gage at site 600 ft downstream at different datum;. Apr. 23, 1929 to Aug. 21, 1934, nonrecording gage at site 600 ft downstream at present datum.

REMARKS.--Records good except those for estimated daily discharges, which are fair to poor.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	124	133	e125	e121	e67	e143	763	430	3,000	1,990	563	194
2	122	133	e123	e117	e68	e172	721	402	3,180	1,900	570	188
3	119	129	119	e108	e68	e199	685	379	3,290	1,860	572	179
4	118	132	121	e102	e67	e221	657	354	3,360	1,820	545	171
5	122	132	124	e94	e70	e239	630	344	3,500	1,690	512	194
6	120	e117	127	e93	e73	e243	600	322	3,700	1,580	477	215
7	116	e101	130	e94	e74	e240	582	306	3,690	1,540	457	211
8	114	e97	133	e100	e75	e249	554	297	3,550	1,490	439	236
9	114	e101	e126	e104	e76	e273	528	292	3,580	1,480	424	259
10	110	129	e120	e106	e77	e310	515	311	3,700	1,440	403	250
11	114	141	e117	e108	e78	e324	495	402	3,960	1,590	381	225
12	119	142	e109	e111	e81	e317	472	419	4,570	1,760	362	209
13	121	139	e104	e112	e81	e324	451	377	5,060	1,870	338	195
14	121	128	e105	e112	e80	e332	429	333	5,520	1,860	318	213
15	129	128	e105	e111	e78	e340	410	303	6,040	1,750	297	248
16	132	143	e104	e111	e87	e349	393	296	6,530	1,610	286	295
17	130	151	e105	e105	e92	e360	378	393	6,850	1,440	279	362
18	155	149	e107	e96	e96	e387	384	618	6,850	1,290	275	390
19	168	149	e109	e92	e100	e416	438	745	6,570	1,170	266	400
20	163	147	e114	e87	e104	e423	447	717	6,070	1,080	256	396
21	155	144	e117	e83	e107	e412	549	682	5,500	1,010	247	470
22	150	142	e118	e80	e111	e420	613	650	4,920	960	240	618
23	144	126	e112	e80	e112	e441	610	751	4,400	912	223	741
24	140	e74	e109	e80	e108	e476	588	1,160	3,930	863	216	813
25	137	e110	e112	e79	e103	e515	581	1,530	3,540	807	211	850
26	135	e117	e120	e78	e103	e563	565	1,710	3,210	750	231	865
27	131	e118	e125	e74	e107	e611	543	1,820	2,900	690	239	859
28	131	e119	e129	e70	e114	691	530	1,940	2,610	642	233	830
29	132	e122	e129	e67	e124	751	496	2,140	2,360	613	229	788
30	136	126	e122	e63	---	784	464	2,530	2,140	590	214	738
31	136	---	e116	e66	---	790	---	2,790	---	578	207	---
TOTAL	4,058	3,819	3,636	2,904	2,581	12,315	16,071	25,743	128,080	40,625	10,510	12,602
MEAN	131	127	117	93.7	89.0	397	536	830	4,269	1,310	339	420
MAX	168	151	133	121	124	790	763	2,790	6,850	1,990	572	865
MIN	110	74	104	63	67	143	378	292	2,140	578	207	171
AC-FT	8,050	7,570	7,210	5,760	5,120	24,430	31,880	51,060	254,000	80,580	20,850	25,000
CFSM	0.05	0.05	0.04	0.04	0.03	0.15	0.20	0.31	1.62	0.50	0.13	0.16
IN.	0.06	0.05	0.05	0.04	0.04	0.17	0.23	0.36	1.80	0.57	0.15	0.18

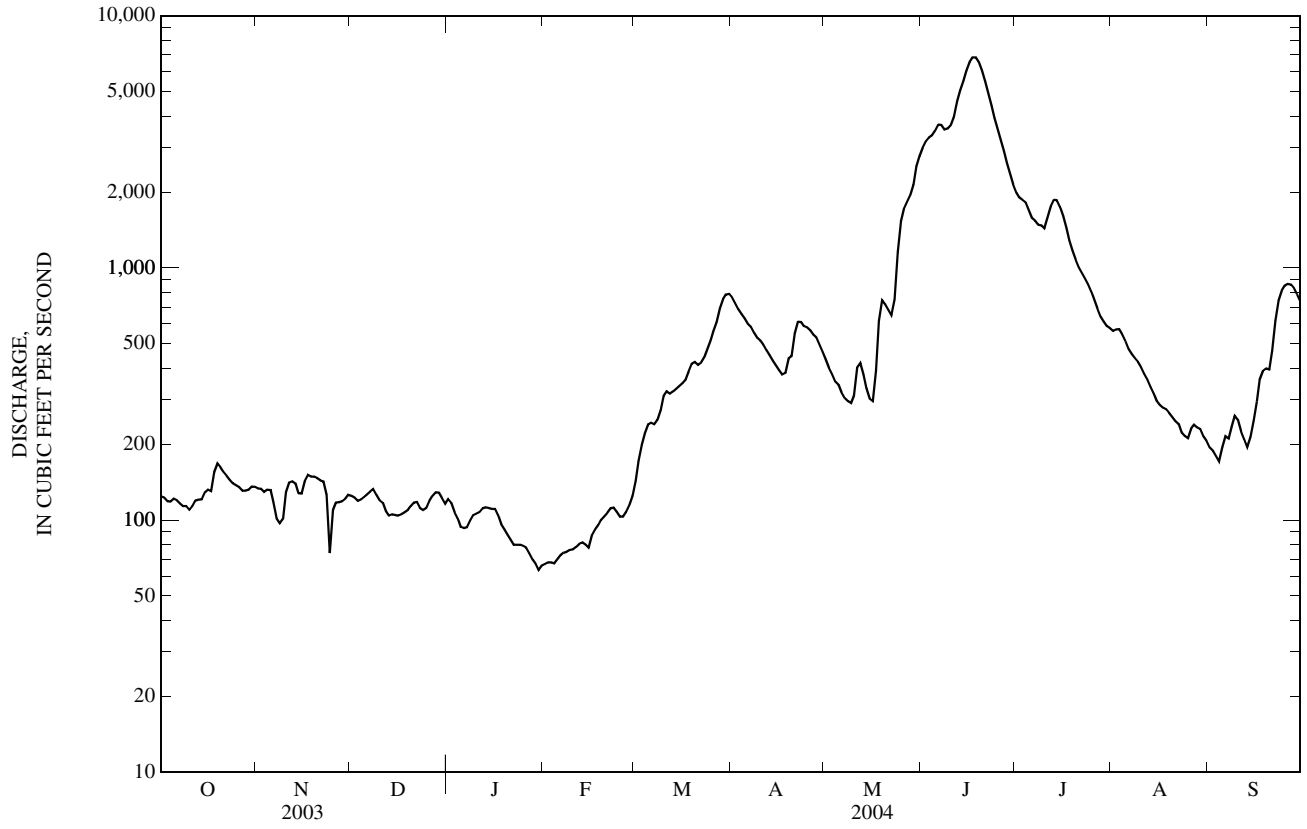
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1906 - 2004, BY WATER YEAR (WY)

MEAN	449	418	293	174	172	845	2,214	1,496	1,333	1,103	589	496
MAX	3,809	1,909	1,477	928	1,115	4,085	9,026	5,992	6,166	6,759	4,175	4,941
(WY)	(1986)	(1972)	(1983)	(1992)	(1966)	(1983)	(1965)	(1986)	(1906)	(1993)	(2002)	(1991)
MIN	16.6	28.3	17.3	12.4	12.5	25.1	57.1	26.7	14.8	5.76	5.87	13.0
(WY)	(1934)	(1937)	(1938)	(1938)	(1959)	(1934)	(1934)	(1934)	(1934)	(1934)	(1934)	(1933)

05280000 CROW RIVER AT ROCKFORD, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1906 - 2004	
ANNUAL TOTAL	349,801		262,944			
ANNUAL MEAN	958		718		a830	
HIGHEST ANNUAL MEAN					2,754	1986
LOWEST ANNUAL MEAN					64.5	1931
HIGHEST DAILY MEAN	6,050	Jul 4	6,850	Jun 17,18	22,100	Apr 16, 1965
LOWEST DAILY MEAN	74	Nov 24	63	Jan 30	3.8	Aug 4, 1934
ANNUAL SEVEN-DAY MINIMUM	106	Dec 12	67	Jan 29	4.0	Jul 31, 1934
MAXIMUM PEAK FLOW			6,900	Jun 18	22,400	Apr 16, 1965
MAXIMUM PEAK STAGE			10.09	Jun 18	b19.27	Apr 16, 1965
INSTANTANEOUS LOW FLOW			c63	Jan 30	d1.8	Nov 15, 1936
ANNUAL RUNOFF (AC-FT)	693,800		521,500		601,000	
ANNUAL RUNOFF (CFSM)	0.363		0.272		0.314	
ANNUAL RUNOFF (INCHES)	4.93		3.71		4.27	
10 PERCENT EXCEEDS	2,670		1,880		2,320	
50 PERCENT EXCEEDS	288		248		285	
90 PERCENT EXCEEDS	120		97		42	

a Median of annual mean discharges is 680 ft^3/s.
b From floodmark.
c Estimated daily-mean discharge, backwater from ice.
d Result of ice jam upstream.
e Estimated.



05284000 MILLE LACS LAKE AT COVE BAY NEAR ONAMIA, MN

LOCATION.--Lat 46°06'36", long 93°37'08", in NE¼NE¼ sec. 21, T.42 N., R.26 W., Mille Lacs County, Hydrologic Unit 07010207, in Minnesota Department of Natural Resources boathouse at Cove Bay boatlanding, 3.6 mi northeast of Onamia.

PERIOD OF RECORD.--June 1931 to current year. Monthend records for the period October 1939 to September 1953 published in WSP 1278 (fragmentary 1940-41). Published as "at Wealthwood" prior to October 1939, and as "at Garrison" October 1939 to September 1987 (gage heights collected at Wealthwood October 1939 to September 1941, but converted to gage datum at Garrison for publication).

GAGE.--Water-stage recorder. Datum of gage is 1,240.40 ft above sea level (NGVD of 1929, levels by Minnesota Department of Natural Resources). Gage readings have been converted to elevations above sea level. Prior to Oct. 1, 1941, nonrecording gage at Wealthwood, 17 mi north of present site, at various datums; gage readings were converted to elevations (adjustment of 1912). Oct. 1, 1941 to Sept. 30, 1958, water-stage recorder at Garrison, 16 mi northwest of present site at datum 1,240.50 ft (adjustment of 1912). To convert these readings to NGVD of 1929, subtract 0.10 ft. Oct. 1, 1958 to Sept. 30, 1987, water-stage recorder at Garrison at present datum.

REMARKS.--Records fair to poor. Water level affected by fixed-crest spillway constructed in 1953 at outlet of Ogechie Lake, 2.7 mi downstream from outlet of Mille Lacs Lake, with crest at elevation 1,250.50 ft. Water level subject to fluctuation caused by seiches.

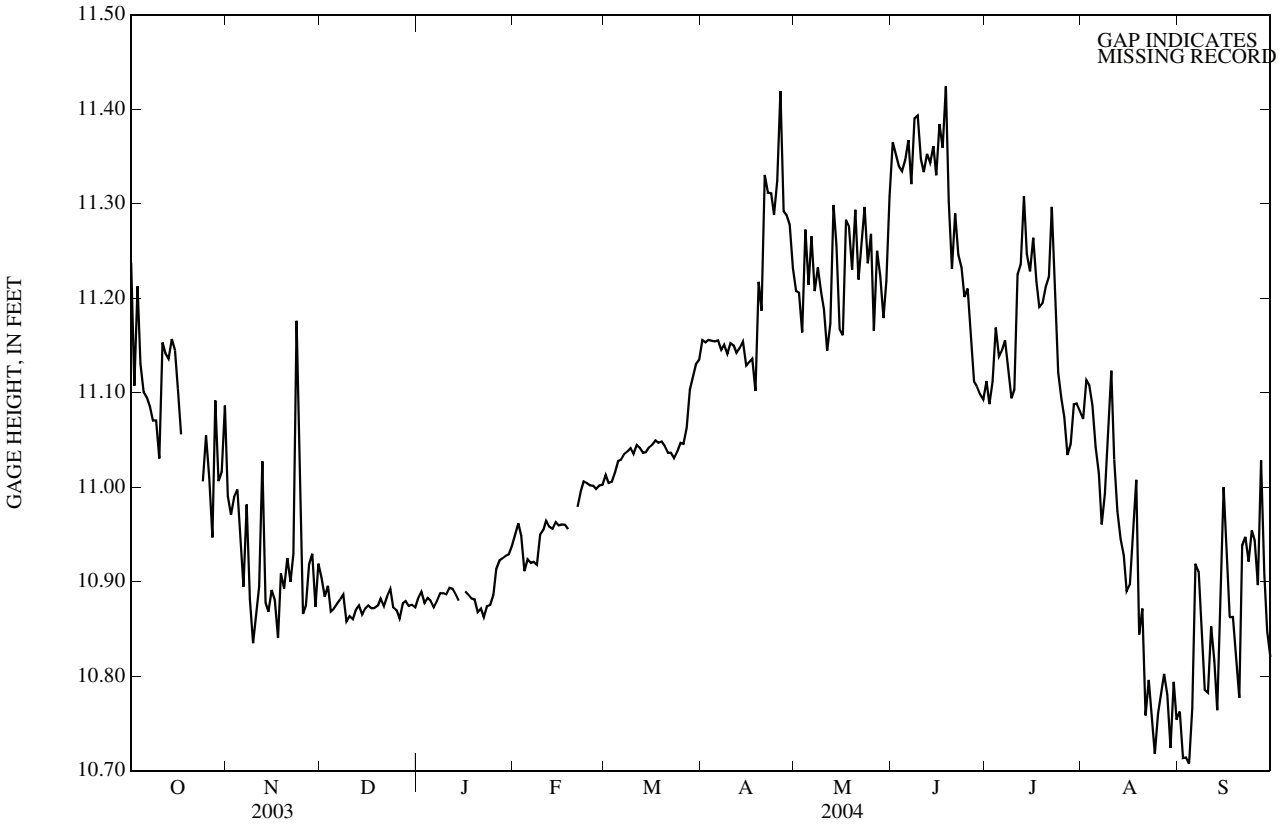
EXTREMES FOR PERIOD OF RECORD.--Maximum gage-height, 13.64 ft, July 21, 2002, affected by seiche action; maximum daily, 13.03 ft, Aug. 22, 1972; minimum gage-height observed, 5.34 ft (present datum) Oct. 16-19, 1936.

EXTREMES FOR CURRENT YEAR.--Maximum daily gage-height, 11.42 ft, Apr. 26 and June 18, affected by seiche action; minimum daily gage-height, 10.71 ft, Sept. 2-4. Maximum or minimum instantaneous values not available for 2004 water year.

GAGE HEIGHT, FEET
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11.24	10.99	10.90	10.88	10.95	11.01	11.16	11.21	11.36	11.11	11.07	10.76
2	11.11	10.97	10.88	10.89	10.96	11.00	11.15	11.21	11.35	11.09	11.11	10.71
3	11.21	10.99	10.90	10.88	10.95	11.01	11.16	11.16	11.34	11.11	11.11	10.71
4	11.13	11.00	10.87	10.88	10.91	11.02	11.15	11.27	11.33	11.17	11.09	10.71
5	11.10	10.94	10.87	10.88	10.92	11.03	11.15	11.21	11.35	11.14	11.04	10.77
6	11.10	10.89	10.88	10.87	10.92	11.03	11.16	11.27	11.37	11.14	11.01	10.92
7	11.09	10.98	10.88	10.88	10.92	11.04	11.14	11.21	11.32	11.16	10.96	10.91
8	11.07	10.88	10.89	10.89	10.92	11.04	11.15	11.23	11.39	11.12	10.99	10.84
9	11.07	10.84	10.86	10.89	10.95	11.04	11.14	11.21	11.39	11.09	11.07	10.79
10	11.03	10.86	10.86	10.89	10.95	11.04	11.15	11.19	11.35	11.10	11.12	10.78
11	11.15	10.90	10.86	10.89	10.96	11.04	11.15	11.14	11.33	11.22	11.03	10.85
12	11.14	11.03	10.87	10.89	10.96	11.04	11.14	11.17	11.35	11.24	10.97	10.82
13	11.14	10.88	10.87	10.89	10.96	11.04	11.15	11.30	11.34	11.31	10.95	10.76
14	11.16	10.87	10.87	---	10.96	11.04	11.15	11.26	11.36	11.25	10.93	10.91
15	11.14	10.89	10.87	---	10.96	11.04	11.13	11.17	11.33	11.23	10.89	11.00
16	11.10	10.88	10.88	10.89	10.96	11.04	11.13	11.16	11.38	11.26	10.90	10.92
17	11.06	10.84	10.87	10.89	10.96	11.05	11.14	11.28	11.36	11.22	10.95	10.86
18	---	10.91	10.87	10.88	10.96	11.05	11.10	11.28	11.42	11.19	11.01	10.86
19	---	10.89	10.87	10.88	---	11.05	11.22	11.23	11.30	11.19	10.84	10.82
20	---	10.93	10.88	10.87	---	11.04	11.19	11.29	11.23	11.21	10.87	10.78
21	---	10.90	10.87	10.87	10.98	11.04	11.33	11.22	11.29	11.22	10.76	10.94
22	---	10.93	10.88	10.86	11.00	11.04	11.31	11.26	11.25	11.30	10.80	10.95
23	---	11.18	10.89	10.87	11.01	11.03	11.31	11.30	11.23	11.20	10.76	10.92
24	11.01	10.99	10.87	10.88	11.00	11.04	11.29	11.24	11.20	11.12	10.72	10.95
25	11.05	10.87	10.87	10.89	11.00	11.05	11.32	11.27	11.21	11.09	10.76	10.94
26	11.01	10.87	10.86	10.91	11.00	11.05	11.42	11.17	11.16	11.07	10.78	10.90
27	10.95	10.92	10.88	10.92	11.00	11.06	11.29	11.25	11.11	11.03	10.80	11.03
28	11.09	10.93	10.88	10.92	11.00	11.10	11.29	11.22	11.11	11.05	10.78	10.91
29	11.01	10.87	10.87	10.93	11.00	11.12	11.28	11.18	11.10	11.09	10.72	10.85
30	11.02	10.92	10.88	10.93	---	11.13	11.23	11.22	11.09	11.09	10.79	10.82
31	11.09	---	10.87	10.94	---	11.13	---	11.31	---	11.08	10.75	---
MEAN	---	10.92	10.87	---	---	11.05	11.20	11.23	11.29	11.16	10.91	10.86
MAX	---	11.18	10.90	---	---	11.13	11.42	11.31	11.42	11.31	11.12	11.03
MIN	---	10.84	10.86	---	---	11.00	11.10	11.14	11.09	11.03	10.72	10.71

05284000 MILLE LACS LAKE AT COVE BAY NEAR ONAMIA, MN—Continued



05284305 SEGUCHIE CREEK AT HOLT LAKE OUTLET, NEAR GARRISON, MN

LOCATION.--Lat 46°15'07", long 93°49'38", in SE¼SW¼NW¼ sec. 36, T.44 N., R.28 W., Crow Wing County, Hydrologic Unit 07010207, on left bank, 50 feet upstream from Holt Lake outlet and 3 miles south of Garrison.

DRAINAGE AREA.--16.8 mi^2.

PERIOD OF RECORD.--May 2004 to current year.

GAGE.--Water-stage recorder.

REMARKS.--Records good except those for estimated daily discharge, which are fair to poor. Water levels affected by weir dam at outlet of Holt Lake. Some natural regulation from Holt Lake and other lakes upstream.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	e11	3.1	1.7	8.4
2	---	---	---	---	---	---	---	---	11	2.9	1.9	6.3
3	---	---	---	---	---	---	---	---	11	3.1	1.9	5.1
4	---	---	---	---	---	---	---	---	10	3.8	1.8	4.3
5	---	---	---	---	---	---	---	---	10	3.5	1.6	5.4
6	---	---	---	---	---	---	---	---	9.9	3.4	1.5	7.7
7	---	---	---	---	---	---	---	---	9.2	3.6	e1.6	6.5
8	---	---	---	---	---	---	---	---	9.2	3.3	e1.7	5.7
9	---	---	---	---	---	---	---	---	8.2	3.1	e1.8	5.2
10	---	---	---	---	---	---	---	---	7.3	2.8	e1.8	4.9
11	---	---	---	---	---	---	---	---	6.9	5.7	e2.1	5.2
12	---	---	---	---	---	---	---	---	7.0	5.5	e2.1	5.0
13	---	---	---	---	---	---	---	---	7.1	5.1	e2.1	4.7
14	---	---	---	---	---	---	---	---	6.8	4.3	e2.1	4.7
15	---	---	---	---	---	---	---	---	6.2	3.9	e1.9	5.8
16	---	---	---	---	---	---	---	---	6.0	3.5	e1.8	6.1
17	---	---	---	---	---	---	---	---	5.4	3.2	e1.8	5.6
18	---	---	---	---	---	---	---	---	5.1	2.9	e1.7	5.2
19	---	---	---	---	---	---	---	---	4.5	2.7	e1.8	5.0
20	---	---	---	---	---	---	---	---	4.0	2.6	e1.8	4.8
21	---	---	---	---	---	---	---	---	3.8	2.4	e1.8	6.1
22	---	---	---	---	---	---	---	---	3.7	2.1	e1.7	6.4
23	---	---	---	---	---	---	---	---	4.2	1.8	e2.2	6.3
24	---	---	---	---	---	---	---	---	4.3	1.6	e2.1	6.3
25	---	---	---	---	---	---	---	---	3.9	1.5	e1.8	5.9
26	---	---	---	---	---	---	---	---	3.7	1.5	e2.0	5.6
27	---	---	---	---	---	---	---	8.7	3.7	1.4	e2.0	5.3
28	---	---	---	---	---	---	---	8.1	3.7	1.5	e1.9	4.9
29	---	---	---	---	---	---	---	7.7	3.5	1.6	e1.8	4.7
30	---	---	---	---	---	---	---	8.4	3.3	1.7	e1.8	4.6
31	---	---	---	---	---	---	---	10	---	1.7	e7.0	---
TOTAL	---	---	---	---	---	---	---	---	193.6	90.8	65.6	167.7
MEAN	---	---	---	---	---	---	---	---	6.45	2.93	2.12	5.59
MAX	---	---	---	---	---	---	---	--	11	5.7	10	8.4
MIN	---	---	---	---	---	---	---	--	3.3	1.4	1.5	4.3
AC-FT	---	---	---	---	---	---	---	---	384	180	130	333

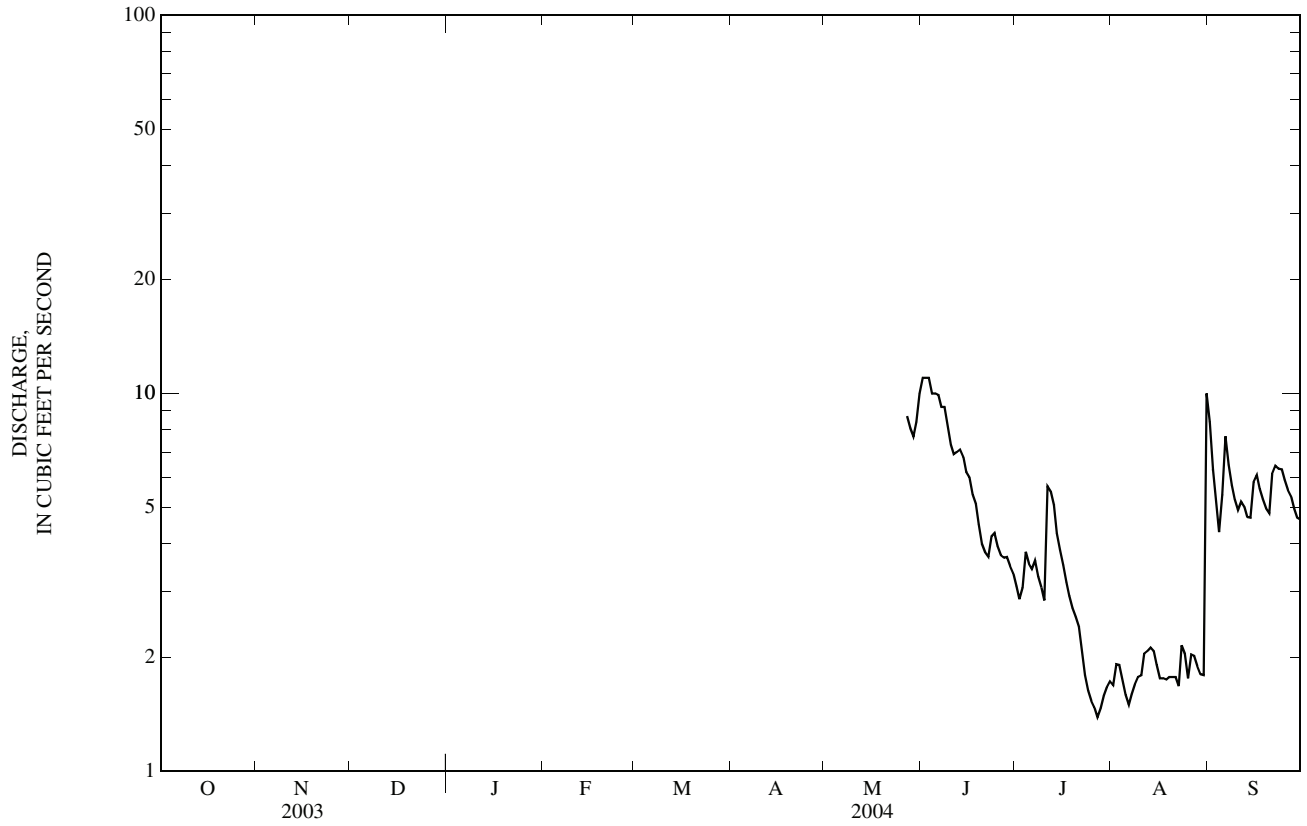
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2004 - 2004, BY WATER YEAR (WY)

MEAN	---	---	---	---	---	---	---	---	6.45	2.93	2.12	5.59
MAX	---	---	---	---	---	---	---	---	6.45	2.93	2.12	5.59
(WY)	---	---	---	---	---	---	---	---	(2004)	(2004)	(2004)	(2004)
MIN	---	---	---	---	---	---	---	---	6.45	2.93	2.12	5.59
(WY)	---	---	---	---	---	---	---	---	(2004)	(2004)	(2004)	(2004)

05284305 SEGUCHIE CREEK AT HOLT LAKE OUTLET, NEAR GARRISON, MN—Continued

SUMMARY STATISTICS	FOR 2004 WATER YEAR		WATER YEARS 2004 - 2004	
HIGHEST DAILY MEAN	a11	Jun 1-3	a11	Jun 1-3
LOWEST DAILY MEAN	1.4	Jul 27	1.4	Jul 27
MAXIMUM PEAK FLOW	b12	Aug 31	b12	Aug 31
MAXIMUM PEAK STAGE	c7.11	Aug 31	c7.11	Aug 31
INSTANTANEOUS LOW FLOW	1.3	Jul 27	1.3	Jul 27

a Highest determined, may have been higher on Aug. 31st.
b Highest observed, gage-height 7.09 ft, backwater from beaver dam.
c Backwater from beaver dam.
e Estimated.



05286000 RUM RIVER NEAR ST. FRANCIS, MN

LOCATION.--Lat 45°19'40", long 93°22'20", in SE¼ sec. 19, T.33 N., R.24 W., Anoka County, Hydrologic Unit 07010207, on left bank at upstream side of County Highway 22 bridge, 4 mi south of St. Francis and 15.8 mi upstream from mouth.

DRAINAGE AREA.--1,360 mi^2 (approximately).

PERIOD OF RECORD.--May to November 1929, March 1930 to September 1931, April to November 1932, March 1933 to current year.

REVISED RECORDS.--WSP 1308: 1930(M), 1932(M).

GAGE.--Water-stage recorder. Datum of gage is 860.74 ft above sea level (NGVD of 1929, levels by Anoka County Highway Department). Prior to Nov. 9, 1933, nonrecording gage at site 50 ft downstream at same datum.

REMARKS.--Records good except those for estimated daily discharges, which are fair to poor. Occasional regulation from Ogechie (also controls Mille Lacs Lake) and Onamia Lakes.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	351	392	e325	e248	e183	e237	1,430	906	2,500	622	384	303
2	341	397	e320	e250	e184	e238	1,460	845	2,750	e590	383	288
3	333	392	e322	e245	e185	e239	1,430	790	2,840	e570	386	279
4	329	387	e320	e235	e186	e240	1,310	749	2,840	542	369	270
5	329	380	328	e230	e188	e242	1,150	697	2,820	524	358	335
6	327	377	322	e220	e190	e245	1,020	654	2,880	509	377	444
7	325	365	322	e218	e194	e252	921	619	2,900	520	393	523
8	324	349	325	e218	e197	e255	850	584	2,900	511	398	558
9	329	377	330	e219	e198	e259	792	577	2,880	492	415	606
10	319	348	261	e220	e198	e262	746	584	2,830	493	418	599
11	337	370	e295	e222	e198	e267	718	568	2,890	552	411	550
12	355	392	e290	e223	e197	e277	678	550	2,990	667	395	493
13	352	403	e285	e223	e196	e282	652	533	2,980	723	371	434
14	354	396	e290	e222	e195	e290	630	507	2,850	721	355	408
15	354	372	e290	e221	e192	e300	598	485	2,590	718	342	442
16	361	364	e278	e220	e197	e315	586	473	2,290	701	346	488
17	356	370	e277	e217	e200	e327	566	618	2,060	647	329	521
18	350	397	e277	e204	e203	e345	566	759	1,830	596	316	541
19	345	393	e276	e202	e207	e375	679	858	1,630	557	302	576
20	348	383	e276	e200	e212	e415	817	948	1,470	530	289	598
21	351	374	e277	e198	e217	e468	887	1,030	1,340	500	275	632
22	343	370	e281	e197	e223	e557	959	1,070	1,210	476	268	714
23	338	372	e277	e196	e227	782	993	1,080	1,070	454	264	772
24	337	278	e270	e195	e230	853	1,040	1,080	959	427	263	822
25	334	e290	e267	e196	e232	937	1,110	1,080	871	407	261	901
26	331	e290	e263	e198	e233	1,050	1,150	1,120	797	385	310	956
27	328	e295	e260	e193	e234	1,110	1,150	1,350	747	363	358	967
28	338	e300	e258	e188	e235	1,160	1,090	1,570	714	353	365	934
29	350	e310	e255	e184	e236	1,270	1,040	1,760	679	362	350	864
30	366	e320	e252	e180	---	1,360	972	1,880	648	373	331	781
31	383	---	e250	e182	---	1,400	---	2,160	---	371	317	---
TOTAL	10,618	10,803	8,919	6,564	5,967	16,609	27,990	28,484	60,755	16,256	10,699	17,599
MEAN	343	360	288	212	206	536	933	919	2,025	524	345	587
MAX	383	403	330	250	236	1,400	1,460	2,160	2,990	723	418	967
MIN	319	278	250	180	183	237	566	473	648	353	261	270
AC-FT	21,060	21,430	17,690	13,020	11,840	32,940	55,520	56,500	120,500	32,240	21,220	34,910
CFSM	0.25	0.26	0.21	0.16	0.15	0.39	0.69	0.68	1.49	0.39	0.25	0.43
IN.	0.29	0.30	0.24	0.18	0.16	0.45	0.77	0.78	1.66	0.44	0.29	0.48

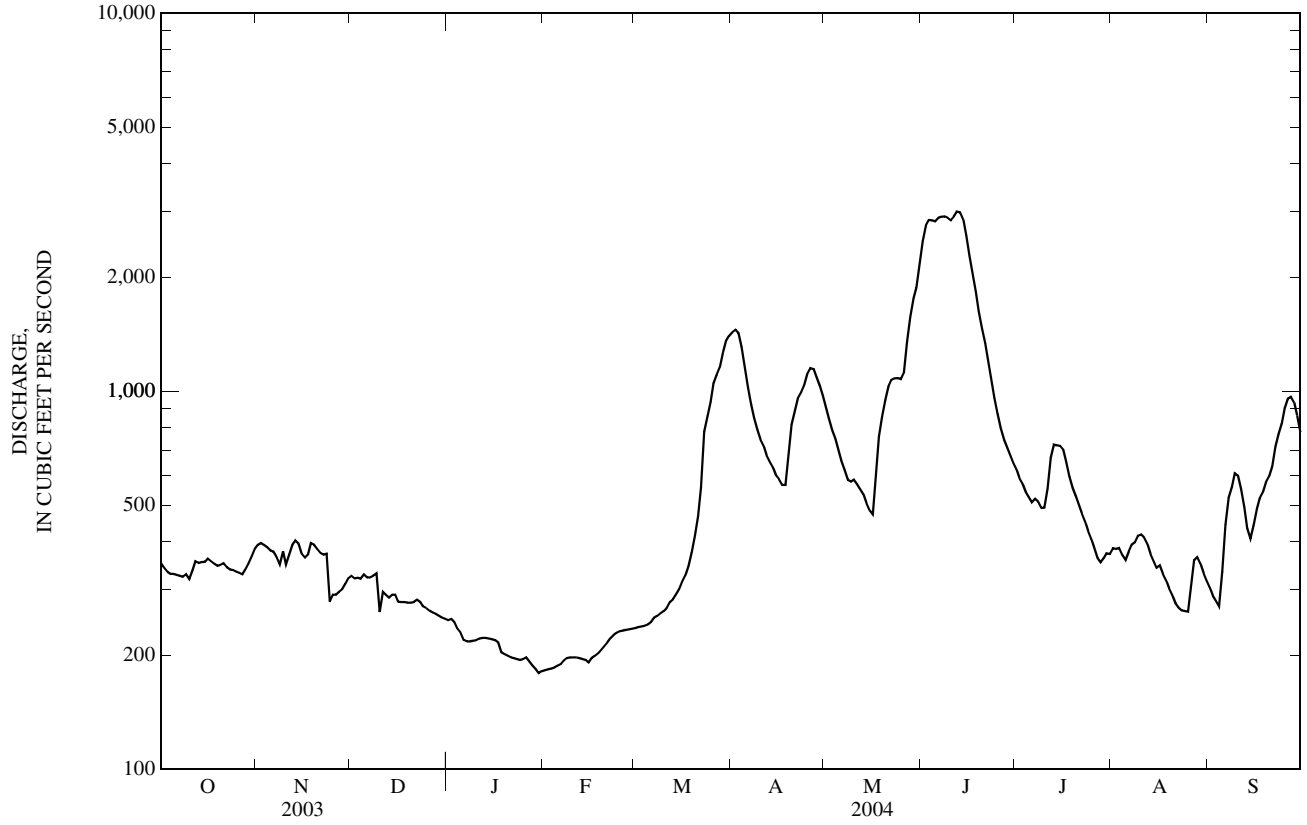
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 2004, BY WATER YEAR (WY)

MEAN	465	445	327	245	248	612	1,576	1,127	888	663	425	444
MAX	2,300	1,715	1,051	660	813	2,699	4,269	3,899	3,400	2,532	2,251	2,362
(WY)	(1969)	(1972)	(1983)	(1987)	(1966)	(1966)	(1969)	(1986)	(1984)	(1954)	(1972)	(1986)
MIN	65.4	71.8	55.8	51.5	59.2	75.8	154	73.6	43.7	34.5	37.3	47.1
(WY)	(1934)	(1934)	(1934)	(1934)	(1934)	(1934)	(1934)	(1934)	(1934)	(1934)	(1934)	(1933)

05286000 RUM RIVER NEAR ST. FRANCIS, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1929 - 2004	
ANNUAL TOTAL	317,900		221,263			
ANNUAL MEAN	871		605		639	
HIGHEST ANNUAL MEAN					1,512	1986
LOWEST ANNUAL MEAN					66.1	1934
HIGHEST DAILY MEAN	4,620	Apr 26	2,990	Jun 12	10,000	Apr 13, 1969
LOWEST DAILY MEAN	250	Dec 31	180	Jan 30	30	Aug 3, 1934
ANNUAL SEVEN-DAY MINIMUM	258	Dec 25	183	Jan 29	31	Aug 1, 1934
MAXIMUM PEAK FLOW			2,990	Jun 12	a10,100	Apr 20, 1965
MAXIMUM PEAK STAGE			6.13	Jun 12	11.63	Apr 13, 1969
INSTANTANEOUS LOW FLOW			b180	Jan 30	29	Aug 18, 1934
ANNUAL RUNOFF (AC-FT)	630,600		438,900		463,300	
ANNUAL RUNOFF (CFSM)	0.640		0.445		0.470	
ANNUAL RUNOFF (INCHES)	8.70		6.05		6.39	
10 PERCENT EXCEEDS	2,110		1,150		1,400	
50 PERCENT EXCEEDS	512		372		380	
90 PERCENT EXCEEDS	325		218		118	

a Also occurred Apr. 13, 1969.
b Estimated daily-mean, backwater from ice.
e Estimated.



05287890 ELM CREEK NEAR CHAMPLIN, MN

LOCATION.--Lat 45°09'48", long 93°26'11", in NE¼NW¼ sec. 35, T.120 N., R.22 W., Hennepin County, Hydrologic Unit 07010206, on left bank, 33 ft downstream from bridge on Elm Creek Road, 2.5 mi southwest of Champlin.

DRAINAGE AREA.--86.0 mi^2.

PERIOD OF RECORD.--October 1978 to current year.

REVISED RECORD.--WDR-MN-02-1: Maximum discharge; 1982, 85, 86, 94, 96, 97, and 99.

GAGE.--Water-stage recorder. Datum of gage is 850.70 ft above sea level (NGVD of 1929). Prior to March 16, 1979, nonrecording gage at present site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.4	1.7	2.0	2.2	e0.68	2.9	57	25	270	37	11	e1.5
2	1.4	1.7	1.9	2.3	e0.80	6.2	52	22	325	32	10	e1.5
3	1.6	1.7	1.9	e2.3	e0.72	6.2	43	19	346	29	9.4	e1.5
4	1.6	1.9	2.0	e2.1	e0.66	6.5	36	17	333	40	e8.8	e1.5
5	1.4	2.1	2.0	e1.6	e0.80	4.3	30	14	320	50	e8.2	e2.0
6	1.3	1.9	2.0	e0.70	e0.84	3.5	26	13	299	52	e7.4	e3.0
7	1.4	1.7	2.1	e0.72	e0.80	e4.2	22	11	267	61	e7.4	e4.0
8	1.5	1.7	2.2	e0.72	e0.76	e5.0	20	9.2	234	69	e6.6	e4.8
9	1.7	1.7	e2.2	e0.73	e0.82	6.9	18	9.2	225	71	e6.0	e5.6
10	2.2	1.9	e2.2	e0.74	e0.76	11	16	11	220	70	e5.6	e6.2
11	4.2	2.2	e2.1	e0.76	e0.80	e9.0	14	11	212	82	e5.0	e7.0
12	4.3	2.2	e2.1	e0.72	e0.76	e9.4	12	11	251	105	e4.7	e7.4
13	3.7	2.0	e2.0	e0.70	e0.80	e10	10	13	271	113	e4.5	e7.8
14	3.0	1.8	2.0	e0.70	e0.74	e12	9.7	12	276	115	e4.0	e8.0
15	2.5	1.9	2.2	e0.68	e0.70	e14	8.9	11	268	116	e3.7	e10
16	2.8	1.9	2.3	e0.68	e0.94	e13	7.8	12	252	112	e3.7	e14
17	3.4	1.9	2.4	e0.74	e1.3	e12	6.6	22	233	101	e3.6	e15
18	2.9	1.7	2.1	e0.62	1.7	e13	7.3	31	198	88	e3.2	e15
19	2.4	1.7	2.1	e0.64	1.7	e17	18	34	173	77	e2.6	e14
20	2.2	1.7	2.1	e0.80	1.8	e21	20	38	149	67	2.5	e14
21	2.2	1.7	2.1	e1.2	1.6	e24	30	37	128	57	2.4	15
22	2.2	1.9	2.1	e0.66	1.8	e25	37	36	110	49	e2.4	24
23	2.1	2.1	e2.0	e0.68	1.8	e28	39	42	95	41	e2.3	36
24	2.0	2.1	e2.1	e0.72	1.8	e31	38	70	83	33	e2.2	39
25	2.0	2.1	e2.0	e0.76	1.9	34	42	81	74	27	e2.1	38
26	2.0	2.1	2.0	e0.80	1.9	35	44	88	67	23	e2.0	37
27	1.6	2.1	2.3	e0.70	1.9	35	40	102	60	20	e1.9	33
28	1.6	e1.9	2.6	e0.60	2.0	52	37	107	54	18	e1.8	27
29	1.7	e1.8	2.5	e0.50	2.0	61	33	116	48	16	e1.8	24
30	1.9	1.9	2.4	e0.50	---	63	28	157	42	14	e1.7	22
31	1.9	---	2.5	e0.56	---	61	---	218	---	12	e1.6	---
TOTAL	68.1	56.7	66.5	28.83	35.58	636.1	802.3	1,399.4	5,883	1,797	140.1	438.8
MEAN	2.20	1.89	2.15	0.93	1.23	20.5	26.7	45.1	196	58.0	4.52	14.6
MAX	4.3	2.2	2.6	2.3	2.0	63	57	218	346	116	11	39
MIN	1.3	1.7	1.9	0.50	0.66	2.9	6.6	9.2	42	12	1.6	1.5
AC-FT	135	112	132	57	71	1,260	1,590	2,780	11,670	3,560	278	870
CFSM	0.03	0.02	0.02	0.01	0.01	0.24	0.31	0.52	2.28	0.67	0.05	0.17
IN.	0.03	0.02	0.03	0.01	0.02	0.28	0.35	0.61	2.54	0.78	0.06	0.19

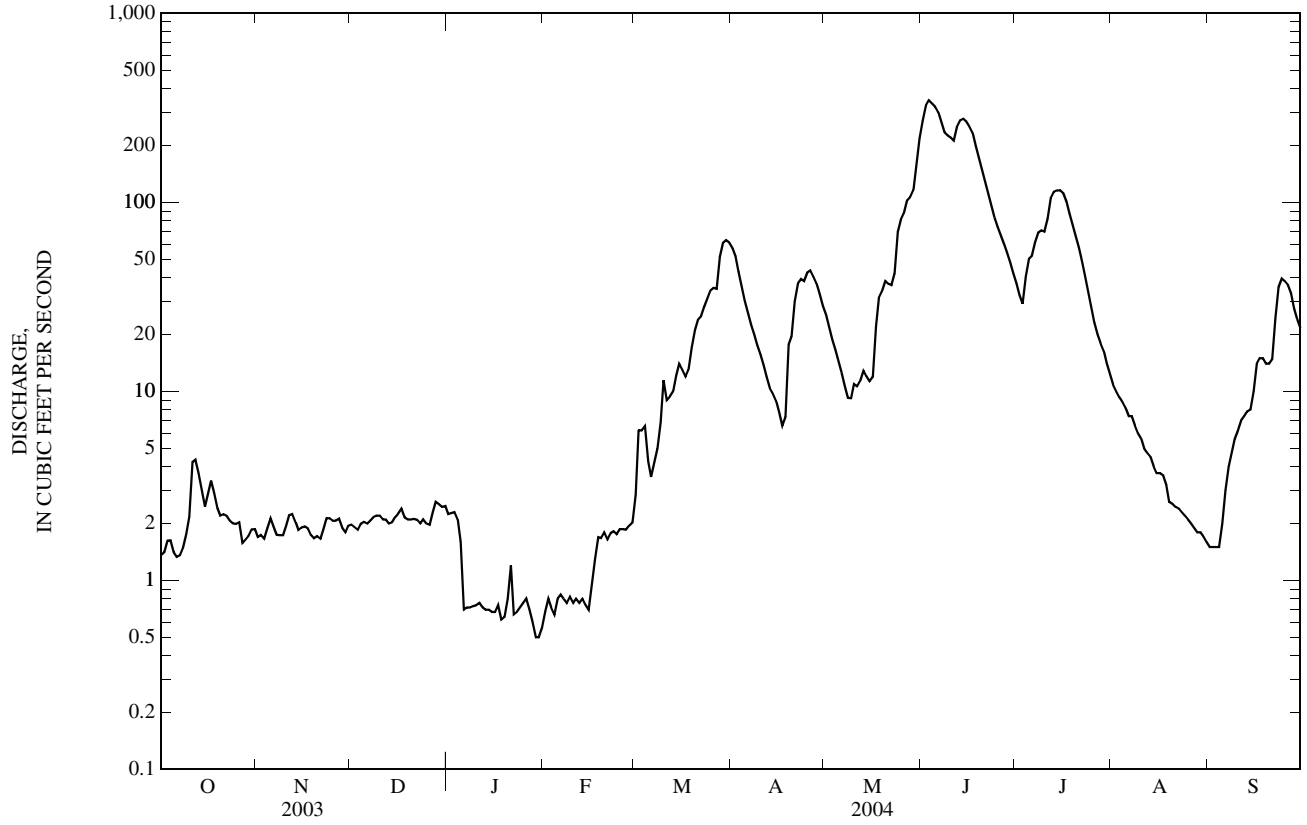
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1979 - 2004, BY WATER YEAR (WY)

MEAN	30.5	21.2	11.2	5.18	9.36	61.9	104	71.9	54.6	42.6	31.9	28.8
MAX	240	67.4	41.3	22.0	99.1	185	414	203	196	157	151	170
(WY)	(1986)	(1994)	(1992)	(1992)	(1984)	(1985)	(2001)	(2002)	(2004)	(1993)	(2002)	(1991)
MIN	1.13	1.03	0.92	0.74	0.91	3.86	5.31	3.54	1.34	0.76	1.44	1.08
(WY)	(1990)	(1990)	(1990)	(1991)	(1990)	(2001)	(1987)	(2000)	(1988)	(1988)	(1989)	(1988)

05287890 ELM CREEK NEAR CHAMPLIN, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1979 - 2004	
ANNUAL TOTAL	16,468.32		11,352.41			
ANNUAL MEAN	45.1		31.0		39.6	
HIGHEST ANNUAL MEAN					82.2	2002
LOWEST ANNUAL MEAN					4.54	1988
HIGHEST DAILY MEAN	651	Jun 29	346	Jun 3	815	Apr 25, 2001
LOWEST DAILY MEAN	0.74	Mar 9	a0.50	Jan 29,30	0.31	Jun 30, 1988
ANNUAL SEVEN-DAY MINIMUM	0.78	Mar 6	0.62	Jan 26	0.35	Jun 26, 1988
MAXIMUM PEAK FLOW			350	Jun 3	875	Apr 25, 2001
MAXIMUM PEAK STAGE			8.85	Jun 3	10.02	Apr 25, 2001
INSTANTANEOUS LOW FLOW			b0.50	Jan 29	0.29	Jul 9, 1989
ANNUAL RUNOFF (AC-FT)	32,660		22,520		28,650	
ANNUAL RUNOFF (CFSM)	0.525		0.361		0.460	
ANNUAL RUNOFF (INCHES)	7.12		4.91		6.25	
10 PERCENT EXCEEDS	155		84		110	
50 PERCENT EXCEEDS	3.0		4.8		12	
90 PERCENT EXCEEDS	1.4		0.80		1.8	

a Backwater from ice.
b Daily-mean discharge, backwater from ice.
e Estimated.



05287890 ELM CREEK NEAR CHAMPLIN, MN—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--February 1988 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Time	Sample type	Instantaneous discharge, cfs (00061)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Chloride, water, fltrd, mg/L (00940)	Residue total at 105 deg. C, suspended, mg/L (00530)
OCT												
27...	1030	Environmental	1.8	737	7.7	61	7.7	677	3.5	5.6	18.3	<10
NOV												
13...	0950	Environmental	2.0	750	11.9	86	7.7	652	2.0	1.8	28.3	<10
DEC												
17...	0950	Environmental	2.3	739	9.5	66	7.7	680	-5.0	.3	29.8	<10
JAN												
21...	1000	Environmental	1.6	736	10.7	74	7.6	755	.0	.1	18.7	<10
FEB												
26...	1020	Environmental	1.9	747	11.7	84	7.8	708	2.0	1.7	20.7	<10
MAR												
15...	0930	Environmental	15	749	12.8	88	7.3	710	-2.0	.1	96.2	<10
22...	1125	Environmental	47	750	13.2	91	7.4	608	10.5	.1	73.8	<20
APR												
12...	1000	Environmental	12	748	12.8	101	8.0	614	6.0	5.2	68.7	<20
APR												
18-21	2250	Composite (time)	--	--	--	--	8.2	654	--	--	80.4	11
MAY												
17-18	1017	Composite (time)	--	--	--	--	8.0	682	--	--	85.8	<10
20...	1315	Environmental	38	744	8.5	93	7.7	672	23.0	18.5	100	<10
MAY												
23-26	1248	Composite (time)	--	--	--	--	8.0	609	--	--	86.3	14
MAY 29-												
JUN 01	0642	Composite (time)	--	--	--	--	7.9	543	--	--	68.7	<10
JUN												
11-14	2149	Composite (time)	--	--	--	--	7.7	442	--	--	43.8	21
JUL												
14...	0945	Environmental	111	742	4.3	50	7.1	462	24.0	22.4	46.1	14
AUG												
19...	1040	Environmental	2.7	746	7.2	71	7.5	483	10.0	14.4	42.1	10
SEP												
04-06	1035	Composite (time)	--	--	--	--	8.2	629	--	--	26.0	11
29...	0930	Environmental	25	746	8.3	78	7.7	490	11.0	12.5	48.5	12

05287890 ELM CREEK NEAR CHAMPLIN, MN—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Residue vola-tile, sus-pended, mg/L (00535)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Phos-phorus, water, fltrd, mg/L (00666)	Phos-phorus, water, unfltrd mg/L (00665)	COD, high level, water, unfltrd mg/L (00340)
OCT								
27...	<10	.42	E.04	<.06	.012	.06	.10	20
NOV								
13...	<10	.49	<.04	<.06	.023	E.04	.05	20
DEC								
17...	<10	.68	.25	.11	E.005	<.04	.07	10
JAN								
21...	<10	.49	.11	.11	<.008	E.03	.07	<10
FEB								
26...	<10	.70	.24	.09	E.004	<.04	.04	10
MAR								
15...	<10	2.4	.80	1.88	.074	.17	.29	30
22...	<20	2.0	.60	1.07	.031	.09	.20	40
APR								
12...	<20	1.1	E.04	E.06	<.008	E.04	.09	30
APR								
18-21	--	1.3	<.04	.22	.014	.04	.13	30
MAY								
17-18	--	1.1	<.04	<.06	<.008	.10	.15	20
20...	<10	1.0	E.03	.09	.010	.09	.14	20
MAY								
23-26	--	1.3	E.02	.37	.013	.10	.19	30
MAY 29-								
JUN 01	--	1.3	E.02	.44	.014	.12	.20	30
JUN								
11-14	--	1.3	<.04	.12	.008	.26	.30	30
JUL								
14...	<10	1.2	<.04	E.03	<.008	.22	.28	30
AUG								
19...	<10	.76	<.04	E.04	E.005	.10	.16	30
SEP								
04-06	--	.64	E.03	.09	.011	.08	.14	20
29...	10	1.2	E.04	.13	.020	.13	.19	30

05288500 MISSISSIPPI RIVER NEAR ANOKA, MN

LOCATION.--Lat 45°07'36", long 93°17'48", in SW$^1/_4$ sec. 12, T.119 N., R.21 W., Hennepin County, Hydrologic Unit 07010206, on right bank 0.4 mi downstream from Coon Creek, 1.3 mi downstream from Coon Rapids dam at Coon Rapids, 6.5 mi downstream from Anoka, and at mile 864.8 upstream from Ohio River.

DRAINAGE AREA.--19,100 mi^2, approximately.

PERIOD OF RECORD.--June 1931 to current year. Prior to October 1931 published as "at Coon Rapids, near Anoka."

GAGE.--Water-stage recorder. Datum of gage is 804.53 ft above sea level (NGVD of 1929). Prior to June 14, 1932, at site 1.2 mi upstream at different datum.

REMARKS.--Records good except those for estimated days, which are fair. Flow slightly regulated by six reservoirs on headwaters; total usable capacity, 1,640,600 acre-ft. Diurnal regulation caused by Coon Rapids dam 1.3 mi. above station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2,590	3,590	3,830	e2,930	e2,520	3,320	12,600	7,910	15,700	6,790	3,660	2,450
2	2,830	3,580	3,880	e3,140	e2,480	3,570	12,700	7,560	16,000	6,350	3,510	2,330
3	2,670	3,310	3,860	e3,230	e2,260	3,680	12,800	7,120	16,500	6,500	4,000	2,050
4	2,730	3,640	e3,940	e2,920	e2,420	3,870	12,100	7,010	17,300	6,030	3,610	2,050
5	2,660	3,630	4,070	e2,630	e2,630	4,010	11,600	6,720	17,900	5,730	3,580	2,630
6	2,530	3,870	4,130	e2,370	e2,710	4,090	11,800	6,510	19,000	6,000	3,520	3,140
7	2,600	3,470	3,910	e2,540	e2,690	4,350	11,300	6,510	18,500	6,520	3,480	4,780
8	2,650	2,920	3,830	e2,950	e2,610	3,930	10,400	5,930	17,800	6,560	3,550	4,960
9	2,650	2,770	4,020	e3,040	e2,670	4,480	10,200	5,690	18,300	6,600	3,210	4,230
10	2,740	2,870	3,530	e3,180	e2,740	4,410	10,500	5,370	18,100	6,640	3,080	4,940
11	2,680	2,720	e1,800	e3,380	e2,760	4,540	10,200	5,680	17,700	7,590	3,210	5,420
12	2,910	3,200	e1,720	e3,310	e2,780	3,970	9,810	4,940	18,500	8,040	3,070	5,550
13	2,770	3,760	e2,100	e2,990	e2,800	4,360	9,800	5,200	18,500	7,900	2,970	5,080
14	2,940	3,870	e3,100	e2,900	e2,810	5,010	9,300	4,920	17,900	8,170	3,150	5,550
15	2,850	3,760	e3,830	e2,840	e2,640	4,680	9,190	4,570	17,800	7,960	3,050	6,170
16	2,360	3,480	3,820	e2,930	e2,680	4,760	8,750	4,690	17,600	8,740	2,900	5,940
17	2,230	3,730	3,120	e2,990	e2,690	4,810	8,270	6,550	17,100	8,180	2,790	5,930
18	3,020	4,060	e3,340	e2,520	e2,740	4,890	8,230	7,150	16,700	7,700	2,710	6,480
19	3,080	4,050	3,400	e2,040	2,910	5,200	8,470	7,510	15,800	7,180	2,770	6,850
20	3,520	4,100	3,530	e2,200	2,830	5,730	7,890	7,540	14,600	6,840	2,700	7,330
21	3,510	4,100	3,700	e2,280	2,660	6,110	8,570	8,410	13,800	6,430	2,570	7,770
22	3,140	3,910	3,790	e2,400	2,650	6,500	9,560	8,330	12,500	5,910	2,200	8,470
23	2,880	3,820	3,790	e2,520	2,820	6,600	9,970	8,770	11,900	5,760	2,130	8,710
24	2,930	3,450	3,620	e2,570	2,810	6,860	10,000	10,100	11,000	5,290	2,350	9,600
25	2,660	2,810	3,480	e2,720	2,780	7,620	10,400	10,200	9,720	4,810	2,150	9,720
26	3,000	e2,400	3,600	e2,710	2,840	7,790	10,200	9,900	9,260	4,050	2,630	10,100
27	3,000	2,580	3,800	e2,870	2,850	8,660	9,670	11,100	8,810	4,160	2,990	10,500
28	2,960	2,480	4,020	e2,650	2,940	9,950	9,230	11,800	8,100	4,320	2,720	10,100
29	3,170	3,210	3,940	e2,300	3,130	11,400	8,880	12,300	7,570	4,120	2,460	10,200
30	3,070	e3,490	3,510	e2,230	---	12,300	8,460	13,600	7,140	3,720	2,460	9,830
31	3,340	---	e3,310	e2,340	---	12,600	---	15,200	---	3,900	2,410	---
TOTAL	88,670	102,630	109,320	84,620	78,850	184,050	300,850	244,790	447,100	194,490	91,590	188,860
MEAN	2,860	3,421	3,526	2,730	2,719	5,937	10,030	7,896	14,900	6,274	2,955	6,295
MAX	3,520	4,100	4,130	3,380	3,130	12,600	12,800	15,200	19,000	8,740	4,000	10,500
MIN	2,230	2,400	1,720	2,040	2,260	3,320	7,890	4,570	7,140	3,720	2,130	2,050
AC-FT	175,900	203,600	216,800	167,800	156,400	365,100	596,700	485,500	886,800	385,800	181,700	374,600
CFSM	0.15	0.18	0.18	0.14	0.14	0.31	0.53	0.41	0.78	0.33	0.15	0.33
IN.	0.17	0.20	0.21	0.16	0.15	0.36	0.59	0.48	0.87	0.38	0.18	0.37

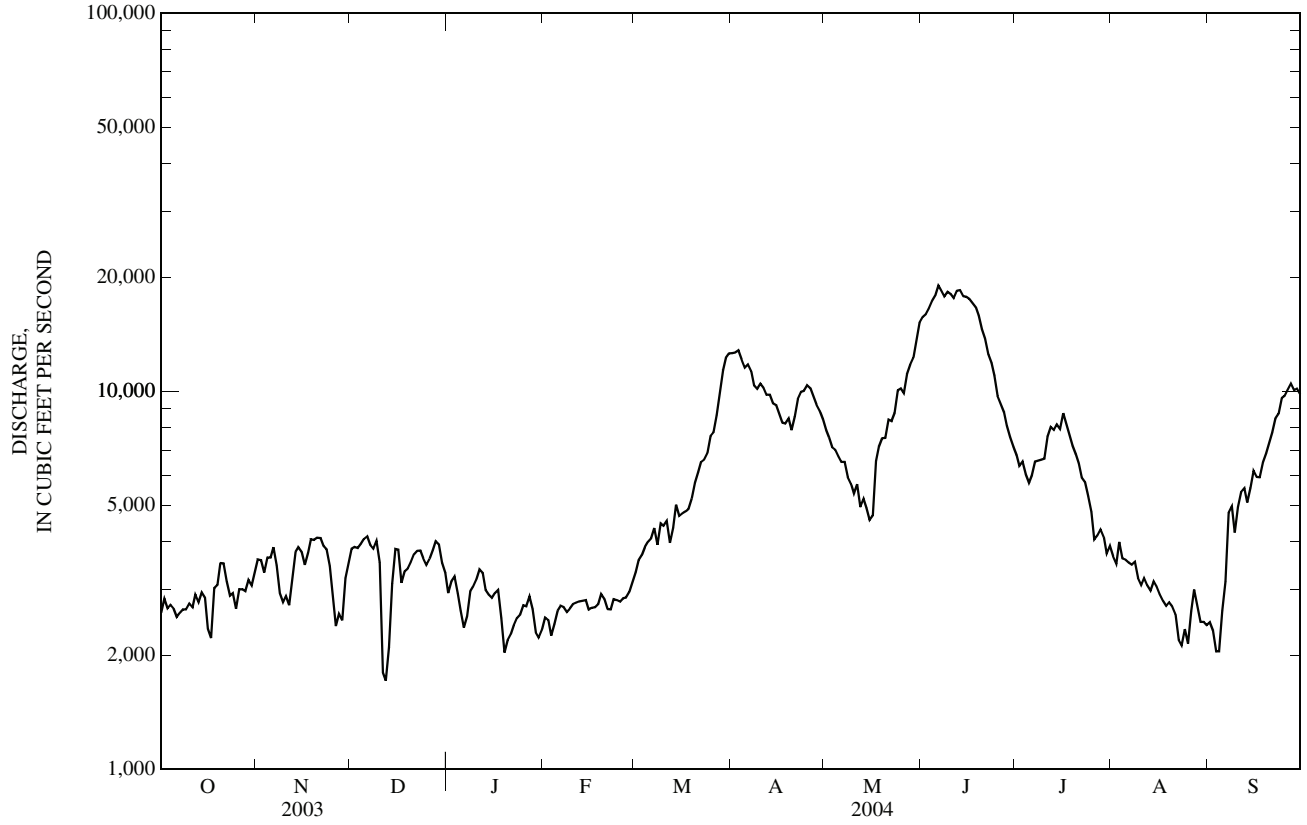
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1931 - 2004, BY WATER YEAR (WY)

MEAN	6,481	6,378	4,937	4,293	4,195	7,308	17,670	15,030	11,630	9,055	6,155	5,887
MAX	21,250	22,800	10,800	8,304	9,948	23,410	43,690	39,760	29,910	27,240	22,490	23,570
(WY)	(1987)	(1972)	(1972)	(1986)	(1966)	(1966)	(1997)	(1986)	(1943)	(1993)	(1972)	(1986)
MIN	1,128	1,152	1,006	935	1,079	1,602	3,575	2,796	1,646	1,022	715	888
(WY)	(1937)	(1937)	(1935)	(1935)	(1933)	(1940)	(1959)	(1934)	(1934)	(1934)	(1934)	(1934)

05288500 MISSISSIPPI RIVER NEAR ANOKA, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1931 - 2004	
ANNUAL TOTAL	2,753,370		2,115,820			
ANNUAL MEAN	7,543		5,781		8,283	
HIGHEST ANNUAL MEAN					17,750	1986
LOWEST ANNUAL MEAN					1,603	1934
HIGHEST DAILY MEAN	29,200	Jun 30	19,000	Jun 6	90,300	Apr 17, 1965
LOWEST DAILY MEAN	1,720	Dec 12	1,720	Dec 12	602	Sep 10, 1934
ANNUAL SEVEN-DAY MINIMUM	2,600	Sep 2	2,320	Aug 29	646	Aug 26, 1934
MAXIMUM PEAK FLOW			19,400	Jun 6	91,000	Apr 17, 1965
MAXIMUM PEAK STAGE			6.94	Jun 6	19.53	Apr 17, 1965
INSTANTANEOUS LOW FLOW			a1,720	Dec 12	b529	Aug 29, 1976
ANNUAL RUNOFF (AC-FT)	5,461,000		4,197,000		6,000,000	
ANNUAL RUNOFF (CFSM)	0.395		0.303		0.434	
ANNUAL RUNOFF (INCHES)	5.36		4.12		5.89	
10 PERCENT EXCEEDS	18,800		11,300		17,800	
50 PERCENT EXCEEDS	4,100		3,910		5,800	
90 PERCENT EXCEEDS	2,860		2,580		2,210	

a Daily-mean discharge, backwater from ice. Due in part to freezeup and regulation.
b Due in part to regulation.
e Estimated.



05288705 SHINGLE CREEK AT QUEEN AVE. IN MINNEAPOLIS, MN

LOCATION.-- Lat 45°03'00", long 93°18'36", in NE¼NW¼ sec. 11, T.118 N., R.21 W., Hennepin County, Hydrologic Unit 07010206, at bridge over Shingle Creek at intersection of Queen Avenue North and 52nd Avenue North in Minneapolis.

DRAINAGE AREA.-- 28.2 mi^2.

PERIOD OF RECORD.-- May 1996 to September 1999, May 2001 to current year.

GAGE.-- Water-stage recorder. Elevation of gage is 850 ft above sea level (from topographic map).

REMARKS.-- Records good except those for estimated daily discharges, which are poor.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.8	2.8	1.7	1.1	e0.34	e10	11	3.3	69	11	5.5	1.2
2	2.9	2.4	1.4	1.2	e0.41	e9.4	10	2.6	62	9.0	5.6	1.7
3	3.2	2.4	1.4	e0.90	e0.37	e8.2	9.6	2.2	53	8.0	5.0	1.4
4	2.6	4.2	1.7	e0.54	e0.36	e8.2	8.5	2.0	48	12	4.4	1.3
5	2.8	5.0	1.8	e0.37	e0.41	e8.6	8.6	1.5	53	11	3.3	25
6	3.3	4.8	1.8	e0.33	e0.42	e8.2	8.6	1.5	54	19	2.5	46
7	3.6	4.1	1.8	e0.29	e0.41	e7.6	7.5	0.92	44	34	4.0	32
8	4.6	4.1	1.8	e0.28	e0.40	e7.2	5.9	0.99	34	30	3.8	21
9	5.6	4.2	2.4	e0.28	e0.41	e7.2	4.6	5.7	94	25	3.4	11
10	6.3	4.5	2.4	e0.29	e0.40	e7.8	3.7	8.6	65	21	2.9	7.0
11	18	4.5	1.9	e0.30	e0.40	e4.0	3.6	4.8	79	52	2.9	5.0
12	10	5.6	1.6	e0.29	e0.39	e4.0	5.1	11	82	38	2.4	3.7
13	8.1	3.1	1.4	e0.31	e0.40	e4.4	4.0	18	75	37	1.8	2.9
14	6.5	4.3	1.4	e0.31	e0.38	e4.2	3.4	15	66	42	1.2	9.4
15	4.7	2.5	1.5	e0.32	e0.37	e4.1	2.6	8.1	55	34	1.3	52
16	4.0	2.7	1.6	e0.35	e0.39	e4.0	2.5	4.8	47	28	12	41
17	4.0	2.9	1.4	e0.40	e0.60	e4.5	2.2	45	40	24	9.2	33
18	3.6	2.8	1.4	e0.38	e1.1	e6.6	18	35	35	20	6.3	22
19	2.9	2.6	1.4	e0.38	e1.1	e10	30	23	30	17	4.2	12
20	2.6	2.0	1.3	e0.38	e1.1	e7.0	33	12	26	15	2.8	7.0
21	1.8	0.99	1.4	e0.40	e1.0	e4.7	41	9.9	21	12	2.0	13
22	1.5	1.1	1.4	e0.38	e1.0	e4.3	31	11	19	9.9	5.3	18
23	1.4	1.7	1.4	e0.38	e1.0	e4.0	18	43	23	7.9	2.9	16
24	1.0	1.5	1.3	e0.38	e1.0	4.0	10	47	32	6.6	2.1	21
25	1.1	1.5	1.2	e0.39	e0.96	14	21	45	24	5.6	1.8	17
26	1.2	1.5	1.2	e0.40	e0.94	22	16	38	16	4.8	3.4	12
27	1.6	1.6	4.1	e0.35	e2.0	25	11	48	13	4.3	3.4	8.1
28	2.3	1.5	4.1	e0.31	e5.0	38	8.4	36	12	6.0	1.6	5.5
29	3.1	1.4	2.6	e0.28	e11	29	5.6	51	10	10	1.2	4.0
30	4.1	1.7	1.9	e0.26	---	20	4.4	63	12	7.7	1.4	3.3
31	3.2	---	1.4	e0.28	---	14	---	68	---	6.2	1.2	---
TOTAL	124.4	85.99	55.1	12.81	34.06	314.2	348.8	665.91	1,293	568.0	110.8	453.5
MEAN	4.01	2.87	1.78	0.41	1.17	10.1	11.6	21.5	43.1	18.3	3.57	15.1
MAX	18	5.6	4.1	1.2	11	38	41	68	94	52	12	52
MIN	1.0	0.99	1.2	0.26	0.34	4.0	2.2	0.92	10	4.3	1.2	1.2
AC-FT	247	171	109	25	68	623	692	1,320	2,560	1,130	220	900
CFSM	0.14	0.10	0.06	0.01	0.04	0.36	0.41	0.76	1.53	0.65	0.13	0.54
IN.	0.16	0.11	0.07	0.02	0.04	0.41	0.46	0.88	1.71	0.75	0.15	0.60

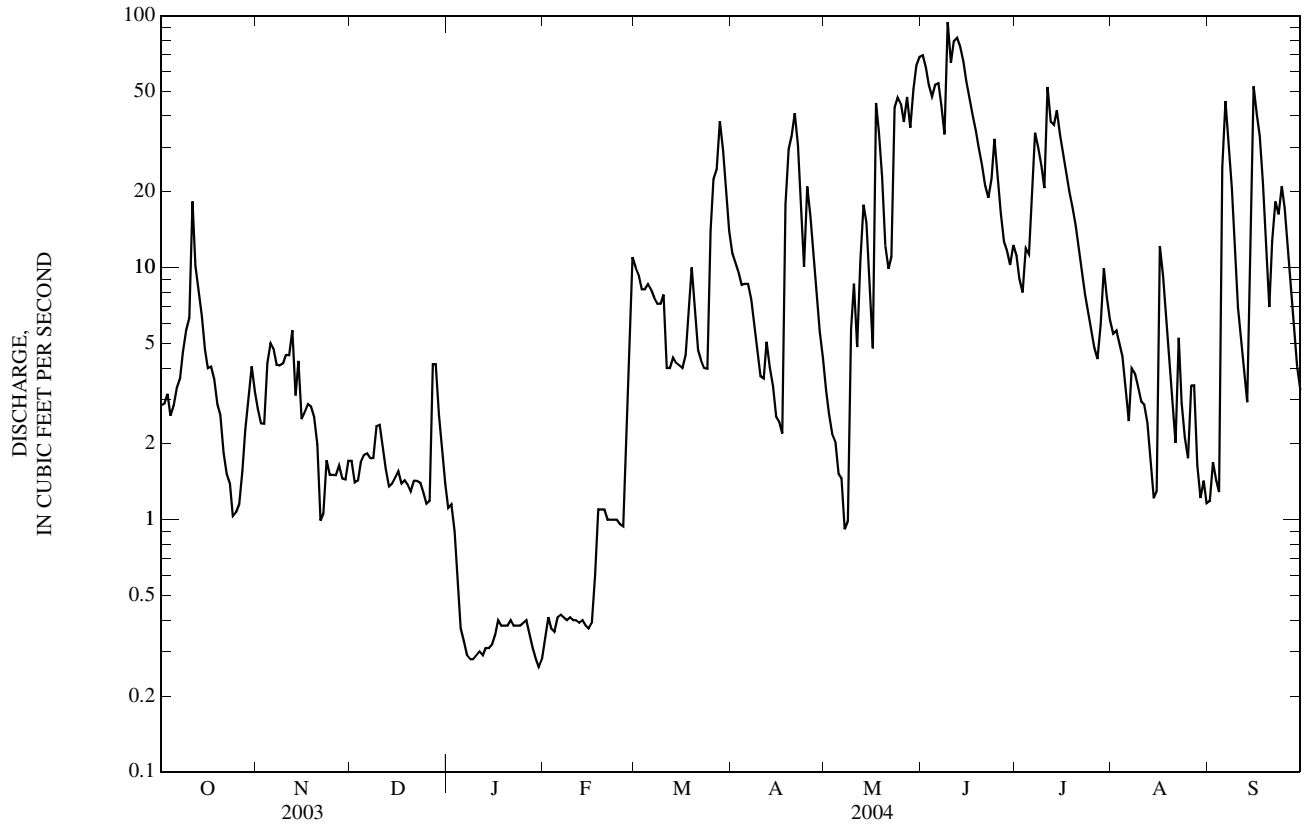
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1996 - 2004, BY WATER YEAR (WY)

MEAN	12.3	11.4	6.15	3.34	5.29	15.6	25.9	32.1	33.6	28.5	19.4	13.2
MAX	33.1	28.2	9.21	7.25	8.03	24.3	32.1	56.6	55.4	58.5	56.2	32.4
(WY)	(2003)	(1997)	(1997)	(1997)	(1998)	(1997)	(1998)	(2002)	(2002)	(2002)	(2002)	(2002)
MIN	4.01	2.87	1.78	0.41	1.17	10.1	11.6	13.3	7.47	7.92	3.57	2.92
(WY)	(2004)	(2004)	(2004)	(2004)	(2004)	(2004)	(2004)	(1997)	(1997)	(1996)	(2004)	(1996)

05288705 SHINGLE CREEK AT QUEEN AVE. IN MINNEAPOLIS, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1996 - 2004	
ANNUAL TOTAL	6,314.19		4,066.57			
ANNUAL MEAN	17.3		11.1		18.3	
HIGHEST ANNUAL MEAN					27.9	2002
LOWEST ANNUAL MEAN					11.1	2004
HIGHEST DAILY MEAN	230	Jun 25	94	Jun 9	230	Jun 25, 2003
LOWEST DAILY MEAN	0.99	Nov 21	a0.26	Jan 30	b0.13	Oct 13, 1996
ANNUAL SEVEN-DAY MINIMUM	1.3	Dec 20	0.29	Jan 7	0.14	Oct 8, 1996
MAXIMUM PEAK FLOW			148	Jun 9	230	Jun 25, 2003
MAXIMUM PEAK STAGE			11.67	Jun 9	14.21	Jun 25, 2003
INSTANTANEOUS LOW FLOW			c0.26	Jan 30	b0.11	Oct 11, 1996
ANNUAL RUNOFF (AC-FT)	12,520		8,070		13,250	
ANNUAL RUNOFF (CFSM)	0.613		0.394		0.648	
ANNUAL RUNOFF (INCHES)	8.33		5.36		8.81	
10 PERCENT EXCEEDS	48		35		50	
50 PERCENT EXCEEDS	7.1		4.1		8.6	
90 PERCENT EXCEEDS	1.7		0.40		2.0	

a Backwater from ice.
b Minimum observed.
c Daily mean, backwater from ice.
e Estimated.



05288705 SHINGLE CREEK AT QUEEN AVE IN MINNEAPOLIS, MN—Continued
(National Water-Quality Assessment Station)

PERIOD OF RECORD.-- Water years 1996 to current year.

PERIOD OF DAILY RECORD:

WATER TEMPERATURES.-- May 1996 to September 1998. February 2004 to current year.

SPECIFIC CONDUCTANCE.-- May 1996 to September 1998. March 2004 to current year.

INSTRUMENTATION.-- Water-quality monitor May 1996 to September 1998, and February 2004 to current year, which provides continuous recordings. Sensor is located at gage.

REVISED RECORDS.--WDR MN-96-1: Specific conductance.

REMARKS.-- Records represent water temperatures at sensor within 0.5 C. Temperature and conductance at the sensor were compared independently with a calibrated meter bi-weekly to monthly. Variation of temperature was within 0.2 C (no correction applied). Variation of conductance was within 9% (no correction applied). Additional water quality data for this site are available at: URL http://water.usgs.gov/mn/nwis/qw.

EXTREMES FOR PERIOD OF DAILY RECORD:

WATER TEMPERATURES.-- Maximum, 29.0 C, July 21, 2004; minimum, 0.0 C on many days most winters.

SPECIFIC CONDUCTANCE.-- Maximum, 4,220 µS/cm, Jan. 31, 1997; minimum, 92 µS/cm, July 11, 1997.

EXTREMES FOR CURRENT YEAR:

WATER TEMPERATURES.-- Maximum, 29.0 C, July 21; minimum, 0.0 C, several days.

SPECIFIC CONDUCTANCE.-- Maximum, 3280 µS/cm, Feb. 15-18; minimum, 218 µS/cm, Sep. 6.

TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	---	---	---	0.0	0.0	0.0	10.5	6.5	8.5	15.0	11.5	13.0
2	---	---	---	0.0	0.0	0.0	11.5	7.0	9.5	14.5	11.5	13.0
3	---	---	---	0.0	0.0	0.0	11.5	8.5	10.0	15.5	10.5	12.5
4	---	---	---	0.0	0.0	0.0	11.0	7.5	9.5	17.0	11.5	13.5
5	---	---	---	0.0	0.0	0.0	11.5	8.0	10.0	17.0	11.5	13.5
6	---	---	---	0.0	0.0	0.0	14.0	10.5	12.0	18.5	14.0	16.0
7	---	---	---	0.0	0.0	0.0	13.5	11.5	12.5	15.5	12.0	14.0
8	---	---	---	0.0	0.0	0.0	14.0	9.5	11.5	18.0	12.5	15.0
9	---	---	---	0.0	0.0	0.0	11.5	8.5	10.0	20.5	14.5	17.0
10	---	---	---	0.5	0.0	0.0	9.0	6.5	8.0	19.5	17.0	18.5
11	---	---	---	0.0	0.0	0.0	9.5	5.0	7.0	20.5	17.0	19.0
12	---	---	---	0.5	0.0	0.0	9.0	5.5	7.5	20.0	18.0	19.5
13	0.5	0.0	0.0	0.0	0.0	0.0	12.5	6.0	8.5	18.0	12.5	14.5
14	0.5	0.0	0.0	0.5	0.0	0.0	15.0	8.5	11.0	13.5	11.0	12.5
15	0.0	0.0	0.0	0.5	0.0	0.0	15.0	10.5	12.5	14.0	12.5	13.5
16	0.0	0.0	0.0	1.0	0.0	0.0	15.5	11.0	13.5	16.0	12.0	14.0
17	---	---	e0.0	1.0	0.0	0.5	17.0	11.5	14.0	16.0	15.0	15.5
18	---	---	e0.0	1.0	0.0	0.5	19.0	13.0	16.0	19.5	13.5	16.5
19	---	---	e0.0	1.5	0.0	0.5	17.5	14.0	15.5	19.5	16.5	18.0
20	---	---	e0.0	2.0	0.0	0.5	16.0	11.5	13.0	20.0	18.5	19.0
21	---	---	e0.0	2.5	0.0	1.0	12.0	9.5	11.0	19.5	16.0	17.5
22	---	---	e0.0	4.0	0.0	1.5	14.0	9.0	11.5	16.0	14.0	15.0
23	---	---	e0.0	6.0	1.0	3.0	15.0	12.5	14.0	14.0	11.5	12.5
24	---	---	e0.0	8.0	3.0	5.0	14.0	12.5	13.0	14.0	10.5	12.0
25	---	---	e0.0	6.0	4.5	5.0	12.5	10.5	11.5	14.5	12.0	13.0
26	---	---	e0.0	9.0	4.5	6.5	12.5	10.5	11.5	17.5	11.5	14.5
27	0.0	0.0	0.0	10.0	9.0	9.5	11.0	9.5	10.5	18.0	15.0	16.5
28	0.0	0.0	0.0	10.5	8.5	10.0	16.5	10.0	13.5	19.5	14.5	17.0
29	0.0	0.0	0.0	8.5	6.0	7.0	16.5	14.5	15.5	19.5	15.0	16.5
30	---	---	---	6.0	4.5	5.5	15.5	13.0	14.0	17.0	14.5	15.5
31	---	---	---	8.0	5.0	6.5	---	---	---	17.5	15.0	16.5
MONTH	0.5	0.0	0.0	10.5	0.0	2.0	19.0	5.0	11.5	20.5	10.5	15.3

05288705 SHINGLE CREEK AT QUEEN AVE IN MINNEAPOLIS, MN—Continued

TEMPERATURE, WATER, DEGREES CELSIUS—CONTINUED
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	16.5	15.5	16.0	25.5	21.5	23.5	25.0	21.5	23.0	23.0	19.5	21.0
2	19.0	14.5	16.5	25.0	22.5	24.0	25.5	22.5	24.0	24.0	21.0	22.5
3	20.5	15.5	18.0	24.5	23.5	24.0	24.5	22.5	23.5	24.0	21.0	22.0
4	22.0	17.0	19.0	25.0	22.5	23.5	24.0	20.5	22.0	23.0	21.5	22.5
5	21.0	18.0	19.5	24.0	22.5	23.0	24.0	19.5	21.5	23.5	22.0	23.0
6	24.0	18.0	21.0	22.5	18.5	20.0	23.5	19.5	21.5	22.5	21.0	22.0
7	26.0	20.5	23.5	20.0	17.0	18.5	23.0	20.5	21.0	21.0	17.5	19.0
8	25.5	22.5	23.5	22.5	17.5	20.0	24.5	20.0	22.0	19.5	17.5	18.0
9	23.0	18.5	19.0	22.5	20.0	21.5	23.5	20.0	21.5	20.5	18.0	19.0
10	19.0	17.0	17.5	24.5	22.0	23.0	20.0	16.5	17.5	21.0	19.0	20.0
11	18.0	16.0	17.0	25.0	22.5	24.0	17.5	15.0	16.0	22.5	19.5	21.0
12	22.0	17.0	19.0	26.0	22.5	24.5	18.5	15.0	16.5	24.0	20.0	21.5
13	23.5	19.5	21.5	26.0	23.5	25.0	18.5	16.0	17.5	23.0	20.0	21.5
14	23.5	20.0	21.5	26.0	22.0	24.0	18.0	16.5	17.5	22.5	21.0	21.5
15	23.5	19.5	21.5	25.5	23.0	24.5	19.5	17.5	18.5	21.5	18.5	20.0
16	22.5	20.0	21.0	25.5	23.5	24.5	21.0	18.0	19.5	19.5	16.0	18.0
17	22.5	18.5	20.5	25.5	23.5	24.5	22.5	19.5	21.0	19.5	17.0	18.5
18	22.0	19.0	20.0	25.0	23.0	24.0	21.5	18.5	20.5	20.0	18.0	19.0
19	19.5	16.5	18.5	25.5	24.0	24.5	20.5	16.5	18.5	22.0	19.0	20.5
20	19.5	17.0	18.5	28.0	24.5	26.0	19.5	16.5	18.0	21.5	19.5	20.5
21	20.5	17.5	19.0	29.0	25.5	27.0	19.5	15.0	17.0	20.5	19.0	20.0
22	21.0	18.0	19.5	28.0	25.0	26.0	23.0	17.5	20.0	21.0	18.5	19.5
23	21.0	19.0	20.0	25.0	22.0	23.5	21.0	17.5	19.5	21.0	19.0	20.0
24	19.5	16.0	18.0	23.5	21.0	22.5	21.0	19.0	20.0	19.0	16.0	17.0
25	19.0	16.5	18.0	24.0	20.5	22.5	22.5	20.0	21.0	17.5	15.0	16.0
26	19.5	17.0	18.0	24.5	20.5	22.5	22.0	20.0	20.5	18.5	16.0	17.5
27	18.5	17.5	18.0	24.5	20.5	22.5	21.5	18.5	20.0	19.0	17.0	18.0
28	21.0	16.5	18.5	22.5	21.0	22.0	20.5	18.0	19.0	18.0	15.5	16.5
29	23.5	18.5	21.0	23.5	21.0	22.5	19.0	17.0	18.0	17.5	14.5	15.5
30	25.0	20.5	22.5	22.5	21.0	21.5	20.5	18.0	19.0	17.5	14.0	15.5
31	---	---	---	23.0	20.0	21.5	21.5	19.0	20.0	---	---	---
MONTH	26.0	14.5	19.5	29.0	17.0	23.2	25.5	15.0	19.8	24.0	14.0	19.6
YEAR	29.0	0.0	14.7									

e Estimated

05288705 SHINGLE CREEK AT QUEEN AVE IN MINNEAPOLIS, MN—Continued

SPECIFIC CONDUCTANCE, WATER, UNFILTERED, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	---	---	---	---	---	---	1,280	1,230	1,260	1,130	1,100	1,110
2	---	---	---	1,500	1,340	1,410	1,280	1,260	1,270	1,130	1,100	1,120
3	---	---	---	1,500	1,360	1,410	1,310	1,260	1,280	1,140	1,100	1,120
4	---	---	---	1,500	1,420	1,450	1,330	1,290	1,310	1,180	1,140	1,160
5	---	---	---	2,180	1,450	1,580	1,360	1,290	1,320	1,190	1,170	1,180
6	---	---	---	2,030	1,560	1,800	1,340	1,290	1,320	1,200	1,180	1,190
7	---	---	---	2,780	1,560	2,150	1,340	1,300	1,320	1,210	1,200	1,200
8	---	---	---	2,650	2,230	2,350	1,320	1,310	1,320	1,220	1,210	1,210
9	---	---	---	2,890	2,400	2,620	1,320	1,290	1,300	1,250	790	1,170
10	---	---	---	3,230	1,750	2,480	1,310	1,290	1,300	1,080	821	957
11	---	---	---	2,090	1,730	1,870	1,300	1,290	1,300	957	678	776
12	---	---	---	2,010	1,830	1,960	1,300	1,270	1,290	844	583	749
13	2,400	2,060	2,280	2,480	1,950	2,170	1,300	1,280	1,290	742	545	647
14	2,480	2,040	2,200	2,790	2,380	2,650	1,300	1,270	1,290	686	577	631
15	>3,280	2,480	---	2,450	2,020	2,140	1,340	1,300	1,320	767	684	731
16	>3,280	>3,280	>3,280	2,420	2,180	2,360	1,400	1,340	1,370	855	767	820
17	>3,280	>3,280	>3,280	2,330	2,010	2,180	1,430	1,400	1,420	843	314	431
18	>3,280	---	---	2,010	1,390	1,720	1,450	638	1,350	558	328	457
19	---	---	---	1,530	1,300	1,430	985	617	807	657	558	614
20	---	---	---	1,480	1,350	1,400	933	676	852	749	657	703
21	---	---	---	1,510	1,480	1,500	898	663	789	764	634	724
22	---	---	---	2,200	1,480	1,840	925	654	802	807	674	737
23	---	---	---	2,110	1,590	1,840	970	924	949	683	321	491
24	---	---	---	1,680	1,400	1,530	1,030	969	997	447	301	355
25	---	---	---	1,410	1,090	1,300	1,030	698	843	522	447	494
26	---	---	---	1,290	874	1,060	838	638	718	592	522	557
27	---	---	---	1,100	875	960	955	838	920	584	423	473
28	---	---	---	1,240	777	1,010	1,040	955	1,010	603	464	541
29	---	---	---	1,150	907	1,050	1,080	1,040	1,070	623	359	483
30	---	---	---	1,170	1,130	1,150	1,100	1,080	1,090	431	346	382
31	---	---	---	1,230	1,170	1,200	---	---	---	454	367	421
MONTH	3,280	2,040	2,760	3,230	777	1,720	1,450	617	1,150	1,250	301	762
		JUNE			JULY			AUGUST			SEPTEMBER	
1	478	452	467	888	795	848	888	814	850	977	931	952
2	532	478	512	965	847	919	924	875	895	1,020	977	999
3	581	531	556	913	840	873	955	924	943	1,030	1,000	1,010
4	618	580	599	962	856	906	1,020	953	971	1,020	988	1,010
5	617	275	557	977	689	812	1,050	1,020	1,030	1,010	218	809
6	542	408	482	692	494	642	1,040	1,020	1,020	401	218	336
7	624	542	587	621	412	497	1,020	923	962	429	330	388
8	684	621	650	527	428	488	1,080	953	1,040	492	428	456
9	680	273	355	590	526	558	1,110	1,080	1,100	555	492	521
10	472	378	434	643	587	616	1,130	1,110	1,120	633	555	594
11	486	256	433	651	316	460	1,170	1,130	1,150	706	633	671
12	437	342	385	416	350	381	1,170	1,150	1,160	742	701	721
13	499	413	464	475	416	449	1,170	1,140	1,150	779	740	756
14	545	499	523	537	472	503	1,140	1,110	1,120	845	640	761
15	616	539	578	601	533	565	1,150	1,110	1,120	817	298	468
16	636	604	623	645	601	622	1,150	578	972	388	298	343
17	667	635	651	669	644	655	960	860	912	442	388	420
18	687	662	673	700	666	681	872	696	746	483	442	462
19	714	679	694	736	699	712	776	698	742	558	483	516
20	743	711	725	772	735	750	803	774	790	629	558	595
21	752	737	744	808	772	788	836	790	811	658	547	625
22	755	722	737	832	808	821	844	627	768	718	444	551
23	777	650	743	874	827	847	888	844	875	514	447	487
24	678	536	592	897	862	875	900	884	890	579	471	532
25	717	620	659	930	897	910	942	899	922	532	450	485
26	784	717	744	953	930	940	952	752	909	617	532	579
27	823	784	799	995	953	975	971	750	927	677	617	649
28	890	823	853	1,010	882	978	946	922	931	732	677	705
29	921	890	908	991	933	969	922	902	910	803	731	769
30	963	677	904	982	696	817	929	877	904	856	795	826
31	---	---	---	814	702	772	931	916	922	---	---	---
MONTH	963	256	621	1,010	316	730	1,170	578	954	1,030	218	633
YEAR	3,280	218	970									

> Actual value is known to be greater than the value shown

05288705 SHINGLE CREEK AT QUEEN AVE IN MINNEAPOLIS, MN—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Time	Sample type	Instantaneous discharge, cfs (00061)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf lab, uS/cm 25 degC (90095)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Alkalinity, wat flt inc tit field, mg/L as CaCO3 (39086)
OCT												
28...	0950	Environmental	1.9	725	7.4	62	7.8	--	1,130	3.5	7.4	257
NOV												
13...	1100	Environmental	4.2	750	11.1	86	7.7	--	948	4.0	4.4	243
DEC												
15...	0940	Environmental	1.4	732	9.2	65	7.5	--	2,100	-2.0	.7	296
JAN												
20...	1000	Environmental	.38	748	12.5	86	7.3	--	2,000	-6.0	.1	336
FEB												
24...	1015	Environmental	1.0	749	5.9	41	7.3	--	4,630	5.0	.3	228
APR												
14...	0950	Environmental	3.3	743	13.8	121	8.2	--	1,300	11.0	9.4	212
14...	0955	Replicate	3.3	--	--	--	--	1,230	--	--	9.4	--
MAY												
17...	1330	Environmental	46	742	6.7	66	7.2	--	360	18.0	15.2	65
JUN												
02...	1130	Environmental	65	743	6.4	65	7.3	--	499	18.0	15.5	115
02...	1135	Spike	--	--	--	--	--	--	--	--	--	--
JUL												
12...	0945	Environmental	39	741	4.2	49	7.2	--	368	24.9	22.7	87
12...	0950	Replicate	39	--	--	--	--	--	--	--	--	--
AUG												
17...	0845	Plant Material	--	--	--	--	--	--	--	--	--	--
25...	1020	Environmental	2.0	739	3.9	43	7.5	--	937	23.0	19.8	177
SEP												
27...	1130	Environmental	--	744	5.8	63	7.5	--	642	20.5	18.2	--
27...	1300	Bed material	--	--	--	--	--	--	--	--	--	--
28...	1035	Environmental	5.5	752	5.1	51	7.4	--	703	--	15.6	148

Date	Bicarbonate, wat flt incrm. titr., field, mg/L (00453)	Carbonate, wat flt incrm. titr., field, mg/L (00452)	Chloride, water, fltrd, mg/L (00940)	Sulfate water, fltrd, mg/L (00945)	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Orthophosphate, water, fltrd, mg/L as P (00671)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, wat unf by analysis, mg/L (62855)	Biomass periphyton, ashfree drymass g/m2 (49954)	Periphyton biomass ash weight, g/m2 (00572)	Periphyton biomass dry weight, g/m2 (00573)
OCT													
28...	314	.0	173	67.4	.04	.17	.010	<.006	.050	.68	--	--	--
NOV													
13...	297	.0	165	52.5	.19	.26	.030	<.006	.099	1.14	--	--	--
DEC													
15...	361	.0	452	102	.40	.47	.025	E.003	.066	1.56	--	--	--
JAN													
20...	409	.0	359	104	1.02	.58	.020	<.006	.061	2.14	--	--	--
FEB													
24...	279	.0	1,320	36.1	1.24	.63	.090	.040	.18	3.12	--	--	--
APR													
14...	247	6	213	128	<.04	<.06	E.004	<.006	.077	.77	--	--	--
14...	--	--	212	128	<.04	<.06	E.005	<.006	.097	.69	--	--	--
MAY													
17...	79	.0	57.8	14.8	.38	.37	.029	.007	.183	1.70	--	--	--
JUN													
02...	140	.0	73.1	17.1	<.04	.15	.019	.023	.110	1.01	--	--	--
02...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
12...	106	.0	49.2	13.5	.13	.17	.024	.030	.127	1.01	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--	--	--
AUG													
17...	--	--	--	--	--	--	--	--	--	--	14.6	120	132.1
25...	216	.0	147	56.7	.08	.06	.011	.011	.098	.79	--	--	--
SEP													
27...	--	--	--	36.4	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--	--	--
28...	181	.0	101	41.5	.12	.20	.049	.015	.095	.99	--	--	--

05288705 SHINGLE CREEK AT QUEEN AVE IN MINNEAPOLIS, MN—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Pheophytin a, periphyton, mg/m2 (62359)	Chlorophyll a periphyton, chromofluoro, mg/m2 (70957)	2,6-Diethylaniline water fltrd 0.7u GF ug/L (82660)	CIAT, water, fltrd, ug/L (04040)	Acetochlor, water, fltrd, ug/L (49260)	Alachlor, water, fltrd, ug/L (46342)	alpha-HCH, water, fltrd, ug/L (34253)	alpha-HCH-d6, surrog, wat flt 0.7u GF percent recovry (91065)	Atrazine, water, fltrd, ug/L (39632)	Azinphosmethyl, water, fltrd 0.7u GF ug/L (82686)	Benfluralin, water, fltrd 0.7u GF ug/L (82673)	Butylate, water, fltrd, ug/L (04028)	Carbaryl, water, fltrd 0.7u GF ug/L (82680)
OCT													
28...	--	--	<.006	<.006	<.006	<.005	<.005	92.7	<.007	<.050	<.010	<.004	<.041
NOV													
13...	--	--	--	--	--	--	--	--	--	--	--	--	--
DEC													
15...	--	--	<.006	<.006	<.006	<.005	<.005	104	E.005	<.050	<.010	<.004	<.041
JAN													
20...	--	--	<.006	<.006	<.006	<.005	<.005	97.1	<.007	<.050	<.010	<.004	<.041
FEB													
24...	--	--	--	--	--	--	--	--	--	--	--	--	--
APR													
14...	--	--	<.006	<.006	<.006	<.005	<.005	106	E.006	<.050	<.010	<.004	<.041
14...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
17...	--	--	<.006	E.063	.849	.045	<.005	102	.468	<.050	<.010	<.004	E.194
JUN													
02...	--	--	<.006	E.013	.086	<.005	<.005	88.9	.197	<.050	<.010	<.004	<.041
02...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
12...	--	--	<.006	E.014	.007	<.005	<.005	80.4	.094	<.050	<.010	<.004	E.050
12...	--	--	<.006	E.014	.007	<.005	<.005	92.3	.093	<.050	<.010	<.004	E.066
AUG													
17...	2.8	1.7	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	<.006	E.009	<.006	<.005	<.005	99.9	.025	<.050	<.010	<.004	E.013
SEP													
27...	--	--	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	<.006	<.006	<.006	<.005	<.005	88.0	.016	<.050	<.010	<.004	<.041

Date	Carbofuran, water, fltrd 0.7u GF ug/L (82674)	Chlorpyrifos water, fltrd, ug/L (38933)	cis-Permethrin water fltrd 0.7u GF ug/L (82687)	Cyanazine, water, fltrd, ug/L (04041)	DCPA, water fltrd 0.7u GF ug/L (82682)	Desulfinyl fipronil, water, fltrd, ug/L (62170)	Diazinon, water, fltrd, ug/L (39572)	Diazinon-d10 surrog. wat flt 0.7u GF percent recovry (91063)	Dieldrin, water, fltrd, ug/L (39381)	Disulfoton, water, fltrd 0.7u GF ug/L (82677)	EPTC, water, fltrd 0.7u GF ug/L (82668)	Ethalfluralin, water, fltrd 0.7u GF ug/L (82663)	Ethoprop, water, fltrd 0.7u GF ug/L (82672)
OCT													
28...	<.020	<.005	<.006	<.018	<.003	<.012	.006	105	<.009	<.02	<.020	<.009	<.005
NOV													
13...	--	--	--	--	--	--	--	--	--	--	--	--	--
DEC													
15...	<.020	<.005	<.006	<.018	<.003	<.012	<.005	125	<.009	<.02	<.004	<.009	<.005
JAN													
20...	<.020	<.005	<.006	<.018	<.003	<.012	<.005	109	<.009	<.02	<.004	<.009	<.005
FEB													
24...	--	--	--	--	--	--	--	--	--	--	--	--	--
APR													
14...	<.020	<.005	<.006	<.018	<.003	<.012	<.005	123	<.009	<.02	<.004	<.009	<.005
14...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
17...	<.020	<.005	<.006	<.018	.003	<.012	.107	126	<.009	<.02	<.030	<.009	<.005
JUN													
02...	<.020	<.005	<.006	<.018	<.003	<.012	.017	107	<.009	<.02	<.004	<.009	<.005
02...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
12...	<.020	<.005	<.006	<.018	<.003	<.012	.034	99.6	<.009	<.02	<.004	<.009	<.005
12...	<.020	<.005	<.006	<.018	<.003	<.012	.034	111	<.009	<.02	<.004	<.009	<.005
AUG													
17...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	<.020	<.005	<.006	<.018	<.003	<.012	.018	112	<.009	<.02	<.004	<.009	<.005
SEP													
27...	--	--	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--	--	--
28...	<.020	<.005	<.006	<.018	<.003	<.012	<.005	103	<.009	<.02	<.004	<.009	<.005

05288705 SHINGLE CREEK AT QUEEN AVE IN MINNEAPOLIS, MN—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Desulfinyl-fipronil amide, wat flt ug/L (62169)	Fipronil sulfide water, fltrd, ug/L (62167)	Fipronil sulfone water, fltrd, ug/L (62168)	Fipronil, water, fltrd, ug/L (62166)	Fonofos water, fltrd, ug/L (04095)	Lindane water, fltrd, ug/L (39341)	Linuron water fltrd 0.7u GF ug/L (82666)	Malathion, water, fltrd, ug/L (39532)	Methyl parathion, water, fltrd 0.7u GF ug/L (82667)	Metolachlor, water, fltrd, ug/L (39415)	Metribuzin, water, fltrd, ug/L (82630)	Molinate, water, fltrd 0.7u GF ug/L (82671)	Napropamide, water, fltrd 0.7u GF ug/L (82684)
OCT													
28...	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	<.013	<.006	<.003	<.007
NOV													
13...	--	--	--	--	--	--	--	--	--	--	--	--	--
DEC													
15...	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	E.006	<.006	<.003	<.007
JAN													
20...	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	<.013	<.006	<.003	<.007
FEB													
24...	--	--	--	--	--	--	--	--	--	--	--	--	--
APR													
14...	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	E.005	<.006	<.003	<.007
14...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
17...	<.029	<.013	<.024	<.016	<.003	<.004	<.035	.040	<.015	.167	<.006	<.003	<.007
JUN													
02...	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.041	<.006	<.003	<.007
02...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
12...	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	E.009	<.006	<.003	<.007
12...	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	E.010	<.006	<.003	<.007
AUG													
17...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.041	<.006	<.003	<.007
SEP													
27...	--	--	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--	--	--
28...	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.016	<.006	<.003	<.007

Date	p,p-' DDE, water, fltrd, ug/L (34653)	Parathion, water, fltrd, ug/L (39542)	Pebulate, water, fltrd 0.7u GF ug/L (82669)	Pendimethalin, water, fltrd 0.7u GF ug/L (82683)	Phorate water fltrd 0.7u GF ug/L (82664)	Prometon, water, fltrd, ug/L (04037)	Propyzamide, water, fltrd 0.7u GF ug/L (82676)	Propachlor, water, fltrd, ug/L (04024)	Propanil, water, fltrd 0.7u GF ug/L (82679)	Propargite, water, fltrd 0.7u GF ug/L (82685)	Simazine, water, fltrd, ug/L (04035)	Tebuthiuron water fltrd 0.7u GF ug/L (82670)	Terbacil, water, fltrd 0.7u GF ug/L (82665)
OCT													
28...	<.003	<.010	<.004	<.022	<.011	.02	<.004	<.025	<.011	<.02	<.005	.04	<.034
NOV													
13...	--	--	--	--	--	--	--	--	--	--	--	--	--
DEC													
15...	<.003	<.010	<.004	<.022	<.011	.03	<.004	<.025	<.011	<.02	<.005	E.02	<.034
JAN													
20...	<.003	<.010	<.004	<.022	<.011	.04	<.004	<.025	<.011	<.05	<.005	E.06	<.034
FEB													
24...	--	--	--	--	--	--	--	--	--	--	--	--	--
APR													
14...	<.003	<.010	<.004	<.022	<.011	.02	<.004	<.025	<.011	<.02	<.005	<.02	<.034
14...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
17...	<.003	<.010	<.004	E.021	<.011	.01	<.004	<.025	<.011	<.02	<.005	<.02	<.034
JUN													
02...	<.003	<.010	<.004	<.022	<.011	.02	<.004	<.025	<.011	<.02	<.005	<.02	<.034
02...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
12...	<.003	<.010	<.004	<.022	<.011	.06	<.004	<.025	<.011	<.02	<.005	<.02	<.034
12...	<.003	<.010	<.004	<.022	<.011	.06	<.004	<.025	<.011	<.02	<.005	<.02	<.034
AUG													
17...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	<.003	<.010	<.004	<.022	<.011	.07	<.004	<.025	<.011	<.02	<.010	.02	<.034
SEP													
27...	--	--	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--	--	--
28...	<.003	<.010	<.004	<.022	<.011	.02	<.004	<.025	<.011	<.02	<.005	<.02	<.034

05288705 SHINGLE CREEK AT QUEEN AVE IN MINNEAPOLIS, MN—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Terbufos, water, fltrd 0.7u GF ug/L (82675)	Thiobencarb water fltrd 0.7u GF ug/L (82681)	Triallate, water, fltrd 0.7u GF ug/L (82678)	Trifluralin, water, fltrd 0.7u GF ug/L (82661)	Suspended sediment concentration mg/L (80154)
OCT					
28...	<.02	<.010	<.002	<.009	151
NOV					
13...	--	--	--	--	128
DEC					
15...	<.02	<.010	<.002	<.009	88
JAN					
20...	<.02	<.010	<.002	<.009	217
FEB					
24...	--	--	--	--	14
APR					
14...	<.02	<.010	<.002	<.009	45
14...	--	--	--	--	--
MAY					
17...	<.02	<.010	<.002	<.009	--
JUN					
02...	<.02	<.010	<.002	<.009	18
02...	--	--	--	--	--
JUL					
12...	<.02	<.010	<.002	<.009	9
12...	<.02	<.010	<.002	<.009	--
AUG					
17...	--	--	--	--	--
25...	<.02	<.010	<.002	<.009	26
SEP					
27...	--	--	--	--	--
27...	--	--	--	--	--
28...	<.02	<.010	<.002	<.009	10

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05291000 WHETSTONE RIVER NEAR BIG STONE CITY, SD

LOCATION.--Lat 45°17'30", long 96°29'14", in SE¼NW¼ sec. 18, T.121 N., R.46 W., Grant County, Hydrologic Unit 07020001, on right bank 20 ft downstream from former highway bridge site, 1.5 mi west of Big Stone City, S.D., and 4.5 mi upstream from Big Stone Lake.

DRAINAGE AREA.--398 mi^2.

PERIOD OF RECORD.--March 1910 to November 1912 (no winter records), and March 1931 to current year. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 895: Drainage area. WSP 1308: 1932(M), 1935(M).

GAGE.--Water-stage recorder. Datum of gage is 996.96 ft in sea level (NGVD of 1912). Mar. 8, 1910 to Nov. 30, 1912, nonrecording gage 2 mi downstream at different datum. Mar. 18, 1931 to May 3, 1939, nonrecording gage, at site 20 ft upstream at present datum. May 4, 1939 to Nov. 8, 1952, water-stage recorder at site 80 ft down-stream at present datum.

REMARKS.--Records good except those for estimated daily discharges, which are fair to poor.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known, about 26 ft in June 1919, present site and datum, from information by local resident, discharge 29,000 ft^3/s, from dam break.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 230 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)
June 2	1700	*58	1.99

Date	Time	Discharge (ft^3/s)	Gage height (ft)
No peaks greater than base discharge.			

Minimum discharge, 1.7 ft^3/s, Feb. 17 (estimated daily-mean).

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.9	e4.1	e6.8	e4.0	e2.1	e21	24	14	48	5.5	7.7	3.2
2	e2.7	e4.1	e6.9	e3.9	e2.1	e24	21	13	57	4.7	6.1	3.0
3	e2.6	e4.0	e7.0	e3.7	e2.1	e22	18	13	52	4.9	4.9	2.8
4	e2.5	e4.1	e7.5	e3.6	e2.0	e30	17	12	46	8.3	4.4	2.6
5	e2.2	e4.2	e7.6	e3.3	e1.9	e32	15	12	38	7.3	4.1	3.2
6	e2.0	e4.2	e7.4	e3.3	e1.8	e24	15	11	32	9.1	3.9	3.7
7	e2.0	e4.2	e7.3	e3.2	e1.8	e24	13	10	26	10	3.5	3.3
8	e2.1	e4.3	e7.2	e3.1	e1.9	e27	12	10	24	13	3.0	4.6
9	e2.2	e4.4	e6.9	e2.9	e1.9	e25	11	9.8	25	10	4.0	4.4
10	e2.3	e4.4	e6.1	e2.9	e1.9	e25	11	8.8	29	16	3.9	4.6
11	e2.4	e4.8	e5.1	e2.9	e1.8	e26	10	9.6	27	19	4.0	5.5
12	e3.2	e5.4	e4.4	e2.7	e1.8	e26	10	15	34	16	3.6	5.2
13	e3.4	e6.0	e4.1	e2.7	e1.9	e27	9.7	17	30	14	2.5	3.8
14	e3.5	6.3	e4.1	e2.7	e1.9	e25	9.0	21	34	12	2.3	3.1
15	e3.9	6.7	e4.1	e2.7	e1.9	e24	8.9	21	33	10	2.9	6.4
16	e4.4	7.0	e4.4	e2.7	e1.8	e22	8.9	19	28	8.8	3.4	5.2
17	e4.5	6.8	e4.5	e2.7	e1.7	e22	8.6	18	25	7.4	3.3	9.4
18	e4.4	7.1	e4.5	e2.7	e1.8	e22	8.8	15	21	6.3	2.8	13
19	e4.2	6.9	e4.4	e2.6	e1.8	e23	9.9	17	18	5.7	2.4	8.1
20	e3.9	6.6	e4.3	e2.6	e2.1	e25	12	17	15	5.6	2.0	8.9
21	e3.6	6.8	e4.2	e2.6	e2.8	e27	22	16	14	4.9	2.2	13
22	e3.3	6.8	e4.2	e2.6	e4.1	e29	28	14	12	4.0	2.7	17
23	e3.0	6.6	e4.3	e2.4	e5.8	e27	33	13	10	3.9	2.3	33
24	e3.0	e6.4	e4.2	e2.4	e4.4	e26	31	12	9.0	4.3	2.3	27
25	e3.0	e6.5	e4.1	e2.3	e3.7	26	26	12	8.3	3.9	2.8	34
26	e3.0	e6.6	e4.1	e2.2	e3.6	24	22	12	7.5	4.0	4.7	33
27	e3.5	e6.3	e4.3	e2.3	e8.9	24	20	21	7.3	3.2	3.5	26
28	e3.9	e6.4	e4.3	e2.1	e9.7	27	18	21	7.5	4.1	4.3	23
29	e4.1	e6.6	e4.2	e2.1	e14	28	16	18	7.4	4.9	3.3	19
30	e4.2	e6.5	e4.1	e2.1	---	32	14	34	6.4	10	3.0	14
31	e4.1	---	e4.0	e2.1	---	29	---	40	---	7.8	3.8	---
TOTAL	100.0	171.1	160.6	86.1	95.0	795	482.8	496.2	731.4	248.6	109.6	343.0
MEAN	3.23	5.70	5.18	2.78	3.28	25.6	16.1	16.0	24.4	8.02	3.54	11.4
MAX	4.5	7.1	7.6	4.0	14	32	33	40	57	19	7.7	34
MIN	2.0	4.0	4.0	2.1	1.7	21	8.6	8.8	6.4	3.2	2.0	2.6
AC-FT	198	339	319	171	188	1,580	958	984	1,450	493	217	680
CFSM	0.01	0.01	0.01	0.01	0.01	0.06	0.04	0.04	0.06	0.02	0.01	0.03
IN.	0.01	0.02	0.02	0.01	0.01	0.07	0.05	0.05	0.07	0.02	0.01	0.03

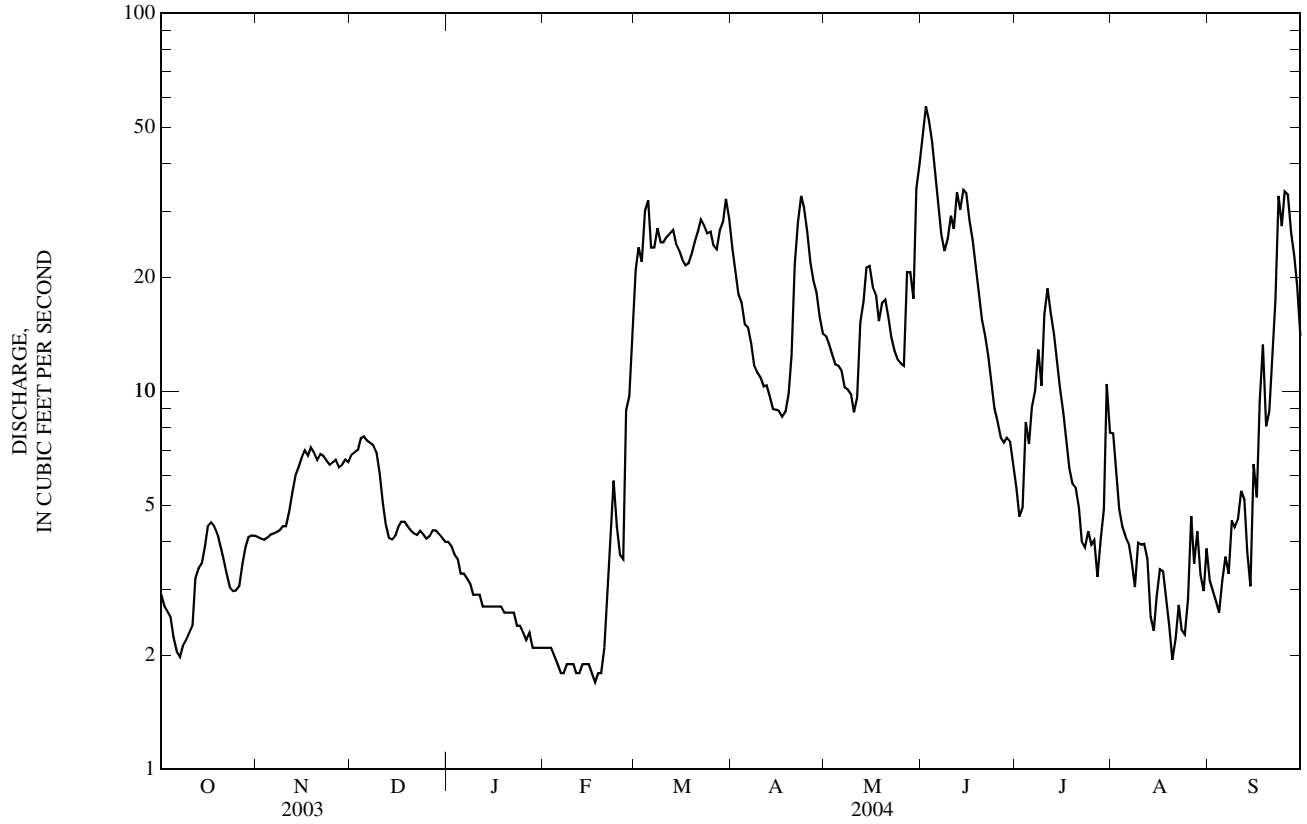
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1910 - 2004, BY WATER YEAR (WY)

MEAN	14.5	14.6	9.94	6.58	15.1	153	219	91.9	78.0	56.2	19.2	10.4
MAX	280	122	56.0	36.3	168	612	1,677	491	478	885	327	77.0
(WY)	(1996)	(1996)	(1999)	(1994)	(1998)	(1978)	(1997)	(1972)	(1984)	(1993)	(1991)	(1995)
MIN	0.60	0.40	0.20	0.00	0.00	2.85	3.63	0.77	1.42	0.04	0.00	0.36
(WY)	(1932)	(1935)	(1935)	(1934)	(1934)	(1969)	(1934)	(1934)	(1936)	(1934)	(1934)	(1935)

05291000 WHETSTONE RIVER NEAR BIG STONE CITY, SD—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1910 - 2004	
ANNUAL TOTAL	6,767.4		3,819.4			
ANNUAL MEAN	18.5		10.4		a59.0	
HIGHEST ANNUAL MEAN					232	1997
LOWEST ANNUAL MEAN					1.52	1934
HIGHEST DAILY MEAN	325	Mar 17	57	Jun 2	8,090	Apr 8, 2001
LOWEST DAILY MEAN	1.6	Sep 9	1.7	Feb 17	b0.00	Sep 13, 1931
ANNUAL SEVEN-DAY MINIMUM	1.8	Sep 7	1.8	Feb 11	0.00	Jul 31, 1933
MAXIMUM PEAK FLOW			c58	Jun 2	9,930	Apr 8, 2001
MAXIMUM PEAK STAGE			d2.70	Mar 4	15.93	Apr 8, 2001
INSTANTANEOUS LOW FLOW			f1.7	Feb 17	b0.00	Sep 13, 1931
ANNUAL RUNOFF (AC-FT)	13,420		7,580		42,720	
ANNUAL RUNOFF (CFSM)	0.047		0.026		0.148	
ANNUAL RUNOFF (INCHES)	0.63		0.36		2.01	
10 PERCENT EXCEEDS	43		26		109	
50 PERCENT EXCEEDS	6.6		6.3		8.9	
90 PERCENT EXCEEDS	2.5		2.3		1.5	

a Median of annual mean discharges is 42 ft^3/s.
b Many days, several years.
c Stage, 1.99 ft
d Backwater from ice.
e Estimated.
f Mininmum daily, backwater from ice.



05292000 MINNESOTA RIVER AT ORTONVILLE, MN

LOCATION.--Lat 45°17'44", long 96°26'38", in NE¼NW¼ sec. 16, T.121 N., R.46 W., Big Stone County, Hydrologic Unit 07020001, on left bank 400 ft downstream from bridge on U.S. Highway 12 and 1,300 ft downstream from dam at outlet of Big Stone Lake, at Ortonville.

DRAINAGE AREA.--1,160 mi^2 (approximately).

PERIOD OF RECORD.--February 1938 to current year.

REVISED RECORDS.--WSP 895: 1939. WSP 1508: 1942 (yearly mean).

GAGE.--Water-stage recorder. Datum of gage is 956.38 ft above sea level (NGVD of 1929). Prior to Mar. 31, 1939, nonrecording gage on downstream side of dam 1,300 ft upstream at datum 1.31 ft higher.

REMARKS.--Records good. Affected by regulation of Big Stone Lake.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	11	4.8	13	14	15	5.6	7.8	20	13	15	12
2	17	10	4.7	13	14	15	5.6	7.7	54	12	15	12
3	17	9.3	4.7	13	14	15	5.3	7.6	53	11	15	12
4	17	9.6	4.7	14	14	15	4.7	7.7	50	9.6	15	13
5	17	11	4.5	14	14	15	4.4	7.9	45	7.7	15	14
6	17	9.6	3.7	13	13	15	4.5	7.7	39	33	15	14
7	17	9.3	3.4	14	13	14	4.5	7.7	120	66	15	13
8	15	8.9	3.8	14	13	14	3.4	7.4	258	60	15	12
9	15	5.8	4.0	13	13	14	2.9	7.5	256	47	15	12
10	13	5.2	4.4	13	13	14	2.7	7.3	172	24	15	12
11	16	5.6	4.5	16	13	14	2.5	6.9	172	24	15	13
12	16	5.8	4.4	16	12	14	2.4	9.1	218	24	14	12
13	16	6.0	4.7	18	12	14	2.4	6.3	219	24	14	12
14	15	7.0	5.7	18	13	14	2.4	5.8	168	24	14	12
15	15	5.5	e7.5	18	13	14	2.3	5.6	121	24	14	15
16	14	4.8	7.6	18	12	14	2.3	5.9	123	24	15	13
17	13	5.2	7.1	17	12	13	2.1	6.2	127	24	15	14
18	13	5.3	7.0	17	13	11	2.2	5.6	124	24	14	13
19	13	5.1	7.3	18	14	10	2.0	5.4	86	19	14	12
20	13	5.6	7.2	17	15	10	2.0	5.2	51	14	13	14
21	13	5.1	7.3	17	16	10	3.3	5.0	52	14	13	13
22	12	5.2	7.8	17	16	10	2.0	4.7	52	13	14	16
23	13	e5.0	9.1	16	15	10	1.7	4.5	53	12	13	43
24	13	e5.2	8.7	16	15	10	1.7	5.0	53	12	12	53
25	14	5.6	e8.7	16	15	11	1.9	4.8	52	12	11	48
26	12	5.6	e9.0	16	16	10	9.4	4.3	51	12	11	47
27	10	5.4	9.1	16	15	9.4	38	4.3	53	12	11	48
28	14	5.3	11	15	15	8.9	8.1	4.4	36	13	11	47
29	11	5.3	13	15	15	7.9	7.9	4.5	16	13	11	45
30	10	5.2	14	15	---	6.6	7.7	6.8	13	14	11	45
31	12	---	14	15	---	5.8	---	4.8	---	14	12	---
TOTAL	440	198.5	217.4	481	402	373.6	147.9	191.4	2,907	649.3	422	661
MEAN	14.2	6.62	7.01	15.5	13.9	12.1	4.93	6.17	96.9	20.9	13.6	22.0
MAX	17	11	14	18	16	15	38	9.1	258	66	15	53
MIN	10	4.8	3.4	13	12	5.8	1.7	4.3	13	7.7	11	12
AC-FT	873	394	431	954	797	741	293	380	5,770	1,290	837	1,310
CFSM	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.01	0.08	0.02	0.01	0.02
IN.	0.01	0.01	0.01	0.02	0.01	0.01	0.00	0.01	0.09	0.02	0.01	0.02

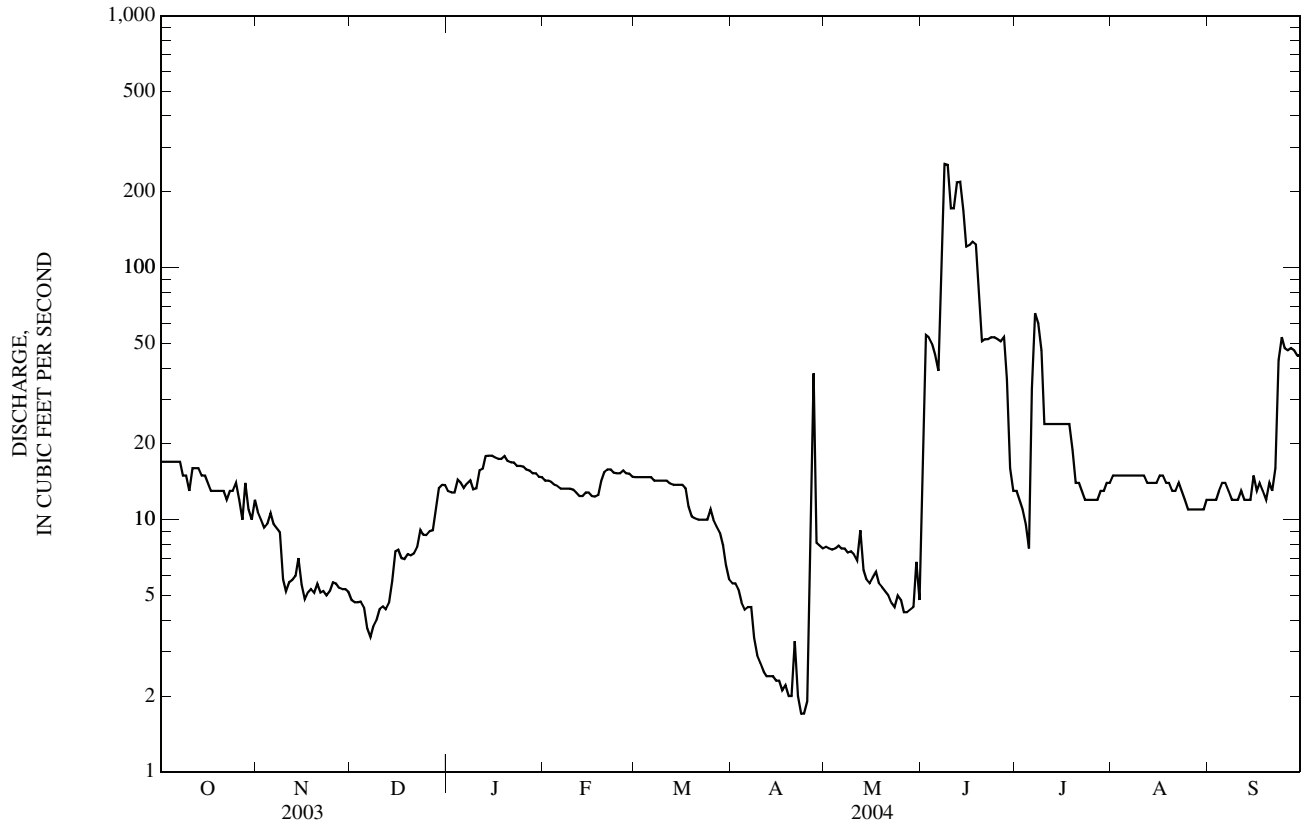
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1938 - 2004, BY WATER YEAR (WY)

MEAN	31.2	24.3	22.6	22.5	34.0	196	513	272	187	151	73.1	34.2
MAX	441	269	194	164	273	1,519	4,109	904	1,034	1,781	1,299	250
(WY)	(1996)	(1996)	(1943)	(1943)	(1998)	(1994)	(1997)	(2001)	(1962)	(1993)	(1993)	(1942)
MIN	0.20	0.20	0.20	0.17	0.16	1.14	1.27	0.91	1.30	1.11	0.25	0.18
(WY)	(1939)	(1939)	(1939)	(1940)	(1940)	(1941)	(1941)	(1941)	(1977)	(1977)	(1959)	(1988)

05292000 MINNESOTA RIVER AT ORTONVILLE, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1938 - 2004	
ANNUAL TOTAL	21,494.9		7,091.1			
ANNUAL MEAN	58.9		19.4		a131	
HIGHEST ANNUAL MEAN					514	1997
LOWEST ANNUAL MEAN					2.39	1977
HIGHEST DAILY MEAN	921	Jun 26	258	Jun 8	5,010	Apr 10, 1997
LOWEST DAILY MEAN	3.4	Dec 7	1.7	Apr 23,24	0.00	Dec 13, 1940
ANNUAL SEVEN-DAY MINIMUM	4.0	Dec 6	2.1	Apr 19	0.08	Sep 12, 1988
MAXIMUM PEAK FLOW			b394	Jun 17	5,070	Apr 10, 1997
MAXIMUM PEAK STAGE			3.47	Jun 17	12.92	Apr 13, 1952
INSTANTANEOUS LOW FLOW			c1.6	Apr 20	0.00	Dec 13, 1940
ANNUAL RUNOFF (AC-FT)	42,640		14,070		95,180	
ANNUAL RUNOFF (CFSM)	0.051		0.017		0.113	
ANNUAL RUNOFF (INCHES)	0.69		0.23		1.54	
10 PERCENT EXCEEDS	98		40		340	
50 PERCENT EXCEEDS	29		13		22	
90 PERCENT EXCEEDS	7.0		4.7		1.2	

a Median of annual mean discharges is 86 ft^3/s.
b Due in part to regulation.
c Due to regulation.
e Estimated.



05293000 YELLOW BANK RIVER NEAR ODESSA, MN

LOCATION.--Lat 45°13'37", long 96°21'12", in SW¼SW¼ sec. 6, T. 120 N., R. 45 W., Lac qui Parle County, Hydrologic Unit 07020001, on left bank 1,200 ft upstream from highway bridge, 2.5 mi southwest of Odessa, and 4.5 mi upstream from mouth.

DRAINAGE AREA.--459 mi^2.

PERIOD OF RECORD.--October 1939 to September 1999, October 1999 to March 2001 (peak flow only), April 2001 to current year.

REVISED RECORDS.--WSP 1388: 1947(M), 1950. WDR MN-95-1: Sept. 5 (Q). WRIR 97-4249: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 953.34 ft above sea level (U.S. Army Corps of Engineers benchmark, NGVD of 1929). Prior to Aug. 28, 1940, nonrecording gage at site 150 ft upstream at same datum.

REMARKS.--Records good except those for estimated daily discharges, which are fair to poor.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 300 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
June 14	1000	*98	*2.65	No peaks greater than base discharge.			

Minimum discharge, 1.1 ft^3/s, Feb. 10 (estimated daily-mean, backwater from ice).

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.8	6.6	e2.8	e2.2	e1.3	e40	34	12	27	9.6	4.6	4.3
2	1.9	5.6	e2.9	e2.2	e1.3	e42	30	11	39	9.7	4.1	4.1
3	2.1	4.8	e2.9	e2.0	e1.2	e43	26	10	43	12	4.1	2.9
4	2.1	5.3	e3.0	e1.8	e1.2	e42	23	9.2	40	11	3.5	2.2
5	2.0	4.8	e3.0	e1.7	e1.2	e39	21	9.5	36	18	3.7	2.7
6	1.9	4.8	e3.1	e1.6	e1.2	e37	19	8.4	34	27	3.6	3.3
7	2.0	4.7	e3.2	e1.5	e1.2	e36	17	8.6	28	28	4.3	2.8
8	2.4	4.4	e3.2	e1.5	e1.2	e35	15	9.0	30	30	3.8	3.0
9	2.6	4.5	e3.0	e1.5	e1.2	e37	14	7.8	51	28	3.2	3.0
10	2.7	4.6	e2.6	e1.5	e1.1	e40	13	6.5	68	26	3.3	2.4
11	3.0	4.0	e2.2	e1.6	e1.1	e38	13	6.5	74	25	3.4	3.2
12	3.7	3.6	e2.0	e1.6	e1.1	e47	13	8.5	87	22	3.4	3.0
13	3.8	3.6	e2.0	e1.6	e1.1	e52	12	8.0	94	20	3.3	2.6
14	4.1	3.6	e2.0	e1.6	e1.1	e58	12	7.0	95	18	3.3	2.4
15	4.3	3.7	e2.1	e1.6	e1.1	e66	11	6.6	86	16	3.0	3.7
16	4.4	3.7	e2.3	e1.5	e1.1	e62	11	6.8	73	14	4.9	3.9
17	4.6	3.8	e2.5	e1.5	e1.2	e56	10	8.5	62	12	2.9	5.3
18	4.5	3.7	e2.5	e1.4	e1.3	e59	10	8.7	50	11	2.2	4.9
19	4.7	3.6	e2.6	e1.4	e1.4	e50	10	9.6	41	9.2	2.2	4.3
20	5.0	3.3	e2.6	e1.4	e1.7	e45	11	9.8	34	8.2	2.4	5.0
21	5.9	3.2	e2.6	e1.4	e2.0	e45	15	9.0	29	7.2	2.2	6.6
22	6.0	3.2	e2.6	e1.4	e2.4	e53	15	9.2	25	6.4	2.5	8.2
23	6.2	2.5	e2.5	e1.4	e3.1	e50	15	9.8	21	5.7	2.0	14
24	5.9	e2.6	e2.4	e1.4	e4.3	51	20	11	18	4.9	2.2	26
25	5.2	e2.8	e2.4	e1.4	e7.5	56	21	11	16	4.4	2.1	36
26	5.2	e2.6	e2.4	e1.3	e9.9	49	19	12	14	3.9	2.4	44
27	5.4	e2.6	e2.4	e1.3	e18	46	18	14	14	3.5	2.1	38
28	5.4	e2.6	e2.3	e1.3	e31	47	16	15	13	5.3	2.2	33
29	5.8	e2.7	e2.3	e1.3	e38	43	14	13	11	5.0	2.5	27
30	5.9	e2.8	e2.3	e1.3	---	40	12	17	10	6.0	2.4	25
31	5.7	---	e2.3	e1.3	---	38	---	20	---	5.5	2.9	---
TOTAL	126.2	114.3	79.0	47.5	140.5	1,442	490	313.0	1,263	412.5	94.7	326.8
MEAN	4.07	3.81	2.55	1.53	4.84	46.5	16.3	10.1	42.1	13.3	3.05	10.9
MAX	6.2	6.6	3.2	2.2	38	66	34	20	95	30	4.9	44
MIN	1.8	2.5	2.0	1.3	1.1	35	10	6.5	10	3.5	2.0	2.2
AC-FT	250	227	157	94	279	2,860	972	621	2,510	818	188	648
CFSM	0.01	0.01	0.01	0.00	0.01	0.10	0.04	0.02	0.09	0.03	0.01	0.02
IN.	0.01	0.01	0.01	0.00	0.01	0.12	0.04	0.03	0.10	0.03	0.01	0.03

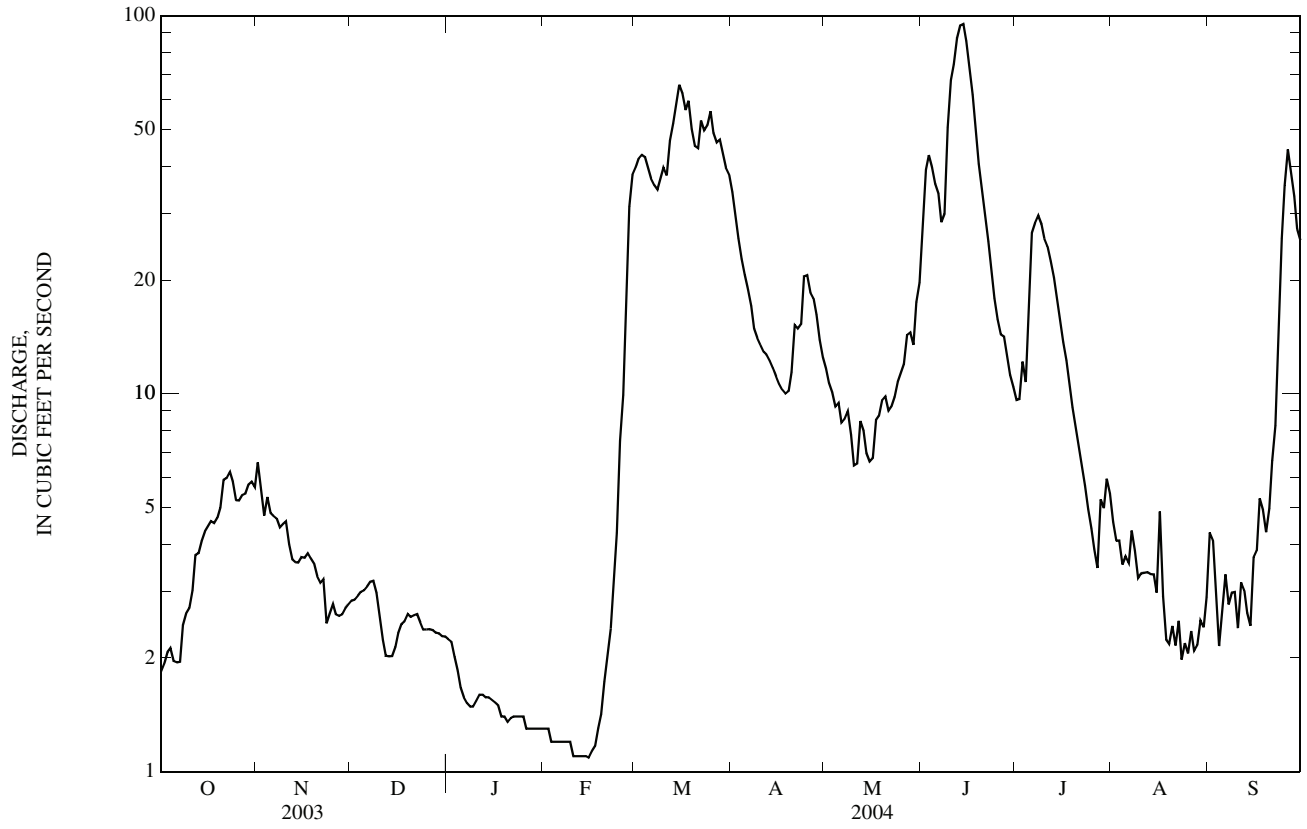
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1940 - 2004, BY WATER YEAR (WY)

MEAN	24.8	24.2	12.9	7.84	17.2	169	259	108	103	63.1	28.9	16.7
MAX	588	256	86.3	68.0	147	693	1,614	652	577	741	281	273
(WY)	(1996)	(1996)	(1996)	(1994)	(1998)	(1996)	(1997)	(1972)	(1992)	(1993)	(1991)	(1985)
MIN	0.31	0.44	0.32	0.09	0.00	1.59	9.13	2.94	1.83	0.27	0.09	0.08
(WY)	(1941)	(1977)	(1977)	(1977)	(1977)	(1965)	(1981)	(1981)	(1976)	(1976)	(1976)	(1976)

05293000 YELLOW BANK RIVER NEAR ODESSA, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1940 - 2004	
ANNUAL TOTAL	5,583.75		4,849.5			
ANNUAL MEAN	15.3		13.3		a69.7	
HIGHEST ANNUAL MEAN					237	1996
LOWEST ANNUAL MEAN					3.98	1981
HIGHEST DAILY MEAN	299	Mar 17	95	Jun 14	6,640	Apr 9, 1969
LOWEST DAILY MEAN	0.29	Sep 9	1.1	Feb 10-16	b0.00	Jan 26, 1940
ANNUAL SEVEN-DAY MINIMUM	0.41	Sep 3	1.1	Feb 10	0.00	Jan 26, 1940
MAXIMUM PEAK FLOW			98	Jun 14	6,970	Apr 9, 1969
MAXIMUM PEAK STAGE			2.65	Jun 14	19.07	Apr 9, 1969
INSTANTANEOUS LOW FLOW			c1.1	Feb 10	b0.00	Jan 26, 1940
ANNUAL RUNOFF (AC-FT)	11,080		9,620		50,530	
ANNUAL RUNOFF (CFSM)	0.033		0.029		0.152	
ANNUAL RUNOFF (INCHES)	0.45		0.39		2.06	
10 PERCENT EXCEEDS	44		40		147	
50 PERCENT EXCEEDS	4.1		4.9		11	
90 PERCENT EXCEEDS	1.0		1.5		1.0	

a Median of annual mean discharges is 52 ft^3/s.
b Many days, several years.
c Estimated daily-mean discharge, backwater from ice.
e Estimated.



05294000 POMME DE TERRE RIVER AT APPLETON, MN

LOCATION.--Lat 45°12'10", long 96°01'20", in SW¼NW¼ sec. 14, T.120 N., R.43 W., Swift County, Hydrologic Unit 07020002, on left bank 400 ft upstream from bridge on U.S. Highway 59 and State Highway 119 at Appleton and 8 mi upstream from mouth.

DRAINAGE AREA.--864 mi^2.

PERIOD OF RECORD.--March 1931 to September 1935 (no winter records), October 1935 to September 1999, June 2003 to current year. Peak flows available for water years 2000-2002. Prior to October 1953, published as "near Appleton."

REVISED RECORDS.--WSP 1308: 1931(M), 1937(M).

GAGE.--Water-stage recorder. Datum of gage is 978.00 ft above sea level (NGVD of 1929). Prior to Dec. 22, 1952, nonrecording gage at site 4 mi upstream at datum 25.17 ft higher.

REARKS.--Records fair except for estimated daily discharges, which are poor. Flow affected by lakes above station.

DAILY MEAN VALUES
DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Discharge	Date	Discharge	Date	Discharge	Date	Discharge	Date	Discharge	Date	Discharge
JUN 12	e182	JUL 1	773	JUL 20	284	AUG 8	139	AUG 27	72	SEP 15	59
JUN 13	173	JUL 2	722	JUL 21	272	AUG 9	135	AUG 28	73	SEP 16	57
JUN 14	166	JUL 3	658	JUL 22	259	AUG 10	132	AUG 29	68	SEP 17	53
JUN 15	e157	JUL 4	608	JUL 23	248	AUG 11	132	AUG 30	64	SEP 18	55
JUN 16	e149	JUL 5	578	JUL 24	233	AUG 12	126	AUG 31	62	SEP 19	55
JUN 17	e144	JUL 6	571	JUL 25	220	AUG 13	121	SEP 1	59	SEP 20	57
JUN 18	e135	JUL 7	562	JUL 26	210	AUG 14	115	SEP 2	57	SEP 21	56
JUN 19	e127	JUL 8	549	JUL 27	202	AUG 15	110	SEP 3	53	SEP 22	54
JUN 20	e118	JUL 9	527	JUL 28	196	AUG 16	106	SEP 4	51	SEP 23	54
JUN 21	e110	JUL 10	494	JUL 29	189	AUG 17	103	SEP 5	49	SEP 24	52
JUN 22	e105	JUL 11	521	JUL 30	180	AUG 18	101	SEP 6	48	SEP 25	41
JUN 23	e100	JUL 12	518	JUL 31	180	AUG 19	101	SEP 7	46	SEP 26	35
JUN 24	e130	JUL 13	472	AUG 1	172	AUG 20	95	SEP 8	43	SEP 27	35
JUN 25	287	JUL 14	429	AUG 2	164	AUG 21	92	SEP 9	42	SEP 28	33
JUN 26	456	JUL 15	392	AUG 3	159	AUG 22	90	SEP 10	57	SEP 29	33
JUN 27	597	JUL 16	362	AUG 4	154	AUG 23	87	SEP 11	69	SEP 30	34
JUN 28	690	JUL 17	330	AUG 5	151	AUG 24	82	SEP 12	78		
JUN 29	752	JUL 18	315	AUG 6	150	AUG 25	79	SEP 13	67		
JUN 30	784	JUL 19	296	AUG 7	144	AUG 26	75	SEP 14	61		

WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34	40	47	e40	e8.2	e47	152	108	259	163	152	89
2	34	41	48	e39	e8.2	e48	146	104	288	155	146	86
3	33	41	50	e35	e8.2	e48	142	103	304	148	141	82
4	33	39	50	e33	e8.1	e50	138	102	300	147	137	75
5	34	43	49	e31	e8.1	e51	137	109	289	144	132	72
6	36	e25	50	e29	e8.1	e50	133	111	277	150	125	75
7	33	e27	52	e27	e8.0	e53	132	103	263	160	130	74
8	32	e29	52	e24	e8.0	e56	134	103	258	185	129	76
9	32	e33	53	e23	e8.0	e57	137	101	283	179	125	74
10	34	e40	52	e22	e8.0	e59	129	103	328	178	122	72
11	38	44	e43	e22	e7.9	e61	122	109	376	179	124	69
12	41	46	e38	e21	e8.0	e67	119	111	379	190	123	70
13	47	42	e37	e20	e8.0	e73	115	186	392	205	116	69
14	47	50	e37	e19	e8.1	e75	112	224	383	212	110	67
15	42	55	e38	e18	e8.1	e75	110	216	343	228	105	82
16	41	47	e38	e14	e9.0	e74	111	191	310	240	103	117
17	40	46	e39	e12	e9.9	e73	111	176	288	236	99	139
18	40	46	e39	e9.8	e10	e71	113	177	269	231	100	133
19	36	47	e40	e9.1	e11	e70	114	169	252	224	99	131
20	36	46	e40	e8.5	e12	e71	126	158	237	215	97	131
21	37	e42	e40	e8.4	e13	e73	139	153	222	206	91	168
22	39	e22	e40	e8.6	e16	e100	149	150	210	196	86	217
23	41	15	e40	e8.6	e19	e120	141	148	203	185	82	238
24	38	e16	e40	e8.7	e24	e130	131	149	194	172	82	256
25	37	e19	e41	e8.6	e31	e140	124	152	187	159	80	277
26	36	e36	e41	e8.6	e33	159	118	160	183	149	80	288
27	40	48	e41	e8.5	e39	151	118	164	179	139	94	307
28	42	40	e42	e8.4	e42	158	115	173	180	136	89	331
29	39	40	e42	e8.4	e44	179	106	168	177	131	91	351
30	48	45	e42	e8.3	---	172	105	182	169	142	92	370
31	45	---	e41	e8.3	---	161	---	233	---	154	94	---
TOTAL	1,185	1,150	1,342	549.8	433.9	2,772	3,779	4,596	7,982	5,538	3,376	4,586
MEAN	38.2	38.3	43.3	17.7	15.0	89.4	126	148	266	179	109	153
MAX	48	55	53	40	44	179	152	233	392	240	152	370
MIN	32	15	37	8.3	7.9	47	105	101	169	131	80	67
AC-FT	2,350	2,280	2,660	1,090	861	5,500	7,500	9,120	15,830	10,980	6,700	9,100
CFSM	0.04	0.04	0.05	0.02	0.02	0.10	0.14	0.16	0.29	0.20	0.12	0.17

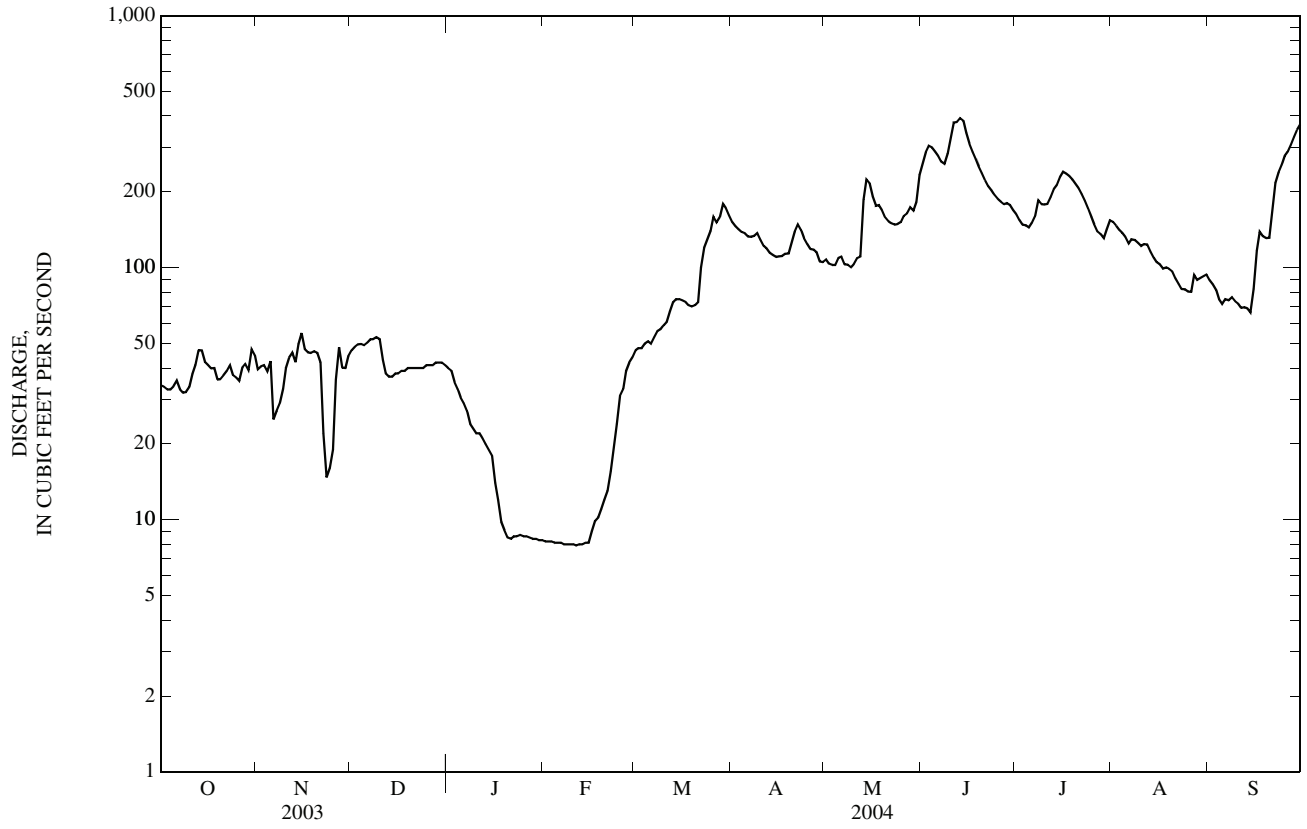
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1931 - 2004, BY WATER YEAR (WY)

MEAN	68.4	65.6	44.5	28.5	29.4	164	403	213	168	151	81.0	59.4
MAX	550	402	182	141	163	675	3,087	846	516	1,382	752	331
(WY)	(1996)	(1996)	(1987)	(1987)	(1998)	(1995)	(1997)	(1969)	(1965)	(1993)	(1993)	(1986)
MIN	0.00	3.52	1.00	0.00	0.00	2.04	20.9	8.09	2.17	0.45	0.10	0.05
(WY)	(1989)	(1989)	(1937)	(1937)	(1936)	(1969)	(1934)	(1934)	(1933)	(1988)	(1988)	(1988)

05294000 POMME DE TERRE RIVER AT APPLETON, MN—Continued

SUMMARY STATISTICS	FOR 2004 WATER YEAR		WATER YEARS 1931 - 2004	
ANNUAL TOTAL	37,289.7			
ANNUAL MEAN	102		a130	
HIGHEST ANNUAL MEAN			420	1997
LOWEST ANNUAL MEAN			21.1	1977
HIGHEST DAILY MEAN	392	Jun 13	6,760	Apr 6, 1997
LOWEST DAILY MEAN	7.9	Feb 11	b0.00	Aug 3, 1934
ANNUAL SEVEN-DAY MINIMUM	8.0	Feb 7	0.00	Feb 1, 1936
MAXIMUM PEAK FLOW	401	Jun 12	c8,890	Apr 7, 1997
MAXIMUM PEAK STAGE	6.23	Jun 12	c18.13	Apr 7, 1997
INSTANTANEOUS LOW FLOW	d7.9	Feb 11	b0.00	Aug 3, 1934
ANNUAL RUNOFF (AC-FT)	73,960		94,220	
ANNUAL RUNOFF (CFSM)	0.113		0.144	
10 PERCENT EXCEEDS	218		302	
50 PERCENT EXCEEDS	76		55	
90 PERCENT EXCEEDS	14		8.5	

a Median of annual mean discharges is 100 ft^3/s.
b Many days, several years.
c Due in part to dam failure; from highwater mark.
d Estimated daily-mean discharge, backwater from ice.
e Estimated.



05300000 LAC QUI PARLE RIVER NEAR LAC QUI PARLE, MN

LOCATION.--Lat 44°59'42", long 95°55'09", in SW¼SW¼ sec. 27, T.118 N., R.42 W., Lac qui Parle County, Hydrologic Unit 07020003, on right bank 70 ft downstream from highway bridge and 0.5 mi southwest of city of Lac qui Parle.

DRAINAGE AREA.--960 mi^2.

PERIOD OF RECORD.--April 1910 to November 1914; March 1931 to September 1999 (winter records incomplete prior to 1934), October 1999 to March 2001 (peak flow only), April 2001 to current year. Published as "at Lac qui Parle," 1910-14.

REVISED RECORDS.--WSP 1308: 1912(M), 1935(M).

GAGE.--Water-stage recorder. Datum of gage is 946.98 ft above sea level (NGVD of 1929, Minnesota Department of Transportation benchmark). Apr. 27, 1910 to Nov. 15, 1914, nonrecording gage at site 2 mi downstream at different datum. Mar. 17, 1931 to Mar. 9, 1937, nonrecording gage at site 40 ft upstream at present datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e0.82	e5.8	e2.9	e2.3	e1.4	e16	e54	29	100	49	10	60
2	e1.00	e5.8	e3.0	e2.2	e1.3	e27	43	26	176	45	9.1	50
3	e1.1	e5.4	e3.1	e2.0	e1.3	e32	36	25	180	42	8.5	45
4	e1.2	e5.4	e3.1	e1.9	e1.3	e36	32	24	160	41	8.1	40
5	e1.4	e5.0	e3.1	e1.7	e1.3	e35	29	23	140	46	7.2	36
6	e1.5	e4.8	e3.2	e1.6	e1.3	e36	25	23	121	59	6.8	32
7	e1.5	e4.8	e3.3	e1.6	e1.2	e36	21	23	105	e61	7.9	29
8	e1.8	e4.5	e3.3	e1.6	e1.2	e42	20	24	94	e61	15	29
9	e1.9	e4.6	e3.0	e1.6	e1.2	e47	20	24	95	e58	12	31
10	e2.1	e4.6	e2.7	e1.6	e1.2	e56	20	24	91	e56	8.3	29
11	e2.1	e4.0	e2.3	e1.6	e1.2	e56	21	23	102	e53	7.3	27
12	e2.5	e3.8	e2.1	e1.7	e1.2	e55	e21	24	125	e51	6.9	24
13	e2.7	e3.7	e2.1	e1.7	e1.2	e62	e20	e23	159	47	6.4	23
14	e2.9	e3.7	e2.0	e1.7	e1.2	e65	e19	e22	213	42	6.0	21
15	e3.2	e3.7	e2.2	e1.6	e1.1	e66	e17	e23	287	38	5.3	25
16	e3.5	e3.7	e2.4	e1.6	e1.2	e66	e17	e28	286	35	5.6	31
17	e3.7	e3.8	e2.5	e1.6	e1.2	e64	17	e32	264	32	4.8	29
18	e4.0	e3.7	e2.5	e1.5	e1.3	e62	16	e33	223	28	4.4	27
19	e4.2	e3.6	e2.6	e1.4	e1.5	e63	16	e67	197	26	4.2	42
20	e4.3	e3.4	e2.6	e1.4	e1.7	e73	e25	e73	174	26	4.0	49
21	e4.6	e3.2	e2.6	e1.5	e2.0	e75	e30	e66	154	25	3.8	59
22	e4.8	e3.3	e2.6	e1.5	e2.3	e78	e32	59	135	23	3.5	55
23	e5.1	e2.7	e2.5	e1.5	e2.7	e81	48	57	118	20	3.1	51
24	e5.3	e2.8	e2.4	e1.5	e3.3	e79	80	63	103	18	3.0	66
25	e5.2	e2.9	e2.4	e1.5	e3.7	e71	58	55	92	16	2.9	93
26	e5.1	e2.8	e2.4	e1.5	e4.1	e71	51	63	83	14	3.8	104
27	e5.1	e2.8	e2.4	e1.4	e4.7	e71	43	94	74	13	41	114
28	e5.2	e2.8	e2.3	e1.4	e5.4	e69	37	94	67	13	112	127
29	e5.5	e2.8	e2.3	e1.4	e7.8	e69	32	90	60	13	109	118
30	e5.5	e2.8	e2.3	e1.4	---	67	31	98	54	12	91	104
31	e5.6	---	e2.3	e1.4	---	e61	---	91	---	11	77	---
TOTAL	104.42	116.7	80.5	49.9	61.5	1,787	931	1,423	4,232	1,074	597.9	1,570
MEAN	3.37	3.89	2.60	1.61	2.12	57.6	31.0	45.9	141	34.6	19.3	52.3
MAX	5.6	5.8	3.3	2.3	7.8	81	80	98	287	61	112	127
MIN	0.82	2.7	2.0	1.4	1.1	16	16	22	54	11	2.9	21
AC-FT	207	231	160	99	122	3,540	1,850	2,820	8,390	2,130	1,190	3,110
CFSM	0.00	0.00	0.00	0.00	0.00	0.06	0.03	0.05	0.15	0.04	0.02	0.05
IN.	0.00	0.00	0.00	0.00	0.00	0.07	0.04	0.06	0.16	0.04	0.02	0.06

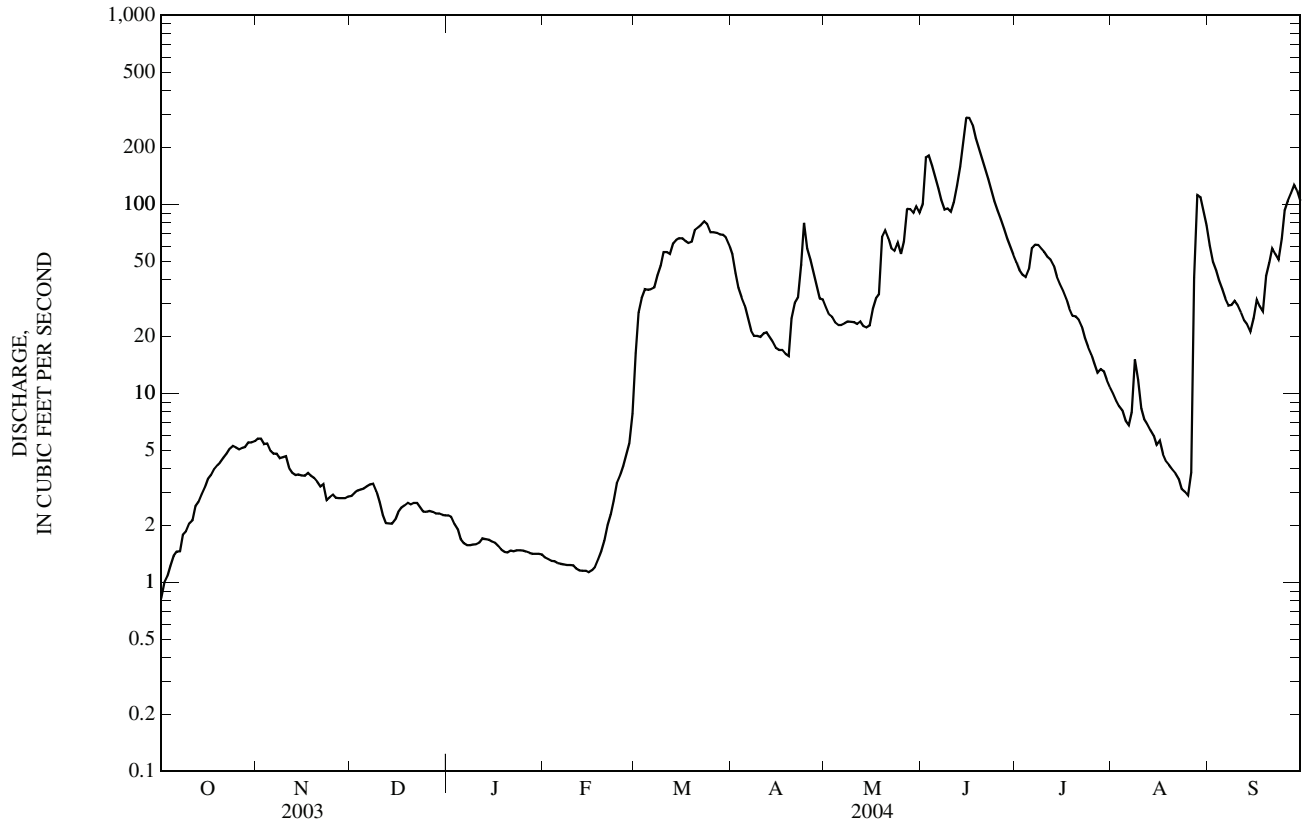
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1910 - 2004, BY WATER YEAR (WY)

MEAN	42.2	47.7	26.0	11.8	22.8	292	595	250	269	138	74.5	37.5
MAX	629	378	149	88.1	244	1,634	5,354	1,264	1,762	1,613	765	535
(WY)	(1996)	(1996)	(1996)	(1994)	(1998)	(1985)	(1997)	(1995)	(1984)	(1993)	(1953)	(1985)
MIN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
(WY)	(1932)	(1932)	(1932)	(1932)	(1934)	(1934)	(1934)	(1934)	(1934)	(1934)	(1931)	(1931)

05300000 LAC QUI PARLE RIVER NEAR LAC QUI PARLE, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1910 - 2004	
ANNUAL TOTAL	19,569.11		12,027.92			
ANNUAL MEAN	53.6		32.9		a157	
HIGHEST ANNUAL MEAN					625	1993
LOWEST ANNUAL MEAN					0.00	1934
HIGHEST DAILY MEAN	763	Mar 18	287	Jun 15	16,000	Apr 10, 1969
LOWEST DAILY MEAN	0.03	Sep 8	0.82	Oct 1	b0.00	Jul 15, 1931
ANNUAL SEVEN-DAY MINIMUM	0.05	Sep 3	1.2	Feb 9	0.00	Jul 15, 1931
MAXIMUM PEAK FLOW			295	Jun 15	17,100	Apr 10, 1969
MAXIMUM PEAK STAGE			6.76	Jun 15	c24.37	Apr 9, 1965
INSTANTANEOUS LOW FLOW			d0.82	Oct 1	b0.00	Jul 15, 1931
ANNUAL RUNOFF (AC-FT)	38,820		23,860		113,900	
ANNUAL RUNOFF (CFSM)	0.056		0.034		0.164	
ANNUAL RUNOFF (INCHES)	0.76		0.47		2.22	
10 PERCENT EXCEEDS	171		91		360	
50 PERCENT EXCEEDS	7.1		14		24	
90 PERCENT EXCEEDS	1.4		1.5		0.60	

a Median of annual mean discharges is 120 ft^3/s.
b Many days, several years.
c From highwater mark, backwater from ice. Datum then in use.
d Estimated daily-mean discharge, backwater from beaver dam.
e Estimated.



05301000 MINNESOTA RIVER NEAR LAC QUI PARLE, MN

LOCATION.--Lat 45°01'17", long 95°52'05", in NW¼NE¼ sec.24, T.118 N., R.42 W., Chippewa County, Hydrologic Unit 07020004, on left bank 200 ft downstream from highway bridge and dam, 2.4 mi northeast of city of Lac Qui Parle, and 3.5 mi west of city of Watson.

DRAINAGE AREA.--4,050 mi^2 (approximately).

PERIOD OF RECORD.--October 1942 to September 1994, October 1998 to present.

REVISED RECORDS.--WDR MN-91-2; 1979

GAGE.--Water-stage recorder. Datum of gage is 900.00 ft above sea level (NGVD or 1929, levels by U.S. Army Corps of Engineers). Prior to Nov. 10, 1944, at datum 0.20 ft. lower.

REMARKS.--Records good. Part of flow from 2,050 mi^2, of Chippewa River basin at most times diverted into Minnesota River above station. Some regulation by Big Stone Lake since Apr. 17, 1937, Lac qui Parle since Jan. 1938, Marsh Lake since Nov. 1, 1939, and Odessa Dam since May 1974.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Apr. 1997 reached a discharge of approximately 43,000 ft^3/s, combination of measured flow through dam and indirect computation of flow over dam; peak stage occurred Apr. 7, 1997 (from Corps of Engineers).

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	119	160	119	76	169	376	281	1,410	520	530	205
2	26	119	162	120	76	266	339	277	1,570	425	466	205
3	34	117	161	119	77	404	306	258	1,410	376	280	204
4	28	130	161	119	77	506	309	223	1,080	377	246	208
5	28	122	133	119	78	568	308	202	996	382	247	209
6	28	116	115	118	92	575	306	175	988	497	248	212
7	29	116	115	118	106	562	312	155	907	774	249	156
8	31	115	113	116	107	563	326	156	785	811	248	110
9	45	115	111	116	106	607	345	156	785	806	290	99
10	70	116	114	116	107	650	337	134	1,070	805	375	98
11	86	115	117	115	105	642	324	106	1,480	658	373	99
12	77	127	116	95	106	646	302	241	1,520	484	249	100
13	77	115	116	76	133	650	279	447	1,580	548	143	70
14	108	114	116	76	167	642	278	569	1,980	622	124	46
15	130	116	114	77	172	650	259	569	2,350	574	124	46
16	126	118	112	77	168	652	244	569	2,360	452	124	46
17	126	119	114	76	154	646	244	567	2,320	454	125	46
18	125	125	113	79	122	581	244	491	2,100	504	125	46
19	124	127	113	79	123	415	220	342	1,670	581	121	46
20	129	152	114	78	121	313	203	242	1,620	662	119	47
21	124	154	114	76	123	315	226	164	1,480	709	121	88
22	101	178	114	77	123	377	261	164	1,200	581	120	158
23	78	340	114	77	122	465	275	165	981	440	121	410
24	81	418	114	77	125	547	277	256	821	440	170	705
25	91	195	115	77	126	658	276	396	668	439	209	666
26	78	175	115	78	127	750	276	554	564	439	209	538
27	79	166	116	79	127	800	285	725	562	324	208	477
28	134	163	116	78	126	785	328	798	562	248	209	414
29	76	163	116	78	126	745	320	795	562	283	205	480
30	105	162	118	78	---	655	297	828	561	440	159	538
31	139	---	118	78	---	491	---	1,080	---	530	174	---
TOTAL	2,539	4,527	3,760	2,861	3,398	17,295	8,682	12,085	37,942	16,185	6,711	6,772
MEAN	81.9	151	121	92.3	117	558	289	390	1,265	522	216	226
MAX	139	418	162	120	172	800	376	1,080	2,360	811	530	705
MIN	26	114	111	76	76	169	203	106	561	248	119	46
AC-FT	5,040	8,980	7,460	5,670	6,740	34,300	17,220	23,970	75,260	32,100	13,310	13,430
CFSM	0.02	0.04	0.03	0.02	0.03	0.14	0.07	0.10	0.31	0.13	0.05	0.06
IN.	0.02	0.04	0.03	0.03	0.03	0.16	0.08	0.11	0.35	0.15	0.06	0.06

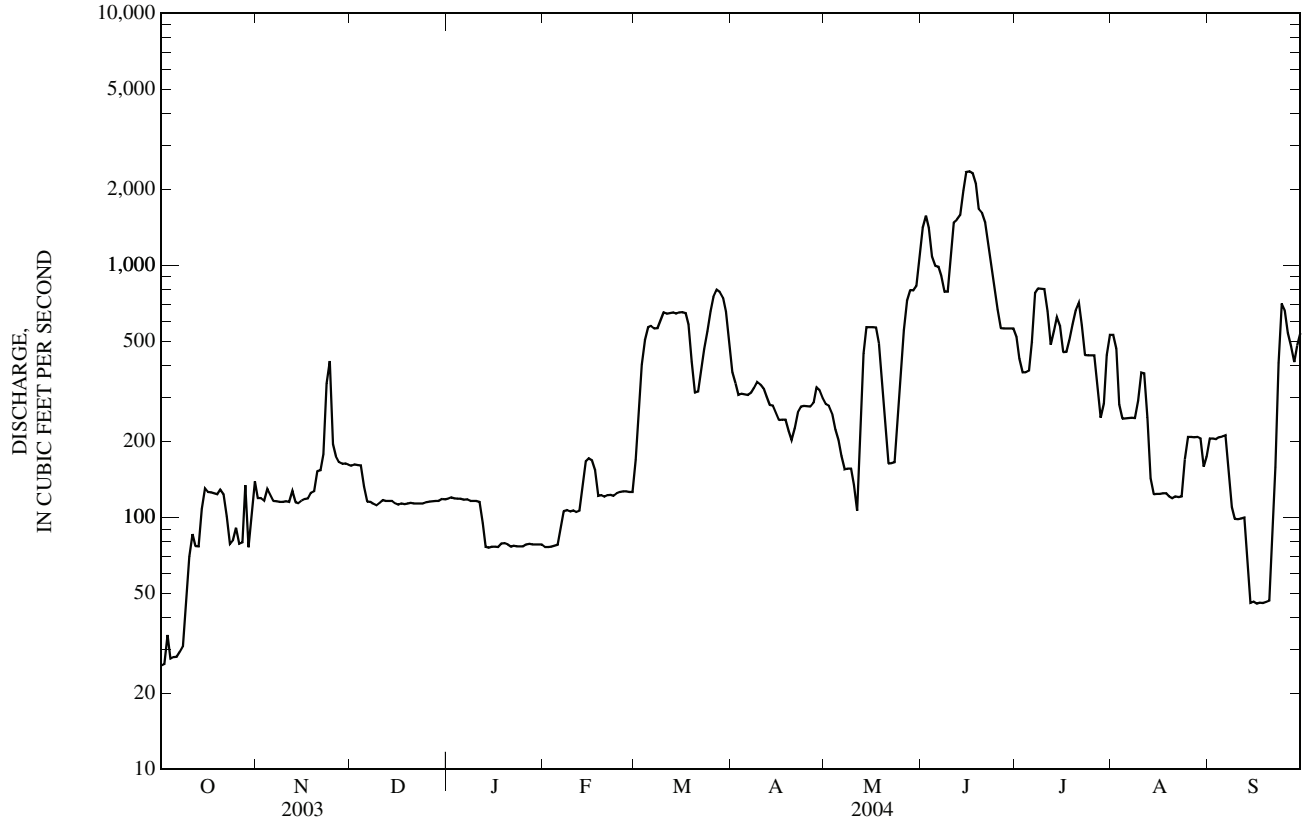
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1943 - 2004, BY WATER YEAR (WY)

MEAN	270	286	231	156	190	836	2,680	1,429	1,167	986	523	262
MAX	2,924	2,327	1,204	574	644	4,599	14,580	5,837	4,229	7,024	6,012	2,402
(WY)	(1987)	(1985)	(1985)	(1987)	(1999)	(1994)	(2001)	(2001)	(1984)	(1993)	(1993)	(1986)
MIN	4.16	0.46	0.17	0.19	0.09	46.5	151	122	29.5	14.7	11.8	5.59
(WY)	(1977)	(1977)	(1977)	(1977)	(1977)	(1956)	(1961)	(1959)	(1988)	(1988)	(1974)	(1967)

05301000 MINNESOTA RIVER NEAR LAC QUI PARLE, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1943 - 2004	
ANNUAL TOTAL	172,375		122,757			
ANNUAL MEAN	472		335		752	
HIGHEST ANNUAL MEAN					2,507	1986
LOWEST ANNUAL MEAN					75.7	1959
HIGHEST DAILY MEAN	2,030	May 16	2,360	Jun 16	29,800	Apr 14, 2001
LOWEST DAILY MEAN	25	Sep 19-21	26	Oct 1,2	a0.00	Oct 19, 1951
ANNUAL SEVEN-DAY MINIMUM	26	Sep 17	28	Oct 1	0.00	Oct 19, 1951
MAXIMUM PEAK FLOW			b2,370	Jun 15	30,100	Apr 14, 2001
MAXIMUM PEAK STAGE			28.67	Jun 15	40.05	Apr 14, 2001
INSTANTANEOUS LOW FLOW			c25	Oct 1	a0.00	Oct 19, 1951
ANNUAL RUNOFF (AC-FT)	341,900		243,500		544,600	
ANNUAL RUNOFF (CFSM)	0.117		0.083		0.186	
ANNUAL RUNOFF (INCHES)	1.58		1.13		2.52	
10 PERCENT EXCEEDS	1,220		731		1,800	
50 PERCENT EXCEEDS	220		170		234	
90 PERCENT EXCEEDS	62		78		28	

a Many days, several years.
b Due in part to regulation.
c Rising stage, result of regulation.



05304500 CHIPPEWA RIVER NEAR MILAN, MN

LOCATION.--Lat 45°06'30", long 95°47'55", in NE¼NE¼ sec. 21, T.119 N., R.41 W., Chippewa County, Hydrologic Unit 07020005, on right bank 20 ft downstream from bridge on State Highway 40, 2.0 mi upstream from small tributary, and 5.5 mi east of Milan.

DRAINAGE AREA.--1,880 mi^2.

PERIOD OF RECORD.--March 1937 to current year.

REVISED RECORDS.--WSP 1145: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 959.69 ft above sea level (NGVD of 1929). Prior to June 15, 1942, nonrecording gage on bridge 800 ft downstream at same datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Flow may be influenced by regulation from several small lakes upstream from gage.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 600 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
May 31	2100	1,140	3.60	Jun 10	1700	*2,220	*5.16

Minimum discharge, 40 ft^3/s, Jan. 31, (estimated daily-mean discharge).

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	92	96	98	e63	e41	e60	444	251	1,020	489	281	155
2	89	94	98	e62	e41	e61	412	243	979	460	277	153
3	89	96	99	e59	e41	e62	383	235	981	440	269	148
4	89	92	99	e59	e42	e63	359	225	907	419	252	138
5	88	92	104	e55	e42	e65	347	218	847	402	238	133
6	87	83	105	e53	e42	e69	342	213	797	406	222	133
7	86	e65	106	e55	e42	e70	324	209	752	482	225	139
8	83	e68	106	e57	e42	e73	308	204	755	577	217	151
9	80	77	e100	e58	e42	e74	295	203	1,180	579	212	159
10	79	87	e90	e59	e42	e72	290	209	2,100	550	205	155
11	82	93	e76	e60	e42	e73	286	258	1,930	521	197	150
12	92	101	e66	e61	e42	e75	279	232	1,810	527	194	148
13	95	143	e70	e60	e42	e80	276	217	1,790	569	189	143
14	98	115	e72	e60	e41	e84	274	208	1,810	567	180	141
15	97	114	e73	e59	e41	e87	271	209	1,630	554	172	152
16	95	120	e74	e59	e42	e90	272	208	1,400	552	179	180
17	92	110	e77	e58	e44	e91	259	230	1,300	524	225	257
18	98	107	e79	e59	e44	e92	261	280	1,170	479	227	303
19	96	108	e80	e56	e45	e92	273	305	1,020	439	206	314
20	89	109	e80	e55	e45	e93	273	280	897	414	189	296
21	85	107	e81	e54	e45	e100	297	264	837	390	169	322
22	81	94	e80	e51	e46	e113	328	244	780	367	167	405
23	80	e77	e77	e49	e47	e128	341	249	693	341	164	486
24	82	76	e74	e48	e48	e140	330	301	678	320	162	517
25	80	77	e72	e49	e48	e158	315	441	628	300	168	502
26	79	109	e76	e49	e52	e191	301	429	593	284	169	478
27	78	106	e77	e48	e54	e243	282	461	569	271	177	446
28	80	103	e75	e46	e57	e308	273	530	559	261	174	404
29	85	95	e73	e43	e58	e409	258	497	541	257	170	376
30	88	97	e68	e41	---	e475	247	707	514	258	164	356
31	91	---	e64	e40	---	469	---	1,060	---	272	162	---
TOTAL	2,705	2,911	2,569	1,685	1,300	4,260	9,200	9,820	31,467	13,271	6,202	7,840
MEAN	87.3	97.0	82.9	54.4	44.8	137	307	317	1,049	428	200	261
MAX	98	143	106	63	58	475	444	1,060	2,100	579	281	517
MIN	78	65	64	40	41	60	247	203	514	257	162	133
AC-FT	5,370	5,770	5,100	3,340	2,580	8,450	18,250	19,480	62,410	26,320	12,300	15,550
CFSM	0.05	0.05	0.04	0.03	0.02	0.07	0.16	0.17	0.56	0.23	0.11	0.14
IN.	0.05	0.06	0.05	0.03	0.03	0.08	0.18	0.19	0.62	0.26	0.12	0.16

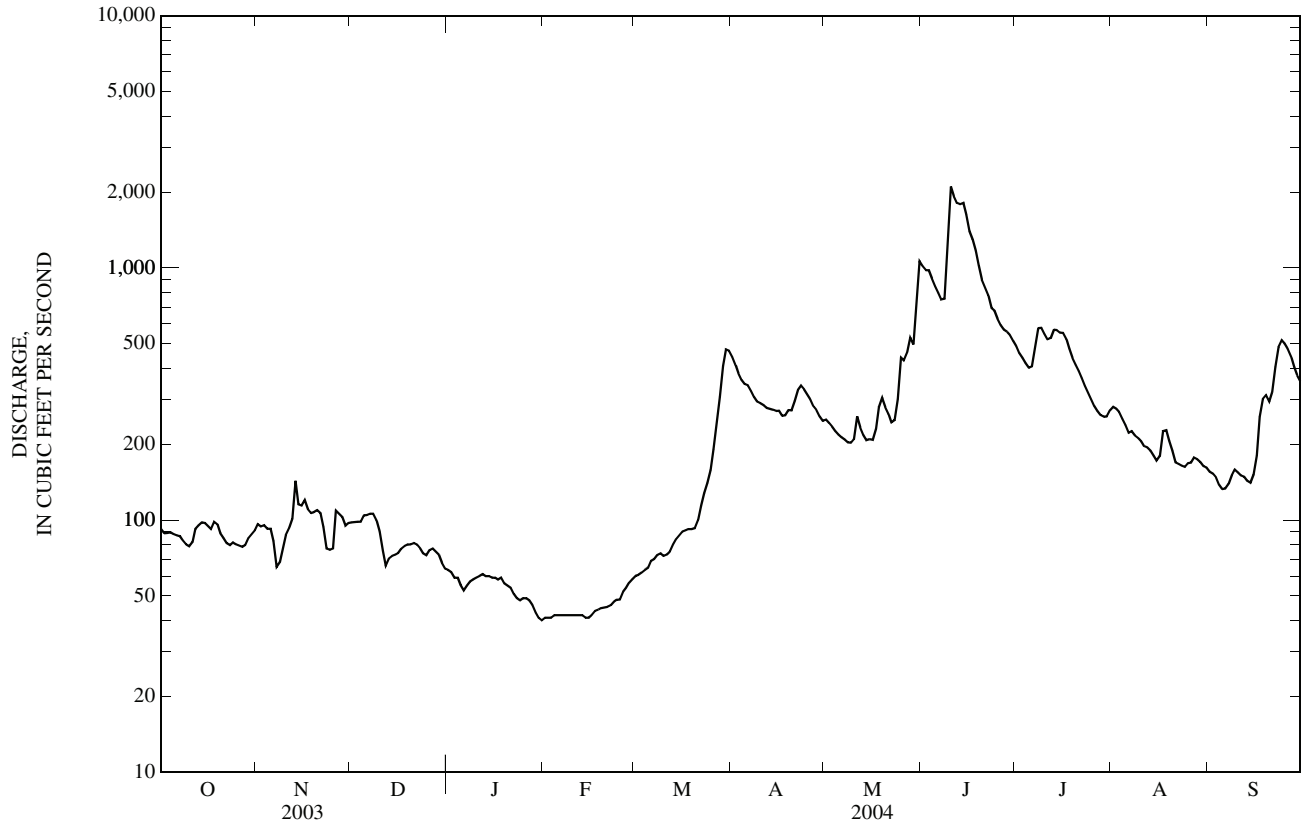
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1938 - 2004, BY WATER YEAR (WY)

MEAN	234	201	128	75.3	78.7	397	1,111	703	605	487	281	222
MAX	1,996	1,318	655	425	432	2,141	6,606	2,462	2,248	2,507	2,183	2,273
(WY)	(1985)	(1985)	(1985)	(1987)	(1998)	(1985)	(1997)	(1986)	(1984)	(1995)	(1993)	(1986)
MIN	5.51	8.67	4.77	0.09	0.00	2.92	90.9	81.6	36.8	15.1	6.19	3.50
(WY)	(1977)	(1977)	(1977)	(1940)	(1940)	(1965)	(1959)	(1939)	(1940)	(1940)	(1976)	(1976)

05304500 CHIPPEWA RIVER NEAR MILAN, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1938 - 2004	
ANNUAL TOTAL	118,858		93,230			
ANNUAL MEAN	326		255		a377	
HIGHEST ANNUAL MEAN					1,307	1986
LOWEST ANNUAL MEAN					45.4	1940
HIGHEST DAILY MEAN	1,360	Jul 11	2,100	Jun 10	13,400	Apr 6, 1997
LOWEST DAILY MEAN	64	Dec 31	40	Jan 31	b0.00	Jan 4, 1940
ANNUAL SEVEN-DAY MINIMUM	72	Dec 25	41	Jan 30	0.00	Jan 4, 1940
MAXIMUM PEAK FLOW			2,220	Jun 10	14,400	Apr 6, 1997
MAXIMUM PEAK STAGE			5.16	Jun 10	c18.03	Apr 6, 1997
INSTANTANEOUS LOW FLOW			d40	Jan 31	b0.00	Jan 4, 1940
ANNUAL RUNOFF (AC-FT)	235,800		184,900		273,400	
ANNUAL RUNOFF (CFSM)	0.173		0.135		0.201	
ANNUAL RUNOFF (INCHES)	2.35		1.84		2.73	
10 PERCENT EXCEEDS	897		551		988	
50 PERCENT EXCEEDS	150		148		150	
90 PERCENT EXCEEDS	80		53		17	

a Median of annual mean discharges is 320 ft^3/s.
b Many days in 1940.
c From highwater mark.
d Estimated minimum daily, backwater from ice. May have been lower on Nov. 23 during freezeup event.
e Estimated.



05311000 MINNESOTA RIVER AT MONTEVIDEO, MN

LOCATION.--Lat 44°56'00", long 95°44'00", in NW¼NW¼ sec. 19, T.117 N., R.40 W., Yellow Medicine County, Hydrologic Unit 07020004, on right bank 20 ft upstream from bridge on U.S. Highway 212, at Montevideo, and 480 ft downstream from Chippewa River.

DRAINAGE AREA.--6,180 mi^2 (approximately).

PERIOD OF RECORD.--July 1909 to September 1917, October 1917 to September 1929 (no winter records), October 1929 to current year. Prior to October 1939, published as "near Montevideo." Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 1035: 1919(M). WSP 1085: 1935-36. WSP 1508: 1912, 1925(M), 1929(M), WDR MN-2000-1; 1995, 1996.

GAGE.--Water-stage recorder. Datum of gage is 909.12 ft above sea level (NGVD of 1929). July 22, 1909 to Feb. 4, 1932, nonrecording gage at bridge 600 ft downstream at present datum. Feb. 5, 1932 to Nov. 26, 1934, nonrecording gage at bridge 100 ft downstream at present datum.

REMARKS.--Records good except those for estimated daily discharge, which are fair to poor. Flow regulated by Big Stone Lake since Apr. 17, 1937, Lac qui Parle since Jan. 1938, and Marsh Lake since Nov. 1, 1939.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	48	165	211	e145	e95	e199	665	449	1,820	814	677	332
2	52	147	209	e145	e94	e349	574	444	2,120	742	674	340
3	58	149	209	e144	e95	e647	511	439	2,090	635	548	306
4	60	149	208	e144	e95	e773	500	390	1,740	619	424	299
5	59	161	210	e144	e96	882	502	351	1,500	614	406	297
6	56	144	165	e144	e110	794	496	337	1,460	635	386	304
7	55	143	145	e145	e123	726	487	297	1,400	903	423	289
8	54	157	142	e140	e124	653	493	290	1,260	1,080	393	228
9	54	152	e146	e140	e123	628	517	291	1,220	1,130	390	194
10	66	149	e146	e140	e124	681	519	290	1,450	1,090	467	214
11	94	143	e145	e139	e122	655	505	245	2,100	1,050	549	219
12	101	141	e145	e117	e122	659	493	226	2,250	825	465	217
13	88	149	e145	e99	e149	663	456	433	2,280	825	316	216
14	86	143	e145	e99	e183	664	447	618	2,500	952	249	178
15	139	140	e143	e100	e188	663	450	642	2,920	963	240	160
16	160	141	e141	e100	e184	690	418	648	3,010	808	252	150
17	152	142	e142	e99	e169	707	412	679	2,990	763	243	165
18	151	161	e141	e101	e137	700	412	691	2,920	768	244	200
19	150	164	e141	e101	e138	600	407	559	2,510	827	260	198
20	149	161	e142	e100	e136	468	381	522	2,300	884	251	198
21	154	182	e142	e98	e138	421	397	372	2,180	908	223	244
22	173	197	e141	e99	e138	452	423	343	1,860	878	217	343
23	123	262	e141	e98	e137	540	486	377	1,560	695	223	492
24	107	476	e141	e98	e141	639	493	412	1,320	663	299	914
25	110	390	e142	e98	e141	779	495	589	1,150	660	316	1,000
26	118	294	e142	e98	e142	946	488	784	950	644	325	887
27	109	254	e143	e99	e142	997	486	887	910	576	324	832
28	121	227	e142	e97	e141	1,000	496	1,020	896	429	347	706
29	148	219	e142	e97	e141	983	490	1,100	842	406	349	688
30	110	218	e144	e97	---	961	483	1,280	829	498	343	757
31	141	---	e144	e97	---	865	---	1,410	---	660	287	---
TOTAL	3,246	5,720	4,785	3,562	3,868	21,384	14,382	17,415	54,337	23,944	11,110	11,567
MEAN	105	191	154	115	133	690	479	562	1,811	772	358	386
MAX	173	476	211	145	188	1,000	665	1,410	3,010	1,130	677	1,000
MIN	48	140	141	97	94	199	381	226	829	406	217	150
AC-FT	6,440	11,350	9,490	7,070	7,670	42,420	28,530	34,540	107,800	47,490	22,040	22,940
CFSM	0.02	0.03	0.02	0.02	0.02	0.11	0.08	0.09	0.29	0.12	0.06	0.06
IN.	0.02	0.03	0.03	0.02	0.02	0.13	0.09	0.10	0.33	0.14	0.07	0.07

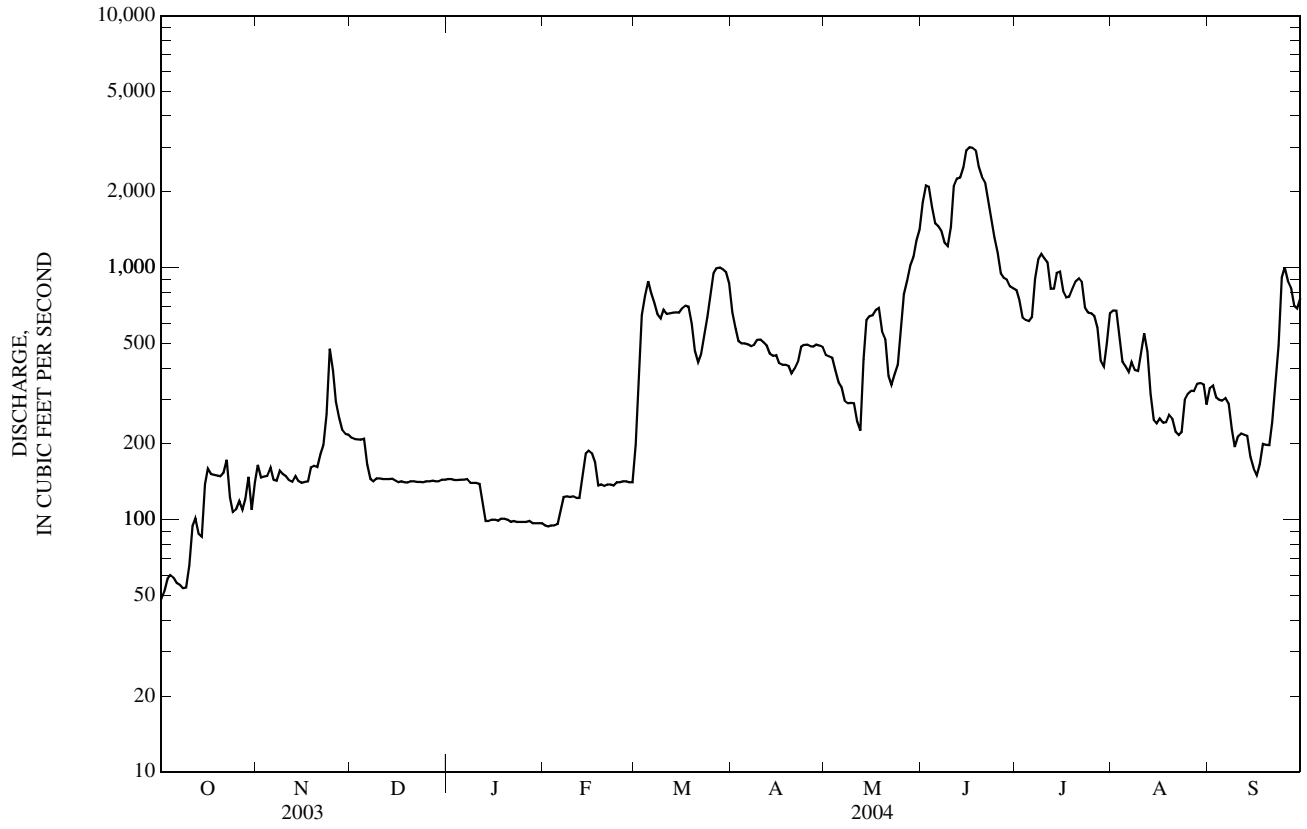
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1909 - 2004, BY WATER YEAR (WY)

MEAN	361	384	285	182	209	941	2,904	1,646	1,347	1,151	590	342
MAX	3,675	3,797	1,572	760	864	5,363	22,320	7,315	5,088	7,853	7,084	2,613
(WY)	(1996)	(1996)	(1996)	(1987)	(1998)	(1994)	(1997)	(1986)	(1984)	(1993)	(1993)	(1986)
MIN	0.76	1.61	2.35	1.57	1.06	5.06	7.82	3.13	1.40	1.89	0.60	0.57
(WY)	(1934)	(1935)	(1935)	(1934)	(1937)	(1934)	(1934)	(1934)	(1934)	(1933)	(1933)	(1933)

05311000 MINNESOTA RIVER AT MONTEVIDEO, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1909 - 2004	
ANNUAL TOTAL	236,285		175,320			
ANNUAL MEAN	647		479		a908	
HIGHEST ANNUAL MEAN					3,166	1997
LOWEST ANNUAL MEAN					4.43	1934
HIGHEST DAILY MEAN	2,510	May 17	3,010	Jun 16	46,800	Apr 7, 1997
LOWEST DAILY MEAN	48	Oct 1	48	Oct 1	b0.00	Aug 14, 1933
ANNUAL SEVEN-DAY MINIMUM	55	Sep 30	55	Oct 1	0.00	Jul 5, 1934
MAXIMUM PEAK FLOW			c3,010	Jun 16	47,500	Apr 6, 1997
MAXIMUM PEAK STAGE			10.32	Jun 16	23.90	Apr 6, 1997
INSTANTANEOUS LOW FLOW			c45	Oct 2	b0.00	Aug 14, 1933
ANNUAL RUNOFF (AC-FT)	468,700		347,700		657,700	
ANNUAL RUNOFF (CFSM)	0.105		0.078		0.147	
ANNUAL RUNOFF (INCHES)	1.42		1.06		2.00	
10 PERCENT EXCEEDS	1,710		987		2,300	
50 PERCENT EXCEEDS	322		297		280	
90 PERCENT EXCEEDS	111		101		34	

a Median of annual mean discharges is 670 ft^3/s.
b Many days in 1933, 34, and 36.
c Due in part to regulation.
e Estimated.



05313500 YELLOW MEDICINE RIVER NEAR GRANITE FALLS, MN

LOCATION.--Lat 44°43'18", long 95°31'07", in NW¼SW¼ sec. 35, T.115 N., R.39 W., Yellow Medicine County, Hydrologic Unit 07020004, on right bank 50 ft downstream from highway bridge, 6 mi upstream from mouth, and 8 mi south of town of Granite Falls.

DRAINAGE AREA.--664 mi^2.

PERIOD OF RECORD.--March 1931 to September 1935 (no winter records), October 1935 to September 1938, October 1939 to current year. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 1508: 1931, 1934(M), 1937(M), 1946(M), 1950(M).

GAGE.--Water-stage recorder. Datum of gage is 960.64 ft above sea level (NGVD of 1929). Mar. 16, 1931 to June 13, 1938, nonrecording gage, on bridge 50 ft upstream at present datum. Oct. 12, 1939 to Nov. 30, 1952, nonrecording gage 500 ft downstream at present datum.

REMARKS.--Records good except those for estimated daily discharges, which are fair to poor.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1919 reached a stage of 17.5 ft, from information by local residents, discharge, 25,200 ft^3/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 260 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
May 26	2300	434	3.78	Jun 13	1100	859	4.61
Jun 1	1200	*1,140	*5.02	Aug 26	1000	452	3.87

Minimum discharge, 1.8 ft^3/s, Jan. 25 (estimated daily, backwater from ice).

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.0	12	7.0	e8.2	e2.1	e20	67	34	1,110	145	19	180
2	3.3	10	7.0	e8.6	e2.2	e34	61	31	943	133	18	150
3	3.4	10	7.5	e8.4	e2.3	e35	55	27	751	136	17	125
4	3.5	12	8.3	e6.2	e2.4	e38	53	25	628	150	18	104
5	3.4	11	9.8	e4.8	e2.5	e39	48	24	525	158	17	86
6	3.3	10	9.2	e4.5	e2.5	e40	44	23	450	145	15	73
7	3.5	10	9.3	e4.4	e2.5	e41	41	21	387	136	23	62
8	4.2	9.4	9.7	e3.9	e2.5	e47	39	19	379	132	23	60
9	4.7	9.3	e8.9	e3.6	e2.5	e55	37	18	403	127	19	57
10	4.6	9.5	e6.6	e3.7	e2.5	e64	36	17	497	116	19	50
11	5.7	11	e5.6	e3.9	e2.5	e64	34	17	756	108	18	46
12	6.5	11	e3.9	e4.0	e2.5	e56	32	16	771	100	16	41
13	6.1	11	e3.6	e4.2	e2.5	e81	30	15	835	95	13	36
14	6.2	10	e4.3	e4.2	e2.5	e87	29	15	730	86	12	33
15	6.0	10	e5.6	e4.0	e2.5	e69	27	15	614	e81	11	36
16	5.7	13	e6.7	e3.9	e2.3	e73	26	17	597	75	13	40
17	14	12	e6.3	e4.1	e2.4	e73	26	26	541	68	11	72
18	8.7	12	e6.1	e3.7	e2.6	e72	25	26	508	61	9.9	121
19	7.5	11	e5.8	e2.9	e2.8	e71	25	138	478	60	8.6	119
20	6.9	11	e5.6	e2.5	e3.2	e96	25	151	427	56	8.1	98
21	6.0	11	e5.9	e2.5	e3.5	e83	29	128	387	51	9.5	90
22	5.1	9.9	e6.2	e2.2	e3.8	e85	30	110	344	48	8.5	83
23	6.8	11	e6.5	e1.9	e4.3	e96	43	114	305	39	7.4	94
24	7.1	9.8	e5.7	e1.9	e4.5	e91	58	162	273	36	11	120
25	6.5	8.1	e5.1	e1.8	e4.6	80	56	300	243	33	91	133
26	6.2	6.7	e5.4	e1.8	e5.1	77	51	408	222	29	428	130
27	6.7	8.0	e6.8	e1.8	e5.7	78	45	420	203	25	401	116
28	6.8	8.6	e7.7	e1.9	e6.6	81	42	354	187	23	384	101
29	6.8	7.7	e8.0	e1.9	e9.4	77	40	320	173	25	324	88
30	7.7	7.4	e7.9	e2.0	---	76	35	529	159	22	261	78
31	9.9	---	e8.1	e2.0	---	73	---	918	---	20	219	---
TOTAL	185.8	303.4	210.1	115.4	97.3	2,052	1,189	4,438	14,826	2,519	2,453.0	2,622
MEAN	5.99	10.1	6.78	3.72	3.36	66.2	39.6	143	494	81.3	79.1	87.4
MAX	14	13	9.8	8.6	9.4	96	67	918	1,110	158	428	180
MIN	3.0	6.7	3.6	1.8	2.1	20	25	15	159	20	7.4	33
AC-FT	369	602	417	229	193	4,070	2,360	8,800	29,410	5,000	4,870	5,200
CFSM	0.01	0.02	0.01	0.01	0.01	0.10	0.06	0.22	0.74	0.12	0.12	0.13
IN.	0.01	0.02	0.01	0.01	0.01	0.11	0.07	0.25	0.83	0.14	0.14	0.15

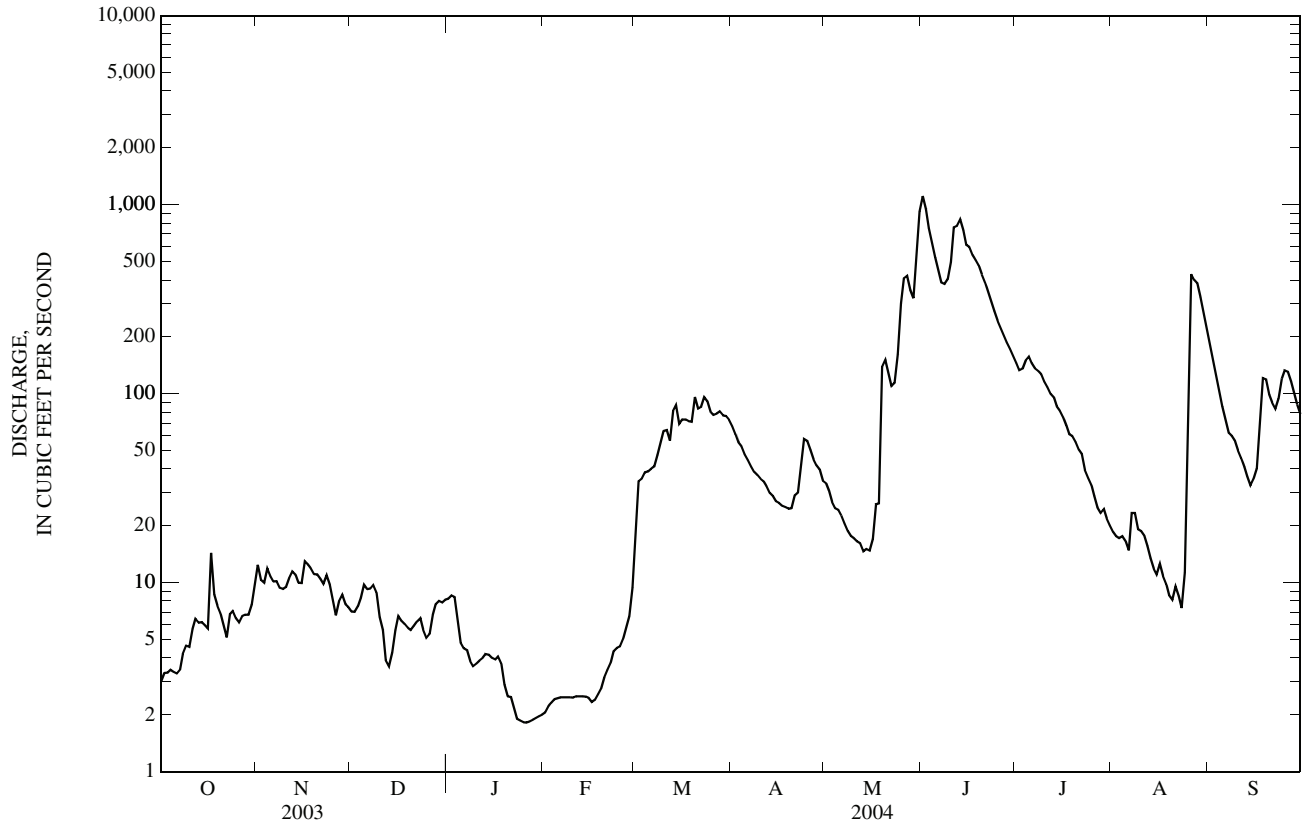
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1931 - 2004, BY WATER YEAR (WY)

MEAN	41.7	45.2	29.3	14.2	19.2	215	515	210	276	136	66.9	41.3
MAX	561	392	256	88.3	149	933	3,302	1,087	2,484	1,600	510	1,005
(WY)	(1996)	(1996)	(1996)	(1996)	(1998)	(1986)	(1969)	(1944)	(1984)	(1993)	(1953)	(1986)
MIN	1.41	1.60	1.39	0.90	0.13	3.67	2.58	1.18	1.18	0.34	0.38	0.47
(WY)	(1937)	(1938)	(1936)	(1948)	(1959)	(1975)	(1934)	(1934)	(1934)	(1933)	(1934)	(1976)

05313500 YELLOW MEDICINE RIVER NEAR GRANITE FALLS, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1931 - 2004	
ANNUAL TOTAL	22,748.8		31,011.0			
ANNUAL MEAN	62.3		84.7		a142	
HIGHEST ANNUAL MEAN					566	1993
LOWEST ANNUAL MEAN					8.32	1959
HIGHEST DAILY MEAN	504	Apr 21	1,110	Jun 1	16,400	Apr 10, 1969
LOWEST DAILY MEAN	3.0	Oct 1	1.8	Jan 25-27	b0.00	Jul 26, 1931
ANNUAL SEVEN-DAY MINIMUM	3.3	Sep 2	1.9	Jan 23	0.00	Jan 21, 1948
MAXIMUM PEAK FLOW			1,140	Jun 1	17,200	Apr 10, 1969
MAXIMUM PEAK STAGE			5.02	Jun 1	14.90	Apr 10, 1969
INSTANTANEOUS LOW FLOW			c1.8	Jan 25	b0.00	Jul 26, 1931
ANNUAL RUNOFF (AC-FT)	45,120		61,510		103,100	
ANNUAL RUNOFF (CFSM)	0.094		0.128		0.214	
ANNUAL RUNOFF (INCHES)	1.27		1.74		2.91	
10 PERCENT EXCEEDS	204		248		330	
50 PERCENT EXCEEDS	10		20		22	
90 PERCENT EXCEEDS	4.3		3.4		2.7	

a Median of annual mean discharges is 87 ft^3/s.
b Many days, several years.
c Estimated daily-mean discharge, backwater from ice.
e Estimated



05315000 REDWOOD RIVER NEAR MARSHALL, MN

LOCATION.--Lat 44°25'49", long 95°50'43", in SW¼SE¼ sec. 12, T.111 N., R.42 W., Lyon County, Hydrologic Unit 07020006, on right bank 1.7 mi upstream from Redwood River diversion structure on southwest edge of town of Marshall, MN. Prior to Apr. 10, 1980, at site 5 mi downstream.

DRAINAGE AREA.--259 mi^2.

PERIOD OF RECORD.--March 1940 to current year. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WDR MN-89-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,188.23 ft above sea level (NGVD of 1929). March 1940 to April 9, 1980, nonrecording gage 5.0 mi downstream from present site at datum 43.35 ft lower (crest-stage gage added June 12, 1968). From March 1964 to April 1980, nonrecording gage and crest-stage gage on diversion channel 1.5 mi downstream at datum 1,100.00 ft above sea level.

REMARKS.--Records good except those for estimated daily discharge, which are fair to poor. Water diverted at medium and high stages into diversion channel 3.4 mi below station. Diversion began Mar. 18, 1964. Unknown amount of natural diversion into Cottonwood River basin occurs at extremely high stages 0.8 mi below station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.6	e15	e8.2	e5.6	e3.5	e103	35	19	681	120	22	e11
2	5.3	e14	e8.0	e5.5	e3.5	e98	33	20	583	108	22	e11
3	5.1	e14	e8.1	e5.0	e3.5	e96	31	19	478	104	22	e11
4	4.9	e14	e8.1	e4.2	e3.3	e88	29	18	400	117	22	e11
5	5.2	e12	e7.9	e3.8	e3.4	e81	28	17	343	107	20	e12
6	4.8	e11	e7.9	e3.7	e3.6	e75	27	16	294	98	19	e13
7	e7.1	e10	e8.2	e3.6	e3.8	e71	27	16	247	90	20	e12
8	e11	e10	e8.1	e3.5	e3.9	e66	25	15	217	84	18	e12
9	e11	e10	e7.2	e3.6	e4.1	e62	25	15	271	77	16	e12
10	e11	e10	e5.7	e3.9	e4.1	e58	24	14	269	72	15	e11
11	e15	e11	e4.3	e4.1	e4.1	e57	22	12	338	100	15	e11
12	e14	e10	e3.6	e4.4	e4.1	e54	22	11	385	91	15	e11
13	e12	e8.9	e3.6	e4.6	e4.2	e47	22	11	329	82	14	e10
14	e12	9.8	e3.9	e4.8	e4.2	e39	21	13	277	73	14	e10
15	e12	e10	e5.0	e5.0	e4.0	e36	19	12	228	64	e16	e11
16	e11	e10	e5.4	e5.1	e3.9	e35	19	13	381	61	e18	e13
17	e11	11	e5.3	e5.0	e4.1	e35	19	19	908	54	e19	14
18	e10	11	e5.3	e4.8	e4.4	e35	18	19	1,500	50	e17	14
19	e11	10	e5.2	e4.6	e4.6	e35	18	21	865	47	e15	12
20	e11	9.7	e5.3	e4.6	e5.0	e35	22	22	553	42	e13	10
21	e11	10	e5.4	e4.6	e5.4	e36	25	25	399	38	e12	10
22	e9.2	12	e5.6	e4.5	e6.5	42	27	27	323	35	e12	12
23	e8.2	e7.8	e5.4	e4.6	e7.6	40	26	39	273	32	e12	12
24	e12	e9.3	e5.3	e4.6	e8.5	37	25	80	245	29	e14	12
25	e13	e8.8	e5.1	e4.5	e9.0	36	27	104	219	27	e13	11
26	e14	e8.2	e5.3	e4.3	e9.8	36	26	110	198	25	e13	10
27	e15	e8.1	e5.6	e3.9	e13	38	24	100	178	23	e12	9.5
28	e16	e7.9	e6.0	e3.6	e31	43	24	95	157	25	e12	9.8
29	e15	e7.9	e5.7	e3.5	e77	43	23	107	143	28	e12	9.8
30	e16	e8.6	e5.6	e3.4	---	41	21	473	129	25	e11	e9.8
31	e14	---	e5.6	e3.4	---	38	---	599	---	23	e11	---
TOTAL	333.4	310.0	184.9	134.3	247.1	1,636	734	2,081	11,811	1,951	486	337.9
MEAN	10.8	10.3	5.96	4.33	8.52	52.8	24.5	67.1	394	62.9	15.7	11.3
MAX	16	15	8.2	5.6	77	103	35	599	1,500	120	22	14
MIN	4.8	7.8	3.6	3.4	3.3	35	18	11	129	23	11	9.5
AC-FT	661	615	367	266	490	3,250	1,460	4,130	23,430	3,870	964	670
CFSM	0.04	0.04	0.02	0.02	0.03	0.20	0.09	0.26	1.52	0.24	0.06	0.04
IN.	0.05	0.04	0.03	0.02	0.04	0.23	0.11	0.30	1.70	0.28	0.07	0.05

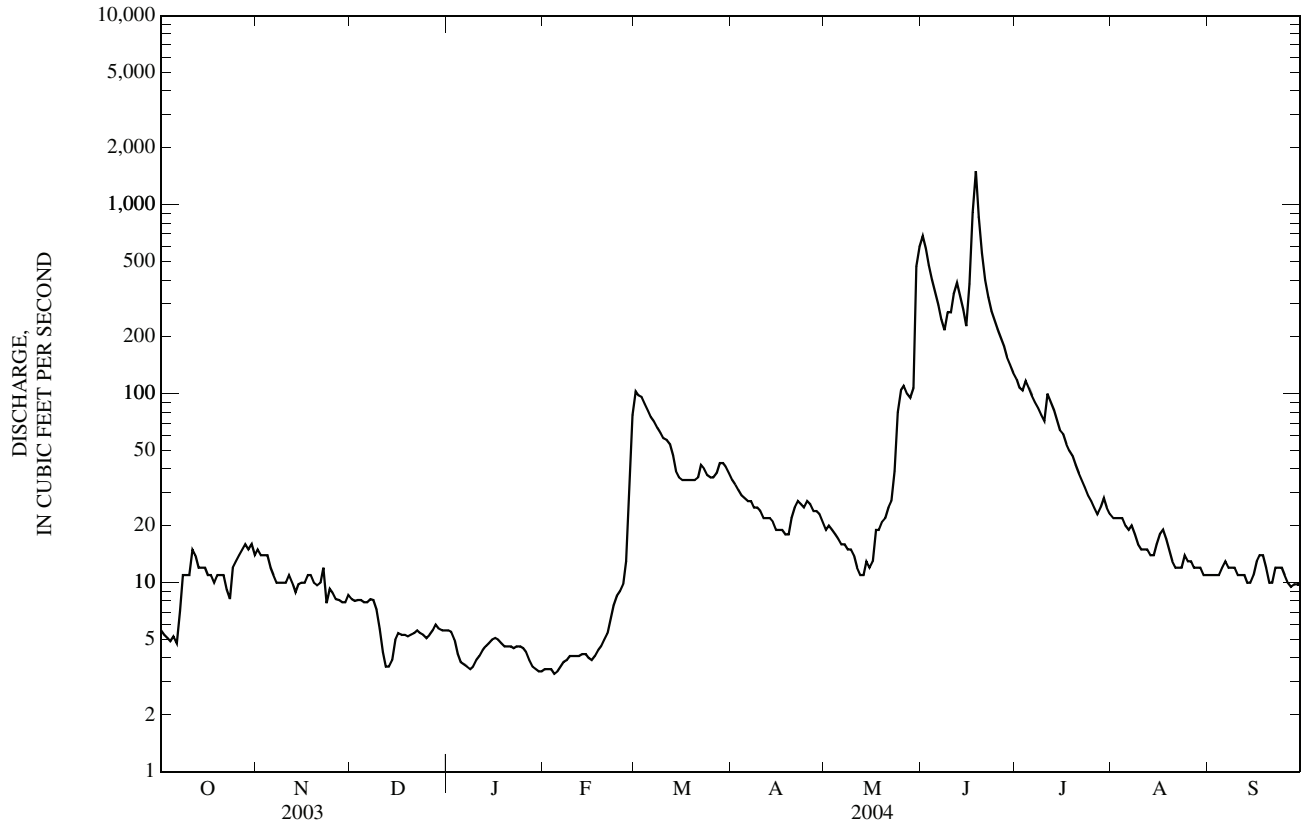
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1940 - 2004, BY WATER YEAR (WY)

MEAN	27.0	27.0	16.1	9.17	16.1	119	241	127	124	69.2	33.5	24.9
MAX	310	202	115	59.4	101	571	1,252	1,205	936	1,161	610	292
(WY)	(1996)	(1996)	(1999)	(1994)	(1983)	(1983)	(2001)	(1993)	(1993)	(1993)	(1993)	(1986)
MIN	0.03	0.58	0.87	0.00	0.09	2.70	7.36	3.90	0.83	0.06	0.04	0.01
(WY)	(1977)	(1977)	(1977)	(1977)	(1979)	(1965)	(1990)	(1981)	(1976)	(1976)	(1941)	(1941)

05315000 REDWOOD RIVER NEAR MARSHALL, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1940 - 2004	
ANNUAL TOTAL	14,950.7		20,246.6			
ANNUAL MEAN	41.0		55.3		a70.0	
HIGHEST ANNUAL MEAN					421	1993
LOWEST ANNUAL MEAN					5.13	1981
HIGHEST DAILY MEAN	494	Apr 20	1,500	Jun 18	5,300	May 9, 1993
LOWEST DAILY MEAN	3.5	Mar 12	3.3	Feb 4	b0.00	Jul 28, 1940
ANNUAL SEVEN-DAY MINIMUM	3.7	Mar 7	3.4	Jan 30	0.00	Jul 28, 1940
MAXIMUM PEAK FLOW			1,660	Jun 18	6,380	May 9, 1993
MAXIMUM PEAK STAGE			13.96	Jun 18	17.00	May 9, 1993
INSTANTANEOUS LOW FLOW			c3.3	Feb 4	b0.00	Jul 28, 1940
ANNUAL RUNOFF (AC-FT)	29,650		40,160		50,730	
ANNUAL RUNOFF (CFSM)	0.158		0.214		0.270	
ANNUAL RUNOFF (INCHES)	2.15		2.91		3.67	
10 PERCENT EXCEEDS	133		107		167	
50 PERCENT EXCEEDS	10		14		13	
90 PERCENT EXCEEDS	5.2		4.4		2.1	

a Median of annual mean discharges is 45.0 ft^3/s.
b Many days, several years.
c Estimated daily-mean discharge, backwater from ice.
e Estimated.



05316500 REDWOOD RIVER NEAR REDWOOD FALLS, MN

LOCATION.--Lat 44°31'25', long 95°10'20", in SE¼NE¼ sec. 9, T.112 N., R.36 W., Redwood County, Hydrologic Unit 07020006, on right bank 4 ft upstream from highway bridge, 3 mi west of town of Redwood Falls, and 8.5 mi upstream from mouth.

DRAINAGE AREA.--629 mi^2.

PERIOD OF RECORD.--July 1909 to September 1914 (no winter records except 1911-12). August 1930 to September 1935 (no winter records), October 1935 to current year.

REVISED RECORDS.--WDR MN-89-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 972.33 ft above sea level (NGVD of 1929). July 1909 to September 1914, nonrecording gage at bridge 20 ft downstream at datum 0.22 ft lower. August 1930 to Oct. 25, 1949, nonrecording gage, at bridge 20 ft downstream at present datum.

REMARKS.--Records good except those for estimated daily discharges, which are fair to poor. Natural discharge affected by unknown amount of interbasin flow between Yellow Medicine, Redwood, and Cottonwood River Basins during extreme floods.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 400 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
May 30	1800	*3,210	*8.08	Jun 21	2200	1,080	4.80
Jun 11	1800	2,580	7.29				

Minimum discharge, 7.6 ft^3/s, Jan. 29, (estimated daily-mean).

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	21	e15	e13	e8.5	e403	91	40	1,980	261	70	39
2	13	21	e16	e13	e8.7	e401	85	40	1,710	243	62	39
3	13	23	e17	e11	e8.8	e377	77	38	1,540	227	62	34
4	13	24	e17	e10	e8.9	e355	74	37	1,360	212	e61	31
5	14	24	e17	e9.4	e8.9	e321	70	37	1,080	206	e59	35
6	15	21	e17	e8.8	e8.9	e288	66	37	864	203	e55	48
7	e16	16	e18	e9.2	e9.0	e259	66	35	695	192	e62	46
8	e18	18	e17	e9.8	e9.1	e226	62	32	576	181	e58	43
9	e19	18	e16	e10	e9.1	e214	59	31	820	169	e54	36
10	e19	18	e15	e11	e9.1	e188	57	32	1,080	160	e51	34
11	e20	23	e14	e12	e9.1	e156	55	28	1,640	188	e48	32
12	e20	25	e13	e12	e9.2	e154	53	27	2,370	307	e46	29
13	e18	22	e15	e11	e9.2	e159	50	28	1,810	282	e45	31
14	e17	20	e16	e11	e9.3	e154	48	27	1,360	237	e44	78
15	e16	30	e15	e11	e9.7	e145	47	27	1,050	203	e55	84
16	e16	26	e15	e11	e9.7	e135	44	28	841	182	e81	92
17	e15	23	e15	e11	e9.9	e128	43	37	757	176	90	100
18	e14	22	e15	e10	e10	e126	42	46	839	155	73	77
19	e14	21	e15	e10	e12	e126	42	46	919	139	63	65
20	e13	21	e14	e10	e12	e126	44	45	990	124	53	56
21	e13	20	e15	e9.7	e13	e127	50	48	1,050	118	46	71
22	e14	21	e16	e9.5	e13	e123	53	53	1,010	113	39	e112
23	e12	17	e15	e9.0	e14	e121	53	89	719	102	39	e109
24	e13	13	e13	e8.9	e14	e121	56	308	564	84	55	e92
25	e15	e11	e14	e8.5	e14	e114	55	325	483	76	95	77
26	e17	e12	e14	e8.2	e15	109	55	322	421	68	64	67
27	e17	e13	e14	e8.2	e36	109	51	296	375	61	e54	60
28	18	e15	e14	e7.8	e134	115	48	260	337	63	e49	56
29	20	e15	e14	e7.6	e272	108	45	732	300	77	e46	58
30	22	e15	e13	e7.8	---	99	41	2,870	274	77	e43	61
31	22	---	e13	e8.2	---	96	---	2,610	---	71	40	---
TOTAL	499	589	467	307.6	714.1	5,683	1,682	8,611	29,814	4,957	1,762	1,792
MEAN	16.1	19.6	15.1	9.92	24.6	183	56.1	278	994	160	56.8	59.7
MAX	22	30	18	13	272	403	91	2,870	2,370	307	95	112
MIN	12	11	13	7.6	8.5	96	41	27	274	61	39	29
AC-FT	990	1,170	926	610	1,420	11,270	3,340	17,080	59,140	9,830	3,490	3,550
CFSM	0.03	0.03	0.02	0.02	0.04	0.29	0.09	0.44	1.58	0.25	0.09	0.09
IN.	0.03	0.03	0.03	0.02	0.04	0.34	0.10	0.51	1.76	0.29	0.10	0.11

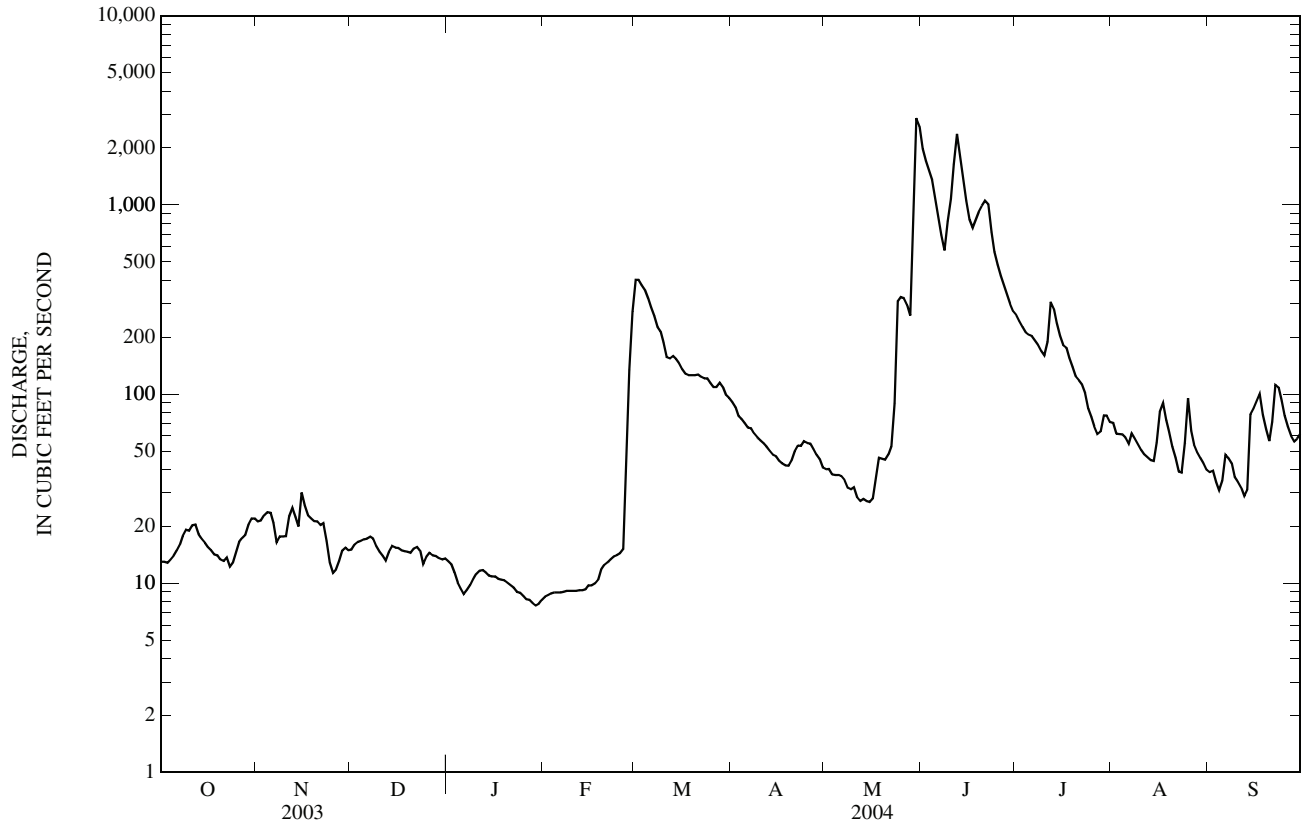
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1909 - 2004, BY WATER YEAR (WY)

MEAN	55.4	60.2	38.4	18.8	24.3	235	460	237	273	151	77.4	50.5
MAX	509	541	245	110	167	1,289	2,880	1,530	2,724	1,994	934	673
(WY)	(1996)	(1980)	(1983)	(2002)	(1983)	(1983)	(1969)	(1993)	(1993)	(1993)	(1993)	(1986)
MIN	0.84	0.96	0.46	0.19	0.20	1.54	14.6	2.75	1.01	0.44	0.51	0.31
(WY)	(1937)	(1936)	(1936)	(1940)	(1937)	(1965)	(1934)	(1934)	(1934)	(1934)	(1934)	(1976)

05316500 REDWOOD RIVER NEAR REDWOOD FALLS, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1909 - 2004	
ANNUAL TOTAL	40,163.6		56,877.7			
ANNUAL MEAN	110		155		a154	
HIGHEST ANNUAL MEAN					789	1993
LOWEST ANNUAL MEAN					10.8	1959
HIGHEST DAILY MEAN	1,140	Apr 21	2,870	May 30	13,200	Apr 9, 1969
LOWEST DAILY MEAN	4.4	Sep 9	7.6	Jan 29	b0.00	Jan 17, 1940
ANNUAL SEVEN-DAY MINIMUM	6.8	Sep 4	8.0	Jan 25	0.01	Jan 25, 1940
MAXIMUM PEAK FLOW			3,210	May 30	19,700	Jun 18, 1957
MAXIMUM PEAK STAGE			8.08	May 30	c18.01	Mar 29, 1997
INSTANTANEOUS LOW FLOW			d7.6	Jan 29	b0.00	Jan 17, 1940
ANNUAL RUNOFF (AC-FT)	79,660		112,800		111,400	
ANNUAL RUNOFF (CFSM)	0.175		0.247		0.244	
ANNUAL RUNOFF (INCHES)	2.38		3.36		3.32	
10 PERCENT EXCEEDS	336		323		365	
50 PERCENT EXCEEDS	22		42		34	
90 PERCENT EXCEEDS	12		10		2.9	

a Median of annual mean discharges is 110 ft^3/s.
b Many days in 1940 and 1959.
c From highwater mark.
d Estimated daily-mean, backwater from ice.
e Estimated.



05316580 MINNESOTA RIVER AT MORTON, MN

LOCATION.--Lat 44°32'46', long 94°59'46", in NE¼SE¼ sec. 36, T.113 N., R.35 W., Redwood County, Hydrologic Unit 07020007, on right bank 10 ft downstream from highway bridge, ½ mi southwest of town of Morton, and 203 mi upstream from mouth.

DRAINAGE AREA.--8,970 mi^2.

PERIOD OF RECORD.--October 2000 to current year.

GAGE.--Water-stage recorder.

REMARKS.--Records good except those for estimated daily discharges, which are fair to poor. Some regulation from Big Stone Lake, Marsh Lake, and Lac qui Parle.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e126	e222	e246	e155	e137	e295	1,300	e662	9,170	1,870	846	e624
2	e106	e205	e244	e154	e140	e351	1,130	e658	8,160	e1,870	941	e521
3	e108	e206	e244	e153	e135	e441	985	e625	7,290	e1,840	956	e506
4	e107	e230	e244	e152	e135	e567	904	e617	6,450	e1,640	926	e461
5	e107	e230	e236	e152	e141	e754	798	e573	5,430	e1,620	779	e466
6	e109	e227	e232	e152	e141	e935	e747	e557	4,570	e1,550	e678	e495
7	e111	e203	e226	e154	e142	e1,130	e742	e502	3,910	e1,480	e641	e422
8	e110	e227	e203	e156	e156	e1,310	e733	e441	3,480	1,720	e691	e404
9	e101	e263	e180	e158	e171	e1,480	e729	e425	3,790	1,970	e790	e421
10	e106	e275	e168	e159	e175	e1,650	e723	e399	5,460	2,070	e696	e359
11	e108	e243	e162	e159	e175	e1,770	e708	e387	e6,750	2,150	e629	e297
12	e105	e249	e160	e160	e175	e1,820	e708	e380	e7,970	2,230	e674	e330
13	e116	e236	e160	e157	e175	1,950	e699	e378	e8,140	2,100	705	e355
14	e146	e214	e160	e149	e184	1,910	e667	e355	e8,360	1,830	e619	e436
15	e158	e214	e159	e142	e214	1,870	e636	e547	e7,910	1,730	e473	e542
16	e146	e230	e158	e141	e241	1,790	e629	727	e7,110	1,720	e426	e582
17	e136	e220	e156	e141	e249	1,700	e628	884	e6,440	1,660	e421	e551
18	e203	e226	e154	e141	e244	1,540	e590	950	e6,190	1,410	e439	e573
19	e193	e221	e154	e146	e234	1,210	e589	951	5,960	1,340	e424	e671
20	e223	e231	e154	e147	e215	1,200	e594	981	5,540	1,330	e394	e691
21	e222	e237	e153	e148	e204	1,070	e615	1,070	5,120	1,410	e394	e677
22	e210	e251	e154	e147	e190	920	e629	897	4,770	1,530	e359	825
23	e199	e247	e155	e147	e188	918	e672	782	4,180	1,440	e316	912
24	e195	e153	e155	e146	e190	995	e680	1,020	3,550	1,270	e309	1,060
25	e211	e226	e155	e145	e193	1,030	e757	1,420	3,110	1,090	e435	1,330
26	e193	e254	e156	e143	e205	1,120	e771	1,650	2,780	1,050	e501	1,580
27	e195	e254	e157	e143	e214	1,290	e752	1,870	2,520	1,020	797	1,540
28	e227	e252	e160	e138	e230	1,500	e712	2,050	2,250	970	844	e1,470
29	e224	e249	e162	e134	e251	1,580	e679	2,570	2,120	919	774	e1,380
30	e189	e247	e162	e131	---	1,470	e683	6,910	2,000	791	730	e1,320
31	e216	---	e158	e132	---	1,390	---	9,580	---	760	e688	---
TOTAL	4,906	6,942	5,527	4,582	5,444	38,956	22,189	41,818	160,480	47,380	19,295	21,801
MEAN	158	231	178	148	188	1,257	740	1,349	5,349	1,528	622	727
MAX	227	275	246	160	251	1,950	1,300	9,580	9,170	2,230	956	1,580
MIN	101	153	153	131	135	295	589	355	2,000	760	309	297
AC-FT	9,730	13,770	10,960	9,090	10,800	77,270	44,010	82,950	318,300	93,980	38,270	43,240
CFSM	0.02	0.03	0.02	0.02	0.02	0.14	0.08	0.15	0.60	0.17	0.07	0.08
IN.	0.02	0.03	0.02	0.02	0.02	0.16	0.09	0.17	0.67	0.20	0.08	0.09

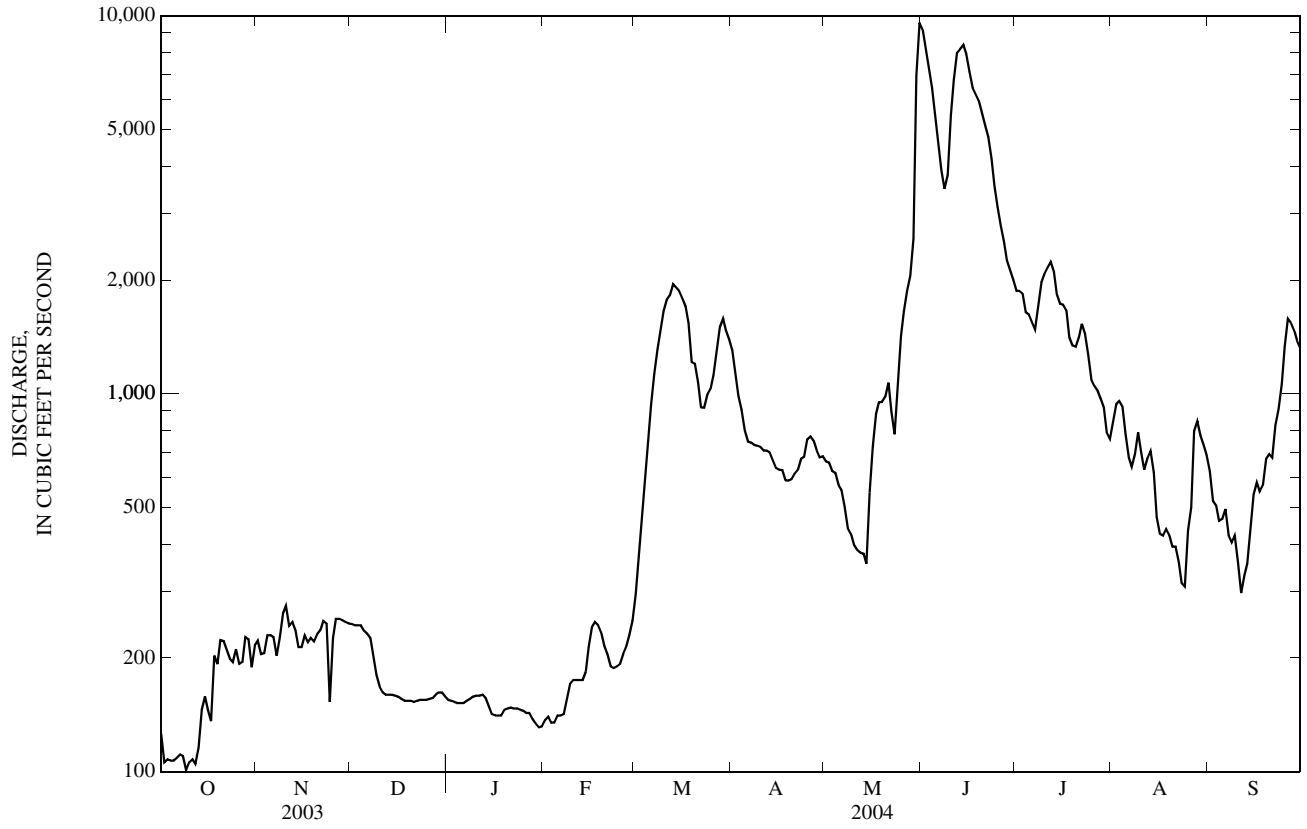
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2001 - 2004, BY WATER YEAR (WY)

MEAN	395	494	474	359	403	1,162	8,627	5,050	4,038	2,168	931	529
MAX	905	766	945	661	806	1,693	26,720	11,780	6,049	3,354	1,385	727
(WY)	(2003)	(2003)	(2002)	(2002)	(2002)	(2003)	(2001)	(2001)	(2001)	(2001)	(2002)	(2004)
MIN	98.2	231	178	148	188	555	740	1,349	2,150	1,399	622	235
(WY)	(2001)	(2004)	(2004)	(2004)	(2004)	(2001)	(2004)	(2004)	(2003)	(2002)	(2004)	(2003)

05316580 MINNESOTA RIVER AT MORTON, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 2001 - 2004	
ANNUAL TOTAL	416,527		379,320			
ANNUAL MEAN	1,141		1,036		2,050	
HIGHEST ANNUAL MEAN					4,252	2001
LOWEST ANNUAL MEAN					1,036	2004
HIGHEST DAILY MEAN	4,330	May 21	9,580	May 31	45,400	Apr 15, 2001
LOWEST DAILY MEAN	101	Oct 9	a101	Oct 9	a81	Oct 6, 2000
ANNUAL SEVEN-DAY MINIMUM	107	Oct 6	107	Oct 6	86	Oct 5, 2000
MAXIMUM PEAK FLOW			10,000	May 31	45,400	Apr 15, 2001
MAXIMUM PEAK STAGE			21.40	May 31	b29.26	Apr 16, 2001
INSTANTANEOUS LOW FLOW			c101	Oct 9	a80	Oct 6, 2000
ANNUAL RUNOFF (AC-FT)	826,200		752,400		1,485,000	
ANNUAL RUNOFF (CFSM)	0.127		0.116		0.229	
ANNUAL RUNOFF (INCHES)	1.73		1.57		3.11	
10 PERCENT EXCEEDS	2,890		2,060		4,500	
50 PERCENT EXCEEDS	484		484		726	
90 PERCENT EXCEEDS	160		147		196	

a Due in part to regulation.
b Maximum recorded, peak stage was less than 30.0 feet.
c Minimum daily. Due in part to regulation.
e Estimated.



05317000 COTTONWOOD RIVER NEAR NEW ULM, MN

LOCATION.--Lat 44°17'29", long 94°26'24", in SW¼NE¼ sec. 33, T.110 N., R.30 W., Brown County, Hydrologic Unit 07020008, on left bank 600 ft upstream from highway bridge, 1.8 mi south of New Ulm, and 3.2 mi upstream from mouth.

DRAINAGE AREA.--1,300 mi^2.

PERIOD OF RECORD.--July 1909 to December 1913, March 1931 to March 1938, August 1938 to current year (winter records incomplete prior to 1936).

REVISED RECORDS.--WSP 355: 1912.

GAGE.--Water-stage recorder. Datum of gage is 796.83 ft above sea level (NGVD of 1929). July 1, 1909 to Dec. 13, 1913, nonrecording gage at site 2.7 mi upstream at different datum. Mar. 15, 1931 to Mar. 31, 1938, nonrecording gage 2.2 mi upstream at datum 11.41 ft higher. Aug. 23, 1938 to June 25, 1948, nonrecording gage at present site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are fair to poor.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,100 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jun 1	0915	*6,410	*12.44	Jul 6	0000	1,190	6.61
Jun 13	(daily)	e3,800	--	Jul 13	1600	1,990	7.97

Minimum discharge, 9.3 ft^3/s, Nov. 24, gage height, 2.38 ft.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	35	e32	e29	e20	e76	246	129	6,290	531	243	117
2	25	34	e32	e30	e20	e238	223	120	5,980	509	233	109
3	25	38	e33	e30	e20	e264	205	112	5,160	735	221	100
4	24	40	e34	e30	e20	e247	186	107	3,660	811	207	92
5	23	43	e36	e29	e20	e258	173	99	2,760	1,040	192	97
6	24	38	e37	e28	e20	e326	164	95	2,170	1,150	179	114
7	25	31	e38	e28	e20	e374	155	86	1,780	1,000	180	87
8	24	32	e40	e29	e21	e307	144	80	1,460	913	176	93
9	24	42	e32	e30	e21	e300	134	79	2,000	851	184	102
10	24	43	e28	e30	e21	e330	126	84	2,350	775	198	104
11	28	44	e26	e31	e21	e311	117	77	2,140	746	194	96
12	27	44	e25	e32	e21	e297	111	69	e3,200	861	169	85
13	27	42	e25	e31	e21	e370	105	68	e3,800	1,840	149	84
14	26	40	e26	e30	e21	e362	101	62	e3,600	1,700	133	101
15	31	40	e28	e29	e21	e337	97	59	e3,200	1,290	120	206
16	28	42	e27	e28	e21	e341	93	61	2,870	1,040	156	364
17	28	44	e27	e27	e21	e341	88	87	2,300	876	157	543
18	30	44	e26	e26	e21	e333	97	141	2,090	763	149	567
19	30	45	e25	e25	e22	e335	111	204	1,810	701	145	479
20	30	44	e25	e25	e22	e395	133	225	1,530	623	167	396
21	33	43	e25	e24	e23	e350	175	246	1,360	576	142	417
22	31	41	e26	e24	e24	310	167	246	1,220	579	123	444
23	29	31	e28	e24	e23	306	158	256	1,080	557	111	486
24	29	e28	e28	e23	e23	299	155	423	959	478	105	634
25	30	e34	e29	e22	e23	299	178	901	838	422	98	634
26	30	e32	e30	e21	e24	283	165	1,070	760	382	124	572
27	32	e32	e31	e20	e26	288	157	1,020	701	346	139	511
28	33	e32	e30	e20	e29	295	156	908	647	314	119	456
29	33	e32	e30	e19	e37	280	151	1,200	600	290	116	411
30	33	e32	e29	e19	---	270	139	3,410	560	266	142	379
31	34	---	e29	e19	---	262	---	5,600	---	244	124	---
TOTAL	876	1,142	917	812	647	9,384	4,410	17,324	68,875	23,209	4,895	8,880
MEAN	28.3	38.1	29.6	26.2	22.3	303	147	559	2,296	749	158	296
MAX	34	45	40	32	37	395	246	5,600	6,290	1,840	243	634
MIN	23	28	25	19	20	76	88	59	560	244	98	84
AC-FT	1,740	2,270	1,820	1,610	1,280	18,610	8,750	34,360	136,600	46,040	9,710	17,610
CFSM	0.02	0.03	0.02	0.02	0.02	0.23	0.11	0.43	1.77	0.58	0.12	0.23
IN.	0.03	0.03	0.03	0.02	0.02	0.27	0.13	0.50	1.97	0.66	0.14	0.25

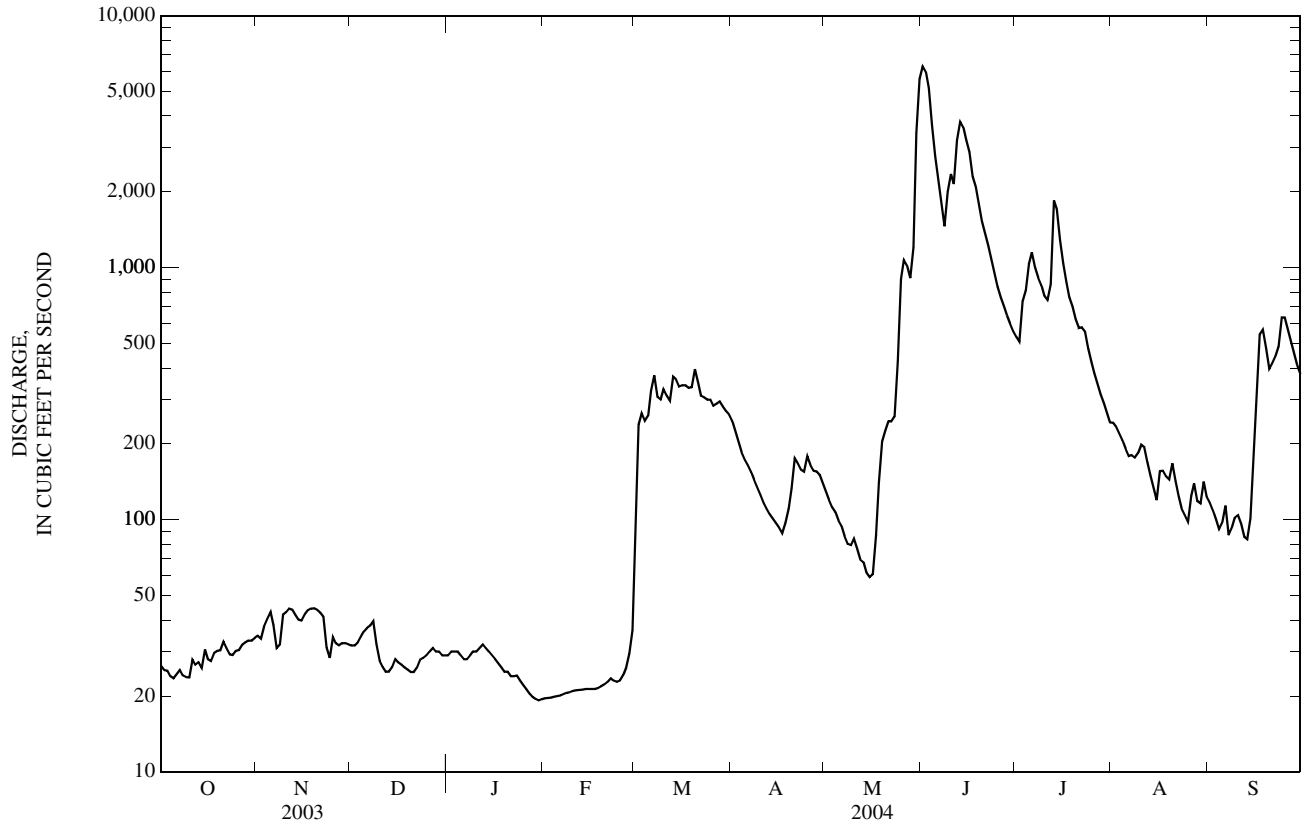
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1909 - 2004, BY WATER YEAR (WY)

MEAN	170	158	109	58.0	99.3	634	1,063	601	655	374	189	151
MAX	3,208	1,099	572	282	628	3,350	7,075	3,497	5,831	3,815	1,791	2,438
(WY)	(1969)	(1980)	(1980)	(1992)	(1983)	(1997)	(1969)	(1993)	(1993)	(1993)	(1993)	(1986)
MIN	4.57	7.97	5.77	1.61	1.47	13.9	40.0	7.57	8.58	4.37	1.05	3.28
(WY)	(1934)	(1940)	(1936)	(1940)	(1940)	(1965)	(1959)	(1934)	(1911)	(1934)	(1934)	(1933)

05317000 COTTONWOOD RIVER NEAR NEW ULM, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1909 - 2004	
ANNUAL TOTAL	83,410		141,371			
ANNUAL MEAN	229		386		a381	
HIGHEST ANNUAL MEAN					1,796	1993
LOWEST ANNUAL MEAN					41.1	1940
HIGHEST DAILY MEAN	1,410	May 14	6,290	Jun 1	27,100	Apr 9, 1969
LOWEST DAILY MEAN	19	Sep 10	19	Jan 29-31	0.60	Aug 1, 1934
ANNUAL SEVEN-DAY MINIMUM	21	Sep 4	20	Jan 27	0.64	Feb 1, 1940
MAXIMUM PEAK FLOW			6,410	Jun 1	28,700	Apr 10, 1969
MAXIMUM PEAK STAGE			12.44	Jun 1	20.86	Apr 8, 1965
INSTANTANEOUS LOW FLOW			b9.3	Nov 24	c0.50	Nov 27, 1952
ANNUAL RUNOFF (AC-FT)	165,400		280,400		275,900	
ANNUAL RUNOFF (CFSM)	0.176		0.297		0.293	
ANNUAL RUNOFF (INCHES)	2.39		4.05		3.98	
10 PERCENT EXCEEDS	745		927		915	
50 PERCENT EXCEEDS	45		104		98	
90 PERCENT EXCEEDS	27		24		14	

a Median of annual mean discharges is 260 ft^3/s.
b Occurred before freezeup.
c Minimum observed.
e Estimated.



05317200 LITTLE COTTONWOOD RIVER NEAR COURTLAND, MN

LOCATION.--Lat 44°14'47", long 94°20'19", in SW¼NE¼ sec.17, T.109 N., R.29 W., Blue Earth County, Hydrologic Unit 07020007, on right bank 30 ft downstream from bridge on State Highway 68, 0.7 mi above mouth, 1.5 mi south of Courtland.

DRAINAGE AREA.--170 mi^2.

PERIOD OF RECORD.--October 1973 to current year. September 1969 to September 1973, operated as a low-flow station only.

GAGE.--Water-stage recorder. Datum of gage is 788.25 ft above sea level (NGVD of 1929).

REMARKS.--Records good except those for estimated days, which are fair.

REVISIONS.--Daily-mean discharges and minimum discharge, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 200 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
May 30	1600	354	5.61	Jun 9	2000	*476	*6.25

Minimum discharge, 1.1 ft^3/s, Jan. 24, gage height, 2.41 ft.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.8	3.3	6.2	7.7	1.6	38	43	20	251	41	24	8.5
2	1.8	3.7	6.5	8.2	1.7	66	39	19	254	39	22	9.2
3	1.7	4.1	7.7	e8.4	1.7	47	35	19	273	46	21	8.5
4	1.9	4.2	8.5	e8.1	1.7	50	33	24	288	47	21	7.5
5	1.7	3.6	8.7	6.3	1.8	44	32	17	270	50	22	7.3
6	1.7	3.6	9.0	4.0	1.9	46	30	15	215	48	21	10
7	1.7	3.9	9.0	3.0	1.9	149	26	12	145	50	22	9.2
8	1.7	3.5	9.0	2.8	1.9	115	23	9.5	105	48	22	8.7
9	1.5	3.9	8.2	2.6	2.1	109	22	11	333	44	23	9.0
10	1.5	4.1	5.8	2.7	2.1	103	20	12	380	42	22	8.8
11	1.7	4.2	5.2	3.0	2.2	69	19	9.5	332	47	21	8.5
12	3.6	4.2	3.5	3.2	2.2	42	18	9.1	312	52	20	8.3
13	3.2	4.1	3.4	3.4	2.2	94	23	9.3	249	73	19	7.5
14	2.7	5.5	3.9	3.6	2.2	78	20	8.6	207	91	17	11
15	2.4	5.0	5.2	3.4	2.0	60	15	8.3	176	96	16	28
16	2.1	4.8	6.1	3.3	2.0	65	14	7.9	148	94	17	54
17	2.1	5.3	5.6	3.6	2.0	60	12	12	123	78	26	46
18	2.0	5.2	5.5	e3.3	2.2	62	11	10	105	61	22	39
19	2.6	4.7	5.2	2.2	2.4	63	16	11	93	50	17	34
20	3.0	4.8	5.1	1.9	2.7	80	16	14	83	44	15	29
21	2.5	4.3	5.2	2.0	2.7	57	21	18	76	44	14	39
22	2.4	4.1	5.5	1.6	3.3	66	24	29	68	43	13	118
23	2.1	4.3	5.8	1.4	3.7	55	25	36	62	52	12	142
24	2.1	3.8	5.0	1.2	3.9	53	23	50	59	61	11	154
25	2.4	3.6	4.5	1.2	4.1	51	26	58	54	51	12	129
26	2.7	3.1	4.7	1.2	4.2	49	28	58	52	43	11	104
27	2.8	3.1	6.3	1.2	4.9	49	30	56	49	39	11	89
28	2.8	3.5	7.2	1.4	5.3	59	29	55	46	36	9.7	73
29	3.0	5.1	7.5	1.4	7.5	61	25	115	44	33	9.9	63
30	3.1	6.0	7.6	1.4	---	57	22	306	42	29	11	57
31	3.3	---	7.8	1.3	---	49	---	296	---	27	10	---
TOTAL	71.6	126.6	194.4	100.0	80.1	2,046	720	1,335.2	4,894	1,599	534.6	1,320.0
MEAN	2.31	4.22	6.27	3.23	2.76	66.0	24.0	43.1	163	51.6	17.2	44.0
MAX	3.6	6.0	9.0	8.4	7.5	149	43	306	380	96	26	154
MIN	1.5	3.1	3.4	1.2	1.6	38	11	7.9	42	27	9.7	7.3
AC-FT	142	251	386	198	159	4,060	1,430	2,650	9,710	3,170	1,060	2,620
CFSM	0.01	0.02	0.04	0.02	0.02	0.39	0.14	0.25	0.96	0.30	0.10	0.26
IN.	0.02	0.03	0.04	0.02	0.02	0.45	0.16	0.29	1.07	0.35	0.12	0.29

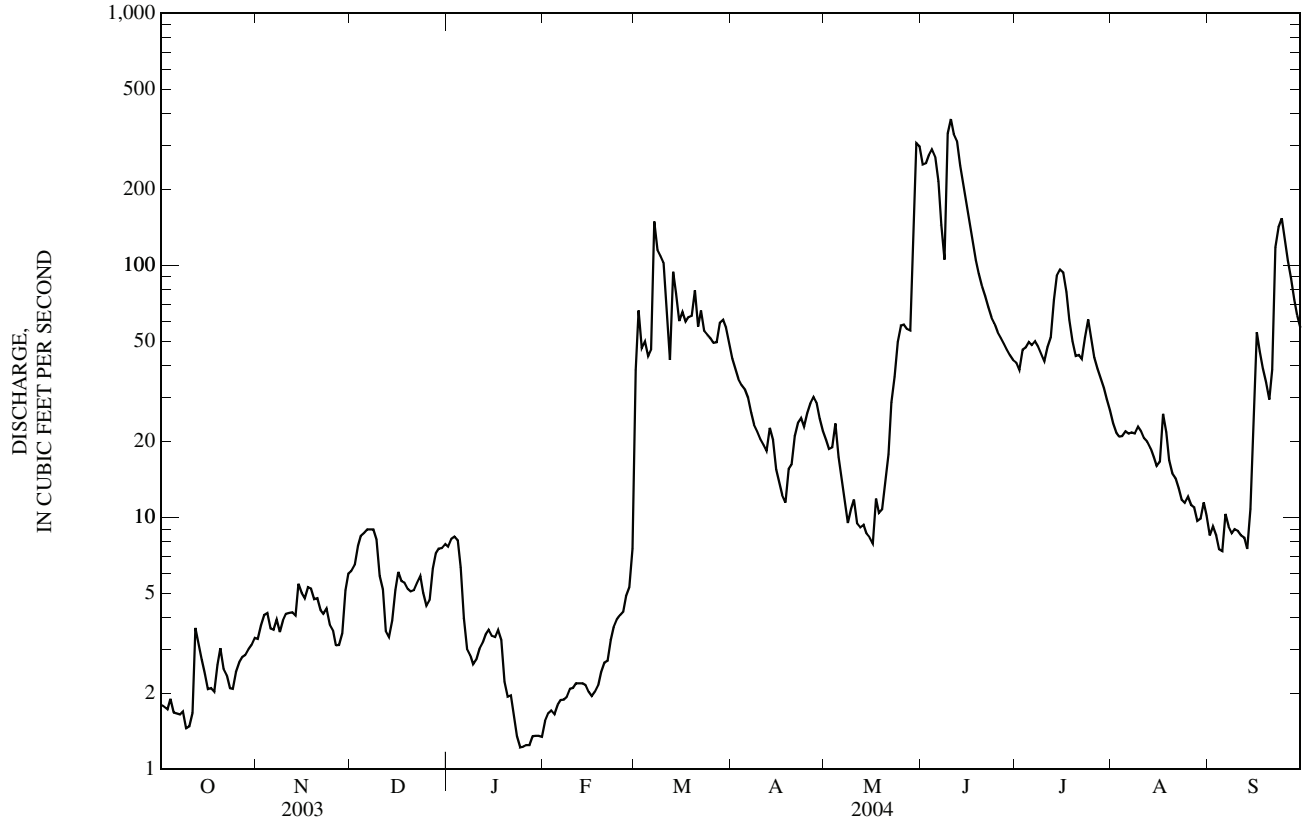
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1974 - 2004, BY WATER YEAR (WY)

MEAN	37.2	42.8	26.2	14.3	21.4	116	182	120	140	87.3	48.7	37.8
MAX	163	134	118	80.1	105	392	980	418	750	553	248	262
(WY)	(1987)	(1983)	(1992)	(1992)	(1983)	(1997)	(2001)	(1993)	(1993)	(1993)	(1993)	(1986)
MIN	0.75	0.70	0.21	0.15	0.38	5.79	9.64	4.17	2.39	0.63	0.81	0.54
(WY)	(1976)	(1977)	(1977)	(1977)	(1977)	(1975)	(1990)	(1981)	(1976)	(1988)	(1976)	(1976)

05317200 LITTLE COTTONWOOD RIVER NEAR COURTLAND, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1974 - 2004	
ANNUAL TOTAL	11,092.7		13,021.5			
ANNUAL MEAN	30.4		35.6		72.9	
HIGHEST ANNUAL MEAN					239	1993
LOWEST ANNUAL MEAN					9.18	1989
HIGHEST DAILY MEAN	189	Jun 25	380	Jun 10	2,850	Jun 20, 1993
LOWEST DAILY MEAN	1.3	Sep 10	1.2	Jan 24-27	0.02	Sep 12, 1977
ANNUAL SEVEN-DAY MINIMUM	1.5	Sep 4	1.3	Jan 23	0.08	Sep 11, 1977
MAXIMUM PEAK FLOW			476	Jun 9	a3,520	Jun 20, 1993
MAXIMUM PEAK STAGE			6.25	Jun 9	11.60	Apr 4, 1997
INSTANTANEOUS LOW FLOW			1.1	Jan 24	<0.1	Sep 17, 1977
ANNUAL RUNOFF (AC-FT)	22,000		25,830		52,780	
ANNUAL RUNOFF (CFSM)	0.179		0.209		0.429	
ANNUAL RUNOFF (INCHES)	2.43		2.85		5.82	
10 PERCENT EXCEEDS	82		85		189	
50 PERCENT EXCEEDS	6.9		11		26	
90 PERCENT EXCEEDS	2.4		2.1		1.7	

a Gage-height, 10.45 ft.
b Backwater from the Minnesota River.
e Estimated.



05319500 WATONWAN RIVER NEAR GARDEN CITY, MN

LOCATION.--Lat 44°02'47", long 94°11'43", in SW¼NE¼ sec. 28, T.107 N., R.28 W., Blue Earth County, Hydrologic Unit 07020010, on left bank 25 ft downstream from bridge on County Highway 13, 1.5 miles west of Garden City, 7.3 mi upstream from mouth, and 9.2 mi downstream from Perch Creek.

DRAINAGE AREA.--851 mi^2.

PERIOD OF RECORD.--March 1940 to September 1945, September 1976 to current year. 1953, 1960, 1961, and 1969 (one or more discharge measurements each year).

REVISED RECORDS.--WDR MN-78-2: 1977. WRIR 97-4249: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 905.05 ft above sea level (NGVD of 1929). Prior to September 30, 1945, nonrecording gage at site 200 ft upstream and at datum 0.17 ft higher.

REMARKS.--Records good except those for estimated daily discharge, which are fair to poor.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Apr. 7, 1965, reached a stage of 18.89 ft at datum 0.17 ft higher, from floodmarks, discharge, 19,000 ft^3/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,200 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
May 31	0500	1,820	5.02	Sep 17	1100	1,250	4.03
Jun 10	1200	*3,230	*7.09	Sep 25	0300	1,820	5.02
Jul 15	0300	2,350	5.86				

Minimum discharge, 5.3 ft^3/s, Oct. 3, gage height, 0.38 ft.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.7	18	19	e14	e8.6	e23	198	91	1,740	217	259	72
2	8.8	20	21	e13	e8.8	e32	175	85	1,600	208	224	68
3	8.1	25	24	e13	e9.0	e53	156	78	1,210	239	208	63
4	6.9	23	23	e11	e9.1	e120	143	72	938	379	193	57
5	8.8	20	24	e10	e9.1	e135	129	68	762	391	229	56
6	9.9	20	24	e9.3	e9.2	e137	119	64	651	522	255	74
7	10	19	23	e9.0	e9.2	e143	110	59	569	645	243	79
8	9.9	16	23	e8.9	e9.2	e161	104	57	515	584	230	82
9	9.8	19	23	e8.9	e9.2	e180	97	51	1,890	510	220	74
10	7.3	21	e15	e9.3	e9.2	e185	90	59	3,090	442	195	65
11	9.4	19	e15	e9.6	e9.3	e183	86	55	2,520	875	173	58
12	11	20	e15	e10	e9.3	e182	79	50	2,010	1,900	156	53
13	9.7	18	e14	e10	e9.3	e177	75	52	1,620	2,260	141	47
14	9.5	22	e14	e11	e9.3	e183	73	49	1,300	2,310	128	71
15	14	18	e13	e11	e9.4	e203	68	46	e1,030	2,290	116	383
16	13	20	e13	e11	e9.5	e213	67	45	e871	2,040	158	992
17	12	20	e12	e10	e9.8	e214	68	53	e759	1,570	180	1,230
18	13	21	e12	e10	e10	e215	62	57	e661	1,170	172	1,200
19	14	19	e12	e9.8	e11	e215	66	58	590	916	150	1,130
20	14	21	e12	e9.7	e11	e210	69	60	529	739	139	1,000
21	15	22	e12	e9.7	e11	e199	80	68	486	621	129	891
22	14	21	e12	e9.6	e11	e185	89	160	444	647	117	1,120
23	14	21	e12	e9.4	e11	228	87	353	395	864	108	1,540
24	15	14	e12	e9.3	e12	228	82	537	362	801	102	1,730
25	16	21	e12	e9.2	e12	218	86	592	333	668	97	1,790
26	16	21	e13	e9.2	e12	209	95	551	305	585	94	1,710
27	16	18	e13	e9.1	e13	210	104	492	276	507	89	1,500
28	17	17	e14	e8.9	e15	234	107	433	258	428	86	1,260
29	17	15	e14	e8.7	e19	266	106	680	238	365	81	1,070
30	17	18	e14	e8.6	---	253	99	1,610	221	315	78	933
31	19	---	e14	e8.6	---	224	---	1,770	---	281	75	---
TOTAL	381.8	587	493	308.8	304.5	5,618	2,969	8,455	28,173	26,289	4,825	20,398
MEAN	12.3	19.6	15.9	9.96	10.5	181	99.0	273	939	848	156	680
MAX	19	25	24	14	19	266	198	1,770	3,090	2,310	259	1,790
MIN	6.7	14	12	8.6	8.6	23	62	45	221	208	75	47
AC-FT	757	1,160	978	613	604	11,140	5,890	16,770	55,880	52,140	9,570	40,460
CFSM	0.01	0.02	0.02	0.01	0.01	0.21	0.12	0.32	1.10	1.00	0.18	0.80
IN.	0.02	0.03	0.02	0.01	0.01	0.25	0.13	0.37	1.23	1.15	0.21	0.89

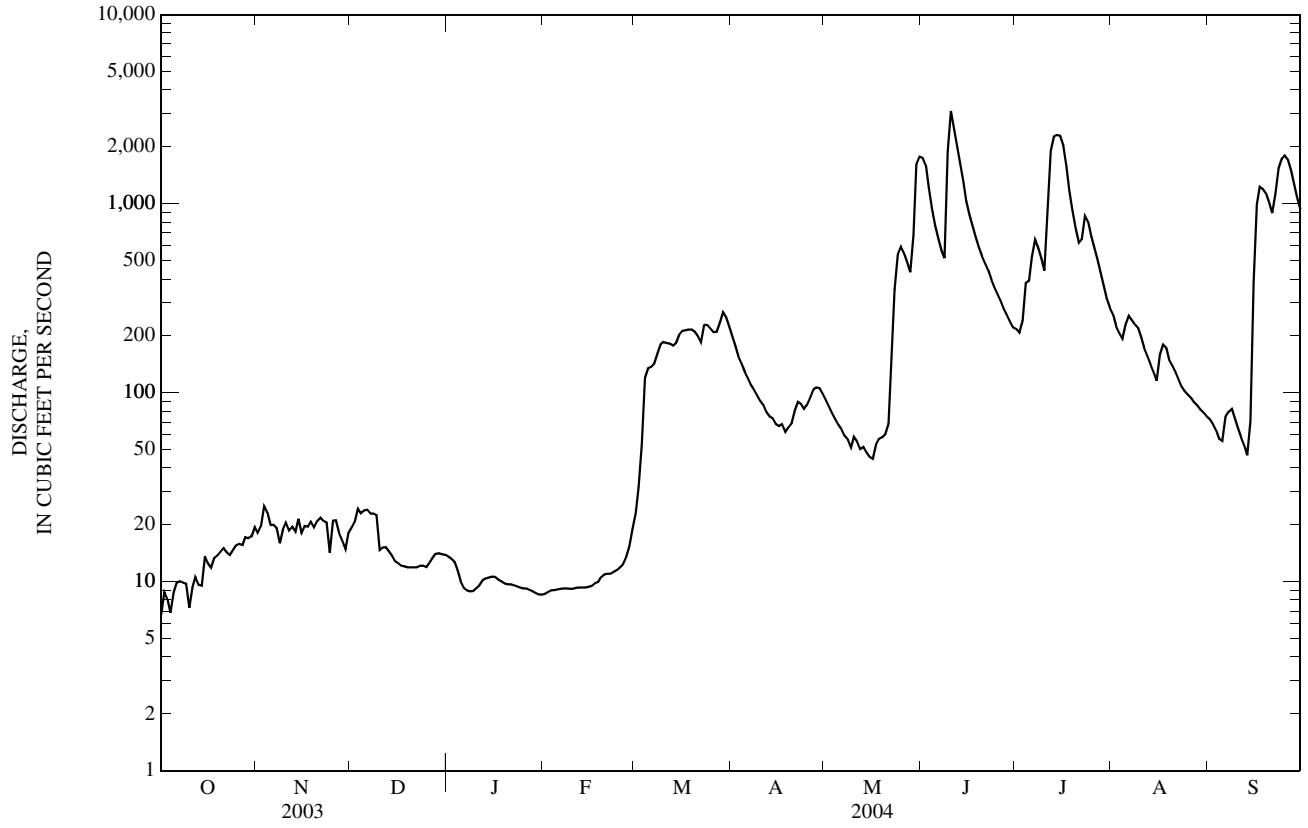
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1940 - 2004, BY WATER YEAR (WY)

MEAN	178	220	133	65.8	98.7	539	918	621	855	477	232	195
MAX	686	826	530	319	626	2,105	4,411	2,025	4,494	2,389	1,095	819
(WY)	(1993)	(1993)	(1992)	(1992)	(1983)	(1992)	(2001)	(1993)	(1993)	(1993)	(1979)	(1993)
MIN	5.37	7.69	3.76	2.70	2.39	19.3	33.7	16.1	17.3	8.27	6.56	3.63
(WY)	(1990)	(1977)	(1990)	(1977)	(1977)	(1940)	(1990)	(1940)	(1989)	(1940)	(1989)	(1976)

05319500 WATONWAN RIVER NEAR GARDEN CITY, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1940 - 2004	
ANNUAL TOTAL	68,648.0		98,802.1			
ANNUAL MEAN	188		270		388	
HIGHEST ANNUAL MEAN					1,330	1993
LOWEST ANNUAL MEAN					43.7	1989
HIGHEST DAILY MEAN	1,240	May 22	3,090	Jun 10	13,400	Jun 20, 1993
LOWEST DAILY MEAN	5.2	Sep 9	6.7	Oct 1	1.8	Dec 24, 1989
ANNUAL SEVEN-DAY MINIMUM	6.1	Sep 4	8.5	Oct 1	1.9	Jan 20, 1977
MAXIMUM PEAK FLOW			3,290	Jun 10	13,900	Jun 20, 1993
MAXIMUM PEAK STAGE			7.09	Jun 10	15.91	Jun 20, 1993
INSTANTANEOUS LOW FLOW			5.3	Oct 3	1.8	Dec 24, 1989
ANNUAL RUNOFF (AC-FT)	136,200		196,000		280,800	
ANNUAL RUNOFF (CFSM)	0.221		0.317		0.456	
ANNUAL RUNOFF (INCHES)	3.00		4.32		6.19	
10 PERCENT EXCEEDS	609		880		1,040	
50 PERCENT EXCEEDS	23		68		135	
90 PERCENT EXCEEDS	12		9.5		14	

e Estimated.



05320000 BLUE EARTH RIVER NEAR RAPIDAN, MN

LOCATION.--Lat 44°05'44", long 94°06'33", in SE¼SE¼ sec. 6, T.107 N., R.27 W., Blue Earth County, Hydrologic Unit 07020009, on left bank 0.2 mi downstream from power plant (reactivated in 1984) operated by Rapidan Redevelopment Limited Partnership, 2 mi west of Rapidan, 3.5 mi downstream from Watonwan River, and 7.8 mi upstream from Le Sueur River.

DRAINAGE AREA.--2,410 mi^2.

PERIOD OF RECORD.--July 1909 to November 1910 published as "at Rapidan Mills" (no winter records), October 1939 to September 1945, July 1949 to current year. Annual maximums only, 1912 to 1939.

REVISED RECORDS.-- WSP 1508: 1910.

GAGE.--Water-stage recorder. Datum of gage is 807.83 ft above sea level (NGVD of 1929). July 20, 1909 to Apr. 28, 1910, nonrecording gage at site 0.2 mi upstream at different datum. Apr. 29 to Nov. 12, 1910, nonrecording gage at site 800 ft upstream at different datum. Oct. 4 to Nov. 14, 1939, nonrecording gage at present site and datum.

REMARKS.--Records good except those for estimated daily discharge, which are fair to poor.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36	e39	53	51	31	90	492	236	6,790	836	977	419
2	35	101	53	51	29	145	443	236	7,170	791	861	387
3	34	98	53	51	29	152	390	206	6,560	752	722	308
4	33	40	53	51	27	168	350	201	5,270	906	803	289
5	33	e18	55	50	27	291	294	189	3,940	837	1,240	285
6	32	e26	55	48	26	411	267	181	3,120	1,010	1,560	283
7	31	53	55	46	26	360	245	179	2,600	1,970	1,660	266
8	27	47	55	44	27	291	232	165	2,290	2,850	1,650	256
9	25	42	56	42	27	388	223	162	4,810	2,900	1,410	291
10	39	47	51	40	28	670	207	150	6,430	2,480	1,300	245
11	44	51	47	38	28	859	190	150	6,090	2,810	1,260	229
12	40	58	47	36	30	567	169	151	5,610	3,990	1,150	214
13	40	62	47	35	32	682	152	165	4,940	4,300	1,070	198
14	40	61	47	36	32	795	150	159	4,490	4,770	948	241
15	41	60	46	36	32	676	146	133	4,500	4,670	794	666
16	48	59	46	37	33	751	146	124	3,820	3,930	947	4,180
17	80	58	46	37	33	704	146	123	3,020	3,270	885	6,410
18	95	59	38	38	33	575	138	164	2,590	2,630	803	7,500
19	75	58	34	38	29	524	168	197	2,230	2,250	736	10,300
20	49	49	37	38	26	544	174	234	2,160	1,920	744	11,700
21	43	48	37	44	26	466	163	272	1,790	1,730	747	11,200
22	45	50	37	43	26	433	168	346	1,760	1,830	731	10,000
23	46	61	38	48	25	442	190	911	1,550	2,200	676	9,640
24	50	66	29	47	24	450	170	1,780	1,440	2,020	667	9,080
25	50	65	27	44	25	436	162	3,270	1,280	1,750	644	8,500
26	48	62	43	41	25	456	192	4,180	1,150	1,470	635	7,850
27	33	61	51	37	29	444	200	4,380	1,140	1,400	639	7,140
28	19	61	51	35	36	474	247	3,760	967	1,220	595	6,390
29	e19	56	51	33	41	504	256	3,340	860	1,050	534	5,890
30	e18	54	51	32	---	499	236	5,750	843	951	507	5,370
31	e17	---	51	32	---	525	---	6,460	---	856	469	---
TOTAL	1,265	1,670	1,440	1,279	842	14,772	6,706	37,954	101,210	66,349	28,364	125,727
MEAN	40.8	55.7	46.5	41.3	29.0	477	224	1,224	3,374	2,140	915	4,191
MAX	95	101	56	51	41	859	492	6,460	7,170	4,770	1,660	11,700
MIN	17	18	27	32	24	90	138	123	843	752	469	198
AC-FT	2,510	3,310	2,860	2,540	1,670	29,300	13,300	75,280	200,800	131,600	56,260	249,400
CFSM	0.02	0.02	0.02	0.02	0.01	0.20	0.09	0.50	1.39	0.88	0.38	1.72
IN.	0.02	0.03	0.02	0.02	0.01	0.23	0.10	0.58	1.55	1.02	0.43	1.92

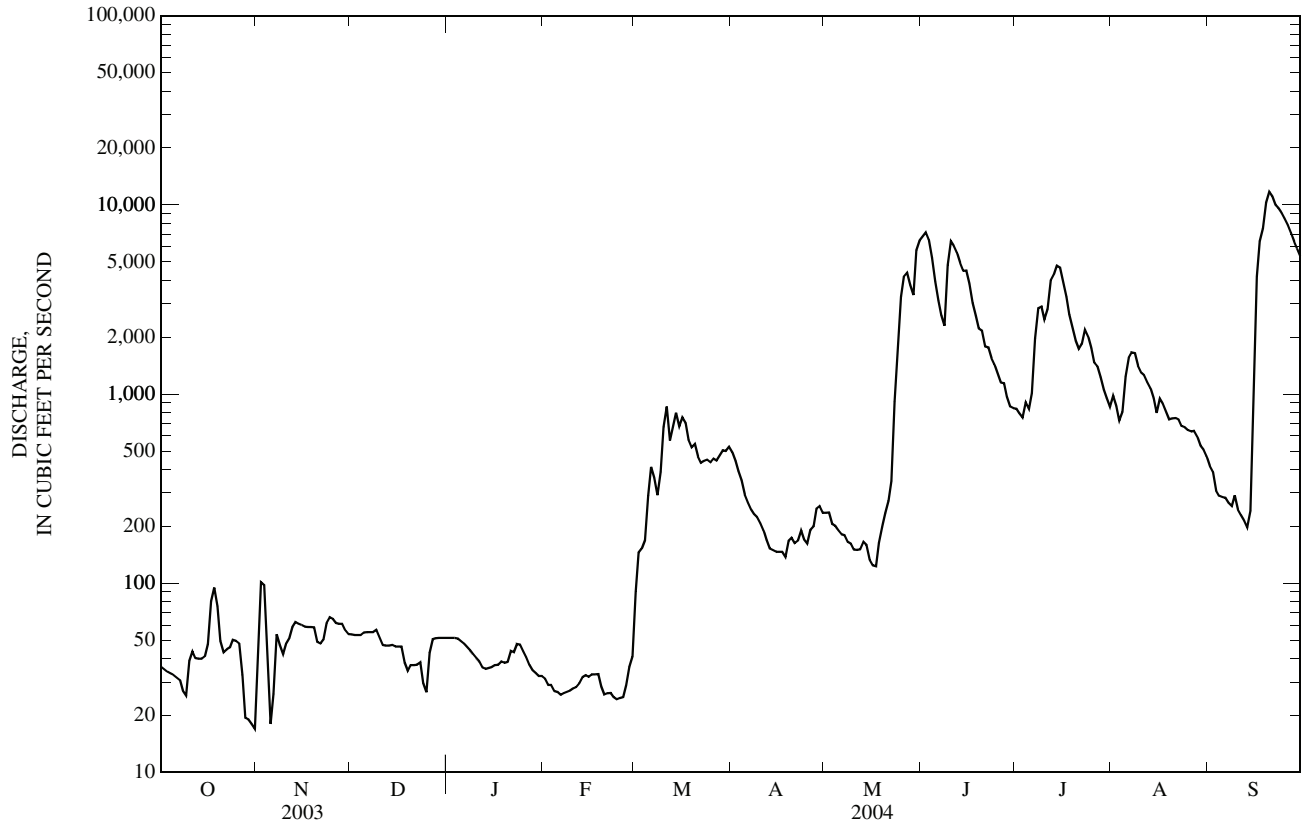
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1909 - 2004, BY WATER YEAR (WY)

MEAN	549	548	343	199	257	1,349	2,717	1,801	2,223	1,376	684	556
MAX	5,121	2,878	1,724	1,093	1,793	6,277	13,230	5,775	11,700	8,540	5,541	4,313
(WY)	(1969)	(1993)	(1992)	(1992)	(1983)	(1983)	(1965)	(1991)	(1993)	(1993)	(1979)	(1993)
MIN	22.5	26.7	16.0	14.8	14.2	92.4	142	53.4	110	30.9	37.7	22.1
(WY)	(1940)	(1940)	(1956)	(1977)	(1959)	(1968)	(1977)	(1940)	(1976)	(1940)	(1976)	(1976)

05320000 BLUE EARTH RIVER NEAR RAPIDAN, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1909 - 2004	
ANNUAL TOTAL	239,816		387,578			
ANNUAL MEAN	657		1,059		1,066	
HIGHEST ANNUAL MEAN					4,518	1993
LOWEST ANNUAL MEAN					105	1940
HIGHEST DAILY MEAN	4,740	May 15	11,700	Sep 20	42,500	Apr 9, 1965
LOWEST DAILY MEAN	17	Oct 31	17	Oct 31	7.4	Oct 28, 1955
ANNUAL SEVEN-DAY MINIMUM	28	Oct 26	25	Feb 20	8.1	Oct 24, 1955
MAXIMUM PEAK FLOW			a12,200	Sep 19	43,100	Apr 9, 1965
MAXIMUM PEAK STAGE			9.84	Sep 19	b21.36	Apr 9, 1965
INSTANTANEOUS LOW FLOW			c <10	Nov 1	6.9	Oct 12, 1955
ANNUAL RUNOFF (AC-FT)	475,700		768,800		772,600	
ANNUAL RUNOFF (CFSM)	0.270		0.436		0.439	
ANNUAL RUNOFF (INCHES)	3.67		5.93		5.96	
10 PERCENT EXCEEDS	2,240		3,850		2,870	
50 PERCENT EXCEEDS	108		190		360	
90 PERCENT EXCEEDS	41		32		45	

a Due in part to regulation.
b From floodmark.
c Due to regulation, flow may have been lower than minimum discharge of record. Dam regulation resulted in a minimum recorded stage of 0.70 feet, which is about about 0.3 feet lower than previous recorded minimum stage.
e Estimated.



05320270 LITTLE COBB RIVER NEAR BEAUFORD, MN

LOCATION.--Lat 43°59'48", long 93°54'30", in SE¼SE¼ sec. 11, T.106 N., R.26 W., Blue Earth County, Hydrologic Unit 07020011, on left bank at downstream end of bridge on County Road No. 16, 1.6 mi upstream from mouth, 2.6 mi east of Beauford, and 5.3 mi northeast of Mapleton.

DRAINAGE AREA.--130 mi^2.

PERIOD OF RECORD.--April 1996 to September 30, 1999, June 2001 to current year.

REVISED RECORDS.-- WDR MN-99-1: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 980 ft above sea level (from topographic map).

REMARKS.--Records good to fair except those for estimated daily discharges, which are poor.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum gage height observed, 12.17 ft, on April 5, 2001, discharge 2,220 ft^3/s (from highwater mark).

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.00	0.00	0.00	0.00	0.00	e8.0	21	6.7	207	75	33	49
2	0.00	0.00	0.00	0.00	0.00	e32	20	6.9	202	55	46	42
3	0.00	0.00	0.00	0.00	0.00	27	19	6.1	187	49	63	36
4	0.00	0.00	0.00	0.00	0.00	24	18	6.5	165	51	72	30
5	0.00	0.00	0.00	0.00	0.00	21	16	6.9	142	55	74	26
6	0.00	0.00	0.00	0.00	0.00	24	14	6.6	121	125	72	51
7	0.00	0.00	0.00	0.00	0.00	24	13	7.3	101	129	70	63
8	0.00	0.00	0.00	0.00	0.00	25	11	8.7	83	131	66	57
9	0.00	0.00	0.00	0.00	0.00	36	9.9	8.6	164	125	61	51
10	0.00	0.00	0.00	0.00	0.00	55	8.3	12	246	113	55	46
11	0.00	0.00	0.00	0.00	0.00	62	6.6	11	279	201	47	39
12	0.00	0.00	0.00	0.00	0.00	48	6.0	9.9	393	264	41	32
13	0.00	0.00	0.00	0.00	0.00	64	5.4	9.9	485	219	35	27
14	0.00	0.00	0.00	0.00	0.00	42	4.7	13	522	187	30	36
15	0.00	0.00	0.00	0.00	0.00	30	4.7	18	512	159	26	316
16	0.00	0.00	0.00	0.00	0.00	27	4.5	22	470	133	35	653
17	0.00	0.00	0.00	0.00	0.00	28	3.7	22	404	110	53	1,050
18	0.00	0.00	0.00	0.00	0.00	23	2.6	22	315	90	70	1,510
19	0.00	0.00	0.00	0.00	e0.10	22	3.5	21	248	76	85	1,220
20	0.00	0.00	0.00	0.00	e0.11	21	4.6	19	202	65	83	962
21	0.00	0.00	0.00	0.00	e0.10	21	5.7	22	166	60	71	825
22	0.00	0.00	0.00	0.00	e0.11	18	7.2	96	138	53	62	720
23	0.00	0.00	0.00	0.00	e0.12	18	8.4	125	114	47	58	635
24	0.00	0.00	0.00	0.00	e0.11	18	8.5	152	94	42	189	546
25	0.00	0.00	0.00	0.00	e0.11	19	9.3	165	79	38	177	458
26	0.00	0.00	0.00	0.00	e0.11	20	12	170	69	34	137	375
27	0.00	0.00	0.00	0.00	e0.30	21	11	169	61	30	111	302
28	0.00	0.00	0.00	0.00	e0.84	23	12	155	56	26	88	255
29	0.00	0.00	0.00	0.00	e2.4	25	11	150	51	24	71	218
30	0.00	0.00	0.00	0.00	---	25	9.2	188	49	22	63	188
31	0.00	---	0.00	0.00	---	23	---	215	---	24	57	---
TOTAL	0.00	0.00	0.00	0.00	4.41	874.0	290.8	1,851.1	6,325	2,812	2,201	10,818
MEAN	0.00	0.00	0.00	0.00	0.15	28.2	9.69	59.7	211	90.7	71.0	361
MAX	0.00	0.00	0.00	0.00	2.4	64	21	215	522	264	189	1,510
MIN	0.00	0.00	0.00	0.00	0.00	8.0	2.6	6.1	49	22	26	26
AC-FT	0.00	0.00	0.00	0.00	8.7	1,730	577	3,670	12,550	5,580	4,370	21,460
CFSM	0.00	0.00	0.00	0.00	0.00	0.22	0.07	0.46	1.62	0.70	0.55	2.77
IN.	0.00	0.00	0.00	0.00	0.00	0.25	0.08	0.53	1.81	0.80	0.63	3.10

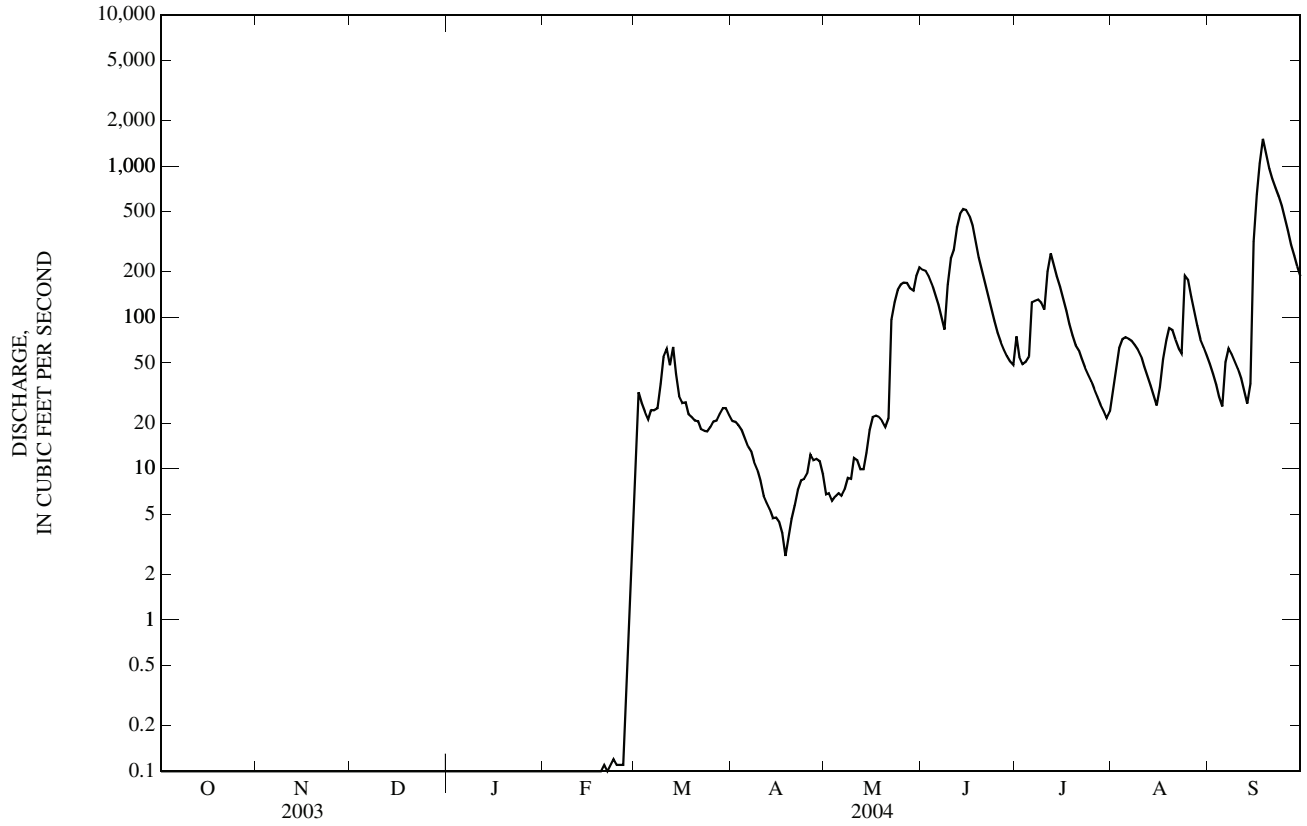
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1996 - 2004, BY WATER YEAR (WY)

MEAN	25.6	24.2	12.7	5.00	23.7	87.9	158	134	142	74.0	27.9	49.2
MAX	128	89.7	54.0	18.2	58.2	278	410	341	217	150	71.0	361
(WY)	(2003)	(1997)	(1997)	(1997)	(1999)	(1997)	(1999)	(1999)	(1999)	(1999)	(2004)	(2004)
MIN	0.00	0.00	0.00	0.00	0.15	12.5	9.69	40.6	65.9	23.8	0.88	0.00
(WY)	(2002)	(2004)	(2004)	(2004)	(2004)	(2002)	(2004)	(2002)	(2003)	(2002)	(2003)	(2003)

05320270 LITTLE COBB RIVER NEAR BEAUFORD, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1996 - 2004	
ANNUAL TOTAL	13,498.26		25,176.31			
ANNUAL MEAN	37.0		68.8		68.3	
HIGHEST ANNUAL MEAN					114	1999
LOWEST ANNUAL MEAN					25.3	2002
HIGHEST DAILY MEAN	399	May 16	1,510	Sep 18	1,510	Sep 18, 2004
LOWEST DAILY MEAN	0.00	Aug 24	0.00	Oct 1 to Feb.18	a0.00	Sep 6, 1998
ANNUAL SEVEN-DAY MINIMUM	0.00	Aug 24	0.00	Oct 1	0.00	Sep 12, 1998
MAXIMUM PEAK FLOW			1,630	Sep 18	1,630	Sep 18, 2004
MAXIMUM PEAK STAGE			11.93	Sep 18	11.93	Sep 18, 2004
INSTANTANEOUS LOW FLOW			0.00	Oct 1	a0.00	Sep 5, 1998
ANNUAL RUNOFF (AC-FT)	26,770		49,940		49,470	
ANNUAL RUNOFF (CFSM)	0.284		0.529		0.525	
ANNUAL RUNOFF (INCHES)	3.86		7.20		7.14	
10 PERCENT EXCEEDS	111		187		183	
50 PERCENT EXCEEDS	1.1		11		21	
90 PERCENT EXCEEDS	0.00		0.00		0.00	

a Many days, several years.
e Estimated.



05320270 LITTLE COBB RIVER NEAR BEAUFORD, MN—Continued
(National Water-Quality Assessment Program)

WATER QUALITY RECORDS

PERIOD OF RECORD.--Water years 1996 to current year.

PERIOD OF DAILY RECORD:

WATER TEMPERATURES.-- April 1996 to September 1998.

SPECIFIC CONDUCTANCE.-- April 1996 to September 1998.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Time	Sample type	Instantaneous discharge, cfs (00061)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Alkalinity, wat flt inc tit field, mg/L as CaCO3 (39086)	Bicarbonate, wat flt incrm. titr., field, mg/L (00453)
MAR												
17...	1040	Environmental	26	736	14.5	102	7.7	498	3.0	.8	132	162
APR												
13...	1145	Environmental	5.3	742	14.2	113	9.0	489	11.0	5.8	126	132
MAY												
19...	1330	Environmental	24	738	10.2	104	7.9	605	23.0	16.5	190	230
JUN												
04...	1010	Environmental	172	744	8.8	92	8.0	668	22.5	17.7	201	245
JUL												
15...	0930	Environmental	171	741	7.5	86	7.6	653	25.0	22.4	213	260
AUG												
18...	0900	Plant material	--	--	--	--	--	--	--	--	--	--
23...	1300	Environmental	57	738	7.8	86	8.3	604	26.0	19.8	230	265

Date	Carbonate, wat flt incrm. titr., field, mg/L (00452)	Chloride, water, fltrd, mg/L (00940)	Sulfate water, fltrd, mg/L (00945)	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Orthophosphate, water, fltrd, mg/L as P (00671)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, wat unf by anal ysis, mg/L (62855)	Biomass periphyton, ashfree drymass g/m2 (49954)	Periphyton biomass ash weight, g/m2 (00572)	Periphyton biomass dry weight, g/m2 (00573)	Pheophytin a, periphyton, mg/m2 (62359)	Chlorophyll a periphyton, chromofluoro, mg/m2 (70957)
MAR														
17...	.0	21.0	43.0	--	--	--	--	--	--	--	--	--	--	--
APR														
13...	11	28.9	72.0	<.04	1.95	.069	<.006	.164	4.25	--	--	--	--	--
MAY														
19...	.0	29.6	61.8	<.04	4.91	.149	.019	.179	6.79	--	--	--	--	--
JUN														
04...	.0	20.6	37.5	<.04	20.1	.222	.078	.179	21.6	--	--	--	--	--
JUL														
15...	.0	15.7	37.5	E.03	16.7	.068	.042	.22	17.0	--	--	--	--	--
AUG														
18...	--	--	--	--	--	--	--	--	--	4.2	50	53.80	1.0	1.2
23...	15	16.7	25.9	<.04	11.4	.049	E.003	.20	11.2	--	--	--	--	--

Date	2,6-Diethylaniline water fltrd 0.7u GF ug/L (82660)	CIAT, water, fltrd, ug/L (04040)	Acetochlor, water, fltrd, ug/L (49260)	Alachlor, water, fltrd, ug/L (46342)	alpha-HCH, water, fltrd, ug/L (34253)	alpha-HCH-d6, surrog, wat flt 0.7u GF percent recovry (91065)	Atrazine, water, fltrd, ug/L (39632)	Azinphosmethyl, water, fltrd 0.7u GF ug/L (82686)	Benfluralin, water, fltrd 0.7u GF ug/L (82673)	Butylate, water, fltrd, ug/L (04028)	Carbaryl, water, fltrd 0.7u GF ug/L (82680)	Carbofuran, water, fltrd 0.7u GF ug/L (82674)	Chlorpyrifos water, fltrd, ug/L (38933)	cis-Permethrin water fltrd 0.7u GF ug/L (82687)
MAR														
17...	<.006	E.036	.178	<.010	<.005	96.3	.105	<.050	<.010	<.004	<.041	<.020	<.005	<.006
APR														
13...	<.006	E.018	.036	<.005	<.005	106	.048	<.050	<.010	<.004	<.041	<.020	<.005	<.006
MAY														
19...	<.006	E.036	.266	<.005	<.005	105	.184	<.050	<.010	<.004	<.041	<.020	<.005	<.006
JUN														
04...	<.006	E.033	.157	<.005	<.005	99.8	.382	<.050	<.010	<.004	<.041	<.020	<.005	<.006
JUL														
15...	<.006	E.035	.030	<.017	<.005	87.9	.353	<.050	<.010	<.004	<.041	<.020	<.005	<.006
AUG														
18...	--	--	--	--	--	--	--	--	--	--	--	--	--	--
23...	<.006	E.042	.015	<.005	<.005	102	.132	<.050	<.010	<.004	<.041	<.020	<.005	<.006

05320270 LITTLE COBB RIVER NEAR BEAUFORD, MN—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Cyanazine, water, fltrd, ug/L (04041)	DCPA, water fltrd 0.7u GF ug/L (82682)	Desulfinyl fipronil, water, fltrd, ug/L (62170)	Diazinon, water, fltrd, ug/L (39572)	Diazinon-d10 surrog. wat flt 0.7u GF percent recovry (91063)	Dieldrin, water, fltrd, ug/L (39381)	Disulfoton, water, fltrd 0.7u GF ug/L (82677)	EPTC, water, fltrd 0.7u GF ug/L (82668)	Ethalfluralin, water, fltrd 0.7u GF ug/L (82663)	Ethoprop, water, fltrd 0.7u GF ug/L (82672)	Desulfinyl-fipronil amide, wat flt ug/L (62169)	Fipronil sulfide water, fltrd, ug/L (62167)	Fipronil sulfone water, fltrd, ug/L (62168)	Fipronil, water, fltrd, ug/L (62166)
MAR														
17...	<.018	<.003	<.012	<.005	120	<.009	<.02	<.030	<.009	<.005	<.029	<.013	<.024	<.016
APR														
13...	<.018	<.003	<.012	<.005	128	<.009	<.02	.020	<.009	<.005	<.029	<.013	<.024	<.016
MAY														
19...	<.018	<.003	<.012	.029	125	<.009	<.02	.006	<.009	<.005	<.029	<.013	<.024	<.016
JUN														
04...	<.018	<.003	<.012	<.005	113	<.009	<.02	<.004	<.009	<.005	<.029	<.013	<.024	<.016
JUL														
15...	<.018	<.003	<.012	<.005	89.1	<.009	<.02	<.004	<.009	<.005	<.029	<.013	<.024	<.016
AUG														
18...	--	--	--	--	--	--	--	--	--	--	--	--	--	--
23...	<.018	<.003	<.012	<.005	109	<.009	<.02	<.004	<.009	<.005	<.029	<.013	<.024	<.016

Date	Fonofos water, fltrd, ug/L (04095)	Lindane water, fltrd, ug/L (39341)	Linuron water fltrd 0.7u GF ug/L (82666)	Malathion, water, fltrd, ug/L (39532)	Methyl parathion, water, fltrd 0.7u GF ug/L (82667)	Metolachlor, water, fltrd, ug/L (39415)	Metribuzin, water, fltrd, ug/L (82630)	Molinate, water, fltrd 0.7u GF ug/L (82671)	Napropamide, water, fltrd 0.7u GF ug/L (82684)	p,p-' DDE, water, fltrd, ug/L (34653)	Parathion, water, fltrd, ug/L (39542)	Pebulate, water, fltrd 0.7u GF ug/L (82669)	Pendimethalin, water, fltrd 0.7u GF ug/L (82683)	Phorate water fltrd 0.7u GF ug/L (82664)
MAR														
17...	<.003	<.004	<.035	E.018	<.015	.644	<.006	<.010	<.007	<.003	<.010	<.004	<.022	<.011
APR														
13...	<.003	<.004	<.035	<.027	<.015	.213	<.006	<.003	<.007	<.003	<.010	<.004	<.022	<.011
MAY														
19...	<.003	<.004	<.035	<.027	<.015	.182	<.006	<.003	<.007	<.003	<.010	<.004	<.022	<.011
JUN														
04...	<.003	<.004	<.035	<.027	<.015	.107	<.006	<.003	<.007	<.003	<.010	<.004	<.022	<.011
JUL														
15...	<.003	<.004	<.035	<.027	<.015	.065	<.006	<.003	<.007	<.003	<.010	<.004	<.022	<.011
AUG														
18...	--	--	--	--	--	--	--	--	--	--	--	--	--	--
23...	<.003	<.004	<.035	<.027	<.015	.050	<.006	<.003	<.007	<.003	<.010	<.004	<.022	<.011

Date	Prometon, water, fltrd, ug/L (04037)	Propyzamide, water, fltrd 0.7u GF ug/L (82676)	Propachlor, water, fltrd, ug/L (04024)	Propanil, water, fltrd 0.7u GF ug/L (82679)	Propargite, water, fltrd 0.7u GF ug/L (82685)	Simazine, water, fltrd, ug/L (04035)	Tebuthiuron water fltrd 0.7u GF ug/L (82670)	Terbacil, water, fltrd 0.7u GF ug/L (82665)	Terbufos, water, fltrd 0.7u GF ug/L (82675)	Thiobencarb water fltrd 0.7u GF ug/L (82681)	Triallate, water, fltrd 0.7u GF ug/L (82678)	Trifluralin, water, fltrd 0.7u GF ug/L (82661)	Suspended sediment concentration mg/L (80154)
MAR													
17...	<.01	<.004	<.025	<.011	<.02	<.005	<.02	<.034	<.02	<.010	<.002	<.009	18
APR													
13...	.01	<.004	<.025	<.011	<.02	<.005	<.02	<.034	<.02	<.010	<.002	<.009	8
MAY													
19...	.01	<.004	<.025	<.011	<.02	<.005	<.02	<.034	<.02	<.010	<.002	<.009	93
JUN													
04...	<.01	<.004	<.025	<.011	<.02	<.005	<.02	<.034	<.02	<.010	<.002	<.009	72
JUL													
15...	<.01	<.004	<.025	<.011	<.02	<.005	<.02	<.034	<.02	<.010	<.002	<.009	124
AUG													
18...	--	--	--	--	--	--	--	--	--	--	--	--	--
23...	<.01	<.004	<.025	<.011	<.02	<.005	<.02	<.034	<.02	<.010	<.002	<.009	71

05320500 LE SUEUR RIVER NEAR RAPIDAN, MN

LOCATION.--Lat 44°06'40", long 94°02'28", in SW¼ sec. 35, T.108 N., R.27 W., Blue Earth County, Hydrologic Unit 07020011, on right bank 600 ft downstream from highway bridge, 1.8 mi northeast of Rapidan, and 2.3 mi upstream from mouth.

DRAINAGE AREA.--1,110 mi^2.

PERIOD OF RECORD.--October 1939 to September 1945, July 1949 to current year.

GAGE.--Water-stage recorder. Datum of gage is 775.76 ft above sea level (NGVD of 1929). Prior to Nov. 15, 1939, nonrecording gage at same site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are fair to poor.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,600 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
May 25	0200	2,060	4.64	Jul 11	2200	3,900	6.23
May 31	0300	2,760	5.24	Aug 7	0800	2,200	4.77
Jun 13	1100	5,790	7.83	Sep 19	0100	*11,100	*11.44
Jul 7	0900	1,980	4.57				

Minimum discharge, 8.9 ft^3/s, Jan. 30, estimated daily mean.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	17	e19	e12	e10	e32	292	142	2,420	489	616	403
2	13	17	e19	e12	e10	e54	247	130	2,070	449	726	339
3	14	18	19	e12	e10	e136	216	116	1,730	452	1,140	292
4	13	20	19	e11	e11	e176	191	104	1,410	496	1,490	256
5	12	20	19	e9.7	e11	e186	170	97	1,170	466	1,610	232
6	13	21	18	e9.8	e11	e188	151	92	998	1,200	1,940	265
7	15	e21	20	e9.5	e11	e190	138	86	884	1,820	2,020	396
8	13	e19	19	e9.4	e12	e208	127	83	774	1,610	1,900	415
9	12	e18	e19	e9.8	e12	e227	118	85	2,510	1,340	1,670	339
10	11	18	e13	e10	e12	e220	107	112	3,960	1,110	1,380	279
11	13	18	e11	e11	e13	e218	98	106	4,510	2,560	1,110	240
12	15	19	e10	e12	e13	e200	90	99	5,140	3,720	881	214
13	15	19	e9.6	e13	e13	e185	84	113	5,640	3,100	720	187
14	14	20	e9.4	e13	e13	e181	79	129	5,290	2,250	578	224
15	14	21	e9.4	e14	e13	e187	75	178	4,520	1,630	468	2,740
16	14	25	e9.4	e14	e12	e201	72	264	3,590	1,270	511	6,130
17	16	23	e9.5	e14	e13	e209	69	324	2,920	1,100	635	7,890
18	16	22	e9.7	e14	e15	e207	76	292	2,340	1,020	1,250	10,800
19	16	21	e9.7	e14	e17	e202	90	254	1,880	833	1,460	10,600
20	16	21	e9.8	e13	e18	e192	90	245	1,540	691	1,230	8,540
21	18	19	e10	e13	e19	e182	107	253	1,300	604	1,060	6,890
22	14	22	e10	e13	e19	e171	116	647	1,120	620	931	5,390
23	14	e26	e10	e13	e19	e173	117	1,120	990	769	792	4,300
24	15	e28	e10	e13	e20	e178	122	1,660	878	797	1,010	3,570
25	16	e27	e10	e13	e20	187	139	1,890	790	660	1,100	2,940
26	16	e26	e11	e13	e21	215	141	1,840	699	542	899	2,390
27	17	23	e12	e11	e22	248	138	1,600	641	451	703	1,990
28	19	e22	e13	e10	e23	286	145	1,370	561	380	577	1,660
29	21	e21	e12	e9.3	e26	326	156	1,360	509	330	471	1,440
30	19	20	e13	e8.9	---	357	152	2,030	467	297	473	1,260
31	19	---	e13	e9.3	---	344	---	2,630	---	498	495	---
TOTAL	467	632	405.5	363.7	439	6,350	3,913	19,451	63,251	33,554	31,846	82,611
MEAN	15.1	21.1	13.1	11.7	15.1	205	130	627	2,108	1,082	1,027	2,754
MAX	21	28	20	14	26	357	292	2,630	5,640	3,720	2,020	10,800
MIN	11	17	9.4	8.9	10	32	69	83	467	297	468	187
AC-FT	926	1,250	804	721	871	12,600	7,760	38,580	125,500	66,550	63,170	163,900
CFSM	0.01	0.02	0.01	0.01	0.01	0.18	0.12	0.57	1.90	0.98	0.93	2.48
IN.	0.02	0.02	0.01	0.01	0.01	0.21	0.13	0.65	2.12	1.12	1.07	2.77

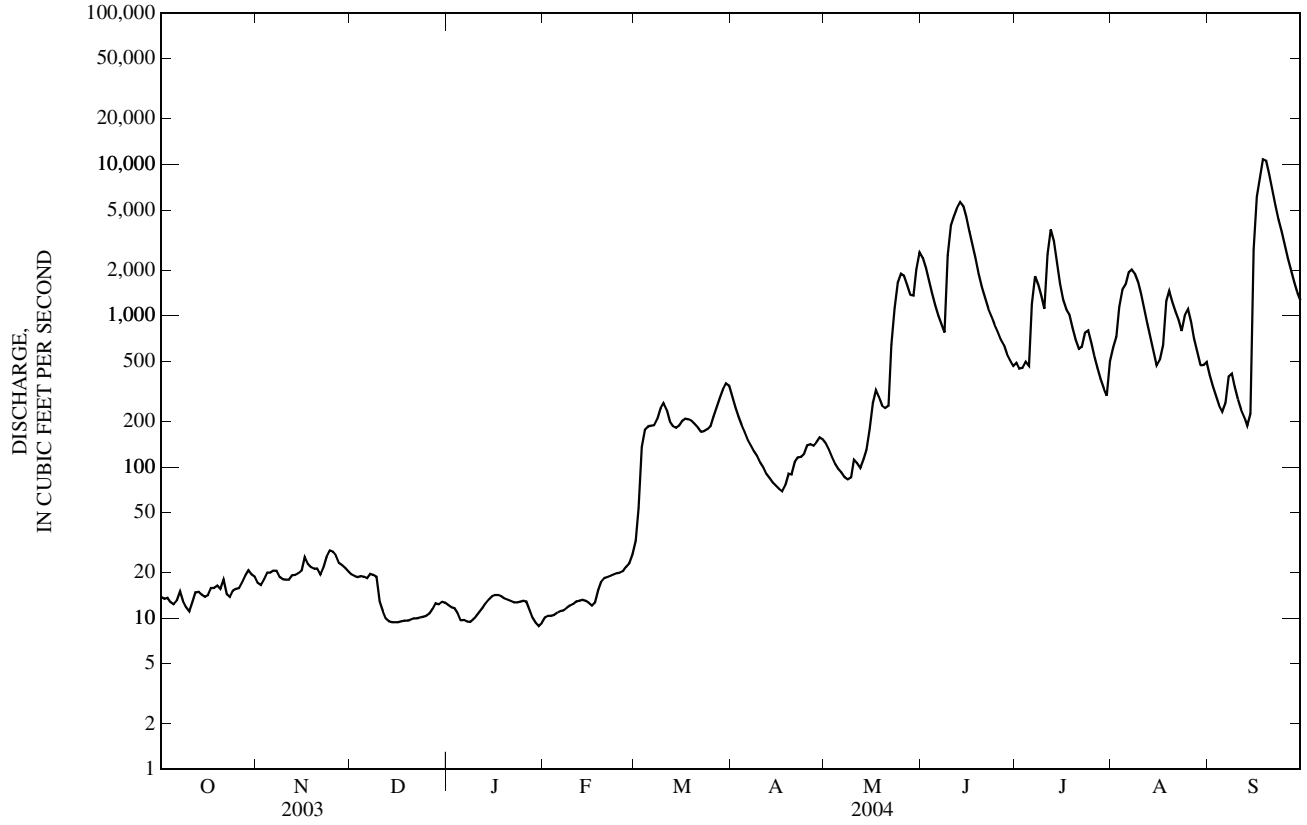
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1940 - 2004, BY WATER YEAR (WY)

MEAN	321	266	147	82.0	136	770	1,400	977	1,089	658	409	276
MAX	3,300	1,561	698	493	1,299	3,465	6,563	3,706	3,913	2,760	3,656	2,754
(WY)	(1969)	(1993)	(1992)	(1992)	(1984)	(1983)	(1965)	(1960)	(1993)	(1993)	(1993)	(2004)
MIN	7.41	11.1	5.04	2.96	1.68	33.0	48.3	18.8	40.4	20.6	8.20	7.55
(WY)	(1990)	(1956)	(1959)	(1957)	(1959)	(1964)	(1957)	(1940)	(1950)	(1988)	(1989)	(1976)

05320500 LE SUEUR RIVER NEAR RAPIDAN, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1940 - 2004	
ANNUAL TOTAL	126,216.5		243,283.2			
ANNUAL MEAN	346		665		546	
HIGHEST ANNUAL MEAN					2,035	1993
LOWEST ANNUAL MEAN					51.4	1977
HIGHEST DAILY MEAN	3,790	May 15	10,800	Sep 18	23,400	Apr 8, 1965
LOWEST DAILY MEAN	9.4	Dec 14	8.9	Jan 30	1.6	Feb 9, 1959
ANNUAL SEVEN-DAY MINIMUM	9.5	Dec 13	9.5	Dec 13	1.6	Feb 9, 1959
MAXIMUM PEAK FLOW			11,100	Sep 18	24,700	Apr 8, 1965
MAXIMUM PEAK STAGE			11.44	Sep 19	a22.72	May 22, 1960
INSTANTANEOUS LOW FLOW			b8.9	Jan 30	1.6	Feb 9, 1959
ANNUAL RUNOFF (AC-FT)	250,400		482,600		395,500	
ANNUAL RUNOFF (CFSM)	0.312		0.599		0.492	
ANNUAL RUNOFF (INCHES)	4.23		8.15		6.68	
10 PERCENT EXCEEDS	1,010		1,850		1,510	
50 PERCENT EXCEEDS	50		130		155	
90 PERCENT EXCEEDS	14		11		17	

a From highwater mark.
b Estimated daily mean.
e Estimated.



05325000 MINNESOTA RIVER AT MANKATO, MN

LOCATION(REVISED).--Lat 44°10"08", long 94°00'11", in SE¼SW¼ sec. 7, T. 108 N., R. 26 W., Blue Earth County, Hydrologic Unit 07020007, on right bank 300 ft downstream from Memorial bridge in Mankato, 2.0 mi downstream from Blue Earth River and at mile 106.2 upstream from Mississippi River.

DRAINAGE AREA.--14,900 mi^2 (approximately).

PERIOD OF RECORD.--May 1903 to current year (no winter records 1904, 1906-10, 1918-29). Monthly discharge only for some periods, published in WSP 1308. Published as "near Mankato": 1903-21.

REVISED RECORDS.--WSP 875: 1917. WSP 955: Drainage area. WSP 1085: 1929. WSP 1238: 1903, 1908, 1919. WSP 1508: 1916(M), 1918(M), 1926(M), 1928, 1930, 1932(M), 1938(M). WDR-MN-76-1: 1881(M).

GAGE.--Water-stage recorder. Datum of gage is 747.92 ft above sea level (NGVD of 1929). Prior to Oct. 19, 1921, nonrecording gage, at site 1.8 mi upstream at datum 6.4 ft higher. Mar. 15, 1922 to Nov. 30, 1924, nonrecording gage, and Dec. 1, 1924 to May 24, 1971, recorder at site 0.2 mi upstream at present datum. May 25, 1971 to Aug. 14, 1977, recorder at site 0.5 mi upstream at present datum. Aug. 14, 1977 to July 27, 1978, nonrecording gage; and from July 28, 1978 to Sept. 30, 1993, recording gage at site 0.7 mi upstream of present site.

REMARKS.--Records good except those for estimated daily discharges, which are fair to poor.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage, 29.9 ft, Apr. 26, 1881, near present site and datum, from floodmark (estimated discharge, 110,000 ft^3/s).

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	313	341	e306	e368	e193	e317	2,710	1,290	18,600	4,780	3,060	1,970
2	304	391	e308	e370	e194	e371	2,520	1,270	20,200	4,460	3,020	1,820
3	315	467	e309	e373	e196	e488	2,340	1,210	21,100	4,510	3,180	1,650
4	298	470	e309	e365	e197	e626	2,080	1,180	20,600	5,150	3,600	1,470
5	279	393	e309	e335	e199	e803	1,830	1,130	19,100	4,920	3,960	1,430
6	267	e382	e309	e340	e200	e990	1,690	1,090	17,100	5,560	4,630	1,450
7	264	e390	e309	e339	e201	e1,170	1,550	1,040	15,300	6,820	4,770	1,530
8	245	e368	e310	e343	e202	e1,400	1,490	996	13,500	7,460	4,650	1,540
9	234	e368	e305	e350	e215	e1,680	1,410	959	18,400	7,220	4,250	1,450
10	223	e388	e297	e346	e220	e2,060	1,370	971	21,200	6,670	3,850	1,340
11	292	405	e290	e330	e221	e2,360	1,300	887	21,500	7,990	3,620	1,270
12	288	451	e283	e317	e221	e2,560	1,260	855	21,500	10,800	3,270	1,190
13	278	468	e288	e306	e220	e2,660	1,230	896	22,300	11,100	2,930	1,060
14	278	448	e290	e302	e221	e3,030	1,200	884	23,300	11,300	2,690	1,250
15	271	449	e290	e295	e224	e3,000	1,170	847	23,400	10,500	2,410	3,490
16	270	456	e288	e275	e235	2,890	1,160	878	22,600	9,030	2,670	9,430
17	306	439	e288	e265	e265	2,850	1,120	1,090	20,800	7,950	2,640	14,000
18	395	450	e288	e240	e283	2,780	1,080	1,250	19,000	6,990	2,950	17,400
19	391	459	e288	e235	e276	2,550	1,150	1,510	16,800	6,140	3,080	20,500
20	368	454	e288	e228	e259	2,720	1,200	1,670	15,200	5,410	2,900	21,600
21	351	433	e288	e221	e224	2,590	1,230	1,790	13,500	4,980	2,710	20,000
22	375	e429	e290	e217	e214	2,330	1,210	2,300	12,200	4,870	2,520	17,500
23	394	e416	e291	e215	e212	2,190	1,220	3,240	11,200	5,510	2,380	16,100
24	400	e351	e292	e215	e215	2,130	1,220	4,890	10,200	5,530	2,380	15,100
25	403	e311	e300	e215	e221	2,070	1,260	7,410	9,200	4,920	2,500	14,000
26	393	e304	e315	e214	e228	2,150	1,300	8,860	7,850	4,280	2,310	12,800
27	386	e302	e330	e210	e239	2,220	1,310	9,150	6,820	3,810	2,220	11,600
28	395	e301	e360	e205	e258	2,480	1,330	8,630	5,980	3,490	2,140	10,600
29	372	e301	e370	e197	e285	2,740	1,400	8,250	5,290	3,130	2,120	9,750
30	349	e303	e367	e192	---	2,870	1,350	11,800	4,920	2,920	2,310	8,860
31	349	---	e365	e190	---	2,880	---	16,700	---	2,840	2,190	---
TOTAL	10,046	11,888	9,520	8,613	6,538	63,955	43,690	104,923	478,660	191,040	93,910	243,150
MEAN	324	396	307	278	225	2,063	1,456	3,385	15,960	6,163	3,029	8,105
MAX	403	470	370	373	285	3,030	2,710	16,700	23,400	11,300	4,770	21,600
MIN	223	301	283	190	193	317	1,080	847	4,920	2,840	2,120	1,060
AC-FT	19,930	23,580	18,880	17,080	12,970	126,900	86,660	208,100	949,400	378,900	186,300	482,300
CFSM	0.02	0.03	0.02	0.02	0.02	0.14	0.10	0.23	1.07	0.41	0.20	0.54
IN.	0.03	0.03	0.02	0.02	0.02	0.16	0.11	0.26	1.20	0.48	0.23	0.61

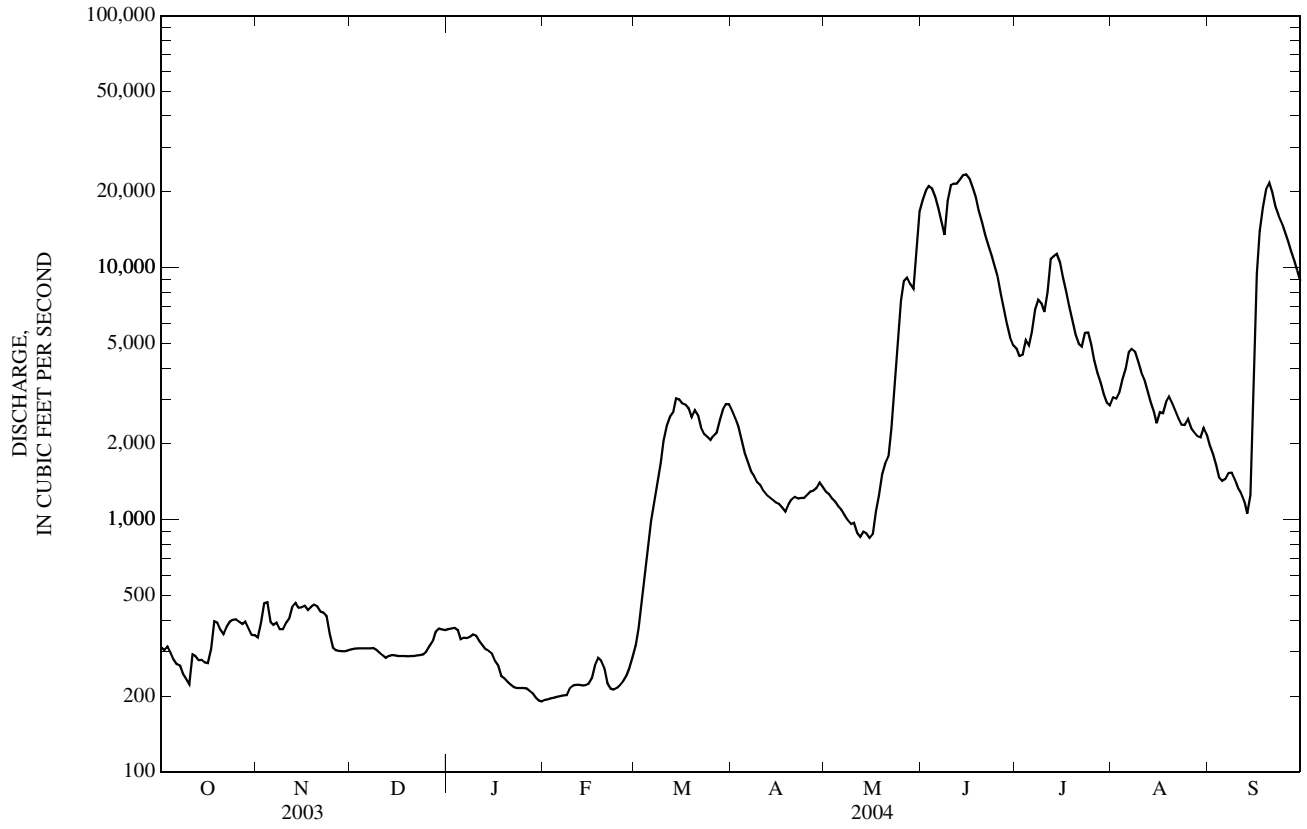
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1903 - 2004, BY WATER YEAR (WY)

MEAN	1,622	1,565	1,042	650	794	4,441	9,681	6,048	6,418	4,623	2,368	1,682
MAX	14,600	8,569	4,770	3,009	4,505	18,230	52,910	25,740	34,230	33,130	23,520	11,070
(WY)	(1969)	(1996)	(1983)	(1992)	(1983)	(1983)	(2001)	(2001)	(1993)	(1993)	(1993)	(1993)
MIN	66.1	83.5	80.9	61.5	58.4	132	609	101	194	58.3	37.4	56.6
(WY)	(1934)	(1934)	(1934)	(1940)	(1940)	(1934)	(1931)	(1934)	(1934)	(1934)	(1934)	(1934)

05325000 MINNESOTA RIVER AT MANKATO, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1903 - 2004	
ANNUAL TOTAL	939,241		1,265,933			
ANNUAL MEAN	2,573		3,459		a3,571	
HIGHEST ANNUAL MEAN					14,890	1993
LOWEST ANNUAL MEAN					136	1934
HIGHEST DAILY MEAN	14,800	May 15	23,400	Jun 15	92,700	Apr 10, 1965
LOWEST DAILY MEAN	223	Oct 10	190	Jan 31	31	Aug 3, 1934
ANNUAL SEVEN-DAY MINIMUM	258	Oct 5	194	Jan 29	33	Jul 29, 1934
MAXIMUM PEAK FLOW			23,700	Jun 15	94,100	Apr 10, 1965
MAXIMUM PEAK STAGE			15.47	Jun 15	30.11	Jun 21, 1993
INSTANTANEOUS LOW FLOW			b190	Jan 31	c26	Aug 4, 1934
ANNUAL RUNOFF (AC-FT)	1,863,000		2,511,000		2,587,000	
ANNUAL RUNOFF (CFSM)	0.173		0.232		0.240	
ANNUAL RUNOFF (INCHES)	2.34		3.16		3.26	
10 PERCENT EXCEEDS	7,010		11,200		9,610	
50 PERCENT EXCEEDS	680		1,210		1,290	
90 PERCENT EXCEEDS	306		235		183	

a Median of annual mean discharges is 2900 ft^3/s.
b Estimated, minimum daily. Result of freezeup.
c Minimum observed.
e Estimated.



05325000 MINNESOTA RIVER AT MANKATO, MN—Continued

PERIOD OF RECORD.-- Water years 1963-66, 1968 to current year.

PERIOD OF DAILY RECORD:

WATER TEMPERATURES.-- October 1967 to September 30, 1981, October 1982 to current year (fragmentary records).

SPECIFIC CONDUCTANCE.-- October 1971 to June 1976, October, 2002 to current year.

SUSPENDED-SEDIMENT DISCHARGE.-- October 1967 to current year.

REMARKS.--In general, daily concentrations and loads for the open-water period are considered fair to poor. During the winter period, and for periods of no observer samples, daily sediment concentrations and loads are based primarily on concentrations of sediment in samples that were collected monthly, and on daily water-discharge records. Sediment records for the winter period are considered poor. Water temperatures were obtained by the observer at the time of sediment sampling, and monthly by U.S. Geological Survey personnel.

EXTREMES FOR PERIOD OF DAILY RECORD:

WATER TEMPERATURES.-- Maximum observed, 31.5 C, Aug. 6, 2001; minimum observed, 0.0 C on many days most winters.

SPECIFIC CONDUCTANCE.-- Maximum observed, 1,040 µS/cm, Jan. 7, 2004; minimum observed, 369 µS/cm, Sep. 18, 2004.

SEDIMENT CONCENTRATIONS.-- Maximum daily mean, 2850 mg/L, Aug. 7, 1968; minimum daily mean, 9 mg/L, Jan. 15-19, 1991.

SEDIMENT LOADS.-- Maximum daily, 414,000 tons, June 21, 1993; minimum daily, 5.2 tons, Nov. 6, 1976.

EXTREMES FOR CURRENT YEAR:

WATER TEMPERATURES.-- Maximum observed, 28.0 C, July 21; minimum observed, 1.0 C, Nov. 8 and Mar. 4 (assumed to be 0.0 C, many days during winter).

SPECIFIC CONDUCTANCE.-- Maximum observed, 1040 µS/cm, Jan. 7; minimum observed, 369 µS/cm, Sep. 18.

SEDIMENT CONCENTRATIONS.-- Maximum daily mean, 1810 mg/L, Sep. 15; minimum daily mean, 60 mg/L, Mar. 24.

SEDIMENT LOADS.-- Maximum daily, 72,500 tons, June 9; minimum daily, 54 tons, Feb. 26.

TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11.0	5.0	---	---	---	---	5.5	14.0	17.0	25.0	---	25.0
2	---	---	---	---	---	---	11.0	---	---	---	25.0	---
3	---	4.0	---	---	---	---	---	15.0	---	---	23.0	25.0
4	15.0	---	---	---	---	1.0	10.0	---	19.0	24.0	---	23.0
5	---	---	---	---	---	---	---	---	---	23.0	---	24.0
6	17.0	2.0	---	---	---	---	11.0	17.0	21.0	---	---	---
7	18.0	---	---	1.5	---	---	13.0	---	24.0	---	22.0	---
8	---	1.0	---	---	---	---	13.0	17.0	---	---	23.0	---
9	19.0	---	---	---	---	---	---	---	20.0	23.0	21.0	---
10	---	---	---	---	---	---	---	22.0	18.0	23.0	19.0	---
11	---	---	---	---	---	---	---	---	19.0	23.0	---	24.0
12	---	---	---	---	---	---	11.0	20.0	19.0	---	18.0	18.0
13	---	3.0	---	---	---	---	---	---	---	---	---	---
14	13.0	---	---	---	---	---	---	---	19.5	---	20.0	---
15	12.0	---	---	---	---	---	16.0	17.0	20.0	23.0	---	18.0
16	12.0	5.0	---	---	---	2.0	---	---	19.0	24.0	20.0	19.0
17	10.0	---	---	---	---	4.0	18.0	15.0	19.0	---	---	18.0
18	14.0	---	---	---	---	---	---	---	19.0	24.0	21.0	19.0
19	16.0	7.0	---	---	---	---	17.0	19.0	---	25.0	---	19.0
20	---	---	---	---	---	---	---	---	18.0	---	---	19.0
21	14.0	5.0	---	---	---	---	14.0	17.0	19.0	28.0	19.0	19.0
22	---	---	---	---	---	---	---	18.0	20.0	26.0	---	20.0
23	14.0	---	---	---	---	7.0	---	---	21.0	24.0	---	---
24	13.0	---	---	---	---	11.0	14.0	---	---	---	24.0	22.0
25	---	---	---	---	---	---	---	13.0	---	25.0	---	20.0
26	7.0	2.0	---	---	---	---	---	15.0	19.0	24.0	21.0	20.0
27	---	---	---	---	---	---	13.0	17.0	19.0	24.0	20.0	16.0
28	---	---	---	---	---	10.0	---	---	19.0	24.0	---	---
29	---	---	---	---	---	---	---	18.0	---	---	21.0	18.0
30	---	---	---	---	---	7.0	---	---	23.0	25.0	---	16.0
31	---	---	---	---	---	---	---	17.0	---	23.0	---	---
MEAN	---	---	---	---	---	---	---	---	---	---	---	---
MAX	---	---	---	---	---	---	---	---	---	---	---	---
MIN	---	---	---	---	---	---	---	---	---	---	---	---

05325000 MINNESOTA RIVER AT MANKATO, MN—Continued

SPECIFIC CONDUCTANCE, WATER, UNFILTERED, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	826	---	---	---	---	760	811	534	859	---	701
2	---	---	---	---	---	---	768	---	---	---	711	---
3	---	800	---	---	---	---	---	784	---	---	728	716
4	---	---	---	---	---	809	782	---	650	854	---	733
5	---	---	---	---	---	---	---	---	---	798	---	738
6	---	822	---	---	---	---	782	798	758	---	---	---
7	---	---	---	1,040	---	---	781	---	817	---	607	---
8	---	855	---	---	---	---	790	803	---	---	644	---
9	---	---	---	---	---	---	606	---	---	768	654	---
10	---	---	---	---	---	---	---	777	580	791	677	---
11	---	---	---	---	---	---	---	---	631	605	---	781
12	---	---	---	---	---	---	781	864	637	---	691	---
13	---	894	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	620	---	694	---
15	978	---	---	---	---	---	827	757	682	694	---	477
16	852	873	---	---	---	723	---	---	682	731	648	374
17	---	---	---	---	---	742	784	758	809	---	---	371
18	770	---	---	---	---	---	---	---	788	761	674	369
19	778	884	---	---	965	---	805	781	---	776	---	381
20	---	---	---	---	---	---	---	---	884	---	---	417
21	793	894	---	---	---	---	801	759	844	727	681	537
22	---	---	---	---	---	---	---	722	852	774	---	544
23	818	---	---	---	---	783	---	---	827	736	---	542
24	846	---	---	---	---	787	805	---	---	---	651	570
25	---	---	---	---	---	---	---	646	---	734	---	628
26	841	925	---	---	---	---	---	610	831	705	628	644
27	---	---	---	---	---	---	788	674	834	698	704	664
28	---	---	---	---	---	770	795	---	853	714	---	---
29	---	---	---	---	---	---	---	726	---	---	722	680
30	---	---	---	---	---	770	---	---	849	744	---	689
31	---	---	---	---	---	---	---	553	---	711	---	---
TOTAL	---	---	---	---	---	---	---	---	---	---	---	---
MEAN	---	---	---	---	---	---	---	---	---	---	---	---
MAX	--	--	---	--	--	--	--	--	--	--	--	--
MIN	--	--	---	--	--	--	--	--	--	--	--	--

05325000 MINNESOTA RIVER AT MANKATO, MN—Continued

SUSPENDED-SEDIMENT
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Day	Mean concentration (mg/l)	Load (tons/day)	Mean concentration (mg/l)	Load (tons/day)	Mean concentration (mg/l)	Load (tons/day)	Mean concentration (mg/l)	Load (tons/day)	Mean concentration (mg/l)	Load (tons/day)	Mean concentration (mg/l)	Load (tons/day)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	83	70	143	132	105	87	145	144	139	72	78	67
2	93	76	141	149	106	88	146	146	138	72	76	76
3	102	87	137	173	107	89	148	149	137	73	74	98
4	104	84	128	162	109	91	149	147	136	72	78	132
5	104	78	127	135	110	92	151	137	136	73	84	182
6	102	74	124	128	111	93	153	140	135	73	88	235
7	99	71	122	128	113	94	154	141	134	73	90	284
8	97	64	120	119	114	95	156	144	133	73	93	352
9	96	61	118	117	115	95	158	149	132	77	97	440
10	95	57	117	123	117	94	157	147	131	78	100	556
11	95	75	113	124	118	92	156	139	131	78	100	637
12	96	75	112	136	119	91	155	133	130	78	98	677
13	96	72	109	138	121	94	154	127	129	77	93	668
14	97	73	107	129	122	96	154	126	128	76	90	736
15	97	71	104	126	123	96	153	122	127	77	88	713
16	102	74	102	126	125	97	152	113	126	80	84	655
17	107	88	98	116	126	98	151	108	126	90	82	631
18	112	119	96	117	127	99	150	97	125	96	79	593
19	118	125	93	115	129	100	150	95	125	93	75	516
20	123	122	91	112	130	101	149	92	122	85	72	529
21	127	120	88	103	131	102	148	88	118	71	68	476
22	129	131	86	100	132	103	147	86	115	66	64	403
23	130	138	87	98	134	105	146	85	108	62	62	367
24	131	141	93	88	135	106	146	85	100	58	60	345
25	131	143	98	82	136	110	145	84	93	55	70	391
26	131	139	97	80	138	117	144	83	88	54	107	621
27	132	138	99	81	139	124	143	81	85	55	125	749
28	133	142	100	81	140	136	142	79	83	58	127	850
29	135	136	103	84	141	141	141	75	81	62	117	866
30	138	130	102	83	143	142	140	73	---	---	104	806
31	142	134	---	---	144	142	140	72	---	---	92	715
TOTAL	---	3,108	---	3,485	---	3,210	---	3,487	---	2,107	---	15,366

05325000 MINNESOTA RIVER AT MANKATO, MN—Continued

SUSPENDED-SEDIMENT—CONTINUED
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Day	Mean concentration (mg/l)	Load (tons/day)	Mean concentration (mg/l)	Load (tons/day)	Mean concentration (mg/l)	Load (tons/day)	Mean concentration (mg/l)	Load (tons/day)	Mean concentration (mg/l)	Load (tons/day)	Mean concentration (mg/l)	Load (tons/day)
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	87	637	83	289	1,000	50,100	210	2,710	190	1,570	108	574
2	97	660	84	288	700	38,200	205	2,470	190	1,550	97	477
3	97	613	89	291	550	31,300	210	2,560	265	2,280	90	401
4	93	522	98	312	460	25,600	208	2,890	335	3,260	87	345
5	88	435	108	330	390	20,100	190	2,520	362	3,870	90	347
6	83	379	110	324	380	17,500	195	2,930	350	4,380	115	450
7	79	331	108	303	380	15,700	260	4,790	300	3,860	109	450
8	77	310	102	274	420	15,300	298	6,000	235	2,950	105	437
9	73	278	93	241	1,480	75,200	293	5,710	190	2,180	98	384
10	72	266	120	315	1,200	69,200	260	4,680	167	1,740	90	326
11	70	246	125	299	825	47,900	408	9,540	145	1,420	82	281
12	68	231	115	265	780	45,300	650	19,000	133	1,170	79	254
13	65	216	118	285	650	39,100	555	16,600	128	1,010	78	223
14	65	211	124	296	480	30,200	515	15,700	124	901	468	1,680
15	66	208	137	313	400	25,300	450	12,800	120	781	1,810	19,200
16	64	200	135	320	380	23,200	365	8,900	230	1,660	1,700	43,300
17	73	221	138	406	340	19,100	330	7,080	253	1,800	1,470	55,600
18	108	315	142	479	310	15,900	275	5,190	293	2,330	1,340	63,000
19	119	369	150	612	285	12,900	243	4,030	285	2,370	1,270	70,300
20	102	330	153	690	279	11,500	230	3,360	245	1,920	1,160	67,700
21	82	272	160	773	270	9,840	215	2,890	170	1,240	940	50,800
22	84	274	270	1,680	276	9,090	200	2,630	145	987	700	33,100
23	88	290	365	3,190	292	8,830	190	2,830	140	900	550	23,900
24	91	300	570	7,530	315	8,680	180	2,690	190	1,220	430	17,500
25	98	333	760	15,200	325	8,070	175	2,320	180	1,220	385	14,600
26	107	376	740	17,700	320	6,780	170	1,960	160	998	330	11,400
27	111	393	580	14,300	310	5,710	168	1,730	128	767	310	9,710
28	103	370	470	11,000	290	4,680	165	1,550	115	664	280	8,010
29	88	333	410	9,130	250	3,570	165	1,390	110	630	265	6,980
30	83	303	695	23,300	225	2,990	165	1,300	137	854	260	6,220
31	---	---	1,170	52,800	---	---	166	1,270	122	721	---	---
TOTAL	---	9,864	---	163,235	---	693,440	---	162,330	---	52,966	---	490,559
YEAR	1,603,157											

05327000 HIGH ISLAND CREEK NEAR HENDERSON, MN

LOCATION.--Lat 44°34'19", long 93°55'18", in NE¼NW¼ sec. 26, T.113 N., R.26 W., Sibley County, Hydrologic Unit 07020012, on left bank 20 ft downstream from bridge on County Road 6, 1.6 mi upstream from mouth, and 3.1 mi north of Henderson.

DRAINAGE AREA.--238 mi^2.

PERIOD OF RECORD.--October 1973 to current year. May 1970 to September 1973, operated as a low-flow station only.

REVISED RECORDS.--WDR-MN-80-2: 1974-75, 1977-79, WRD MN-98: 1993.

GAGE.--Water-stage recorder. Datum of gage is 728.56 ft above sea level (NGVD of 1929).

REMARKS.--Records good except those for estimated daily discharges, which are fair to poor.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 370 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
May 30	0415	1,200	7.60	Jun 11	2300	*2,250	*9.50
Jun 6	1315	816	6.38	Jul 11	2230	854	6.51

Minimum discharge, 1.1 ft^3/s, Oct. 3, (estimated daily-mean).

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.2	e2.4	2.4	2.4	e1.4	e37	36	6.6	562	280	36	6.6
2	1.2	e2.6	2.3	2.4	e1.4	e36	26	9.2	564	260	32	6.2
3	e1.1	e3.3	2.3	3.3	e1.4	e19	19	6.9	603	248	29	5.8
4	e1.2	e3.4	2.4	2.8	e1.4	e18	15	5.2	656	265	27	5.6
5	e1.3	e2.6	2.4	e2.5	e1.8	e9.1	13	4.4	702	241	24	6.8
6	e1.3	e2.4	2.4	e2.3	e1.8	e17	11	3.7	795	233	22	10
7	e1.6	e2.2	2.5	e2.3	e2.0	e32	8.7	3.4	707	313	23	7.1
8	e1.5	e1.9	2.5	e2.2	e2.1	e38	6.2	2.7	631	305	21	6.1
9	e1.6	e1.9	2.7	e2.3	e2.2	e82	6.2	3.6	1,180	261	19	5.7
10	e1.6	e2.0	2.5	e2.4	e2.2	e110	6.5	129	1,090	222	18	5.8
11	e2.0	e2.2	2.5	e2.5	2.3	e56	7.8	67	1,190	586	18	5.6
12	e2.0	e2.4	e2.4	e2.6	e2.3	e51	6.8	22	1,830	698	17	5.4
13	e2.3	e2.4	e2.4	2.7	e2.4	e42	4.6	13	1,280	529	16	5.0
14	e2.5	2.6	2.4	2.7	e2.4	e25	3.5	8.5	1,070	400	14	8.2
15	e1.4	2.6	2.5	2.8	e2.4	e16	3.1	5.7	981	314	13	23
16	e1.5	2.5	2.5	2.7	e2.3	e14	2.9	4.3	980	261	17	18
17	e1.2	2.6	2.6	e2.5	e2.3	e18	2.5	80	1,000	226	15	15
18	e1.4	2.6	2.4	e2.4	e2.4	e18	2.5	128	984	202	14	14
19	e1.7	2.5	2.4	e2.3	2.5	e23	7.7	96	914	176	13	14
20	e1.6	2.4	2.4	e2.1	2.7	e22	7.0	81	836	155	12	13
21	e1.9	2.4	2.5	e2.0	2.6	e24	14	77	751	151	10	24
22	e2.0	2.5	2.5	e1.9	2.7	e22	23	76	653	142	9.6	76
23	e2.3	2.7	2.5	e1.8	2.9	e21	19	249	537	144	9.2	117
24	e2.4	2.7	2.6	e1.7	2.9	e22	16	393	423	128	8.6	118
25	e2.4	2.5	2.6	e1.6	3.0	e22	18	314	334	110	8.5	119
26	e2.5	2.4	2.5	e1.5	3.0	24	16	323	277	93	8.4	114
27	e2.6	2.6	3.1	e1.4	3.3	29	13	445	242	77	8.6	104
28	e2.6	2.5	3.0	e1.4	5.0	52	10	398	214	64	7.9	88
29	e2.4	2.4	2.9	e1.4	7.5	47	9.0	430	186	54	8.0	73
30	e2.5	2.5	2.9	e1.4	---	47	7.3	957	202	47	7.6	61
31	e2.4	---	4.3	e1.4	---	45	---	716	---	41	7.0	---
TOTAL	57.2	74.7	80.3	67.7	74.6	1,038.1	341.3	5,058.2	22,374	7,226	493.4	1,080.9
MEAN	1.85	2.49	2.59	2.18	2.57	33.5	11.4	163	746	233	15.9	36.0
MAX	2.6	3.4	4.3	3.3	7.5	110	36	957	1,830	698	36	119
MIN	1.1	1.9	2.3	1.4	1.4	9.1	2.5	2.7	186	41	7.0	5.0
AC-FT	113	148	159	134	148	2,060	677	10,030	44,380	14,330	979	2,140
CFSM	0.01	0.01	0.01	0.01	0.01	0.14	0.05	0.69	3.15	0.98	0.07	0.15
IN.	0.01	0.01	0.01	0.01	0.01	0.16	0.05	0.79	3.51	1.13	0.08	0.17

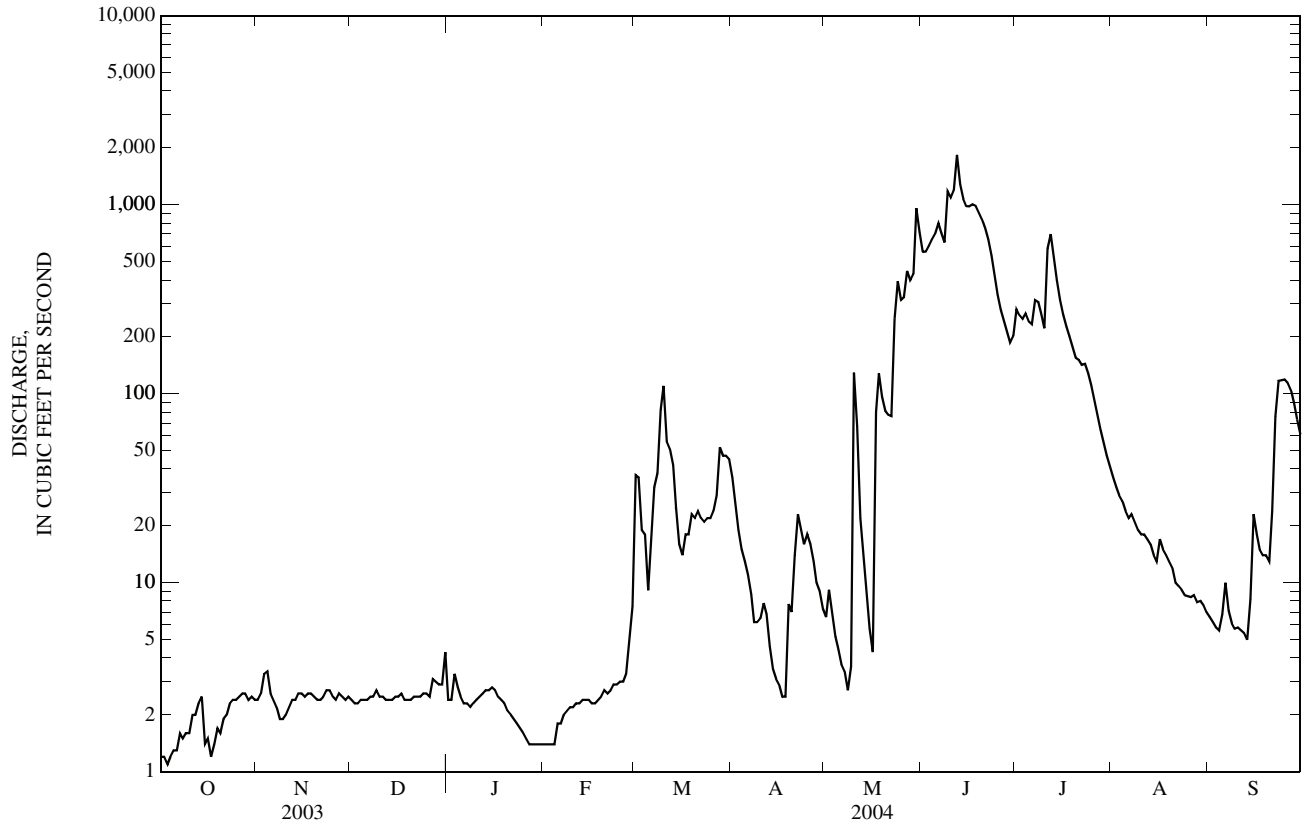
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1974 - 2004, BY WATER YEAR (WY)

MEAN	66.6	55.6	30.9	13.7	21.2	148	259	162	186	126	76.5	88.4
MAX	298	219	111	72.5	121	547	1,104	478	746	783	380	592
(WY)	(1986)	(1993)	(1983)	(1992)	(1984)	(1992)	(2001)	(1993)	(2004)	(1993)	(1997)	(1991)
MIN	1.51	2.11	1.37	0.98	1.28	5.33	6.69	3.32	1.58	0.80	1.16	1.18
(WY)	(1990)	(1990)	(1976)	(1977)	(1989)	(2001)	(1990)	(1976)	(1976)	(1976)	(1976)	(1974)

05327000 HIGH ISLAND CREEK NEAR HENDERSON, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1974 - 2004	
ANNUAL TOTAL	17,534.68		37,966.4			
ANNUAL MEAN	48.0		104		103	
HIGHEST ANNUAL MEAN					293	1993
LOWEST ANNUAL MEAN					9.23	1976
HIGHEST DAILY MEAN	564	May 20	1,830	Jun 12	2,400	Apr 12, 2001
LOWEST DAILY MEAN	0.95	Sep 8	1.1	Oct 3	0.46	Oct 3, 1976
ANNUAL SEVEN-DAY MINIMUM	1.0	Sep 4	1.3	Oct 1	0.59	Jul 10, 1976
MAXIMUM PEAK FLOW			2,250	Jun 11	a2,830	Jul 25, 1997
MAXIMUM PEAK STAGE			9.50	Jun 11	9.88	Apr 23, 2001
INSTANTANEOUS LOW FLOW			b1.1	Oct 3	c0.20	Jan 4, 1981
ANNUAL RUNOFF (AC-FT)	34,780		75,310		74,530	
ANNUAL RUNOFF (CFSM)	0.203		0.438		0.434	
ANNUAL RUNOFF (INCHES)	2.75		5.96		5.90	
10 PERCENT EXCEEDS	141		317		293	
50 PERCENT EXCEEDS	6.8		7.0		27	
90 PERCENT EXCEEDS	1.4		2.0		2.0	

a Backwater from Minnesota River.
b Estimated daily-mean discharge.
c Result of freezeup.
e Estimated.



05330000 MINNESOTA RIVER NEAR JORDAN, MN

LOCATION.--Lat 44°41'35", long 93°38'30", in NW¼SW¼ sec. 7, T.114 N., R.23 W., Carver County, Hydrologic Unit 07020012, on right bank 100 ft downstream from bridge on Scott County Highway 9, 1.5 mi northwest of Jordan, and at mile 39.4 uptream from Mississippi River.

DRAINAGE AREA.--16,200 mi^2 (approximately).

PERIOD OF RECORD.--September 1934 to current year. Prior to Oct. 1, 1966, published as "near Carver, Minn".

REVISED RECORDS.--WSP 955: Drainage area. WSP 1508: 1935. WDR MN-87-2: 1976 (cal. yr. summary).

GAGE.--Water-stage recorder. Datum of gage is 690.00 ft above sea level (NGVD of 1929). Prior to Oct. 1, 1966, water-stage recorder 2.8 mi downstream with auxiliary nonrecording gage at present site and present datum.

REMARKS.--Records good except those for period June 12-21, which are fair, and those for estimated daily discharges, which are fair to poor.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	463	479	e471	e477	e322	e349	3,280	1,680	16,300	e7,420	e3,370	2,600
2	445	471	e471	e485	e319	e375	3,150	1,640	17,400	e7,060	3,430	2,410
3	443	474	e471	e487	e318	e410	2,960	1,590	18,500	e6,650	3,600	2,230
4	436	501	e471	e489	e317	e478	2,740	1,550	20,300	e6,720	3,720	2,060
5	435	e529	e473	e487	e317	e551	2,550	1,500	21,000	e7,570	4,010	1,910
6	435	557	e476	e482	e316	e683	2,330	1,470	21,700	e7,510	4,310	1,840
7	426	519	e475	e471	e314	e860	2,130	1,420	21,400	e8,410	4,940	1,790
8	414	493	e474	e451	e313	e1,060	1,990	1,390	20,400	e9,010	5,250	1,780
9	412	490	e473	e439	e313	e1,290	1,860	1,380	19,700	e9,230	5,230	1,800
10	404	514	e471	e435	e322	e1,580	1,790	1,600	19,800	e8,560	4,920	1,780
11	414	520	e461	e429	e324	e1,970	1,720	1,620	21,300	8,340	4,480	1,700
12	420	544	e453	e425	e325	e2,320	1,670	1,450	24,000	10,200	4,210	1,610
13	439	532	e447	e425	e325	e2,600	1,610	1,330	26,400	e12,200	3,920	1,510
14	444	563	e440	e423	e325	e2,940	1,570	1,260	27,600	e12,800	3,550	1,480
15	427	595	e437	e423	e324	e3,150	1,540	1,240	27,500	e12,900	3,260	1,640
16	416	e595	e435	e421	e328	e3,220	1,510	1,210	27,400	e12,100	3,050	3,320
17	412	e595	e435	e415	e347	3,230	1,470	1,340	27,100	e10,800	3,080	8,280
18	418	e595	e434	e404	e366	3,240	1,450	1,630	26,800	e9,470	3,150	11,800
19	433	597	e433	e398	e388	3,160	1,480	1,730	25,800	e8,260	3,190	13,900
20	491	594	e429	e396	e396	3,070	1,470	1,920	24,100	e7,180	3,450	15,500
21	505	597	e429	e394	e391	2,990	1,580	2,270	22,700	e6,250	3,360	16,700
22	489	588	e429	e391	e374	3,000	1,650	2,620	20,800	e5,750	3,170	17,800
23	476	595	e429	e390	e350	2,820	1,650	3,320	19,000	e5,380	2,980	18,700
24	487	e561	e429	e388	e326	2,660	1,610	4,710	16,600	e5,460	2,830	18,800
25	490	e532	e428	e386	e307	2,570	1,640	6,410	14,500	e5,910	2,770	18,200
26	495	e507	e429	e384	e304	2,560	1,650	7,810	13,000	e5,860	2,850	17,100
27	496	e486	e427	e384	e306	2,690	1,620	9,230	11,600	e5,300	2,750	e15,500
28	507	e479	e428	e369	e316	2,830	1,660	9,780	10,400	e4,760	2,600	e13,500
29	504	e475	e431	e351	e328	3,090	1,680	9,640	e9,350	e4,360	2,520	11,700
30	515	e473	e445	e335	---	3,230	1,680	10,600	e8,310	e3,900	2,460	10,700
31	511	---	e465	e325	---	3,280	---	14,200	---	e3,550	2,640	---
TOTAL	14,102	16,050	13,899	12,959	9,621	68,256	56,690	110,540	600,760	238,870	109,050	239,640
MEAN	455	535	448	418	332	2,202	1,890	3,566	20,030	7,705	3,518	7,988
MAX	515	597	476	489	396	3,280	3,280	14,200	27,600	12,900	5,250	18,800
MIN	404	471	427	325	304	349	1,450	1,210	8,310	3,550	2,460	1,480
AC-FT	27,970	31,840	27,570	25,700	19,080	135,400	112,400	219,300	1,192,000	473,800	216,300	475,300
CFSM	0.03	0.03	0.03	0.03	0.02	0.14	0.12	0.22	1.24	0.48	0.22	0.49
IN.	0.03	0.04	0.03	0.03	0.02	0.16	0.13	0.25	1.38	0.55	0.25	0.55

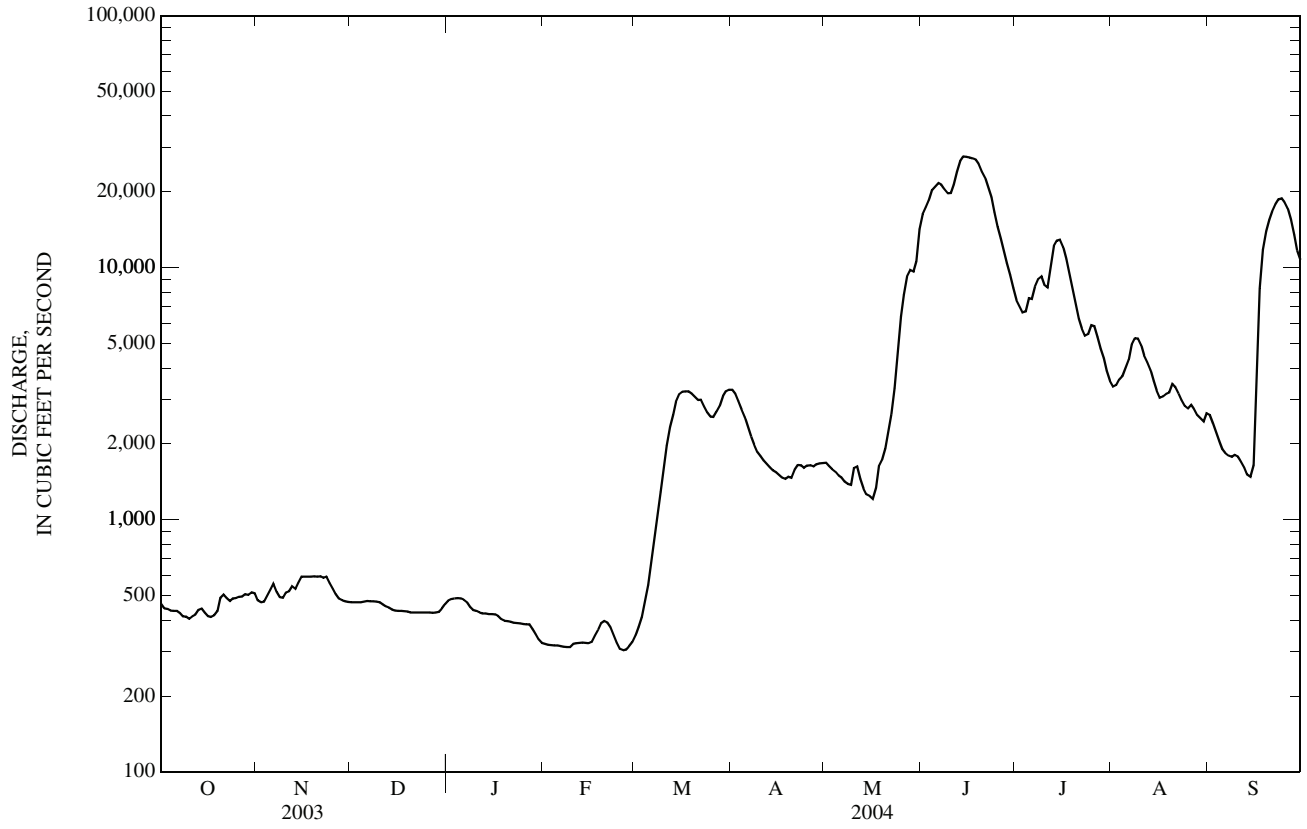
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1935 - 2004, BY WATER YEAR (WY)

MEAN	2,173	2,125	1,501	926	1,007	5,039	12,650	8,276	8,136	5,973	3,299	2,297
MAX	16,030	9,463	5,216	3,344	3,992	21,170	59,030	31,480	41,460	38,640	25,660	14,460
(WY)	(1969)	(1996)	(1983)	(1992)	(1983)	(1983)	(2001)	(2001)	(1993)	(1993)	(1993)	(1993)
MIN	167	178	158	111	130	322	926	923	633	279	178	183
(WY)	(1935)	(1935)	(1977)	(1940)	(1940)	(1940)	(1959)	(1959)	(1976)	(1936)	(1936)	(1976)

05330000 MINNESOTA RIVER NEAR JORDAN, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1935 - 2004	
ANNUAL TOTAL	1,055,009		1,490,437			
ANNUAL MEAN	2,890		4,072		a4,456	
HIGHEST ANNUAL MEAN					16,910	1993
LOWEST ANNUAL MEAN					687	1940
HIGHEST DAILY MEAN	15,800	May 17	27,600	Jun 14	112,000	Apr 11, 1965
LOWEST DAILY MEAN	404	Oct 10	304	Feb 26	85	Jan 21, 1940
ANNUAL SEVEN-DAY MINIMUM	418	Oct 6	315	Feb 3	89	Jan 20, 1940
MAXIMUM PEAK FLOW			b28,500	Jun 14	117,000	Apr 11, 1965
MAXIMUM PEAK STAGE			25.17	Jun 14	35.07	Apr 12, 1965
INSTANTANEOUS LOW FLOW			c304	Feb 26	79	Nov 17, 1955
ANNUAL RUNOFF (AC-FT)	2,093,000		2,956,000		3,228,000	
ANNUAL RUNOFF (CFSM)	0.178		0.251		0.275	
ANNUAL RUNOFF (INCHES)	2.42		3.42		3.74	
10 PERCENT EXCEEDS	7,310		13,200		11,800	
50 PERCENT EXCEEDS	840		1,580		1,840	
90 PERCENT EXCEEDS	451		388		331	

a Median of annual mean discharges is 3700 ft^3/s.
b Discharge value rated fair.
c Estimated daily-mean discharge, backwater from ice.
e Estimated.



05330920 MINNESOTA RIVER AT FT. SNELLING STATE PARK, MN

LOCATION.--LAT 44°52'13", long 93°11'32", in SE¼SW¼NE¼ sec.32, T. 28 N., R. 23 W., Hennepin County, Hydrologic Unit 07020012, on left bank at Ft. Snelling State Park and at mile 3.5 upstream from Mississipp River.

DRAINAGE AREA.--16,900 mi^2 (approximately).

PERIOD OF RECORD.--January 2004 to current year.

GAGE.--Water-stage and velocity recorder. Datum of gage is 680.00 ft above sea level (NGVD of 1929).

REMARKS.--Records good except those for estimated days, which are fair to poor.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	e619	1,420	3,640	e1,880	16,200	7,100	4,090	2,950
2	---	---	---	---	e619	1,410	3,520	e1,880	18,000	7,020	4,110	2,810
3	---	---	---	---	e619	1,800	3,360	e1,850	18,800	6,540	3,980	2,570
4	---	---	---	---	e615	e1,610	3,190	e1,820	19,200	6,610	3,950	2,460
5	---	---	---	---	e619	e1,610	2,960	e1,770	19,700	7,690	4,280	2,390
6	---	---	---	---	e622	e1,660	2,560	e1,730	20,800	7,940	4,590	2,590
7	---	---	---	---	e642	e1,810	2,610	e1,690	20,600	8,140	5,040	2,360
8	---	---	---	---	e661	e2,020	2,320	e1,640	21,000	9,800	5,470	2,270
9	---	---	---	---	e678	e2,200	2,260	e1,590	21,200	10,500	5,600	2,450
10	---	---	---	---	e695	e2,510	1,990	e1,570	21,300	10,200	5,170	2,310
11	---	---	---	---	e706	e2,770	1,970	e1,770	21,500	10,200	4,890	2,160
12	---	---	---	---	e711	e3,000	2,010	e1,820	22,500	10,900	4,660	2,140
13	---	---	---	---	e687	e3,260	1,910	e1,760	23,900	12,900	4,490	2,030
14	---	---	---	---	e693	e3,420	1,770	e1,600	25,700	13,600	4,100	2,110
15	---	---	---	---	e734	e3,490	2,040	1,830	27,700	13,800	3,790	3,150
16	---	---	---	---	e748	e3,520	1,830	1,600	28,400	13,600	3,560	3,330
17	---	---	---	---	e777	e3,360	1,790	1,960	28,700	12,400	3,260	6,740
18	---	---	---	---	852	e3,440	1,700	2,160	28,500	10,900	3,450	10,100
19	---	---	---	---	953	3,350	e1,650	2,270	27,800	9,750	3,420	13,500
20	---	---	---	---	1,080	3,440	e1,680	2,530	26,100	8,740	3,650	15,100
21	---	---	---	e756	1,050	3,230	e1,660	2,740	25,600	7,780	3,640	16,700
22	---	---	---	e748	1,100	3,190	e1,760	3,100	24,000	7,130	3,470	17,400
23	---	---	---	e741	1,070	2,990	e1,860	3,630	21,900	6,620	3,380	18,100
24	---	---	---	e734	1,040	2,790	e1,860	5,030	19,000	6,890	3,250	18,500
25	---	---	---	e727	1,130	2,840	e1,850	6,190	15,600	7,040	3,180	e18,900
26	---	---	---	e723	1,030	3,250	e1,840	7,100	13,300	6,840	3,200	e18,800
27	---	---	---	e720	959	3,220	e1,860	8,610	11,500	6,330	3,050	e18,000
28	---	---	---	e711	1,020	3,380	e1,860	9,880	9,690	5,300	3,040	e16,500
29	---	---	---	e700	1,250	3,510	e1,840	10,600	8,550	4,930	2,900	e13,900
30	---	---	---	e657	---	3,720	e1,860	11,500	7,740	4,730	2,690	e12,200
31	---	---	---	e613	---	3,570	---	13,700	---	4,210	2,970	---
TOTAL	---	---	---	---	23,979	86,790	65,010	118,800	614,480	266,130	120,320	254,520
MEAN	---	---	---	---	827	2,800	2,167	3,832	20,480	8,585	3,881	8,484
MAX	---	---	---	---	1,250	3,720	3,640	13,700	28,700	13,800	5,600	18,900
MIN	---	---	---	---	615	1,410	1,650	1,570	7,740	4,210	2,690	2,030
AC-FT	---	---	---	---	47,560	172,100	128,900	235,600	1,219,000	527,900	238,700	504,800
CFSM	---	---	---	---	0.05	0.17	0.13	0.23	1.21	0.51	0.23	0.50
IN.	---	---	---	---	0.05	0.19	0.14	0.26	1.35	0.59	0.26	0.56

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2004 - 2004, BY WATER YEAR (WY)

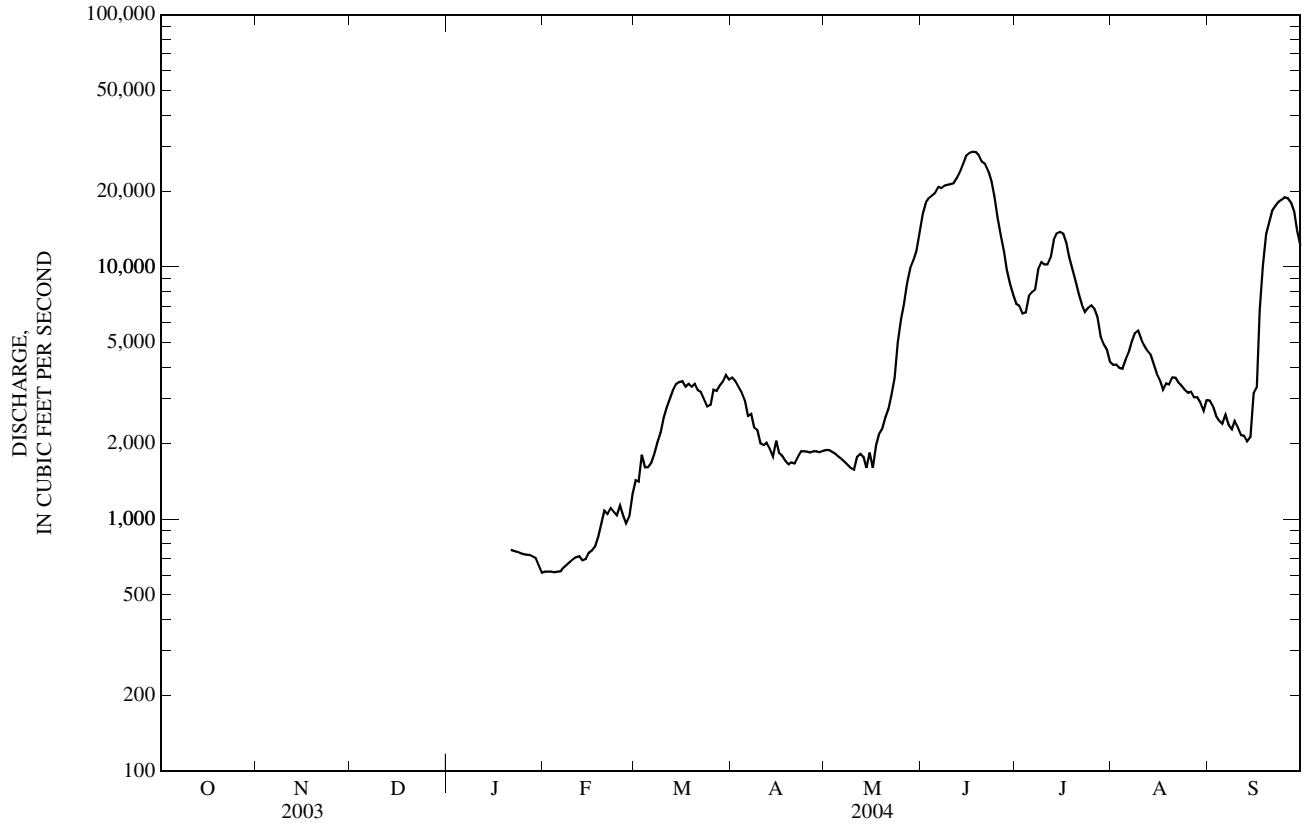
MEAN	---	---	---	---	827	2,800	2,167	3,832	20,480	8,585	3,881	8,484
MAX	---	---	---	---	827	2,800	2,167	3,832	20,480	8,585	3,881	8,484
(WY)	---	---	---	---	(2004)	(2004)	(2004)	(2004)	(2004)	(2004)	(2004)	(2004)
MIN	---	---	---	---	827	2,800	2,167	3,832	20,480	8,585	3,881	8,484
(WY)	---	---	---	---	(2004)	(2004)	(2004)	(2004)	(2004)	(2004)	(2004)	(2004)

05330920 MINNESOTA RIVER AT FT. SNELLING STATE PARK—Continued

SUMMARY STATISTICS WATER YEARS 2004 - 2004

HIGHEST DAILY MEAN	28,700	Jun 17, 2004
LOWEST DAILY MEAN	613	Jan 31, 2004
MAXIMUM PEAK FLOW	31,400	Jun 17, 2004
MAXIMUM PEAK STAGE	696.52	Jun 17, 2004
INSTANTANEOUS LOW FLOW	a-594	Apr 18, 2004

a Reverse flow occurred over a one-hour period, cause unknown.
e Estimated.



05331000 MISSISSIPPI RIVER AT ST. PAUL, MN

LOCATION.--LAT 44°56'01", long 93°06'20", in NE¼NE¼ sec.13, T. 28 N., R. 22 W., Ramsey County, Hydrologic Unit 07010206, on left bank in St. Paul, 100 ft upstream from Smith Ave. Bridge, 4.8 mi downstream from Minnesota River, and at mile 840.5 upstream from Ohio River.

DRAINAGE AREA.--36,800 mi^2 (approximately).

PERIOD OF RECORD.--March 1892 to current year (prior to 1901, fragmentary during some winters). Records prior to March 1892, published in the 19th Annual Report, Part 4, have been found to be unreliable and should not be used. Monthly discharge only for some periods, published in WSP 1308. Gage-height records (winter records incomplete) collected at same site since 1866 are contained in reports of U.S. Weather Bureau, War Department and Mississippi River Commission.

REVISED RECORDS.--WSP 285: 1892-96. WSP 715: Drainage area. WSP 875: 1938. WSP 895: 1939. WSP 1308: 1867(M). WSP 1508: 1897, 1898(M). 1903(M), 1917-18(M). 1928(M), 1929. WRD MN-74: 1973.

GAGE.--Water-stage recorder. Datum of gage is 683.62 ft above sea level (NGVD of 1929). Prior to Mar. 18, 1925, nonrecording gage at several sites within 300 ft of each other and 1.2 miles downstream of present site at present datum. Mar. 19, 1925 to June 24, 1999, recording gage 1.2 miles downstream of present site at present datum. Since September 1938, auxiliary water-stage recorder 5.6 mi downstream.

REMARKS.--Records good except those for days when flow-routing techniques were used, which are fair to poor. Flow-routing techniques were used from Oct. 1 to May 27, and June 27 to Sept. 30. Routed discharges are considered fair to poor. Slight regulation, except during extreme floods, by reservoirs on headquarters and by power plants. Beginning July 20, 1939, effluent from Minneapolis and St. Paul, which formerly entered the river above station, was diverted to a wasterwater treatment plant, thence to river about 4 miles below station. Daily-mean discharge figures do not include this diversion.

COOPERATION.--Records of discharge from the Metro Plant wastewater treatment plant were provided by the Metropolitan Council - Environmental Services.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e3,530	e3,890	e4,110	e3,850	e2,780	e3,590	e16,000	e10,200	31,700	e15,600	e7,800	e4,870
2	e3,190	e4,150	e4,430	e3,480	e2,960	e3,770	e16,000	e9,690	33,300	e14,400	e7,230	e5,100
3	e3,390	e4,150	e4,470	e3,690	e2,910	e4,010	e16,000	e9,350	34,500	e13,500	e6,880	e4,930
4	e3,230	e3,880	e4,420	e3,780	e2,680	e4,100	e16,100	e8,920	36,000	e13,300	e7,410	e4,430
5	e3,290	e4,230	e4,490	e3,470	e2,840	e4,310	e15,200	e8,710	37,500	e12,900	e7,210	e4,260
6	e3,190	e4,220	e4,320	e3,180	e3,050	e4,460	e14,400	e8,350	39,500	e13,500	e7,280	e4,780
7	e3,040	e4,440	e4,670	e2,920	e3,130	e4,540	e14,500	e8,100	40,200	e13,700	e7,660	e5,280
8	e3,100	e4,030	e4,450	e3,060	e3,110	e4,780	e13,800	e8,060	39,400	e15,200	e8,460	e6,730
9	e3,140	e3,460	e4,360	e3,470	e3,020	e4,350	e12,700	e7,440	40,800	e15,800	e8,870	e6,800
10	e3,130	e3,300	e4,550	e3,570	e3,060	e4,900	e12,400	e7,170	40,100	e16,100	e8,490	e6,020
11	e3,230	e3,400	e4,060	e3,700	e3,130	e4,840	e12,500	e6,820	40,400	e15,400	e8,040	e6,720
12	e3,170	e3,260	e2,390	e3,910	e3,140	e5,010	e12,100	e7,110	42,100	e16,200	e7,720	e7,220
13	e3,400	e3,830	e2,310	e3,840	e3,170	e4,930	e11,700	e6,480	43,700	e18,500	e7,290	e7,320
14	e3,260	e4,370	e2,710	e3,510	e3,180	e6,570	e11,600	e6,870	44,800	e20,500	e7,030	e6,790
15	e3,420	e4,440	e3,700	e3,420	e3,190	e7,680	e11,000	e6,420	46,000	e21,400	e7,050	e7,230
16	e3,330	e4,310	e4,410	e3,360	e3,020	e7,680	e10,900	e6,010	46,900	e21,300	e6,580	e7,790
17	e2,820	e4,020	e4,370	e3,430	e3,050	e7,970	e10,400	e6,080	46,800	e21,200	e6,160	e7,530
18	e2,690	e4,300	e3,670	e3,480	e3,060	e8,090	e9,880	e7,860	46,200	e19,300	e5,840	e10,500
19	e3,500	e4,630	e3,860	e3,040	e3,110	e7,180	e9,810	e8,470	45,600	e17,400	e5,790	e18,800
20	e3,540	e4,650	e3,920	e2,580	e3,280	e8,490	e10,000	e8,800	43,600	e15,600	e5,920	e21,300
21	e3,970	e4,710	e4,040	e2,740	e3,200	e8,940	e9,390	e9,070	41,600	e14,100	e5,890	e23,500
22	e3,990	e4,750	e4,210	e2,810	e3,040	e9,240	e10,100	e10,200	38,600	e12,800	e6,010	e25,200
23	e3,640	e4,560	e4,280	e2,940	e3,040	e9,530	e11,100	e10,500	35,800	e11,700	e5,560	e27,000
24	e3,360	e4,470	e4,280	e3,060	e3,210	e9,640	e11,600	e11,500	32,000	e11,200	e5,290	e28,200
25	e3,400	e4,170	e4,110	e3,110	e3,180	e9,720	e11,800	e14,100	27,500	e10,800	e5,340	e29,200
26	e3,140	e3,500	e3,980	e3,260	e3,160	e10,300	e12,100	e16,700	24,300	e10,800	e4,980	e28,700
27	e3,470	e3,060	e4,110	e3,240	e3,220	e10,400	e11,900	e17,900	e22,800	e9,960	e5,390	e27,900
28	e3,520	e3,240	e4,300	e3,390	e3,250	e11,300	e11,400	22,100	e20,800	e9,480	e5,840	e26,500
29	e3,520	e3,140	e4,540	e3,180	e3,390	e12,700	e10,900	23,600	e18,900	e9,090	e5,480	e24,100
30	e3,730	e3,880	e4,480	e2,790	---	e14,300	e10,600	25,200	e17,200	e8,500	e5,060	e22,300
31	e3,610	---	e4,070	e2,700	---	e15,500	---	28,600	---	e7,850	e4,980	---
TOTAL	103,940	120,440	126,070	101,960	89,560	232,820	367,880	346,380	1,098,600	447,080	204,530	417,000
MEAN	3,353	4,015	4,067	3,289	3,088	7,510	12,260	11,170	36,620	14,420	6,598	13,900
MAX	3,990	4,750	4,670	3,910	3,390	15,500	16,100	28,600	46,900	21,400	8,870	29,200
MIN	2,690	3,060	2,310	2,580	2,680	3,590	9,390	6,010	17,200	7,850	4,980	4,260
AC-FT	206,200	238,900	250,100	202,200	177,600	461,800	729,700	687,000	2,179,000	886,800	405,700	827,100
CFSM	0.09	0.11	0.11	0.09	0.08	0.20	0.33	0.30	1.00	0.39	0.18	0.38
IN.	0.11	0.12	0.13	0.10	0.09	0.24	0.37	0.35	1.11	0.45	0.21	0.42
+	331	324	309	307	310	327	348	359	365	365	351	341
‡MEAN	3,680	4,340	4,380	3,600	3,400	7,840	12,600	11,500	37,000	14,800	6,950	14,200
‡CFSM	0.10	0.12	0.12	0.10	0.09	0.21	0.34	0.31	1.01	0.40	0.19	0.39
‡IN	0.12	0.13	0.14	0.11	0.10	0.25	0.38	0.36	1.12	0.46	0.22	0.43

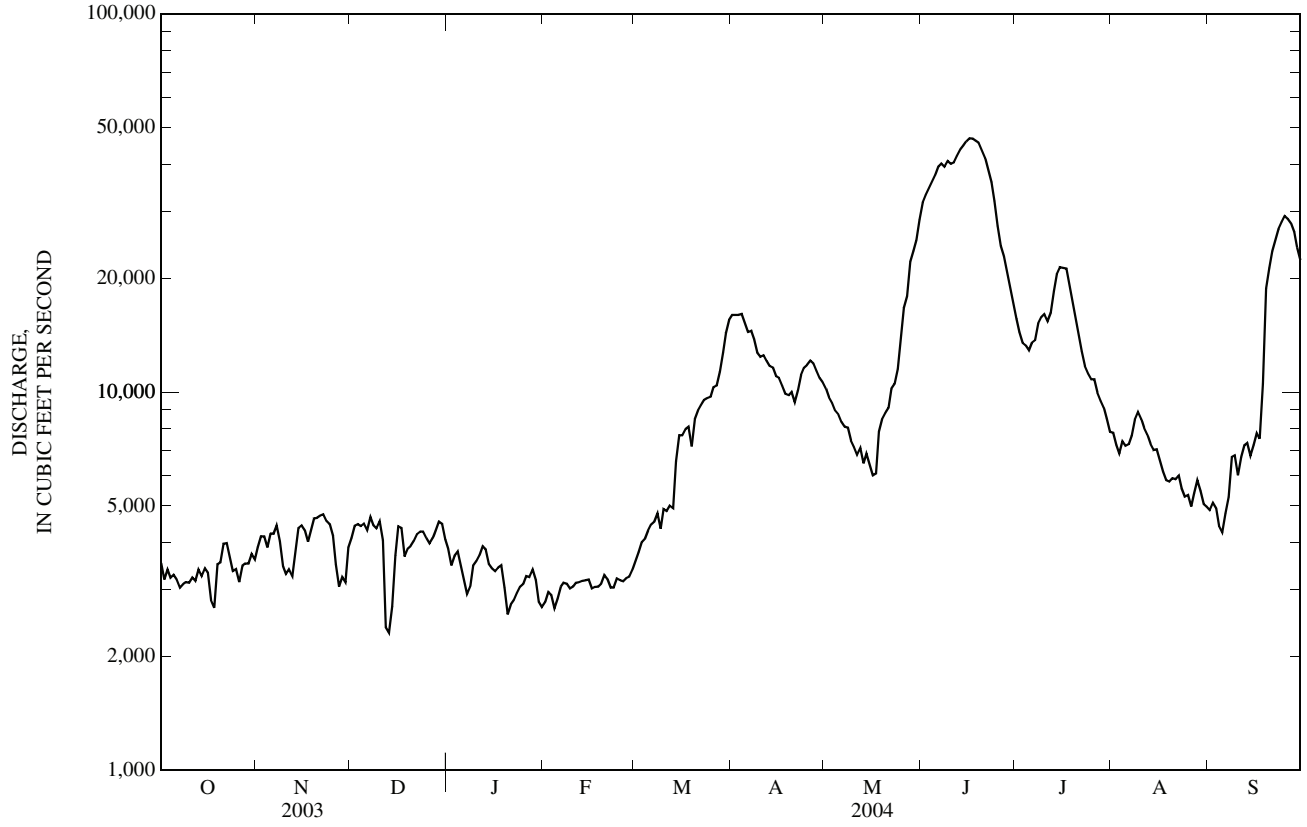
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1892 - 2004, BY WATER YEAR (WY)

MEAN	8,555	7,913	5,762	4,654	4,598	11,070	26,380	21,330	18,680	14,720	8,982	8,120
MAX	38,210	27,660	16,080	11,500	14,700	43,240	96,590	70,430	57,170	73,590	42,550	34,380
(WY)	(1987)	(1972)	(1983)	(1983)	(1966)	(1983)	(2001)	(2001)	(1993)	(1993)	(1993)	(1986)
MIN	1,289	1,348	1,277	1,097	1,300	1,757	3,421	3,085	1,980	1,272	864	1,143
(WY)	(1937)	(1937)	(1935)	(1935)	(1895)	(1940)	(1895)	(1934)	(1934)	(1934)	(1934)	(1934)

05331000 MISSISSIPPI RIVER AT ST. PAUL, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1892 - 2004	
ANNUAL TOTAL	3,831,460 (‡3,941,840		3,656,260 (‡3,762,350)			
ANNUAL MEAN	10,500 (‡10,800)		9,990 (‡10,280)		11,810	
HIGHEST ANNUAL MEAN					29,580	1986
LOWEST ANNUAL MEAN					1,935	1934
HIGHEST DAILY MEAN	37,800	Jul 1	46,900	Jun 16	171,000	Apr 16, 1965
LOWEST DAILY MEAN	2,310	Dec 13	2,310	Dec 13	632	Aug 26, 1934
ANNUAL SEVEN-DAY MINIMUM	3,140	Oct 6	2,810	Jan 30	741	Aug 26, 1934
MAXIMUM PEAK FLOW			47,200	Jun 16	171,000	Apr 16, 1965
MAXIMUM PEAK STAGE			9.94	Jun 16	26.01	Apr 16, 1965
ANNUAL RUNOFF (AC-FT)	7,600,000		7,252,000		8,556,000	
ANNUAL RUNOFF (CFSM)	0.285		0.271		0.321	
ANNUAL RUNOFF (INCHES)	3.87		3.70		4.36	
10 PERCENT EXCEEDS	27,300		23,800		27,400	
50 PERCENT EXCEEDS	4,980		5,860		7,160	
90 PERCENT EXCEEDS	3,400		3,130		2,710	

+ Diversion, in cubic feet per second, from wastewater treatment plant.
‡ Adjusted for discharges from wastewater treatment plant.



05331580 MISSISSIPPI RIVER BELOW LOCK AND DAM 2, AT HASTINGS, MN

LOCATION.--Lat 44°44'48", long 92°51'08", SE¼SE¼ sec. 21, T.115 N., R.17 W., Dakota County, Hydrologic Unit 07010206, near bridge on U.S. Highway 61 in Hastings, 1.2 mi downstream from Lock and Dam 2, 2.5 mi upstream from St. Croix River, and at mile 813.8 upstream from Ohio River.

DRAINAGE AREA.--37,050 mi^2.

PERIOD OF RECORD.--October 1996 to current year.

REMARKS.-- Records fair to poor. Water-discharge computed on the basis of routed discharge for Mississippi River at St. Paul (station 05331000) adjusted for inflow (including metropolitan wastewater treatment plant) and travel time.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

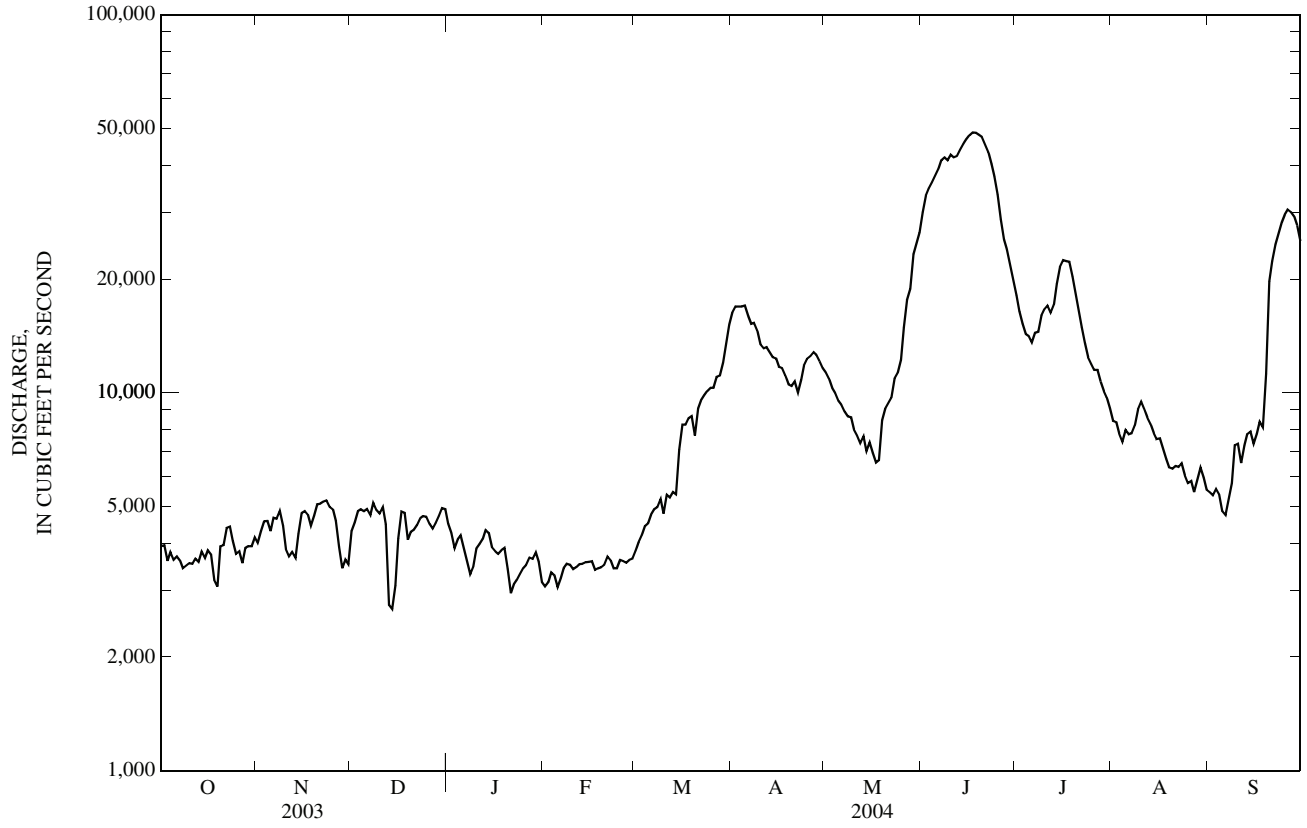
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3,930	4,010	4,300	4,500	3,070	3,820	16,300	11,300	30,000	18,100	8,410	5,460
2	3,950	4,300	4,540	4,250	3,150	4,020	16,900	10,900	33,200	16,400	8,350	5,350
3	3,590	4,570	4,860	3,880	3,350	4,200	16,900	10,300	34,700	15,200	7,790	5,570
4	3,790	4,580	4,910	4,090	3,290	4,440	16,900	9,970	36,000	14,300	7,420	5,390
5	3,620	4,300	4,860	4,190	3,060	4,520	17,000	9,520	37,500	14,100	7,960	4,860
6	3,690	4,670	4,920	3,880	3,230	4,750	16,000	9,300	39,100	13,600	7,760	4,740
7	3,600	4,640	4,750	3,580	3,430	4,910	15,200	8,920	41,200	14,400	7,820	5,240
8	3,430	4,870	5,120	3,310	3,530	4,980	15,300	8,660	41,900	14,500	8,200	5,760
9	3,490	4,450	4,890	3,450	3,510	5,230	14,600	8,620	41,200	16,000	9,040	7,260
10	3,540	3,860	4,790	3,870	3,410	4,790	13,400	7,990	42,600	16,600	9,470	7,330
11	3,530	3,690	4,980	3,970	3,450	5,370	13,100	7,710	41,900	17,000	9,080	6,520
12	3,640	3,790	4,490	4,100	3,520	5,280	13,200	7,350	42,200	16,300	8,600	7,240
13	3,570	3,660	2,750	4,330	3,530	5,460	12,800	7,660	43,900	17,100	8,270	7,770
14	3,810	4,240	2,680	4,250	3,560	5,380	12,400	7,010	45,500	19,400	7,830	7,890
15	3,660	4,800	3,090	3,900	3,570	7,070	12,300	7,390	46,700	21,500	7,550	7,330
16	3,830	4,860	4,120	3,810	3,580	8,230	11,700	6,920	47,900	22,400	7,570	7,780
17	3,730	4,740	4,850	3,750	3,400	8,230	11,600	6,530	48,800	22,300	7,110	8,380
18	3,200	4,450	4,810	3,830	3,430	8,540	11,100	6,620	48,700	22,200	6,670	8,100
19	3,070	4,730	4,080	3,880	3,450	8,660	10,500	8,440	48,100	20,300	6,340	11,200
20	3,920	5,070	4,280	3,420	3,510	7,710	10,400	9,070	47,500	18,300	6,290	19,700
21	3,950	5,090	4,340	2,950	3,680	9,070	10,700	9,400	45,400	16,400	6,410	22,300
22	4,390	5,150	4,470	3,110	3,600	9,530	10,000	9,690	43,300	14,900	6,370	24,600
23	4,420	5,190	4,650	3,200	3,430	9,840	10,800	10,900	40,200	13,500	6,500	26,400
24	4,050	4,990	4,720	3,320	3,430	10,100	11,800	11,300	37,300	12,400	6,050	28,200
25	3,750	4,910	4,700	3,440	3,610	10,300	12,300	12,200	33,400	11,900	5,770	29,500
26	3,810	4,580	4,500	3,510	3,580	10,300	12,500	14,900	28,700	11,500	5,830	30,500
27	3,540	3,910	4,370	3,660	3,550	11,000	12,800	17,600	25,400	11,500	5,460	30,000
28	3,880	3,430	4,520	3,630	3,610	11,100	12,600	18,800	23,900	10,700	5,870	29,200
29	3,930	3,620	4,720	3,780	3,640	12,000	12,100	23,200	21,800	10,100	6,330	27,700
30	3,930	3,520	4,950	3,570	---	13,400	11,600	24,700	19,900	9,710	5,960	25,200
31	4,150	---	4,920	3,160	---	15,100	---	26,500	---	9,100	5,540	---
TOTAL	116,390	132,670	138,930	115,570	100,160	237,330	394,800	349,370	1,157,900	481,710	223,620	422,470
MEAN	3,755	4,422	4,482	3,728	3,454	7,656	13,160	11,270	38,600	15,540	7,214	14,080
MAX	4,420	5,190	5,120	4,500	3,680	15,100	17,000	26,500	48,800	22,400	9,470	30,500
MIN	3,070	3,430	2,680	2,950	3,060	3,820	10,000	6,530	19,900	9,100	5,460	4,740
AC-FT	230,900	263,200	275,600	229,200	198,700	470,700	783,100	693,000	2,297,000	955,500	443,600	838,000
CFSM	0.10	0.12	0.12	0.10	0.09	0.21	0.35	0.30	1.04	0.42	0.19	0.38
IN.	0.12	0.13	0.14	0.12	0.10	0.24	0.40	0.35	1.16	0.48	0.22	0.42

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1996 - 2004, BY WATER YEAR (WY)

MEAN	10,520	12,250	9,464	7,184	6,985	12,540	41,680	32,670	27,970	23,100	12,060	9,023
MAX	25,600	24,960	13,290	9,657	10,040	20,360	95,650	76,140	52,600	36,910	23,560	16,620
(WY)	(1996)	(1996)	(1997)	(1996)	(1998)	(1998)	(2001)	(2001)	(2001)	(1997)	(1997)	(2002)
MIN	3,755	4,422	4,482	3,728	3,454	6,436	10,400	11,270	16,100	15,540	6,460	4,184
(WY)	(2004)	(2004)	(2004)	(2004)	(2004)	(2001)	(2000)	(2004)	(1997)	(2004)	(2000)	(2003)

05331580 MISSISSIPPI RIVER BELOW LOCK AND DAM 2, AT HASTINGS, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1996 - 2004	
ANNUAL TOTAL	4,078,490		3,870,920			
ANNUAL MEAN	11,170		10,580		17,130	
HIGHEST ANNUAL MEAN					25,040	2001
LOWEST ANNUAL MEAN					10,310	2000
HIGHEST DAILY MEAN	39,500	Jul 2	48,800	Jun 17	147,000	Apr 19, 2001
LOWEST DAILY MEAN	2,680	Dec 14	2,680	Dec 14	2,680	Dec 14, 2003
ANNUAL SEVEN-DAY MINIMUM	3,540	Oct 7	3,190	Jan 31	3,190	Jan 31, 2004
ANNUAL RUNOFF (AC-FT)	8,090,000		7,678,000		12,410,000	
ANNUAL RUNOFF (CFSM)	0.301		0.285		0.462	
ANNUAL RUNOFF (INCHES)	4.09		3.88		6.27	
10 PERCENT EXCEEDS	28,500		24,800		36,100	
50 PERCENT EXCEEDS	5,470		6,340		11,100	
90 PERCENT EXCEEDS	3,820		3,530		5,060	



05331580 MISSISSIPPI RIVER AT HASTINGS, MN—Continued
(National Water-Quality Assessment Program)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1936-41, 1943-1977, 1995 to current year.

NASQAN samples previously collected at Mississippi River at Ninninger (station no. 05331570), January 1977 to September 1995.

PERIOD OF DAILY RECORD:

WATER TEMPERATURES.-- 1996 to 1998 (non-winter months).

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Time	Sample type	Discharge, cfs (00060)	Instantaneous discharge, cfs (00061)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Alkalinity, wat flt inc tit field, mg/L as CaCO3 (39086)
OCT												
29...	1000	Environmental	4,100	--	739	9.4	80	8.1	601	4.0	8.4	189
NOV												
12...	1230	Environmental	3,300	--	735	19.2	148	8.5	580	3.0	4.3	186
DEC												
18...	0930	Environmental	3,400	--	744	15.8	110	8.4	652	-4.0	.5	200
JAN												
22...	0900	Environmental	2,800	--	748	19.3	135	8.2	707	-19.0	.8	222
FEB												
25...	1000	Environmental	3,300	--	750	14.7	104	7.9	780	4.0	1.4	234
APR												
15...	1300	Environmental	--	11,700	741	17.8	160	8.7	417	21.0	10.8	140
MAY												
25...	1125	Environmental	16,000	--	742	11.8	118	8.0	504	22.0	15.3	162
JUN												
03...	1140	Environmental	34,400	--	756	8.6	89	7.7	502	21.5	17.1	140
JUL												
13...	1030	Environmental	18,600	--	745	8.8	104	7.9	598	30.0	24.6	174
AUG												
13...	1015	Environmental	7,700	--	752	12.8	141	8.1	629	20.0	20.2	199
19...	0830	Plant material	--	--	--	--	--	--	--	--	--	--

Date	Bicarbonate, wat flt incrm. titr., field, mg/L (00453)	Carbonate, wat flt incrm. titr., field, mg/L (00452)	Chloride, water, fltrd, mg/L (00940)	Sulfate water, fltrd, mg/L (00945)	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Orthophosphate, water, fltrd, mg/L as P (00671)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, wat unf by analysis, mg/L (62855)	Biomass periphyton, ashfree drymass g/m2 (49954)	Periphyton biomass ash weight, g/m2 (00572)	Periphyton biomass dry weight, g/m2 (00573)
OCT													
29...	227	2	49.4	41.6	<.04	1.50	.051	.064	.171	2.52	--	--	--
NOV													
12...	227	.0	46.8	44.0	<.04	1.43	.046	.053	.32	2.94	--	--	--
DEC													
18...	235	4	57.7	52.5	.11	1.73	.096	<.006	.029	2.87	--	--	--
JAN													
22...	263	4	53.5	51.3	.14	2.23	.133	<.006	.088	3.00	--	--	--
FEB													
25...	285	.0	92.3	44.7	.43	2.12	.081	.070	.121	3.22	--	--	--
APR													
15...	153	8	25.4	35.4	<.04	.58	.035	<.006	.21	1.86	--	--	--
MAY													
25...	198	.0	32.8	46.4	.06	1.35	.033	.066	.22	2.13	--	--	--
JUN													
03...	171	.0	23.3	47.4	.10	7.78	.088	.059	.28	9.52	--	--	--
JUL													
13...	212	.0	27.7	61.9	.05	7.01	.041	.086	.21	7.78	--	--	--
AUG													
13...	242	.0	34.5	59.9	.07	4.69	.052	.107	.22	5.71	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	25.9	320	345.0

05331580 MISSISSIPPI RIVER AT HASTINGS, MN—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Pheophytin a, periphyton, mg/m2 (62359)	Chlorophyll a periphyton, chromofluoro, mg/m2 (70957)	2,6-Diethylaniline water fltrd 0.7u GF ug/L (82660)	CIAT, water, fltrd, ug/L (04040)	Acetochlor, water, fltrd, ug/L (49260)	Alachlor, water, fltrd, ug/L (46342)	alpha-HCH, water, fltrd, ug/L (34253)	alpha-HCH-d6, surrog, wat flt 0.7u GF percent recovry (91065)	Atrazine, water, fltrd, ug/L (39632)	Azinphosmethyl, water, fltrd 0.7u GF ug/L (82686)	Benfluralin, water, fltrd 0.7u GF ug/L (82673)	Butylate, water, fltrd, ug/L (04028)	Carbaryl, water, fltrd 0.7u GF ug/L (82680)
OCT													
29...	--	--	<.006	E.012	<.006	<.005	<.005	97.2	.034	<.050	<.010	<.004	<.041
NOV													
12...	--	--	--	--	--	--	--	--	--	--	--	--	--
DEC													
18...	--	--	<.006	<.006	<.006	<.005	<.005	105	.029	<.050	<.010	<.004	<.041
JAN													
22...	--	--	<.006	E.011	.011	<.005	<.005	110	.034	<.050	<.010	<.004	<.041
FEB													
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
APR													
15...	--	--	<.006	E.010	.009	<.005	<.005	105	.031	<.050	<.010	<.004	<.041
MAY													
25...	--	--	<.006	E.018	.171	.007	<.005	86.9	.180	<.050	<.010	<.004	<.041
JUN													
03...	--	--	<.006	E.037	.566	.026	<.005	99.6	.930	<.050	<.010	<.004	<.041
JUL													
13...	--	--	<.006	E.027	.032	<.005	<.005	82.9	.411	<.050	<.010	<.004	<.041
AUG													
13...	--	--	<.006	E.032	.016	<.005	<.005	87.9	.189	<.050	<.010	<.004	<.041
19...	22	55.7	--	--	--	--	--	--	--	--	--	--	--

Date	Carbofuran, water, fltrd 0.7u GF ug/L (82674)	Chlorpyrifos water, fltrd, ug/L (38933)	cis-Permethrin water fltrd 0.7u GF ug/L (82687)	Cyanazine, water, fltrd, ug/L (04041)	DCPA, water fltrd 0.7u GF ug/L (82682)	Desulfinyl fipronil, water, fltrd, ug/L (62170)	Diazinon, water, fltrd, ug/L (39572)	Diazinon-d10 surrog. wat flt 0.7u GF percent recovry (91063)	Dieldrin, water, fltrd, ug/L (39381)	Disulfoton, water, fltrd 0.7u GF ug/L (82677)	EPTC, water, fltrd 0.7u GF ug/L (82668)	Ethalfluralin, water, fltrd 0.7u GF ug/L (82663)	Ethoprop, water, fltrd 0.7u GF ug/L (82672)
OCT													
29...	<.020	<.005	<.006	<.018	<.003	<.012	.006	104	<.009	<.02	<.020	<.009	<.005
NOV													
12...	--	--	--	--	--	--	--	--	--	--	--	--	--
DEC													
18...	<.020	<.005	<.006	<.018	<.003	<.012	<.007	129	<.009	<.02	<.004	<.009	<.005
JAN													
22...	<.020	<.005	<.006	<.018	<.003	<.012	<.005	120	<.009	<.02	<.004	<.009	<.005
FEB													
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
APR													
15...	<.020	<.005	<.006	<.018	<.003	<.012	<.005	126	<.009	<.02	<.020	<.009	<.005
MAY													
25...	<.020	<.005	<.006	<.018	<.003	<.012	E.005	112	<.009	<.02	<.050	<.009	<.005
JUN													
03...	<.020	<.005	<.006	<.018	<.003	<.012	<.005	110	<.009	<.02	<.004	<.009	<.005
JUL													
13...	<.020	<.005	<.006	<.018	<.003	<.012	.005	94.9	<.009	<.02	<.004	<.009	<.005
AUG													
13...	<.020	<.005	<.006	<.018	<.003	<.012	E.002	107	<.009	<.02	<.004	<.009	<.005

05331580 MISSISSIPPI RIVER AT HASTINGS, MN—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Desulfinyl-fipronil amide, wat flt ug/L (62169)	Fipronil sulfide water, fltrd, ug/L (62167)	Fipronil sulfone water, fltrd, ug/L (62168)	Fipronil, water, fltrd, ug/L (62166)	Fonofos water, fltrd, ug/L (04095)	Lindane water, fltrd, ug/L (39341)	Linuron water fltrd 0.7u GF ug/L (82666)	Malathion, water, fltrd, ug/L (39532)	Methyl parathion, water, fltrd 0.7u GF ug/L (82667)	Metolachlor, water, fltrd, ug/L (39415)	Metribuzin, water, fltrd, ug/L (82630)	Molinate, water, fltrd 0.7u GF ug/L (82671)	Napropamide, water, fltrd 0.7u GF ug/L (82684)
OCT													
29...	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	E.007	<.006	<.003	<.007
NOV													
12...	--	--	--	--	--	--	--	--	--	--	--	--	--
DEC													
18...	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	E.009	<.006	<.003	<.007
JAN													
22...	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	E.010	<.006	<.003	<.007
FEB													
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
APR													
15...	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.035	<.006	<.003	<.007
MAY													
25...	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.120	<.006	<.003	<.007
JUN													
03...	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.376	<.006	<.003	<.007
JUL													
13...	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.062	<.006	<.003	<.007
AUG													
13...	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.043	<.006	<.003	<.007

Date	p,p-' DDE, water, fltrd, ug/L (34653)	Parathion, water, fltrd, ug/L (39542)	Pebulate, water, fltrd 0.7u GF ug/L (82669)	Pendimethalin, water, fltrd 0.7u GF ug/L (82683)	Phorate water fltrd 0.7u GF ug/L (82664)	Prometon, water, fltrd, ug/L (04037)	Propyzamide, water, fltrd 0.7u GF ug/L (82676)	Propachlor, water, fltrd, ug/L (04024)	Propanil, water, fltrd 0.7u GF ug/L (82679)	Propargite, water, fltrd 0.7u GF ug/L (82685)	Simazine, water, fltrd, ug/L (04035)	Tebuthiuron water fltrd 0.7u GF ug/L (82670)	Terbacil, water, fltrd 0.7u GF ug/L (82665)
OCT													
29...	<.003	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	<.005	<.02	<.034
NOV													
12...	--	--	--	--	--	--	--	--	--	--	--	--	--
DEC													
18...	<.003	<.010	<.004	<.022	<.011	<.01	<.004	<.025	<.011	<.02	<.005	<.02	<.034
JAN													
22...	<.003	<.010	<.004	<.022	<.011	<.01	<.004	<.025	<.011	<.20	<.005	<.02	<.034
FEB													
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
APR													
15...	<.003	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	<.005	<.02	<.034
MAY													
25...	<.003	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	<.005	<.02	<.034
JUN													
03...	<.003	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	.006	<.02	<.034
JUL													
13...	<.003	<.010	<.004	<.022	<.011	.02	<.004	<.025	<.011	<.02	.009	<.02	<.034
AUG													
13...	<.003	<.010	<.004	<.022	<.011	.02	<.004	<.025	<.011	<.02	.005	<.02	<.034

05331580 MISSISSIPPI RIVER AT HASTINGS, MN—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Terbufos, water, fltrd 0.7u GF ug/L (82675)	Thiobencarb water fltrd 0.7u GF ug/L (82681)	Triallate, water, fltrd 0.7u GF ug/L (82678)	Trifluralin, water, fltrd 0.7u GF ug/L (82661)	Suspended sediment concentration mg/L (80154)
OCT					
29...	<.02	<.010	<.002	<.009	119
NOV					
12...	--	--	--	--	223
DEC					
18...	<.02	<.010	<.002	<.009	59
JAN					
22...	<.02	<.010	<.002	<.009	76
FEB					
25...	--	--	--	--	4
APR					
15...	<.02	<.010	<.002	<.009	29
MAY					
25...	<.02	<.010	<.002	<.009	42
JUN					
03...	<.02	<.010	<.002	<.009	151
JUL					
13...	<.02	<.010	<.002	<.009	59
AUG					
13...	<.02	<.010	<.002	<.009	34

05336700 KETTLE RIVER BELOW SANDSTONE, MN

LOCATION.--Lat 46°06'20", long 92°51'50", in NW¼SW¼ sec. 22, T.42 N., R.20 W., Pine County, Hydrologic Unit 07030003, on Sandstone Federal Correctional Institution property, on left bank, about 1.8 mi south of Sandstone.

DRAINAGE AREA.--868 mi^2.

PERIOD OF RECORD.--October 1967 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 931.50 ft above sea level (NGVD of 1929, Minnesota Department of Transportation benchmark).

REMARKS.--Records good except those for estimated daily discharge, which are poor. Regulation from hydropower dam from 1908 to 1963.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in April 1965 reached a stage of 12.96 ft, from flood marks, discharge, 13,400 ft^3/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,200 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Mar 29	1630	4,540	8.18	Jun 1	1530	*4,640	*8.24

Minimum discharge, 116 ft^3/s, Aug. 7 (estimated daily mean).

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	237	329	e254	e172	e121	191	3,160	1,070	4,460	256	182	160
2	220	329	e241	e173	e124	197	2,990	957	4,400	241	175	151
3	208	327	e231	e170	e124	189	2,950	844	3,720	228	162	147
4	198	336	e225	e167	e124	189	2,770	753	2,980	237	151	141
5	192	340	e222	e165	e124	189	2,510	686	2,450	246	141	171
6	187	316	e219	e160	e120	186	2,280	629	2,330	262	134	269
7	179	e286	e216	e148	e121	183	2,090	576	1,970	293	141	314
8	176	e271	e216	e144	e121	e185	1,930	537	1,640	285	152	370
9	174	e265	e215	e142	e120	191	1,770	503	1,460	267	184	361
10	164	e273	e215	e142	e120	193	1,600	472	1,260	251	170	336
11	175	279	e207	e138	e124	e197	1,430	452	1,100	306	184	316
12	199	303	e192	e137	e124	e197	1,280	445	1,170	425	201	304
13	226	296	e194	e136	e124	201	1,160	449	1,290	494	214	285
14	231	319	e193	e137	e125	195	1,050	480	1,140	579	216	276
15	240	315	e195	e133	e128	e196	966	464	1,010	546	211	309
16	230	307	e204	e131	e127	e194	879	453	885	479	206	341
17	218	315	e199	e133	e127	197	825	693	774	422	198	374
18	216	339	e190	e132	e127	193	894	1,260	663	368	192	374
19	211	357	e186	e131	e129	196	1,260	1,260	567	329	176	369
20	208	361	e182	e128	e135	208	1,440	1,170	500	316	166	333
21	212	351	e178	e127	e144	202	1,970	1,050	447	279	154	353
22	203	339	e184	e126	e151	214	2,450	965	414	248	151	472
23	194	298	e183	e125	e158	219	2,220	1,030	385	223	147	569
24	188	e229	e177	e124	e169	226	1,940	1,090	389	202	151	613
25	184	e222	e173	e124	e175	288	1,750	1,070	383	185	145	606
26	181	e256	e173	e125	e181	495	1,680	1,030	357	170	208	579
27	184	e273	e173	e125	e187	1,350	1,520	1,140	340	159	196	528
28	203	e267	e176	e119	192	2,380	1,390	1,080	324	164	201	471
29	241	e265	e180	e116	190	4,270	1,290	958	297	194	192	426
30	289	e261	e182	e116	---	3,980	1,190	982	276	192	179	389
31	317	---	e174	e116	---	3,370	---	2,900	---	190	168	---
TOTAL	6,485	9,024	6,149	4,262	4,036	20,861	52,634	27,448	39,381	9,036	5,448	10,707
MEAN	209	301	198	137	139	673	1,754	885	1,313	291	176	357
MAX	317	361	254	173	192	4,270	3,160	2,900	4,460	579	216	613
MIN	164	222	173	116	120	183	825	445	276	159	134	141
AC-FT	12,860	17,900	12,200	8,450	8,010	41,380	104,400	54,440	78,110	17,920	10,810	21,240
CFSM	0.24	0.35	0.23	0.16	0.16	0.78	2.02	1.02	1.51	0.34	0.20	0.41
IN.	0.28	0.39	0.26	0.18	0.17	0.89	2.26	1.18	1.69	0.39	0.23	0.46

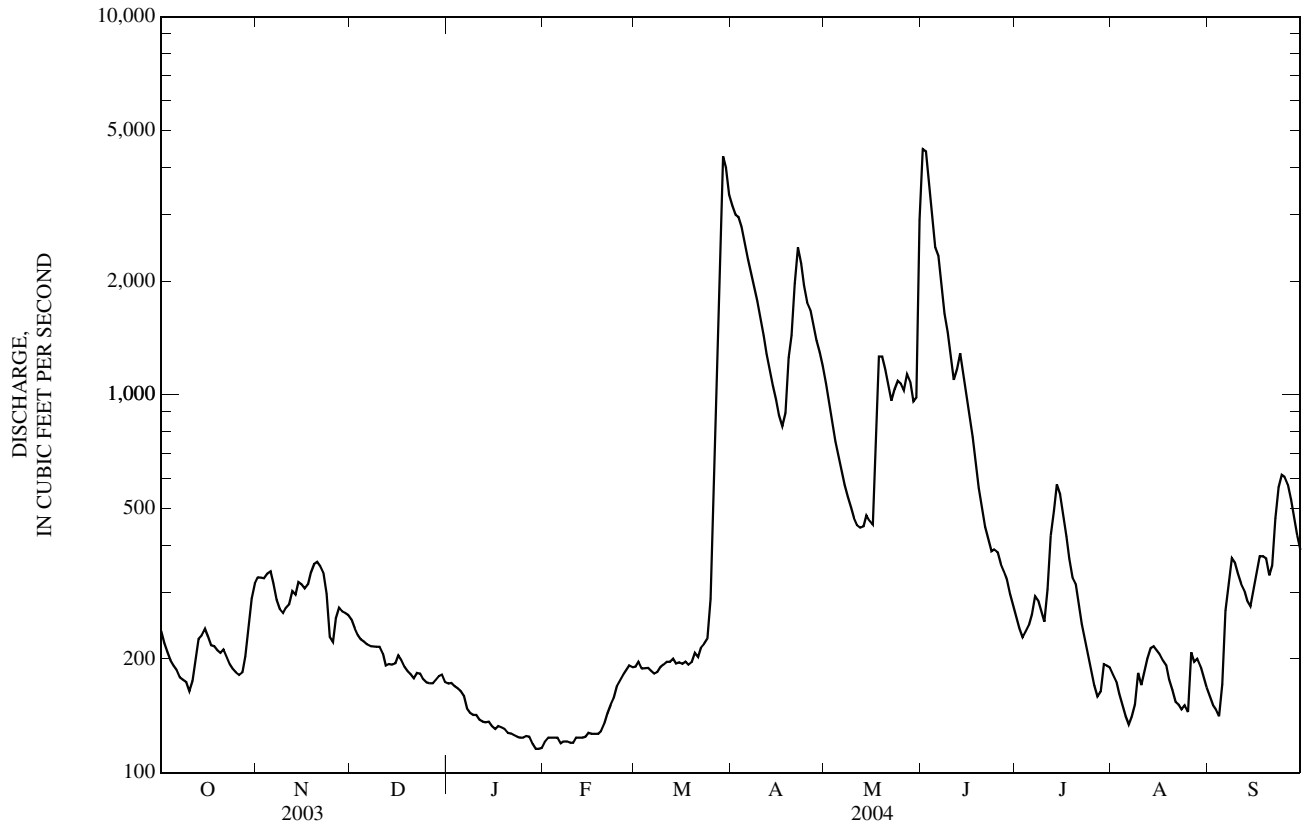
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1979 - 2004, BY WATER YEAR (WY)

MEAN	655	517	281	187	194	559	2,340	1,260	903	658	389	547
MAX	2,071	1,569	652	411	447	1,451	6,459	3,168	2,799	1,960	1,575	3,065
(WY)	(1983)	(1992)	(1984)	(1984)	(1998)	(1992)	(2001)	(1986)	(1993)	(1993)	(1999)	(1986)
MIN	129	137	118	86.4	108	141	453	222	131	110	97.2	90.0
(WY)	(1988)	(1990)	(1990)	(1981)	(2003)	(1980)	(1987)	(1980)	(1988)	(1988)	(1989)	(1998)

05336700 KETTLE RIVER BELOW SANDSTONE, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1979 - 2004	
ANNUAL TOTAL	216,714		195,471			
ANNUAL MEAN	594		534		707	
HIGHEST ANNUAL MEAN					1,352	1986
LOWEST ANNUAL MEAN					318	1988
HIGHEST DAILY MEAN	5,960	Jun 24	4,460	Jun 1	14,200	Apr 24, 2001
LOWEST DAILY MEAN	92	Mar 3	a116	Jan 29-31	78	Sep 22, 1998
ANNUAL SEVEN-DAY MINIMUM	92	Feb 28	119	Jan 28	80	Jan 23, 1981
MAXIMUM PEAK FLOW			4,640	Jun 1	17,200	Jul 23, 1972
MAXIMUM PEAK STAGE			8.24	Jun 1	15.38	Jul 23, 1972
INSTANTANEOUS LOW FLOW			a116	Jan 29	b25	Nov 11, 1977
ANNUAL RUNOFF (AC-FT)	429,900		387,700		512,300	
ANNUAL RUNOFF (CFSM)	0.684		0.615		0.815	
ANNUAL RUNOFF (INCHES)	9.29		8.38		11.07	
10 PERCENT EXCEEDS	1,790		1,290		1,720	
50 PERCENT EXCEEDS	256		228		312	
90 PERCENT EXCEEDS	105		134		136	

a Estimated daily-mean, backwater from ice.
b Result of freezeup.
e Estimated.



05338500 SNAKE RIVER NEAR PINE CITY, MN

LOCATION.--Lat 45°50'30", long 92°56'00", in SE¼NW¼ sec. 26, T. 39 N., R. 21 W., Pine County, Hydrologic Unit 07030004, on left bank at site of former power plant and dam, 0.5 mi downstream from Cross Lake and l.5 mi northeast of Pine City.

DRAINAGE AREA.--974 mi^2.

PERIOD OF RECORD.--June 1913 to September 1917, July 1951 to Sept. 1981, Oct. 1992 to current year.

REVISED RECORDS.--1999-2002, summary statistics revised in 2003.

GAGE.--Water-stage recorder. Datum of gage is 919.00 ft above sea level (NGVD of 1929). June 25, 1913 to Sept. 30, 1917, nonrecording gage at site 500 ft downstream at different datum. July l to Oct. 28, 1951, nonrecording gage at present site and datum.

REMARKS.--Records good except those for estimated days, which are fair to poor.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	133	201	196	134	e82	e110	1,920	1,150	2,880	274	138	145
2	128	213	182	135	e83	e118	1,920	994	3,300	249	168	145
3	136	207	177	154	e84	e122	1,860	866	3,590	232	167	138
4	131	235	178	131	e86	e129	1,760	770	3,770	224	160	129
5	126	257	180	128	e83	e130	1,610	642	3,840	194	156	139
6	135	232	174	125	e87	e133	1,470	577	3,860	185	148	199
7	140	214	174	113	e87	e138	1,330	487	3,830	188	145	196
8	143	200	177	101	e86	e141	1,200	459	3,840	172	164	298
9	140	201	174	91	e85	e141	1,060	430	3,710	170	219	444
10	135	210	173	88	e85	e142	941	428	3,480	169	194	531
11	162	222	161	88	e86	e145	832	358	3,190	224	172	558
12	181	234	142	91	e85	e151	754	362	2,900	245	157	525
13	174	213	141	88	e84	e151	680	343	2,570	258	145	472
14	172	206	141	93	e83	e153	590	316	2,290	283	137	466
15	169	212	140	92	e83	e153	526	280	2,040	308	127	471
16	161	218	154	92	e84	e160	507	273	1,860	305	126	458
17	154	209	143	94	e86	163	456	418	1,650	283	125	440
18	160	237	142	e94	e92	162	455	553	1,470	262	125	460
19	154	228	139	e92	e99	161	563	755	1,290	236	109	468
20	171	225	132	e88	e97	207	649	962	1,120	218	91	452
21	150	216	134	e86	e97	258	881	1,030	935	205	83	498
22	148	206	134	e85	e90	321	1,050	1,070	776	172	86	534
23	142	233	134	e83	e89	386	1,300	1,060	654	150	70	608
24	145	187	130	e84	e91	428	1,440	1,080	574	130	77	776
25	150	186	128	e85	e92	503	1,570	1,170	498	122	93	863
26	140	197	124	e89	e96	626	1,590	1,230	444	113	143	904
27	134	205	127	e91	e97	794	1,520	1,450	416	101	144	896
28	167	207	134	e91	e101	1,140	1,470	1,590	407	106	134	826
29	161	201	139	e86	e102	1,450	1,400	1,770	363	139	134	740
30	177	205	140	e83	---	1,660	1,280	1,980	325	124	152	651
31	202	---	145	e82	---	1,840	---	2,440	---	134	147	---
TOTAL	4,721	6,417	4,689	3,057	2,582	12,316	34,584	27,293	61,872	6,175	4,236	14,430
MEAN	152	214	151	98.6	89.0	397	1,153	880	2,062	199	137	481
MAX	202	257	196	154	102	1,840	1,920	2,440	3,860	308	219	904
MIN	126	186	124	82	82	110	455	273	325	101	70	129
AC-FT	9,360	12,730	9,300	6,060	5,120	24,430	68,600	54,140	122,700	12,250	8,400	28,620
CFSM	0.16	0.22	0.16	0.10	0.09	0.41	1.20	0.92	2.15	0.21	0.14	0.50
IN.	0.18	0.25	0.18	0.12	0.10	0.48	1.34	1.06	2.40	0.24	0.16	0.56

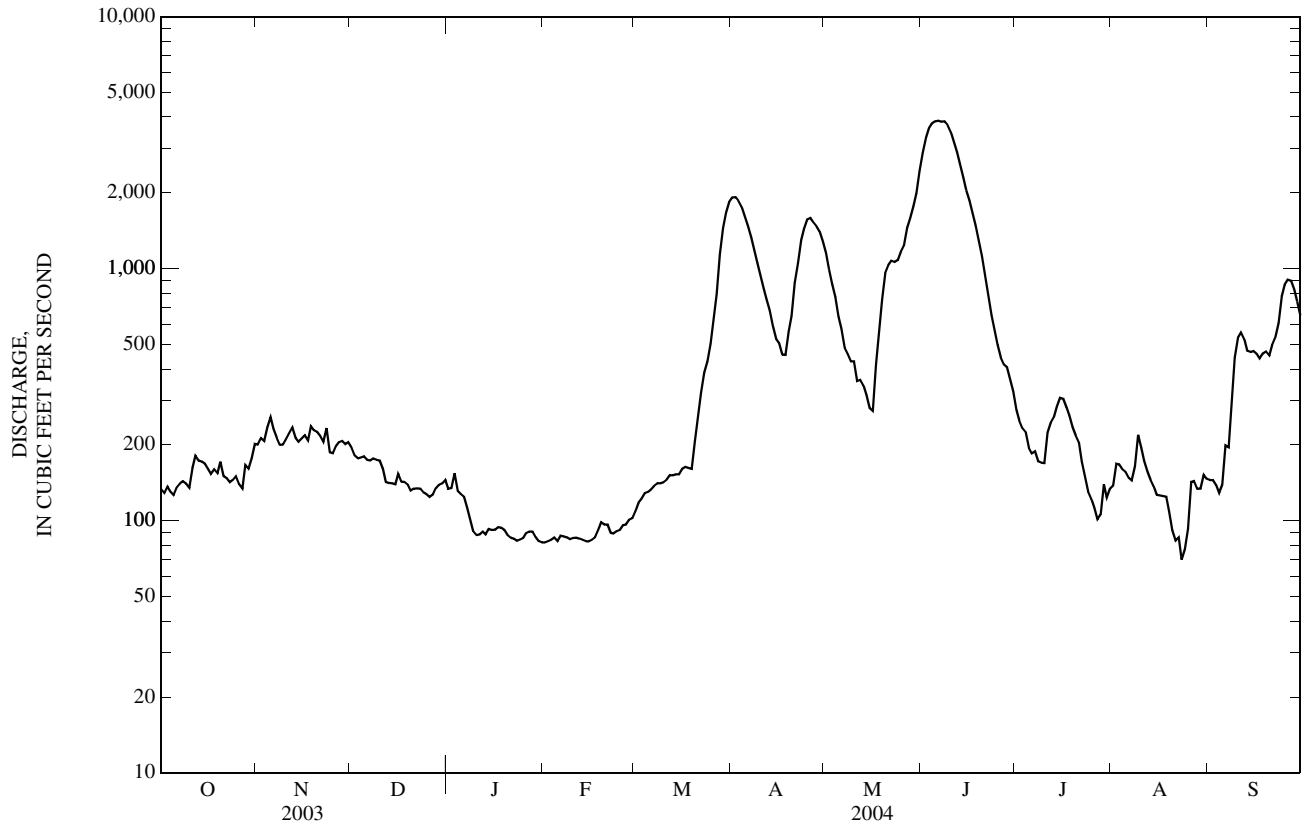
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1913 - 2004, BY WATER YEAR (WY)

MEAN	393	400	214	130	132	465	2,089	1,168	851	745	330	312
MAX	3,130	2,310	837	343	549	2,658	5,905	2,726	2,775	3,400	2,018	1,201
(WY)	(1969)	(1972)	(1978)	(1966)	(1966)	(1966)	(2001)	(1979)	(1967)	(1952)	(1972)	(1951)
MIN	47.1	59.9	36.1	29.3	33.4	61.5	172	203	167	100	34.9	37.8
(WY)	(1977)	(1977)	(1977)	(1977)	(1977)	(1965)	(1959)	(1998)	(1997)	(1961)	(1976)	(1976)

05338500 SNAKE RIVER NEAR PINE CITY, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1913 - 2004	
ANNUAL TOTAL	243,976		182,372			
ANNUAL MEAN	668		498		a599	
HIGHEST ANNUAL MEAN					1,223	1972
LOWEST ANNUAL MEAN					177	1959
HIGHEST DAILY MEAN	5,440	Jun 29	3,860	Jun 6	14,200	Jul 27, 1972
LOWEST DAILY MEAN	69	Sep 5	70	Aug 23	26	Aug 29, 1976
ANNUAL SEVEN-DAY MINIMUM	77	Aug 31	83	Jan 30	28	Jan 21, 1977
MAXIMUM PEAK FLOW			3,940	Jun 8	14,300	Jul 27, 1972
MAXIMUM PEAK STAGE			6.26	Jun 8	10.38	Jul 27, 1972
INSTANTANEOUS LOW FLOW			59	Aug 23	b5.5	Oct 1, 1964
ANNUAL RUNOFF (AC-FT)	483,900		361,700		433,800	
ANNUAL RUNOFF (CFSM)	0.698		0.520		0.625	
ANNUAL RUNOFF (INCHES)	9.47		7.08		8.49	
10 PERCENT EXCEEDS	2,110		1,440		1,470	
50 PERCENT EXCEEDS	200		179		220	
90 PERCENT EXCEEDS	90		91		78	

a Median of annual mean discharges is 550 ft^3/s.
b Result of dam rehabilitation.
e Estimated.



05340500 ST. CROIX RIVER AT ST. CROIX FALLS, WI

LOCATION.--Lat 45°24'25", long 92°38'49", in SW¼NW¼ sec. 30, T.34 N., R.18 W., Polk County, Hydrologic Unit 07030005, St. Croix National Scenic Riverway, on left bank, 1,500 ft downstream from power plant of Northern States Power Co., in St. Croix Falls, and at mile 52.2.

DRAINAGE AREA.--6,240 mi^2.

PERIOD OF RECORD.--January 1902 to current year. Prior to January 1910, monthly discharge only, published in WSP 1308. Prior to October 1939, published as "near St. Croix Falls."

REVISED RECORDS.--WSP 1115: 1929. WDR WI-82-1: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 689.94 ft above sea level. Prior to July 1905, gage heights and discharge measurements were used by Loweth and Wolff, consulting engineers of St. Paul, MN, to determine the flow. July 1905 to February 1940, records were computed from power generation at the St. Croix Falls power plant. February 1940 to Sept. 30, 1979, water-stage recorder at site 300 ft downstream at same datum.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Diurnal fluctuation caused by St. Croix Falls Powerplant 1,500 ft upstream.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2,550	3,120	2,910	2,540	2,050	2,660	14,000	7,220	16,900	3,220	3,570	3,010
2	2,370	3,420	2,860	2,840	2,090	2,790	13,400	6,850	20,400	2,960	3,680	2,800
3	2,400	3,300	2,470	2,510	2,200	2,990	12,700	6,460	21,400	2,980	3,760	2,620
4	2,470	3,170	2,710	2,570	2,020	2,870	11,700	6,360	19,900	2,980	3,560	2,300
5	2,430	3,330	3,080	2,690	2,270	3,170	10,900	4,930	17,500	2,910	3,200	2,610
6	2,220	3,140	3,070	2,220	2,240	3,100	10,100	4,930	16,000	3,230	2,710	3,450
7	2,320	2,970	2,950	1,970	2,230	3,090	9,280	4,810	15,200	3,170	2,490	3,840
8	2,330	2,160	2,960	1,880	2,130	3,010	8,350	4,750	14,500	3,260	3,040	4,320
9	2,310	1,920	3,100	1,890	2,320	3,030	8,030	4,170	13,500	3,170	2,990	4,340
10	2,290	3,210	2,370	1,920	2,350	3,030	7,530	4,490	12,100	2,990	3,660	4,390
11	2,610	3,990	2,100	2,130	2,310	3,060	6,860	4,200	10,900	3,280	4,080	4,220
12	2,430	3,270	1,780	2,130	2,240	3,030	6,380	4,260	10,100	3,410	4,220	3,790
13	2,610	2,900	1,770	2,240	2,310	3,010	5,940	4,280	9,560	4,410	4,140	3,520
14	2,870	3,110	2,020	2,300	2,300	3,040	5,740	4,210	9,080	4,780	3,990	4,040
15	2,620	2,880	2,170	2,170	e2,200	2,890	5,460	4,170	8,320	4,750	3,560	3,950
16	2,310	3,000	2,680	2,410	2,050	2,670	5,240	4,030	7,820	4,480	3,550	4,260
17	2,720	2,830	2,700	2,210	2,360	2,920	4,910	5,080	7,450	4,010	3,440	4,340
18	2,360	3,410	2,690	2,220	2,180	2,970	4,790	6,420	6,960	3,650	3,040	4,510
19	2,280	3,040	2,870	2,160	2,330	2,980	6,290	7,640	6,450	3,150	2,880	4,550
20	2,830	3,240	2,510	2,090	2,430	3,340	8,060	8,170	5,800	2,790	2,830	4,190
21	2,200	3,170	2,500	2,020	2,350	3,540	9,410	7,600	5,540	3,770	2,820	4,240
22	2,400	3,080	2,710	2,070	2,280	3,500	10,700	7,530	4,720	3,740	2,400	4,210
23	2,420	3,100	2,610	2,090	2,450	3,530	12,300	7,360	4,390	3,410	2,200	4,440
24	2,530	1,880	2,570	2,070	2,410	4,060	12,200	7,660	4,390	2,970	2,330	4,620
25	2,620	1,830	2,540	1,820	2,400	4,690	11,400	7,570	4,100	2,620	2,330	4,790
26	2,510	2,220	2,550	2,090	2,330	5,140	10,600	7,610	3,840	2,740	2,890	4,870
27	2,500	2,680	2,610	2,070	2,350	5,820	10,000	9,220	3,850	2,580	2,850	4,810
28	3,080	3,270	3,130	2,200	2,470	8,710	9,550	10,300	3,770	2,570	2,760	4,590
29	2,760	3,180	2,730	e2,200	2,460	10,000	8,480	10,800	3,580	2,400	3,000	4,340
30	2,740	3,040	2,780	e2,000	---	12,400	7,800	10,200	3,450	2,770	2,940	3,920
31	3,180	---	2,850	2,090	---	14,100	---	12,600	---	3,460	2,790	---
TOTAL	78,270	88,860	81,350	67,810	66,110	135,140	268,100	205,880	291,470	102,610	97,700	119,880
MEAN	2,525	2,962	2,624	2,187	2,280	4,359	8,937	6,641	9,716	3,310	3,152	3,996
MAX	3,180	3,990	3,130	2,840	2,470	14,100	14,000	12,600	21,400	4,780	4,220	4,870
MIN	2,200	1,830	1,770	1,820	2,020	2,660	4,790	4,030	3,450	2,400	2,200	2,300
AC-FT	155,200	176,300	161,400	134,500	131,100	268,100	531,800	408,400	578,100	203,500	193,800	237,800
CFSM	0.40	0.47	0.42	0.35	0.37	0.70	1.43	1.06	1.56	0.53	0.51	0.64
IN.	0.47	0.53	0.48	0.40	0.39	0.81	1.60	1.23	1.74	0.61	0.58	0.71

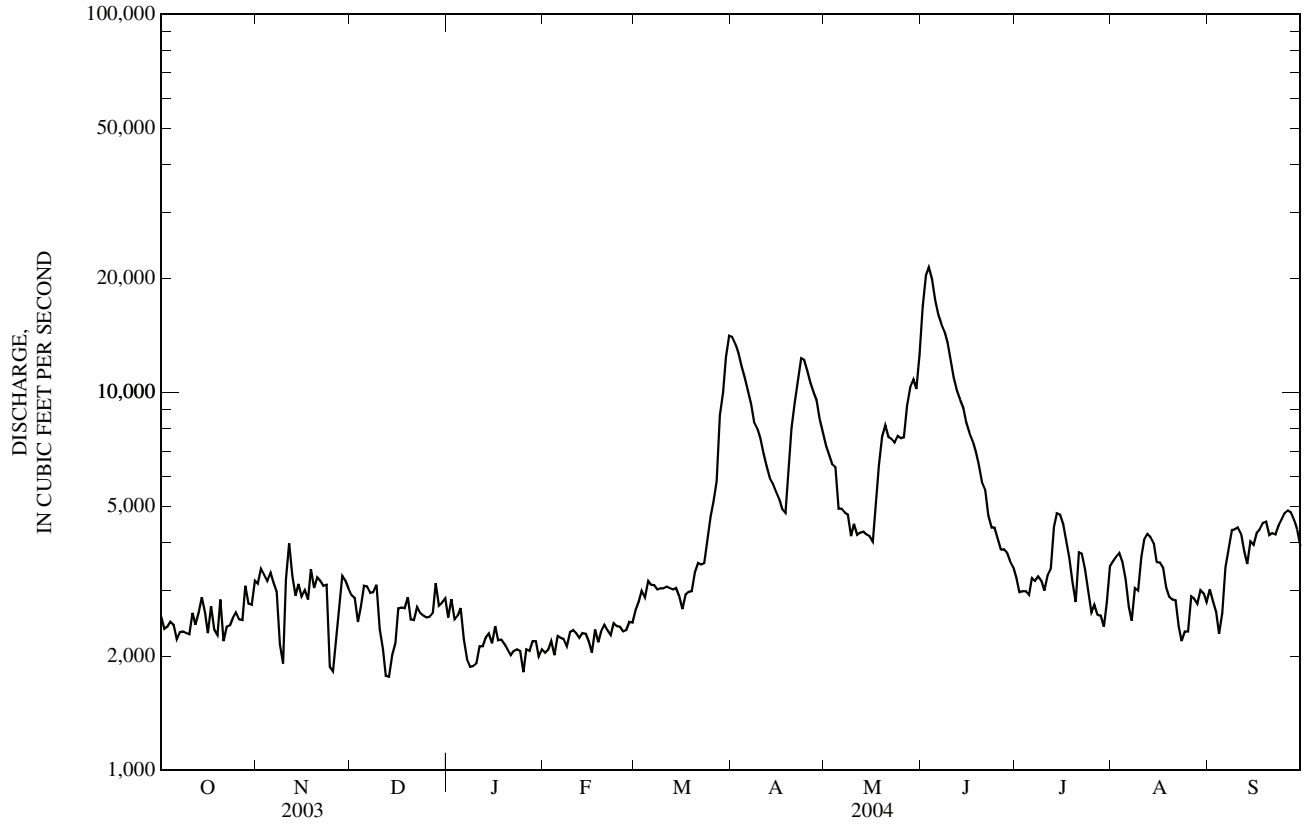
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1902 - 2004, BY WATER YEAR (WY)

MEAN	3,687	3,503	2,569	2,163	2,146	4,234	10,470	7,482	5,701	4,193	2,926	3,384
MAX	14,270	11,910	5,821	4,279	6,021	14,420	29,600	21,840	19,510	17,260	9,777	14,590
(WY)	(1969)	(1972)	(1984)	(1984)	(1984)	(1945)	(2001)	(1950)	(1944)	(1952)	(1955)	(1941)
MIN	1,380	1,342	1,287	1,157	1,257	1,538	2,212	2,430	1,481	1,014	839	1,152
(WY)	(1933)	(1911)	(1911)	(1911)	(1913)	(1912)	(1902)	(1934)	(1934)	(1934)	(1934)	(1933)

05340500 ST. CROIX RIVER AT ST. CROIX FALLS, WI—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1902 - 2004	
ANNUAL TOTAL	1,767,880		1,603,180			
ANNUAL MEAN	4,844		4,380		4,382	
HIGHEST ANNUAL MEAN					8,569	1986
LOWEST ANNUAL MEAN					1,754	1934
HIGHEST DAILY MEAN	22,200	May 13	21,400	Jun 3	59,500	Apr 26, 2001
LOWEST DAILY MEAN	1,690	Sep 11	1,770	Dec 13	75	Jul 17, 1910
ANNUAL SEVEN-DAY MINIMUM	1,760	Sep 5	2,020	Jan 6	754	Jul 29, 1934
MAXIMUM PEAK FLOW			21,700	Jun 2	60,900	Apr 25, 2001
MAXIMUM PEAK STAGE			10.79	Jun 2	25.88	Apr 25, 2001
ANNUAL RUNOFF (AC-FT)	3,507,000		3,180,000		3,174,000	
ANNUAL RUNOFF (CFSM)	0.776		0.702		0.702	
ANNUAL RUNOFF (INCHES)	10.54		9.56		9.54	
10 PERCENT EXCEEDS	11,400		9,120		8,990	
50 PERCENT EXCEEDS	2,930		3,080		2,810	
90 PERCENT EXCEEDS	2,100		2,200		1,580	

e Estimated.



05344500 MISSISSIPPI RIVER AT PRESCOTT, WI

LOCATION.--Lat 44°44'45", long 92°48'00", in sec. 9, T.26 N., R.20 W., Pierce County, Hydrologic Unit 07040001,on left bank at Prescott, 200 ft downstream from St. Croix River, 300 ft south of Chicago, Burlington & Quincy Railroad bridge, 800 ft south of bridge on U.S. Highway 10, and at mile 811.4 upstream from Ohio River.

DRAINAGE AREA.--44,800 mi^2 (approximately).

PERIOD OF RECORD.--June 1928 to current year.

REVISED RECORDS.--WSP 1508: 1941. WRD MN-74: 1973.

GAGE.--Water-stage recorder. Datum of gage is 649.50 ft above sea level (NGVD of 1929). Prior to Aug. 2, 1932, nonrecording gage at railroad bridge 300 ft upstream at following datums: June 3, 1928 to Sept. 30, 1929, 19.27 ft higher; Oct. 1, 1929 to Sept. 30, 1930, 17.68 ft higher; Oct. 1, 1930 to Aug. 1, 1932, 19.28 ft higher. Aug. 2, 1932 to Oct. 30, 1938, water-stage recorder at present site at datum 19.28 ft higher; Nov. 1, 1938 to Sept. 7, 1971, water-stage recorder at present site at datum 50.00 ft lower. Auxiliary water-stage recorder 10.7 mi downstream from base gage is used in discharge computations.

REMARKS.--Records good except for those determined by flow routing, which are estimated and rated fair to poor. Discharges below a stage of about 27 ft may be computed by routing flows from the Mississippi River at St. Paul (05331000) and St. Croix River at St. Croix Falls, WI (05340500). In the 2004 water year, discharges for the periods Oct. 1 to Mar. 24, May 5-16, and July 24 to Sep. 13 were obtained by routing. Some regulation by reservoirs, navigation dams, and power plants at low and medium stages.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e6,810	e7,750	e7,850	e7,820	e5,590	e6,790	30,700	20,900	41,700	19,800	e12,300	e8,630
2	e6,920	e8,050	e7,970	e7,160	e5,650	e7,160	31,400	19,200	46,600	16,700	e12,300	e8,720
3	e6,390	e8,560	e8,230	e7,250	e5,910	e7,430	31,200	17,800	51,300	16,500	e11,900	e8,760
4	e6,600	e8,430	e7,930	e7,180	e5,950	e7,950	30,700	17,400	55,100	16,300	e11,600	e8,370
5	e6,500	e8,000	e8,130	e7,160	e5,540	e7,960	29,600	e16,600	57,400	15,500	e12,000	e7,530
6	e6,550	e8,540	e8,520	e6,900	e5,940	e8,460	28,500	e14,900	58,300	16,200	e11,400	e7,720
7	e6,240	e8,320	e8,340	e6,140	e6,160	e8,590	27,600	e14,500	57,600	18,700	e11,000	e9,290
8	e6,190	e8,310	e8,600	e5,710	e6,240	e8,670	26,300	e14,100	57,400	19,000	e11,200	e10,300
9	e6,230	e7,050	e8,380	e5,730	e6,120	e8,770	24,100	e14,000	57,400	18,900	e12,600	e12,100
10	e6,210	e6,300	e8,410	e6,220	e6,200	e8,380	23,000	e12,700	56,700	20,000	e12,800	e12,300
11	e6,190	e7,490	e7,870	e6,360	e6,270	e9,000	22,400	e12,800	55,300	22,300	e13,100	e11,500
12	e6,610	e8,380	e6,970	e6,720	e6,300	e8,870	21,200	e12,100	55,300	24,000	e13,100	e12,000
13	e6,410	e7,470	e4,830	e6,950	e6,250	e8,980	19,500	e12,500	55,400	25,200	e13,000	e12,100
14	e6,900	e7,710	e4,900	e6,970	e6,350	e9,000	18,800	e11,800	55,900	26,400	e12,400	14,700
15	e6,980	e8,530	e5,590	e6,680	e6,350	e10,700	18,500	e12,100	55,900	27,500	e11,900	17,700
16	e6,950	e8,260	e6,830	e6,430	e6,230	e11,700	18,600	e11,600	56,200	28,100	e11,400	17,100
17	e6,530	e8,310	e8,050	e6,650	e5,880	e11,400	17,600	14,500	55,800	27,800	e11,100	16,000
18	e6,360	e7,850	e8,010	e6,510	e6,280	e12,000	16,200	16,400	54,800	26,400	e10,500	20,900
19	e5,970	e8,690	e7,300	e6,560	e6,100	e12,100	19,100	17,600	53,000	24,400	e9,780	24,400
20	e6,900	e8,700	e7,660	e5,950	e6,310	e11,300	18,800	19,300	51,100	22,000	e9,630	26,400
21	e7,260	e8,930	e7,300	e5,450	e6,610	e13,000	20,400	20,200	49,300	19,100	e9,640	28,100
22	e7,090	e8,880	e7,460	e5,610	e6,430	e13,600	23,000	21,400	46,400	18,000	e9,500	29,100
23	e7,250	e8,800	e7,860	e5,710	e6,190	e13,800	23,800	22,500	43,100	17,200	e9,180	30,200
24	e6,900	e8,730	e7,780	e5,850	e6,360	e14,200	25,600	24,200	40,000	e16,200	e8,560	31,700
25	e6,700	e7,260	e7,740	e5,920	e6,490	15,300	26,900	26,700	36,900	e15,200	e8,380	32,600
26	e6,840	e6,840	e7,440	e5,770	e6,440	17,600	27,200	28,800	33,500	e14,400	e8,430	32,700
27	e6,480	e6,600	e7,430	e6,200	e6,340	19,600	25,700	30,000	30,600	e14,600	e8,630	32,700
28	e6,850	e6,660	e7,720	e6,170	e6,430	20,900	24,800	32,100	28,100	e13,600	e9,190	32,300
29	e7,500	e7,330	e8,370	e6,440	e6,580	24,700	24,000	34,300	24,300	e13,100	e9,570	31,200
30	e7,150	e7,190	e8,200	e6,160	---	28,200	22,400	36,300	22,200	e12,400	e9,360	29,800
31	e7,440	---	e8,180	e5,570	---	29,500	---	38,800	---	e12,300	e8,870	---
TOTAL	207,900	237,920	235,850	197,900	179,490	395,610	717,600	618,100	1,442,600	597,800	334,320	576,920
MEAN	6,706	7,931	7,608	6,384	6,189	12,760	23,920	19,940	48,090	19,280	10,780	19,230
MAX	7,500	8,930	8,600	7,820	6,610	29,500	31,400	38,800	58,300	28,100	13,100	32,700
MIN	5,970	6,300	4,830	5,450	5,540	6,790	16,200	11,600	22,200	12,300	8,380	7,530
AC-FT	412,400	471,900	467,800	392,500	356,000	784,700	1,423,000	1,226,000	2,861,000	1,186,000	663,100	1,144,000
CFSM	0.15	0.18	0.17	0.14	0.14	0.28	0.53	0.45	1.07	0.43	0.24	0.43
IN.	0.17	0.20	0.20	0.16	0.15	0.33	0.60	0.51	1.20	0.50	0.28	0.48

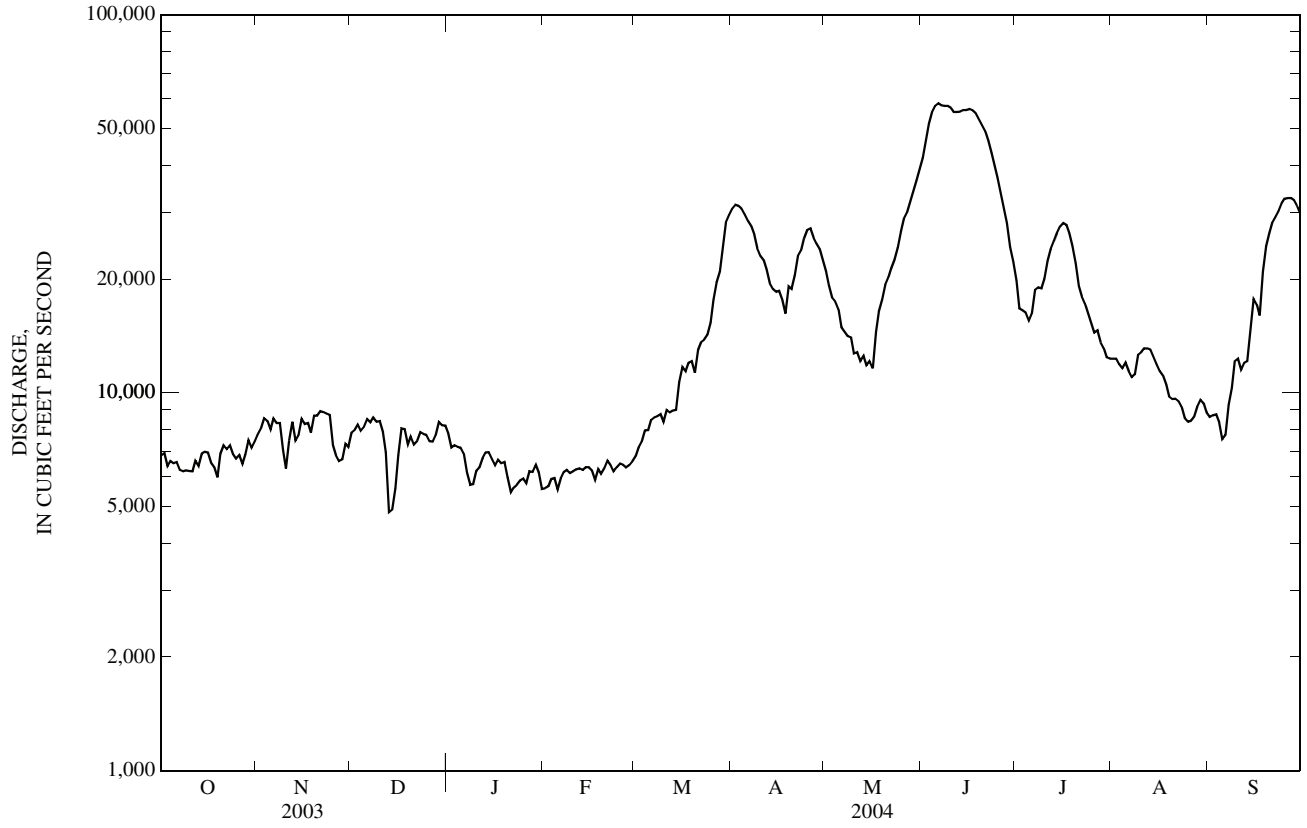
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1928 - 2004, BY WATER YEAR (WY)

MEAN	13,510	13,390	10,110	8,365	8,241	17,150	41,800	32,800	26,620	21,060	13,590	12,930
MAX	49,740	40,360	21,460	16,060	21,390	55,010	122,400	90,100	69,890	87,420	48,350	45,950
(WY)	(1987)	(1972)	(1983)	(1983)	(1966)	(1983)	(2001)	(1986)	(1993)	(1993)	(1993)	(1986)
MIN	3,526	3,874	3,379	3,153	3,519	4,369	7,215	6,304	4,185	3,197	2,366	3,002
(WY)	(1933)	(1977)	(1934)	(1935)	(1934)	(1934)	(1931)	(1931)	(1934)	(1934)	(1934)	(1976)

05344500 MISSISSIPPI RIVER AT PRESCOTT, WI—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1928 - 2004	
ANNUAL TOTAL	6,227,900		5,742,010			
ANNUAL MEAN	17,060		15,690		a18,340	
HIGHEST ANNUAL MEAN					38,540	1986
LOWEST ANNUAL MEAN					4,367	1934
HIGHEST DAILY MEAN	58,900	May 15	58,300	Jun 6	226,000	Apr 18, 1965
LOWEST DAILY MEAN	4,830	Dec 13	4,830	Dec 13	1,380	Jul 13, 1940
ANNUAL SEVEN-DAY MINIMUM	5,760	Sep 6	5,740	Jan 31	2,190	Aug 11, 1936
MAXIMUM PEAK FLOW			58,500	Jun 6	228,000	Apr 18, 1965
MAXIMUM PEAK STAGE			31.97	Jun 6	43.11	Apr 18, 1965
ANNUAL RUNOFF (AC-FT)	12,350,000		11,390,000		13,290,000	
ANNUAL RUNOFF (CFSM)	0.381		0.350		0.409	
ANNUAL RUNOFF (INCHES)	5.17		4.77		5.56	
10 PERCENT EXCEEDS	41,500		31,300		39,400	
50 PERCENT EXCEEDS	8,560		9,600		12,000	
90 PERCENT EXCEEDS	6,760		6,240		5,240	

a Median of annual mean discharges is 19,000 ft^3/s.
e Estimated.



05344850 STURGEON LAKE, WEST SIDE, AT PRAIRIE ISLAND, MN

LOCATION.--Lat 44°38'18", long 92°38'38", in NE¼NE¼SW¼ sec. 32, T. 114 N., R. 15 W., Goodhue County, Hydrologic Unit 07040001, on west bank of Sturgeon Lake, 0.7 miles above lake outlet to Mississippi River and 7 miles northwest of Red Wing.

PERIOD OF RECORD.--July 1998 to current year.

GAGE.--Water-stage recorder. Datum of gage is sea level (NAVD of 1988).

REMARKS.--Records good, October 1 to March 31; fair to poor, April 1 to September 30. Water level affected by U.S. Army Corp of Engineers Lock and Dam 3 on the Mississippi River above Red Wing and by seiche.

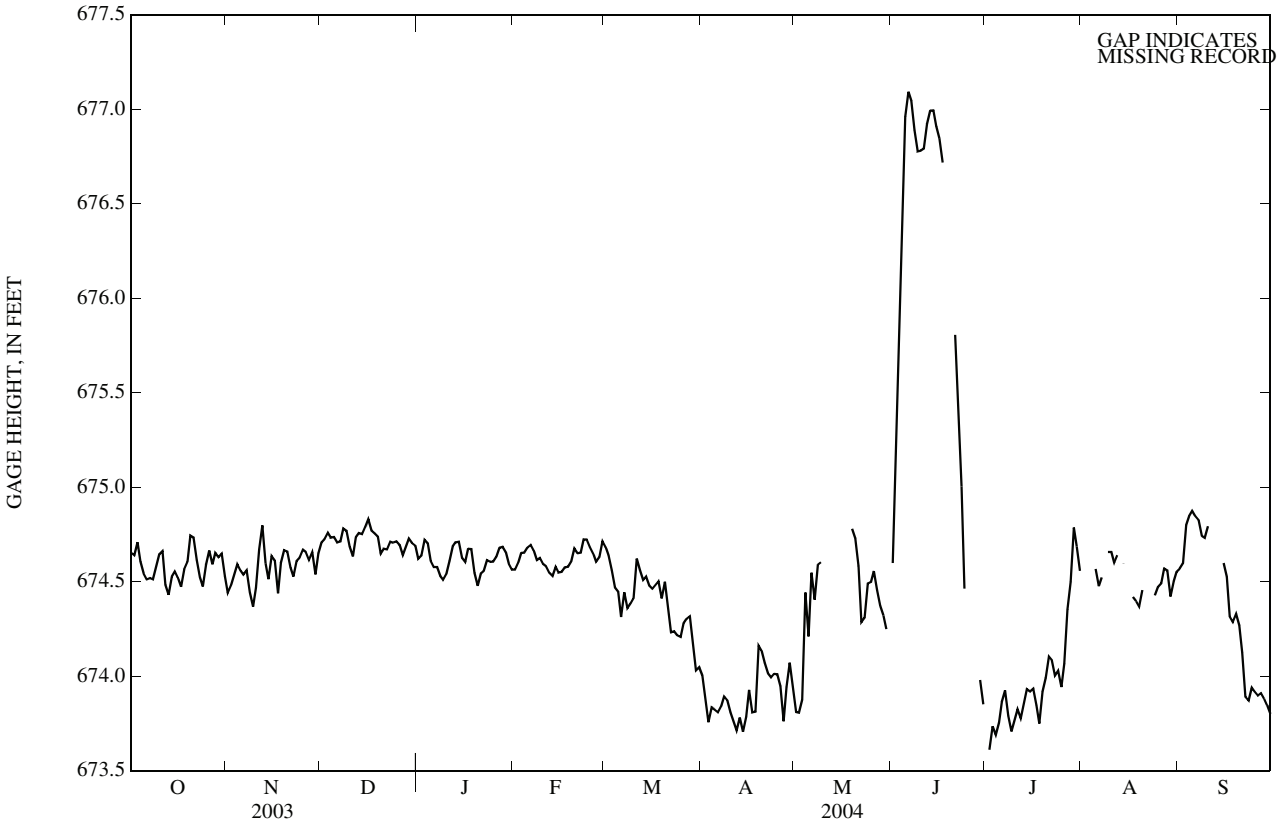
EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 685.90 ft, Apr. 28, 2001; maximum daily, 685.89 ft, Apr. 28, 2001; minimum elevation, 673.42 ft, Apr. 6, 2002; minimum daily, 673.49 ft, Apr. 6, 2002.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 677.12 ft, June 7; maximum daily, 677.09 ft, June 6; minimum elevation, 673.51 ft, June 28; minimum daily, 673.61 ft, July 2.

GAGE HEIGHT, FEET
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	674.65	674.44	674.71	674.62	674.57	674.68	674.00	673.81	674.60	---	---	674.57
2	674.64	674.48	674.73	674.64	674.60	674.64	673.87	673.81	675.24	673.61	---	674.60
3	674.71	674.54	674.76	674.72	674.65	674.56	673.76	673.88	675.95	673.74	---	674.80
4	674.61	674.59	674.73	674.70	674.65	674.47	673.83	674.44	676.56	673.69	---	674.85
5	674.54	674.56	674.74	674.61	674.68	674.45	673.82	674.21	676.96	673.75	674.57	674.88
6	674.51	674.54	674.71	674.58	674.69	674.31	673.81	674.55	677.09	673.87	674.48	674.85
7	674.52	674.56	674.71	674.58	674.67	674.45	673.84	674.41	677.04	673.92	674.52	674.82
8	674.51	674.44	674.78	674.53	674.61	674.36	673.89	674.59	676.89	673.79	---	674.74
9	674.58	674.37	674.77	674.51	674.63	674.39	673.87	674.60	676.78	673.71	674.66	674.73
10	674.65	674.47	674.68	674.54	674.59	674.41	673.81	---	676.78	673.76	674.66	674.79
11	674.66	674.67	674.63	674.61	674.58	674.62	673.76	---	676.79	673.82	674.60	---
12	674.48	674.80	674.73	674.69	674.55	674.56	673.71	---	676.92	673.78	674.64	---
13	674.43	674.60	674.76	674.71	674.53	674.51	673.78	---	676.99	673.86	---	---
14	674.53	674.51	674.75	674.71	674.58	674.53	673.71	---	676.99	673.93	674.59	---
15	674.55	674.64	674.79	674.63	674.55	674.48	673.79	---	676.91	673.92	---	674.60
16	674.52	674.61	674.83	674.61	674.55	674.46	673.93	---	676.84	673.93	---	674.52
17	674.47	674.44	674.77	674.67	674.58	674.48	673.81	---	676.72	673.85	674.42	674.32
18	674.57	674.60	674.76	674.67	674.58	674.50	673.81	---	---	673.75	674.40	674.29
19	674.61	674.67	674.74	674.55	674.61	674.41	674.16	674.78	---	673.92	674.37	674.33
20	674.74	674.66	674.65	674.48	674.68	674.50	674.14	674.73	---	673.99	674.46	674.27
21	674.73	674.58	674.67	674.54	674.65	674.35	674.07	674.58	675.81	674.10	---	674.13
22	674.62	674.53	674.67	674.56	674.65	674.23	674.02	674.29	675.43	674.09	---	673.89
23	674.52	674.61	674.71	674.61	674.72	674.24	673.99	674.31	675.00	674.00	---	673.87
24	674.47	674.63	674.71	674.60	674.72	674.22	674.01	674.49	674.46	674.03	674.43	673.94
25	674.59	674.67	674.71	674.61	674.68	674.21	674.01	674.50	---	673.94	674.47	673.92
26	674.66	674.66	674.69	674.63	674.65	674.28	673.95	674.56	---	674.07	674.49	673.90
27	674.59	674.61	674.64	674.68	674.61	674.30	673.76	674.46	---	674.35	674.57	673.91
28	674.65	674.66	674.68	674.68	674.63	674.32	673.94	674.37	---	674.50	674.56	673.88
29	674.63	674.54	674.73	674.66	674.71	674.16	674.07	674.32	673.98	674.79	674.42	673.85
30	674.65	674.65	674.71	674.60	---	674.03	673.94	674.25	673.85	674.69	674.50	673.80
31	674.53	---	674.69	674.56	---	674.05	---	---	---	674.56	674.55	---
MEAN	674.58	674.58	674.72	674.62	674.63	674.39	673.90	---	---	---	---	---
MAX	674.74	674.80	674.83	674.72	674.72	674.68	674.16	---	---	---	---	---
MIN	674.43	674.37	674.63	674.48	674.53	674.03	673.71	---	---	---	---	---

05344850 STURGEON LAKE, WEST SIDE, AT PRAIRIE ISLAND, MN—Continued



05345000 VERMILLION RIVER NEAR EMPIRE, MN

LOCATION.--Lat 44°40'00", long 93°03'17", in SW¼NW¼ sec. 24, T.114 N., R.19 W., Dakota County, Hydrologic Unit 07040001, on right bank and just downstream from County Road 79, 2 mi west of Empire and 4 mi northeast of Farmington.

DRAINAGE AREA.--129 mi^2.

PERIOD OF RECORD.--May 1942 to June 1945 (no record during July, August, and September 1944), September 1969 to September 1973 (discharge measurements only), October 1973 to current year. Prior to October 1975 published as "near Empire City".

GAGE.--Water-stage recorder. Datum of gage is 851.99 ft above sea level (NGVD of 1929, levels by U.S. Army Corps of Engineers). April 12, 1942 to June 30, 1944, and October 1, 1944 to July 7, 1945, nonrecording gage at same site and present datum.

REMARKS.--Records good. Some regulation at lower flows by wastewater treatment plant upstream.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in April 1965, reached a stage of 7.5 ft, from information by local resident; discharge 6,200 ft^3/s, from rating extended above 2,100 ft^3/s.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	39	e40	33	31	29	44	83	54	187	60	51	39
2	38	e39	32	31	29	70	77	52	168	58	52	38
3	40	e41	31	30	28	70	72	53	149	60	51	36
4	43	e42	31	29	28	66	69	51	124	72	53	35
5	44	e43	32	29	28	55	66	50	109	63	50	39
6	44	e42	31	28	29	51	65	50	119	64	48	76
7	42	e40	32	28	29	53	62	49	108	75	48	56
8	42	e38	32	28	29	51	61	49	96	71	47	46
9	45	e36	32	28	30	48	62	51	138	65	46	43
10	48	e36	32	28	29	52	63	69	246	61	45	42
11	51	37	30	30	29	65	62	60	226	93	45	41
12	55	38	30	30	29	57	60	61	269	130	46	40
13	53	37	30	29	29	55	58	76	355	98	44	40
14	48	34	31	30	30	62	57	80	224	82	42	59
15	48	34	31	29	28	60	55	68	160	78	40	166
16	48	34	31	30	30	57	57	64	131	77	51	355
17	47	35	29	30	29	62	57	77	115	74	55	313
18	46	34	30	29	29	86	56	79	103	69	50	149
19	45	34	30	29	30	90	70	68	95	68	46	119
20	44	33	30	28	33	101	68	84	89	65	42	101
21	38	32	31	28	33	84	79	93	86	75	43	90
22	39	33	30	32	33	70	80	128	82	77	43	85
23	37	34	29	28	33	66	72	116	79	66	43	80
24	38	34	30	28	31	68	66	132	75	60	42	78
25	38	33	28	28	31	80	74	119	72	57	42	72
26	38	33	28	29	30	151	75	104	69	56	42	68
27	38	33	30	28	31	120	68	119	68	54	41	67
28	e38	31	33	28	31	134	64	120	68	52	40	65
29	e38	32	33	28	33	123	61	124	64	52	40	63
30	e39	32	32	28	---	102	56	178	61	51	41	59
31	e41	---	31	28	---	91	---	204	---	51	38	---
TOTAL	1,332	1,074	955	897	870	2,344	1,975	2,682	3,935	2,134	1,407	2,560
MEAN	43.0	35.8	30.8	28.9	30.0	75.6	65.8	86.5	131	68.8	45.4	85.3
MAX	55	43	33	32	33	151	83	204	355	130	55	355
MIN	37	31	28	28	28	44	55	49	61	51	38	35
AC-FT	2,640	2,130	1,890	1,780	1,730	4,650	3,920	5,320	7,810	4,230	2,790	5,080
CFSM	0.33	0.28	0.24	0.22	0.23	0.59	0.51	0.67	1.02	0.53	0.35	0.66
IN.	0.38	0.31	0.28	0.26	0.25	0.68	0.57	0.77	1.13	0.62	0.41	0.74

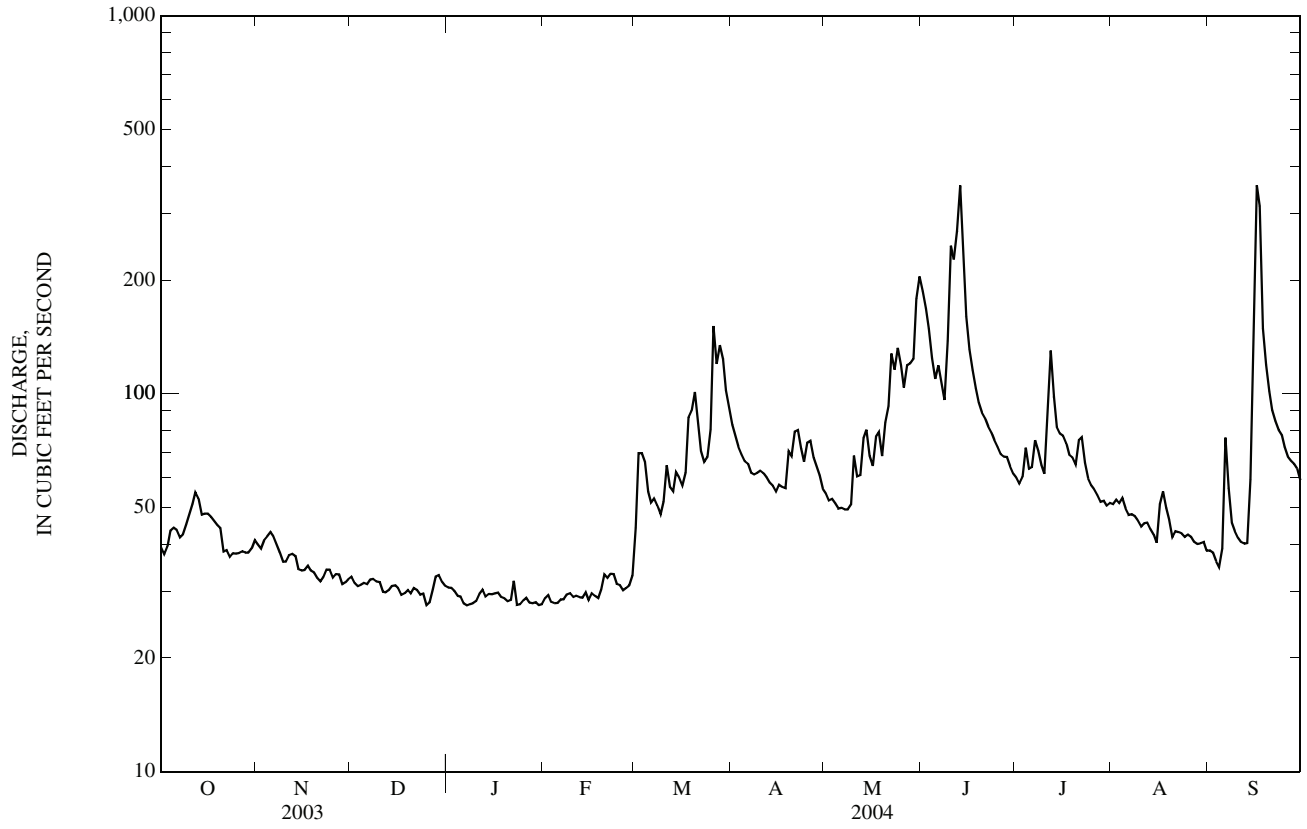
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1942 - 2004, BY WATER YEAR (WY)

MEAN	61.3	52.4	41.2	33.0	38.4	97.0	114	96.3	97.4	75.1	61.8	72.7
MAX	263	133	79.5	58.6	89.8	199	337	223	290	258	234	313
(WY)	(2003)	(1993)	(1993)	(1998)	(1998)	(1983)	(2001)	(1986)	(1993)	(1997)	(1997)	(1992)
MIN	14.9	15.6	12.4	11.0	13.1	25.4	35.2	29.3	23.0	16.0	14.3	14.6
(WY)	(1977)	(1977)	(1977)	(1977)	(1977)	(1975)	(1977)	(1977)	(1988)	(1988)	(1976)	(1976)

05345000 VERMILLION RIVER NEAR EMPIRE, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1942 - 2004	
ANNUAL TOTAL	23,615		22,165			
ANNUAL MEAN	64.7		60.6		70.4	
HIGHEST ANNUAL MEAN					147	1998
LOWEST ANNUAL MEAN					23.6	1977
HIGHEST DAILY MEAN	685	May 12	a355	Jun 13	3,000	Sep 16, 1992
LOWEST DAILY MEAN	28	Dec 25	b28	Dec 25	8.4	Jan 15, 1975
ANNUAL SEVEN-DAY MINIMUM	29	Dec 20	28	Jan 23	9.0	Jan 13, 1975
MAXIMUM PEAK FLOW			427	Sep 17	6,570	Sep 16, 1992
MAXIMUM PEAK STAGE			6.14	Sep 17	10.00	Sep 16, 1992
INSTANTANEOUS LOW FLOW			c20	Jan 18	c6.8	Aug 15, 1992
ANNUAL RUNOFF (AC-FT)	46,840		43,960		50,970	
ANNUAL RUNOFF (CFSM)	0.502		0.469		0.545	
ANNUAL RUNOFF (INCHES)	6.81		6.39		7.41	
10 PERCENT EXCEEDS	105		103		133	
50 PERCENT EXCEEDS	46		48		46	
90 PERCENT EXCEEDS	32		29		22	

a Also occurred Sept. 16.
b Many days.
c Result of regulation.
e Estimated.



05346050 CLEAR LAKE, EAST SIDE, AT PRAIRIE ISLAND, MN

LOCATION.--Lat 43°39'13", long 92°42'36", in NE¼SE¼ sec. 15, T. 102 N., R. 18 W., Goodhue County, on east bank of Clear Lake and 0.9 miles above lake output to Vermillion River.

PERIOD OF RECORD.--July 1998 to current year.

GAGE.--Water-stage recorder. Datum of gage is sea level (NAVD of 1988).

REMARKS.--Records good to fair. Water level affected by U.S. Army Corp of Engineers Lock and Dam 3 on the Mississippi River.

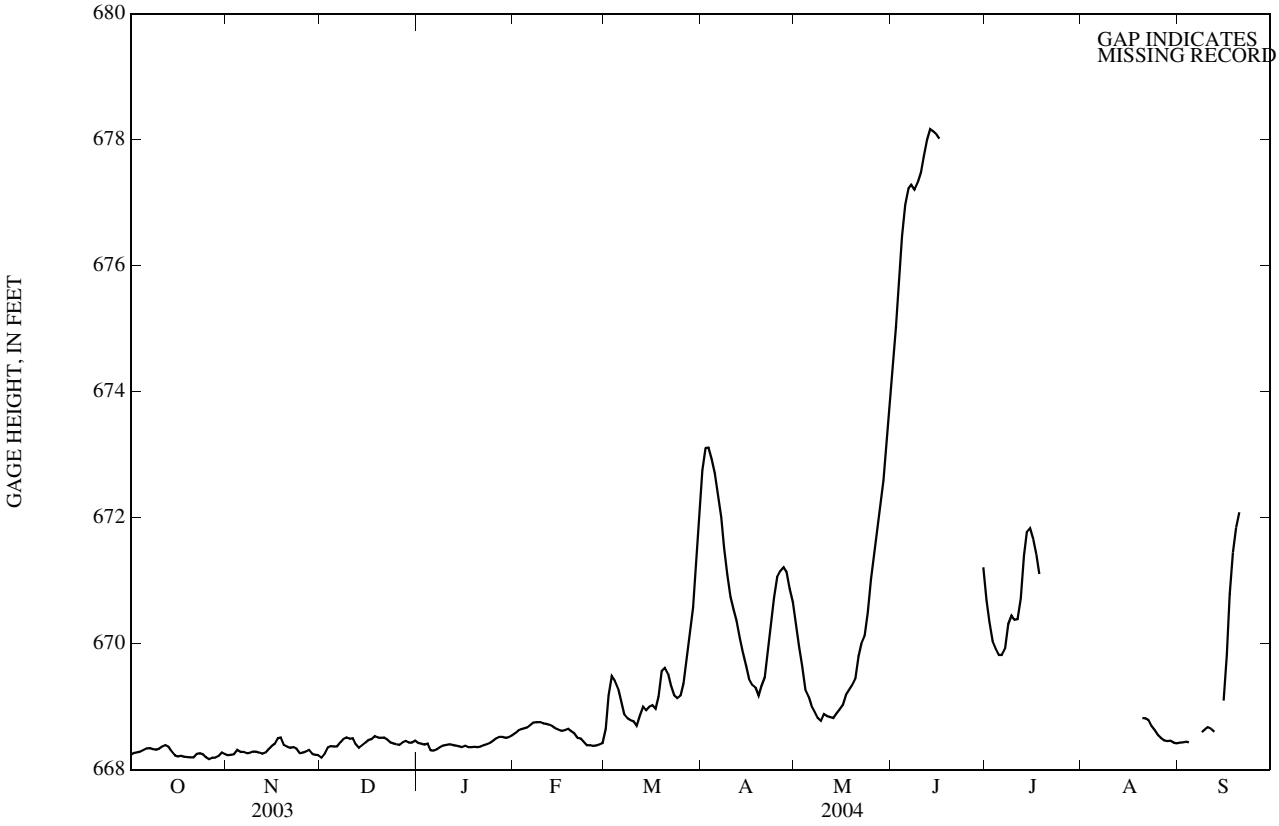
EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 685.88 ft (from floodmark), Apr. 28, 2001; maximum daily, 678.93 ft, May 22, 1999 (probably higher in April 2001); minimum elevation, 668.15 ft, Oct. 26, 2003; minimum daily, 668.17 ft, Oct. 26, 2003.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 678.21 ft, June 13; maximum daily, 678.17, June 13; minimum elevation, 668.15 ft, Oct. 26; minimum daily, 668.17 ft, Oct. 26.

GAGE HEIGHT, FEET
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	668.24	668.23	668.19	668.42	668.58	668.65	672.75	670.31	674.40	670.69	---	668.43
2	668.27	668.24	668.25	668.42	668.62	669.18	673.11	669.96	675.03	670.35	---	668.44
3	668.28	668.25	668.35	668.40	668.65	669.49	673.11	669.64	675.76	--	---	668.45
4	668.29	668.32	668.38	668.42	668.66	669.41	672.93	669.27	676.47	----	---	668.44
5	668.32	668.28	668.37	668.31	668.68	669.29	672.70	669.17	676.97		---	---
6	668.34	668.28	668.37	668.30	668.72	669.10	672.36	669.02	677.22	--	---	---
7	668.34	668.27	668.44	668.33	668.75	668.88	672.01	668.92	677.28	--	---	---
8	668.33	668.27	668.49	668.36	668.76	668.82	671.52	668.82	677.21	--	---	668.60
9	668.32	668.29	668.51	668.39	668.76	668.79	671.10	668.78	677.32	--	---	668.64
10	668.33	668.29	668.49	668.39	668.74	668.77	670.74	668.89	677.47	--	---	668.67
11	668.37	668.27	668.50	668.41	668.73	668.70	670.54	668.85	677.74	--	---	668.65
12	668.39	668.26	668.40	668.39	668.72	668.86	670.36	668.84	677.99	--	---	668.61
13	668.36	668.28	668.35	668.39	668.69	669.00	670.09	668.82	678.17	671.39	---	---
14	668.29	668.33	668.39	668.38	668.66	668.94	669.86	668.89	678.13	671.77	---	---
15	668.23	668.37	668.43	668.36	668.63	669.00	669.65	668.96	678.09	671.83	---	669.09
16	668.21	668.41	668.47	668.38	668.62	669.03	669.44	669.03	678.01	671.66	---	669.82
17	668.22	668.50	668.49	668.36	668.63	668.97	669.35	669.19	---	671.41	---	670.79
18	668.21	668.51	668.53	668.36	668.65	669.16	669.31	669.26	---	671.11	---	671.45
19	668.20	668.39	668.51	668.37	668.62	669.57	669.18	669.34	---	---	---	671.84
20	668.20	668.36	668.51	668.36	668.58	669.62	669.33	669.44	---	---	668.82	672.09
21	668.20	668.35	668.51	668.37	668.51	669.52	669.47	669.80	---	---	668.82	---
22	668.25	668.36	668.48	668.39	668.50	669.33	669.88	670.00	---	---	668.79	---
23	668.26	668.34	668.44	668.40	668.45	669.19	670.32	670.12	---	---	668.69	---
24	668.25	668.26	668.42	668.42	668.39	669.14	670.73	670.50	---	---	668.63	---
25	668.20	668.28	668.40	668.46	668.39	669.18	671.06	671.03	---	---	668.55	---
26	668.17	668.29	668.39	668.50	668.38	669.37	671.16	671.43	---	---	668.50	---
27	668.19	668.31	668.44	668.52	668.39	669.76	671.22	671.82	---	---	668.47	---
28	668.20	668.25	668.46	668.52	668.40	670.15	671.14	672.18	---	---	668.46	---
29	668.22	668.24	668.43	668.51	668.42	670.57	670.87	672.60	---	---	668.46	---
30	668.28	668.23	668.43	668.52	---	671.37	670.66	673.19	671.22	---	668.43	---
31	668.25	---	668.46	668.54	---	672.13	---	673.81	---	---	668.42	---
MEAN	668.26	668.31	668.43	668.41	668.60	669.39	670.87	670.00	---	---	---	---
MAX	668.39	668.51	668.53	668.54	668.76	672.13	673.11	673.81	---	---	---	---
MIN	668.17	668.23	668.19	668.30	668.38	668.65	669.18	668.78	---	---	---	---

05346050 CLEAR LAKE, EAST SIDE, AT PRAIRIE ISLAND, MN—Continued



05353800 STRAIGHT RIVER NEAR FARIBAULT, MN

LOCATION.--Lat 44°15'29", long 93°13'51", in NW¼SE¼ sec. 9, T.109 N., R.20 W., Rice County, Hydrologic Unit 07040002, on right bank 50 ft downstream from highway bridge, 2.8 mi upstream from Falls Creek and 3.2 mi southeast of Faribault.

DRAINAGE AREA.--435 mi^2.

PERIOD OF RECORD.--October 1965 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,034.58 ft above sea level (NGVD of 1929).

REMARKS.--Records good except those for estimated daily discharges, which are fair to poor.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,500 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
May 30	1200	1,710	6.87	Jul 11	2000	3,620	9.11
Jun 12	0800	*6,080	*11.26	Sep 17	2100	3,790	9.29

Minimum discharge, 16 ft^3/s, Jan. 30, (estimated daily-mean, backwater from ice).

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e48	e34	e38	e26	e17	e342	220	105	1,040	255	470	233
2	e46	e34	e37	e25	e18	e551	188	99	786	244	468	192
3	e44	e40	e36	e24	e18	e591	165	94	590	240	470	163
4	e42	e45	e35	e23	e19	e567	146	91	482	336	418	145
5	e40	e43	e34	e22	e19	e479	137	89	408	455	462	137
6	e38	e40	e33	e21	e19	e433	129	85	363	641	510	186
7	e36	e38	e33	e21	e20	e505	120	81	326	929	491	167
8	e34	e40	e31	e21	e20	e545	114	86	290	995	381	157
9	e33	e42	e28	e21	e19	e669	107	81	2,070	885	304	142
10	e31	e46	e27	e21	e19	e778	101	108	5,480	712	273	129
11	e40	e49	e25	e22	e19	734	97	96	5,860	1,980	251	120
12	e52	e48	e24	e22	e19	459	92	107	5,690	2,640	224	112
13	e40	e48	e24	e22	e19	397	90	221	4,280	2,080	200	105
14	e38	e45	e25	e23	e19	361	87	323	3,180	1,410	179	201
15	e36	e49	e25	e23	e19	274	85	333	2,490	892	162	1,460
16	e35	e54	e26	e22	e19	245	84	258	2,030	683	344	e3,500
17	e34	e70	e26	e21	e20	213	81	211	1,600	646	656	e3,800
18	e33	e65	e27	e21	e20	312	83	174	1,220	548	741	e3,600
19	e33	e51	e27	e21	e20	312	116	151	922	471	692	e3,000
20	e32	e48	e26	e20	e21	324	107	201	742	415	576	e2,400
21	e33	e47	e26	e20	e22	226	147	230	639	391	410	e1,930
22	e36	e45	e26	e20	e23	186	150	699	548	389	330	e1,600
23	e40	e54	e25	e19	e25	172	139	958	483	444	299	e1,300
24	e38	e50	e25	e19	e27	165	123	1,170	441	360	285	e1,070
25	e36	e45	e25	e18	e30	187	151	1,050	396	319	264	e880
26	e35	e43	e25	e18	e33	259	154	743	360	291	247	e750
27	e34	e40	e27	e18	e38	264	160	549	336	267	228	e600
28	e33	e38	e29	e17	e45	378	145	436	319	246	211	e480
29	e39	e38	e29	e17	e89	397	131	444	296	364	190	e390
30	e37	e42	e28	e16	---	317	115	1,230	273	377	305	e360
31	e36	---	e27	e17	---	257	---	1,250	---	451	265	---
TOTAL	1,162	1,371	879	640	717	11,899	3,764	11,753	43,940	21,356	11,306	29,309
MEAN	37.5	45.7	28.4	20.6	24.7	384	125	379	1,465	689	365	977
MAX	52	70	38	26	89	778	220	1,250	5,860	2,640	741	3,800
MIN	31	34	24	16	18	165	81	81	273	240	162	105
AC-FT	2,300	2,720	1,740	1,270	1,420	23,600	7,470	23,310	87,150	42,360	22,430	58,130
CFSM	0.08	0.10	0.06	0.05	0.06	0.87	0.28	0.86	3.31	1.56	0.83	2.21
IN.	0.10	0.12	0.07	0.05	0.06	1.00	0.32	0.99	3.70	1.80	0.95	2.47

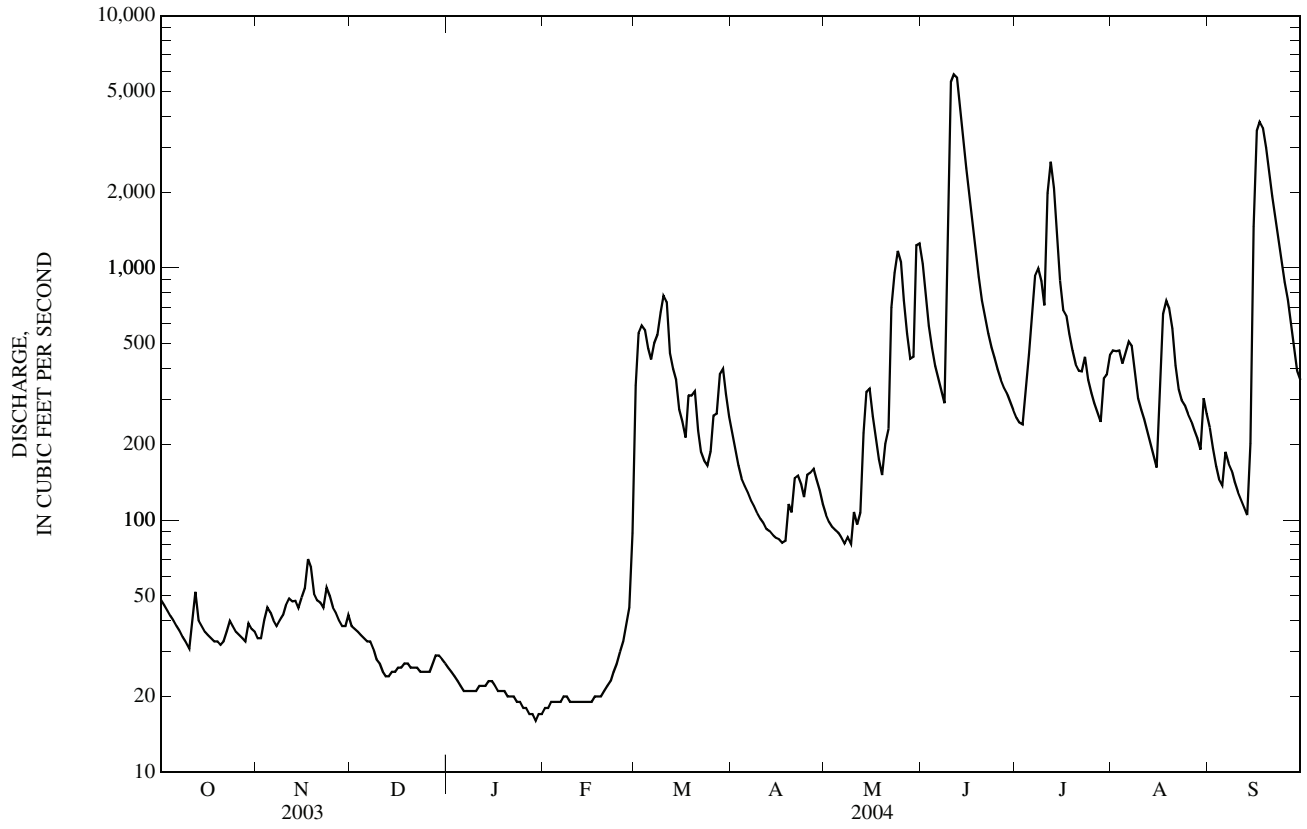
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 2004, BY WATER YEAR (WY)

MEAN	217	186	117	68.3	114	496	638	470	458	327	227	187
MAX	831	595	336	167	837	1,270	2,365	1,322	1,470	1,027	1,136	977
(WY)	(1969)	(1971)	(1983)	(1992)	(1984)	(1973)	(2001)	(1999)	(2001)	(1993)	(1979)	(2004)
MIN	17.0	15.1	11.0	11.0	12.9	26.4	70.2	58.1	45.8	26.2	16.2	16.0
(WY)	(1977)	(1977)	(1977)	(1977)	(1968)	(1968)	(1977)	(1976)	(1976)	(1988)	(1976)	(1976)

05353800 STRAIGHT RIVER NEAR FARIBAULT, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1966 - 2004	
ANNUAL TOTAL	61,928		138,096			
ANNUAL MEAN	170		377		293	
HIGHEST ANNUAL MEAN					754	1993
LOWEST ANNUAL MEAN					43.9	1977
HIGHEST DAILY MEAN	2,720	May 12	5,860	Jun 11	5,860	Jun 11, 2004
LOWEST DAILY MEAN	24	Dec 12	16	Jan 29	a11	Feb 18, 1968
ANNUAL SEVEN-DAY MINIMUM	25	Dec 11	17	Jan 25	11	Feb 18, 1968
MAXIMUM PEAK FLOW			6,080	Jun 12	b6,080	Jun 12, 2004
MAXIMUM PEAK STAGE			11.26	Jun 12	c12.74	Mar 5, 1974
INSTANTANEOUS LOW FLOW			d16	Jan 30	10	Oct 27, 1976
ANNUAL RUNOFF (AC-FT)	122,800		273,900		211,900	
ANNUAL RUNOFF (CFSM)	0.384		0.854		0.662	
ANNUAL RUNOFF (INCHES)	5.21		11.62		8.99	
10 PERCENT EXCEEDS	383		814		712	
50 PERCENT EXCEEDS	53		126		126	
90 PERCENT EXCEEDS	34		21		32	

a Many days in 1968, and 1977.
b Gage height, 11.31 ft.
c Backwater from ice.
d Estimated daily-mean discharge, backwater from ice.
e Estimated.



05355200 CANNON RIVER AT WELCH, MN

LOCATION.--Lat 44°33'50", long 92°43'55", in NW¼SW¼ sec. 27, T. 113 N., R. 16 W., Goodhue County, on right bank 0.3 mile downstream from highway bridge at Welch and 1.8 miles upstream from Belle Creek.

DRAINAGE AREA.--1,340 mi^2.

PERIOD OF RECORD.--June 1909 to January 1914 (no winter records 1909-11), November 1930 to September 1971, October 1972 to September 1987 (annual maximum only), October 1991 to current year.

REVISED RECORDS.--WSP 1308: 1912(M). WSP 1508: 1933. WSP 1914: 1960. WRD MN-98: 1986 (M), 1997.

GAGE.--Water-stage recorder. Datum of gage is 699.16 ft above sea level (NGVD of 1929). Prior to Nov. 11, 1930, nonrecording gage on highway bridge at site 0.3 mile upstream at datum 3.00 ft lower. Nov. 11, 1930 to Oct. 11, 1938, water-stage recorder at site 0.3 mile upstream at present datum.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known, 17.1 ft, present datum, in April 1888, from floodmark at mill about 2,400 ft upstream.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Flow affected at lower stages by regulation from hydropower plant upstream.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	222	279	223	e218	e204	651	846	406	2,760	896	1,010	602
2	223	277	215	e218	e202	1,040	796	390	2,520	882	1,030	542
3	226	275	201	e215	e202	1,000	770	369	2,240	849	951	416
4	226	270	219	e210	e202	928	758	357	1,840	938	817	366
5	227	278	229	e203	e202	861	756	347	1,600	977	816	375
6	232	286	241	e197	e203	781	753	318	1,470	1,150	804	578
7	239	294	238	e193	e204	761	722	292	1,250	1,700	922	461
8	241	284	237	e188	e205	755	625	261	1,080	2,050	971	476
9	240	265	252	e188	e206	745	538	280	1,760	2,000	879	511
10	240	257	251	e192	e208	749	482	440	5,340	1,670	730	512
11	251	271	226	e200	e209	785	459	537	9,130	1,660	603	508
12	254	285	196	e202	e209	932	447	507	9,940	3,090	554	491
13	273	299	212	e203	e208	914	431	562	9,480	4,170	542	406
14	273	299	214	e203	e205	930	401	745	8,200	3,500	512	407
15	281	300	226	e201	e200	918	355	829	6,680	2,650	484	974
16	270	299	231	e200	e199	817	362	869	5,190	2,090	619	2,610
17	241	302	230	e196	e200	851	366	775	4,180	1,800	765	3,820
18	234	305	234	e194	e200	1,090	375	617	3,800	1,660	1,020	4,510
19	239	304	243	e190	e210	1,080	444	500	3,170	1,520	1,180	4,560
20	259	301	e235	e183	e218	1,100	502	732	2,600	1,170	1,130	3,850
21	273	282	227	e182	e219	924	448	891	2,350	1,010	1,050	3,300
22	271	246	226	e186	e220	816	484	891	2,040	1,140	864	2,770
23	272	244	218	e190	e218	785	518	1,130	1,690	1,190	746	2,270
24	274	241	e205	e198	e215	787	508	2,190	1,480	1,340	647	1,800
25	273	e242	e203	e205	e212	795	486	2,280	1,540	1,100	543	1,670
26	263	242	e200	e217	212	822	527	2,190	1,400	1,020	532	1,540
27	251	241	216	e216	224	811	484	2,060	1,150	928	512	1,320
28	256	238	249	e213	243	810	491	1,730	1,200	833	451	1,010
29	262	218	258	e210	284	855	489	1,560	1,070	793	436	879
30	270	217	247	e208	---	951	448	2,120	933	823	441	849
31	273	---	217	e205	---	915	---	2,830	---	922	516	---
TOTAL	7,829	8,141	7,019	6,224	6,143	26,959	16,071	30,005	99,083	47,521	23,077	44,383
MEAN	253	271	226	201	212	870	536	968	3,303	1,533	744	1,479
MAX	281	305	258	218	284	1,100	846	2,830	9,940	4,170	1,180	4,560
MIN	222	217	196	182	199	651	355	261	933	793	436	366
AC-FT	15,530	16,150	13,920	12,350	12,180	53,470	31,880	59,510	196,500	94,260	45,770	88,030
CFSM	0.19	0.20	0.17	0.15	0.16	0.65	0.40	0.72	2.46	1.14	0.56	1.10
IN.	0.22	0.23	0.19	0.17	0.17	0.75	0.45	0.83	2.75	1.32	0.64	1.23

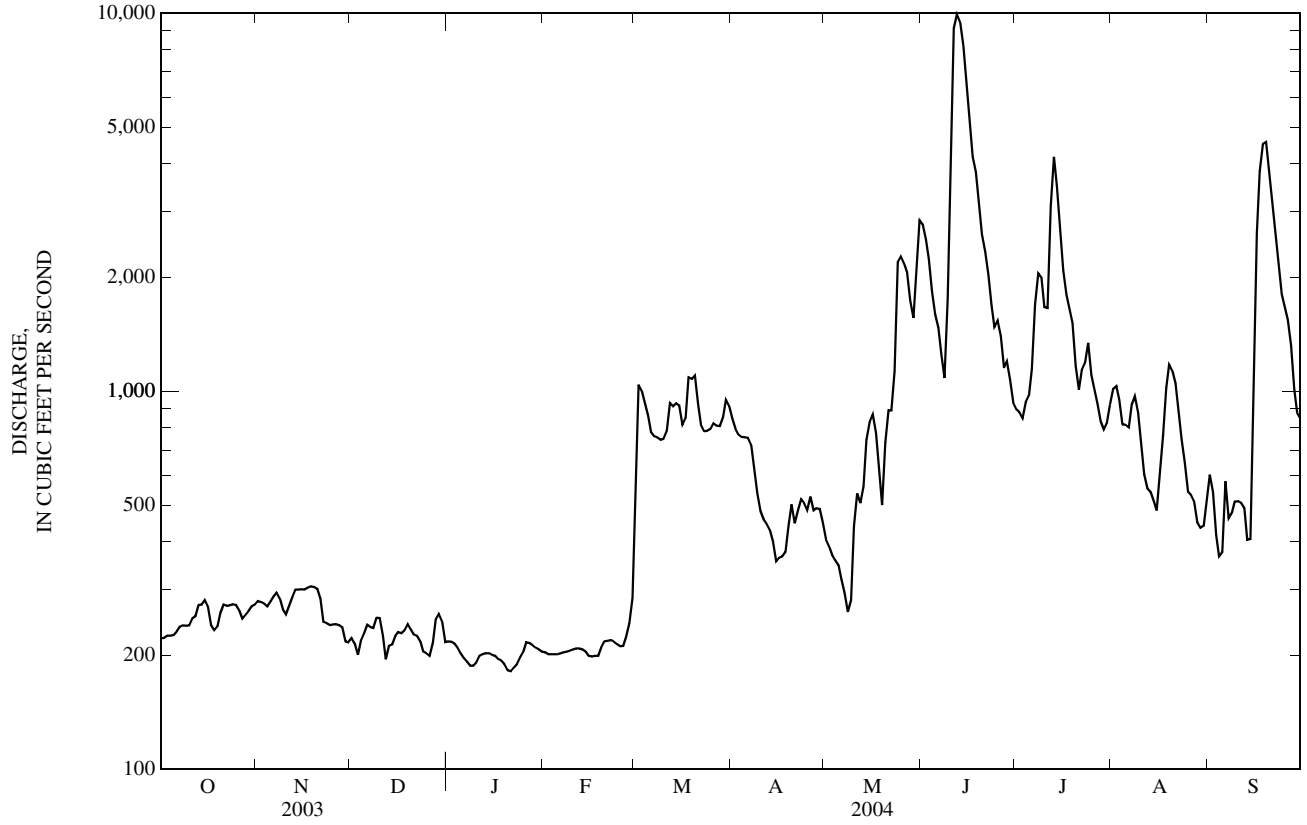
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1909 - 2004, BY WATER YEAR (WY)

MEAN	396	378	296	244	307	969	1,404	832	918	623	459	411
MAX	1,806	1,708	1,105	662	1,141	2,627	8,240	2,966	4,144	3,343	2,951	1,823
(WY)	(1969)	(1971)	(1992)	(1992)	(1966)	(1992)	(1965)	(1944)	(1993)	(1993)	(1993)	(1993)
MIN	65.5	78.8	75.0	76.9	110	149	145	84.9	80.0	71.2	78.1	72.8
(WY)	(1934)	(1934)	(1938)	(1938)	(1913)	(1911)	(1911)	(1934)	(1934)	(1934)	(1936)	(1933)

05355200 CANNON RIVER AT WELCH, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1909 - 2004	
ANNUAL TOTAL	195,315		322,455			
ANNUAL MEAN	535		881		626	
HIGHEST ANNUAL MEAN					2,132	1993
LOWEST ANNUAL MEAN					137	1934
HIGHEST DAILY MEAN	5,230	May 13	9,940	Jun 12	28,700	Apr 8, 1965
LOWEST DAILY MEAN	172	Sep 11	182	Jan 21	a19	Jan 2, 1950
ANNUAL SEVEN-DAY MINIMUM	183	Sep 6	189	Jan 17	42	Aug 12, 1936
MAXIMUM PEAK FLOW			10,100	Jun 12	36,100	Apr 8, 1965
MAXIMUM PEAK STAGE			10.72	Jun 12	15.05	Jun 27, 1998
INSTANTANEOUS LOW FLOW			b154	Dec 12	a2.5	Jan 3, 1950
ANNUAL RUNOFF (AC-FT)	387,400		639,600		453,300	
ANNUAL RUNOFF (CFSM)	0.399		0.657		0.467	
ANNUAL RUNOFF (INCHES)	5.42		8.95		6.34	
10 PERCENT EXCEEDS	968		2,010		1,390	
50 PERCENT EXCEEDS	299		479		310	
90 PERCENT EXCEEDS	214		205		106	

a Result of ice jam upstream.
b Result of freezeup.
e Estimated.



05372995 SOUTH FORK ZUMBRO RIVER AT ROCHESTER, MN

LOCATION.--Lat 44°03'42", long 92°27'58", in NW¼NE¼ sec. 23, T.107 N., R.14 W., Olmsted County, Hydrologic Unit 07040004, on left bank 50 ft downstream from 37th Street bridge, 0.2 mi upstream from wastewater treatment plant, and 2.0 mi downstream from Silver Lake Dam.

DRAINAGE AREA.--303 mi^2.

PERIOD OF RECORD.--March 1981 to current year.

GAGE.--Water-stage recorder. Datum of gage is 950.00 ft above sea level (NGVD of 1929). Prior to Mar. 1981, recording gage at site 0.6 miles downstream. Record published as "near Rochester, MN" and under downstream order number 05373000. Peak flow record is considered equivalent at both sites but daily-mean streamflows are not.

REMARKS.--Record good. Some regulation at times from Silver Lake.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 6, 1978, reached a stage of about 28.0 ft, on upstream side of bridge, discharge 30,500 ft^3/s. This is the highest known stage since at least 1908.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,300 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jun 10	1000	7,620	13.92	Sep 15	2200	*9,940	*15.57

Minimum discharge, 20 ft^3/s, Jan. 30, gage height, 1.99 ft.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29	36	35	38	23	311	150	88	309	230	117	91
2	30	36	32	40	24	795	136	84	295	212	109	87
3	31	47	38	37	22	492	127	81	274	206	181	83
4	31	56	39	33	23	280	119	77	248	235	144	80
5	30	44	41	32	23	246	113	74	223	220	118	81
6	31	40	39	27	25	259	109	72	210	699	104	93
7	32	38	38	26	24	304	104	72	196	544	100	76
8	31	34	46	26	24	238	99	103	182	441	96	74
9	29	35	46	25	23	223	93	79	1,620	375	94	73
10	28	39	39	25	24	253	93	123	5,550	332	91	71
11	47	41	34	26	24	467	90	86	2,590	401	91	68
12	40	49	32	27	24	291	89	119	3,750	466	89	68
13	34	43	30	29	24	233	85	247	2,390	391	84	64
14	35	41	31	30	24	235	77	290	1,400	321	80	478
15	35	41	33	30	23	210	77	224	1,070	277	77	5,110
16	34	40	37	30	24	180	74	181	1,050	250	220	3,990
17	34	52	35	30	25	173	74	160	1,280	225	146	1,210
18	34	50	36	27	27	209	96	143	906	204	140	817
19	34	47	35	26	30	254	148	132	748	187	113	639
20	33	46	34	27	40	251	118	126	642	174	102	532
21	42	44	35	27	39	205	113	165	578	256	95	464
22	39	43	36	24	42	171	108	368	512	181	109	416
23	38	50	36	24	39	158	104	535	459	157	93	390
24	37	40	32	24	36	154	102	543	434	144	97	354
25	37	40	32	23	35	207	140	449	389	132	94	322
26	37	39	33	24	39	256	129	361	349	121	92	292
27	37	40	42	24	47	230	127	336	330	113	90	270
28	37	39	44	23	59	224	114	270	310	105	89	251
29	38	37	44	22	79	215	104	346	281	181	91	239
30	38	40	43	21	---	185	97	344	252	129	162	222
31	37	---	39	22	---	162	---	351	---	127	97	---
TOTAL	1,079	1,267	1,146	849	915	8,071	3,209	6,629	28,827	8,036	3,405	17,005
MEAN	34.8	42.2	37.0	27.4	31.6	260	107	214	961	259	110	567
MAX	47	56	46	40	79	795	150	543	5,550	699	220	5,110
MIN	28	34	30	21	22	154	74	72	182	105	77	64
AC-FT	2,140	2,510	2,270	1,680	1,810	16,010	6,370	13,150	57,180	15,940	6,750	33,730
CFSM	0.11	0.14	0.12	0.09	0.10	0.86	0.35	0.71	3.17	0.86	0.36	1.87

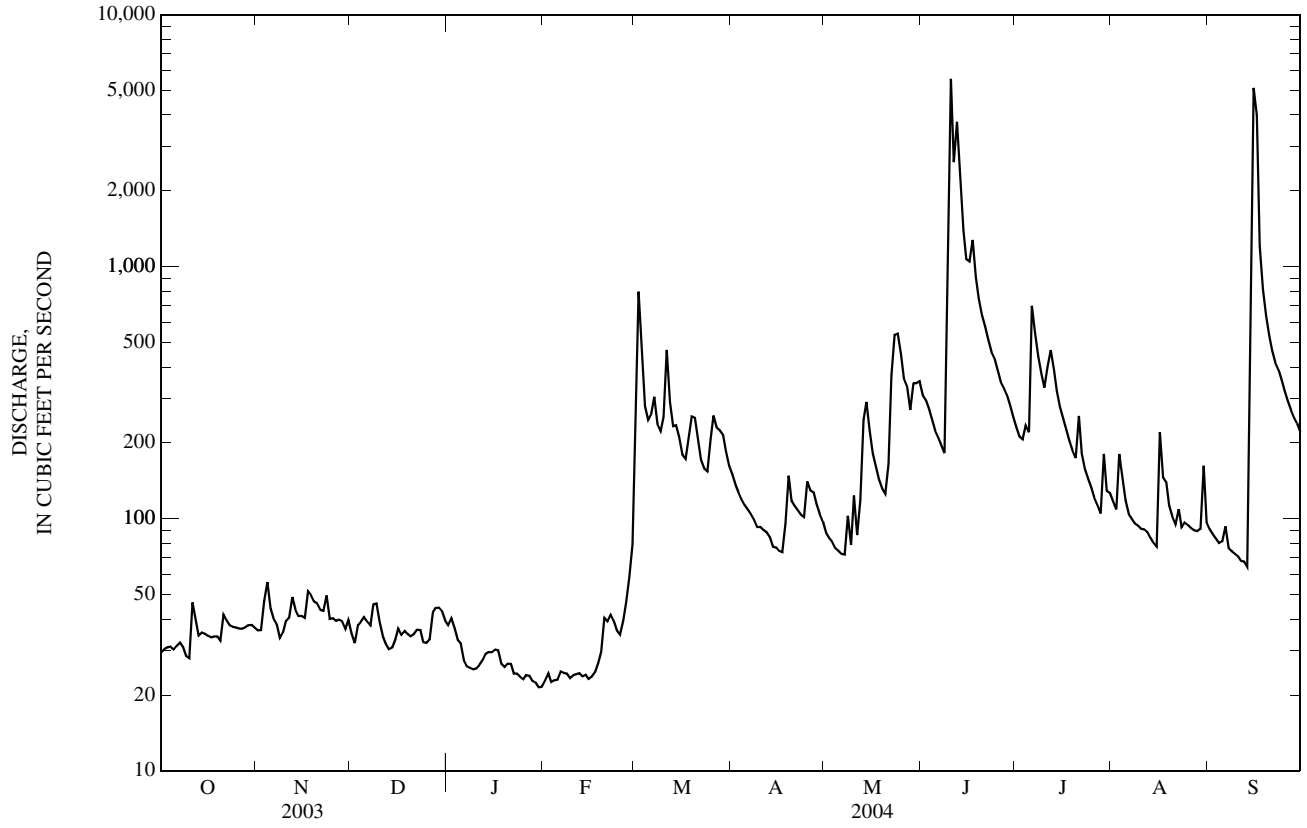
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1981 - 2004, BY WATER YEAR (WY)

MEAN	146	135	110	72.3	120	339	409	328	317	240	165	179
MAX	824	338	358	167	454	760	1,310	735	1,014	663	501	1,075
(WY)	(1987)	(1992)	(1992)	(1983)	(1984)	(1983)	(2001)	(2001)	(1993)	(1993)	(1990)	(1986)
MIN	20.0	24.5	21.0	22.5	23.8	109	79.4	88.3	49.0	23.2	24.6	31.5
(WY)	(1990)	(1990)	(1990)	(1990)	(1990)	(2001)	(2000)	(1989)	(1989)	(1988)	(1988)	(1988)

05372995 SOUTH FORK ZUMBRO RIVER AT ROCHESTER, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1981 - 2004	
ANNUAL TOTAL	44,222		80,438			
ANNUAL MEAN	121		220		215	
HIGHEST ANNUAL MEAN					431	1993
LOWEST ANNUAL MEAN					87.3	1989
HIGHEST DAILY MEAN	1,820	May 12	5,550	Jun 10	7,710	Sep 21, 1986
LOWEST DAILY MEAN	26	Sep 9	21	Jan 30	12	Sep 12, 1988
ANNUAL SEVEN-DAY MINIMUM	28	Sep 5	22	Jan 28	14	Sep 8, 1988
MAXIMUM PEAK FLOW			9,940	Sep 15	10,000	Sep 21, 1986
MAXIMUM PEAK STAGE			a15.57	Sep 15	20.77	Sep 21, 1986
INSTANTANEOUS LOW FLOW			b20	Jan 30	b10	Oct 23, 1981
ANNUAL RUNOFF (AC-FT)	87,710		159,500		155,500	
ANNUAL RUNOFF (CFSM)	0.400		0.725		0.708	
10 PERCENT EXCEEDS	255		394		459	
50 PERCENT EXCEEDS	52		90		121	
90 PERCENT EXCEEDS	33		27		45	

a From highwater mark.
b Due in part to regulation.



05378500 MISSISSIPPI RIVER AT WINONA, MN

LOCATION.--Lat 44°03'21", long 91°38'16", in sec. 23, T.107 N., R.7 W., Winona County, Hydrologic Unit 07040003, on right bank at Winona pumping station in Winona, 9.5 mi upstream from Trempealeau River, and at mile 725.7 upstream from the Ohio River.

DRAINAGE AREA.--59,200 mi^2 (approximately).

PERIOD OF RECORD.--June 1928 to current year. Gage-height records collected in this vicinity since 1878 are contained in reports of Mississippi River Commission.

GAGE.--Water-stage recorder. Datum of gage is 639.64 ft above sea level (NGVD of 1929). June 10,1928 to Apr. 15, 1931, nonrecording gage at site 800 ft upstream. Prior to Oct. 1, 1929, at datum 0.20 ft higher and Oct. 1, 1929 to Apr. 15, 1931, at datum 0.12 ft lower. Apr. 16, 1931 to Nov. 12, 1934, nonrecording gage at present site and datum. Since Mar. 31, 1937, auxiliary water-stage recorder 2.7 mi upstream at tailwater of navigation dam 5A.

REMARKS.-- Records are good to fair except those for estimated daily discharges, which are fair to poor. Some regulation by reservoirs, navigation dams, and power plants at low and medium stages. Daily discharges for some days were based in part on instantaneous discharges obtained from the U.S. Army Corps of Engineers for Lock and Dam 5A.

EXTREMES FOR PERIOD OF RECORD.--Minimum gage height, -3.38 ft, Aug. 31, 1934 (prior to dam construction in 1936); minimum gage height since 1938, after completion of dam, 1.95 ft, Jan. 27, 1944.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10,600	15,100	12,000	13,200	e11,500	17,800	71,900	42,600	59,200	34,200	16,500	14,100
2	10,000	14,900	12,800	13,000	e11,500	24,800	76,500	37,200	64,000	31,100	14,800	13,800
3	9,530	14,800	13,200	12,400	e11,600	27,800	75,400	33,500	69,600	27,500	24,500	13,500
4	11,200	14,500	13,600	e12,200	e11,700	26,400	69,700	31,800	77,600	28,900	22,600	14,700
5	11,100	13,900	14,000	e11,700	e11,200	26,500	65,200	29,400	84,200	29,200	17,200	15,400
6	11,600	13,400	14,500	e11,300	e11,300	27,000	59,700	27,700	86,900	27,700	17,100	14,900
7	11,100	14,100	14,700	e11,000	e12,000	25,000	57,000	26,100	85,100	28,200	19,000	15,400
8	11,000	14,900	14,100	e10,800	e12,400	22,200	53,900	26,100	81,600	28,400	17,900	17,200
9	11,300	15,200	14,700	e10,800	e12,300	20,700	48,400	26,000	82,000	28,700	17,300	19,200
10	11,100	13,600	14,800	e10,800	e12,300	21,000	46,200	26,600	84,500	28,400	18,300	19,600
11	11,100	12,000	13,700	e10,800	e12,300	20,100	43,900	27,500	86,400	28,200	19,100	19,300
12	12,700	11,400	12,800	e10,900	e12,300	21,300	39,800	26,000	91,200	29,300	19,000	19,000
13	14,600	12,300	e10,000	e11,000	e12,300	23,300	38,300	25,000	97,100	31,700	18,800	18,200
14	13,600	13,400	e9,300	e11,100	e12,300	24,900	36,200	26,600	99,100	33,500	18,500	17,000
15	12,900	13,900	e10,000	e11,300	e12,300	25,200	33,100	27,500	96,900	34,200	18,500	26,100
16	12,500	14,200	e10,500	e11,200	e12,100	23,800	29,900	27,800	91,100	33,900	19,200	30,700
17	12,200	15,600	e12,400	e11,300	e12,000	23,200	29,800	30,200	88,600	34,000	20,100	33,200
18	11,200	15,600	e13,400	e11,600	e12,000	23,700	28,900	32,800	84,400	34,000	19,900	38,500
19	11,100	16,000	e14,900	e11,100	e12,100	25,000	28,900	28,600	80,200	33,900	18,300	36,900
20	10,900	15,800	e15,600	e11,200	e12,400	27,500	29,800	29,700	76,000	32,500	15,700	34,200
21	11,100	16,000	e15,300	e11,300	e13,700	27,300	31,400	33,600	72,700	29,500	15,200	35,400
22	12,100	16,200	e15,200	e10,900	e14,100	26,000	37,000	34,300	70,000	27,200	15,300	35,500
23	13,300	16,000	e15,100	e10,800	e13,900	25,600	40,300	34,800	67,400	26,700	15,900	36,200
24	14,400	15,900	14,800	e10,100	e14,000	25,700	43,700	36,100	64,100	25,200	16,100	37,800
25	13,800	15,200	14,600	e10,100	e14,200	26,100	46,900	36,100	59,000	23,900	16,100	37,900
26	12,400	14,100	14,600	e10,100	e14,200	30,500	49,500	40,400	57,000	21,900	16,400	37,600
27	11,200	12,700	14,300	e10,200	e14,300	34,800	49,100	46,700	51,700	20,300	16,000	37,600
28	11,400	12,400	13,200	e11,200	e14,200	39,300	47,000	50,200	47,700	17,600	15,700	37,700
29	11,400	13,200	12,700	e12,100	e14,400	47,600	46,600	50,400	41,400	17,100	15,100	36,100
30	11,700	12,100	13,000	e12,000	---	54,500	44,800	51,300	38,400	20,300	14,700	36,100
31	13,300	---	12,500	e11,800	---	63,400	---	57,900	---	20,200	14,900	---
TOTAL	367,430	428,400	416,300	349,300	366,900	878,000	1,398,800	1,060,500	2,235,100	867,400	543,700	798,800
MEAN	11,850	14,280	13,430	11,270	12,650	28,320	46,630	34,210	74,500	27,980	17,540	26,630
MAX	14,600	16,200	15,600	13,200	14,400	63,400	76,500	57,900	99,100	34,200	24,500	38,500
MIN	9,530	11,400	9,300	10,100	11,200	17,800	28,900	25,000	38,400	17,100	14,700	13,500
AC-FT	728,800	849,700	825,700	692,800	727,700	1,742,000	2,775,000	2,104,000	4,433,000	1,720,000	1,078,000	1,584,000
CFSM	0.20	0.24	0.23	0.19	0.21	0.48	0.79	0.58	1.26	0.47	0.30	0.45
IN.	0.23	0.27	0.26	0.22	0.23	0.55	0.88	0.67	1.40	0.55	0.34	0.50

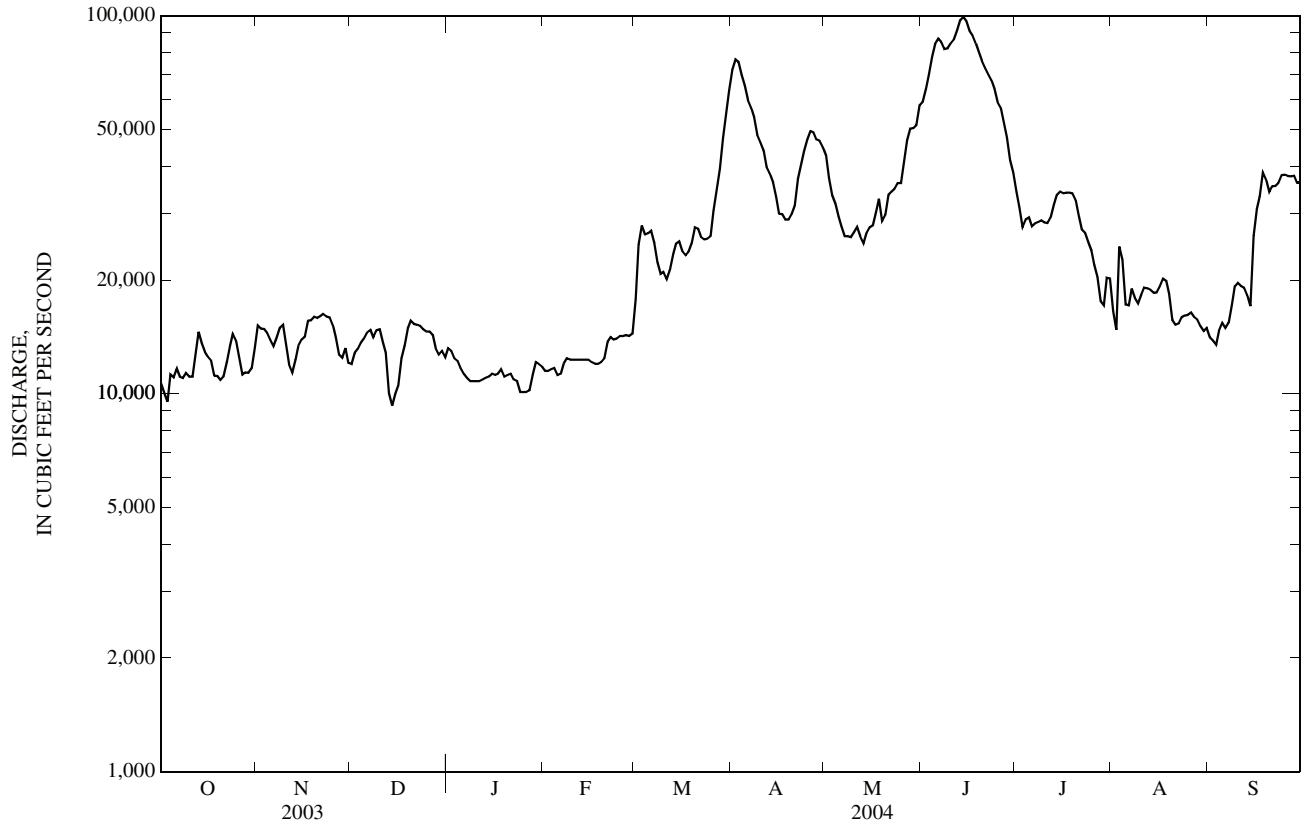
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1928 - 2004, BY WATER YEAR (WY)

MEAN	22,660	23,070	17,860	15,410	15,690	30,400	62,240	49,770	40,530	32,460	21,860	22,550
MAX	85,950	50,040	40,440	30,480	35,900	86,420	152,600	119,800	100,200	118,800	67,560	69,490
(WY)	(1987)	(1972)	(1992)	(1983)	(1984)	(1983)	(1965)	(2001)	(1993)	(1993)	(1993)	(1986)
MIN	6,774	7,367	6,286	6,742	7,874	9,023	12,810	11,930	8,450	7,063	5,391	6,790
(WY)	(1934)	(1934)	(1934)	(1940)	(1977)	(1934)	(1931)	(1931)	(1934)	(1934)	(1934)	(1933)

05378500 MISSISSIPPI RIVER AT WINONA, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1928 - 2004	
ANNUAL TOTAL	10,136,360		9,710,630			
ANNUAL MEAN	27,770		26,530		29,570	
HIGHEST ANNUAL MEAN					56,850	1986
LOWEST ANNUAL MEAN					9,742	1934
HIGHEST DAILY MEAN	119,000	May 17	99,100	Jun 14	264,000	Apr 20, 1965
LOWEST DAILY MEAN	9,200	Sep 5	9,300	Dec 14	2,250	Dec 29, 1933
ANNUAL SEVEN-DAY MINIMUM	9,900	Sep 3	10,500	Jan 22	3,210	Dec 27, 1933
MAXIMUM PEAK FLOW			99,500	Jun 14	268,000	Apr 19, 1965
MAXIMUM PEAK STAGE			11.54	Jun 14	a20.77	Apr 19, 1965
INSTANTANEOUS LOW FLOW			b9,300	Dec 14	c1,940	Dec 12, 1980
ANNUAL RUNOFF (AC-FT)	20,110,000		19,260,000		21,420,000	
ANNUAL RUNOFF (CFSM)	0.469		0.448		0.500	
ANNUAL RUNOFF (INCHES)	6.37		6.10		6.79	
10 PERCENT EXCEEDS	62,000		54,100		60,700	
50 PERCENT EXCEEDS	15,300		18,200		21,300	
90 PERCENT EXCEEDS	11,400		11,200		10,100	

a From highwater mark.
b Due in part to freezeup.
c Result of ice jam upstream.
e Estimated.



05383950 ROOT RIVER NEAR PILOT MOUND, MN

LOCATION.--43°47"05", long 91°01'48", in SE¼NE¼ sec. 28, T.104 N., R.10 W., Fillmore County, Hydrologic Unit 07040008, on right bank at bridge on County Road 21, 2.7 mi. south of Pilot Mound.

DRAINAGE AREA.--565 mi^2.

PERIOD OF RECORD.-August 2002 to current year.

GAGE.--Water-stage recorder. Datum of gage is 667.00 ft above sea level (NGVD of 1929). May 28, 1909 to Sept. 30, 1917, nonrecording gage at site 1.3 mi downstream at different datum. May 4, 1929 to Sept. 27, 1933, nonrecording gage and Sept. 28, 1933 to June 26, 1980, recording gage at site 0.9 mi upstream at datum 671.86 ft.

REMARKS.--Records good except those for estimated daily discharges, which are fair to poor.

EXTREMES OUTSIDE OF PERIOD OF RECORD.--Flood of June, 2000 reached a peak stage of approximately 26 feet.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	110	113	e105	e107	e79	e1,600	215	164	756	462	368	280
2	111	116	e102	e111	e88	2,420	201	155	657	441	365	272
3	111	121	e109	e107	e101	1,520	190	149	570	430	419	259
4	112	141	e112	e100	e98	747	181	143	498	585	547	250
5	110	138	e115	e93	e107	1,780	175	140	460	500	418	242
6	111	129	115	e91	e105	2,220	170	143	431	1,680	399	271
7	111	121	116	e100	e102	1,760	166	136	407	2,190	355	271
8	111	e119	115	e107	e115	999	161	165	377	1,560	332	244
9	106	e125	e111	e113	e117	572	157	168	3,120	1,150	315	235
10	107	e128	e107	e113	e117	e488	153	187	5,100	962	307	226
11	110	125	e98	e109	e116	e523	149	173	3,220	859	325	219
12	120	124	e94	e108	e114	e365	146	191	6,400	1,240	312	214
13	122	123	e82	e107	e109	e333	143	242	3,840	1,270	296	209
14	119	118	e83	e104	e105	e348	142	376	1,980	918	282	256
15	116	123	e86	e101	e100	e291	140	401	1,480	759	273	7,960
16	116	126	e93	e100	e97	260	138	329	1,540	661	290	16,200
17	115	125	e92	e103	e96	257	137	282	4,300	590	330	3,710
18	116	138	e91	e106	e98	282	143	260	2,320	532	300	1,790
19	115	133	e90	e98	e107	292	162	237	1,560	490	315	1,360
20	115	130	e89	e93	e114	296	168	220	1,270	457	320	1,100
21	115	123	e88	e90	e113	272	179	253	1,120	516	334	929
22	113	120	e89	e87	e111	247	172	558	996	520	309	815
23	115	127	e90	e92	e109	235	162	1,200	863	435	310	729
24	115	e121	e88	e95	e104	230	154	1,390	790	398	365	675
25	116	e115	e87	e98	e102	234	172	1,120	717	367	333	618
26	115	e109	e90	e100	e105	273	185	825	644	346	313	569
27	116	e108	e100	e99	e107	261	193	672	597	331	340	527
28	118	e107	e119	e96	e118	270	190	564	578	320	316	496
29	116	e108	e117	e88	e179	263	182	531	535	332	299	467
30	116	e107	e115	e84	---	246	172	616	494	323	300	447
31	114	---	e108	e79	---	233	---	907	---	324	291	---
TOTAL	3,533	3,661	3,096	3,079	3,133	20,117	4,998	12,897	47,620	21,948	10,378	41,840
MEAN	114	122	99.9	99.3	108	649	167	416	1,587	708	335	1,395
MAX	122	141	119	113	179	2,420	215	1,390	6,400	2,190	547	16,200
MIN	106	107	82	79	79	230	137	136	377	320	273	209
AC-FT	7,010	7,260	6,140	6,110	6,210	39,900	9,910	25,580	94,450	43,530	20,580	82,990
CFSM	0.20	0.22	0.18	0.18	0.19	1.15	0.29	0.74	2.81	1.25	0.59	2.47
IN.	0.23	0.24	0.20	0.20	0.21	1.32	0.33	0.85	3.14	1.45	0.68	2.75

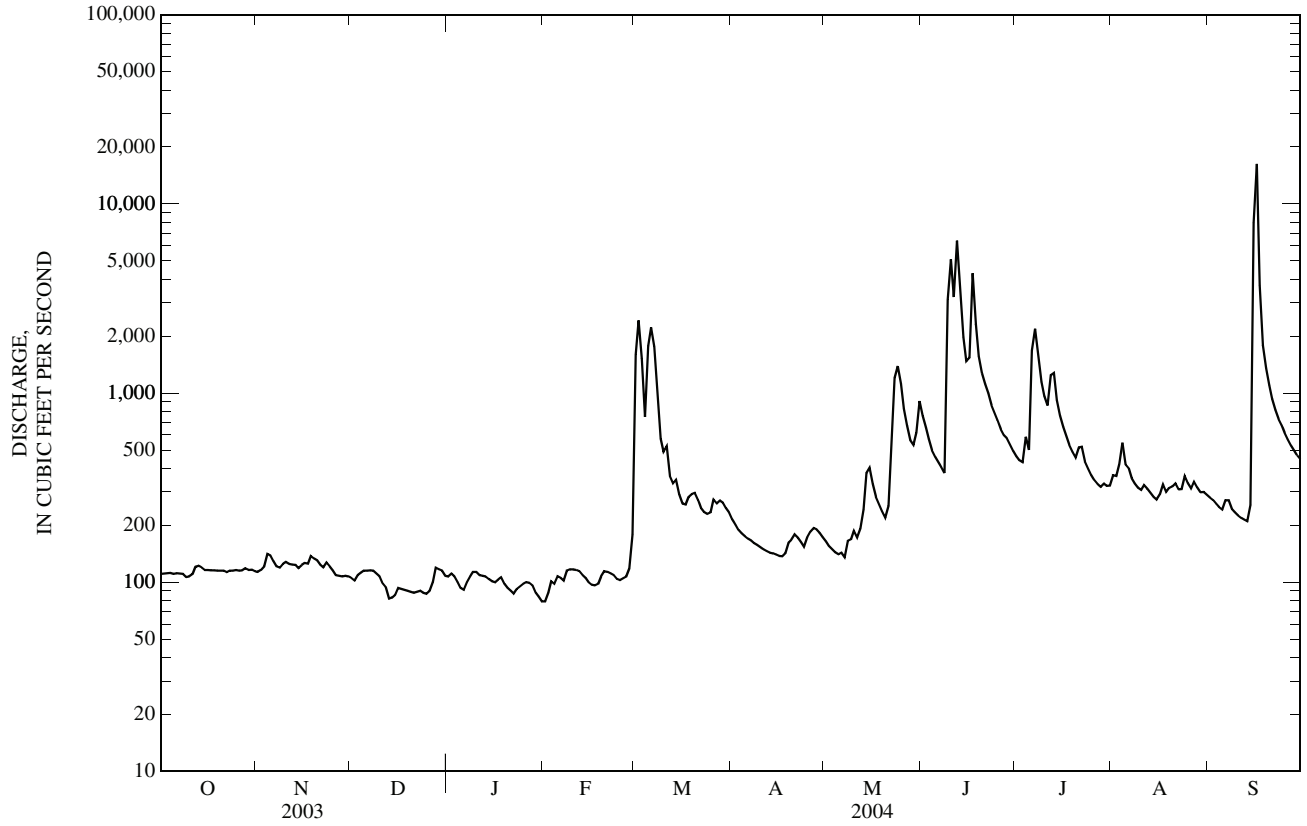
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2002 - 2004, BY WATER YEAR (WY)

MEAN	173	158	127	112	122	461	230	550	961	480	235	569
MAX	232	194	155	125	136	649	294	684	1,587	708	335	1,395
(WY)	(2003)	(2003)	(2003)	(2003)	(2003)	(2004)	(2003)	(2003)	(2004)	(2004)	(2004)	(2004)
MIN	114	122	99.9	99.3	108	273	167	416	335	252	136	114
(WY)	(2004)	(2004)	(2004)	(2004)	(2004)	(2003)	(2004)	(2004)	(2003)	(2003)	(2003)	(2003)

05383950 ROOT RIVER NEAR PILOT MOUND, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 2002 - 2004	
ANNUAL TOTAL	81,962		176,300			
ANNUAL MEAN	225		482		364	
HIGHEST ANNUAL MEAN					482	2004
LOWEST ANNUAL MEAN					245	2003
HIGHEST DAILY MEAN	2,090	May 12	16,200	Sep 16	16,200	Sep 16, 2004
LOWEST DAILY MEAN	82	Dec 13	79	Jan 31, Feb 1	a79	Jan 31, 2004
ANNUAL SEVEN-DAY MINIMUM	88	Dec 13	88	Jan 27	88	Jan 27, 2004
MAXIMUM PEAK FLOW			21,900	Sep 16	26,000	Jun 2, 2000
MAXIMUM PEAK STAGE			23.85	Sep 16	25.90	Jun 2, 2000
INSTANTANEOUS LOW FLOW			a79	Jan 31	a79	Jan 31, 2004
ANNUAL RUNOFF (AC-FT)	162,600		349,700		263,400	
ANNUAL RUNOFF (CFSM)	0.397		0.853		0.644	
ANNUAL RUNOFF (INCHES)	5.40		11.61		8.74	
10 PERCENT EXCEEDS	406		972		612	
50 PERCENT EXCEEDS	148		179		190	
90 PERCENT EXCEEDS	109		100		108	

a Estimated minimum daily, backwater from ice, also occurred Feb. 1, 2004
e Estimated.



05385000 ROOT RIVER NEAR HOUSTON, MN

LOCATION.--43°46"07", long 91°34'11", in SW¼NW¼ sec. 33, T.104 N., R.6 W., Houston County, Hydrologic Unit 07040008, on right bank 0.2 mi north of Houston and 1.6 mi upstream from South Fork and 18.2 mi upstream from mouth.

DRAINAGE AREA.--1,250 mi^2.

PERIOD OF RECORD.--May 1909 to September 1917, May to November 1929, March 1930 to 1983, 1991 to September 2000, January 2004 to current year. Operated as high-flow partial-record station October 1983 to September 1990 and October 2000 to December 2003. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 1508: 1911-12. WSP 1628: 1948(P).

GAGE.--Water-stage recorder. Datum of gage is 667.00 ft above sea level (NGVD of 1929). May 28, 1909 to Sept. 30, 1917, nonrecording gage at site 1.3 mi downstream at different datum. May 4, 1929 to Sept. 27, 1933, nonrecording gage and Sept. 28, 1933 to June 26, 1980, recording gage at site 0.9 mi upstream at datum 671.86 ft.

REMARKS.--Records good except those for estimated daily discharges, which are fair to poor. Slight diurnal fluctuation at low flows caused by power plant upstream.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 540 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Mar 2	0530	8,270	12.59	Jun 17	2030	7,760	12.25
Mar 6	2230	8,870	12.98	Sep 17	1030	*23,800	*16.56
Jun 10	0100	10,400	13.72				

Minimum discharge, 285 ft^3/s, Jan. 30, estimated daily-mean discharge, backwater from ice.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	e400	e295	1,660	e529	444	1,470	e892	798	619
2	---	---	---	e430	e305	6,570	524	423	1,280	e961	835	609
3	---	---	---	e400	e310	3,110	491	405	1,160	e1,140	842	592
4	---	---	---	e370	e305	1,980	473	397	1,060	e1,220	1,060	567
5	---	---	---	e340	e310	3,360	e478	393	986	e1,030	955	548
6	---	---	---	e345	e330	5,920	e480	407	946	e1,480	851	607
7	---	---	---	e355	e325	3,190	e483	408	907	2,760	795	599
8	---	---	---	e365	e320	2,270	e459	456	844	2,650	745	551
9	---	---	---	e370	e325	1,540	437	459	2,610	2,080	759	510
10	---	---	---	e380	e335	1,180	e432	555	9,050	1,820	736	489
11	---	---	---	e390	e340	1,230	e430	547	5,840	1,650	692	472
12	---	---	---	e385	e350	1,070	e422	535	6,360	1,680	697	455
13	---	---	---	e380	e345	873	e428	833	7,740	2,240	680	438
14	---	---	---	e365	e340	832	e425	886	4,040	e2,040	663	444
15	---	---	---	e355	e330	e813	e427	906	2,810	e1,660	644	4,130
16	---	---	---	e360	e325	e715	e432	872	2,310	1,470	650	9,710
17	---	---	---	e385	e335	657	e420	755	5,660	1,390	685	17,800
18	---	---	---	e365	e340	e655	404	699	4,900	1,230	702	4,660
19	---	---	---	e360	e345	e686	426	648	3,060	1,130	687	2,740
20	---	---	---	e385	e355	655	437	623	2,410	1,090	685	2,160
21	---	---	---	e360	e360	e621	464	645	2,080	1,130	677	1,830
22	---	---	---	e335	e370	579	452	1,070	1,860	1,230	683	1,600
23	---	---	---	e340	e390	550	436	1,630	1,650	1,140	666	1,430
24	---	---	---	e350	e400	e528	422	2,090	1,480	1,010	676	1,310
25	---	---	---	e360	e415	518	440	2,100	1,320	955	708	1,190
26	---	---	---	e370	e425	e569	463	1,720	1,190	925	680	1,100
27	---	---	---	e345	e445	571	458	1,450	e1,130	892	673	1,020
28	---	---	---	e325	e480	586	465	1,260	e1,070	854	681	956
29	---	---	---	e305	e600	591	465	1,150	e1,000	834	660	905
30	---	---	---	e285	---	576	459	1,130	e934	832	652	873
31	---	---	---	e290	---	535	---	1,320	---	804	635	---
TOTAL	---	---	---	11,255	10,450	45,190	13,561	27,216	79,157	42,219	22,552	60,914
MEAN	---	---	---	363	360	1,458	452	878	2,639	1,362	727	2,030
MAX	---	---	---	430	600	6,570	529	2,100	9,050	2,760	1,060	17,800
MIN	---	---	---	285	295	518	404	393	844	804	635	438
AC-FT	---	---	---	22,320	20,730	89,630	26,900	53,980	157,000	83,740	44,730	120,800
CFSM	---	---	---	0.29	0.29	1.17	0.36	0.70	2.11	1.09	0.58	1.62
IN.	---	---	---	0.33	0.31	1.34	0.40	0.81	2.36	1.26	0.67	1.81

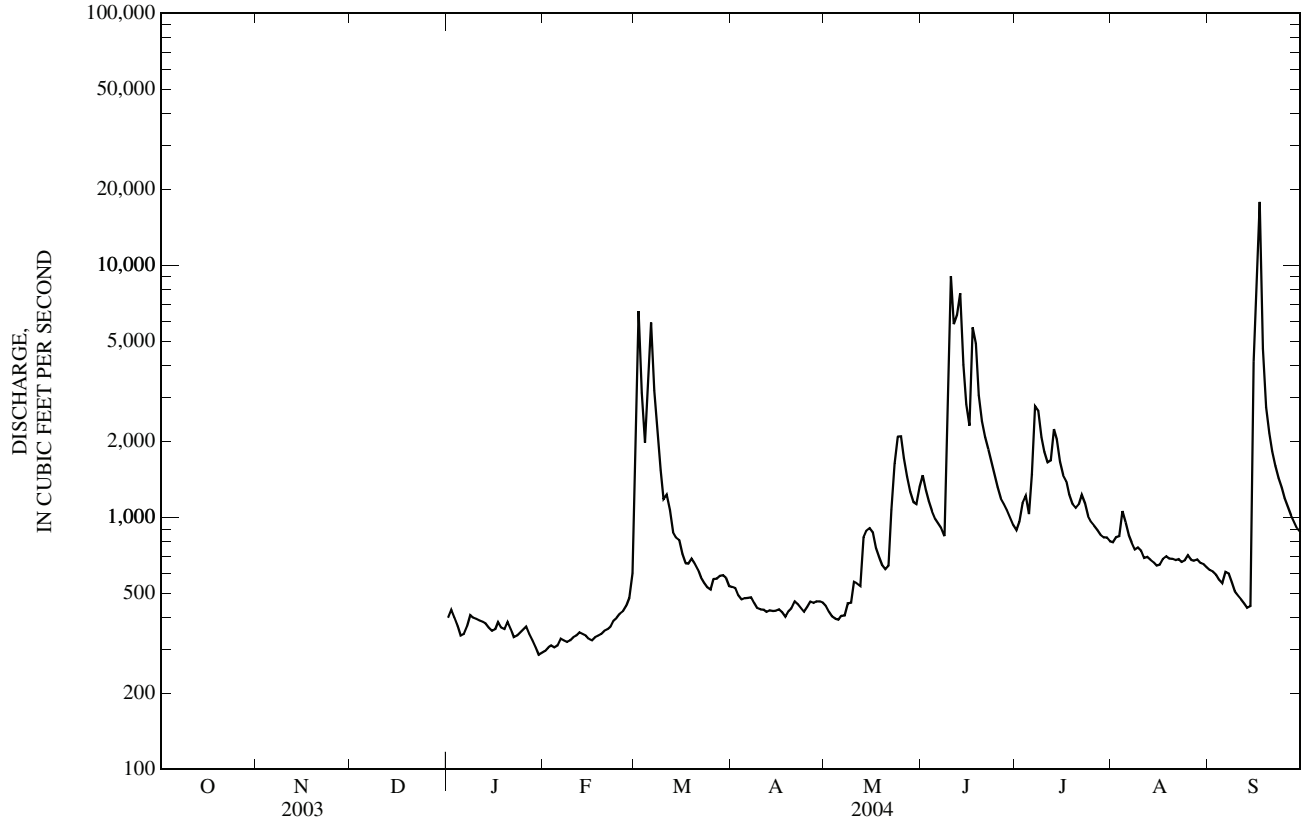
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1910 - 2004, BY WATER YEAR (WY)

MEAN	521	519	435	413	499	1,396	1,191	845	971	841	668	596
MAX	1,465	1,494	1,671	1,152	1,427	3,512	4,963	2,440	4,389	3,252	2,257	2,105
(WY)	(1974)	(1983)	(1992)	(1973)	(1966)	(1961)	(1965)	(1973)	(2000)	(1978)	(1993)	(1938)
MIN	193	218	189	172	168	251	274	234	261	236	231	243
(WY)	(1934)	(1934)	(1934)	(1959)	(1959)	(1931)	(1931)	(1934)	(1934)	(1964)	(1958)	(1933)

05385000 ROOT RIVER NEAR HOUSTON, MN—Continued

SUMMARY STATISTICS	FOR 2004 WATERYEAR		WATER YEARS 1910 - 2004	
ANNUAL MEAN			744	
HIGHEST ANNUAL MEAN			1,590	1993
LOWEST ANNUAL MEAN			294	1931
HIGHEST DAILY MEAN	17,800	Sep 17	31,100	Apr 1, 1952
LOWEST DAILY MEAN	285	Jan 30	82	Nov 28, 1937
ANNUAL SEVEN-DAY MINIMUM	299	Jan 29	113	Dec 25, 1933
MAXIMUM PEAK FLOW	23,800	Sep 17	37,000	Apr 1, 1952
MAXIMUM PEAK STAGE	16.56	Sep 17	a18.32	Mar 2, 1965
INSTANTANEOUS LOW FLOW	b285	Jan 30	c65	Dec 26, 1933
ANNUAL RUNOFF (AC-FT)			539,200	
ANNUAL RUNOFF (CFSM)			0.595	
ANNUAL RUNOFF (INCHES)			8.09	
10 PERCENT EXCEEDS			1,340	
50 PERCENT EXCEEDS			476	
90 PERCENT EXCEEDS			262	

a Backwater from ice.
b Estimated daily-mean, backwater from ice.
c Also occurred Feb. 25, 1935.
e Estimated.



05457000 CEDAR RIVER NEAR AUSTIN, MN

LOCATION.--Lat 43°38'11", long 92°58'26", in NE¼SE¼ sec. 15, T.102 N., R.18 W., Mower County, Hydrologic Unit 07080201, on left bank 200 ft upstream from abandoned powerhouse, 500 ft downstream from highway bridge, 1.1 mi downstream from Turtle Creek, and 1.1 mi south of Austin.

DRAINAGE AREA.--399 mi^2.

PERIOD OF RECORD.--May 1909 to September 1914, October 1944 to current year.

REVISED RECORDS.--WSP 1145: 1945, 1948.

GAGE.--Water-stage recorder. Datum of gage is 1,162.10 ft above sea level (NGVD of 1929). May 1909 to April 1912, nonrecording gage in tailwater of power plant 200 ft downstream at datum 3.1 ft lower. May 1912 to September 1914, nonrecording gage on highway bridge 500 ft downstream at datum 1.1 ft lower.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Some regulation at lower flows by wastewater treatment plant upstream.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,500 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
May 23	2100	1,530	6.41	Jul 6	2330	1,530	6.19
Jun 10	2300	4,270	10.95	Sep 16	--	*20,000	*23.26

Minimum discharge, 40 ft^3/s, Jan. 18, gage height, 2.15 ft.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	56	60	54	54	e43	395	151	107	827	183	356	202
2	54	61	54	53	e45	1,070	133	98	618	174	379	186
3	57	72	56	52	e46	531	121	92	502	195	374	174
4	54	77	56	49	e47	295	106	90	427	309	605	161
5	52	69	58	e47	47	689	103	83	382	467	651	153
6	55	63	57	e46	50	1,110	102	80	349	1,150	467	158
7	60	60	55	e45	49	995	97	74	312	1,380	359	147
8	59	58	61	e46	48	504	95	100	296	940	316	143
9	60	58	63	47	48	501	93	79	740	662	412	139
10	60	62	54	48	49	443	90	139	2,800	503	422	127
11	71	64	e50	49	49	358	87	114	3,130	643	310	126
12	69	68	51	51	49	309	86	133	2,340	1,150	266	119
13	63	61	47	52	49	270	86	649	2,450	861	234	114
14	65	63	47	53	48	206	84	874	1,460	607	209	e230
15	64	65	50	53	48	151	84	515	970	459	187	e9,220
16	62	62	52	53	50	145	84	322	810	383	230	e15,000
17	61	78	51	53	48	134	82	255	950	351	376	e5,140
18	63	81	51	e50	50	135	83	208	900	287	485	3,610
19	60	67	51	e50	51	134	115	175	674	256	723	2,900
20	63	62	50	50	57	168	100	166	493	234	617	2,420
21	64	62	50	49	55	133	111	291	444	423	430	2,070
22	62	60	51	e47	58	146	110	964	391	392	420	1,830
23	63	62	53	e46	55	149	101	1,400	344	293	508	e1,480
24	63	53	51	45	52	136	97	1,370	309	236	426	1,330
25	64	56	49	45	51	155	169	992	284	206	364	1,150
26	60	57	49	e45	53	180	186	717	259	190	321	e940
27	62	57	56	e45	57	206	164	569	235	178	287	e800
28	68	55	61	e45	65	290	145	458	226	163	258	e660
29	65	54	61	e44	97	301	134	478	210	190	232	e580
30	66	55	59	e44	---	225	117	1,020	196	187	224	e540
31	65	---	55	e44	---	179	---	1,170	---	237	213	---
TOTAL	1,910	1,882	1,663	1,500	1,514	10,643	3,316	13,782	24,328	13,889	11,661	51,849
MEAN	61.6	62.7	53.6	48.4	52.2	343	111	445	811	448	376	1,728
MAX	71	81	63	54	97	1,110	186	1,400	3,130	1,380	723	15,000
MIN	52	53	47	44	43	133	82	74	196	163	187	114
AC-FT	3,790	3,730	3,300	2,980	3,000	21,110	6,580	27,340	48,250	27,550	23,130	102,800
CFSM	0.15	0.16	0.13	0.12	0.13	0.86	0.28	1.11	2.03	1.12	0.94	4.33
IN.	0.18	0.18	0.16	0.14	0.14	0.99	0.31	1.28	2.27	1.29	1.09	4.83

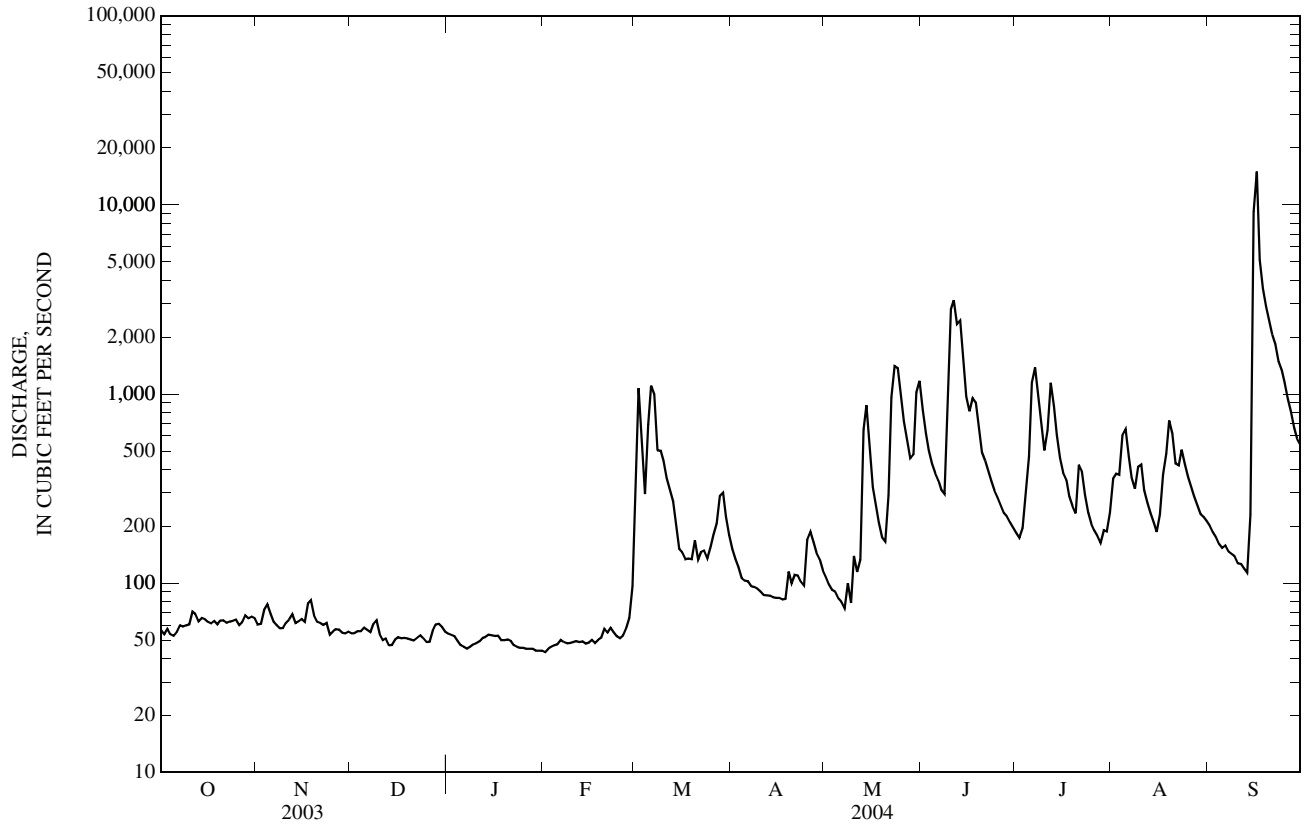
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1909 - 2004, BY WATER YEAR (WY)

MEAN	163	158	106	74.7	108	462	531	344	336	277	186	168
MAX	884	997	431	261	701	1,428	2,328	1,387	1,624	1,456	1,720	1,728
(WY)	(1974)	(1910)	(1992)	(1973)	(1984)	(1973)	(2001)	(1999)	(1993)	(1978)	(1993)	(2004)
MIN	37.3	35.7	26.6	26.5	25.0	53.3	52.9	67.9	48.9	22.6	32.3	30.9
(WY)	(1959)	(1959)	(1913)	(1913)	(1913)	(1968)	(1911)	(1910)	(1950)	(1911)	(1948)	(1911)

05457000 CEDAR RIVER NEAR AUSTIN, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1909 - 2004	
ANNUAL TOTAL	66,960		137,937			
ANNUAL MEAN	183		377		a243	
HIGHEST ANNUAL MEAN					824	1993
LOWEST ANNUAL MEAN					58.1	1977
HIGHEST DAILY MEAN	2,760	May 12	15,000	Sep 16	15,000	Sep 16, 2004
LOWEST DAILY MEAN	47	Dec 13	43	Feb 1	b0.00	Jan 15, 1911
ANNUAL SEVEN-DAY MINIMUM	49	Jan 24	44	Jan 26	13	Sep 1, 1912
MAXIMUM PEAK FLOW			20,000	Sep 16	20,000	Sep 16, 2004
MAXIMUM PEAK STAGE			c23.26	Sep 16	c23.26	Sep 16, 2004
INSTANTANEOUS LOW FLOW			d40	Jan 18	b0.00	Jan 15, 1911
ANNUAL RUNOFF (AC-FT)	132,800		273,600		176,400	
ANNUAL RUNOFF (CFSM)	0.460		0.945		0.610	
ANNUAL RUNOFF (INCHES)	6.24		12.86		8.29	
10 PERCENT EXCEEDS	369		815		504	
50 PERCENT EXCEEDS	65		114		98	
90 PERCENT EXCEEDS	53		49		45	

a Median of annual mean discharges is 220 ft^3/s.
b Occurred on several days in 1911, result of regulation.
c From floodmark.
d Result of freezeup.
e Estimated.



05476000 DES MOINES RIVER AT JACKSON, MN

LOCATION.--Lat 43°37'10", long 94°59'10", in SE¼SW¼ sec. 24, T.102 N., R.35 W., Jackson County, Hydrologic Unit 07100001, on right bank at old dam structure in Jackson.

DRAINAGE AREA.--1,250 mi^2.

PERIOD OF RECORD.--May 1909 to December 1913, August 1930 to current year (winter record incomplete prior to 1936). Published as "Des Moines River near Jackson", 1930-35, as "West Fork Des Moines River near Jackson", 1936-44, and as "West Fork Des Moines River at Jackson", 1945-69.

REVISED RECORDS.--WSP 1115: 1942. WSP 1175: Drainage area. WSP 1238: 1950. WSP 1308: 1938(M).

GAGE.--Water-stage recorder. Datum of gage is 1,287.75 ft above sea level (NGVD of 1929). May 31, 1909 to Dec. 20, 1913, nonrecording gage at site 0.6 mi downstream at datum 0.99 ft lower. Aug. 22, 1930 to Sept. 30, 1944, nonrecording gage at site 7 mi upstream at datum 17.10 ft higher. Oct. 1, 1944 to Oct. 26, 1949, nonrecording gage at site 600 ft upstream at datum 10.64 ft higher. Oct. 27, 1949 to Dec. 15, 1965, water-stage recorder 200 ft downstream at present datum.

REMARKS.--Records good except those for estimated daily discharges, which are fair to poor. Regulation at times from Yankton, Long, Shetek, and Heron Lakes.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 540 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Mar 15	0530	544	4.93	Aug 3	2030	896	6.12
Jun 24	2230	2,340	9.86	Sep 15	1030	1,410	7.59
Jul 13	0100	*2,530	*10.29	Sep 22	0730	1,030	6.54

Minimum discharge, 4.8 ft^3/s, Oct. 4, gage height, 2.30 ft.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	27	e22	e19	e7.2	e52	403	200	1,170	1,490	663	141
2	12	20	e23	e20	e8.0	e101	402	206	1,260	1,440	628	124
3	13	21	e24	e18	e8.0	e134	378	198	1,380	1,290	711	93
4	10	25	e24	e16	e7.7	e129	337	194	1,570	1,410	766	87
5	13	30	e25	e15	e7.7	e110	323	186	1,770	1,540	685	98
6	10	23	e25	e12	e8.3	e131	337	172	1,930	1,430	625	100
7	9.2	18	e25	e10	e8.5	e192	303	166	1,970	1,410	591	89
8	8.6	e19	e26	e9.5	e8.6	e261	279	151	1,930	1,340	572	96
9	9.2	e20	e29	e9.9	e8.5	e266	240	168	1,840	1,260	532	87
10	8.3	e21	e24	e11	e8.6	e338	243	158	1,870	1,190	497	86
11	13	21	e21	e12	e8.9	e306	244	139	1,910	1,910	468	87
12	11	24	e21	e12	e9.0	e286	225	135	1,800	2,360	450	86
13	14	22	e20	e13	e9.0	392	219	158	1,670	2,420	427	77
14	10	21	e20	e13	e9.0	466	209	115	1,530	2,090	406	120
15	11	23	e20	e13	e9.2	462	199	89	1,450	1,860	387	846
16	11	30	e20	e12	e9.5	438	192	96	1,470	1,670	436	589
17	10	26	e19	e13	e9.9	419	177	129	1,470	1,530	468	565
18	30	24	e18	e9.8	e10	478	169	140	1,460	1,420	425	695
19	35	34	e18	e9.2	e11	444	192	139	1,450	1,350	380	699
20	30	47	e17	e8.4	e11	394	172	180	1,520	1,270	272	651
21	26	41	e17	e8.1	e11	334	174	248	1,700	1,270	255	757
22	23	42	e17	e7.8	e12	257	196	278	1,950	1,230	244	1,000
23	24	31	e16	e7.5	e12	317	184	380	2,160	1,160	235	975
24	25	e22	e16	e7.2	e12	326	198	382	2,290	1,100	217	955
25	24	e21	e16	e7.6	e13	321	233	442	2,310	1,040	166	878
26	24	e22	e16	e8.0	e13	314	258	559	2,210	981	157	792
27	21	e22	e16	e7.7	e14	318	237	624	2,030	914	154	749
28	20	e21	e19	e7.4	e16	372	230	666	1,850	851	150	713
29	22	e21	e20	e7.0	e24	400	242	712	1,700	794	141	679
30	20	e22	e20	e6.9	---	374	215	818	1,560	738	136	657
31	21	---	e19	e6.8	---	383	---	1,070	---	697	144	---
TOTAL	530.3	761	633	337.8	304.6	9,515	7,410	9,298	52,180	42,455	12,388	13,571
MEAN	17.1	25.4	20.4	10.9	10.5	307	247	300	1,739	1,370	400	452
MAX	35	47	29	20	24	478	403	1,070	2,310	2,420	766	1,000
MIN	8.3	18	16	6.8	7.2	52	169	89	1,170	697	136	77
AC-FT	1,050	1,510	1,260	670	604	18,870	14,700	18,440	103,500	84,210	24,570	26,920
CFSM	0.01	0.02	0.02	0.01	0.01	0.25	0.20	0.24	1.39	1.10	0.32	0.36
IN.	0.02	0.02	0.02	0.01	0.01	0.28	0.22	0.28	1.55	1.26	0.37	0.40

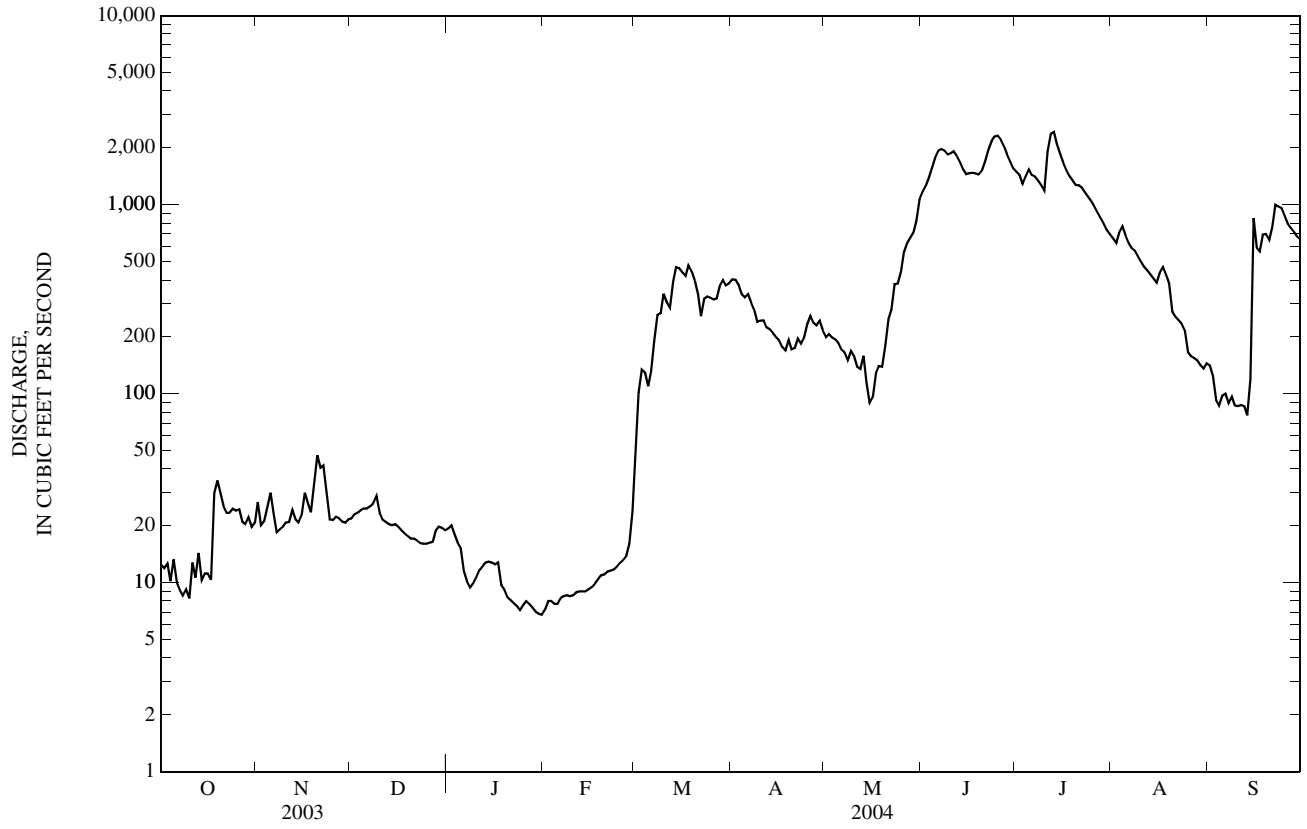
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1930 - 2004, BY WATER YEAR (WY)

MEAN	160	178	107	49.6	68.0	446	1,084	676	652	546	230	173
MAX	1,724	1,833	792	298	504	2,250	6,045	3,923	4,892	6,018	2,192	2,243
(WY)	(1987)	(1980)	(1980)	(1980)	(1983)	(1983)	(1969)	(1993)	(1993)	(1993)	(1993)	(1942)
MIN	0.00	0.00	0.00	0.00	0.00	11.8	9.37	2.59	3.76	1.04	0.13	0.00
(WY)	(1956)	(1956)	(1956)	(1956)	(1936)	(1959)	(1959)	(1934)	(1931)	(1931)	(1955)	(1931)

05476000 DES MOINES RIVER AT JACKSON, MN—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1930 - 2004	
ANNUAL TOTAL	93,690.9		149,383.7			
ANNUAL MEAN	257		408		a384	
HIGHEST ANNUAL MEAN					2,098	1993
LOWEST ANNUAL MEAN					15.1	1956
HIGHEST DAILY MEAN	1,370	May 15	2,420	Jul 13	15,500	Apr 11, 1969
LOWEST DAILY MEAN	2.7	Sep 8	6.8	Jan 31	b0.00	Jul 19, 1931
ANNUAL SEVEN-DAY MINIMUM	4.3	Sep 4	7.3	Jan 26	0.00	Jul 19, 1931
MAXIMUM PEAK FLOW			2,530	Jul 13	15,700	Apr 11, 1969
MAXIMUM PEAK STAGE			10.29	Jul 13	19.45	Apr 11, 1969
INSTANTANEOUS LOW FLOW			c4.8	Oct 4	b0.00	Jul 19, 1931
ANNUAL RUNOFF (AC-FT)	185,800		296,300		278,300	
ANNUAL RUNOFF (CFSM)	0.205		0.327		0.307	
ANNUAL RUNOFF (INCHES)	2.79		4.45		4.18	
10 PERCENT EXCEEDS	867		1,440		1,070	
50 PERCENT EXCEEDS	36		147		96	
90 PERCENT EXCEEDS	13		9.9		4.4	

a Median of annual mean discharges is 260 ft^3/s.
b Many days, several years.
c Unknown cause.
e Estimated.



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

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Discharge at High-Flow Partial-Record Stations

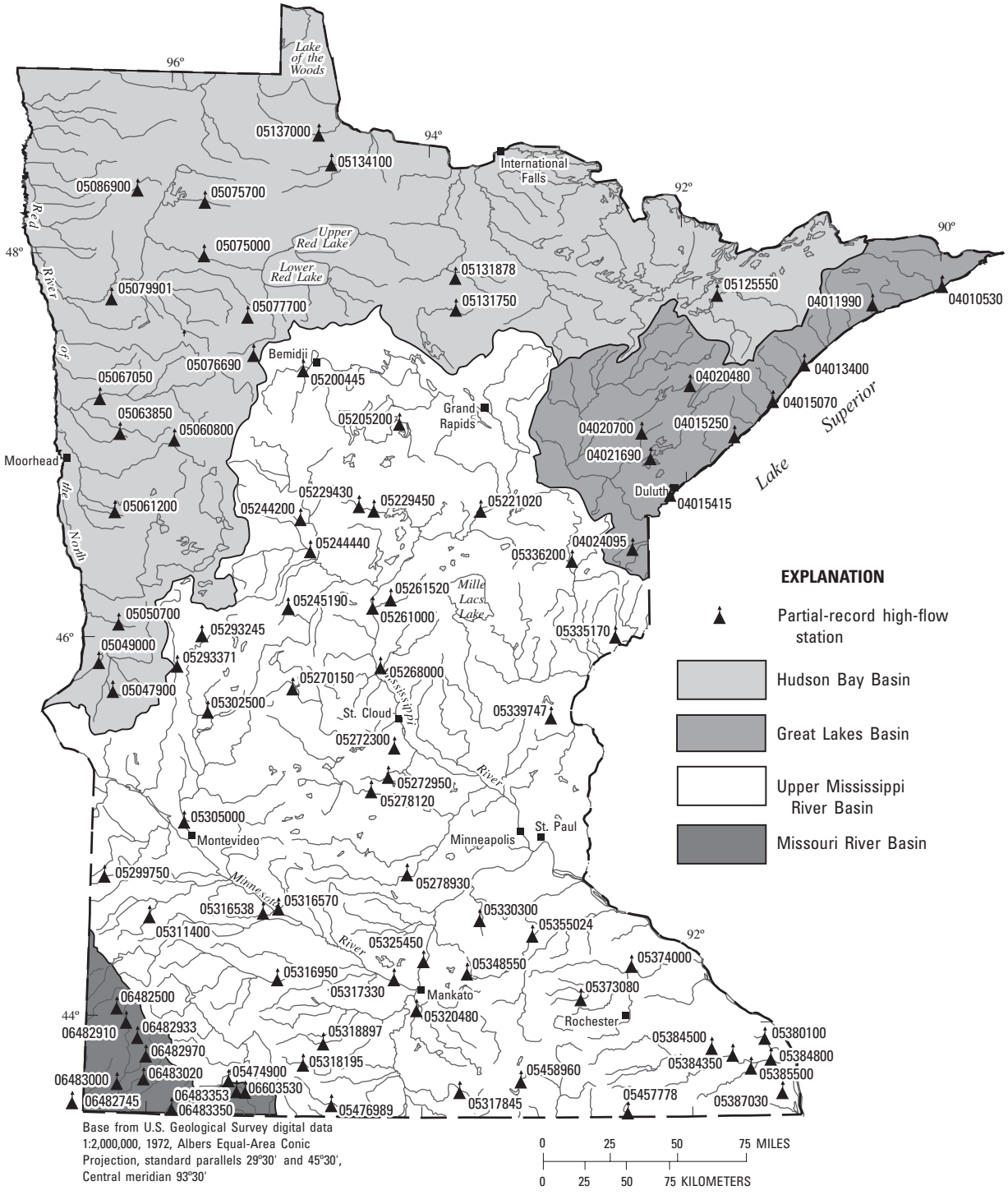

Figure 7. Location of high-flow partial-record stations.

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 U.S.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 2004
[--, data not available; mi^2, square miles]

Station name and [Station number]	Location and [Drainage area]	Period of record	Water year 2004 maximum			Period of record maximum		
			Date	Gage height (feet)	Discharge (ft^3/s)	Date	Gage height (feet)	Discharge (ft^3/s)
Reservation River near Hovland [04010530]	Lat 47°52'38", long 89°51'45", in $SE^1/_4$ $SW^1/_4$ sec. 6, T.62 N., R.5 E., Cook County, Hydrologic Unit 04010101, at bridge on U.S. Highway 61, on Grand Portage Indian Reservation, 1,200 feet upstream from mouth, and 5.5 miles northeast of Hovland [Drainage area: 16.5 mi^2].	1991-92#, 2000-current year	05-31-04	3.32	702	04-24-01	a3.58	928
Cascade River near Grand Marais [04011990]	Lat 47°47'24", long 90°31'35", in $SE^1/_4$ $SW^1/_4$ 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	05-31-04	12.66	1,340	04-24-01	13.36	1,810
Little Marais River near Little Marais [04013400]	Lat 47°24'58", long 91°06'08", in $SW^1/_4$ $SW^1/_4$ sec. 16, T.57 N., R.6 W., Lake County, Hydrologic Unit 04010101, at bridge on U.S. Highway 61, 0.5 mile northeast of Little Marais [Drainage area:4.47 mi^2].	2000-current year	05-31-04	b18.03	437	05-31-04	b18.03	437
Lake Superior Tributary at Split Rock State Park [04015070]	Lat 47°11'33', long 91°23'29", in $SE^1/_4$ $NE^1/_4$ sec. 6, T.54 N., R.8 W., Lake County, Hydrologic Unit 04010102, at culvert on U.S. Highway 61, 1 mile northeast of Split Rock River, 1.5 mile southwest of Split Rock Lighthouse State Park entrance, and 6 miles southwest of Beaver River [Drainage area: 3.27 mi^2].	2001-current year	05-31-04	16.59	192	11-07-00	16.68	197
Silver Creek Tributary near Two Harbors [04015250]	Lat 47°04'40", long 91°36'49", in $SW^1/_4NE^1/_4$ sec. 16, T.53 N.,R.10 W., Lake County, Hydrologic Unit 04010102, at culvert on County Highway 3, 1.0 mile upstream from mouth, 4.5 miles northeast of Two Harbors [Drainage area: 3.62 mi^2].	1965-current year	05-31-04	9.60	859	9-20-72	17.08	1,880
Lake Superior Tributary on West 9th Street in Duluth [04015415]	Lat 46°45'27", long 92°09'25", in $NE^1/_4$ $SE^1/_4$ sec. 6, T.49 N., R.14 W., St. Louis County, Hydrologic Unit 04010201, at culvert on West 9th St. in Duluth, 1.0 mile above mouth, locally called Merrit Creek [Drainage area: 1.81 mi^2].	2001-current year	05-30-04	8.30	23	10-04-02	9.66	132
North Branch Whiteface River near Fairbanks [04020480]	Lat 47°22'20", long 91°56'28", in $NW^1/_4NW^1/_4$ sec. 1, T.56 N., R.13 W., St. Louis County, Hydrologic Unit 04010201, at culvert on County Highway 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	05-31-04	12.22	144	04-23-79	13.67	660
Bug Creek at Shaw [04020700]	Lat 47°06'40", long 92°21'03", in $SW^1/_4SE^1/_4$ 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	04-04-04	13.58	194	07-05-99	18.00	1,350
Cloquet River near Toimi [04021690]	Lat 47°21'00", long 91°39'30", in $NE^1/_4SW^1/_4$ sec. 7, T.56 N., R.10 W., Lake County, Hydrologic Unit 04010202, at bridge on County Highway 2, 5.8 miles southeast of Toimi, 23 miles north of Two Harbors [Drainage area: 40.8 mi^2].	1986-current year	05-31-04	6.41	452	07-04-93	9.06	1,540

Annual maximum discharge at high-flow sites during water year 2004--Continued

Station name and [Station number]	Location and [Drainage area]	Period of record	Water year 2004 maximum			Period of record maximum		
			Date	Gage height (feet)	Discharge (ft^3/s)	Date	Gage height (feet)	Discharge (ft^3/s)
Nemadji River near Holyoke [04024095]	Lat 46°31'04", long 92°23'22", in $NE^1/_4NE^1/_4$ 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 and 7 miles south of Wrenshall [Drainage area: 127 mi^2].	1972-current year	05-31-04	b10.00	1,060	09-03-85	17.38	4,420
Twelvemile Creek near Dumont [05047900]	Lat 45°42'58", long 96°20'54", in $SE^1/_4SW^1/_4$ 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	09-26-04	7.56	405	04-06-97	13.63	c3,720
Mustinka River above Wheaton [05049000]	Lat 45°49'15", long 96°29'25", in $SW^1/_4SW^1/_4$ 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. Prior to 2002 WY at datum 73.77 ft lower [Drainage area: 810 mi^2].	1915-24#, 1930-58#, 1985-current year	09-24-04	83.32	1,300	04-07-97 04-09-01	g97.40 g94.45	8,800 11,000
Rabbit River near Nashua [05050700]	Lat 46°04'30", long 96°18'24", in $SE^1/_4NE^1/_4$ 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	09-24-04	14.41	760	04-05-97	a15.76	c1,640
Buffalo River near Callaway [05060800]	Lat 47°01'17", long 95°54'43", in $SW^1/_4SW^1/_4$ 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	06-01-04	b12.77	161	07-16-93	24.90	1,630
Whiskey Creek at Barnesville [05061200]	Lat 46°39'35", long 96°23'54", in $SE^1/_4SW^1/_4$ sec. 20, T.137 N., R.45 W., Clay County, Hydrologic Unit 09020106, at culvert on State Highway 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	09-06-04	5.96	309	05-31-85	7.12	660
State Ditch 45 Tributary near Ulen [05063850]	Lat 47°06'28", long 96°25'03", in $SE^1/_4SW^1/_4$ sec.17, T.142 N., R.45 W., Clay County, Hydrologic Unit 09020108, at culvert on 180th Ave. North, 7.5 miles northwest of Ulen [Drainage area: 3.26 mi^2].	2002-current year	09-06-04	b16.23	152	06-09-02	18.27	h386
Marsh River Ditch near Ada [05067050]	Lat 47°17'46", long 96°26'09", in $NE^1/_4NE^1/_4$ sec. 13, T.144 N., R. 46 W., Norman County, Hydrologic Unit 09020107, at bridge on County Highway 24, 3.5 miles southeast of Ada.	1985-current year	04-01-04	12.18	0	06-24-02	19.64	2,000
Red Lake River at High Landing near Goodridge [05075000]	Lat 48°02'34", long 95°48'28", in $NW^1/_4NW^1/_4$ sec. 28, T.153 N., R.40 W., Pennington County, Hydrologic Unit 09020303, on left bank 50 ft upstream from County Highway 24 bridge at High Landing, 7 miles south of Goodridge and 33 miles upstream from Thief River Falls [Drainage area: 2,300 mi^2].	1929-2000#, 2001-current year	05-31-04	b7.74	1,220	07-07-75	13.39	4,060
Mud River near Grygla [05075700]	Lat 48°19'31", long 95°44'35", in $NE^1/_4NE^1/_4$ sec. 23, T.156 N., R.40 W., Hydrologic Unit 09020304, Marshall County, at bridge on State Highway 89, 6 miles west of Grygla [Drainage area: 150 mi^2].	1979-current year	05-31-04	17.51	1,300	06-22-02	18.54	2,840
Clearwater River Tributary near Bagley [05076690]	Lat 47°30'34", long 95°24'15", in $SE^1/_4NE^1/_4$ sec. 31, T.147 N., R.37 W., Clearwater County, Hydrologic Unit 09020305, at culvert on County State Aid Highway 28, 0.5 mile south of Bagley.	2001-current year	05-12-04	b6.38	0.7	06-23-02	e13.50	--
Ruffy Brook near Gonvick [05077700]	Lat 47°44'50", long 95°24'45", in $SE^1/_4SE^1/_4$ 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 Gonvick [Drainage area: 46.2 mi^2].	1960-78#, 1979-85, 1986#, 1987-current year	03-28-04	a5.02	c180	04-19-96	5.78	455

Annual maximum discharge at high-flow sites during water year 2004--Continued

Station name and [Station number]	Location and [Drainage area]	Period of record	Water year 2004 maximum			Period of record maximum		
			Date	Gage height (feet)	Discharge (ft^3/s)	Date	Gage height (feet)	Discharge (ft^3/s)
Burnham Creek near Crookston [05079901]	Lat 47°43'59", long 96°39'52", in $SE^1/_4SW^1/_4$ 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	05-13-04	18.83	1,600	04-15-97	22.63	3,000
Middle River near Newfolden [05086900]	Lat 48°22'04", long 96°16'47", in $NE^1/_4NE^1/_4$ sec. 3, T.156 N., R.44 W., Marshall County, Hydrologic Unit 09020309, at bridge on township road, 2.0 miles northeast of Newfolden [Drainage area: 88.8 mi^2].	1979-current year	05-13-04	18.90	1,130	06-11-02 05-18-96	20.12 g18.31	1,700 2,300
Stoney River near Babbitt [05125550]	Lat 47°41'36", long 91°45'38", in $SW^1/_4SW^1/_4$ sec. 8, T.60 N., R.11 W., Lake County, Hydrologic Unit 09030001, in Superior National Forest, at bridge on Forest Road 424, 4.7 miles upstream from mouth, 8.5 miles east of Babbitt [Drainage area: 215 mi^2].	1975-80#, 1986-current year	05-31-04	6.09	974	04-19-76	8.71	2,490
Big Fork River near Bigfork [05131750]	Lat 47°44'56", long 93°46'31", in $SE^1/_4SE^1/_4$ 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	04-06-04	b10.80	678	04-22-79	15.48	2,830
Bowerman Brook near Craigville [05131878]	Lat 47°55'29", long 93°45'34", in $NE^1/_4NW^1/_4$ sec. 26, T.63 N., R.27 W., Koochiching County, Hydrologic Unit 09030006, at culvert on State Highway 6, 2.4 miles upstream from mouth, 7.0 miles west of Craigville [Drainage area: 25.7 mi^2].	1979-current year	06-01-04	12.70	153	06-23-02	15.83	937
North Branch Rapid River near Baudette [05134100]	Lat 48°31'56", long 94°38'50", in $NW^1/_4SW^1/_4$ 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	05-13-04	12.42	981	06-11-02	e18.34	6,380
Winter Road River near Baudette [05137000]	Lat 48°42'39", long 94°41'52", in $NW^1/_4NE^1/_4$ 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 Baudette, 1.8 miles east of Pitt, 5 miles upstream of mouth [Drainage area: 140 mi^2].	1986-current year	05-13-04	14.26	2,390	06-11-02	be19.35	9,900
Mississippi River at Bemidji [05200445]	Lat 47°27'04", long 94°54'23", in $NW^1/_4NW^1/_4$ sec. 20, T.146 N., R.33 W., Beltrami County, Hydrologic Unit 07010101, at bridge on County Highway 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	04-06-04	11.05	348	04-18-97	13.17	1,820
Boy River near Remer [05205200]	Lat 47°04'51", long 94°05'54", in $NE^1/_4NE^1/_4$ sec. 33, T.142 N., R.27 W., Cass County, Hydrologic Unit 07010102, at bridge on County Highway 53, 1.9 miles upstream from Boy Lake and 9 miles northwest of Remer [Drainage area: 289 mi^2].	1986-current year	03-28-04	bd	<315	04-10-96 07-23-87	a11.59 11.64	c660 660
Willow River below Palisade [05221020]	Lat 46°42'36", long 93°33'21", in $NW^1/_4NE^1/_4$ sec. 30, T.49 N., R.25 W., Aitkin County, Hydrologic Unit 07010103, at bridge on County Highway 3, 3.2 miles west of Palisade [Drainage area: 523 mi^2].	1972-current year	04-06-04	a13.45	c1,190	04-25-79	17.25	3,730
Hoblin Creek near Pine River [05229430]	Lat 46°41'06", long 94°30'49", in $SE^1/_4NE^1/_4$ sec. 18, T.137 N., R.30 W., Cass County, Hydrologic Unit 07010105, at culvert on township road, 3.4 miles upstream from mouth, 5.6 miles southwest of Pine River.	2002-current year	09-06-04	b7.33	5.3	07-08-02	8.38	--

Annual maximum discharge at high-flow sites during water year 2004--Continued

Station name and [Station number]	Location and [Drainage area]	Period of record	Water year 2004 maximum			Period of record maximum		
			Date	Gage height (feet)	Discharge (ft^3/s)	Date	Gage height (feet)	Discharge (ft^3/s)
Pine River near Pine River [05229450]	Lat 46°41'39", long 94°22'11", in $NE^1/_4SE^1/_4$ sec. 8, T.137 N., R.29 W., Cass County, Hydrologic Unit 07010105, at bridge on U.S. Highway 371, 2.3 miles southeast of Pine River, 4.9 miles upstream of Upper Whitefish Lake [Drainage area: 261 mi^2].	1986-current year	09-06-04	d	<300	05-14-99	5.15	1,520
Cat River near Nimrod [05244200]	Lat 46°37'49", long 94°55'51", in $SW^1/_4SW^1/_4$ 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	09-24-04	b5.35	102	10-12-73	9.43	560
Leaf River near Aldrich [05244440]	Lat 46°27'25", long 94°50'29", in $SW^1/_4SW^1/_4$ sec. 34, T.135 N., R.33 W., Wadena County, Hydrologic Unit 07010107, at bridge on County Highway 29, 3.3 miles upstream from mouth, 7.0 miles northeast of Aldrich [Drainage area: 870 mi^2].	1972-current year	03-30-04	11.21	940	04-12-01	16.40	5,800
Eagle Creek Tributary near Eagle Bend [05245190]	Lat 46°48'01", long 94°01'36", in $NW^1/_4NE^1/_4$ sec. 24, T.131 N., R.35 W., Todd County, at culvert on township road, 1.0 mile upstream from mouth, 1.0 mile south of Eagle Bend.	2003-current year	03-28-04	b7.55	--	06-24-03	8.52	--
Mississippi River near Fort Ripley [05261000]	Lat 46°10'50", long 94°21'56", in $SE^1/_4NW^1/_4$ sec. 27, T.43 N., R.32 W., Crow Wing County, on left bank 600 feet. Upstream from Nokasippi River and 1.0 mile north of Ft. Ripley. [Drainage area 11,000 mi^2, approximately].	1987-00#, 2001-current year	04-05-04	6.90	7,540	04-08-97	14.15	32,200
Nokasippi River near Fort Ripley [05261520]	Lat 46°12'02", long 94°19'03", in $NE^1/_4NE^1/_4$ sec. 24, T.43 N., R.32 W., Crow Wing County, Hydrologic Unit 07010104, at bridge on County Highway 2, 3 miles northeast of Fort Ripley [Drainage area: 193 mi^2].	1967-70†, 1974†, 1976†, 1986-current year	03-29-04	a10.26	c220	06-26-03	15.17	1,160
Platte River at Royalton [05268000]	Lat 45°50'43", long 94°17'40", in $SE^1/_4NW^1/_4$ sec. 26, T.39 N.,R.32 W., Morrison County, Hydrologic Unit 07010201, at bridge on County Highway 27, 0.6 mile north of Royalton, 6.6 miles upstream from mouth [Drainage area: 432 mi^2].	1929-36, 1972-current year	03-28-04	10.29	802	07-26-72	j7.84	6,850
Ashley Creek near Sauk Centre [05270150]	Lat 45°46'46", long 94°58'52", in $NW^1/_4SE^1/_4$ sec. 29, T.127 N., R.34 W., Todd County, Hydrologic Unit 07010202, at bridge on County Highway 11, 3 miles north of Sauk Centre [Drainage area: 119 mi^2].	1963-70†,74†, 1976†, 1986-88, 1989#, 1990-current year	07-13-04	14.84	410	04-08-01	18.00	1,020
Johnson Creek near St.Augusta [05272300]	Lat 45°27'49", long 94°09'19", in $NW^1/_4SW^1/_4$ sec. 13, T.123 N.,R.28 W., Stearns County, Hydrologic Unit 07010203, at bridge on County Highway 7, 1.0 mile south of St. Augusta, 3.3 miles upstream from mouth [Drainage area: 45.6 mi^2].	1964-current year	03-27-03	13.28	349	09-09-85	16.37	2,350
Clearwater River near South Haven [05272950]	Lat 45°16'45", long 94°15'04", in $NE^1/_4NW^1/_4$ 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 southwest of South Haven [Drainage area: 78.8 mi^2].	1985-current year	06-10-04	14.18	166	09-09-85	17.11	1,040
North Fork Crow River near Kingston [05278120]	Lat 45°12'13", long 94°23'16", in $SW^1/_4SE^1/_4$ 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	06-15-04		<1,020	05-01-86	17.82	4,850
Buffalo Creek near Glencoe [05278930]	Lat 44°45'50", long 94°05'27", in $SW^1/_4SW^1/_4$ sec. 16, T.115 N., R.27 W., McLeod County, Hydrologic Unit 07010205, at bridge on County Highway 1, 2.6 miles east of Glencoe [Drainage area: 373 mi^2].	1972-95, 1998-current year	06-14-04	18.01	2,240	09-12-91	11.78	4,300

Annual maximum discharge at high-flow sites during water year 2004--Continued

Station name and [Station number]	Location and [Drainage area]	Period of record	Water year 2004 maximum			Period of record maximum		
			Date	Gage height (feet)	Discharge (ft^3/s)	Date	Gage height (feet)	Discharge (ft^3/s)
Lake Ina Tributary near Melby [05293245]	Lat 46°03'50", long 95°43'40", in $NW^1/_4$ $NW^1/_4$ sec. 21, T.130 N., R.40 W., Douglas County, Hydrologic unit 07020002, upstream from culvert on County Road 24, at Lake Ina, 0.3 mile east of Melby.	2003-current year	07-13-04	8.11	15	06-24-03	9.95	h43
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	09-25-04	4.73	206	06-15-01	6.85	600
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, Hydrologic 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	08-24-04	15.19	126	04-01-97	26.57	2,490
Little Chippewa River near Starbuck [05302500]	Lat 45°36'52", long 95°37'12", in $NW^1/_4NE^1/_4$ sec. 30, T.125 N., R.39 W., Pope County, Hydrologic Unit 07020005, at culvert on State Highway 28, 4.4 miles west of Starbuck [Drainage area: 96.2 mi^2].	1979-current year	06-09-04	12.55	107	04-08-01	14.02	980
Chippewa River near Watson [05305000]	Lat 45°01'18", long 95° 47'25 ", in $NE^1/_4$ $NW^1/_4$ sec. 22, T.118 N., R.41 W., Chippewa County, Hydrologic Unit 07020005, 150 feet downstream from County Road 13 bridge and dam, one mile north of Watson, 5.5 miles northwest of Montevideo, and 12.1 miles above confluence with Minnesota River in Montevideo [Drainage area: 2,050 mi^2].	1910-17, 1931-36, 2001-current year	06-10-04	39.66	793	04-11-01	45.41	4,600
South Branch Yellow Medicine River near Minneota [05311400]	Lat 44°33'50", long 95°59'50", in $SE^1/_4SE^1/_4$, sec. 26, T.113 N., R.43 W., Lyon County, Hydrologic Unit 07020004, at 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	05-30-04	6.69	296	04-18-69	13.41	4,430
Ramsey Creek near Redwood Falls [05316538]	Lat 44°33'08", long 95°10'38", in $SE^1/_4NE^1/_4$ 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: 63.6 mi^2].	1991-93, 1995 - current year	05-30-04	25.22	863	06-17-93	25.94	920
Beaver Creek at Beaver Falls [05316570]	Lat 44°35'03", long 95°02'49", in $NE^1/_4NW^1/_4$ sec. 22, T.113 N., R.35 W., Renville County, Hydrologic Unit 07020004, at bridge on County Highway 2 in Beaver Falls, 2.2 miles upstream from mouth, 3.8 miles northwest of Morton [Drainage area: 191 mi^2].	1972-current year	05-30-04	10.44	989	04-02-97	14.73	3,300
Cottonwood River near Springfield [05316950]	Lat 44°12'12", long 95°02'53", in $SW^1/_4$ $NW^1/_4$ sec. 34, T.109 N., R.35 W., Brown County, Hydrologic Unit 07020008, at bridge on County Highway 2, 1.3 miles downstream 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	06-01-04	24.86	4,060	06-18-93	31.40	14,500
Minnesota River Tributary at State Highway 68 near Judson [05317330]	Lat 44°11'40", long 94°12'27", in $NW^1/_4$ $NW^1/_4$ sec. 4, T.108 N., R.28 W., Blue Earth County, Hydrologic Unit 07020007, at culvert on State Highway 68, 0.5 mile southwest of Judson, 0.4 mile above mouth [Drainage area: 0.97 mi^2].	2001-current year	06-09-04	8.37	--	06-22-02	8.84	--
East Branch Blue Earth River near Walters [05317845]	Lat 43°37'58", long 93°42'28", in $SE^1/_4SE^1/_4$ 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	09-15-04	20.54	--	08-15-93 09-15-04	18.73 20.54	657 --
Elm Creek at County Road 103 near Trimont [05318195]	Lat 43°45'27", long 94°50'30", in $NW^1/_4NW^1/_4$ sec. 5, T.103 N., R.33 W., Martin County, Hydrologic Unit 07020009, at bridge on County Road 103, 12.5 miles northeast of Jackson, 5 miles west of Trimont.	1991-current year	09-15-04	23.00	2,050	09-15-04	23.00	2,050

Annual maximum discharge at high-flow sites during water year 2004--Continued

Station name and [Station number]	Location and [Drainage area]	Period of record	Water year 2004 maximum			Period of record maximum		
			Date	Gage height (feet)	Discharge (ft^3/s)	Date	Gage height (feet)	Discharge (ft^3/s)
South Fork Watonwan River near Ormsby [05318897]	Lat 43°53'08", long 94°41'27", in $SE^1/_4NW^1/_4$ 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	07-12-04	12.74	399	05-31-80	18.40	1,920
Maple River near Rapidan [05320480]	Lat 44°03'54", long 94°01'32", in $SW^1/_4SW^1/_4$ sec. 13, T.107 N., R.27 W., Blue Earth County, Hydrologic Unit 07020011, at bridge on County Highway 35, 3.0 miles southeast of Rapidan, 3.3 miles upstream from mouth [Drainage area: 338 mi^2].	1972-current year	09-18-04	13.35	4,850	04-12-01	13.79	5,540
Minnesota River Tributary below St. Peter [05325450]	Lat 44°20'13", long 93°54'45", in $NE^1/_4NE^1/_4$ sec. 14, T.110 N., R.26 W., Le Sueur County, Hydrologic Unit 07020007, at culvert on County State Aid Highway 23, 1.8 miles east of St. Peter [Drainage area: 2.13 mi^2].	2001-current year	06-09-04	6.50	--	02-25-01	a7.20	--
Sand Creek near New Prague [05330300]	Lat 44°32'37", long 93°32'16", in $NE^1/_4NW^1/_4$ sec. 1, T.112 N., R.23 W., Le Sueur County, Hydrologic Unit 07020012, at culvert on State Highway 13 and 19, 1.9 miles east of New Prague [Drainage area: 62.2 mi^2].	1960-current year	06-12-04	10.53	254	05-21-60	14.84	1,100
Crooked Creek near Hinckley [05335170]	Lat 46°00'42", long 92°31'45", in $NE^1/_4NE^1/_4$ sec. 30, T.41 N., R.17 W., Pine County, Hydrologic Unit 07030001, at culvert on State Highway 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	05-31-04	13.73	683	04-23-01	16.65	2,100
Glaisby Brook near Kettle River [05336200]	Lat 46°27'19", long 92°51'34", in $SE^1/_4NW^1/_4$ sec. 22, T.46 N., R.20 W., Carlton County, Hydrologic Unit 07030003, at bridge on State Highways 27 and 73, 1.0 mile upstream from mouth, 2.4 miles south of Kettle River [Drainage area: 27.0 mi^2].	1960-70#, 1971-current year	06-01-04	5.37	286	07-22-72	10.18	1,370
Goose Creek at Harris [05339747]	Lat 45°35'11", long 92°58'39", in $SW^1/_4SW^1/_4$ 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	05-31-04	7.23	269	04-23-01	8.11	360
Cannon River below Sabre Lake near Kilkenny [05348550]	Lat 44°17'50", long 93°37'44", in $NE^1/_4NE^1/_4$ 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 southwest of Kilkenny [Drainage area: 87.9 mi^2].	1985-current year	06-12-04	13.54	413	04-12-01	13.83	563
Cannon River at Northfield [05355024]	Lat 44°27'19", long 93°09'46", in $NE^1/_4NE^1/_4$ 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	06-11-04	905.29	8,320	04-12-01	905.40	8,370
Milliken Creek near Concord [05373080]	Lat 44°07'13", long 92°49'08", in $NW^1/_4NW^1/_4$ 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	09-16-04	15.66	--	06-13-01	15.80	3,470
Zumbro River at Zumbro Falls [05374000]	Lat 44°17'12", long 92°25'56", in $NE^1/_4$ $SE^1/_4$ sec. 36, T.110 N., R.14 W., Wabasha County, Hydrologic Unit 07040004, in Zumbro Falls, 1,000 feet downstream from Cold Creek, 0.7 mile upstream from bridge on U.S. Highway 63, and 6.3 miles downstream from North Fork [Drainage area: 1,150 mi^2].	1909-17#, 1929-80#, 1990-current year	09-16-04	23.16	19,900	07-21-51	30.80	35,900
Cedar Creek near Ridgeway [05380100]	Lat 43°56'49", long 91°33'59", in $NW^1/_4NE^1/_4$ sec. 32, T.106 N., R.6 W., Winona County, Hydrologic Unit 07040003, at bridge on County Road 9, 2.9 miles northeast of Witoka, 6 miles southeast of Winona [Drainage area: 7.16 mi^2].	2001-current year	09-15-04	13.86	--	09-15-04	13.86	--

Annual maximum discharge at high-flow sites during water year 2004--Continued

Station name and [Station number]	Location and [Drainage area]	Period of record	Water year 2004 maximum			Period of record maximum		
			Date	Gage height (feet)	Discharge (ft^3/s)	Date	Gage height (feet)	Discharge (ft^3/s)
Root River at Rushford [05384350]	Lat 43°48'11", long 91°45'10", in $NE^1/_4NE^1/_4$ sec. 23, T.104 N., R.8 W., Fillmore County, Hydrologic Unit 07040008, at U.S. Highway 16 bridge on south side of Rushford, 0.2 mile upstream from Rush Creek [Drainage area: 992 mi^2].	1985- current year	09-16-04	k27.28	--	06-02-00 09-16-04	26.35 k27.28	32,400 --
Rush Creek near Rushford [05384500]	Lat 43°50'00", long 91°46'40", in $SW^1/_4SW^1/_4$ 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	09-15-04	8.85	4,610	03-26-50	13.54	11,600
Cambell Valley Creek near Money Creek [05384800]	Lat 43°49'54", long 91°34'53", in $NE^1/_4$ $NW^1/_4$ sec. 8, T.104 N., R.6 W., Houston County, Hydrologic Unit 07040008, at triple box culvert on County State Aid Highway 26, 1.8 miles northwest of Money Creek [Drainage area: 6.82 mi^2].	2001- current year	09-15-04	4.80	--	09-15-04	4.80	--
South Fork Root River near Houston [05385500]	Lat 43°44'19", long 91°33'50", in $NE^1/_4SW^1/_4$ 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 Houston [Drainage area: 275 mi^2].	1953-83#, 1985- current year	03-06-04	11.53	3,640	06-01-00	14.90	13,800
Crooked Creek at Freeburg [05387030]	Lat 43°36'37", long 91°21'39", in $SW^1/_4NE^1/_4$ 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	03-05-04	12.59	797	03-04-92	19.02	2,200
Little Cedar River near Johnsburg [05457778]	Lat 43°30'52", long 92°45'19", in $NW^1/_4NE^1/_4$ sec. 33, T.101 N., R.16 W., Mower County, Hydrologic Unit 07080201, at bridge on County Road 6, 1 mile northeast of Johnsburg, 1 mile north of Minnesota-Iowa border [Drainage area: 45.8 mi^2].	1986- current year	09-15-04	18.90	--	08-16-93 09-15-04	17.58 --	9,280 --
Bancroft Creek at Bancroft [05458960]	Lat 43°42'09", long 93°21'23", in $SW^1/_4SE^1/_4$ 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	09-15-04	9.57	f940	06-14-01 09-15-04	8.81 f9.57	1,070 --
Elk Creek near Brewster [05474900]	Lat 43°40'43", long 95°27'10", in $NE^1/_4SE^1/_4$ sec. 36, T.102 N., R.39 W., Nobles County, Hydrologic Unit 07100001, at bridge on County Highway 1, 0.7 miles south of Brewster.	1996- current year	07-11-04	22.62	1,100	05-30-01	25.29	4,000
East Fork Des Moines River above Ceylon [05476989]	Lat 43°33'53", long 94°39'15", in $NW^1/_4SW^1/_4$ 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	09-22-04	19.44	755	07-05-93	21.65	1,350
North Branch Pipestone Creek near Pipestone [06482500]	Lat 44°04'54", long 96°18'27", in $SE^1/_4SE^1/_4$ 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 Pipestone" [Drainage area: 31.5 mi^2].	1991- current year	06-16-04	19.86	1,760	05-08-93	20.28	2,650
Beaver Creek at Valley Springs, South Dakota [06482745]	Lat 43°35'10", long 96°28'20", in $NW^1/_4NW^1/_4$ 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 Interstate 90 [Drainage area: 104 mi^2].	1986- current year	05-30-04	b17.55	412	06-13-94	24.89	2,280

Annual maximum discharge at high-flow sites during water year 2004--Continued

Station name and [Station number]	Location and [Drainage area]	Period of record	Water year 2004 maximum			Period of record maximum		
			Date	Gage height (feet)	Discharge (ft^3/s)	Date	Gage height (feet)	Discharge (ft^3/s)
Rock River Tributary at County Highway 18 near Hatfield [06482910]	Lat 43°56'38", long 96°06'13", in $SW^1/_4NW^1/_4$ sec. 35, T.106 N., R.44 W., Pipestone County, Hydrologic Unit 10170204, at culvert on County State Aid Highway 18, 1.5 miles upstream of mouth, 4 miles east of Hatfield, 5 miles north of Edgerton [Drainage area: 3.28 mi^2].	2001-current year	06-16-04	6.31	206	06-16-04	6.31	206
Chanarambi Creek near Edgerton [06482933]	Lat 43°53'59", long 96°03'39", in $NW^1/_4SW^1/_4$ sec. 18, T.105 N., R.43 W., Murray County, Hydrologic Unit 10170204, at bridge on township road, 3.8 miles northeast of Edgerton, 7.4 miles upstream from mouth [Drainage area: 57.3 mi^2].	1979-current year	06-16-04	16.14	820	04-23-01 05-08-93	16.79 f18.14	928 c850
Champepadan Creek at County Road 18 near Leota [06482970]	Lat 43°47'24", long 96°00'40", in $NW^1/_4NW^1/_4$ sec. 28, T.104 N., R. 43 W., Nobles County, Hydrologic Unit 10170204, at bridge on County Road 18, near junction with County Road 19, 3 miles south of Leota [Drainage area: --].	1996-current year	06-16-04	15.91	661	04-23-01	17.54	895
Rock River at Luverne [06483000]	Lat 43°39'15", long 96°12'03", in $SW^1/_4$ $NE^1/_4$ sec. 11, T.102 N., R45 W., Rock County, Hydrologic Unit 10170204, at bridge on Main Street (County Highway 4) in Luverne [Drainage area: 419 mi^2].	1911-14#, 1968-69, 1971-current year	06-18-04	7.92	3,240	05-08-93	14.23	c35,400
Elk Creek near Lismore [06483020]	Lat 43°41'38", long 96°00'46", in $NE^1/_4SE^1/_4$ sec. 29, T.103 N., R. 43 W., Nobles County, Hydrologic Unit 10170204, at bridge on County Road 19, 4.6 miles southwest of Lismore [Drainage area: 4.62 mi^2].	1996-current year	03-02-04	a15.11	19	06-14-01	15.62	--
Little Rock River near Rushmore [06483350]	Lat 43°32'36", long 95°48'58", in $NE^1/_4NE^1/_4$ 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 [Drainage area: 45.8 mi^2].	1991-current year	07-06-04	b23.49	524	07-11-93	27.04	4,290
Little Rock Creek near Rushmore [06483353]	Lat 43°32'37", long 95°50'50", in $NE^1/_4NW^1/_4$ 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 [Drainage area: 32.1 mi^2].	1996-current year	05-31-04	b21.54	110	05-30-01	27.99	3,070
Little Sioux River near Spafford [06603530]	Lat 43°36'08", long 95°15'27", in $NE^1/_4NE^1/_4$ sec. 34, T.102 N., R.37 W., Jackson County, Hydrologic Unit 10230003, at bridge on township road, 1.6 miles downstream from Jackson County ditch No. 11, 5.8 miles east of Spafford [Drainage area: 40.5 mi^2].	1962-current year	07-07-04	10.09	850	06-29-69	12.06	4,500

< less than

Operated as a continuous-record gaging station.

† Operated as a low-flow site.

a Backwater from ice.

b Not annual maximum.

c Estimated.

d Did not reach bottom of gage

e From high-water mark.

f Backwater from beaver dam

g Backwater from Lake Traverse.

h Peak flow determined from indirect measurement.

i Control changed 1997.

j Datum changed 1986

k Possible backwater from Rush Creek.

Discharge at Miscellaneous Sites

Discharge measurements made at miscellaneous sites during the 2004 water year are listed in the following table. Those measurements of base flow are designated by an asterisk (*) and a revised station ID (a). Stations previously published as Continuous Record Sites are designated by an (#), those sites published as an High-Flow Partial-Record are designated by an (+).

Stream Name and [Station No.]	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements	
					Date	Discharge (ft^3/s)
		Lake Superior Basin				
Brule River near Hoveland (04011000)	Lake Superior	Lat 47°49'06", long 90°03'04", in SE1/4 SW1/4 sec. 27, T.62 N., R.03 W., Cook County, Hydrologic Unit 04010101, at bridge on U.S. Highway 61, 0.3 mile upstream from mouth, 4.5 miles southwest of Hovland.	--	1912, 1970-71, 74-76, 1980, 1983, 1986-87, 2002-03	04-07-04	591
Popular River at Superior National Golf Course near Lutsen (04012500)	Lake Superior	Lat 47°38'29", long 90°42'36" in SW1/4 NE1/4 sec. 33, T.60 N., R.03 W., Cook County, Hydrologic Unit 04010101, at golf course 500 ft upstream from U.S. Highway 61, 2 miles southwest of Lutsen.	112	#1912-17, #1928-47, #1952-61, +1972-80, 2001-03	04-07-04 04-19-04	253 727
Sucker Creek at Co. Rd. 290 near Palmers (04015339)	Lake Superior	Lat 46°55'57", long 91°51'29", in NW1/4 SE1/4 sec. 4, T.05 N., R.12 W., St. Louis County, Hydrologic Unit 04010102, at culvert on County Road 290, 1 mile northwest of Palmers, 0.4 mile above U.S. Highway 61 and 0.7 mile above site 04015340.	--	2001-03	04-06-04	147
Talmadge River at Co. Rd. 281 near Du**lu**th (04015368)	Lake Superior	Lat 46°53'49", long 91°56'30", in SE1/4 SE1/4 sec. 14, T.51 N., R.13 W., St. Louis County, Hydrologic Unit 04010102, at bridge on County Road 281, 1.1 miles above site 04015370, 1.3 miles northwest of Clifton	--	2001-03	04-06-04	22.6
Amity Creek at Dulth [a](04015387)	Lake Superior	Lat 46°50'39", long 92°00'36", in SE1/4 NE1/4 sec. 5, T.50 N., R.13 W., St. Louis County, Hydrologic Unit 04010102, at bridge on Parkway Road, 0.4 mile upstream from Lester River, 6 miles northeast of aerial Bridge in Duluth.	16.2	1970-71, 1974, 1976, 1980, 1983, 1986, 2001-03	04-06-04	90.8
		Mississippi River Basin				
Mississippi River at Franklin Ave in Minneapolis (05288930)	Gulf of Mexico	Lat 44°57'49", long 93°13'22", in SW1/4 SW1/4 sec. 30, T.29 N., R.23 W., Hennepin County, Hydrologic Unit 07010206, at Franklin Ave. Bridge, at River mile 853.2 above mouth of Ohio River, in Minneapolis.		1976-82, 84-86, 90-93, 95-97, 99-00, 2003	06-16-04	17,700
Mississippi River at Ford Plant in St. Paul (05288950)	Gulf of Mexico	Lat 44°54'57", long 93°21'59", in NE1/4 NW1/4 sec. 17, T.28 N., R.23 W., Ramsey County, Hydrologic unit 07010206, at Ford Motor Company hydroelectric plant, 800 ft downstream from Ford Parkway bridge in St. Paul, 3.5 miles upstream from Minnesota River, and at River mile 847.6 upstream from Ohio River.	a 19,700	1924,1935, 1938-39, 1941, 1943, 1945-50, 1954, 1957, 1959, 1961-62, 1964-70, 1972-85, 1987-88, 2003	06-03-04	16,700
		Minnesota River Basin				
County Ditch No. 24 near Clements (05316983)	Cottonwood River	Lat 44°20'31", long 94°59'54", in SE1/4 SW1/4 sec. 12, T.110 N., R.35 W., Redwood County, Hydrologic Unit 07020008, Measured 0.1 mile upstream of bridge on County Road 4, 3.7 miles southwest of Clements, 7.2 miles north of Springfield.	27.22	--	10-06-04	2.91
		Minnesota River basin - continued				
North Branch Rush River at Sibley County Rd. 9 near New Rome (05326090)	Rush River	Lat 44°30'48", long 94°05'26", in NE1/4 NE1/4 sec. 17, T.112 N., R.27 W., Sibley County, Hydrologic Unit 07020012, at bridge on County Road 9, 6 miles south of Arlington, 2 miles south of New Rome.	--	2002-03	03-31-04 06-09-04 06-10-04	4.58 530 664
Middle Branch Rush River at Co. Rd. 13 near New Sweden (05326105)	Rush River	Lat 44°28'32", long 94 09'00", in NW1/4 SW1/4 sec. 25, T.112 N., R.28 W., Sibley County, Hydrologic Unit 07020012, at bridge on County Road 13, 5 miles northeast of New Sweden.	--	2002-03	05-24-04 06-10-04	343 617
South Branch Rush River at Co. Rd. 13, near Norseland (05326189)	Rush River	Lat 44°27'55", long 94°09'00", in SE1/4 SE1/4 NE1/4 sec. 35, T.112 N., R.28 W., Sibley County, Hydrologic Unit, 07020012, at bridge on County Road 13, 3.3 miles north west of Norseland.	--	2003	03-31-04 05-24-04	7.77 338

Stream Name and [Station No.]	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements	
					Date	Discharge (ft^3/s)
Judical Ditch 1A near Norseland (05326205)	South Branch Rush River	Lat 44°26'36", long 94°07'12, in SE1/4 SW1/4 sec. 6, T.111 N., R.27 W., Nicollet County, Hydrologic Unit 07020012, at bridge on County Road 3, 2.2 miles north of Norseland.	--	2002-03	05-24-04 06-10-04	284 637
Rush River near Henderson (05326400)	Minnesota River	Lat 44°29'57", long 93°54'18", in NW1/4 NW1/4 sec. 24, T.112 N., R.26 W., Sibley County, Hydrologic Unit 07020012, at bridge on State Highway 93, 0.4 mile upstream from mouth, and 2.0 miles south of Henderson.	397	1970-71, 1976, 1979-80, 1984-85, 1987-92, 2000-03	05-24-04	1,110
Silver Creek near East Union (05329898)	Minnesota River	Lat 44°41'29", long 93°44'14", in SE1/4 SW1/4 sec. 8, T.114 N., R.24 W., Carver County, Hydrologic Unit 07020012, Measured 3.3 mile upstream of bridge on County Road 41, 0.8 mile southwest of East Union, 4.6 miles northeast of Belle Plain.	13.49	--	07-28-04	3.28
		St. Croix River basin				
Rush Creek near Rush City (05339721)	St.Croix River	Lat 45°39'22", long 92°53'25", in NE1/4 NW1/4 sec. 31, T.37 N., R.20 W., Chisago County, Hydrologic Unit 07030005, Measured 0.1 mile upstream of 487th St. bridge, 4 miles southeast of Rush City, 0.3 mile above mouth.	22.91	--	07-27-04	23.4
		Cannon River basin				
Devil Creek near Moristown (05351400)	Cannon River	Lat 44°14'51", long 93°27'45", in SW1/4 NW1/4 sec. 15, T.109 N., R.22 W., Rice County, Hydrologic Unit 070400002, Measured 0.5 below culvert on County Road 16 (230th St West), 1.5 miles northwest of Morristown, 0.5 mile above mouth.	20.25	1965, 1985, 1987-89, 2000	08-15-04	9.26
		Wells Creek basin				
Wells Creek near Belvidere Mills (05355307)	Mississippi River	Lat 44°27'28", long 92°28'38", in SW1/4 SE1/4 sec. 34, T.112 N., R.14 W., Goodhue County, Hydrologic Unit 07040001, Measured upstream of bridge on County Road 45, 8 miles southwest of Frontenac, 9.8 miles west of Lake City, 1.6 miles east of Belvidere Mills.	1.13	--	09-03-04	14.1
		Whitewater River basin				
Trout Creek near Weaver (05377508)	Whitewater River	Lat 44°12'02", long 91°56'40", in SW1/4 NW1/4 sec. 31, T.109 N., R.9 W., Wabasha County, Hydrologic Unit 07040003, Measured 0.4 mile below bridge on Trout Creek Trail, 1.2 mile south west of Weaver, 0.2 mile above mouth.	17.47	--	09-03-04	6.38
		Deering Valley Creek basin				
Deering Valley Creek near Whitman (05377550)	Mississippi River	Lat 44°08'03", long 91°47'19", in NW1/4 NE1/4 sec. 28, T.108 N., R.8 W., Winona County, Hydrologic Unit 07040003, Measured 0.2 mile upstream of U.S. Highway 61, 1.6 miles southeast of Whitman, 3.2 miles north of Minnesota City.	--	--	08-14-04	1.31
		Root River basin				
Duschee Creek above Lanesboro (05384110)	Root River	Lat 43°41'58", long 91°59'24", in NE1/4 NE1/4 sec. 26, T.103 N., R.10 W., Fillmore County, Hydrologic Unit 07040008, Measured 0.2 mile upstream of the Minnesota Department of Natural Resources Fish Hatchery outfall, 1 mile southwest of Lanesboro.	22.83	--	09-02-04	7.55

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Analysis of Samples Collected at Miscellaneious Sites

GLACIAL RIDGE HYDROLOGY GROUND-WATER WATER QUALITY

MISCELLANEOUS STATION ANALYSES

Date	Time	Sample type	Depth to water level, feet below LSD (72019)	Turbidity, water, unfltrd field, NTU (61028)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf lab, uS/cm 25 degC (90095)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, air, deg C (00020)
473945096202401 E01D-R 148N45W01CBDD L107 0000516287 (LAT 47 39 44N LONG 096 20 24W)												
OCT 2003												
22...	1635	Environmental	--	--	--	M	.0	7.7	--	--	733	--
APR 2004												
23...	1345	Environmental	--	--	745	.2	2	7.6	--	--	732	--
JUL												
13...	1300	Environmental	--	31	730	.5	5	6.8	7.8	705	745	23.7
473945096202402 E01S-R 148N45W01CBDD L000 0000249810 (LAT 47 39 44N LONG 096 20 24W)												
OCT 2003												
22...	1605	Environmental	7.00	--	--	2.0	20	7.2	--	--	690	--
APR 2004												
23...	1320	Environmental	6.25	--	745	1.2	10	7.1	--	--	669	--
JUL												
13...	0930	Environmental	9.59	420	731	5.9	61	5.9	7.3	692	732	23.7
474129096145201 E02D 149N44W26DACD Stock well near G09S (LAT 47 41 29N LONG 096 14 52W)												
OCT 2003												
22...	1455	Environmental	--	--	--	.2	2	7.5	--	--	597	--
APR 2004												
22...	1515	Environmental	11.61	--	741	.1	.0	7.9	--	--	590	--
JUL												
21...	0930	Environmental	--	450	722	2.8	26	7.6	7.7	588	604	27.5
21...	0935	Replicate	--	450	727	2.8	26	7.6	7.7	590	604	29.0
474436096140801 E03-R 149N44W12BADA S12 Ob. Well 1 0000654754 (LAT 47 44 35N LONG 096 14 07W)												
OCT 2003												
22...	1025	Environmental	8.78	--	--	1.2	11	7.3	--	--	732	--
APR 2004												
22...	1642	Replicate	--	--	--	--	--	--	--	--	--	--
23...	1640	Environmental	7.95	--	745	.5	4	7.1	--	--	722	--
JUL												
14...	1400	Environmental	7.87	220	732	1.0	9	7.2	E7.3	691	587	29.5
474309096122001 E04D-R 149N43W18DDBA Ob. Well 4, NWF 0000654761 (LAT 47 43 08N LONG 096 12 20W)												
JUL 2004												
22...	1400	Environmental	4.81	7.3	732	4.8	43	7.4	7.5	478	486	19.2
474719096163100 E05-R 150N44W27ABBA L058 (LAT 47 47 20N LONG 096 16 34W)												
JUL 2004												
20...	1515	Environmental	--	11	727	4.9	51	8.1	7.9	487	489	31.0
474207096171101 E15 149N44W22CCCD RR Well 0000221063 (LAT 47 42 07N LONG 096 17 11W)												
JUL 2004												
22...	1700	Environmental	--	100	734	.1	1	7.6	7.6	776	794	21.5
474220096154101 E24 149N44W23CBDD E. Sheep Lot Well (LAT 47 42 20N LONG 096 15 41W)												
JUL 2004												
20...	1100	Environmental	5.66	63	726	<.1	<1	7.8	7.6	571	583	29.5
474224096160501 E25 149N44W22DADB W. Sheep Lot Well (LAT 47 42 24N LONG 096 16 06W)												
JUL 2004												
20...	0845	Environmental	-.40	15	726	6.8	62	7.4	7.6	706	721	29.2
474334096111601 E41 149N43W17ACAB HeggisFlowingWell(LAT474333NLONG0961115W)'												
JUL 2004												
22...	1530	Environmental	--	41	733	2.0	19	7.4	7.5	603	612	20.7

GLACIAL RIDGE GROUND-WATER WATER QUALITY—Continued

MISCELLANEOUS STATION ANALYSES—CONTINUED

Date	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (90410)	Alkalinity, wat flt inc tit field, mg/L as CaCO3 (39086)	Bicarbonate, wat flt incrm. titr., field, mg/L (00453)	Carbonate, wat flt incrm. titr., field, mg/L (00452)	Chloride, water, fltrd, mg/L (00940)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)
473945096202401 E01D-R 148N45W01CBDD L107 0000516287 (LAT 47 39 44N LONG 096 20 24W)													
OCT 2003													
22...	11.7	--	--	--	--	385	470	.0	--	--	--	3.44	<.06
APR 2004													
23...	8.0	--	--	--	--	386	471	.0	--	--	--	3.08	<.06
JUL													
13...	11.7	43.4	26.9	78.5	--	378	461	.0	7.87	27.4	21.9	3.31	E.04
473945096202402 E01S-R 148N45W01CBDD L000 0000249810 (LAT 47 39 44N LONG 096 20 24W)													
OCT 2003													
22...	13.1	--	--	--	--	361	440	.0	--	--	--	.13	.82
APR 2004													
23...	7.0	--	--	--	--	333	406	.0	--	--	--	.11	5.67
JUL													
13...	14.4	97.4	30.1	6.34	--	315	379	.0	8.68	13.8	16.1	.08	13.4
474129096145201 E02D 149N44W26DACD Stock well near G09S (LAT 47 41 29N LONG 096 14 52W)													
OCT 2003													
22...	10.6	--	--	--	--	306	374	.0	--	--	--	.85	<.06
APR 2004													
22...	7.7	--	--	--	--	308	376	.0	--	--	--	.87	<.06
JUL													
21...	9.7	58.5	29.8	30.2	--	314	383	.0	1.02	25.3	23.7	.89	<.06
21...	9.7	59.0	30.0	30.4	272	--	--	--	1.02	25.3	23.8	.89	<.06
474436096140801 E03-R 149N44W12BADA S12 Ob. Well 1 0000654754 (LAT 47 44 35N LONG 096 14 07W)													
OCT 2003													
22...	8.4	--	--	--	--	256	312	.0	--	--	--	<.04	15.4
APR 2004													
22...	--	--	--	--	--	--	--	--	--	--	--	<.04	6.64
23...	8.8	--	--	--	--	292	356	.0	--	--	--	<.04	6.77
JUL													
14...	9.0	90.2	36.5	6.12	221	298	363	.0	15.8	12.1	45.6	<.04	5.33
474309096122001 E04D-R 149N43W18DDBA Ob. Well 4, NWF 0000654761 (LAT 47 43 08N LONG 096 12 20W)													
JUL 2004													
22...	9.2	69.3	23.6	3.51	183	267	326	.0	.62	24.1	13.5	.08	<.06
474719096163100 E05-R 150N44W27ABBA L058 (LAT 47 47 20N LONG 096 16 34W)													
JUL 2004													
20...	14.6	52.3	34.6	4.13	200	226	276	.0	6.73	15.1	6.1	<.04	6.03
474207096171101 E15 149N44W22CCCD RR Well 0000221063 (LAT 47 42 07N LONG 096 17 11W)													
JUL 2004													
22...	11.4	76.9	43.6	38.3	281	420	513	.0	2.35	26.1	38.5	1.43	<.06
474220096154101 E24 149N44W23CBDD E. Sheep Lot Well (LAT 47 42 20N LONG 096 15 41W)													
JUL 2004													
20...	11.0	72.6	30.1	12.7	305	319	389	.0	1.41	26.6	16.7	.42	<.06
474224096160501 E25 149N44W22DADB W. Sheep Lot Well (LAT 47 42 24N LONG 096 16 06W)													
JUL 2004													
20...	8.8	78.9	37.1	31.4	332	361	440	.0	1.60	26.2	42.3	1.10	<.06
474334096111601 E41 149N43W17ACAB HeggisFlowingWell(LAT474333NLONG0961115W)'													
JUL 2004													
22...	10.0	74.7	31.6	14.5	251	332	405	.0	.69	26.0	7.5	.46	<.06

GLACIAL RIDGE GROUND-WATER WATER QUALITY—Continued

MISCELLANEOUS STATION ANALYSES—CONTINUED

Date	Nitrite water, fltrd, mg/L as N (00613)	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Phos-phorus, water, fltrd, mg/L (00666)	Total nitro-gen, wat flt by anal ysis, mg/L (62854)	Iron, water, fltrd, ug/L (01046)	Mangan-ese, water, fltrd, ug/L (01056)	2-[(2-Ethyl-6methyl phenyl) amino]2 oxoESA ug/L (62850)	CIAT, water, fltrd, ug/L (04040)	CEAT, water, fltrd, ug/L (04038)	Aceto-chlor ESA, water, fltrd 0.7u GF ug/L (61029)	Aceto-chlor OA, water, fltrd 0.7u GF ug/L (61030)	Aceto-chlor SAA, water, fltrd, ug/L (62847)	Aceto-chlor, water, fltrd, ug/L (49260)
473945096202401 E01D-R 148N45W01CBDD L107 0000516287 (LAT 47 39 44N LONG 096 20 24W)													
OCT 2003													
22...	<.008	.254	.27	3.94	--	--	--	--	--	--	--	--	--
APR 2004													
23...	<.008	.280	.29	3.66	--	--	--	--	--	--	--	--	--
JUL													
13...	<.008	.273	.24	3.65	818	36.4	<.02	<.05	<.05	<.02	<.02	<.02	<.02
473945096202402 E01S-R 148N45W01CBDD L000 0000249810 (LAT 47 39 44N LONG 096 20 24W)													
OCT 2003													
22...	<.008	E.003	.005	1.22	--	--	--	--	--	--	--	--	--
APR 2004													
23...	E.006	<.006	.004	5.79	--	--	--	--	--	--	--	--	--
JUL													
13...	<.008	<.006	.004	13.3	E4	131	<.02	<.05	<.05	<.02	<.02	<.02	<.02
474129096145201 E02D 149N44W26DACD Stock well near G09S (LAT 47 41 29N LONG 096 14 52W)													
OCT 2003													
22...	<.008	.030	.044	.99	--	--	--	--	--	--	--	--	--
APR 2004													
22...	<.008	.021	.029	1.03	--	--	--	--	--	--	--	--	--
JUL													
21...	<.008	.035	.049	1.01	863	29.9	<.02	<.05	<.05	<.02	<.02	<.02	<.02
21...	<.008	.039	.061	1.12	869	30.6	<.02	<.05	<.05	<.02	<.02	<.02	<.02
474436096140801 E03-R 149N44W12BADA S12 Ob. Well 1 0000654754 (LAT 47 44 35N LONG 096 14 07W)													
OCT 2003													
22...	.079	<.006	.005	15.3	--	--	--	--	--	--	--	--	--
APR 2004													
22...	.069	<.006	.004	6.76	--	--	--	--	--	--	--	--	--
23...	.068	<.006	E.004	6.79	--	--	--	--	--	--	--	--	--
JUL													
14...	.025	<.006	.004	5.32	E4	132	<.02	.12	.08	<.02	<.02	<.02	<.02
474309096122001 E04D-R 149N43W18DDBA Ob. Well 4, NWF 0000654761 (LAT 47 43 08N LONG 096 12 20W)													
JUL 2004													
22...	<.008	.012	.022	.13	1,050	71.1	<.02	<.05	<.05	<.02	<.02	<.02	<.02
474719096163100 E05-R 150N44W27ABBA L058 (LAT 47 47 20N LONG 096 16 34W)													
JUL 2004													
20...	<.008	<.006	E.003	6.25	<6	E.6	<.02	<.05	<.05	<.02	<.02	<.02	<.02
474207096171101 E15 149N44W22CCCD RR Well 0000221063 (LAT 47 42 07N LONG 096 17 11W)													
JUL 2004													
22...	<.008	.058	.067	1.65	2,970	35.1	<.02	<.05	<.05	<.02	<.02	<.02	<.02
474220096154101 E24 149N44W23CBDD E. Sheep Lot Well (LAT 47 42 20N LONG 096 15 41W)													
JUL 2004													
20...	<.008	.014	.031	.54	1,030	61.7	<.02	<.05	<.05	<.02	<.02	<.02	<.02
474224096160501 E25 149N44W22DADB W. Sheep Lot Well (LAT 47 42 24N LONG 096 16 06W)													
JUL 2004													
20...	<.008	.096	.114	1.23	1,340	43.2	<.02	<.05	<.05	<.02	<.02	<.02	<.02
474334096111601 E41 149N43W17ACAB HeggisFlowingWell(LAT474333NLONG0961115W)'													
JUL 2004													
22...	<.008	.013	.025	.60	755	53.5	<.02	<.05	<.05	<.02	<.02	<.02	<.02

GLACIAL RIDGE GROUND-WATER WATER QUALITY—Continued

MISCELLANEOUS STATION ANALYSES—CONTINUED

Date	Alachlor ESA SA, water, fltrd, ug/L (62849)	Alachlor ESA, water, fltrd 0.7u GF ug/L (50009)	Alachlor OA, water, fltrd 0.7u GF ug/L (61031)	Alachlor SAA, water, fltrd, ug/L (62848)	Alachlor, water, fltrd, ug/L (46342)	Ametryn water, fltrd, ug/L (38401)	Atrazine, water, fltrd, ug/L (39632)	Cyanazine amide, water, fltrd, ug/L (61709)	Cyanazine, water, fltrd, ug/L (04041)	Dimethenamid ESA, water, fltrd, ug/L (61951)	Dimethenamid OA, water, fltrd, ug/L (62482)	Dimethenamid water, fltrd, ug/L (61588)	Flufenacet ESA, water, fltrd, ug/L (61952)
473945096202401 E01D-R 148N45W01CBDD L107 0000516287 (LAT 47 39 44N LONG 096 20 24W)													
JUL 13...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.02	<.02	<.02	<.02
473945096202402 E01S-R 148N45W01CBDD L000 0000249810 (LAT 47 39 44N LONG 096 20 24W)													
JUL 13...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.02	<.02	<.02	<.02
474129096145201 E02D 149N44W26DACD Stock well near G09S (LAT 47 41 29N LONG 096 14 52W)													
JUL 21...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.02	<.02	<.02	<.02
21...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.02	<.02	<.02	<.02
474436096140801 E03-R 149N44W12BADA S12 Ob. Well 1 0000654754 (LAT 47 44 35N LONG 096 14 07W)													
JUL 14...	<.02	.56	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.02	<.02	<.02	<.02
474309096122001 E04D-R 149N43W18DDBA Ob. Well 4, NWF 0000654761 (LAT 47 43 08N LONG 096 12 20W)													
JUL 2004 22...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.02	<.02	<.02	<.02
474719096163100 E05-R 150N44W27ABBA L058 (LAT 47 47 20N LONG 096 16 34W)													
JUL 2004 20...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.02	<.02	<.02	<.02
474207096171101 E15 149N44W22CCCD RR Well 0000221063 (LAT 47 42 07N LONG 096 17 11W)													
JUL 2004 22...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.02	<.02	<.02	<.02
474220096154101 E24 149N44W23CBDD E. Sheep Lot Well (LAT 47 42 20N LONG 096 15 41W)													
JUL 2004 20...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.02	<.02	<.02	<.02
474224096160501 E25 149N44W22DADB W. Sheep Lot Well (LAT 47 42 24N LONG 096 16 06W)													
JUL 2004 20...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.02	<.02	<.02	<.02
474334096111601 E41 149N43W17ACAB HeggisFlowingWell(LAT474333NLONG0961115W)'													
JUL 2004 22...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.02	<.02	<.02	<.02

GLACIAL RIDGE GROUND-WATER WATER QUALITY—Continued

MISCELLANEOUS STATION ANALYSES—CONTINUED

Date	Flufenacet OA, water, fltrd, ug/L (62483)	Flufenacet, water, fltrd, ug/L (62481)	Metolachlor ESA, water, fltrd 0.7u GF ug/L (61043)	Metolachlor OA, water, fltrd 0.7u GF ug/L (61044)	Metolachlor, water, fltrd, ug/L (39415)	Metribuzin, water, fltrd, ug/L (82630)	Pendimethalin, water, fltrd 0.7u GF ug/L (82683)	Prometon, water, fltrd, ug/L (04037)	Prometryn, water, fltrd, ug/L (04036)	Propachlor ESA, water, fltrd 0.7u GF ug/L (62766)	Propachlor OA, water, fltrd 0.7u GF ug/L (62767)	Propachlor, water, fltrd, ug/L (04024)	Propazine, water, fltrd, ug/L (38535)
473945096202401 E01D-R 148N45W01CBDD L107 0000516287 (LAT 47 39 44N LONG 096 20 24W)													
JUL 13...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.05	<.02	<.02	<.05
473945096202402 E01S-R 148N45W01CBDD L000 0000249810 (LAT 47 39 44N LONG 096 20 24W)													
JUL 13...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.05	<.02	<.02	<.05
474129096145201 E02D 149N44W26DACD Stock well near G09S (LAT 47 41 29N LONG 096 14 52W)													
JUL 21...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.05	<.02	<.02	<.05
21...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.05	<.02	<.02	<.05
474436096140801 E03-R 149N44W12BADA S12 Ob. Well 1 0000654754 (LAT 47 44 35N LONG 096 14 07W)													
JUL 14...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.05	<.02	<.02	<.05
474309096122001 E04D-R 149N43W18DDBA Ob. Well 4, NWF 0000654761 (LAT 47 43 08N LONG 096 12 20W)													
JUL 2004 22...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.05	<.02	<.02	<.05
474719096163100 E05-R 150N44W27ABBA L058 (LAT 47 47 20N LONG 096 16 34W)													
JUL 2004 20...	<.02	<.02	<.02	<.02	.03	<.05	<.05	<.05	<.05	<.05	<.02	<.02	<.05
474207096171101 E15 149N44W22CCCD RR Well 0000221063 (LAT 47 42 07N LONG 096 17 11W)													
JUL 2004 22...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.05	<.02	<.02	<.05
474220096154101 E24 149N44W23CBDD E. Sheep Lot Well (LAT 47 42 20N LONG 096 15 41W)													
JUL 2004 20...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.05	<.02	<.02	<.05
474224096160501 E25 149N44W22DADB W. Sheep Lot Well (LAT 47 42 24N LONG 096 16 06W)													
JUL 2004 20...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.05	<.02	<.02	<.05
474334096111601 E41 149N43W17ACAB HeggisFlowingWell(LAT474333NLONG0961115W)'													
JUL 2004 22...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.05	<.02	<.02	<.05

GLACIAL RIDGE GROUND-WATER WATER QUALITY—Continued

MISCELLANEOUS STATION ANALYSES—CONTINUED

Date	Sima-zine, water, fltrd, ug/L (04035)	Ter-butryn, water, fltrd, ug/L (38888)	Deu-terium/ Protium ratio, water, unfltrd per mil (82082)	O-18 / O-16 ratio, water, unfltrd per mil (82085)
473945096202401 E01D-R 148N45W01CBDD L107 0000516287 (LAT 47 39 44N LONG 096 20 24W)				
JUL 13...	<.05	<.05	-102	-13.52
473945096202402 E01S-R 148N45W01CBDD L000 0000249810 (LAT 47 39 44N LONG 096 20 24W)				
JUL 13...	<.05	<.05	-70.90	-9.95
474129096145201 E02D 149N44W26DACD Stock well near G09S (LAT 47 41 29N LONG 096 14 52W)				
JUL 21...	<.05	<.05	-79.10	-10.25
21...	<.05	<.05	-79.10	-10.31
474436096140801 E03-R 149N44W12BADA S12 Ob. Well 1 0000654754 (LAT 47 44 35N LONG 096 14 07W)				
JUL 14...	<.05	<.05	-75.90	-10.12
474309096122001 E04D-R 149N43W18DDBA Ob. Well 4, NWF 0000654761 (LAT 47 43 08N LONG 096 12 20W)				
JUL 2004 22...	<.05	<.05	-89.20	-12.10
474719096163100 E05-R 150N44W27ABBA L058 (LAT 47 47 20N LONG 096 16 34W)				
JUL 2004 20...	<.05	<.05	-54.60	-7.84
474207096171101 E15 149N44W22CCCD RR Well 0000221063 (LAT 47 42 07N LONG 096 17 11W)				
JUL 2004 22...	<.05	<.05	-85.60	-11.12
474220096154101 E24 149N44W23CBDD E. Sheep Lot Well (LAT 47 42 20N LONG 096 15 41W)				
JUL 2004 20...	<.05	<.05	-90.00	-11.97
474224096160501 E25 149N44W22DADB W. Sheep Lot Well (LAT 47 42 24N LONG 096 16 06W)				
JUL 2004 20...	<.05	<.05	-86.10	-11.29
474334096111601 E41 149N43W17ACAB HeggisFlowingWell(LAT474333NLONG0961115W)'				
JUL 2004 22...	<.05	<.05	-84.00	-11.17

GLACIAL RIDGE GROUND-WATER WATER QUALITY—Continued

MISCELLANEOUS STATION ANALYSES—CONTINUED

Date	Time	Sample type	Depth to water level, feet below LSD (72019)	Turbidity, water, unfltrd field, NTU (61028)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf lab, uS/cm 25 degC (90095)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, air, deg C (00020)
		474135096203001 G01-R 149N44W30CAAD 0000620661 (LAT 47 41 34N LONG 096 20 30W)										
OCT 2003												
23...	0845	Environmental	4.03	--	--	.4	4	6.8	--	--	937	--
APR 2004												
23...	1125	Environmental	2.42	--	745	.2	1	6.7	--	--	916	--
MAY												
18...	1300	Environmental	4.79	92	741	.5	5	6.7	E7.2	915	945	22.0
18...	1500	Blank	--	--	--	--	--	--	7.8	4	--	--
		473849096202101 G02 148N45W12CDBC 0000620662 (LAT 47 38 49N LONG 096 20 20W)										
MAY 2004												
19...	0900	Environmental	6.92	400	733	4.7	42	7.3	7.6	603	667	14.0
		473914096195401 G03 148N45W12ACBD 0000620663 (LAT 47 39 13N LONG 096 19 54W)										
MAY 2004												
18...	1630	Environmental	6.13	320	738	5.9	64	7.3	--	--	967	22.0
		474242096194701 G04 149N44W20BCBC 0000620664 (LAT 47 42 42N LONG 096 19 47W)										
MAY 2004												
21...	0830	Environmental	9.00	45	739	9.0	82	7.4	7.6	603	618	10.5
		474119096190901 G06 149N44W29DCCB 0000620666 (LAT 47 41 19N LONG 096 19 09W)										
JUL 2004												
22...	1100	Environmental	7.47	7.9	733	6.2	59	7.4	7.5	588	603	16.4
22...	1105	Replicate	--	7.9	733	6.2	59	7.4	7.5	588	603	16.4
		474300096172602 G07D 149N44W16DDCD 0000620667 (LAT 47 43 00N LONG 096 17 25W)										
MAY 2004												
20...	1400	Environmental	10.70	10	740	3.9	37	7.2	7.7	601	626	14.5
		474300096172601 G07S 149N44W16DDCD 0000620657 (LAT 47 43 00N LONG 096 17 25W)										
MAY 2004												
20...	0930	Environmental	10.75	20	740	8.1	77	7.5	7.7	462	467	10.5
		474346096185501 G08-R 149N44W17ABAD 0000620668 (LAT 47 43 45N LONG 096 18 54W)										
OCT 2003												
23...	1136	Environmental	7.46	--	--	2.9	28	7.3	--	--	1,330	--
APR 2004												
23...	1555	Environmental	6.97	--	740	3.2	27	7.3	--	--	1,140	--
MAY												
20...	1630	Environmental	6.39	240	740	3.8	36	7.2	7.4	1,100	1,120	15.5
		474129096145202 G09 149N44W26DDCA 0000620669 (LAT 47 41 29N LONG 096 14 52W)										
OCT 2003												
22...	1425	Environmental	5.02	--	--	.1	1	7.2	--	--	522	--
22...	1427	Replicate	--	--	--	--	--	--	--	--	--	--
APR 2004												
22...	1313	Environmental	3.83	--	742	.1	1	7.6	--	--	484	--
22...	1315	Replicate	--	--	--	--	--	--	--	--	--	--
MAY												
19...	1400	Environmental	3.29	10	729	.1	.0	7.3	7.7	429	492	17.5
		474109096133501 G10 149N44W36AABD 0000620670 (LAT 47 40 50N LONG 096 13 53W)										
MAY 2004												
21...	1050	Environmental	3.58	9.3	729	8.4	72	7.7	7.8	285	304	10.5

GLACIAL RIDGE GROUND-WATER WATER QUALITY—Continued

MISCELLANEOUS STATION ANALYSES—CONTINUED

Date	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (90410)	Alkalinity, wat flt inc tit field, mg/L as CaCO3 (39086)	Bicarbonate, wat flt incrm. titr., field, mg/L (00453)	Carbonate, wat flt incrm. titr., field, mg/L (00452)	Chloride, water, fltrd, mg/L (00940)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)
474135096203001 G01-R 149N44W30CAAD 0000620661 (LAT 47 41 34N LONG 096 20 30W)													
OCT 2003													
23...	10.9	--	--	--	--	493	601	.0	--	--	--	.21	<.06
APR 2004													
23...	4.2	--	--	--	--	494	608	.0	--	--	--	.15	<.06
MAY													
18...	10.0	143	48.0	10.4	535	529	645	.0	21.4	23.9	2.7	.15	<.06
18...	--	.05	E.006	E.05	--	.0	M	--	<.20	<.2	<.2	<.04	<.06
473849096202101 G02 148N45W12CDBC 0000620662 (LAT 47 38 49N LONG 096 20 20W)													
MAY 2004													
19...	8.7	94.7	35.4	5.88	328	307	374	.0	10.6	15.7	37.5	<.04	3.89
473914096195401 G03 148N45W12ACBD 0000620663 (LAT 47 39 13N LONG 096 19 54W)													
MAY 2004													
18...	17.9	--	--	--	--	--	--	--	--	--	--	--	--
474242096194701 G04 149N44W20BCBC 0000620664 (LAT 47 42 42N LONG 096 19 47W)													
MAY 2004													
21...	9.9	72.2	34.1	10.7	211	213	260	.0	8.71	10.1	30.5	<.04	19.5
474119096190901 G06 149N44W29DCCB 0000620666 (LAT 47 41 19N LONG 096 19 09W)													
JUL 2004													
22...	11.4	78.9	27.4	4.13	158	201	245	.0	6.41	16.3	27.6	<.04	19.5
22...	11.4	79.2	27.5	4.10	181	--	--	--	6.31	16.3	27.1	<.04	20.0
474300096172602 G07D 149N44W16DDCD 0000620667 (LAT 47 43 00N LONG 096 17 25W)													
MAY 2004													
20...	10.7	97.2	33.1	3.56	--	341	416	.0	6.84	17.4	8.8	<.04	.35
474300096172601 G07S 149N44W16DDCD 0000620657 (LAT 47 43 00N LONG 096 17 25W)													
MAY 2004													
20...	11.6	64.0	23.0	1.97	226	231	282	.0	1.98	14.9	7.6	<.04	4.80
474346096185501 G08-R 149N44W17ABAD 0000620668 (LAT 47 43 45N LONG 096 18 54W)													
OCT 2003													
23...	10.9	--	--	--	--	402	490	.0	--	--	--	<.04	59.7
APR 2004													
23...	6.0	--	--	--	--	353	430	.0	--	--	--	<.04	46.0
MAY													
20...	12.0	119	43.5	15.3	170	361	440	.0	13.6	8.3	56.0	<.04	43.0
474129096145202 G09 149N44W26DDCA 0000620669 (LAT 47 41 29N LONG 096 14 52W)													
OCT 2003													
22...	11.5	--	--	--	--	253	309	.0	--	--	--	<.04	3.63
22...	--	--	--	--	--	--	--	--	--	--	--	<.04	3.66
APR 2004													
22...	3.9	--	--	--	--	247	302	.0	--	--	--	<.04	2.00
22...	--	--	--	--	--	--	--	--	--	--	--	<.04	1.94
MAY													
19...	6.8	72.7	17.9	4.52	210	248	303	.0	3.48	8.5	8.4	<.04	1.49
474109096133501 G10 149N44W36AABD 0000620670 (LAT 47 40 50N LONG 096 13 53W)													
MAY 2004													
21...	6.9	49.4	10.2	1.21	--	153	187	.0	1.20	10.8	3.8	<.04	1.34

GLACIAL RIDGE GROUND-WATER WATER QUALITY—Continued

MISCELLANEOUS STATION ANALYSES—CONTINUED

Date	Nitrite water, fltrd, mg/L as N (00613)	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Phos-phorus, water, fltrd, mg/L (00666)	Total nitro-gen, wat flt by anal ysis, mg/L (62854)	Iron, water, fltrd, ug/L (01046)	Mangan-ese, water, fltrd, ug/L (01056)	2-[(2-Ethyl-6methyl phenyl) amino]2 oxoESA ug/L (62850)	CIAT, water, fltrd, ug/L (04040)	CEAT, water, fltrd, ug/L (04038)	Aceto-chlor ESA, water, fltrd 0.7u GF ug/L (61029)	Aceto-chlor OA, water, fltrd 0.7u GF ug/L (61030)	Aceto-chlor SAA, water, fltrd, ug/L (62847)	Aceto-chlor, water, fltrd, ug/L (49260)
474135096203001 G01-R 149N44W30CAAD 0000620661 (LAT 47 41 34N LONG 096 20 30W)													
OCT 2003													
23...	<.008	.010	.015	.99	--	--	--	--	--	--	--	--	--
APR 2004													
23...	<.008	<.006	.012	.77	--	--	--	--	--	--	--	--	--
MAY													
18...	<.008	<.006	.016	.89	5,230	557	<.02	<.05	<.05	<.02	<.02	<.02	<.02
18...	<.008	<.006	<.004	<.03	<6	<.8	<.02	<.05	<.05	<.02	<.02	<.02	<.02
473849096202101 G02 148N45W12CDBC 0000620662 (LAT 47 38 49N LONG 096 20 20W)													
MAY 2004													
19...	<.008	<.006	E.002	3.85	27	50.4	<.02	.07	<.05	<.02	<.02	<.02	<.02
473914096195401 G03 148N45W12ACBD 0000620663 (LAT 47 39 13N LONG 096 19 54W)													
MAY 2004													
18...	--	--	--	--	--	--	<.02	<.05	<.05	<.02	<.02	<.02	<.02
474242096194701 G04 149N44W20BCBC 0000620664 (LAT 47 42 42N LONG 096 19 47W)													
MAY 2004													
21...	<.008	<.006	E.004	18.5	<6	1.0	<.02	.09	.10	<.02	<.02	<.02	<.02
474119096190901 G06 149N44W29DCCB 0000620666 (LAT 47 41 19N LONG 096 19 09W)													
JUL 2004													
22...	.042	<.006	E.003	22.4	<6	23.9	<.02	.08	.07	<.02	<.02	<.02	<.02
22...	.041	<.006	.004	15.6	<6	23.7	<.02	.08	.07	<.02	<.02	<.02	<.02
474300096172602 G07D 149N44W16DDCD 0000620667 (LAT 47 43 00N LONG 096 17 25W)													
MAY 2004													
20...	<.008	E.003	.006	.45	<6	E.4	<.02	<.05	<.05	<.02	<.02	<.02	<.02
474300096172601 G07S 149N44W16DDCD 0000620657 (LAT 47 43 00N LONG 096 17 25W)													
MAY 2004													
20...	<.008	E.005	.007	4.61	<6	2.5	<.02	.21	<.05	<.02	<.02	<.02	<.02
474346096185501 G08-R 149N44W17ABAD 0000620668 (LAT 47 43 45N LONG 096 18 54W)													
OCT 2003													
23...	.095	<.006	E.004	58.4	--	--	--	--	--	--	--	--	--
APR 2004													
23...	.041	<.006	E.003	47.0	--	--	--	--	--	--	--	--	--
MAY													
20...	.025	E.003	.004	38.0	<6	266	<.02	<.05	<.05	<.02	<.02	<.02	<.02
474129096145202 G09 149N44W26DDCA 0000620669 (LAT 47 41 29N LONG 096 14 52W)													
OCT 2003													
22...	.073	<.006	.006	4.20	--	--	--	--	--	--	--	--	--
22...	.074	<.006	.006	4.01	--	--	--	--	--	--	--	--	--
APR 2004													
22...	.025	<.006	.006	2.37	--	--	--	--	--	--	--	--	--
22...	.026	<.006	.005	2.38	--	--	--	--	--	--	--	--	--
MAY													
19...	.043	E.005	.008	1.86	E5	1,060	<.02	<.05	<.05	<.02	<.02	<.02	<.02
474109096133501 G10 149N44W36AABD 0000620670 (LAT 47 40 50N LONG 096 13 53W)													
MAY 2004													
21...	<.008	.038	.048	1.47	<6	<.8	<.02	<.05	<.05	<.02	<.02	<.02	<.02

GLACIAL RIDGE GROUND-WATER WATER QUALITY—Continued

MISCELLANEOUS STATION ANALYSES—CONTINUED

Date	Alachlor ESA SA, water, fltrd, ug/L (62849)	Alachlor ESA, water, fltrd 0.7u GF ug/L (50009)	Alachlor OA, water, fltrd 0.7u GF ug/L (61031)	Alachlor SAA, water, fltrd, ug/L (62848)	Alachlor, water, fltrd, ug/L (46342)	Ametryn water, fltrd, ug/L (38401)	Atrazine, water, fltrd, ug/L (39632)	Cyanazine amide, water, fltrd, ug/L (61709)	Cyanazine, water, fltrd, ug/L (04041)	Dimethenamid ESA, water, fltrd, ug/L (61951)	Dimethenamid OA, water, fltrd, ug/L (62482)	Dimethenamid water, fltrd, ug/L (61588)	Flufenacet ESA, water, fltrd, ug/L (61952)
474135096203001 G01-R 149N44W30CAAD 0000620661 (LAT 47 41 34N LONG 096 20 30W)													
MAY													
18...	<.02	.23	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.02	<.02	<.02	<.02
18...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.02	<.02	<.02	<.02
473849096202101 G02 148N45W12CDBC 0000620662 (LAT 47 38 49N LONG 096 20 20W)													
MAY 2004													
19...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.02	<.02	<.02	<.02
473914096195401 G03 148N45W12ACBD 0000620663 (LAT 47 39 13N LONG 096 19 54W)													
MAY 2004													
18...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.02	<.02	<.02	<.02
474242096194701 G04 149N44W20BCBC 0000620664 (LAT 47 42 42N LONG 096 19 47W)													
MAY 2004													
21...	<.02	.11	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.02	<.02	<.02	<.02
474119096190901 G06 149N44W29DCCB 0000620666 (LAT 47 41 19N LONG 096 19 09W)													
JUL 2004													
22...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.02	<.02	<.02	<.02
22...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.02	<.02	<.02	<.02
474300096172602 G07D 149N44W16DDCD 0000620667 (LAT 47 43 00N LONG 096 17 25W)													
MAY 2004													
20...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.02	<.02	<.02	<.02
474300096172601 G07S 149N44W16DDCD 0000620657 (LAT 47 43 00N LONG 096 17 25W)													
MAY 2004													
20...	<.02	<.02	<.02	<.02	<.02	<.05	.12	<.05	<.05	<.02	<.02	<.02	<.02
474346096185501 G08-R 149N44W17ABAD 0000620668 (LAT 47 43 45N LONG 096 18 54W)													
MAY													
20...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.02	<.02	<.02	<.02
474129096145202 G09 149N44W26DDCA 0000620669 (LAT 47 41 29N LONG 096 14 52W)													
MAY													
19...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.02	<.02	<.02	<.02
474109096133501 G10 149N44W36AABD 0000620670 (LAT 47 40 50N LONG 096 13 53W)													
MAY 2004													
21...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.02	<.02	<.02	<.02

GLACIAL RIDGE GROUND-WATER WATER QUALITY—Continued

MISCELLANEOUS STATION ANALYSES—CONTINUED

Date	Flufenacet OA, water, fltrd, ug/L (62483)	Flufenacet, water, fltrd, ug/L (62481)	Metolachlor ESA, water, fltrd 0.7u GF ug/L (61043)	Metolachlor OA, water, fltrd 0.7u GF ug/L (61044)	Metolachlor, water, fltrd, ug/L (39415)	Metribuzin, water, fltrd, ug/L (82630)	Pendimethalin, water, fltrd 0.7u GF ug/L (82683)	Prometon, water, fltrd, ug/L (04037)	Prometryn, water, fltrd, ug/L (04036)	Propachlor ESA, water, fltrd 0.7u GF ug/L (62766)	Propachlor OA, water, fltrd 0.7u GF ug/L (62767)	Propachlor, water, fltrd, ug/L (04024)	Propazine, water, fltrd, ug/L (38535)
474135096203001 G01-R 149N44W30CAAD 0000620661 (LAT 47 41 34N LONG 096 20 30W)													
MAY													
18...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.05	<.02	<.02	<.05
18...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.05	<.02	<.02	<.05
473849096202101 G02 148N45W12CDBC 0000620662 (LAT 47 38 49N LONG 096 20 20W)													
MAY 2004													
19...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.05	<.02	<.02	<.05
473914096195401 G03 148N45W12ACBD 0000620663 (LAT 47 39 13N LONG 096 19 54W)													
MAY 2004													
18...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.05	<.02	<.02	<.05
474242096194701 G04 149N44W20BCBC 0000620664 (LAT 47 42 42N LONG 096 19 47W)													
MAY 2004													
21...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.05	<.02	<.02	<.05
474119096190901 G06 149N44W29DCCB 0000620666 (LAT 47 41 19N LONG 096 19 09W)													
JUL 2004													
22...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.05	<.02	<.02	<.05
22...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.05	<.02	<.02	<.05
474300096172602 G07D 149N44W16DDCD 0000620667 (LAT 47 43 00N LONG 096 17 25W)													
MAY 2004													
20...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.05	<.02	<.02	<.05
474300096172601 G07S 149N44W16DDCD 0000620657 (LAT 47 43 00N LONG 096 17 25W)													
MAY 2004													
20...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.05	<.02	<.02	<.05
474346096185501 G08-R 149N44W17ABAD 0000620668 (LAT 47 43 45N LONG 096 18 54W)													
MAY													
20...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.05	<.02	<.02	<.05
474129096145202 G09 149N44W26DDCA 0000620669 (LAT 47 41 29N LONG 096 14 52W)													
MAY													
19...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.05	<.02	<.02	<.05
474109096133501 G10 149N44W36AABD 0000620670 (LAT 47 40 50N LONG 096 13 53W)													
MAY 2004													
21...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.05	<.02	<.02	<.05

GLACIAL RIDGE GROUND-WATER WATER QUALITY—Continued

MISCELLANEOUS STATION ANALYSES—CONTINUED

Date	Simazine, water, fltrd, ug/L (04035)	Terbutryn, water, fltrd, ug/L (38888)	Deuterium/ Protium ratio, water, unfltrd per mil (82082)	O-18 / O-16 ratio, water, unfltrd per mil (82085)
474135096203001 G01-R 149N44W30CAAD				
0000620661 (LAT 47 41 34N LONG 096 20 30W)				
MAY				
18...	<.05	<.05	-68.30	-9.23
18...	<.05	<.05	--	--
473849096202101 G02 148N45W12CDBC				
0000620662 (LAT 47 38 49N LONG 096 20 20W)				
MAY 2004				
19...	<.05	<.05	-78.60	-10.62
473914096195401 G03 148N45W12ACBD				
0000620663 (LAT 47 39 13N LONG 096 19 54W)				
MAY 2004				
18...	<.05	<.05	-87.70	-12.16
474242096194701 G04 149N44W20BCBC				
0000620664 (LAT 47 42 42N LONG 096 19 47W)				
MAY 2004				
21...	<.05	<.05	-71.10	-9.90
474119096190901 G06 149N44W29DCCB				
0000620666 (LAT 47 41 19N LONG 096 19 09W)				
JUL 2004				
22...	<.05	<.05	-68.30	-9.44
22...	<.05	<.05	-68.00	-9.41
474300096172602 G07D 149N44W16DDCD				
0000620667 (LAT 47 43 00N LONG 096 17 25W)				
MAY 2004				
20...	<.05	<.05	-87.80	-11.87
474300096172601 G07S 149N44W16DDCD				
0000620657 (LAT 47 43 00N LONG 096 17 25W)				
MAY 2004				
20...	<.05	<.05	-93.60	-12.90
474346096185501 G08-R 149N44W17ABAD				
0000620668 (LAT 47 43 45N LONG 096 18 54W)				
MAY				
20...	<.05	<.05	-77.70	-10.67
474129096145202 G09 149N44W26DDCA				
0000620669 (LAT 47 41 29N LONG 096 14 52W)				
MAY				
19...	<.05	<.05	-88.10	-12.22
474109096133501 G10 149N44W36AABD				
0000620670 (LAT 47 40 50N LONG 096 13 53W)				
MAY 2004				
21...	<.05	<.05	-132	-17.77

GLACIAL RIDGE GROUND-WATER WATER QUALITY—Continued

MISCELLANEOUS STATION ANALYSES—CONTINUED

Date	Time	Sample type	Depth to water level, feet below LSD (72019)	Turbidity, water, unfltrd field, NTU (61028)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf lab, uS/cm 25 degC (90095)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, air, deg C (00020)
		474254096160401 G11 149N44W22AAAC 0000620671 (LAT 47 42 54N LONG 096 16 03W)										
MAY 2004 18...	0900	Environmental	4.05	2,450	741	9.2	87	7.3	E7.7	637	698	12.5
		474126096165301 G12-R 149N44W27CDBB 0000620672 (LAT 47 41 25N LONG 096 16 52W)										
JUN 2004 07...	1500	Environmental	5.96	43	718	.2	2	6.8	6.8	819	833	27.8
		474128096175501 G13 149N44W28CADD 0000620673 (LAT 47 41 28N LONG 096 17 55W)										
JUN 2004 08...	0900	Environmental	7.07	3,020	730	9.5	88	7.4	7.3	759	759	12.5
		473842096183901 G14 148N44W07DCCD 0000620674 (LAT 47 38 41N LONG 096 18 39W)										
JUN 2004 08...	1045	Environmental	3.64	300	735	.3	3	7.3	7.6	606	612	18.5
		473841096153101 G15-R 148N44W10CCCC 0000620675 (LAT 47 38 40N LONG 096 15 30W)										
OCT 2003 22...	1350	Environmental	4.24	--	--	.3	2	7.5	--	--	663	--
APR 2004 22...	1430	Environmental	3.33	--	741	.1	.0	7.9	--	--	670	--
JUN 22...	0900	Environmental	2.99	23	731	1.8	16	7.3	7.7	623	673	11.0
		474221096120901 G16 149N43W19DADD 0000620676 (LAT 47 42 21N LONG 096 12 08W)										
OCT 2003 22...	1115	Environmental	4.82	--	--	3.5	33	7.5	--	--	416	--
APR 2004 21...	1330	Environmental	3.22	--	731	3.4	28	7.6	--	--	399	--
JUN 22...	1115	Environmental	3.68	120	726	3.5	32	7.4	7.7	383	406	15.0
		474350096144101 G17 149N41W14AAAA 0000620677 (LAT 47 43 50N LONG 096 14 41W)										
JUN 2004 21...	1430	Environmental	5.44	48	726	2.1	19	6.9	7.5	802	872	23.0
		474534096182701 G18 149N44W04BBBA 0000620678 (LAT 47 45 34N LONG 096 18 27W)										
JUN 2004 21...	1730	Environmental	7.74	62	731	2.1	19	6.8	7.4	902	976	21.0
		474524096203101 G19 149N44W06BDAA 0000620679 (LAT 47 45 23N LONG 096 20 30W)										
JUN 2004 22...	1600	Environmental	23.22	47	732	8.7	79	7.6	7.7	390	409	17.5
22...	1605	Replicate	--	80	732	8.7	78	7.7	7.8	378	407	16.5
		474310096121801 G20S-R 149N43W18DDBA 0000620680 (LAT 47 43 08N LONG 096 12 20W)										
JUN 2004 24...	1130	Environmental	8.45	1.7	736	8.0	76	7.3	7.3	666	677	17.0
		474420096104901 G21 149N43W09BCCB 0000620681 (LAT 47 44 20N LONG 096 10 51W)										
JUN 2004 22...	1400	Environmental	6.73	250	730	7.4	68	7.4	E7.5	541	568	16.5
		474125096120602 G22S-R 149N43W29CCBB 0000620682 (LAT 47 41 25N LONG 096 12 05W)										
OCT 2003 22...	1205	Environmental	22.44	--	--	6.2	59	7.1	--	--	1,230	--
APR 2004 21...	1715	Environmental	23.52	--	731	6.3	57	7.4	--	--	1,470	--
JUL 21...	1500	Environmental	22.42	3,020	722	6.4	66	7.5	7.3	1,550	1,580	28.5

GLACIAL RIDGE GROUND-WATER WATER QUALITY—Continued

MISCELLANEOUS STATION ANALYSES—CONTINUED

Date	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (90410)	Alkalinity, wat flt inc tit field, mg/L as CaCO3 (39086)	Bicarbonate, wat flt incrm. titr., field, mg/L (00453)	Carbonate, wat flt incrm. titr., field, mg/L (00452)	Chloride, water, fltrd, mg/L (00940)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)
474254096160401 G11 149N44W22AAAC 0000620671 (LAT 47 42 54N LONG 096 16 03W)													
MAY 2004 18...	11.2	93.5	35.0	7.73	--	312	381	.0	12.2	6.4	52.0	<.04	3.30
474126096165301 G12-R 149N44W27CDBB 0000620672 (LAT 47 41 25N LONG 096 16 52W)													
JUN 2004 07...	9.0	105	47.0	9.72	464	471	575	.0	14.2	19.4	2.8	E.02	.33
474128096175501 G13 149N44W28CADD 0000620673 (LAT 47 41 28N LONG 096 17 55W)													
JUN 2004 08...	10.1	102	45.0	2.94	--	464	566	.0	1.19	16.1	4.2	<.04	.14
473842096183901 G14 148N44W07DCCD 0000620674 (LAT 47 38 41N LONG 096 18 39W)													
JUN 2004 08...	9.4	81.8	22.1	16.4	--	271	331	.0	10.2	11.8	36.0	<.04	1.99
473841096153101 G15-R 148N44W10CCCC 0000620675 (LAT 47 38 40N LONG 096 15 30W)													
OCT 2003 22...	12.5	--	--	--	--	207	252	.0	--	--	--	<.04	13.3
APR 2004 22...	4.7	--	--	--	--	209	255	.0	--	--	--	<.04	11.8
JUN 22...	8.2	91.2	27.4	8.31	--	207	252	.0	26.4	14.0	45.6	<.04	15.3
474221096120901 G16 149N43W19DADD 0000620676 (LAT 47 42 21N LONG 096 12 08W)													
OCT 2003 22...	11.1	--	--	--	--	211	257	.0	--	--	--	<.04	1.21
APR 2004 21...	4.8	--	--	--	--	192	234	.0	--	--	--	<.04	1.01
JUN 22...	9.6	63.0	17.7	1.54	170	--	--	.0	1.37	15.1	9.9	<.04	.96
474350096144101 G17 149N41W14AAAA 0000620677 (LAT 47 43 50N LONG 096 14 41W)													
JUN 2004 21...	9.7	128	36.7	4.08	--	272	332	.0	38.1	15.2	102	<.04	10.6
474534096182701 G18 149N44W04BBBA 0000620678 (LAT 47 45 34N LONG 096 18 27W)													
JUN 2004 21...	8.2	126	33.6	34.8	--	399	487	.0	69.8	20.4	18.8	.56	2.56
474524096203101 G19 149N44W06BDAA 0000620679 (LAT 47 45 23N LONG 096 20 30W)													
JUN 2004 22...	8.9	51.6	17.3	2.68	124	135	164	.0	7.32	9.5	9.0	<.04	13.8
22...	8.7	53.0	17.7	2.73	142	141	172	--	7.56	9.6	7.5	--	--
474310096121801 G20S-R 149N43W18DDBA 0000620680 (LAT 47 43 08N LONG 096 12 20W)													
JUN 2004 24...	11.1	90.6	28.5	12.1	245	289	352	.0	9.35	14.8	55.9	<.04	6.31
474420096104901 G21 149N43W09BCCB 0000620681 (LAT 47 44 20N LONG 096 10 51W)													
JUN 2004 22...	9.5	84.2	23.4	1.85	--	218	266	.0	16.9	18.3	11.4	<.04	11.4
474125096120602 G22S-R 149N43W29CCBB 0000620682 (LAT 47 41 25N LONG 096 12 05W)													
OCT 2003 22...	11.5	--	--	--	--	264	322	.0	--	--	--	<.04	80.6
APR 2004 21...	8.9	--	--	--	--	263	320	.0	--	--	--	<.04	110
JUL 21...	13.7	221	57.5	5.57	--	274	334	.0	16.3	20.0	37.9	<.04	133

GLACIAL RIDGE GROUND-WATER WATER QUALITY—Continued

MISCELLANEOUS STATION ANALYSES—CONTINUED

Date	Nitrite water, fltrd, mg/L as N (00613)	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Phos-phorus, water, fltrd, mg/L (00666)	Total nitro-gen, wat flt by anal ysis, mg/L (62854)	Iron, water, fltrd, ug/L (01046)	Mangan-ese, water, fltrd, ug/L (01056)	2-[(2-Ethyl-6methyl phenyl) amino]2 oxoESA ug/L (62850)	CIAT, water, fltrd, ug/L (04040)	CEAT, water, fltrd, ug/L (04038)	Aceto-chlor ESA, water, fltrd 0.7u GF ug/L (61029)	Aceto-chlor OA, water, fltrd 0.7u GF ug/L (61030)	Aceto-chlor SAA, water, fltrd, ug/L (62847)	Aceto-chlor, water, fltrd, ug/L (49260)
474254096160401 G11 149N44W22AAAC 0000620671 (LAT 47 42 54N LONG 096 16 03W)													
MAY 2004 18...	<.008	E.003	.005	3.73	<6	7.8	<.02	.11	<.05	<.02	<.02	<.02	<.02
474126096165301 G12-R 149N44W27CDBB 0000620672 (LAT 47 41 25N LONG 096 16 52W)													
JUN 2004 07...	E.004	E.004	E.003	.68	239	194	<.02	<.05	<.05	<.02	<.02	<.02	<.02
474128096175501 G13 149N44W28CADD 0000620673 (LAT 47 41 28N LONG 096 17 55W)													
JUN 2004 08...	<.008	<.006	E.003	.34	<6	1.3	<.02	<.05	<.05	<.02	<.02	<.02	<.02
473842096183901 G14 148N44W07DCCD 0000620674 (LAT 47 38 41N LONG 096 18 39W)													
JUN 2004 08...	.018	<.006	<.004	2.42	<6	290	<.02	.14	<.05	<.02	<.02	<.02	<.02
473841096153101 G15-R 148N44W10CCCC 0000620675 (LAT 47 38 40N LONG 096 15 30W)													
OCT 2003 22...	.505	.006	.012	12.3	--	--	--	--	--	--	--	--	--
APR 2004 22...	.571	.007	.011	12.8	--	--	--	--	--	--	--	--	--
JUN 22...	.214	.008	.012	15.4	<6	275	<.02	<.05	<.05	<.02	<.02	<.02	<.02
474221096120901 G16 149N43W19DADD 0000620676 (LAT 47 42 21N LONG 096 12 08W)													
OCT 2003 22...	.036	<.006	E.003	1.36	--	--	--	--	--	--	--	--	--
APR 2004 21...	.012	<.006	<.004	1.12	--	--	--	--	--	--	--	--	--
JUN 22...	.010	E.003	E.002	1.01	<6	46.0	<.02	<.05	<.05	<.02	<.02	<.02	<.02
474350096144101 G17 149N41W14AAAA 0000620677 (LAT 47 43 50N LONG 096 14 41W)													
JUN 2004 21...	.024	<.006	<.004	10.4	9	726	<.02	.08	<.05	<.02	<.02	<.02	<.02
474534096182701 G18 149N44W04BBBA 0000620678 (LAT 47 45 34N LONG 096 18 27W)													
JUN 2004 21...	.015	.014	.024	3.23	2,910	985	<.02	<.05	<.05	<.02	<.02	<.02	<.02
474524096203101 G19 149N44W06BDAA 0000620679 (LAT 47 45 23N LONG 096 20 30W)													
JUN 2004 22...	<.008	.035	.044	13.7	E6	<.8	<.02	.20	.12	<.02	<.02	<.02	<.02
22...	--	--	--	--	<6	<.8	<.02	.16	.10	<.02	<.02	<.02	<.02
474310096121801 G20S-R 149N43W18DDBA 0000620680 (LAT 47 43 08N LONG 096 12 20W)													
JUN 2004 24...	.008	.034	.041	6.87	<6	48.4	<.02	<.05	<.05	<.02	<.02	<.02	<.02
474420096104901 G21 149N43W09BCCB 0000620681 (LAT 47 44 20N LONG 096 10 51W)													
JUN 2004 22...	<.008	<.006	.004	11.1	E3	.9	<.02	<.05	<.05	<.02	<.02	<.02	<.02
474125096120602 G22S-R 149N43W29CCBB 0000620682 (LAT 47 41 25N LONG 096 12 05W)													
OCT 2003 22...	.024	E.003	.004	78.1	--	--	--	--	--	--	--	--	--
APR 2004 21...	<.008	<.006	E.002	105	--	--	--	--	--	--	--	--	--
JUL 21...	E.007	<.006	E.004	133	<6	137	39.0	<.05	.24	11.0	14.0	<.02	<.02

GLACIAL RIDGE GROUND-WATER WATER QUALITY—Continued

MISCELLANEOUS STATION ANALYSES—CONTINUED

Date	Ala-chlor ESA SA, water, fltrd, ug/L (62849)	Ala-chlor ESA, water, fltrd 0.7u GF ug/L (50009)	Ala-chlor OA, water, fltrd 0.7u GF ug/L (61031)	Ala-chlor SAA, water, fltrd, ug/L (62848)	Ala-chlor, water, fltrd, ug/L (46342)	Ametryn water, fltrd, ug/L (38401)	Atra-zine, water, fltrd, ug/L (39632)	Cyana-zine amide, water, fltrd, ug/L (61709)	Cyana-zine, water, fltrd, ug/L (04041)	Dimeth-enamid ESA, water, fltrd, ug/L (61951)	Dimeth-enamid OA, water, fltrd, ug/L (62482)	Dimeth-enamid water, fltrd, ug/L (61588)	Flufen-acet ESA, water, fltrd, ug/L (61952)
		474254096160401 G11 149N44W22AAAC					0000620671 (LAT 47 42 54N LONG 096 16 03W)						
MAY 2004 18...	<.02	.08	<.02	<.02	<.02	<.05	.07	<.05	<.05	<.02	<.02	<.02	<.02
		474126096165301 G12-R 149N44W27CDBB					0000620672 (LAT 47 41 25N LONG 096 16 52W)						
JUN 2004 07...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.02	<.02	<.02	<.02
		474128096175501 G13 149N44W28CADD					0000620673 (LAT 47 41 28N LONG 096 17 55W)						
JUN 2004 08...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.02	<.02	<.02	<.02
		473842096183901 G14 148N44W07DCCD					0000620674 (LAT 47 38 41N LONG 096 18 39W)						
JUN 2004 08...	<.02	<.02	<.02	<.02	<.02	<.05	.08	<.05	<.05	<.02	<.02	<.02	<.02
		473841096153101 G15-R 148N44W10CCCC					0000620675 (LAT 47 38 40N LONG 096 15 30W)						
JUN 22...	.03	.91	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.02	<.02	<.02	<.02
		474221096120901 G16 149N43W19DADD					0000620676 (LAT 47 42 21N LONG 096 12 08W)						
JUN 22...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.02	<.02	<.02	<.02
		474350096144101 G17 149N41W14AAAA					0000620677 (LAT 47 43 50N LONG 096 14 41W)						
JUN 2004 21...	<.02	.84	.03	<.02	<.02	<.05	<.05	<.05	<.05	<.02	<.02	<.02	<.02
		474534096182701 G18 149N44W04BBBA					0000620678 (LAT 47 45 34N LONG 096 18 27W)						
JUN 2004 21...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.02	<.02	<.02	<.02
		474524096203101 G19 149N44W06BDAA					0000620679 (LAT 47 45 23N LONG 096 20 30W)						
JUN 2004 22...	<.02	.04	<.02	<.02	<.02	<.05	.16	<.05	<.05	<.02	<.02	<.02	<.02
22...	<.02	.04	<.02	<.02	<.02	<.05	.14	<.05	<.05	<.02	<.02	<.02	<.02
		474310096121801 G20S-R 149N43W18DDBA					0000620680 (LAT 47 43 08N LONG 096 12 20W)						
JUN 2004 24...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.02	<.02	<.02	<.02
		474420096104901 G21 149N43W09BCCB					0000620681 (LAT 47 44 20N LONG 096 10 51W)						
JUN 2004 22...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.02	<.02	<.02	<.02
		474125096120602 G22S-R 149N43W29CCBB					0000620682 (LAT 47 41 25N LONG 096 12 05W)						
JUL 21...	.17	.96	.13	.15	<.02	<.05	<.05	<.05	<.05	<.02	<.02	<.02	<.02

GLACIAL RIDGE GROUND-WATER WATER QUALITY—Continued

MISCELLANEOUS STATION ANALYSES—CONTINUED

Date	Flufenacet OA, water, fltrd, ug/L (62483)	Flufenacet, water, fltrd, ug/L (62481)	Metolachlor ESA, water, fltrd 0.7u GF ug/L (61043)	Metolachlor OA, water, fltrd 0.7u GF ug/L (61044)	Metolachlor, water, fltrd, ug/L (39415)	Metribuzin, water, fltrd, ug/L (82630)	Pendimethalin, water, fltrd 0.7u GF ug/L (82683)	Prometon, water, fltrd, ug/L (04037)	Prometryn, water, fltrd, ug/L (04036)	Propachlor ESA, water, fltrd 0.7u GF ug/L (62766)	Propachlor OA, water, fltrd 0.7u GF ug/L (62767)	Propachlor, water, fltrd, ug/L (04024)	Propazine, water, fltrd, ug/L (38535)
		474254096160401 G11 149N44W22AAAC					0000620671 (LAT 47 42 54N LONG 096 16 03W)						
MAY 2004 18...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.05	<.02	<.02	<.05
		474126096165301 G12-R 149N44W27CDBB					0000620672 (LAT 47 41 25N LONG 096 16 52W)						
JUN 2004 07...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.05	<.02	<.02	<.05
		474128096175501 G13 149N44W28CADD					0000620673 (LAT 47 41 28N LONG 096 17 55W)						
JUN 2004 08...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.05	<.02	<.02	<.05
		473842096183901 G14 148N44W07DCCD					0000620674 (LAT 47 38 41N LONG 096 18 39W)						
JUN 2004 08...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.05	<.02	<.02	<.05
		473841096153101 G15-R 148N44W10CCCC					0000620675 (LAT 47 38 40N LONG 096 15 30W)						
JUN 22...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.05	<.02	<.02	<.05
		474221096120901 G16 149N43W19DADD					0000620676 (LAT 47 42 21N LONG 096 12 08W)						
JUN 22...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.05	<.02	<.02	<.05
		474350096144101 G17 149N41W14AAAA					0000620677 (LAT 47 43 50N LONG 096 14 41W)						
JUN 2004 21...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.05	<.02	<.02	<.05
		474534096182701 G18 149N44W04BBBA					0000620678 (LAT 47 45 34N LONG 096 18 27W)						
JUN 2004 21...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.05	<.02	<.02	<.05
		474524096203101 G19 149N44W06BDAA					0000620679 (LAT 47 45 23N LONG 096 20 30W)						
JUN 2004 22...	<.02	<.02	.04	<.02	<.02	<.05	<.05	<.05	<.05	<.05	<.02	<.02	<.05
22...	<.02	<.02	.03	<.02	<.02	<.05	<.05	<.05	<.05	<.05	<.02	<.02	<.05
		474310096121801 G20S-R 149N43W18DDBA					0000620680 (LAT 47 43 08N LONG 096 12 20W)						
JUN 2004 24...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.05	<.02	<.02	<.05
		474420096104901 G21 149N43W09BCCB					0000620681 (LAT 47 44 20N LONG 096 10 51W)						
JUN 2004 22...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.05	<.02	<.02	<.05
		474125096120602 G22S-R 149N43W29CCBB					0000620682 (LAT 47 41 25N LONG 096 12 05W)						
JUL 21...	<.02	<.02	13.0	3.70	<.02	<.05	<.05	<.05	<.05	<.05	<.02	<.02	<.05

GLACIAL RIDGE GROUND-WATER WATER QUALITY—Continued

MISCELLANEOUS STATION ANALYSES—CONTINUED

Date	Time	Sample type	Depth to water level, feet below LSD (72019)	Turbidity, water, unfltrd field, NTU (61028)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf lab, uS/cm 25 degC (90095)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, air, deg C (00020)
474721096232201 G23 150N45W26BBAA 0000620683 (LAT 47 47 20N LONG 096 23 22W)												
JUN 2004 23...	1400	Environmental	9.49	3.9	732	7.0	63	7.4	7.5	440	441	14.5
474220096171801 G24 149N44W21DDAA 0000620684 (LAT 47 42 19N LONG 096 17 17W)												
JUN 2004 23...	1600	Environmental	6.07	12	732	2.4	22	6.8	7.2	676	677	13.0
473933096243701 G25-R 148N45W05DDDD 0000620685 (LAT 47 39 33N LONG 096 24 37W)												
JUN 2004 23...	1745	Environmental	11.35	3.1	735	<.1	--	7.4	7.5	516	523	15.5
474133096245901 G26 149N45W27BBDD 0000620686 (LAT 47 41 32N LONG 096 24 58W)												
JUN 2004 24...	0915	Environmental	8.70	8.2	741	9.8	86	7.5	7.5	612	630	9.5
473901096164901 G27 148N44W08DAAD 0000620687 (LAT 47 39 01N LONG 096 16 49W)												
JUN 2004 24...	1500	Environmental	5.31	.1	736	5.1	48	7.1	7.1	722	726	16.0
24...	1700	Blank	--	--	--	--	--	--	E7.0	<3	--	--
473855096141301 G30 148N44W11CBCB 0000620690 (LAT 47 38 55N LONG 096 14 13W)												
JUN 2004 25...	0900	Environmental	6.22	40	736	9.9	92	7.4	7.5	654	660	10.5
474300096204901 G32 149N44W18CCDD 0000620692 (LAT 47 42 59N LONG 096 20 43W)												
JUL 2004 21...	1245	Environmental	6.99	3,020	724	10.6	106	7.8	7.6	432	444	28.5
474201096132501 G33 149N44W25AAAD 0000620693 (LAT 47 42 07N LONG 096 13 24W)												
JUL 2004 15...	0930	Environmental	16.35	3.9	728	9.3	87	7.6	7.7	452	479	20.5
474443096171801 G34 149N44W09AAAA 0000620694 (LAT 47 44 43N LONG 096 17 18W)												
JUL 2004 12...	1430	Environmental	4.01	220	729	.4	5	6.7	E7.3	671	724	28.5
474043096155901 G35 149N44W34DAAD 0000620695 (LAT 47 40 43N LONG 096 15 58W)												
JUL 2004 19...	1545	Environmental	10.89	330	726	4.3	41	7.5	7.7	517	521	29.8
474135096204501 G36 149N44W30CABC 0000620696 (LAT 47 41 34N LONG 096 20 45W)												
JUL 2004 15...	1700	Environmental	4.29	3.6	730	3.4	33	7.3	7.3	821	850	24.5
474444096183101 G38 149N44W09BBBB 0000620698 (LAT 47 44 43N LONG 096 18 31W)												
JUL 2004 15...	1400	Environmental	3.51	19	730	7.2	78	7.4	7.5	665	705	27.5
474708096261801 L043 150N45W29ADAA Gentilly (LAT 47 47 08N LONG 096 26 18W)												
OCT 2003 22...	0855	Environmental	16.19	--	--	7.1	64	7.6	--	--	490	--
APR 2004 21...	1015	Blank	--	--	--	--	--	--	--	--	--	--
21...	1100	Environmental	16.45	--	733	7.5	64	7.5	--	--	510	--
JUL 13...	1615	Environmental	14.98	39	730	9.2	87	6.3	7.5	506	770	24.5

GLACIAL RIDGE GROUND-WATER WATER QUALITY—Continued

MISCELLANEOUS STATION ANALYSES—CONTINUED

Date	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (90410)	Alkalinity, wat flt inc tit field, mg/L as CaCO3 (39086)	Bicarbonate, wat flt incrm. titr., field, mg/L (00453)	Carbonate, wat flt incrm. titr., field, mg/L (00452)	Chloride, water, fltrd, mg/L (00940)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)
474721096232201 G23 150N45W26BBAA 0000620683 (LAT 47 47 20N LONG 096 23 22W)													
JUN 2004 23...	8.7	55.4	26.4	2.49	234	229	279	.0	1.63	13.4	8.4	<.04	2.87
474220096171801 G24 149N44W21DDAA 0000620684 (LAT 47 42 19N LONG 096 17 17W)													
JUN 2004 23...	9.6	92.9	33.6	15.2	--	329	402	.0	2.32	23.2	50.1	<.04	<.06
473933096243701 G25-R 148N45W05DDDD 0000620685 (LAT 47 39 33N LONG 096 24 37W)													
JUN 2004 23...	9.3	75.5	25.5	4.50	--	262	320	.0	5.36	16.3	28.9	E.02	.50
474133096245901 G26 149N45W27BBDD 0000620686 (LAT 47 41 32N LONG 096 24 58W)													
JUN 2004 24...	8.2	70.5	37.0	11.0	189	187	229	.0	8.11	13.9	154	<.04	1.20
473901096164901 G27 148N44W08DAAD 0000620687 (LAT 47 39 01N LONG 096 16 49W)													
JUN 2004 24...	11.4	85.9	22.3	35.6	279	275	336	.0	67.3	10.7	13.3	<.04	2.11
24...	--	.33	.105	.32	<2	--	--	--	<.20	<.2	<.2	<.04	<.06
473855096141301 G30 148N44W11CBCB 0000620690 (LAT 47 38 55N LONG 096 14 13W)													
JUN 2004 25...	10.4	102	29.9	2.02	222	344	420	.0	11.3	19.4	2.9	<.04	1.01
474300096204901 G32 149N44W18CCDD 0000620692 (LAT 47 42 59N LONG 096 20 43W)													
JUL 2004 21...	13.2	57.4	26.5	1.16	216	240	293	.0	.92	9.1	5.0	<.04	.09
474201096132501 G33 149N44W25AAAD 0000620693 (LAT 47 42 07N LONG 096 13 24W)													
JUL 2004 15...	10.5	69.7	18.8	2.25	200	228	278	.0	1.64	13.1	7.7	<.04	6.67
474443096171801 G34 149N44W09AAAA 0000620694 (LAT 47 44 43N LONG 096 17 18W)													
JUL 2004 12...	18.8	92.9	38.0	4.37	--	379	462	.0	4.81	20.9	23.1	<.04	.15
474043096155901 G35 149N44W34DAAD 0000620695 (LAT 47 40 43N LONG 096 15 58W)													
JUL 2004 19...	11.7	66.8	24.7	2.84	148	162	198	.0	1.29	13.7	18.5	<.04	22.2
474135096204501 G36 149N44W30CABC 0000620696 (LAT 47 41 34N LONG 096 20 45W)													
JUL 2004 15...	12.4	114	42.3	9.06	280	412	503	.0	27.1	16.6	26.1	<.04	1.19
474444096183101 G38 149N44W09BBBB 0000620698 (LAT 47 44 43N LONG 096 18 31W)													
JUL 2004 15...	16.7	77.7	36.4	22.5	293	315	384	.0	9.24	23.7	59.8	.13	.25
474708096261801 L043 150N45W29ADAA Gentilly (LAT 47 47 08N LONG 096 26 18W)													
OCT 2003 22...	8.7	--	--	--	--	258	314	.0	--	--	--	<.04	2.41
APR 2004 21...	--	--	--	--	--	--	--	--	--	--	--	<.04	<.06
21...	6.8	--	--	--	--	272	332	.0	--	--	--	<.04	1.87
JUL 13...	10.4	60.1	22.8	17.4	--	264	323	.0	2.75	10.2	14.9	<.04	2.66

GLACIAL RIDGE GROUND-WATER WATER QUALITY—Continued

MISCELLANEOUS STATION ANALYSES—CONTINUED

Date	Nitrite water, fltrd, mg/L as N (00613)	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Phos-phorus, water, fltrd, mg/L (00666)	Total nitro-gen, wat flt by anal ysis, mg/L (62854)	Iron, water, fltrd, ug/L (01046)	Mangan-ese, water, fltrd, ug/L (01056)	2-[(2-Ethyl-6methyl phenyl) amino]2 oxoESA ug/L (62850)	CIAT, water, fltrd, ug/L (04040)	CEAT, water, fltrd, ug/L (04038)	Aceto-chlor ESA, water, fltrd 0.7u GF ug/L (61029)	Aceto-chlor OA, water, fltrd 0.7u GF ug/L (61030)	Aceto-chlor SAA, water, fltrd, ug/L (62847)	Aceto-chlor, water, fltrd, ug/L (49260)
474721096232201 G23 150N45W26BBAA 0000620683 (LAT 47 47 20N LONG 096 23 22W)													
JUN 2004													
23...	<.008	.025	.028	2.95	<6	2.4	<.02	<.05	<.05	<.02	<.02	<.02	<.02
474220096171801 G24 149N44W21DDAA 0000620684 (LAT 47 42 19N LONG 096 17 17W)													
JUN 2004													
23...	<.008	E.003	.007	.64	9	68.3	<.02	<.05	<.05	<.02	<.02	<.02	<.02
473933096243701 G25-R 148N45W05DDDD 0000620685 (LAT 47 39 33N LONG 096 24 37W)													
JUN 2004													
23...	<.008	.008	.011	.69	6	173	<.02	<.05	<.05	<.02	<.02	<.02	<.02
474133096245901 G26 149N45W27BBDD 0000620686 (LAT 47 41 32N LONG 096 24 58W)													
JUN 2004													
24...	<.008	E.004	.006	1.50	<6	7.7	<.02	<.05	<.05	<.02	<.02	<.02	<.02
473901096164901 G27 148N44W08DAAD 0000620687 (LAT 47 39 01N LONG 096 16 49W)													
JUN 2004													
24...	<.008	<.006	E.002	2.38	<6	9.3	<.02	<.05	<.05	<.02	<.02	<.02	<.02
24...	<.008	<.006	<.004	<.03	E3	<.8	<.02	<.05	<.05	<.02	<.02	<.02	<.02
473855096141301 G30 148N44W11CBCB 0000620690 (LAT 47 38 55N LONG 096 14 13W)													
JUN 2004													
25...	<.008	<.006	<.004	1.38	<6	.9	<.02	<.05	<.05	<.02	<.02	<.02	<.02
474300096204901 G32 149N44W18CCDD 0000620692 (LAT 47 42 59N LONG 096 20 43W)													
JUL 2004													
21...	<.008	<.006	<.004	.34	<6	<.8	<.02	<.05	<.05	<.02	<.02	<.02	<.02
474201096132501 G33 149N44W25AAAD 0000620693 (LAT 47 42 07N LONG 096 13 24W)													
JUL 2004													
15...	<.008	E.003	.004	7.22	<6	<.8	<.02	.46	<.05	<.02	<.02	<.02	<.02
474443096171801 G34 149N44W09AAAA 0000620694 (LAT 47 44 43N LONG 096 17 18W)													
JUL 2004													
12...	<.008	<.006	E.002	.25	<6	168	<.02	<.05	.33	<.02	<.02	<.02	<.02
474043096155901 G35 149N44W34DAAD 0000620695 (LAT 47 40 43N LONG 096 15 58W)													
JUL 2004													
19...	.018	<.006	E.002	23.0	<6	22.8	<.02	<.05	<.05	<.02	<.02	<.02	<.02
474135096204501 G36 149N44W30CABC 0000620696 (LAT 47 41 34N LONG 096 20 45W)													
JUL 2004													
15...	<.008	<.006	<.004	1.39	<6	E.6	<.02	.08	.10	<.02	<.02	<.02	<.02
474444096183101 G38 149N44W09BBBB 0000620698 (LAT 47 44 43N LONG 096 18 31W)													
JUL 2004													
15...	<.008	<.006	.006	.54	<6	15.6	<.02	<.05	<.05	<.02	<.02	<.02	<.02
474708096261801 L043 150N45W29ADAA Gentilly (LAT 47 47 08N LONG 096 26 18W)													
OCT 2003													
22...	.017	E.004	E.003	2.53	--	--	--	--	--	--	--	--	--
APR 2004													
21...	<.008	<.006	<.004	<.03	--	--	--	--	--	--	--	--	--
21...	<.008	<.006	E.004	2.07	--	--	--	--	--	--	--	--	--
JUL													
13...	<.008	<.006	E.002	2.87	<6	E.4	<.02	<.05	<.05	<.02	<.02	<.02	<.02

GLACIAL RIDGE GROUND-WATER WATER QUALITY—Continued

MISCELLANEOUS STATION ANALYSES—CONTINUED

Date	Alachlor ESA SA, water, fltrd, ug/L (62849)	Alachlor ESA, water, fltrd 0.7u GF ug/L (50009)	Alachlor OA, water, fltrd 0.7u GF ug/L (61031)	Alachlor SAA, water, fltrd, ug/L (62848)	Alachlor, water, fltrd, ug/L (46342)	Ametryn water, fltrd, ug/L (38401)	Atrazine, water, fltrd, ug/L (39632)	Cyanazine amide, water, fltrd, ug/L (61709)	Cyanazine, water, fltrd, ug/L (04041)	Dimethenamid ESA, water, fltrd, ug/L (61951)	Dimethenamid OA, water, fltrd, ug/L (62482)	Dimethenamid water, fltrd, ug/L (61588)	Flufenacet ESA, water, fltrd, ug/L (61952)
474721096232201 G23 150N45W26BBAA 0000620683 (LAT 47 47 20N LONG 096 23 22W)													
JUN 2004 23...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.02	<.02	<.02	<.02
474220096171801 G24 149N44W21DDAA 0000620684 (LAT 47 42 19N LONG 096 17 17W)													
JUN 2004 23...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.02	<.02	<.02	<.02
473933096243701 G25-R 148N45W05DDDD 0000620685 (LAT 47 39 33N LONG 096 24 37W)													
JUN 2004 23...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.02	<.02	<.02	<.02
474133096245901 G26 149N45W27BBDD 0000620686 (LAT 47 41 32N LONG 096 24 58W)													
JUN 2004 24...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.02	<.02	<.02	<.02
473901096164901 G27 148N44W08DAAD 0000620687 (LAT 47 39 01N LONG 096 16 49W)													
JUN 2004 24...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.02	<.02	<.02	<.02
24...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.02	<.02	<.02	<.02
473855096141301 G30 148N44W11CBCB 0000620690 (LAT 47 38 55N LONG 096 14 13W)													
JUN 2004 25...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.02	<.02	<.02	<.02
474300096204901 G32 149N44W18CCDD 0000620692 (LAT 47 42 59N LONG 096 20 43W)													
JUL 2004 21...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.02	<.02	<.02	<.02
474201096132501 G33 149N44W25AAAD 0000620693 (LAT 47 42 07N LONG 096 13 24W)													
JUL 2004 15...	<.02	<.02	<.02	<.02	<.02	<.05	.06	<.05	<.05	<.02	<.02	<.02	<.02
474443096171801 G34 149N44W09AAAA 0000620694 (LAT 47 44 43N LONG 096 17 18W)													
JUL 2004 12...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.02	<.02	<.02	<.02
474043096155901 G35 149N44W34DAAD 0000620695 (LAT 47 40 43N LONG 096 15 58W)													
JUL 2004 19...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.02	<.02	<.02	<.02
474135096204501 G36 149N44W30CABC 0000620696 (LAT 47 41 34N LONG 096 20 45W)													
JUL 2004 15...	<.02	.03	<.02	<.02	<.02	<.05	.05	<.05	<.05	<.02	<.02	<.02	<.02
474444096183101 G38 149N44W09BBBB 0000620698 (LAT 47 44 43N LONG 096 18 31W)													
JUL 2004 15...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.02	<.02	<.02	<.02
474708096261801 L043 150N45W29ADAA Gentilly (LAT 47 47 08N LONG 096 26 18W)													
JUL 13...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.02	<.02	<.02	<.02

GLACIAL RIDGE GROUND-WATER WATER QUALITY—Continued

MISCELLANEOUS STATION ANALYSES—CONTINUED

Date	Flufenacet OA, water, fltrd, ug/L (62483)	Flufenacet, water, fltrd, ug/L (62481)	Metolachlor ESA, water, fltrd 0.7u GF ug/L (61043)	Metolachlor OA, water, fltrd 0.7u GF ug/L (61044)	Metolachlor, water, fltrd, ug/L (39415)	Metribuzin, water, fltrd, ug/L (82630)	Pendimethalin, water, fltrd 0.7u GF ug/L (82683)	Prometon, water, fltrd, ug/L (04037)	Prometryn, water, fltrd, ug/L (04036)	Propachlor ESA, water, fltrd 0.7u GF ug/L (62766)	Propachlor OA, water, fltrd 0.7u GF ug/L (62767)	Propachlor, water, fltrd, ug/L (04024)	Propazine, water, fltrd, ug/L (38535)
474721096232201 G23 150N45W26BBAA 0000620683 (LAT 47 47 20N LONG 096 23 22W)													
JUN 2004 23...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.05	<.02	<.02	<.05
474220096171801 G24 149N44W21DDAA 0000620684 (LAT 47 42 19N LONG 096 17 17W)													
JUN 2004 23...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.05	<.02	<.02	<.05
473933096243701 G25-R 148N45W05DDDD 0000620685 (LAT 47 39 33N LONG 096 24 37W)													
JUN 2004 23...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.05	<.02	<.02	<.05
474133096245901 G26 149N45W27BBDD 0000620686 (LAT 47 41 32N LONG 096 24 58W)													
JUN 2004 24...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.05	<.02	<.02	<.05
473901096164901 G27 148N44W08DAAD 0000620687 (LAT 47 39 01N LONG 096 16 49W)													
JUN 2004 24...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.05	<.02	<.02	<.05
24...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.05	<.02	<.02	<.05
473855096141301 G30 148N44W11CBCB 0000620690 (LAT 47 38 55N LONG 096 14 13W)													
JUN 2004 25...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.05	<.02	<.02	<.05
474300096204901 G32 149N44W18CCDD 0000620692 (LAT 47 42 59N LONG 096 20 43W)													
JUL 2004 21...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.05	<.02	<.02	<.05
474201096132501 G33 149N44W25AAAD 0000620693 (LAT 47 42 07N LONG 096 13 24W)													
JUL 2004 15...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	.18	<.05	<.05	<.02	<.02	<.05
474443096171801 G34 149N44W09AAAA 0000620694 (LAT 47 44 43N LONG 096 17 18W)													
JUL 2004 12...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.05	<.02	<.02	<.05
474043096155901 G35 149N44W34DAAD 0000620695 (LAT 47 40 43N LONG 096 15 58W)													
JUL 2004 19...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.05	<.02	<.02	<.05
474135096204501 G36 149N44W30CABC 0000620696 (LAT 47 41 34N LONG 096 20 45W)													
JUL 2004 15...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.05	<.02	<.02	<.05
474444096183101 G38 149N44W09BBBB 0000620698 (LAT 47 44 43N LONG 096 18 31W)													
JUL 2004 15...	<.02	<.02	<.02	<.02	<.02	<.05	.10	<.05	<.05	<.05	<.02	<.02	<.05
474708096261801 L043 150N45W29ADAA Gentilly (LAT 47 47 08N LONG 096 26 18W)													
JUL 13...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.05	<.02	<.02	<.05

GLACIAL RIDGE GROUND-WATER WATER QUALITY—Continued

MISCELLANEOUS STATION ANALYSES—CONTINUED

Date	Time	Sample type	Depth to water level, feet below LSD (72019)	Turbidity, water, unfltrd field, NTU (61028)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf lab, uS/cm 25 degC (90095)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, air, deg C (00020)
474628096180101 L057 150N44W28CDDD E of SW6 (LAT 47 46 28N LONG 096 18 01W)												
JUL 2004 14...	0900	Environmental	6.72	2.1	739	6.5	61	7.6	7.7	368	313	21.5
474210096203101 L103 149N44W19CDDD Pembina Trail Lt000516278 (LAT 47 42 09N LONG 096 20 31W)												
JUL 2004 22...	0845	Environmental	-1.65	120	733	4.4	39	7.5	7.7	782	789	15.0
474536096134401 L109 150N44W36DDCC on Old Hwy 2 0000516273 (LAT 47 45 36N LONG 096 13 44W)												
JUL 2004 14...	1530	Environmental	--	11	735	.3	3	7.6	7.7	587	509	21.5

Date	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (90410)	Alkalinity, wat flt inc tit field, mg/L as CaCO3 (39086)	Bicarbonate, wat flt incrm. titr., field, mg/L (00453)	Carbonate, wat flt incrm. titr., field, mg/L (00452)	Chloride, water, fltrd, mg/L (00940)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)
474628096180101 L057 150N44W28CDDD E of SW6 (LAT 47 46 28N LONG 096 18 01W)													
JUL 2004 14...	10.5	54.1	18.3	.74	187	186	227	.0	1.48	13.6	4.5	<.04	4.71
474210096203101 L103 149N44W19CDDD Pembina Trail Lt000516278 (LAT 47 42 09N LONG 096 20 31W)													
JUL 2004 22...	8.6	62.6	38.2	60.4	395	405	494	.0	5.13	26.4	43.2	2.12	<.06
474536096134401 L109 150N44W36DDCC on Old Hwy 2 0000516273 (LAT 47 45 36N LONG 096 13 44W)													
JUL 2004 14...	8.7	56.0	32.1	34.0	331	331	404	.0	4.41	22.6	3.5	1.33	<.06

Date	Nitrite water, fltrd, mg/L as N (00613)	Orthophosphate, water, fltrd, mg/L as P (00671)	Phosphorus, water, fltrd, mg/L (00666)	Total nitrogen, wat flt by analysis, mg/L (62854)	Iron, water, fltrd, ug/L (01046)	Manganese, water, fltrd, ug/L (01056)	2-[(2-Ethyl-6methylphenyl) amino]2 oxoESA ug/L (62850)	CIAT, water, fltrd, ug/L (04040)	CEAT, water, fltrd, ug/L (04038)	Acetochlor ESA, water, fltrd 0.7u GF ug/L (61029)	Acetochlor OA, water, fltrd 0.7u GF ug/L (61030)	Acetochlor SAA, water, fltrd, ug/L (62847)	Acetochlor, water, fltrd, ug/L (49260)
474628096180101 L057 150N44W28CDDD E of SW6 (LAT 47 46 28N LONG 096 18 01W)													
JUL 2004 14...	<.008	<.006	<.004	4.89	<6	E.7	<.02	<.05	<.05	<.02	<.02	<.02	<.02
474210096203101 L103 149N44W19CDDD Pembina Trail Lt000516278 (LAT 47 42 09N LONG 096 20 31W)													
JUL 2004 22...	<.008	.156	.168	2.47	425	54.5	<.02	<.05	<.05	<.02	<.02	<.02	<.02
474536096134401 L109 150N44W36DDCC on Old Hwy 2 0000516273 (LAT 47 45 36N LONG 096 13 44W)													
JUL 2004 14...	<.008	.050	.052	1.55	904	26.6	<.02	<.05	<.05	<.02	<.02	<.02	<.02

GLACIAL RIDGE GROUND-WATER WATER QUALITY—Continued

MISCELLANEOUS STATION ANALYSES—CONTINUED

Date	Alachlor ESA SA, water, fltrd, ug/L (62849)	Alachlor ESA, water, fltrd 0.7u GF ug/L (50009)	Alachlor OA, water, fltrd 0.7u GF ug/L (61031)	Alachlor SAA, water, fltrd, ug/L (62848)	Alachlor, water, fltrd, ug/L (46342)	Ametryn water, fltrd, ug/L (38401)	Atrazine, water, fltrd, ug/L (39632)	Cyanazine amide, water, fltrd, ug/L (61709)	Cyanazine, water, fltrd, ug/L (04041)	Dimethenamid ESA, water, fltrd, ug/L (61951)	Dimethenamid OA, water, fltrd, ug/L (62482)	Dimethenamid water, fltrd, ug/L (61588)	Flufenacet ESA, water, fltrd, ug/L (61952)
474628096180101 L057 150N44W28CDDD E of SW6 (LAT 47 46 28N LONG 096 18 01W)													
JUL 2004 14...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.02	<.02	<.02	<.02
474210096203101 L103 149N44W19CDDD Pembina Trail Lt000516278 (LAT 47 42 09N LONG 096 20 31W)													
JUL 2004 22...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.02	<.02	<.02	<.02
474536096134401 L109 150N44W36DDCC on Old Hwy 2 0000516273 (LAT 47 45 36N LONG 096 13 44W)													
JUL 2004 14...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.02	<.02	<.02	<.02

Date	Flufenacet OA, water, fltrd, ug/L (62483)	Flufenacet, water, fltrd, ug/L (62481)	Metolachlor ESA, water, fltrd 0.7u GF ug/L (61043)	Metolachlor OA, water, fltrd 0.7u GF ug/L (61044)	Metolachlor, water, fltrd, ug/L (39415)	Metribuzin, water, fltrd, ug/L (82630)	Pendimethalin, water, fltrd 0.7u GF ug/L (82683)	Prometon, water, fltrd, ug/L (04037)	Prometryn, water, fltrd, ug/L (04036)	Propachlor ESA, water, fltrd 0.7u GF ug/L (62766)	Propachlor OA, water, fltrd 0.7u GF ug/L (62767)	Propachlor, water, fltrd, ug/L (04024)	Propazine, water, fltrd, ug/L (38535)
474628096180101 L057 150N44W28CDDD E of SW6 (LAT 47 46 28N LONG 096 18 01W)													
JUL 2004 14...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.05	<.02	<.02	<.05
474210096203101 L103 149N44W19CDDD Pembina Trail Lt000516278 (LAT 47 42 09N LONG 096 20 31W)													
JUL 2004 22...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.05	<.02	<.02	<.05
474536096134401 L109 150N44W36DDCC on Old Hwy 2 0000516273 (LAT 47 45 36N LONG 096 13 44W)													
JUL 2004 14...	<.02	<.02	<.02	<.02	<.02	<.05	<.05	<.05	<.05	<.05	<.02	<.02	<.05

Date	Simazine, water, fltrd, ug/L (04035)	Terbutryn, water, fltrd, ug/L (38888)	Deuterium/Protium ratio, water, unfltrd per mil (82082)	O-18 / O-16 ratio, water, unfltrd per mil (82085)
474628096180101 L057 150N44W28CDDD E of SW6 (LAT 47 46 28N LONG 096 18 01W)				
JUL 2004 14...	<.05	<.05	-106	-14.37
474210096203101 L103 149N44W19CDDD Pembina Trail Lt000516278 (LAT 47 42 09N LONG 096 20 31W)				
JUL 2004 22...	<.05	<.05	-93.00	-12.17
474536096134401 L109 150N44W36DDCC on Old Hwy 2 0000516273 (LAT 47 45 36N LONG 096 13 44W)				
JUL 2004 14...	<.05	<.05	-85.70	-11.12

GLACIAL RIDGE WETLAND WATER QUALITY

MISCELLANEOUS STATION ANALYSES

Date	Time	Sample type	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf lab, uS/cm 25 degC (90095)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)
		474024096124601 WL01 149N43W31CDDD Wetland SE of G10 (LAT 47 40 24N LONG 096 12 45W)										
JUL 2004 14...	1500	Environmental	732	5.9	7.0	7.4	273	303	21.6	36.3	15.3	5.20
		474139096150301 WL03 149N44W26DBAA Wetland near G09 (LAT 47 41 39N LONG 096 15 03W)										
JUL 2004 15...	1030	Environmental	732	1.2	7.1	7.5	419	472	19.9	59.6	23.4	3.94
		474127096164701 WL05 149N44W27CDBA Wetland near G12 (LAT 47 41 27N LONG 096 16 47W)										
JUL 2004 15...	1300	Environmental	732	3.1	7.3	E7.2	335	369	22.1	40.6	19.7	5.94
		474129096180001 WL07 149N44W28CADC Wetland near G13 (LAT 47 41 29N LONG 096 18 00W)										
JUL 2004 15...	0800	Environmental	732	.6	6.9	7.3	656	729	16.7	107	28.2	4.22
		474228096171901 WL09 149N44W21DAAD Wetland near G24 (LAT 47 42 29N LONG 096 17 18W)										
JUL 2004 16...	1000	Environmental	735	.7	7.1	7.3	343	394	21.0	40.0	23.3	6.13
		474328096144201 WL10 149N43W14ADDA Wetland S of G17 (LAT 47 43 28N LONG 096 14 42W)										
JUL 2004 15...	1500	Environmental	731	2.2	6.9	7.2	302	325	23.3	30.4	22.2	9.04
15...	1600	Blank	--	--	--	--	--	--	--	--	--	--
		474205096110401 WL11 149N43W20DDCC Wetland E of G16 (LAT 47 42 05N LONG 096 11 04W)										
JUL 2004 16...	0700	Environmental	732	1.5	7.2	7.4	654	686	17.6	103	34.9	1.62

Date	Sodium, water, fltrd, mg/L (00930)	Alkalinity, wat flt inc tit field, mg/L as CaCO3 (39086)	Bicarbonate, wat flt incrm. titr., field, mg/L (00453)	Carbonate, wat flt incrm. titr., field, mg/L (00452)	Chloride, water, fltrd, mg/L (00940)	Sulfate water, fltrd, mg/L (00945)	Ammonia + org-N, water, fltrd, mg/L as N (00623)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Orthophosphate, water, fltrd, mg/L as P (00671)	Phosphorus, water, fltrd, mg/L (00666)
		474024096124601 WL01 149N43W31CDDD Wetland SE of G10 (LAT 47 40 24N LONG 096 12 45W)											
JUL 2004 14...	3.02	124	151	.0	3.14	15.2	1.1	1.1	<.04	<.06	<.008	<.02	.019
		474139096150301 WL03 149N44W26DBAA Wetland near G09 (LAT 47 41 39N LONG 096 15 03W)											
JUL 2004 15...	3.50	235	287	.0	2.40	3.7	.94	1.0	<.04	<.06	<.008	<.02	.006
		474127096164701 WL05 149N44W27CDBA Wetland near G12 (LAT 47 41 27N LONG 096 16 47W)											
JUL 2004 15...	8.45	162	198	.0	10.6	15.5	1.2	1.3	<.04	<.06	E.004	<.02	.011
		474129096180001 WL07 149N44W28CADC Wetland near G13 (LAT 47 41 29N LONG 096 18 00W)											
JUL 2004 15...	1.68	397	485	.0	.78	.4	.80	2.7	.08	<.06	<.008	.13	.186
		474228096171901 WL09 149N44W21DAAD Wetland near G24 (LAT 47 42 29N LONG 096 17 18W)											
JUL 2004 16...	6.88	196	239	.0	4.06	3.2	1.2	1.3	<.04	<.06	<.008	<.02	.013
		474328096144201 WL10 149N43W14ADDA Wetland S of G17 (LAT 47 43 28N LONG 096 14 42W)											
JUL 2004 15...	5.07	161	197	.0	6.88	1.2	1.8	2.1	.07	<.06	E.006	.07	.136
15...	--	--	--	--	--	--	--	--	--	--	--	--	--
		474205096110401 WL11 149N43W20DDCC Wetland E of G16 (LAT 47 42 05N LONG 096 11 04W)											
JUL 2004 16...	2.42	450	549	.0	.95	.3	.86	1.2	<.04	<.06	<.008	<.02	.004

GLACIAL RIDGE WETLAND WATER QUALITY—Continued

MISCELLANEOUS STATION ANALYSES—CONTINUED

Date	Phosphorus, water, unfltrd mg/L (00665)	2-[(2-Ethyl-6methyl phenyl) amino]2 oxoESA ug/L (62850)	CIAT, water, fltrd, ug/L (04040)	CEAT, water, fltrd, ug/L (04038)	Acetochlor ESA, water, fltrd 0.7u GF ug/L (61029)	Acetochlor OA, water, fltrd 0.7u GF ug/L (61030)	Acetochlor SAA, water, fltrd, ug/L (62847)	Acetochlor, water, fltrd, ug/L (49260)	Alachlor ESA SA, water, fltrd, ug/L (62849)	Alachlor ESA, water, fltrd 0.7u GF ug/L (50009)	Alachlor OA, water, fltrd 0.7u GF ug/L (61031)	Alachlor SAA, water, fltrd, ug/L (62848)	Alachlor, water, fltrd, ug/L (46342)
		474024096124601 WL01 149N43W31CDDD Wetland SE of G10 (LAT 47 40 24N LONG 096 12 45W)											
JUL 2004 14...	.030	<.02	<.05	<.05	<.02	<.02	<.02	<.02	<.02	<.02	<.02	<.02	<.02
		474139096150301 WL03 149N44W26DBAA Wetland near G09 (LAT 47 41 39N LONG 096 15 03W)											
JUL 2004 15...	.018	<.02	<.05	<.05	<.02	<.02	<.02	<.02	<.02	<.02	<.02	<.02	<.02
		474127096164701 WL05 149N44W27CDBA Wetland near G12 (LAT 47 41 27N LONG 096 16 47W)											
JUL 2004 15...	.040	<.02	<.05	<.05	<.02	<.02	<.02	<.02	<.02	<.02	<.02	<.02	<.02
		474129096180001 WL07 149N44W28CADC Wetland near G13 (LAT 47 41 29N LONG 096 18 00W)											
JUL 2004 15...	.94	<.02	<.05	<.05	<.02	<.02	<.02	<.02	<.02	.04	<.02	<.02	<.02
		474228096171901 WL09 149N44W21DAAD Wetland near G24 (LAT 47 42 29N LONG 096 17 18W)											
JUL 2004 16...	.033	<.02	<.05	<.05	<.02	<.02	<.02	<.02	<.02	<.02	<.02	<.02	<.02
		474328096144201 WL10 149N43W14ADDA Wetland S of G17 (LAT 47 43 28N LONG 096 14 42W)											
JUL 2004 15...	.19	<.02	<.05	<.05	<.02	<.02	<.02	<.02	<.02	<.02	<.02	<.02	<.02
15...	--	<.02	<.05	<.05	<.02	<.02	<.02	<.02	<.02	<.02	<.02	<.02	<.02
		474205096110401 WL11 149N43W20DDCC Wetland E of G16 (LAT 47 42 05N LONG 096 11 04W)											
JUL 2004 16...	.025	<.02	<.05	<.05	<.02	<.02	<.02	<.02	<.02	<.02	<.02	<.02	<.02

Date	Ametryn water, fltrd, ug/L (38401)	Atrazine, water, fltrd, ug/L (39632)	Cyanazine amide, water, fltrd, ug/L (61709)	Cyanazine, water, fltrd, ug/L (04041)	Dimethenamid ESA, water, fltrd, ug/L (61951)	Dimethenamid OA, water, fltrd, ug/L (62482)	Dimethenamid water, fltrd, ug/L (61588)	Flufenacet ESA, water, fltrd, ug/L (61952)	Flufenacet OA, water, fltrd, ug/L (62483)	Flufenacet, water, fltrd, ug/L (62481)	Metolachlor ESA, water, fltrd 0.7u GF ug/L (61043)	Metolachlor OA, water, fltrd 0.7u GF ug/L (61044)	Metolachlor, water, fltrd, ug/L (39415)
		474024096124601 WL01 149N43W31CDDD Wetland SE of G10 (LAT 47 40 24N LONG 096 12 45W)											
JUL 2004 14...	<.05	<.05	<.05	<.05	<.02	<.02	<.02	<.02	<.02	<.02	<.02	<.02	<.02
		474139096150301 WL03 149N44W26DBAA Wetland near G09 (LAT 47 41 39N LONG 096 15 03W)											
JUL 2004 15...	<.05	<.05	<.05	<.05	<.02	<.02	<.02	<.02	<.02	<.02	<.02	<.02	<.02
		474127096164701 WL05 149N44W27CDBA Wetland near G12 (LAT 47 41 27N LONG 096 16 47W)											
JUL 2004 15...	<.05	<.05	<.05	<.05	<.02	<.02	<.02	<.02	<.02	<.02	.09	<.02	<.02
		474129096180001 WL07 149N44W28CADC Wetland near G13 (LAT 47 41 29N LONG 096 18 00W)											
JUL 2004 15...	<.05	<.05	<.05	<.05	<.02	<.02	<.02	<.02	<.02	<.02	<.02	<.02	<.02
		474228096171901 WL09 149N44W21DAAD Wetland near G24 (LAT 47 42 29N LONG 096 17 18W)											
JUL 2004 16...	<.05	<.05	<.05	<.05	<.02	<.02	<.02	<.02	<.02	<.02	<.02	<.02	<.02
		474328096144201 WL10 149N43W14ADDA Wetland S of G17 (LAT 47 43 28N LONG 096 14 42W)											
JUL 2004 15...	<.05	<.05	<.05	<.05	<.02	<.02	<.02	<.02	<.02	<.02	<.02	<.02	<.02
15...	<.05	<.05	<.05	<.05	<.02	<.02	<.02	<.02	<.02	<.02	<.02	<.02	<.02
		474205096110401 WL11 149N43W20DDCC Wetland E of G16 (LAT 47 42 05N LONG 096 11 04W)											
JUL 2004 16...	<.05	<.05	<.05	<.05	<.02	<.02	<.02	<.02	<.02	<.02	<.02	<.02	<.02

GLACIAL RIDGE WETLAND WATER QUALITY—Continued

MISCELLANEOUS STATION ANALYSES—CONTINUED

Date	Metribuzin, water, fltrd, ug/L (82630)	Pendimethalin, water, fltrd 0.7u GF ug/L (82683)	Prometon, water, fltrd, ug/L (04037)	Prometryn, water, fltrd, ug/L (04036)	Propachlor ESA, water, fltrd 0.7u GF ug/L (62766)	Propachlor OA, water, fltrd 0.7u GF ug/L (62767)	Propachlor, water, fltrd, ug/L (04024)	Propazine, water, fltrd, ug/L (38535)	Simazine, water, fltrd, ug/L (04035)	Terbutryn, water, fltrd, ug/L (38888)	Deuterium/Protium ratio, water, unfltrd per mil (82082)	O-18 / O-16 ratio, water, unfltrd per mil (82085)
474024096124601 WL01 149N43W31CDDD Wetland SE of G10 (LAT 47 40 24N LONG 096 12 45W)												
JUL 2004 14...	<.05	<.05	<.05	<.05	<.05	<.02	<.02	<.05	<.05	<.05	-61.20	-7.93
474139096150301 WL03 149N44W26DBAA Wetland near G09 (LAT 47 41 39N LONG 096 15 03W)												
JUL 2004 15...	<.05	<.05	<.05	<.05	<.05	<.02	<.02	<.05	<.05	<.05	-66.50	-8.74
474127096164701 WL05 149N44W27CDBA Wetland near G12 (LAT 47 41 27N LONG 096 16 47W)												
JUL 2004 15...	<.05	<.05	<.05	<.05	<.05	<.02	<.02	<.05	<.05	<.05	-56.60	-7.01
474129096180001 WL07 149N44W28CADC Wetland near G13 (LAT 47 41 29N LONG 096 18 00W)												
JUL 2004 15...	<.05	<.05	<.05	<.05	<.05	<.02	<.02	<.05	<.05	<.05	-72.30	-9.93
474228096171901 WL09 149N44W21DAAD Wetland near G24 (LAT 47 42 29N LONG 096 17 18W)												
JUL 2004 16...	<.05	<.05	<.05	<.05	<.05	<.02	<.02	<.05	<.05	<.05	-57.50	-6.32
474328096144201 WL10 149N43W14ADDA Wetland S of G17 (LAT 47 43 28N LONG 096 14 42W)												
JUL 2004 15...	<.05	<.05	<.05	<.05	<.05	<.02	<.02	<.05	<.05	<.05	-62.40	-8.27
15...	<.05	<.05	<.05	<.05	<.05	<.02	<.02	<.05	<.05	<.05	--	--
474205096110401 WL11 149N43W20DDCC Wetland E of G16 (LAT 47 42 05N LONG 096 11 04W)												
JUL 2004 16...	<.05	<.05	<.05	<.05	<.05	<.02	<.02	<.05	<.05	<.05	-63.10	-8.30

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GRAND PORTAGE HYDROLOGY WATER QUALITY

MISCELLANEOUS STATION ANALYSES

Date	Time	Sample type	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf lab, uS/cm 25 degC (90095)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)
475658089492701 NORTH LAKE NEAR MINERAL CENTER, MN (LAT 47 56 58N LONG 089 49 27W)												
MAY 2004 18...	1130	Environmental	730	7.0	66	6.9	6.7	94	86	15.0	11.8	14.8
475656089493301 North SW063N05E08DDDB (LAT 47 56 56N LONG 089 49 33W)												
MAY 2004 19...	1300	Environmental	730	.3	2	5.8	6.7	150	162	24.0	9.9	24.6
475655089492801 North S063N05E08DDDA (LAT 47 56 55N LONG 089 49 28W)												
MAY 2004 19...	1200	Environmental	730	.2	2	5.4	6.0	137	147	24.5	10.6	24.9
475702089493602 North NNW063N05E08DDBA (LAT 47 57 02N LONG 089 49 36W)												
MAY 2004 18...	1600	Environmental	730	5.4	52	5.7	6.5	114	132	16.5	13.1	19.5
475701089492401 North NEE063N05E09CCBB (LAT 47 57 01N LONG 089 49 24W)												
MAY 2004 18...	1230	Environmental	730	.2	2	5.5	6.3	139	136	17.0	8.0	17.2
475657089492201 North SE063N05E09CCCB (LAT 47 56 57N LONG 089 49 22W)												
MAY 2004 19...	1430	Environmental	728	.2	1	5.8	6.7	80	79	20.5	9.6	12.3
475604089492901 TaylorLkE063N05E17DDD (LAT 47 56 04N LONG 089 49 29W)												
AUG 2004 31...	1130	Environmental	722	8.8	95	7.0	7.8	48	47	17.5	17.2	6.55
475605089494701 TaylorLkW 063N05E17DC (LAT 47 56 05N LONG 089 49 47W)												
AUG 2004 31...	1230	Environmental	722	8.6	91	7.3	7.8	49	47	17.5	17.1	6.58
475609089493201 TaylorNNE063N05E17DD (LAT 47 56 09N LONG 089 49 32W)												
SEP 2004 01...	1130	Environmental	728	.8	8	6.0	6.3	62	61	13.5	14.7	8.80
475609089493001 Taylor NE063N05E17DD (LAT 47 56 09N LONG 089 49 30W)												
SEP 2004 01...	1030	Environmental	727	2.9	29	6.4	6.6	49	46	13.0	15.1	7.07
475601089494801 Taylor S063N05E17DC (LAT 47 56 01N LONG 089 49 48W)												
SEP 2004 01...	1330	Environmental	728	1.8	17	5.8	--	--	211	14.0	13.6	--
475608089493701 Taylor N063N05E17DD (LAT 47 56 08N LONG 089 49 37W)												
SEP 2004 01...	1200	Environmental	728	.9	9	5.9	6.3	270	285	15.5	16.2	30.1
475609089500001 Taylor W063N05E17DC (LAT 47 56 09N LONG 089 50 00W)												
SEP 2004 01...	1500	Environmental	728	.3	2	5.7	--	--	245	14.0	14.2	--
475602089493801 Taylor SE063N05E17DD (LAT 47 56 02N LONG 089 49 38W)												
SEP 2004 02...	1230	Environmental	721	1.3	13	6.2	6.3	63	74	16.5	14.1	11.0
02...	1235	Replicate	--	--	--	--	6.2	63	--	--	--	10.6

GRAND PORTAGE HYDROLOGY WATER QUALITY—Continued

MISCELLANEOUS STATION ANALYSES—CONTINUED

Date	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	Alkalinity, wat flt inc tit field, mg/L as CaCO3 (39086)	Bicarbonate, wat flt incrm. titr., field, mg/L (00453)	Bromide water, fltrd, mg/L (71870)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Ammonia + org-N, water, fltrd, mg/L as N (00623)	Ammonia + org-N, water, unfltrd mg/L as N (00625)
475658089492701 NORTH LAKE NEAR MINERAL CENTER, MN (LAT 47 56 58N LONG 089 49 27W)													
MAY 2004 18...	2.42	<.16	1.17	44	54	--	.25	<.2	6.16	2.5	64	.30	.41
475656089493301 North SW063N05E08DDDB (LAT 47 56 56N LONG 089 49 33W)													
MAY 2004 19...	4.89	.22	1.42	76	93	.03	.48	<.2	13.9	1.4	126	--	--
475655089492801 North S063N05E08DDDA (LAT 47 56 55N LONG 089 49 28W)													
MAY 2004 19...	2.49	<.16	1.34	73	90	.05	E.12	<.2	19.4	<.2	130	--	--
475702089493602 North NNW063N05E08DDBA (LAT 47 57 02N LONG 089 49 36W)													
MAY 2004 18...	3.62	<.16	1.45	64	78	.37	.65	<.2	16.3	<.2	147	--	--
475701089492401 North NEE063N05E09CCBB (LAT 47 57 01N LONG 089 49 24W)													
MAY 2004 18...	5.19	.19	1.75	71	86	.02	.22	<.2	31.3	<.2	112	--	--
475657089492201 North SE063N05E09CCCB (LAT 47 56 57N LONG 089 49 22W)													
MAY 2004 19...	2.24	E.10	1.04	40	49	<.02	E.12	<.2	10.4	1.2	70	--	--
475604089492901 TaylorLkE063N05E17DDD (LAT 47 56 04N LONG 089 49 29W)													
AUG 2004 31...	1.46	E.12	.71	22	27	--	<.20	<.2	.93	.7	34	.33	.46
475605089494701 TaylorLkW 063N05E17DC (LAT 47 56 05N LONG 089 49 47W)													
AUG 2004 31...	1.47	.17	.65	22	27	--	E.10	<.2	.91	.7	34	.33	.44
475609089493201 TaylorNNE063N05E17DD (LAT 47 56 09N LONG 089 49 32W)													
SEP 2004 01...	2.20	.20	.80	28	34	.08	<.20	<.2	2.80	.2	36	--	--
475609089493001 Taylor NE063N05E17DD (LAT 47 56 09N LONG 089 49 30W)													
SEP 2004 01...	1.65	E.12	.68	22	27	<.02	<.20	<.2	1.89	.5	34	--	--
475601089494801 Taylor S063N05E17DC (LAT 47 56 01N LONG 089 49 48W)													
SEP 2004 01...	--	--	--	93	114	--	--	--	--	--	--	--	--
475608089493701 Taylor N063N05E17DD (LAT 47 56 08N LONG 089 49 37W)													
SEP 2004 01...	13.4	1.73	1.75	154	188	<.80	.35	<.2	29.2	.2	216	--	--
475609089500001 Taylor W063N05E17DC (LAT 47 56 09N LONG 089 50 00W)													
SEP 2004 01...	--	--	--	111	136	--	--	--	--	--	--	--	--
475602089493801 Taylor SE063N05E17DD (LAT 47 56 02N LONG 089 49 38W)													
SEP 2004 02...	1.83	.33	.77	31	37	.08	.26	<.2	3.30	.3	44	--	--
02...	1.80	.25	.75	--	--	.08	E.17	<.2	3.33	.3	47	--	--

GRAND PORTAGE HYDROLOGY WATER QUALITY—Continued

MISCELLANEOUS STATION ANALYSES—CONTINUED

Date	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Phos-phorus, water, fltrd, mg/L (00666)	Phos-phorus, water, unfltrd mg/L (00665)	Total nitro-gen, wat flt by anal ysis, mg/L (62854)	Boron, water, fltrd, ug/L (01020)	Iron, water, fltrd, ug/L (01046)	Mangan-ese, water, fltrd, ug/L (01056)	Deu-terium/ Protium ratio, water, unfltrd per mil (82082)	O-18 / O-16 ratio, water, unfltrd per mil (82085)
475658089492701 NORTH LAKE NEAR MINERAL CENTER, MN (LAT 47 56 58N LONG 089 49 27W)												
MAY 2004 18...	E.02	<.06	<.008	<.02	E.003	.007	--	E6.3	32	E.7	-80.80	-11.12
475656089493301 North SW063N05E08DDDB (LAT 47 56 56N LONG 089 49 33W)												
MAY 2004 19...	.24	<.06	<.008	.015	.021	--	.52	E5.2	581	30.6	-73.10	-9.58
475655089492801 North S063N05E08DDDA (LAT 47 56 55N LONG 089 49 28W)												
MAY 2004 19...	.76	<.06	<.008	.021	.027	--	1.15	7.5	1,040	65.1	-67.40	-8.79
475702089493602 North NNW063N05E08DDBA (LAT 47 57 02N LONG 089 49 36W)												
MAY 2004 18...	.12	<.06	E.004	.012	.027	--	1.04	<7.0	11,800	638	-67.90	-8.16
475701089492401 North NEE063N05E09CCBB (LAT 47 57 01N LONG 089 49 24W)												
MAY 2004 18...	2.19	<.06	<.008	.108	.123	--	2.42	14	636	20.9	-77.60	-10.75
475657089492201 North SE063N05E09CCCB (LAT 47 56 57N LONG 089 49 22W)												
MAY 2004 19...	.12	<.06	<.008	E.003	.004	--	.32	E5.7	329	5.4	-84.80	-12.14
475604089492901 TaylorLkE063N05E17DDD (LAT 47 56 04N LONG 089 49 29W)												
AUG 2004 31...	<.04	<.06	<.008	<.02	.005	.011	--	E5.6	46	<.8	-57.80	-5.82
475605089494701 TaylorLkW 063N05E17DC (LAT 47 56 05N LONG 089 49 47W)												
AUG 2004 31...	<.04	<.06	<.008	<.02	E.003	.010	--	E5.8	38	<.8	-57.40	-5.92
475609089493201 TaylorNNE063N05E17DD (LAT 47 56 09N LONG 089 49 32W)												
SEP 2004 01...	.06	<.06	<.008	.008	.015	--	.50	E4.0	1,930	94.2	-58.00	-6.01
475609089493001 Taylor NE063N05E17DD (LAT 47 56 09N LONG 089 49 30W)												
SEP 2004 01...	E.02	<.06	<.008	E.003	.010	--	.43	E4.8	303	41.4	-58.40	-6.02
475601089494801 Taylor S063N05E17DC (LAT 47 56 01N LONG 089 49 48W)												
SEP 2004 01...	3.97	<.06	.012	.397	.32	--	4.42	--	--	--	-67.00	-8.12
475608089493701 Taylor N063N05E17DD (LAT 47 56 08N LONG 089 49 37W)												
SEP 2004 01...	2.35	<.06	<.008	.015	.52	--	2.97	<35	31,200	541	-61.70	-7.10
475609089500001 Taylor W063N05E17DC (LAT 47 56 09N LONG 089 50 00W)												
SEP 2004 01...	<.04	<.06	E.004	.038	.045	--	.82	--	--	--	-62.30	-6.84
475602089493801 Taylor SE063N05E17DD (LAT 47 56 02N LONG 089 49 38W)												
SEP 2004 02...	.22	<.06	<.008	.042	.053	--	.70	E5.7	1,240	95.3	-59.10	-6.30
02...	.23	<.06	<.008	.044	.055	--	.69	<7.0	1,190	94.8	-59.90	-6.30

GRAND PORTAGE HYDROLOGY WATER QUALITY—Continued

MISCELLANEOUS STATION ANALYSES—CONTINUED

Date	Time	Sample type	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf lab, uS/cm 25 degC (90095)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)
475604089492201 Taylor E063N05E17CC (LAT 47 56 04N LONG 089 49 22W)												
SEP 2004												
02...	1030	Environmental	722	.2	2	5.6	5.9	80	123	15.0	15.1	12.0
475814089412801 Grand Portage Precip Station At Grand Portage, MN (LAT 47 58 14N LONG 089 41 28W)												
MAY												
2004												
20...	0800	Environmental	--	--	--	--	--	--	--	--	--	--
31...	1015	Environmental	--	--	--	--	--	--	--	--	--	--
JUL												
05...	1000	Environmental	--	--	--	--	--	--	--	--	--	--
29...	0830	Environmental	--	--	--	--	--	--	--	--	--	--
AUG												
24...	1300	Environmental	--	--	--	--	--	--	--	--	--	--
475702089493601 North Lake Precip Station nr Mineral Center, MN (LAT 47 57 02N LONG 089 49 36W)												
MAY												
2004												
20...	0830	Environmental	--	--	--	--	--	--	--	--	--	--
31...	1230	Environmental	--	--	--	--	--	--	--	--	--	--
JUL												
05...	0905	Environmental	--	--	--	--	--	--	--	--	--	--
29...	1010	Environmental	--	--	--	--	--	--	--	--	--	--

Date	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	Alkalinity, wat flt inc tit field, mg/L as CaCO3 (39086)	Bicarbonate, wat flt incrm. titr., field, mg/L (00453)	Bromide water, fltrd, mg/L (71870)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)
475604089492201 Taylor E063N05E17CC (LAT 47 56 04N LONG 089 49 22W)													
SEP 2004													
02...	2.69	<.16	1.14	44	54	.35	E.16	<.2	5.82	E.1	96	.24	<.06

Date	Nitrite water, fltrd, mg/L as N (00613)	Orthophosphate, water, fltrd, mg/L as P (00671)	Phosphorus, water, fltrd, mg/L (00666)	Total nitrogen, wat flt by analysis, mg/L (62854)	Total nitrogen, wat unf by analysis, mg/L (62855)	Boron, water, fltrd, ug/L (01020)	Iron, water, fltrd, ug/L (01046)	Manganese, water, fltrd, ug/L (01056)	Deuterium/ Protium ratio, water, unfltrd per mil (82082)	O-18 / O-16 ratio, water, unfltrd per mil (82085)
475604089492201 Taylor E063N05E17CC (LAT 47 56 04N LONG 089 49 22W)										
SEP 2004										
02...	.010	.081	.099	1.20	--	E4.5	9,430	130	-60.10	-6.50
475814089412801 Grand Portage Precip Station At Grand Portage, MN (LAT 47 58 14N LONG 089 41 28W)										
MAY										
2004										
20...	--	--	--	--	.67	--	--	--	-54.60	-5.39
31...	--	--	--	--	.59	--	--	--	-44.80	-6.91
JUL										
05...	--	--	--	--	.42	--	--	--	-56.10	-8.10
29...	--	--	--	--	2.29	--	--	--	-28.80	-5.02
AUG										
24...	--	--	--	--	1.53	--	--	--	-44.40	-7.39
475702089493601 North Lake Precip Station nr Mineral Center, MN (LAT 47 57 02N LONG 089 49 36W)										
MAY										
2004										
20...	--	--	--	--	3.15	--	--	--	-56.40	-6.07
31...	--	--	--	--	.51	--	--	--	-48.50	-7.93
JUL										
05...	--	--	--	--	2.77	--	--	--	-53.50	-7.80
29...	--	--	--	--	8.36	--	--	--	-31.50	-5.62

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ANALYSIS OF WATER AND BED SEDIMENTS AT SEGUCHIE CREEK SITES NEAR US HWY 169, MILLE LACS LAKE AREA

MISCELLANEOUS STATION ANALYSES

Date	Time	Sample type	Instantaneous discharge, cfs (00061)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf lab, uS/cm 25 degC (90095)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)
05284310 SEGUCHIE CREEK ABOVE MOUTH NEAR GARRISON, MN (LAT 46 15 13N LONG 093 49 15W)												
OCT 2003												
09...	1130	Environmental	4.8	728	3.0	32	7.1	7.7	208	223	19.0	15.1
09...	1130	Bed material	--	--	--	--	--	--	--	--	--	--
NOV												
10...	1100	Environmental	4.2	731	11.1	80	7.4	7.5	215	211	2.0	.3
DEC												
29...	0900	Blank	--	--	--	--	--	6.4	E4	--	--	--
29...	1140	Environmental	5.9	724	11.0	77	7.5	7.6	236	232	-1.0	.7
29...	1145	Replicate	5.9	--	--	--	--	7.6	237	--	--	--
FEB 2004												
09...	1230	Environmental	6.1	725	9.3	64	7.5	E7.5	246	252	-2.0	.1
MAR												
24...	1045	Environmental	6.3	726	8.3	61	7.3	7.9	235	246	15.0	2.7
MAY												
04...	1000	Environmental	12	727	9.1	82	7.7	7.8	208	218	9.0	10.6
04...	1000	Bed material	--	--	--	--	--	--	--	--	--	--
JUN												
16...	0945	Environmental	7.8	733	4.5	50	7.2	7.8	198	215	20.0	20.6
JUL												
28...	1000	Environmental	.56	727	.8	8	6.9	7.8	216	225	18.0	21.0
AUG												
05...	1210	Environmental	--	--	--	--	--	--	--	217	--	--
05...	1215	Environmental	--	--	--	--	--	--	--	216	--	--
07...	0600	Environmental	--	--	--	--	--	--	197	220	--	20.5
08...	0600	Environmental	--	--	--	--	--	--	215	227	--	19.4
08...	1800	Environmental	--	--	--	--	--	--	--	232	--	21.9
09...	0600	Environmental	--	--	--	--	--	--	229	241	--	19.4
09...	1800	Environmental	--	--	--	--	--	--	--	233	--	20.7
10...	0600	Environmental	--	--	--	--	--	--	239	254	--	16.6
10...	1800	Environmental	--	--	--	--	--	--	--	245	--	16.1
11...	0600	Environmental	--	--	--	--	--	--	--	254	--	--
11...	1800	Environmental	--	--	--	--	--	--	234	248	--	14.8
12...	0600	Environmental	--	--	--	--	--	--	227	252	--	13.5
12...	1800	Environmental	--	--	--	--	--	--	--	244	--	15.8
13...	0600	Environmental	--	--	--	--	--	--	207	227	--	14.2
13...	1800	Environmental	--	--	--	--	--	--	--	223	--	16.0
14...	1800	Environmental	--	--	--	--	--	--	--	225	--	16.0
15...	0600	Environmental	--	--	--	--	--	--	--	233	--	14.9
15...	1800	Environmental	--	--	--	--	--	--	203	225	--	15.3
16...	0600	Environmental	--	--	--	--	--	--	--	241	--	16.6
16...	1800	Environmental	--	--	--	--	--	--	215	239	--	16.7
23...	0600	Environmental	--	--	--	--	--	--	259	265	--	15.2
26...	0600	Environmental	--	--	--	--	--	--	274	279	--	16.7
26...	1800	Environmental	--	--	--	--	--	--	276	283	--	16.9
28...	1800	Environmental	--	--	--	--	--	--	266	280	--	16.7
SEP												
09...	0845	Environmental	--	734	6.7	3	7.0	7.6	217	219	18.0	16.6
09...	0945	Bed material	--	--	--	--	--	--	--	--	--	--

ANALYSIS OF WATER AND BED SEDIMENTS ATSEGUCHIE CREEK SITES NEAR US HWY 169, MILLE LACS LAKE AREA—

MISCELLANEOUS STATION ANALYSES—CONTINUED

Date	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	Alkalinity, wat flt inc tit field, mg/L as CaCO3 (39086)	Bicarbonate, wat flt incrm. titr., field, mg/L (00453)	Carbonate, wat flt incrm. titr., field, mg/L (00452)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Ammonia + org-N, water, unfltrd mg/L as N (00625)
05284310 SEGUCHIE CREEK ABOVE MOUTH NEAR GARRISON, MN (LAT 46 15 13N LONG 093 49 15W)													
OCT 2003													
09...	33.1	7.54	1.60	2.41	108	132	.0	1.77	<.2	10.1	.7	143	.70
NOV													
10...	34.8	7.66	1.65	2.66	116	142	.0	1.66	<.2	12.0	1.0	144	.97
DEC													
29...	.01	<.008	<.16	<.10	--	--	--	<.20	<.2	<.04	<.2	<10	<.10
29...	36.6	8.37	1.76	2.74	126	154	.0	1.92	<.2	12.5	1.1	158	.80
29...	37.4	8.54	1.77	2.84	--	--	--	1.86	<.2	12.7	1.1	153	.83
FEB 2004													
09...	40.7	9.10	1.91	3.01	133	162	.0	2.08	<.2	13.4	1.2	169	.93
MAR													
24...	38.9	8.91	1.99	3.08	123	150	.0	2.47	<.2	12.0	1.4	167	--
MAY													
04...	33.7	7.37	1.54	2.52	110	134	.0	1.80	<.2	8.94	1.2	141	.71
JUN													
16...	31.3	7.24	1.35	2.58	105	128	.0	1.59	<.2	4.01	1.1	136	.54
JUL													
28...	34.1	7.68	.70	2.38	115	140	.0	1.06	<.2	9.25	.9	150	.56
AUG													
07...	--	--	--	--	--	--	--	1.19	--	--	--	--	--
08...	--	--	--	--	--	--	--	1.21	--	--	--	--	--
08...	--	--	--	--	--	--	--	1.44	--	--	--	--	--
09...	--	--	--	--	--	--	--	1.61	--	--	--	--	--
09...	--	--	--	--	--	--	--	1.37	--	--	--	--	--
10...	--	--	--	--	--	--	--	2.38	--	--	--	--	--
10...	--	--	--	--	--	--	--	1.92	--	--	--	--	--
11...	--	--	--	--	--	--	--	2.02	--	--	--	--	--
11...	--	--	--	--	--	--	--	1.21	--	--	--	--	--
12...	--	--	--	--	--	--	--	1.06	--	--	--	--	--
12...	--	--	--	--	--	--	--	.91	--	--	--	--	--
13...	--	--	--	--	--	--	--	.99	--	--	--	--	--
13...	--	--	--	--	--	--	--	1.06	--	--	--	--	--
15...	--	--	--	--	--	--	--	1.38	--	--	--	--	--
15...	--	--	--	--	--	--	--	1.29	--	--	--	--	--
16...	--	--	--	--	--	--	--	1.50	--	--	--	--	--
16...	--	--	--	--	--	--	--	1.58	--	--	--	--	--
23...	--	--	--	--	--	--	--	2.76	--	--	--	--	--
26...	--	--	--	--	--	--	--	3.76	--	--	--	--	--
26...	--	--	--	--	--	--	--	3.98	--	--	--	--	--
28...	--	--	--	--	--	--	--	2.82	--	--	--	--	--
SEP													
09...	32.8	8.17	1.29	2.57	111	135	.0	1.26	<.2	9.55	.6	144	.51

Date	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Orthophosphate, water, fltrd, mg/L as P (00671)	Phosphorus, water, fltrd, mg/L (00666)	Phosphorus, water, unfltrd mg/L (00665)	Aluminum, water, fltrd, ug/L (01106)	Antimony, water, fltrd, ug/L (01095)	Barium, water, fltrd, ug/L (01005)	Beryllium, water, fltrd, ug/L (01010)	Cadmium water, fltrd, ug/L (01025)	Chromium, water, fltrd, ug/L (01030)	Cobalt water, fltrd, ug/L (01035)
05284310 SEGUCHIE CREEK ABOVE MOUTH NEAR GARRISON, MN (LAT 46 15 13N LONG 093 49 15W)													
OCT 2003													
09...	E.02	.06	.011	<.02	<.04	.05	E1	<.20	25	<.06	<.04	2.4	.099
NOV													
10...	.04	E.04	<.008	<.02	<.04	.06	<2	<.20	23	<.06	<.04	<.8	.145
DEC													
29...	<.04	<.06	<.008	<.02	<.04	<.04	<2	<.20	<.2	<.06	<.04	<.8	<.014
29...	E.04	E.04	<.008	<.02	<.04	E.03	E1	<.20	25	<.06	<.04	<.8	.140
29...	E.04	E.04	<.008	<.02	<.04	E.03	E1	<.20	24	<.06	<.04	<.8	.136
FEB 2004													
09...	.10	.06	E.004	<.02	<.04	E.03	<2	<.20	26	<.06	<.04	<.8	.120
MAR													
24...	--	--	--	--	--	--	3	<.20	26	<.06	<.04	<.8	.134
MAY													
04...	<.04	E.04	E.004	<.02	<.04	E.03	E1	<.20	20	<.06	<.04	<.8	.132
JUN													
16...	<.04	<.06	<.008	<.02	<.04	<.04	M	<.20	21	<.06	<.04	<.8	.108
JUL													
28...	<.04	<.06	<.008	<.02	<.04	E.03	<2	<.20	22	<.06	<.04	<.8	.158
SEP													
09...	<.04	<.06	<.008	<.02	E.02	E.02	E1	<.20	21	<.06	<.04	<.8	.125

ANALYSIS OF WATER AND BED SEDIMENTS ATSEGUCHIE CREEK SITES NEAR US HWY 169, MILLE LACS LAKE AREA—

MISCELLANEOUS STATION ANALYSES—CONTINUED

Date	Copper, water, fltrd, ug/L (01040)	Iron, water, fltrd, ug/L (01046)	Lead, water, fltrd, ug/L (01049)	Manganese, water, fltrd, ug/L (01056)	Molybdenum, water, fltrd, ug/L (01060)	Nickel, water, fltrd, ug/L (01065)	Silver, water, fltrd, ug/L (01075)	Zinc, water, fltrd, ug/L (01090)	Uranium natural water, fltrd, ug/L (22703)	Suspnd. sediment, sieve diametr percent <.063mm (70331)	Suspended sediment concentration mg/L (80154)	Bed sediment, dry svd sve dia percent <1 mm (80168)	Bed sediment, dry svd sve dia percent <2 mm (80169)
05284310 SEGUCHIE CREEK ABOVE MOUTH NEAR GARRISON, MN (LAT 46 15 13N LONG 093 49 15W)													
OCT 2003													
09...	E.4	93	<.08	45.5	<.4	.41	<.2	<.6	E.03	51	5	--	--
09...	--	--	--	--	--	--	--	--	--	--	--	72	78
NOV													
10...	.6	58	<.08	30.8	<.4	.42	<.2	E.4	.04	51	17	--	--
DEC													
29...	E.2	<6	<.08	<.2	<.4	<.06	<.2	<.6	<.04	100	14	--	--
29...	.6	51	<.08	39.2	<.4	.64	<.2	<.6	.05	39	9	--	--
29...	.5	117	<.08	39.3	<.4	.64	<.2	<.6	.05	16	14	--	--
FEB 2004													
09...	E.3	35	<.08	63.3	E.3	.59	<.2	<.6	.06	100	1	--	--
MAR													
24...	.5	109	<.08	76.8	E.2	.62	<.2	E.3	.07	100	2	--	--
MAY													
04...	E.3	37	<.08	41.8	<.4	.58	<.2	.8	.06	86	3	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	73	80
JUN													
16...	E.4	50	E.04	27.6	<.4	.38	<.2	E.4	E.03	100	1	--	--
JUL													
28...	E.3	72	<.08	49.7	<.4	1.40	<.2	<.6	E.03	30	8	--	--
AUG													
05...	--	--	--	--	--	--	--	--	--	46	4	--	--
05...	--	--	--	--	--	--	--	--	--	50	2	--	--
07...	--	--	--	--	--	--	--	--	--	86	2	--	--
08...	--	--	--	--	--	--	--	--	--	67	1	--	--
08...	--	--	--	--	--	--	--	--	--	100	1	--	--
09...	--	--	--	--	--	--	--	--	--	71	2	--	--
09...	--	--	--	--	--	--	--	--	--	67	1	--	--
10...	--	--	--	--	--	--	--	--	--	77	4	--	--
10...	--	--	--	--	--	--	--	--	--	95	7	--	--
11...	--	--	--	--	--	--	--	--	--	80	2	--	--
11...	--	--	--	--	--	--	--	--	--	100	1	--	--
12...	--	--	--	--	--	--	--	--	--	97	32	--	--
12...	--	--	--	--	--	--	--	--	--	100	.0	--	--
13...	--	--	--	--	--	--	--	--	--	67	1	--	--
13...	--	--	--	--	--	--	--	--	--	100	.0	--	--
14...	--	--	--	--	--	--	--	--	--	50	1	--	--
15...	--	--	--	--	--	--	--	--	--	50	1	--	--
15...	--	--	--	--	--	--	--	--	--	100	.0	--	--
16...	--	--	--	--	--	--	--	--	--	82	4	--	--
16...	--	--	--	--	--	--	--	--	--	100	.0	--	--
SEP													
09...	.6	46	E.05	14.1	<.4	.41	<.2	E.6	E.03	--	--	--	--

Date	Bed sediment, dry svd sve dia percent <4 mm (80170)	Bed sediment falldia dst wat percent <.002mm (80294)	Bed sediment, falldia dst wat percent <.004mm (80157)	Bed sediment falldia dst wat percent <.008mm (80293)	Bed sediment, falldia dst wat percent <.016mm (80282)	Bed sediment, falldia dst wat percent <.031mm (80283)	Bed sediment, falldia dst wat percent <.125mm (80159)	Bed sediment, falldia dst wat percent <.25mm (80160)	Bed sediment, falldia dst wat percent <.5 mm (80161)	Bed sediment, falldia dst wat percent <1 mm (80162)	Bed sediment, falldia dst wat percent <2 mm (80163)
05284310 SEGUCHIE CREEK ABOVE MOUTH NEAR GARRISON, MN (LAT 46 15 13N LONG 093 49 15W)											
OCT 2003											
09...	83	.0	.0	.0	.0	1	3	24	61	72	72
MAY											
04...	89	1	2	2	2	3	--	--	--	--	--

ANALYSIS OF WATER AND BED SEDIMENTS ATSEGUCHIE CREEK SITES NEAR US HWY 169, MILLE LACS LAKE AREA—

MISCELLANEOUS STATION ANALYSES—CONTINUED

Date	Time	Sample type	Instantaneous discharge, cfs (00061)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf lab, uS/cm 25 degC (90095)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)
05284305 SEGUCHIE CREEK AT HOLT LAKE OUTLET, NEAR GARRISON (LAT 46 15 07N LONG 093 49 38W)												
OCT 2003												
09...	1125	Environmental	4.5	728	7.9	80	7.7	7.8	204	217	19.0	13.8
09...	1125	Bed material	--	--	--	--	--	--	--	--	--	--
NOV												
10...	1200	Environmental	4.3	731	13.2	100	8.1	E7.6	217	216	2.0	2.0
DEC												
29...	1445	Environmental	8.3	724	12.2	88	7.1	7.6	235	230	-3.0	2.2
29...	1450	Replicate	8.3	--	--	--	--	7.5	236	--	--	--
FEB 2004												
09...	1350	Environmental	6.8	725	9.9	70	7.5	7.9	248	252	-2.0	1.2
MAR												
24...	1200	Environmental	5.8	726	8.9	67	7.5	8.0	244	258	15.0	3.4
MAY												
04...	1130	Environmental	11	727	10.3	94	7.9	7.9	212	219	9.0	11.3
04...	1130	Bed material	--	--	--	--	--	--	--	--	--	--
JUN												
16...	1110	Environmental	6.2	733	7.8	88	7.7	7.8	196	210	20.0	21.3
JUL												
28...	1100	Blank	--	--	--	--	--	E7.0	<3	--	21.2	--
28...	1145	Environmental	1.4	727	4.4	51	7.2	7.5	208	220	21.2	22.4
AUG												
05...	0900	Environmental	--	--	--	--	--	--	--	--	--	--
05...	0915	Environmental	--	--	--	--	--	--	--	--	--	--
07...	0600	Environmental	--	--	--	--	--	--	--	218	--	21.3
08...	0600	Environmental	--	--	--	--	--	--	209	220	--	20.1
09...	0600	Environmental	--	--	--	--	--	--	208	220	--	20.5
10...	0600	Environmental	--	--	--	--	--	--	210	220	--	17.8
11...	0600	Environmental	--	--	--	--	--	--	209	220	--	16.0
12...	0600	Environmental	--	--	--	--	--	--	--	221	--	15.7
13...	0600	Environmental	--	--	--	--	--	--	210	220	--	15.8
14...	1800	Environmental	--	--	--	--	--	--	--	223	--	19.0
15...	1800	Environmental	--	--	--	--	--	--	210	224	--	19.8
16...	1800	Environmental	--	--	--	--	--	--	216	226	--	20.3
23...	0600	Environmental	--	--	--	--	--	--	226	230	--	17.2
26...	0600	Environmental	--	--	--	--	--	--	226	229	--	18.5
28...	1800	Environmental	--	--	--	--	--	--	226	231	--	20.4
SEP												
09...	1145	Bed material	--	--	--	--	--	--	--	--	--	--
09...	1230	Environmental	--	734	6.7	72	7.6	7.8	219	222	20.0	18.6

ANALYSIS OF WATER AND BED SEDIMENTS ATSEGUCHIE CREEK SITES NEAR US HWY 169, MILLE LACS LAKE AREA—

MISCELLANEOUS STATION ANALYSES—CONTINUED

Date	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	Alkalinity, wat flt inc tit field, mg/L as CaCO3 (39086)	Bicarbonate, wat flt incrm. titr., field, mg/L (00453)	Carbonate, wat flt incrm. titr., field, mg/L (00452)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Ammonia + org-N, water, unfltrd mg/L as N (00625)
05284305 SEGUCHIE CREEK AT HOLT LAKE OUTLET, NEAR GARRISON (LAT 46 15 07N LONG 093 49 38W)													
OCT 2003													
09...	33.4	7.75	1.64	2.57	108	132	.0	1.41	<.2	11.2	.7	147	1.1
NOV													
10...	35.2	9.03	1.70	2.65	140	115	--	1.61	<.2	12.0	1.0	149	.72
DEC													
29...	36.4	8.31	1.65	2.66	124	151	.0	1.95	<.2	12.4	1.1	154	.72
29...	37.3	8.50	1.73	2.72	--	--	--	1.65	<.2	12.4	1.1	150	.69
FEB 2004													
09...	41.2	9.21	1.85	3.04	131	160	.0	1.79	<.2	13.3	1.1	175	.94
MAR													
24...	40.9	9.23	1.86	3.09	129	157	.0	2.27	<.2	12.5	1.4	178	--
MAY													
04...	34.0	7.38	1.55	2.46	111	135	.0	1.54	<.2	9.39	1.1	144	.60
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUN													
16...	30.6	7.19	1.53	2.58	106	129	.0	1.67	<.2	5.84	1.2	135	.63
JUL													
28...	E.01	<.008	<.16	<.10	--	--	--	<.20	<.2	<.04	<.2	<10	<.10
28...	32.6	7.31	.93	2.36	114	139	.0	1.11	<.2	8.05	1.1	141	.63
AUG													
08...	--	--	--	--	--	--	--	1.14	--	--	--	--	--
09...	--	--	--	--	--	--	--	1.13	--	--	--	--	--
10...	--	--	--	--	--	--	--	1.11	--	--	--	--	--
11...	--	--	--	--	--	--	--	1.14	--	--	--	--	--
12...	--	--	--	--	--	--	--	1.16	--	--	--	--	--
13...	--	--	--	--	--	--	--	1.17	--	--	--	--	--
14...	--	--	--	--	--	--	--	1.16	--	--	--	--	--
15...	--	--	--	--	--	--	--	1.14	--	--	--	--	--
16...	--	--	--	--	--	--	--	1.16	--	--	--	--	--
23...	--	--	--	--	--	--	--	1.21	--	--	--	--	--
26...	--	--	--	--	--	--	--	1.32	--	--	--	--	--
28...	--	--	--	--	--	--	--	1.24	--	--	--	--	--
SEP													
09...	32.2	7.87	1.20	2.41	111	135	.0	1.38	<.2	9.80	.8	140	.62

Date	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Orthophosphate, water, fltrd, mg/L as P (00671)	Phosphorus, water, fltrd, mg/L (00666)	Phosphorus, water, unfltrd mg/L (00665)	Aluminum, water, fltrd, ug/L (01106)	Antimony, water, fltrd, ug/L (01095)	Barium, water, fltrd, ug/L (01005)	Beryllium, water, fltrd, ug/L (01010)	Cadmium water, fltrd, ug/L (01025)	Chromium, water, fltrd, ug/L (01030)	Cobalt water, fltrd, ug/L (01035)
05284305 SEGUCHIE CREEK AT HOLT LAKE OUTLET, NEAR GARRISON (LAT 46 15 07N LONG 093 49 38W)													
OCT 2003													
09...	<.04	<.06	E.005	<.02	<.04	.05	M	<.20	23	<.06	<.04	<.8	.088
NOV													
10...	<.04	<.06	<.008	<.02	<.04	<.04	<2	<.20	23	<.06	<.04	<.8	.139
DEC													
29...	.04	E.03	<.008	<.02	<.04	<.04	<2	<.20	24	<.06	<.04	<.8	.131
29...	<.04	<.06	<.008	<.02	<.04	E.02	<2	<.20	25	<.06	<.04	<.8	.141
FEB 2004													
09...	.08	E.06	E.004	<.02	<.04	<.04	<2	<.20	26	<.06	<.04	<.8	.115
MAR													
24...	--	--	--	--	--	--	<2	<.20	27	<.06	<.04	<.8	.123
MAY													
04...	<.04	<.06	<.008	<.02	<.04	E.02	<2	<.20	20	<.06	<.04	<.8	.126
JUN													
16...	<.04	<.06	<.008	<.02	<.04	<.04	M	<.20	18	<.06	<.04	<.8	.103
JUL													
28...	<.04	<.06	<.008	<.02	<.04	<.04	<2	<.20	<.2	<.06	<.04	<.8	<.014
28...	<.04	<.06	<.008	<.02	<.04	E.02	<2	<.20	22	<.06	<.04	<.8	.123
SEP													
09...	<.04	<.06	<.008	<.02	<.04	<.04	<2	<.20	22	<.06	<.04	<.8	.114

ANALYSIS OF WATER AND BED SEDIMENTS ATSEGUCHIE CREEK SITES NEAR US HWY 169, MILLE LACS LAKE AREA—

Date	Copper, water, fltrd, ug/L (01040)	Iron, water, fltrd, ug/L (01046)	Lead, water, fltrd, ug/L (01049)	Manganese, water, fltrd, ug/L (01056)	Molybdenum, water, fltrd, ug/L (01060)	Nickel, water, fltrd, ug/L (01065)	Silver, water, fltrd, ug/L (01075)	Zinc, water, fltrd, ug/L (01090)	Uranium natural water, fltrd, ug/L (22703)	Suspnd. sediment, sieve diametr percent <.063mm (70331)	Suspended sediment concentration mg/L (80154)	Bed sediment, dry svd sve dia percent <1 mm (80168)	Bed sediment, dry svd sve dia percent <2 mm (80169)
05284305 SEGUCHIE CREEK AT HOLT LAKE OUTLET, NEAR GARRISON (LAT 46 15 07N LONG 093 49 38W)													
OCT 2003													
09...	.5	20	<.08	30.0	<.4	.42	<.2	<.6	E.03	56	32	--	--
09...	--	--	--	--	--	--	--	--	--	--	--	75	83
NOV													
10...	.6	18	E.04	9.1	E.3	.41	<.2	<.6	E.04	100	2	--	--
DEC													
29...	E.4	25	<.08	26.4	<.4	.61	<.2	<.6	.05	80	2	--	--
29...	.4	24	<.08	26.8	<.4	.59	<.2	<.6	.04	53	7	--	--
FEB 2004													
09...	.8	30	<.08	86.8	E.3	.55	<.2	<.6	.06	100	4	--	--
MAR													
24...	E.4	37	<.08	46.2	<.4	.58	<.2	<.6	.07	60	2	--	--
MAY													
04...	.6	21	<.08	18.5	<.4	.54	<.2	<.6	.05	100	.0	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	89	93
JUN													
16...	1.5	25	E.06	30.4	<.4	.32	<.2	.7	.05	89	3	--	--
JUL													
28...	<.4	<6	<.08	<.2	<.4	<.06	<.2	<.6	<.04	100	.0	--	--
28...	.9	20	<.08	35.2	E.3	.70	<.2	<.6	E.04	29	3	--	--
AUG													
05...	--	--	--	--	--	--	--	--	--	74	7	--	--
05...	--	--	--	--	--	--	--	--	--	100	.0	--	--
07...	--	--	--	--	--	--	--	--	--	100	1	--	--
08...	--	--	--	--	--	--	--	--	--	50	2	--	--
09...	--	--	--	--	--	--	--	--	--	100	1	--	--
10...	--	--	--	--	--	--	--	--	--	100	1	--	--
11...	--	--	--	--	--	--	--	--	--	100	1	--	--
12...	--	--	--	--	--	--	--	--	--	100	.0	--	--
13...	--	--	--	--	--	--	--	--	--	16	7	--	--
14...	--	--	--	--	--	--	--	--	--	100	.0	--	--
15...	--	--	--	--	--	--	--	--	--	.0	.0	--	--
16...	--	--	--	--	--	--	--	--	--	33	1	--	--
SEP													
09...	.4	12	<.08	9.4	<.4	.34	<.2	E.5	E.04	--	--	--	--

Date	Bed sediment, dry svd sve dia percent <4 mm (80170)	Bed sediment falldia dst wat percent <.002mm (80294)	Bed sediment, falldia dst wat percent <.004mm (80157)	Bed sediment falldia dst wat percent <.008mm (80293)	Bed sediment, falldia dst wat percent <.016mm (80282)	Bed sediment, falldia dst wat percent <.031mm (80283)	Bed sediment, falldia dst wat percent <.063mm (80158)	Bed sediment, falldia dst wat percent <.125mm (80159)	Bed sediment, falldia dst wat percent <.25mm (80160)	Bed sediment, falldia dst wat percent <.5 mm (80161)	Bed sediment, falldia dst wat percent <1 mm (80162)	Bed sediment, falldia dst wat percent <2 mm (80163)
05284305 SEGUCHIE CREEK AT HOLT LAKE OUTLET, NEAR GARRISON (LAT 46 15 07N LONG 093 49 38W)												
OCT 2003												
09...	89	.0	1	2	2	2	3	5	24	61	75	75
MAY												
04...	95	1	2	2	3	4	--	--	--	--	--	--

ANALISYS OF WATER AND BED SEDIMENTS IN WETLANDS NEAR US HIGHWAY 169, MILLE LACS LAKE AREA

MISCELLANEOUS STATION ANALYSES

Date	Time	Sample type	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Calcium bed sed <62.5um wet svd field, total, percent (34830)	Magnesium, bed sed <62.5um wet svd fld,tot percent (34900)	Potassium, bed sed <62.5um wet svd fld,tot percent (34940)
461546093493601 WETLAND 16 WEST OF ST. ALBANS BAY NEAR GARRISON,MN (LAT 46 15 46N LONG 093 49 36W)												
OCT 2003												
09...	1550	Bed material	--	2.2	--	6.2	50	--	13.6	1.4	.260	.520
09...	1555	Environmental	--	2.2	--	6.2	50	--	13.6	--	--	--
SEP 2004												
09...	1400	Environmental	734	4.2	41	4.8	64	23.0	15.0	--	--	--
09...	1405	Composite (time)	734	4.2	41	4.8	64	23.0	15.0	--	--	--
461814093500401 WETLAND 9 SOUTHEAST OF BORDEN LK OTFLW NR GARRISON (LAT 46 18 14N LONG 093 50 04W)												
OCT 2003												
10...	1215	Bed material	--	.6	--	5.7	64	--	10.5	.830	.190	.330
10...	1220	Environmental	--	.6	--	5.7	64	--	10.5	--	--	--
SEP 2004												
10...	0930	Environmental	729	1.7	16	5.2	63	21.0	14.5	--	--	--
10...	0935	Composite (time)	729	1.7	16	5.2	63	21.0	14.5	--	--	--
461715093494201 WETLAND 15 SOUTH OF GARRISON, MN (LAT 46 17 15N LONG 093 49 42W)												
OCT 2003												
10...	0915	Bed material	--	2.2	--	6.8	91	--	12.7	1.4	.740	1.1
10...	0920	Environmental	--	2.2	--	6.8	91	--	12.7	--	--	--
SEP 2004												
09...	1540	Environmental	734	7.0	72	6.7	84	23.0	17.4	--	--	--
09...	1545	Composite (time)	734	7.0	72	6.7	84	23.0	17.4	--	--	--

Date	Sodium, bed sed <62.5um wet svd field, total, percent (34960)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Orthophosphate, water, fltrd, mg/L as P (00671)	Phosphorus, water, fltrd, mg/L (00666)	Phosphorus, water, unfltrd mg/L (00665)	Phosphorus, bed sed <62.5um wet svd fld,tot percent (34935)	Aluminum, bed sed <62.5um wet svd fld,tot percent (34790)	Antimony, bed sed <62.5um wet svd fld,tot ug/g (34795)	Arsenic bed sed <62.5um wet svd field, total, ug/g (34800)	Barium, bed sed <62.5um wet svd field, total, ug/g (34805)
461546093493601 WETLAND 16 WEST OF ST. ALBANS BAY NEAR GARRISON,MN (LAT 46 15 46N LONG 093 49 36W)													
OCT 2003													
09...	.330	--	--	--	--	--	--	--	.170	1.7	.2	2.4	210
09...	--	4.9	<.04	<.06	E.005	E.01	.06	.80	--	--	--	--	--
SEP 2004													
09...	--	5.6	<.04	<.06	<.008	<.02	.05	.45	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--	--	--
461814093500401 WETLAND 9 SOUTHEAST OF BORDEN LK OTFLW NR GARRISON (LAT 46 18 14N LONG 093 50 04W)													
OCT 2003													
10...	.190	--	--	--	--	--	--	--	.170	1.2	.6	6.2	150
10...	--	38	<.04	<.06	.012	<.02	.13	6.43	--	--	--	--	--
SEP 2004													
10...	--	6.1	.08	<.06	E.007	.02	.11	.48	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
461715093494201 WETLAND 15 SOUTH OF GARRISON, MN (LAT 46 17 15N LONG 093 49 42W)													
OCT 2003													
10...	.960	--	--	--	--	--	--	--	.140	4.6	.6	8.2	370
10...	--	1.3	<.04	<.06	<.008	<.02	E.04	.11	--	--	--	--	--
SEP 2004													
09...	--	1.8	<.04	<.06	<.008	<.02	.05	.19	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--	--	--

ANALYSIS OF WATER AND BED SEDIMENTS IN WETLANDS NEAR US HIGHWAY 169, MILLE LACS LAKE AREA—

MISCELLANEOUS STATION ANALYSES—CONTINUED

Date	Beryll-ium, bed sed <62.5um wet svd fld,tot ug/g (34810)	Bismuth bed sed <177um wet svd field, total, ug/g (34816)	Cadmium bed sed <62.5um wet svd field, total, ug/g (34825)	Cerium, bed sed <62.5um wet svd field, total, ug/g (34835)	Chrom-ium, bed sed <62.5um wet svd fld,tot ug/g (34840)	Cobalt, bed sed <62.5um wet svd field, total, ug/g (34845)	Copper, bed sed <62.5um wet svd field, total, ug/g (34850)	Europ-ium, bed sed <62.5um wet svd fld,tot ug/g (34855)	Gallium bed sed <62.5um wet svd field, total, ug/g (34860)	Gold, bed sed <62.5um wet svd field, total, ug/g (34870)	Holmium bed sed <62.5um wet svd field, total, ug/g (34875)	Iron, bed sed <62.5um wet svd field, total, percent (34880)	Lantha-num, bed sed <62.5um wet svd fld,tot ug/g (34885)
461546093493601 WETLAND 16 WEST OF ST. ALBANS BAY NEAR GARRISON,MN (LAT 46 15 46N LONG 093 49 36W)													
OCT 2003													
09...	.3	<1	.8	16	16	3	16	<1	4	<1	<1	.850	8
09...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP 2004													
09...	--	--	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--	--	--
461814093500401 WETLAND 9 SOUTHEAST OF BORDEN LK OTFLW NR GARRISON (LAT 46 18 14N LONG 093 50 04W)													
OCT 2003													
10...	.4	<1	.7	12	14	2	23	<1	3	<1	<1	.520	7
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP 2004													
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
461715093494201 WETLAND 15 SOUTH OF GARRISON, MN (LAT 46 17 15N LONG 093 49 42W)													
OCT 2003													
10...	.9	<1	.7	50	78	17	52	<1	11	<1	<1	3.5	25
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP 2004													
09...	--	--	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--	--	--

Date	Lead, bed sed <62.5um wet svd field, total, ug/g (34890)	Lithium bed sed <62.5um wet svd field, total, ug/g (34895)	Mangan-ese, bed sed <62.5um wet svd fld,tot ug/g (34905)	Molyb-denum, bed sed <62.5um wet svd fld,tot ug/g (34915)	Neodym-ium, bed sed <62.5um wet svd fld,tot ug/g (34920)	Nickel, bed sed <62.5um wet svd field, total, ug/g (34925)	Niobium bed sed <62.5um wet svd field, total, ug/g (34930)	Scand-ium, bed sed <62.5um wet svd fld,tot ug/g (34945)	Silver, bed sed <62.5um wet svd field, total, ug/g (34955)	Stront-ium, bed sed <62.5um wet svd fld,tot ug/g (34965)	Tant-alum, bed sed <62.5um wet svd fld,tot ug/g (34975)	Thall-ium, bed sed <62.5um dry svd total, ug/g (04064)	Thorium bed sed <62.5um wet svd field, total, ug/g (34980)
461546093493601 WETLAND 16 WEST OF ST. ALBANS BAY NEAR GARRISON,MN (LAT 46 15 46N LONG 093 49 36W)													
OCT 2003													
09...	23	7	210	.6			4	3	<.1	68	<1	<1	2
09...	--	--	--	--			--	--	--	--	--	--	--
SEP 2004													
09...	--	--	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--	--	--
461814093500401 WETLAND 9 SOUTHEAST OF BORDEN LK OTFLW NR GARRISON (LAT 46 18 14N LONG 093 50 04W)													
OCT 2003													
10...	55	4	90	1.1	6	8	<4	2	<.1	51	<1	<1	2
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP 2004													
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
461715093494201 WETLAND 15 SOUTH OF GARRISON, MN (LAT 46 17 15N LONG 093 49 42W)													
OCT 2003													
10...	41	23	520	2.0	23	32	11	11	.3	150	<1	<1	6
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP 2004													
09...	--	--	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--	--	--

ANALYSIS OF WATER AND BED SEDIMENTS IN WETLANDS NEAR US HIGHWAY 169, MILLE LACS LAKE AREA—

MISCELLANEOUS STATION ANALYSES—CONTINUED

Date	Tin, bed sed <62.5um wet svd field, total, ug/g (34985)	Titan-ium, bed sed <62.5um wsv nat rec, percent (49274)	Vanad-ium, bed sed <62.5um wet svd fld,tot ug/g (35005)	Ytterb-ium, bed sed <62.5um wet svd fld,tot ug/g (35015)	Yttrium bed sed <62.5um wet svd field, total, ug/g (35010)	Zinc, bed sed <62.5um wet svd field, total, ug/g (35020)	1,2,4-Tri-chloro-benzene bed sed <2 mm ug/kg (49438)	1,2-Di-chloro-benzene bed sed <2 mm wsv nat ug/kg (49439)	1,2-Di-methyl-naphth-alene, bed sed <2 mm, ug/kg (49403)	1,3-Di-chloro-benzene bed sed <2 mm wsv nat ug/kg (49441)	1,4-Di-chloro-benzene bed sed <2 mm wsv nat ug/kg (49442)	1,6-Di-methyl-naphth-alene, bed sed <2 mm, ug/kg (49404)	1Methyl -9H-fluor-ene, bed sed <2 mm, ug/kg (49398)
461546093493601 WETLAND 16 WEST OF ST. ALBANS BAY NEAR GARRISON,MN (LAT 46 15 46N LONG 093 49 36W)													
OCT 2003													
09...	2	.092	20	<1	5	80	<4,200	<4,200	<4,200	<4,200	<4,200	<4,200	<4,200
09...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP 2004													
09...	--	--	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--	--	--
461814093500401 WETLAND 9 SOUTHEAST OF BORDEN LK OTFLW NR GARRISON (LAT 46 18 14N LONG 093 50 04W)													
OCT 2003													
10...	25	.060	14	<1	5	60	<4,200	<4,200	<4,200	<4,200	<4,200	<4,200	<4,200
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP 2004													
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
461715093494201 WETLAND 15 SOUTH OF GARRISON, MN (LAT 46 17 15N LONG 093 49 42W)													
OCT 2003													
10...	4	.360	93	2	17	160	<280	<280	<280	<280	<280	<280	<280
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP 2004													
09...	--	--	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--	--	--

Date	1-Methyl-phenan-threne, bed sed <2 mm, ug/kg (49410)	1-Methyl-pyrene, bed sed <2 mm, wsv nat ug/kg (49388)	2,2-Bi' quino-line, bed sed <2 mm, wsv nat ug/kg (49391)	236Tri-methyl-naphth-alene, bed sed <2 mm, ug/kg (49405)	2,4-Di-nitro-toluene bed sed <2 mm wsv nat ug/kg (49395)	2,6-Di-methyl-naphth-alene, bed sed <2 mm, ug/kg (49406)	2,6-Di-nitro-toluene bed sed <2 mm wsv nat ug/kg (49396)	2-Chloro-naphth-alene, bed sed <2 mm, ug/kg (49407)	2-Chloro-phenol, bed sed <2 mm, wsv nat ug/kg (49467)	2-Ethyl naphth-alene bed sed <2 mm wsv nat ug/kg (49948)	2Fluoro -bi-phenyl, surrog, bed sed <2 mm, pct rcv (49279)	2-Methyl-anthra-cene, bed sed <2 mm, ug/kg (49435)	3,5-Di-methyl-phenol, bed sed <2 mm, wsv nat ug/kg (49421)
461546093493601 WETLAND 16 WEST OF ST. ALBANS BAY NEAR GARRISON,MN (LAT 46 15 46N LONG 093 49 36W)													
OCT 2003													
09...	<4,200	<4,200	<4,200	<4,200	<4,200	E3,000	<4,200	<4,200	<4,200	<4,200	75	<4,200	<4,200
09...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP 2004													
09...	--	--	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--	--	--
461814093500401 WETLAND 9 SOUTHEAST OF BORDEN LK OTFLW NR GARRISON (LAT 46 18 14N LONG 093 50 04W)													
OCT 2003													
10...	<4,200	<4,200	<4,200	<4,200	<4,200	<4,200	<4,200	<4,200	<4,200	<4,200	66	<4,200	<4,200
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP 2004													
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
461715093494201 WETLAND 15 SOUTH OF GARRISON, MN (LAT 46 17 15N LONG 093 49 42W)													
OCT 2003													
10...	<280	<280	<280	<280	<280	690	<280	<280	<280	<280	71	<280	<280
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP 2004													
09...	--	--	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--	--	--

ANALYSIS OF WATER AND BED SEDIMENTS IN WETLANDS NEAR US HIGHWAY 169, MILLE LACS LAKE AREA—

MISCELLANEOUS STATION ANALYSES—CONTINUED

Date	4Bromophenyl phenyl ether, bed sed <2 mm, ug/kg (49454)	4Chloro 3methyl phenol, bed sed <2 mm, wsv nat ug/kg (49422)	4Chloro phenyl phenyl ether, bed sed <2 mm, ug/kg (49455)	Cyclopentaphenanthrene, bed sed <2 mm, ug/kg (49411)	9,10-Anthraquinone bed sed <2 mm wsv nat ug/kg (49437)	9H-Fluorene, bed sed <2 mm, wsv nat ug/kg (49399)	Acenaphthene, bed sed <2 mm, wsv nat ug/kg (49429)	Acenaphthylene, bed sed <2 mm, wsv nat ug/kg (49428)	Acridine, bed sed <2 mm, wsv nat field, ug/kg (49430)	Anthracene, bed sed <2 mm, wsv nat field, ug/kg (49434)	Azobenzene bed sed <2 mm wsv nat field, ug/kg (49443)	Benzo[a]anthracene, bed sed <2 mm, ug/kg (49436)	Benzo[a]pyrene, bed sed <2 mm, wsv nat ug/kg (49389)
461546093493601 WETLAND 16 WEST OF ST. ALBANS BAY NEAR GARRISON,MN (LAT 46 15 46N LONG 093 49 36W)													
OCT 2003													
09...	<4,200	<4,200	<4,200	<4,200	<4,200	<4,200	<4,200	<4,200	<4,200	<4,200	<4,200	<4,200	<4,200
09...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP 2004													
09...	--	--	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--	--	--
461814093500401 WETLAND 9 SOUTHEAST OF BORDEN LK OTFLW NR GARRISON (LAT 46 18 14N LONG 093 50 04W)													
OCT 2003													
10...	<4,200	<4,200	<4,200	<4,200	<4,200	<4,200	<4,200	<4,200	<4,200	<4,200	<4,200	<4,200	<4,200
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP 2004													
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
461715093494201 WETLAND 15 SOUTH OF GARRISON, MN (LAT 46 17 15N LONG 093 49 42W)													
OCT 2003													
10...	<280	<280	<280	<280	<280	<280	<280	<280	<280	<280	<280	<280	<280
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP 2004													
09...	--	--	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--	--	--

Date	Benzo[b]fluoranthene bed sed <2 mm ug/kg (49458)	Benzo[c]cinnoline, bed sed <2 mm, ug/kg (49468)	Benzo[ghi]perylene, bed sed <2 mm, ug/kg (49408)	Benzo[k]fluoranthene bed sed <2 mm ug/kg (49397)	Benzyl n-butyl phthalate, bed sed <2 mm, ug/kg (49427)	Bis(2-chloroethoxy) methane bed sed <2 mm ug/kg (49401)	Bis(2-chloroethyl) ether, bed sed <2 mm, ug/kg (49456)	Bis(2Ethexyl) phthalate, bed sed <2 mm, ug/kg (49426)	C8-Alkylphenol, bed sed <2 mm, wsv nat ug/kg (49424)	Carbazole, bed sed <2 mm, wsv nat field, ug/kg (49449)	Chrysene, bed sed <2 mm, wsv nat field, ug/kg (49450)	Dibenzo-[a,h]-anthracene, bed sed <2 mm, ug/kg (49461)	Dibenzothiophene, bed sed <2 mm, ug/kg (49452)
461546093493601 WETLAND 16 WEST OF ST. ALBANS BAY NEAR GARRISON,MN (LAT 46 15 46N LONG 093 49 36W)													
OCT 2003													
09...	<4,200	<4,200	<4,200	<4,200	<4,200	<4,200	<4,200	V4,600	<4,200	<4,200	<4,200	<4,200	<4,200
09...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP 2004													
09...	--	--	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--	--	--
461814093500401 WETLAND 9 SOUTHEAST OF BORDEN LK OTFLW NR GARRISON (LAT 46 18 14N LONG 093 50 04W)													
OCT 2003													
10...	<4,200	<4,200	<4,200	<4,200	<4,200	<4,200	<4,200	V4,800	<4,200	<4,200	<4,200	<4,200	<4,200
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP 2004													
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
461715093494201 WETLAND 15 SOUTH OF GARRISON, MN (LAT 46 17 15N LONG 093 49 42W)													
OCT 2003													
10...	E150	<280	<280	E51	<280	<280	<280	V350	<280	<280	<280	<280	<280
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP 2004													
09...	--	--	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--	--	--

ANALYSIS OF WATER AND BED SEDIMENTS IN WETLANDS NEAR US HIGHWAY 169, MILLE LACS LAKE AREA—

MISCELLANEOUS STATION ANALYSES—CONTINUED

Date	Diethyl phthal-ate, bed sed <2 mm, wsv nat ug/kg (49383)	Di-methyl phthal-ate, bed sed <2 mm, wsv nat ug/kg (49384)	Dibutyl phthal-ate, bed sed <2 mm, wsv nat ug/kg (49381)	Dioctyl phthal-ate, bed sed <2 mm, wsv nat ug/kg (49382)	Fluor-anthene bed sed <2 mm wsv nat field, ug/kg (49466)	Hexa-chloro-benzene bed sed <2 mm, wsv nat ug/kg (49343)	Indeno-[1,2,-3-cd]-pyrene, bed sed <2 mm ug/kg (49390)	Iso-phorone bed sed <2 mm, wsv nat field, ug/kg (49400)	Iso-quino-line, bed sed <2 mm, wsv nat ug/kg (49394)	Naphth-alene, bed sed <2 mm wsv nat ug/kg (49402)	Nitro-benzene bed sed <2 mm wsv nat field, ug/kg (49444)	Nitro-benzene -d5, surrog, bed sed <2 mm, pct rcv (49280)	N-Nitro -sodi-n -propyl amine, bed sed <2 mm, ug/kg (49431)
461546093493601 WETLAND 16 WEST OF ST. ALBANS BAY NEAR GARRISON,MN (LAT 46 15 46N LONG 093 49 36W)													
OCT 2003													
09...	<4,200	<4,200	<4,200	<4,200	<4,200	<4,200	<4,200	<4,200	<4,200	<4,200	<4,200	69	<4,200
09...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP 2004													
09...	--	--	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--	--	--
461814093500401 WETLAND 9 SOUTHEAST OF BORDEN LK OTFLW NR GARRISON (LAT 46 18 14N LONG 093 50 04W)													
OCT 2003													
10...	<4,200	<4,200	V5,200	<4,200	E1,600	<4,200	<4,200	<4,200	<4,200	<4,200	<4,200	76	<4,200
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP 2004													
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
461715093494201 WETLAND 15 SOUTH OF GARRISON, MN (LAT 46 17 15N LONG 093 49 42W)													
OCT 2003													
10...	<280	<280	V300	<280	<280	<280	<280	<280	<280	<280	<280	65	<280
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP 2004													
09...	--	--	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--	--	--

Date	N-Nitro -sodi-phenyl-amine, bed sed <2 mm, ug/kg (49433)	p-Cresol, bed sed <2 mm, wsv nat field, ug/kg (49451)	Penta-chloro-anisole bed sed <2 mm wsv nat ug/kg (49460)	Penta-chloro-nitro-benzene bed sed <2 mm ug/kg (49446)	Phenan-threne, bed sed <2 mm, wsv nat field, ug/kg (49409)	Phenan-thri-dine, bed sed <2 mm, wsv nat ug/kg (49393)	Pyrene, bed sed <2 mm, wsv nat field, ug/kg (49387)	Quino-line, bed sed <2 mm, wsv nat field, ug/kg (49392)	Ter-phenyl-d14, surrog, bed sed <2 mm, pct rcv (49278)	Uranium bed sed <62.5um wet svd field, total, ug/g (35000)	Suspnd. sedi-ment, falldia dst wat percent <.002mm (70337)	Suspnd. sedi-ment, falldia dst wat percent <.004mm (70338)	Suspnd. sedi-ment, falldia dst wat percent <.008mm (70339)
461546093493601 WETLAND 16 WEST OF ST. ALBANS BAY NEAR GARRISON,MN (LAT 46 15 46N LONG 093 49 36W)													
OCT 2003													
09...	<4,200	--	<4,200	<4,200	<4,200	<4,200	<4,200	<4,200	77	1.1	21	30	42
09...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP 2004													
09...	--	--	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--	--	--
461814093500401 WETLAND 9 SOUTHEAST OF BORDEN LK OTFLW NR GARRISON (LAT 46 18 14N LONG 093 50 04W)													
OCT 2003													
10...	<4,200	--	<4,200	<4,200	<4,200	<4,200	E1,000	<4,200	69	.5	27	38	52
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP 2004													
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
461715093494201 WETLAND 15 SOUTH OF GARRISON, MN (LAT 46 17 15N LONG 093 49 42W)													
OCT 2003													
10...	<280	E270	<280	<280	<280	<280	<280	<280	70	2.1	12	19	28
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP 2004													
09...	--	--	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--	--	--

ANALYSIS OF WATER AND BED SEDIMENTS IN WETLANDS NEAR US HIGHWAY 169, MILLE LACS LAKE AREA—

MISCELLANEOUS STATION ANALYSES—CONTINUED

Date	Suspnd. sedi-ment, falldia dst wat percent <.016mm (70340)	Suspnd. sedi-ment, falldia dst wat percent <.031mm (70341)	Bed sedi-ment, dry svd sve dia percent <1 mm (80168)	Bed sedi-ment, falldia dst wat percent <.063mm (80158)	Bed sedi-ment, falldia dst wat percent <.125mm (80159)	Bed sedi-ment, falldia dst wat percent <.25mm (80160)	Bed sedi-ment, falldia dst wat percent <.5 mm (80161)	Bed sedi-ment, falldia dst wat percent <1 mm (80162)	Bed sedi-ment, falldia dst wat percent <2 mm (80163)
461546093493601 WETLAND 16 WEST OF ST. ALBANS BAY NEAR GARRISON,MN (LAT 46 15 46N LONG 093 49 36W)									
OCT 2003									
09...	66	80	--	97	98	99	100	100	100
09...	--	--	--	--	--	--	--	--	--
SEP 2004									
09...	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--
461814093500401 WETLAND 9 SOUTHEAST OF BORDEN LK OTFLW NR GARRISON (LAT 46 18 14N LONG 093 50 04W)									
OCT 2003									
10...	85	90	97	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
SEP 2004									
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
461715093494201 WETLAND 15 SOUTH OF GARRISON, MN (LAT 46 17 15N LONG 093 49 42W)									
OCT 2003									
10...	39	47	--	--	63	71	79	93	100
10...	--	--	--	--	--	--	--	--	--
SEP 2004									
09...	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--

AMPHIBIAN RESEARCH AND MONITORING INITIATIVE (ARMI) WATER QUALITY

REMARKS: 2003 ARMI DATA WERE UNAVAILABLE FOR THE 2003 ANNUAL REPORT AND ARE THEREFORE PUBLISHED HERE, PRECEDING THE 2004 DATA.

MISCELLANEOUS STATION ANALYSES

Date	Time	Sample type	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Alkalinity, wat flt inc tit field, mg/L as CaCO3 (39086)	Bicarbonate, wat flt incrm. titr., field, mg/L (00453)	2-[(2-Ethyl-6methylphenyl)amino]2oxoESA ug/L (62850)
482534092482301 WETLAND AT SULLIVAN BAY (V2DF1) NR KABETOGAMA, MN (LAT 48 25 34N LONG 092 48 23W)												
JUN 2003 11...	1000	Environmental	736	5.7	68	7.0	146	21.8	20.1	64	78	<.02
483152092572701 WETLAND NEAR QUILL LAKE (V6DB1) NR KABETOGAMA, MN (LAT 48 31 52N LONG 092 57 27W)												
JUN 2003 12...	1130	Environmental	727	4.2	45	6.3	34	14.4	15.7	11	14	<.02
482513092400501 WETLAND NEAR JUNCTION BAY (V1BD1) NR KABETOGAMA,MN (LAT 48 25 13N LONG 092 40 05W)												
JUN 2003 11...	1130	Environmental	733	6.6	79	6.9	57	23.2	22.6	24	29	<.02
454147092522301 WETLAND BY ST. CROIX R. NR RUSH CITY, MN (SC4DC1) (LAT 45 41 47N LONG 092 52 23W)												
JUN 2003 05...	0930	Environmental	743	.9	8	6.2	148	16.0	11.1	53	64	<.02
05...	0931	Replicate	743	.9	8	6.2	148	16.0	11.1	53	64	<.02
463712096154001 JWPA SITE POND NEAR PELICAN RAPIDS, MN (LAT 46 37 12N LONG 096 15 40W)												
JUN 2003 03...	0900	Environmental	733	3.8	42	7.6	736	14.0	17.3	377	460	<.02

Date	CIAT, water, fltrd, ug/L (04040)	CEAT, water, fltrd, ug/L (04038)	OIAT, water, fltrd 0.7u GF ug/L (62676)	OIET, water, fltrd, ug/L (50355)	OEAT, water, fltrd 0.7u GF ug/L (62678)	Acetochlor ESA, water, fltrd 0.7u GF ug/L (61029)	Acetochlor OA, water, fltrd 0.7u GF ug/L (61030)	Acetochlor SAA, water, fltrd, ug/L (62847)	Acetochlor, water, fltrd, ug/L (49260)	Alachlor ESA SA, water, fltrd, ug/L (62849)	Alachlor ESA, water, fltrd 0.7u GF ug/L (50009)	Alachlor OA, water, fltrd 0.7u GF ug/L (61031)	Alachlor SAA, water, fltrd, ug/L (62848)
482534092482301 WETLAND AT SULLIVAN BAY (V2DF1) NR KABETOGAMA, MN (LAT 48 25 34N LONG 092 48 23W)													
JUN 2003 11...	<.03	<.03	<.03	<.03	<.03	<.02	<.02	<.02	<.02	<.02	<.02	<.02	<.02
483152092572701 WETLAND NEAR QUILL LAKE (V6DB1) NR KABETOGAMA, MN (LAT 48 31 52N LONG 092 57 27W)													
JUN 2003 12...	<.03	<.03	<.03	<.03	<.03	<.02	<.02	<.02	<.02	<.02	<.02	<.02	<.02
482513092400501 WETLAND NEAR JUNCTION BAY (V1BD1) NR KABETOGAMA,MN (LAT 48 25 13N LONG 092 40 05W)													
JUN 2003 11...	<.03	<.03	<.03	<.03	<.03	<.02	<.02	<.02	<.02	<.02	<.02	<.02	<.02
454147092522301 WETLAND BY ST. CROIX R. NR RUSH CITY, MN (SC4DC1) (LAT 45 41 47N LONG 092 52 23W)													
JUN 2003 05...	<.03	<.03	<.03	<.03	<.03	<.02	<.02	<.02	<.02	<.02	<.02	<.02	<.02
05...	<.03	<.03	<.03	<.03	<.03	<.02	<.02	<.02	<.02	<.02	<.02	<.02	<.02
463712096154001 JWPA SITE POND NEAR PELICAN RAPIDS, MN (LAT 46 37 12N LONG 096 15 40W)													
JUN 2003 03...	<.03	<.03	<.03	<.03	<.03	<.02	<.02	<.02	<.02	<.02	<.02	<.02	<.02

AMPHIBIAN RESEARCH AND MONITORING INITIATIVE (ARMI) WATER QUALITY—CONTINUED

MISCELLANEOUS STATION ANALYSES—CONTINUED

Date	Ala-chlor, water, fltrd, ug/L (46342)	Atra-zine, water, fltrd, ug/L (39632)	Chloro-diamino -s-tri-azine, wat flt 0.7u GF ug/L (62674)	Cyana-zine acid, water, wat flt ug/L (61745)	Cyana-zine amide, water, fltrd, ug/L (61709)	Cyana-zine, water, fltrd, ug/L (04041)	De-ethyl cyana-zine acid, wat flt ug/L (61750)	De-ethyl cyana-zine amide, wat flt ug/L (61751)	De-ethyl cyana-zine, water, fltrd, ug/L (61749)	De-methyl fluo-meturon water, fltrd, ug/L (61755)	Dimeth-enamid ESA, water, fltrd, ug/L (61951)	Dimeth-enamid OA, water, fltrd, ug/L (62482)	Dimeth-enamid water, fltrd, ug/L (61588)
482534092482301 WETLAND AT SULLIVAN BAY (V2DF1) NR KABETOGAMA, MN (LAT 48 25 34N LONG 092 48 23W)													
JUN 2003 11...	<.02	<.03	<.03	<.03	<.03	<.03	<.03	<.025	<.2	<.2	<.02	<.02	<.02
483152092572701 WETLAND NEAR QUILL LAKE (V6DB1) NR KABETOGAMA, MN (LAT 48 31 52N LONG 092 57 27W)													
JUN 2003 12...	<.02	<.03	<.03	<.03	<.03	<.03	<.03	<.025	<.2	<.2	<.02	<.02	<.02
482513092400501 WETLAND NEAR JUNCTION BAY (V1BD1) NR KABETOGAMA,MN (LAT 48 25 13N LONG 092 40 05W)													
JUN 2003 11...	<.02	<.03	<.03	<.03	<.03	<.03	<.03	<.025	<.2	<.2	<.02	<.02	<.02
454147092522301 WETLAND BY ST. CROIX R. NR RUSH CITY, MN (SC4DC1) (LAT 45 41 47N LONG 092 52 23W)													
JUN 2003 05...	<.02	<.03	<.03	<.03	<.03	<.03	<.03	<.025	<.2	<.2	<.02	<.02	<.02
05...	<.02	<.03	<.03	<.03	<.03	<.03	<.03	<.025	<.2	<.2	<.02	<.02	<.02
463712096154001 JWPA SITE POND NEAR PELICAN RAPIDS, MN (LAT 46 37 12N LONG 096 15 40W)													
JUN 2003 03...	<.02	<.03	<.03	<.03	<.03	<.03	<.03	<.025	<.2	<.2	<.02	<.02	<.02

Date	Diuron, water, fltrd, ug/L (50374)	Flufen-acet ESA, water, fltrd, ug/L (61952)	Flufe-nacet OA, water, fltrd, ug/L (62483)	Flufe-nacet, water, fltrd, ug/L (62481)	Fluo-meturon water fltrd 0.7u GF ug/L (38811)	Linuron water fltrd 0.7u GF ug/L (38478)	Metola-chlor ESA, water, fltrd 0.7u GF ug/L (61043)	Metola-chlor OA, water, fltrd 0.7u GF ug/L (61044)	Metola-chlor, water, fltrd, ug/L (39415)	Propa-chlor ESA, water, fltrd 0.7u GF ug/L (62766)	Propa-chlor OA, water, fltrd 0.7u GF ug/L (62767)	Propa-chlor, water, fltrd, ug/L (04024)	Propa-zine, water, fltrd, ug/L (38535)	Sima-zine, water, fltrd, ug/L (04035)	Sima-zine, water, fltrd, ug/L (04035)
482534092482301 WETLAND AT SULLIVAN BAY (V2DF1) NR KABETOGAMA, MN (LAT 48 25 34N LONG 092 48 23W)															
JUN 2003 11...	<.2	<.02	<.02	<.02	<.2	<.2	<.02	<.02	<.02	<.05	<.02	<.02	<.03	<.03	<.03
483152092572701 WETLAND NEAR QUILL LAKE (V6DB1) NR KABETOGAMA, MN (LAT 48 31 52N LONG 092 57 27W)															
JUN 2003 12...	<.2	<.02	<.02	<.02	<.2	<.2	<.02	<.02	<.02	<.05	<.02	<.02	<.03	<.03	<.03
482513092400501 WETLAND NEAR JUNCTION BAY (V1BD1) NR KABETOGAMA,MN (LAT 48 25 13N LONG 092 40 05W)															
JUN 2003 11...	<.2	<.02	<.02	<.02	<.2	<.2	<.02	<.02	<.02	<.05	<.02	<.02	<.03	<.03	<.03
454147092522301 WETLAND BY ST. CROIX R. NR RUSH CITY, MN (SC4DC1) (LAT 45 41 47N LONG 092 52 23W)															
JUN 2003 05...	<.2	<.02	<.02	<.02	<.2	<.2	<.02	<.02	<.02	<.05	<.02	<.02	<.03	<.03	<.03
05...	<.2	<.02	<.02	<.02	<.2	<.2	.02	<.02	<.02	<.05	<.02	<.02	<.03	<.03	<.03
463712096154001 JWPA SITE POND NEAR PELICAN RAPIDS, MN (LAT 46 37 12N LONG 096 15 40W)															
JUN 2003 03...	<.2	<.02	<.02	<.02	<.2	<.2	<.02	<.02	<.02	<.05	<.02	<.02	<.03	<.03	<.03

AMPHIBIAN RESEARCH AND MONITORING INITIATIVE (ARMI) WATER QUALITY—CONTINUED

MISCELLANEOUS STATION ANALYSES

Date	Time	Sample type	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	CIAT, water, fltrd, ug/L (04040)	CEAT, water, fltrd, ug/L (04038)	OIAT, water, fltrd 0.7u GF ug/L (62676)
053715052 HERSHEY ISLAND SLOUGH NEAR WABASHA, MN (P4DC1) (LAT 44 22 36N LONG 092 00 31W)												
JUL 2004												
06...	1120	Environmental	746	8.8	112	8.4	517	24.0	22.1	.08	.05	<.03
06...	1125	Replicate	--	--	--	--	--	--	--	.10	.06	<.03
05386105 ROOT RIVER SLOUGH BELOW HOKAH, MN (P8DA1) (LAT 43 45 51N LONG 091 15 54W)												
JUL 2004												
06...	1600	Environmental	746	3.4	35	7.2	742	21.0	17.3	.03	<.03	<.03

Date	OIET, water, fltrd, ug/L (50355)	OEAT, water, fltrd 0.7u GF ug/L (62678)	Atrazine, water, fltrd, ug/L (39632)	Bromacil, water, fltrd, ug/L (04029)	Chlorodiaminos-triazine, wat flt ug/L (04039)	Cyanazine acid, water, wat flt ug/L (61745)	Cyanazine amide, water, fltrd, ug/L (61709)	Cyanazine, water, fltrd, ug/L (04041)	De-ethyl cyanazine acid, wat flt ug/L (61750)	De-ethyl cyanazine amide, wat flt ug/L (61751)	De-ethyl cyanazine, water, fltrd, ug/L (61749)	De-methyl fluometuron water, fltrd, ug/L (61755)	Diuron, water, fltrd, ug/L (50374)
053715052 HERSHEY ISLAND SLOUGH NEAR WABASHA, MN (P4DC1) (LAT 44 22 36N LONG 092 00 31W)													
JUL 2004													
06...	.17	<.03	.39	<.03	.11	<.03	<.03	<.03	.26	<.025	<.2	<.2	<.2
06...	.18	<.03	.48	<.03	.13	<.03	<.03	<.03	.31	<.025	<.2	<.2	<.2
05386105 ROOT RIVER SLOUGH BELOW HOKAH, MN (P8DA1) (LAT 43 45 51N LONG 091 15 54W)													
JUL 2004													
06...	.47	.03	.11	<.03	<.03	<.03	<.03	<.03	<.03	<.025	<.2	<.2	<.2

Date	Fluometuron water fltrd 0.7u GF ug/L (38811)	Hydroxysimazine, water, fltrd, ug/L (63154)	Linuron water fltrd 0.7u GF ug/L (38478)	Prometon, water, fltrd, ug/L (04037)	Propazine, water, fltrd, ug/L (38535)	Simazine, water, fltrd, ug/L (04035)
053715052 HERSHEY ISLAND SLOUGH NEAR WABASHA, MN (P4DC1) (LAT 44 22 36N LONG 092 00 31W)						
JUL 2004						
06...	<.2	<.03	<.2	<.03	<.03	<.03
06...	<.2	<.03	<.2	<.03	.03	<.03
05386105 ROOT RIVER SLOUGH BELOW HOKAH, MN (P8DA1) (LAT 43 45 51N LONG 091 15 54W)						
JUL 2004						
06...	<.2	<.03	<.2	<.03	<.03	<.03

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DECORAH EDGE WATER QUALITY

MISCELLANEOUS STATION ANALYSES

Date	Time	Sample type	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf lab, uS/cm 25 degC (90095)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)
440349092255901 StoneEt5 107N13W19BABC (LAT 44 03 49N LONG 092 25 59W)												
DEC 2003												
15...	1100	Environmental	723	11.1	103	7.0	7.2	583	576	3.0	10.0	116
APR 2004												
07...	1430	Environmental	729	9.1	87	7.3	7.7	631	590	19.0	11.1	115
07...	1435	Replicate	--	--	--	--	7.5	632	--	--	--	116
MAY												
12...	0930	Environmental	732	8.9	87	7.0	7.5	574	614	23.5	12.5	111
JUN												
17...	1445	Environmental	738	9.9	95	7.2	7.1	569	572	24.5	11.9	106
AUG												
05...	1440	Environmental	745	10.7	101	7.2	7.3	592	586	24.5	12.9	114
440329092255801 StoneEt1 107N13W19BDCC01 (LAT 44 03 29N LONG 092 25 58W)												
DEC 2003												
15...	1330	Environmental	719	10.0	94	7.0	7.2	718	744	-1.0	10.6	143
15...	1335	Replicate	--	--	--	--	7.2	723	--	--	--	142
APR 2004												
07...	1100	Environmental	730	8.7	84	7.2	7.5	758	716	15.0	11.8	137
MAY												
12...	1200	Environmental	731	8.8	86	7.1	E7.2	695	745	25.5	12.6	134
12...	1205	Replicate	--	--	--	--	7.4	697	--	--	--	136
JUN												
17...	1000	Environmental	738	9.0	86	6.5	7.2	646	669	18.5	11.8	125
AUG												
05...	1100	Environmental	743	8.3	80	7.1	7.2	731	731	21.0	13.5	143
05...	1105	Replicate	--	--	--	--	7.2	734	--	--	--	142
440329092255803 StoneEt3 107N13W19BDCC03 (LAT 44 03 29N LONG 092 25 58W)												
DEC 2003												
16...	1200	Environmental	725	8.8	77	8.0	7.3	554	575	-5.0	8.0	98.8
16...	1205	Replicate	--	--	--	--	7.3	555	--	--	--	101
APR 2004												
15...	1400	Environmental	--	8.1	--	7.3	7.5	518	569	17.0	9.7	97.5
MAY												
14...	1330	Environmental	739	6.0	53	7.1	E7.5	546	575	9.5	9.3	93.6
JUN												
17...	1230	Environmental	738	6.2	62	7.2	7.3	568	568	18.5	12.8	100
17...	1235	Replicate	--	--	--	--	7.2	572	--	--	--	97.7
AUG												
05...	1240	Environmental	743	10.7	95	7.4	7.4	566	569	21.0	10.1	96.7
440343092255501 StonMP1-1 107N13W19BABA01 (LAT 44 03 43N LONG 092 25 55W)												
APR 2004												
13...	1340	Environmental	738	4.2	30	6.9	7.7	554	642	16.6	4.9	119
MAY												
10...	1230	Environmental	734	5.1	50	7.2	7.3	522	493	23.0	9.9	107
JUN												
15...	1200	Environmental	738	1.9	21	6.9	7.3	546	511	24.0	15.9	105
440344092255501 StonMP1-2 107N13W19BABA02 (LAT 44 03 44N LONG 092 25 55W)												
APR 2004												
13...	1320	Environmental	738	--	--	7.5	--	628	636	16.6	7.1	--
13...	1325	Replicate	--	--	--	--	--	620	--	--	--	--
MAY												
10...	1200	Environmental	735	.6	6	6.8	--	--	616	25.0	9.8	--
JUN												
16...	1010	Environmental	738	--	--	6.8	--	--	640	24.5	12.3	--

DECORAH EDGE WATER QUALITY—Continued

MISCELLANEOUS STATION ANALYSES—CONTINUED

Date	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	Alkalinity, wat flt inc tit field, mg/L as CaCO3 (39086)	Bicarbonate, wat flt incrm. titr., field, mg/L (00453)	Bromide water, fltrd, mg/L (71870)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)
440349092255901 StoneEt5 107N13W19BABC (LAT 44 03 49N LONG 092 25 59W)													
DEC 2003													
15...	14.8	.79	2.53	292	356	.04	10.4	<.2	12.5	20.3	201	E.03	2.59
APR 2004													
07...	15.6	.64	2.61	295	360	--	11.1	--	13.7	18.6	276	<.04	2.41
07...	15.7	.60	2.52	--	--	--	10.9	--	13.7	18.0	258	<.04	2.59
MAY													
12...	14.9	.73	2.43	292	356	--	11.5	--	13.5	21.7	287	E.02	2.52
JUN													
17...	15.1	.53	2.05	289	353	--	10.1	--	14.5	14.6	227	<.04	1.53
AUG													
05...	15.5	.29	1.54	303	370	--	6.43	--	13.8	10.2	358	<.04	3.96
440329092255801 StoneEt1 107N13W19BDCC01 (LAT 44 03 29N LONG 092 25 58W)													
DEC 2003													
15...	14.1	.68	5.76	288	346	.05	18.9	<.2	18.3	25.9	372	<.04	17.8
15...	14.3	.60	5.76	--	--	.05	18.7	<.2	18.5	26.0	288	<.04	17.4
APR 2004													
07...	13.3	.61	6.61	271	331	--	24.0	--	17.5	24.5	400	<.04	16.0
MAY													
12...	13.1	.57	6.60	261	318	--	23.6	--	17.4	24.4	386	E.02	16.9
12...	13.2	.66	6.58	--	--	--	23.8	--	17.6	24.3	381	E.02	16.9
JUN													
17...	10.4	.49	5.78	265	323	--	17.7	--	18.3	18.9	336	.05	12.2
AUG													
05...	13.1	.55	6.88	285	348	--	20.3	--	17.5	26.7	493	<.04	15.8
05...	13.1	.51	6.75	--	--	--	20.5	--	17.4	26.5	468	<.04	15.6
440329092255803 StoneEt3 107N13W19BDCC03 (LAT 44 03 29N LONG 092 25 58W)													
DEC 2003													
16...	20.7	1.15	3.26	272	331	.05	12.3	<.2	16.9	22.5	193	<.04	1.89
16...	21.0	1.25	3.13	--	--	.05	12.1	<.2	16.9	22.5	213	<.04	1.83
APR 2004													
15...	20.4	.94	3.11	268	328	--	12.8	--	17.1	19.5	245	<.04	1.72
MAY													
14...	20.3	.89	2.89	259	317	--	13.0	--	16.8	20.1	295	E.02	1.77
JUN													
17...	20.3	.75	2.80	274	334	--	12.9	--	17.1	21.1	271	<.04	2.41
17...	20.1	.77	2.81	--	--	--	12.8	--	16.9	21.0	251	<.04	1.76
AUG													
05...	19.9	.88	2.87	259	316	--	12.9	--	17.2	21.7	226	<.04	1.77
440343092255501 StonMP1-1 107N13W19BABA01 (LAT 44 03 43N LONG 092 25 55W)													
APR 2004													
13...	14.8	.28	3.12	307	375	--	17.6	--	12.2	20.8	317	<.04	2.11
MAY													
10...	12.7	.30	2.74	271	330	--	14.8	--	14.1	20.3	291	E.02	1.80
JUN													
15...	12.9	.28	2.94	264	322	--	10.2	--	14.8	21.0	330	<.04	.54
440344092255501 StonMP1-2 107N13W19BABA02 (LAT 44 03 44N LONG 092 25 55W)													
APR 2004													
13...	--	--	--	--	--	--	21.7	--	--	--	--	.17	.18
13...	--	--	--	--	--	--	21.9	--	--	--	--	.17	.18
MAY													
10...	--	--	--	--	--	--	21.6	--	--	--	--	.24	.07
JUN													
16...	--	--	--	--	--	--	22.1	--	--	--	--	.13	2.55

DECORAH EDGE WATER QUALITY—Continued

MISCELLANEOUS STATION ANALYSES—CONTINUED

Date	Nitrite water, fltrd, mg/L as N (00613)	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Phos-phorus, water, fltrd, mg/L (00666)	Total nitro-gen, wat flt by anal ysis, mg/L (62854)	Iron, water, fltrd, ug/L (01046)	Mangan-ese, water, fltrd, ug/L (01056)
440349092255901 StoneEt5 107N13W19BABC (LAT 44 03 49N LONG 092 25 59W)						
DEC 2003						
15...	<.008	.015	.009	2.75	E5	E.4
APR 2004						
07...	<.008	.007	.007	2.47	<6	--
07...	<.008	.007	.008	2.53	<6	--
MAY						
12...	<.008	.007	.008	2.62	7	--
JUN						
17...	<.008	E.004	.007	1.58	<6	--
AUG						
05...	<.008	E.003	.005	3.75	E5	--
440329092255801 StoneEt1 107N13W19BDCC01 (LAT 44 03 29N LONG 092 25 58W)						
DEC 2003						
15...	<.008	.025	.030	17.0	E5	<.8
15...	<.008	.025	.029	17.3	E4	<.8
APR 2004						
07...	<.008	.028	.031	15.7	E4	--
MAY						
12...	<.008	.026	.032	17.2	E4	--
12...	<.008	.026	.031	17.2	E5	--
JUN						
17...	<.008	.019	.028	12.5	<6	--
AUG						
05...	<.008	.024	.029	15.8	E5	--
05...	<.008	.023	.030	15.6	7	--
440329092255803 StoneEt3 107N13W19BDCC03 (LAT 44 03 29N LONG 092 25 58W)						
DEC 2003						
16...	<.008	<.006	.004	1.92	<6	21.2
16...	<.008	<.006	.004	1.97	<6	23.8
APR 2004						
15...	.029	<.006	.010	2.03	<6	--
MAY						
14...	.008	<.006	.009	1.91	<6	--
JUN						
17...	E.006	<.006	.005	2.46	<6	--
17...	E.006	E.003	.005	1.92	<6	--
AUG						
05...	.009	E.003	.006	1.93	<6	--
440343092255501 StonMP1-1 107N13W19BABA01 (LAT 44 03 43N LONG 092 25 55W)						
APR 2004						
13...	.048	<.006	E.003	2.12	<6	--
MAY						
10...	E.004	<.006	E.003	1.95	E5	--
JUN						
15...	<.008	<.006	E.003	.70	E6	--
440344092255501 StonMP1-2 107N13W19BABA02 (LAT 44 03 44N LONG 092 25 55W)						
APR 2004						
13...	E.006	--	--	.56	--	--
13...	E.006	--	--	.55	--	--
MAY						
10...	<.008	--	--	1.07	--	--
JUN						
16...	.037	--	--	2.78	--	--

DECORAH EDGE WATER QUALITY—Continued

MISCELLANEOUS STATION ANALYSES—CONTINUED

Date	Time	Sample type	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf lab, uS/cm 25 degC (90095)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)
440344092255501 StonMP1-2 107N13W19BABA02 (LAT 44 03 44N LONG 092 25 55W)												
AUG 2004												
04...	1630	Environmental	738	2.4	24	7.1	--	--	631	24.0	15.4	--
440344092255601 StonMP1-3 107N13W19BABA03 (LAT 44 03 44N LONG 092 25 56W)												
APR 2004												
13...	1300	Environmental	738	5.6	53	7.3	--	--	486	16.6	1.2	--
MAY												
10...	1130	Environmental	734	1.5	14	7.0	--	--	509	19.5	9.2	--
JUN												
15...	1430	Environmental	738	1.5	16	6.6	--	469	511	24.5	15.4	--
AUG												
04...	1620	Environmental	738	1.4	15	6.9	--	--	706	23.0	17.1	--
440344092255701 StonMP1-4 107N13W19BABB01 (LAT 44 03 44N LONG 092 25 57W)												
APR 2004												
13...	1230	Environmental	738	5.6	44	7.4	7.8	533	525	9.5	3.3	96.3
MAY												
10...	1100	Environmental	734	2.3	21	7.4	7.4	511	515	19.0	11.1	91.8
JUN												
15...	1215	Environmental	738	2.4	25	6.8	E7.1	459	489	22.2	15.4	88.1
AUG												
04...	1530	Environmental	738	1.1	12	7.0	7.2	536	568	23.0	18.4	109
440342092255601 StonMP2-2 107N13W19BABD01 (LAT 44 03 42N LONG 092 25 56W)												
APR 2004												
13...	1410	Environmental	738	1.6	13	6.8	7.9	669	661	16.6	4.5	117
MAY												
10...	1450	Environmental	735	.6	6	6.8	7.2	658	652	25.0	9.7	117
JUN												
15...	1030	Environmental	738	4.2	40	6.8	7.2	695	685	20.0	11.7	126
AUG												
04...	1310	Environmental	737	.8	8	6.9	6.9	693	759	22.5	15.5	140
04...	1315	Replicate	--	--	--	--	7.0	720	--	--	--	143
440342092255701 StonMP2-3 107N13W19BABC01 (LAT 44 03 42N LONG 092 25 57W)												
APR 2004												
13...	1500	Environmental	738	--	--	7.3	--	647	647	16.6	3.1	--
MAY												
10...	1430	Environmental	735	.7	7	7.0	--	--	658	23.0	9.8	--
JUN												
15...	1400	Environmental	738	4.7	48	7.0	--	674	683	27.5	15.2	--
AUG												
04...	1400	Environmental	739	2.8	29	7.1	--	--	737	27.0	18.1	--
440343092255701 StonMP2-4 107N13W19BABB02 (LAT 44 03 43N LONG 092 25 57W)												
APR 2004												
13...	1550	Environmental	738	2.5	18	7.0	--	--	588	16.6	.9	--
MAY												
10...	1550	Environmental	735	1.1	11	7.1	--	--	662	26.0	12.1	--
JUN												
15...	1310	Environmental	738	1.4	15	6.8	--	637	706	27.5	16.7	--
AUG												
04...	1430	Environmental	738	.4	4	7.0	--	--	828	24.0	18.3	--
440343092255801 StonMP2-5 107N13W19BABB03 (LAT 44 03 43N LONG 092 25 58W)												
APR 2004												
13...	1620	Environmental	738	--	--	7.3	7.7	543	543	15.5	4.2	90.9

DECORAH EDGE WATER QUALITY—Continued

MISCELLANEOUS STATION ANALYSES—CONTINUED

Date	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	Alkalinity, wat flt inc tit field, mg/L as CaCO3 (39086)	Bicarbonate, wat flt incrm. titr., field, mg/L (00453)	Chloride, water, fltrd, mg/L (00940)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Orthophosphate, water, fltrd, mg/L as P (00671)
440344092255501 StonMP1-2 107N13W19BABA02 (LAT 44 03 44N LONG 092 25 55W)													
AUG 2004													
04...	--	--	--	--	--	21.0	--	--	--	<.04	.74	.021	--
440344092255601 StonMP1-3 107N13W19BABA03 (LAT 44 03 44N LONG 092 25 56W)													
APR 2004													
13...	--	--	--	--	--	21.6	--	--	--	<.04	.33	<.008	--
MAY													
10...	--	--	--	--	--	18.6	--	--	--	E.02	E.04	<.008	--
JUN													
15...	--	--	--	--	--	10.4	--	--	--	.05	<.06	<.008	--
AUG													
04...	--	--	--	--	--	20.2	--	--	--	.08	<.06	<.008	--
440344092255701 StonMP1-4 107N13W19BABB01 (LAT 44 03 44N LONG 092 25 57W)													
APR 2004													
13...	13.0	.17	2.79	182	222	25.2	10.0	62.8	335	<.04	<.06	<.008	<.006
MAY													
10...	12.0	.20	2.90	201	245	19.8	11.9	52.3	323	<.04	<.06	<.008	<.006
JUN													
15...	12.0	.23	2.94	237	289	8.39	15.4	10.4	259	<.04	.19	<.008	<.006
AUG													
04...	14.3	.25	3.16	257	314	21.7	17.0	13.0	356	<.04	E.03	<.008	<.006
440342092255601 StonMP2-2 107N13W19BABD01 (LAT 44 03 42N LONG 092 25 56W)													
APR 2004													
13...	17.1	1.06	3.65	293	357	25.6	13.5	25.7	360	<.04	4.73	E.004	E.003
MAY													
10...	16.8	1.16	3.57	303	369	24.1	15.3	27.1	371	E.03	3.21	E.006	.006
JUN													
15...	19.2	.91	3.81	306	373	29.0	17.5	23.1	289	<.04	6.72	<.008	E.003
AUG													
04...	20.4	1.13	3.88	334	408	29.1	19.0	27.2	446	<.04	5.17	.038	E.003
04...	20.7	1.23	3.95	--	--	28.7	18.9	27.1	450	<.04	5.20	.027	<.006
440342092255701 StonMP2-3 107N13W19BABC01 (LAT 44 03 42N LONG 092 25 57W)													
APR 2004													
13...	--	--	--	--	--	23.4	--	--	--	.08	3.13	.012	--
MAY													
10...	--	--	--	--	--	22.6	--	--	--	.10	.89	.011	--
JUN													
15...	--	--	--	--	--	22.8	--	--	--	.11	.79	.009	--
AUG													
04...	--	--	--	--	--	22.7	--	15.6	--	<.04	.69	.031	--
440343092255701 StonMP2-4 107N13W19BABB02 (LAT 44 03 43N LONG 092 25 57W)													
APR 2004													
13...	--	--	--	--	--	25.8	--	--	--	E.03	.33	.021	--
MAY													
10...	--	--	--	--	--	20.0	--	--	--	.10	<.06	<.008	--
JUN													
15...	--	--	--	--	--	21.8	--	--	--	.06	.58	.013	--
AUG													
04...	--	--	--	--	--	19.4	--	--	--	.14	<.06	<.008	--
440343092255801 StonMP2-5 107N13W19BABB03 (LAT 44 03 43N LONG 092 25 58W)													
APR 2004													
13...	13.1	.52	3.01	203	247	28.2	9.67	50.2	327	<.04	.35	E.004	<.006

DECORAH EDGE WATER QUALITY—Continued

MISCELLANEOUS STATION ANALYSES—CONTINUED

Date	Phos-phorus, water, fltrd, mg/L (00666)	Total nitro-gen, wat flt by anal ysis, mg/L (62854)	Iron, water, fltrd, ug/L (01046)
440344092255501 StonMP1-2 107N13W19BABA02 (LAT 44 03 44N LONG 092 25 55W)			
AUG 2004			
04...	--	.87	--
440344092255601 StonMP1-3 107N13W19BABA03 (LAT 44 03 44N LONG 092 25 56W)			
APR 2004			
13...	--	.47	--
MAY			
10...	--	.31	--
JUN			
15...	--	.38	--
AUG			
04...	--	.37	--
440344092255701 StonMP1-4 107N13W19BABB01 (LAT 44 03 44N LONG 092 25 57W)			
APR 2004			
13...	<.004	.13	<6
MAY			
10...	E.002	.19	<6
JUN			
15...	E.002	.46	38
AUG			
04...	<.004	.30	22
440342092255601 StonMP2-2 107N13W19BABD01 (LAT 44 03 42N LONG 092 25 56W)			
APR 2004			
13...	.007	4.36	<6
MAY			
10...	.013	3.28	<6
JUN			
15...	.005	7.13	<6
AUG			
04...	.005	5.38	<6
04...	.006	5.36	<6
440342092255701 StonMP2-3 107N13W19BABC01 (LAT 44 03 42N LONG 092 25 57W)			
APR 2004			
13...	--	3.22	--
MAY			
10...	--	1.22	--
JUN			
15...	--	1.14	--
AUG			
04...	--	1.14	--
440343092255701 StonMP2-4 107N13W19BABB02 (LAT 44 03 43N LONG 092 25 57W)			
APR 2004			
13...	--	.50	--
MAY			
10...	--	.36	--
JUN			
15...	--	.92	--
AUG			
04...	--	.50	--
440343092255801 StonMP2-5 107N13W19BABB03 (LAT 44 03 43N LONG 092 25 58W)			
APR 2004			
13...	.005	.58	<6

DECORAH EDGE WATER QUALITY—Continued

MISCELLANEOUS STATION ANALYSES—CONTINUED

Date	Time	Sample type	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf lab, uS/cm 25 degC (90095)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)
440343092255801 StonMP2-5 107N13W19BABB03 (LAT 44 03 43N LONG 092 25 58W)												
MAY 2004												
10...	1500	Environmental	735	4.5	44	7.2	7.4	542	545	22.0	11.7	93.3
JUN												
15...	1230	Environmental	738	3.3	34	6.7	7.3	564	618	24.5	16.4	105
AUG												
04...	1230	Environmental	739	4.8	52	7.2	7.3	588	520	23.5	19.0	103
440341092255701 StonMP3-1 107N13W19BABC02 (LAT 44 03 41N LONG 092 25 57W)												
APR 2004												
14...	1320	Environmental	735	2.2	17	6.8	7.6	593	650	23.5	3.6	127
14...	1325	Replicate	--	--	--	--	7.7	586	--	--	--	127
MAY												
11...	1445	Environmental	733	2.4	23	6.5	7.4	622	631	26.5	10.9	121
JUN												
15...	1030	Environmental	738	4.2	40	7.0	7.2	536	539	20.0	11.2	99.8
AUG												
04...	1130	Environmental	738	.5	5	7.0	7.2	578	589	24.5	15.9	112
440341092255702 StonMP3-2 107N13W19BABC03 (LAT 44 03 41N LONG 092 25 57W)												
APR 2004												
14...	1250	Environmental	736	--	--	6.9	--	--	715	24.0	5.3	--
MAY												
11...	1330	Environmental	735	1.4	11	6.7	--	--	683	22.5	9.9	--
JUN												
15...	1000	Environmental	738	2.2	22	6.9	--	621	621	23.0	14.2	--
AUG												
04...	1100	Environmental	738	2.7	26	7.0	--	--	642	24.5	13.2	--
440342092255801 StonMP3-3 107N13W19BABC04 (LAT 44 03 42N LONG 092 25 58W)												
APR 2004												
14...	1200	Environmental	736	3.1	23	6.9	--	--	517	21.5	1.4	--
MAY												
11...	1420	Environmental	734	.5	4	6.4	--	--	619	24.5	12.1	--
11...	1425	Replicate	--	--	--	--	--	--	--	--	--	--
JUN												
15...	1020	Environmental	738	.6	6	6.7	--	617	650	20.0	16.4	--
AUG												
04...	1000	Environmental	737	.7	7	6.9	--	--	701	21.5	16.5	--
440341092255801 StonMP3-4 107N13W19BABC05 (LAT 44 03 41N LONG 092 25 58W)												
APR 2004												
14...	1110	Environmental	736	--	--	7.2	--	--	601	16.0	3.3	--
MAY												
11...	1200	Environmental	736	1.0	9	6.8	--	--	583	19.5	12.3	--
JUN												
15...	0945	Environmental	738	.6	6	6.9	--	526	553	21.5	17.4	--
AUG												
04...	0920	Environmental	737	1.7	18	7.1	--	--	615	20.5	18.2	--
440342092255901 StonMP3-5 107N13W19BABC06 (LAT 44 03 42N LONG 092 25 59W)												
APR 2004												
14...	1030	Environmental	736	--	--	7.3	8.2	479	539	16.0	2.1	103
MAY												
11...	1000	Environmental	737	1.2	12	6.8	7.4	585	615	21.5	12.5	115
11...	1005	Replicate	--	--	--	--	7.6	579	--	--	--	114
JUN												
15...	0930	Environmental	738	1.5	17	6.9	7.4	556	598	21.0	20.1	109
AUG												
04...	0940	Environmental	737	1.1	12	6.9	7.3	808	856	20.5	18.2	163

DECORAH EDGE WATER QUALITY—Continued

MISCELLANEOUS STATION ANALYSES—CONTINUED

Date	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	Alkalinity, wat flt inc tit field, mg/L as CaCO3 (39086)	Bicarbonate, wat flt incrm. titr., field, mg/L (00453)	Chloride, water, fltrd, mg/L (00940)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Orthophosphate, water, fltrd, mg/L as P (00671)
440343092255801 StonMP2-5 107N13W19BABB03 (LAT 44 03 43N LONG 092 25 58W)													
MAY 2004													
10...	13.0	.44	3.28	224	273	20.9	11.7	41.0	304	<.04	E.03	<.008	<.006
JUN													
15...	15.6	.93	3.14	275	336	20.8	15.2	14.6	339	<.04	<.06	<.008	<.006
AUG													
04...	14.1	.51	3.34	243	297	38.2	13.9	19.6	354	E.03	<.06	<.008	<.006
440341092255701 StonMP3-1 107N13W19BABC02 (LAT 44 03 41N LONG 092 25 57W)													
APR 2004													
14...	12.4	.44	4.27	267	326	30.5	12.0	28.2	346	<.04	6.71	<.008	<.006
14...	12.6	.40	4.20	--	--	30.4	12.0	27.2	344	<.04	6.51	<.008	<.006
MAY													
11...	12.0	.52	4.16	268	328	31.0	13.3	28.1	405	<.04	4.71	<.008	<.006
JUN													
15...	10.1	.52	3.82	234	286	16.6	13.8	23.9	279	<.04	2.72	<.008	<.006
AUG													
04...	10.9	.80	4.12	279	283	14.6	16.6	20.1	355	E.03	2.01	.010	E.004
440341092255702 StonMP3-2 107N13W19BABC03 (LAT 44 03 41N LONG 092 25 57W)													
APR 2004													
14...	--	--	--	--	--	24.5	--	--	--	.04	<.06	<.008	--
MAY													
11...	--	--	--	--	--	20.1	--	--	--	E.02	.11	<.008	--
JUN													
15...	--	--	--	--	--	17.2	--	--	--	E.04	.09	<.008	--
AUG													
04...	--	--	--	--	--	16.1	--	--	--	E.02	<.06	<.008	--
440342092255801 StonMP3-3 107N13W19BABC04 (LAT 44 03 42N LONG 092 25 58W)													
APR 2004													
14...	--	--	--	--	--	19.6	--	--	--	.15	.13	<.008	--
MAY													
11...	--	--	--	--	--	18.3	--	--	--	.21	<.06	<.008	--
11...	--	--	--	--	--	18.7	--	--	--	.23	<.06	<.008	--
JUN													
15...	--	--	--	--	--	14.4	--	--	--	.38	<.06	<.008	--
AUG													
04...	--	--	--	--	--	15.2	--	--	--	.48	<.06	<.008	--
440341092255801 StonMP3-4 107N13W19BABC05 (LAT 44 03 41N LONG 092 25 58W)													
APR 2004													
14...	--	--	--	--	--	23.5	--	--	--	<.04	1.68	<.008	--
MAY													
11...	--	--	--	--	--	19.5	--	--	--	<.04	.15	<.008	--
JUN													
15...	--	--	--	--	--	17.6	--	--	--	<.04	E.04	<.008	--
AUG													
04...	--	--	--	--	--	18.6	--	--	--	<.04	<.06	<.008	--
440342092255901 StonMP3-5 107N13W19BABC06 (LAT 44 03 42N LONG 092 25 59W)													
APR 2004													
14...	10.5	.85	3.08	214	261	26.9	7.12	45.7	331	<.04	1.06	<.008	.018
MAY													
11...	11.8	.90	3.41	266	325	20.4	10.3	40.6	382	<.04	<.06	<.008	<.006
11...	11.7	.79	3.37	--	--	19.9	10.1	40.7	357	E.02	E.03	E.004	E.004
JUN													
15...	11.9	.67	3.12	283	345	17.2	15.8	14.3	354	.04	<.06	<.008	.008
AUG													
04...	17.3	.73	3.40	431	526	18.9	17.6	7.7	499	.11	<.06	<.008	E.005

DECORAH EDGE WATER QUALITY—Continued

MISCELLANEOUS STATION ANALYSES—CONTINUED

Date	Phos-phorus, water, fltrd, mg/L (00666)	Total nitro-gen, wat flt by anal ysis, mg/L (62854)	Iron, water, fltrd, ug/L (01046)
440343092255801 StonMP2-5 107N13W19BABB03 (LAT 44 03 43N LONG 092 25 58W)			
MAY 2004			
10...	E.002	.19	<6
JUN			
15...	E.002	.22	<6
AUG			
04...	<.004	.37	8
440341092255701 StonMP3-1 107N13W19BABC02 (LAT 44 03 41N LONG 092 25 57W)			
APR 2004			
14...	.006	6.99	97
14...	.005	6.45	<6
MAY			
11...	.004	5.02	<6
JUN			
15...	E.004	2.94	<6
AUG			
04...	.011	2.23	E4
440341092255702 StonMP3-2 107N13W19BABC03 (LAT 44 03 41N LONG 092 25 57W)			
APR 2004			
14...	--	.16	--
MAY			
11...	--	.33	--
JUN			
15...	--	.22	--
AUG			
04...	--	.15	--
440342092255801 StonMP3-3 107N13W19BABC04 (LAT 44 03 42N LONG 092 25 58W)			
APR 2004			
14...	--	.61	--
MAY			
11...	--	.69	--
11...	--	.77	--
JUN			
15...	--	1.02	--
AUG			
04...	--	1.07	--
440341092255801 StonMP3-4 107N13W19BABC05 (LAT 44 03 41N LONG 092 25 58W)			
APR 2004			
14...	--	1.86	--
MAY			
11...	--	.36	--
JUN			
15...	--	.25	--
AUG			
04...	--	.21	--
440342092255901 StonMP3-5 107N13W19BABC06 (LAT 44 03 42N LONG 092 25 59W)			
APR 2004			
14...	.016	1.23	<6
MAY			
11...	.012	.38	8
11...	.013	.26	E4
JUN			
15...	.017	.40	79
AUG			
04...	.015	.51	718

DECORAH EDGE WATER QUALITY—Continued

MISCELLANEOUS STATION ANALYSES—CONTINUED

Date	Time	Sample type	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf lab, uS/cm 25 degC (90095)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)
440340092255601 StonMP4-1 107N13W19BABD02 (LAT 44 03 40N LONG 092 25 56W)												
JUN 2004												
14...	1730	Environmental	735	1.0	10	6.8	--	538	539	23.0	13.0	--
440340092255701 StonMP4-2 107N13W19BABD03 (LAT 44 03 40N LONG 092 25 57W)												
APR 2004												
14...	1530	Environmental	735	--	--	7.2	--	522	684	23.5	4.6	--
MAY												
14...	1600	Environmental	736	--	--	--	--	702	--	20.0	--	--
JUN												
14...	1710	Environmental	735	1.8	18	6.8	--	505	523	22.5	14.3	--
440340092255702 StonMP4-3 107N13W19BABD04 (LAT 44 03 40N LONG 092 25 57W)												
APR 2004												
14...	1500	Environmental	735	6.5	51	7.2	--	--	503	23.5	3.5	--
MAY												
11...	1100	Environmental	736	2.3	22	6.8	7.6	534	545	21.0	10.5	97.2
JUN												
14...	1600	Environmental	735	2.9	28	6.8	7.4	555	556	21.0	11.9	104
14...	1605	Replicate	--	--	--	--	7.7	560	--	--	--	103
AUG												
03...	1400	Environmental	735	1.0	10	7.1	7.2	604	639	--	16.2	114
440340092255801 StonMP4-4 107N13W19BABC07 (LAT 44 03 40N LONG 092 25 58W)												
APR 2004												
14...	1430	Environmental	735	--	--	7.3	8.1	446	512	23.5	6.1	93.9
MAY												
11...	1130	Environmental	736	.9	8	6.7	7.7	557	558	20.0	11.6	106
JUN												
14...	1620	Environmental	735	2.6	32	6.9	7.2	400	556	21.0	15.1	105
AUG												
03...	1400	Environmental	735	3.5	37	7.0	--	--	761	--	19.0	--
11...	1230	Environmental	738	--	--	6.9	7.5	694	768	11.5	16.2	143
440337092255901 StonMP5-1 107N13W19BDBB01 (LAT 44 03 37N LONG 092 25 59W)												
JUN 2004												
14...	1500	Environmental	735	5.3	49	6.7	7.4	360	431	22.0	10.3	80.4
440339092255901 StonMP5-2 107N13W19BDBB02 (LAT 44 03 39N LONG 092 25 59W)												
JUN 2004												
14...	1430	Environmental	735	2.0	18	6.8	--	600	604	24.0	9.7	--

DECORAH EDGE WATER QUALITY—Continued

MISCELLANEOUS STATION ANALYSES—CONTINUED

Date	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	Alkalinity, wat flt inc tit field, mg/L as CaCO3 (39086)	Bicarbonate, wat flt incrm. titr., field, mg/L (00453)	Chloride, water, fltrd, mg/L (00940)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Orthophosphate, water, fltrd, mg/L as P (00671)
440340092255601 StonMP4-1 107N13W19BABD02 (LAT 44 03 40N LONG 092 25 56W)													
JUN 2004													
14...	--	--	--	--	--	13.0	--	--	--	<.04	2.39	<.008	--
440340092255701 StonMP4-2 107N13W19BABD03 (LAT 44 03 40N LONG 092 25 57W)													
APR 2004													
14...	--	--	--	--	--	25.4	--	--	--	<.04	9.25	.042	--
MAY													
14...	--	--	--	--	--	31.0	--	--	--	.33	8.85	.018	--
JUN													
14...	--	--	--	--	--	12.2	--	--	--	<.04	2.31	<.008	--
440340092255702 StonMP4-3 107N13W19BABD04 (LAT 44 03 40N LONG 092 25 57W)													
APR 2004													
14...	--	--	--	--	--	25.6	--	--	--	<.04	9.27	<.008	--
MAY													
11...	10.9	.42	3.83	220	268	22.1	11.7	27.5	345	<.04	6.56	<.008	<.006
JUN													
14...	11.8	.81	4.77	245	299	14.7	13.6	21.5	253	E.04	3.46	.013	.008
14...	11.5	.85	4.95	--	--	15.0	14.0	21.3	304	E.04	3.60	.012	.008
AUG													
03...	13.0	.61	4.10	274	334	11.9	14.7	24.4	384	<.04	3.97	E.004	<.006
440340092255801 StonMP4-4 107N13W19BABC07 (LAT 44 03 40N LONG 092 25 58W)													
APR 2004													
14...	10.5	.87	2.79	207	252	19.3	9.25	26.1	286	<.04	5.87	.018	<.006
MAY													
11...	12.4	.83	2.93	287	350	12.4	11.0	22.5	336	.10	<.06	<.008	<.006
JUN													
14...	12.4	.89	2.91	261	318	13.3	14.2	18.5	285	.15	.34	.008	.011
AUG													
03...	--	--	--	--	--	--	--	--	--	--	--	--	--
11...	17.0	.74	3.05	367	448	11.5	15.7	24.5	310	<.04	.38	<.008	<.006
440337092255901 StonMP5-1 107N13W19BDBB01 (LAT 44 03 37N LONG 092 25 59W)													
JUN 2004													
14...	1.91	.33	1.28	148	181	3.46	12.2	15.9	285	.10	10.5	.046	.011
440339092255901 StonMP5-2 107N13W19BDBB02 (LAT 44 03 39N LONG 092 25 59W)													
JUN 2004													
14...	--	--	--	--	--	12.5	--	--	--	<.04	3.62	.010	--

DECORAH EDGE WATER QUALITY—Continued

MISCELLANEOUS STATION ANALYSES—CONTINUED

Date	Phos-phorus, water, fltrd, mg/L (00666)	Total nitro-gen, wat flt by anal ysis, mg/L (62854)	Iron, water, fltrd, ug/L (01046)
440340092255601 StonMP4-1 107N13W19BABD02 (LAT 44 03 40N LONG 092 25 56W)			
JUN 2004			
14...	--	2.54	--
440340092255701 StonMP4-2 107N13W19BABD03 (LAT 44 03 40N LONG 092 25 57W)			
APR 2004			
14...	--	9.54	--
MAY			
14...	--	9.78	--
JUN			
14...	--	2.53	--
440340092255702 StonMP4-3 107N13W19BABD04 (LAT 44 03 40N LONG 092 25 57W)			
APR 2004			
14...	--	9.39	--
MAY			
11...	.005	6.59	<6
JUN			
14...	.017	3.71	E5
14...	.017	3.89	7
AUG			
03...	E.002	3.97	<6
440340092255801 StonMP4-4 107N13W19BABC07 (LAT 44 03 40N LONG 092 25 58W)			
APR 2004			
14...	.015	6.41	<6
MAY			
11...	.009	.71	11
JUN			
14...	.017	.75	41
AUG			
03...	--	--	--
11...	.006	.84	<6
440337092255901 StonMP5-1 107N13W19BDBB01 (LAT 44 03 37N LONG 092 25 59W)			
JUN 2004			
14...	.017	11.2	<6
440339092255901 StonMP5-2 107N13W19BDBB02 (LAT 44 03 39N LONG 092 25 59W)			
JUN 2004			
14...	--	3.67	--

QUALITY OF WATER AT RAIN GARDEN SITES

MISCELLANEOUS STATION ANALYSES

Date	Time	Sample type	pH, water, unfltrd field, std units (00400)	Specif. conduc-tance, wat unf lab, uS/cm 25 degC (90095)	Specif. conduc-tance, wat unf uS/cm 25 degC (00095)	Temper-ature, air, deg C (00020)	Temper-ature, water, deg C (00010)	Chlor-ide, water, fltrd, mg/L (00940)	Residue on evap. at 180degC wat flt mg/L (70300)	Residue total at 105 deg. C, sus-pended, mg/L (00530)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, fltrd, mg/L as N (00608)
450943092593901 RAIN GARDEN WELL AT HUGO, MN. (LAT 45 09 43N LONG 092 59 39W)												
OCT 2003												
30...	1405	Environmental	7.0	--	79	--	13.2	1.35	--	--	.18	<.04
APR 2004												
27...	1055	Environmental	6.8	--	89	--	--	11.5	68	--	E.09	<.04
JUN												
04...	1215	Environmental	6.5	--	56	--	--	.50	43	--	.14	<.04
SEP												
07...	1330	Environmental	6.9	--	73	--	--	.75	--	--	.16	<.04
12...	1345	Environmental	6.8	--	62	--	--	.84	--	--	.12	<.04
16...	1130	Environmental	8.0	--	53	21.0	--	.72	--	--	.16	<.04
450943092593902 RAIN GARDEN LYSIMETER AT HUGO, MN. (LAT 45 09 43N LONG 092 59 39W)												
OCT 2003												
30...	1330	Soil Moisture	--	178	--	--	--	1.10	--	--	.73	<.04
JUN 2004												
04...	1145	Soil Moisture	--	--	324	--	--	--	--	--	.53	--
04...	1330	Soil Moisture	--	--	230	--	--	5.39	--	--	.35	--
SEP												
12...	1630	Soil Moisture	9.2	--	149	--	--	--	--	--	.29	<.04
16...	1120	Soil Moisture	7.5	--	123	21.0	--	.38	--	--	.26	<.04
450943092593903 RAIN GARDEN INFLOW AT HUGO, MN. (LAT 45 09 43N LONG 092 59 39W)												
OCT 2003												
28...	1329	Environmental	8.0	--	144	--	--	2.97	63	38	1.1	.19
APR 2004												
18...	1930	Environmental	8.1	--	89	--	--	5.54	65	384	3.9	1.02
AUG												
08...	0530	Environmental	--	59	--	--	--	1.58	35	53	.71	.20
SEP												
05...	0343	Environmental	8.3	--	469	--	--	4.63	272	37	.70	<.04
05...	1708	Environmental	7.6	--	92	--	--	1.44	46	78	.78	<.04
05...	1710	Replicate	7.6	68	92	--	--	1.44	45	90	.77	<.04
14...	2049	Environmental	7.0	--	74	--	--	3.03	65	54	.95	<.04
450946092593901 RAIN GARDEN BACKGROUND WELL AT HUGO, MN. (LAT 45 09 46N LONG 092 59 39W)												
OCT 2003												
30...	1240	Environmental	6.6	--	166	--	13.6	14.9	--	--	.12	<.04
APR 2004												
27...	1220	Environmental	6.8	--	247	--	--	48.4	144	--	.11	<.04
JUN												
04...	1030	Environmental	6.6	--	218	--	--	38.8	131	--	.15	<.04
SEP												
07...	1230	Environmental	7.1	--	190	--	--	45.8	--	--	.12	<.04
12...	1430	Environmental	6.6	--	237	--	--	45.9	--	--	E.06	<.04
16...	1300	Environmental	7.2	--	207	21.0	--	43.0	--	--	.11	<.04
450946092593902 RAIN GARDEN BACKGROUND LYSIMETER AT HUGO, MN. (LAT 45 09 46N LONG 092 59 39W)												
OCT 2003												
30...	1245	Soil Moisture	--	174	--	--	--	1.70	--	--	.82	<.04
APR 2004												
27...	1200	Soil Moisture	--	178	--	--	--	15.4	--	--	.23	--
SEP												
12...	1530	Soil Moisture	8.7	--	174	--	--	--	--	--	.34	--

QUALITY OF WATER AT RAIN GARDEN SITES—CONTINUED

MISCELLANEOUS STATION ANALYSES—CONTINUED

Date	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Phos-phorus, water, fltrd, mg/L (00666)	Phos-phorus, water, unfltrd mg/L (00665)
450943092593901 RAIN GARDEN WELL AT HUGO, MN. (LAT 45 09 43N LONG 092 59 39W)				
OCT 2003				
30...	2.09	<.008	.06	.06
APR 2004				
27...	2.12	<.008	E.02	E.03
JUN				
04...	.42	<.008	.04	.06
SEP				
07...	.54	<.008	.06	.06
12...	.60	<.008	.07	.06
16...	.77	<.008	.07	.08
450943092593902 RAIN GARDEN LYSIMETER AT HUGO, MN. (LAT 45 09 43N LONG 092 59 39W)				
OCT 2003				
30...	1.49	<.008	E.02	E.02
JUN 2004				
04...	--	--	--	E.04
04...	--	--	--	.09
SEP				
12...	2.64	<.008	.09	.08
16...	2.99	<.008	.11	.10
450943092593903 RAIN GARDEN INFLOW AT HUGO, MN. (LAT 45 09 43N LONG 092 59 39W)				
OCT 2003				
28...	.34	.024	.21	.30
APR 2004				
18...	.66	.027	.12	.74
AUG				
08...	.50	.015	.06	.15
SEP				
05...	.78	E.005	.73	.82
05...	.30	.008	.11	.25
05...	.30	.008	.11	.25
14...	.39	.032	.24	.35
450946092593901 RAIN GARDEN BACKGROUND WELL AT HUGO, MN. (LAT 45 09 46N LONG 092 59 39W)				
OCT 2003				
30...	2.06	<.008	.10	.14
APR 2004				
27...	1.51	<.008	.07	.12
JUN				
04...	2.10	<.008	E.04	.05
SEP				
07...	2.00	<.008	.06	.10
12...	1.92	<.008	.06	.06
16...	2.09	<.008	.07	.06
450946092593902 RAIN GARDEN BACKGROUND LYSIMETER AT HUGO, MN. (LAT 45 09 46N LONG 092 59 39W)				
OCT 2003				
30...	2.25	.019	<.04	<.04
APR 2004				
27...	--	--	--	<.04
SEP				
12...	--	--	--	<.04

QUALITY OF WATER AT RAIN GARDEN SITES—CONTINUED

MISCELLANEOUS STATION ANALYSES—CONTINUED

Date	Time	Sample type	pH, water, unfltrd field, std units (00400)	Specif. conduc-tance, wat unf lab, uS/cm 25 degC (90095)	Specif. conduc-tance, wat unf uS/cm 25 degC (00095)	Chlor-ide, water, fltrd, mg/L (00940)	Residue on evap. at 180degC wat flt mg/L (70300)	Residue total at 105 deg. C, sus-pended, mg/L (00530)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)
445512092564401 RAIN GARDEN WELL NR WOODBURY, MN. (LAT 44 55 12N LONG 092 56 44W)												
NOV 2003												
21...	1000	Environmental	--	289	--	33.8	176	<10	.23	<.04	<.06	<.008
AUG 2004												
02...	1500	Environmental	7.4	--	475	68.5	--	--	.65	.06	<.06	.014
24...	1200	Environmental	7.6	384	--	41.6	--	--	.54	E.03	<.06	<.008
24...	1202	Replicate	7.6	378	--	40.9	--	--	.50	E.03	<.06	<.008
28...	1300	Environmental	7.6	--	392	35.2	--	--	.54	E.03	<.06	<.008
SEP												
08...	1045	Environmental	6.5	--	307	31.4	--	--	.63	.05	<.06	<.008
26...	1520	Environmental	7.6	--	334	--	--	--	.70	.05	<.06	<.008
445512092564402 RAIN GARDEN LYSIMETER NR WOODBURY, MN. (LAT 44 55 12N LONG 092 56 44W)												
NOV 2003												
21...	1000	Soil Moisture	--	2,970	--	693	--	--	.72	.05	4.32	<.008
AUG 2004												
02...	1630	Soil Moisture	7.6	--	3,110	--	--	--	.63	.10	.93	<.008
SEP												
26...	1630	Soil Moisture	7.3	--	2,330	505	--	--	.52	<.04	<.06	<.008
445512092564403 RAIN GARDEN INFLOW NR WOODBURY, MN. (LAT 44 55 12N LONG 092 56 44W)												
MAR 2004												
01...	1730	Environmental	7.6	--	456	107	253	24	4.0	2.21	1.04	.042
JUL												
30...	1548	Environmental	--	--	--	12.8	163	150	4.9	.82	1.57	.100
AUG												
22...	0419	Environmental	7.8	--	115	17.4	158	70	4.6	.47	1.13	.168
26...	1802	Environmental	6.8	125	--	12.9	98	155	3.5	.79	1.58	.047
SEP												
05...	0427	Environmental	7.8	--	113	6.96	80	232	4.5	.22	.76	.200
445516092563801 RAIN GARDEN BACKGROUND WELL NR WOODBURY, MN. (LAT 44 55 16N LONG 092 56 38W)												
NOV 2003												
21...	1045	Environmental	--	850	--	152	--	<10	.11	<.04	.70	<.008
AUG 2004												
02...	1545	Environmental	7.0	--	545	102	--	--	.15	<.04	.33	<.008
24...	1100	Environmental	7.2	1,270	--	280	--	--	.11	<.04	.53	<.008
28...	1200	Environmental	7.0	--	1,210	247	--	--	.10	<.04	.57	<.008
SEP												
08...	1200	Environmental	6.8	--	1,190	301	--	--	.14	<.04	.58	<.008
26...	1700	Environmental	7.2	--	1,330	280	--	--	E.09	<.04	.55	<.008
445516092563803 RAIN GARDEN OUTFLOW NR WOODBURY, MN. (LAT 44 55 16N LONG 092 56 38W)												
MAR 2004												
02...	1200	Environmental	7.5	--	439	135	313	<20	2.6	1.22	.90	.036
AUG												
01...	0657	Environmental	--	247	--	32.8	155	<10	1.0	.08	.57	.019
27...	1230	Environmental	7.5	309	--	33.8	193	15	.72	<.04	.26	<.008
SEP												
06...	0858	Environmental	7.7	--	126	5.20	66	<10	.43	<.04	.08	E.007
445643093253801 RAIN GARDEN WELL NR MINNETONKA, MN. (LAT 44 56 43N LONG 093 25 38W)												
NOV 2003												
13...	1215	Environmental	--	--	2,200	--	--	--	2.8	--	--	--
JUL 2004												
30...	1630	Environmental	--	2,890	--	870	--	--	6.7	5.42	.93	.036

QUALITY OF WATER AT RAIN GARDEN SITES—CONTINUED

MISCELLANEOUS STATION ANALYSES—CONTINUED

Date	Phos-phorus, water, fltrd, mg/L (00666)	Phos-phorus, water, unfltrd mg/L (00665)
445512092564401 RAIN GARDEN WELL NR WOODBURY, MN. (LAT 44 55 12N LONG 092 56 44W)		
NOV 2003		
21...	E.02	E.03
AUG 2004		
02...	.09	.13
24...	E.04	.07
24...	E.03	.07
28...	.04	.06
SEP		
08...	.05	.10
26...	.05	.18
445512092564402 RAIN GARDEN LYSIMETER NR WOODBURY, MN. (LAT 44 55 12N LONG 092 56 44W)		
NOV 2003		
21...	.05	.05
AUG 2004		
02...	E.03	.04
SEP		
26...	.06	.09
445512092564403 RAIN GARDEN INFLOW NR WOODBURY, MN. (LAT 44 55 12N LONG 092 56 44W)		
MAR 2004		
01...	.75	.79
JUL		
30...	.30	.75
AUG		
22...	.15	.45
26...	.08	.40
SEP		
05...	.06	.67
445516092563801 RAIN GARDEN BACKGROUND WELL NR WOODBURY, MN. (LAT 44 55 16N LONG 092 56 38W)		
NOV 2003		
21...	.04	.08
AUG 2004		
02...	E.03	.05
24...	E.02	.09
28...	E.03	E.03
SEP		
08...	E.03	.09
26...	E.03	E.04
445516092563803 RAIN GARDEN OUTFLOW NR WOODBURY, MN. (LAT 44 55 16N LONG 092 56 38W)		
MAR 2004		
02...	.55	.59
AUG		
01...	.14	.20
27...	.07	.14
SEP		
06...	.12	.13
445643093253801 RAIN GARDEN WELL NR MINNETONKA, MN. (LAT 44 56 43N LONG 093 25 38W)		
NOV 2003		
13...	--	.17
JUL 2004		
30...	<.04	.51

QUALITY OF WATER AT RAIN GARDEN SITES—CONTINUED

MISCELLANEOUS STATION ANALYSES—CONTINUED

Date	Time	Sample type	pH, water, unfltrd field, std units (00400)	Specif. conduc-tance, wat unf lab, uS/cm 25 degC (90095)	Specif. conduc-tance, wat unf uS/cm 25 degC (00095)	Chlor-ide, water, fltrd, mg/L (00940)	Residue on evap. at 180degC wat flt mg/L (70300)	Residue total at 105 deg. C, sus-pended, mg/L (00530)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)
445643093253804 RAIN GARDEN SOUTH WELL NR MINNETONKA, MN (LAT 44 56 43N LONG 093 25 38W)												
AUG 2004												
29...	1515	Environmental	6.7	--	13,600	4,340	--	--	33	30.3	<.06	<.008
SEP												
22...	1715	Environmental	6.8	--	12,200	3,910	--	--	34	29.2	<.06	<.008
25...	1450	Environmental	7.0	--	9,990	3,100	--	--	30	25.5	<.06	<.008
445643093253802 RAIN GARDEN LYSIMETER NR MINNETONKA, MN. (LAT 44 56 43N LONG 093 25 38W)												
NOV 2003												
13...	0930	Soil Moisture	8.4	--	1,370	--	--	--	.88	--	--	--
JUL 2004												
30...	1600	Soil Moisture	--	1,140	--	31.2	--	--	1.3	<.04	E.03	<.008
AUG												
29...	1600	Soil Moisture	8.2	--	1,290	56.3	--	--	1.1	E.02	.85	<.008
SEP												
22...	1830	Soil Moisture	8.2	--	818	--	--	--	1.0	<.04	1.09	<.008
25...	1600	Soil Moisture	8.1	--	774	--	--	--	.91	--	--	--
445643093253803 RAIN GARDEN INFLOW NR MINNETONKA, MN. (LAT 44 56 43N LONG 093 25 38W)												
OCT 2003												
27...	2331	Environmental	7.9	--	311	62.7	190	192	4.1	.54	.49	.067
30...	0725	Environmental	7.6	163	166	14.8	110	172	3.0	.41	1.53	.114
JUL 2004												
28...	1418	Environmental	--	223	--	33.1	178	280	5.1	.69	.46	.168
SEP												
21...	1508	Environmental	6.5	87	73	7.04	59	43	1.8	.15	.45	.022
21...	1617	Replicate	6.5	87	73	7.00	60	65	1.9	.15	.46	.023
23...	1346	Environmental	8.2	--	76	6.27	58	92	2.4	.45	.59	.020
445645093254001 RAIN GARDEN BACKGROUND WELL NR MINNETONKA, MN. (LAT 44 56 45N LONG 093 25 40W)												
NOV 2003												
13...	1100	Environmental	7.1	--	664	21.9	--	--	.33	<.04	2.82	<.008
JUL 2004												
30...	1300	Environmental	--	524	--	8.48	--	--	.37	<.04	5.71	<.008
AUG												
29...	1320	Environmental	7.3	--	646	11.6	--	--	.39	<.04	6.59	<.008
SEP												
22...	1800	Environmental	7.5	--	567	8.26	--	--	.35	<.04	5.55	<.008
25...	1545	Environmental	7.6	--	554	7.92	--	--	.29	<.04	5.74	<.008
445645093254002 RAIN GARDEN BACKGROUND LYSIMETER NR MINNETONKA,MN. (LAT 44 56 45N LONG 093 25 40W)												
SEP 2004												
22...	1730	Soil Moisture	8.0	--	2,110	--	--	--	4.2	--	--	--
445645093254003 RAIN GARDEN OUTFLOW NR MINNETONKA, MN. (LAT 44 56 45N LONG 093 25 40W)												
JUL 2004												
28...	1428	Environmental	--	317	--	25.0	230	238	3.4	<.04	.37	.035
SEP												
22...	0923	Environmental	6.2	171	150	15.9	113	13	.81	.07	.35	.029
23...	1436	Environmental	8.1	--	142	17.2	98	86	1.3	.09	.54	.027
443914093171801 RAIN GARDEN WELL NR LAKEVILLE, MN. (LAT 44 39 14N LONG 093 17 18W)												
NOV 2003												
14...	1350	Environmental	7.6	--	433	25.3	--	--	.37	<.04	1.26	<.008
APR 2004												
29...	1310	Environmental	--	--	--	--	--	--	.52	<.04	.71	.009
JUN												
09...	1415	Environmental	7.3	--	270	1.56	147	--	.25	<.04	.64	<.008

QUALITY OF WATER AT RAIN GARDEN SITES—CONTINUED

MISCELLANEOUS STATION ANALYSES—CONTINUED

Date	Phos-phorus, water, fltrd, mg/L (00666)	Phos-phorus, water, unfltrd mg/L (00665)
445643093253804 RAIN GARDEN SOUTH WELL NR MINNETONKA, MN (LAT 44 56 43N LONG 093 25 38W)		
AUG 2004		
29...	<.04	2.20
SEP		
22...	<.04	1.97
25...	<.04	1.80
445643093253802 RAIN GARDEN LYSIMETER NR MINNETONKA, MN. (LAT 44 56 43N LONG 093 25 38W)		
NOV 2003		
13...	--	E.04
JUL 2004		
30...	.07	.07
AUG		
29...	.07	.08
SEP		
22...	.07	.08
25...	--	.07
445643093253803 RAIN GARDEN INFLOW NR MINNETONKA, MN. (LAT 44 56 43N LONG 093 25 38W)		
OCT 2003		
27...	.20	.53
30...	.15	.48
JUL 2004		
28...	.16	.73
SEP		
21...	<.04	.31
21...	E.03	.31
23...	E.03	.30
445645093254001 RAIN GARDEN BACKGROUND WELL NR MINNETONKA, MN. (LAT 44 56 45N LONG 093 25 40W)		
NOV 2003		
13...	<.04	E.03
JUL 2004		
30...	<.04	<.04
AUG		
29...	<.04	<.04
SEP		
22...	<.04	<.04
25...	<.04	<.04
445645093254002 RAIN GARDEN BACKGROUND LYSIMETER NR MINNETONKA,MN. (LAT 44 56 45N LONG 093 25 40W)		
SEP 2004		
22...	--	.14
445645093254003 RAIN GARDEN OUTFLOW NR MINNETONKA, MN. (LAT 44 56 45N LONG 093 25 40W)		
JUL 2004		
28...	.14	.56
SEP		
22...	.07	.14
23...	.07	.23
443914093171801 RAIN GARDEN WELL NR LAKEVILLE, MN. (LAT 44 39 14N LONG 093 17 18W)		
NOV 2003		
14...	E.03	E.04
APR 2004		
29...	<.04	.21
JUN		
09...	E.02	<.04

QUALITY OF WATER AT RAIN GARDEN SITES—CONTINUED

MISCELLANEOUS STATION ANALYSES—CONTINUED

Date	Time	Sample type	pH, water, unfltrd field, std units (00400)	Specif. conduc-tance, wat unf lab, uS/cm 25 degC (90095)	Specif. conduc-tance, wat unf uS/cm 25 degC (00095)	Chlor-ide, water, fltrd, mg/L (00940)	Residue on evap. at 180degC wat flt mg/L (70300)	Residue total at 105 deg. C, sus-pended, mg/L (00530)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)
443914093171801 RAIN GARDEN WELL NR LAKEVILLE, MN. (LAT 44 39 14N LONG 093 17 18W)												
AUG 2004												
03...	1100	Environmental	7.4	--	345	10.4	--	--	.29	<.04	1.09	<.008
SEP												
17...	1215	Environmental	7.6	--	209	1.19	--	--	.18	<.04	.09	<.008
17...	1217	Replicate	7.6	--	209	1.18	--	--	.18	<.04	.11	<.008
443914093171802 RAIN GARDEN LYSIMETER NR LAKEVILLE, MN. (LAT 44 39 14N LONG 093 17 18W)												
NOV 2003												
14...	1600	Soil Moisture	8.4	--	321	5.92	--	--	.37	<.04	2.44	<.008
APR 2004												
29...	1330	Soil Moisture	--	--	--	--	--	--	.38	E.02	2.60	<.008
JUN												
09...	1330	Soil Moisture	--	--	280	--	--	--	.33	<.04	1.53	<.008
09...	1430	Soil Moisture	--	--	257	1.32	--	--	.29	<.04	.76	<.008
AUG												
03...	1300	Soil Moisture	7.7	--	285	2.06	--	--	.32	<.04	2.64	.010
SEP												
11...	1700	Soil Moisture	8.7	--	310	2.00	--	--	.38	<.04	1.59	.009
17...	1100	Soil Moisture	7.6	--	198	.89	--	--	.25	<.04	.18	<.008
443914093171803 RAIN GARDEN INFLOW NR LAKEVILLE, MN. (LAT 44 39 14N LONG 093 17 18W)												
OCT 2003												
29...	1809	Environmental	7.7	--	128	2.98	93	17	.90	.30	.39	.037
APR 2004												
18...	2030	Environmental	7.7	--	111	1.96	111	230	5.7	1.16	.91	.047
JUN												
09...	1430	Environmental	6.3	--	65	.74	55	<10	1.1	.05	E.06	E.007
AUG												
01...	1230	Environmental	7.3	--	104	1.14	88	21	1.9	.44	.47	.023
SEP												
14...	1915	Environmental	7.1	--	94	1.79	139	<10	1.5	.09	.24	.019
443920093173501 RAIN GARDEN BACKGROUND WELL NR LAKEVILLE, MN. (LAT 44 39 20N LONG 093 17 35W)												
NOV 2003												
14...	1515	Environmental	6.9	--	1,980	359	--	--	.31	<.04	.75	<.008
APR 2004												
29...	1005	Environmental	--	1,550	--	208	--	--	.21	<.04	1.82	<.008
JUN												
09...	1145	Environmental	6.9	--	1,520	250	661	--	.13	<.04	3.52	<.008
AUG												
03...	1200	Environmental	6.9	--	1,860	443	--	--	.27	<.04	6.84	<.008
SEP												
11...	1430	Environmental	7.4	--	2,410	478	--	--	.26	<.04	5.91	<.008
17...	1000	Environmental	7.0	--	2,290	511	--	--	.26	E.02	6.35	<.008
443914093173602 RAIN GARDEN BACKGROUND LYSIMETER NR LAKEVILLE, MN. (LAT 44 39 14N LONG 093 17 36W)												
NOV 2003												
14...	1640	Soil Moisture	7.2	--	2,980	--	--	--	1.2	--	--	--
APR 2004												
29...	1240	Soil Moisture	--	--	--	--	--	--	1.3	<.04	11.3	<.008
JUN												
09...	0930	Soil Moisture	--	--	3,580	--	--	--	1.9	--	--	--
09...	1230	Soil Moisture	--	--	3,580	--	--	--	1.3	--	--	--
AUG												
03...	1300	Soil Moisture	--	--	--	--	--	--	1.1	E.03	11.7	<.008
SEP												
11...	1800	Soil Moisture	8.3	--	3,410	--	--	--	1.1	<.04	10.4	<.008
17...	1015	Soil Moisture	--	2,970	--	24.1	--	--	.95	<.04	9.43	<.008

QUALITY OF WATER AT RAIN GARDEN SITES—CONTINUED

MISCELLANEOUS STATION ANALYSES—CONTINUED

Date	Phos-phorus, water, fltrd, mg/L (00666)	Phos-phorus, water, unfltrd mg/L (00665)
443914093171801 RAIN GARDEN WELL NR LAKEVILLE, MN. (LAT 44 39 14N LONG 093 17 18W)		
AUG 2004		
03...	<.04	.10
SEP		
17...	E.02	<.04
17...	<.04	<.04
443914093171802 RAIN GARDEN LYSIMETER NR LAKEVILLE, MN. (LAT 44 39 14N LONG 093 17 18W)		
NOV 2003		
14...	.17	.16
APR 2004		
29...	.35	.39
JUN		
09...	.19	.19
09...	.19	.17
AUG		
03...	.15	.14
SEP		
11...	.13	.13
17...	.14	.10
443914093171803 RAIN GARDEN INFLOW NR LAKEVILLE, MN. (LAT 44 39 14N LONG 093 17 18W)		
OCT 2003		
29...	.15	.20
APR 2004		
18...	.17	.87
JUN		
09...	.17	.20
AUG		
01...	.10	.17
SEP		
14...	.13	.17
443920093173501 RAIN GARDEN BACKGROUND WELL NR LAKEVILLE, MN. (LAT 44 39 20N LONG 093 17 35W)		
NOV 2003		
14...	<.04	E.03
APR 2004		
29...	<.04	.05
JUN		
09...	<.04	<.04
AUG		
03...	<.04	.05
SEP		
11...	<.04	<.04
17...	<.04	<.04
443914093173602 RAIN GARDEN BACKGROUND LYSIMETER NR LAKEVILLE, MN. (LAT 44 39 14N LONG 093 17 36W)		
NOV 2003		
14...	--	.09
APR 2004		
29...	.08	.10
JUN		
09...	--	.08
09...	--	.09
AUG		
03...	.10	.10
SEP		
11...	.11	.10
17...	.11	.10

QUALITY OF WATER AT RAIN GARDEN SITES—CONTINUED

MISCELLANEOUS STATION ANALYSES—CONTINUED

Date	Time	Sample type	pH, water, unfltrd field, std units (00400)	Specif. conduc-tance, wat unf lab, uS/cm 25 degC (90095)	Specif. conduc-tance, wat unf uS/cm 25 degC (00095)	Temper-ature, air, deg C (00020)	Temper-ature, water, deg C (00010)	Chlor-ide, water, fltrd, mg/L (00940)	Residue on evap. at 180degC wat flt mg/L (70300)	Residue total at 105 deg. C, sus-pended, mg/L (00530)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, fltrd, mg/L as N (00608)
443920093173503 RAIN GARDEN OUTFLOW NR LAKEVILLE, MN. (LAT 44 39 20N LONG 093 17 35W)												
SEP 2004												
15...	1330	Environmental	7.5	--	63	--	--	.45	54	<10	.52	<.04
445149093365502 RAIN GARDEN LYSIMETER NR CHANHASSEN, MN. (LAT 44 51 49N LONG 093 36 55W)												
NOV 2003												
13...	1330	Soil Moisture	6.7	--	551	--	--	14.3	--	--	.51	<.04
AUG 2004												
23...	1130	Soil Moisture	--	717	--	--	--	9.63	--	--	.24	<.04
28...	1630	Soil Moisture	7.8	720	776	--	--	8.40	--	--	.31	<.04
SEP												
15...	1730	Soil Moisture	7.2	--	640	--	--	10.5	--	--	.34	<.04
18...	1230	Soil Moisture	7.2	--	665	24.0	--	10.5	--	--	.33	<.04
445149093365503 RAIN GARDEN INFLOW NR CHANHASSEN, MN. (LAT 44 51 49N LONG 093 36 55W)												
OCT 2003												
29...	1728	Environmental	--	128	--	--	--	2.13	143	40	1.9	.59
AUG 2004												
22...	0338	Environmental	8.2	--	117	--	--	.80	127	190	2.6	.86
22...	0340	Replicate	8.2	--	117	--	--	.81	131	220	2.6	.99
26...	1530	Environmental	7.8	176	--	--	--	3.18	198	575	3.6	.26
SEP												
13...	2243	Environmental	7.7	--	267	--	--	14.3	334	227	4.1	.85
445150093365402 RAIN GARDEN BACKGROUND LYSIMETER NR CHANHASSEN,MN. (LAT 44 51 50N LONG 093 36 54W)												
SEP 2004												
15...	1700	Soil Moisture	7.8	--	725	--	--	--	--	--	.31	--
18...	1350	Soil Moisture	7.5	--	672	24.0	--	--	--	--	.29	<.04
445150093365403 RAIN GARDEN OUTFLOW NR CHANHASSEN, MN. (LAT 44 51 50N LONG 093 36 54W)												
OCT 2003												
31...	0900	Environmental	7.8	--	656	--	6.5	17.0	422	<10	.44	<.04
AUG 2004												
23...	1030	Environmental	7.5	--	631	--	--	--	--	--	--	--
27...	1015	Environmental	7.5	176	--	--	--	17.6	429	<10	.40	E.02
SEP												
14...	1300	Environmental	7.5	--	424	--	--	11.7	300	<10	.41	<.04

QUALITY OF WATER AT RAIN GARDEN SITES—CONTINUED

MISCELLANEOUS STATION ANALYSES—CONTINUED

Date	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Phos-phorus, water, fltrd, mg/L (00666)	Phos-phorus, water, unfltrd mg/L (00665)
443920093173503 RAIN GARDEN OUTFLOW NR LAKEVILLE, MN. (LAT 44 39 20N LONG 093 17 35W)				
SEP 2004				
15...	<.06	<.008	.19	.20
445149093365502 RAIN GARDEN LYSIMETER NR CHANHASSEN, MN. (LAT 44 51 49N LONG 093 36 55W)				
NOV 2003				
13...	.68	<.008	.06	.06
AUG 2004				
23...	.12	<.008	.06	.06
28...	.07	<.008	.05	.05
SEP				
15...	E.05	<.008	.06	.06
18...	<.06	<.008	.05	.05
445149093365503 RAIN GARDEN INFLOW NR CHANHASSEN, MN. (LAT 44 51 49N LONG 093 36 55W)				
OCT 2003				
29...	.85	.108	.07	.12
AUG 2004				
22...	.85	.013	E.04	.22
22...	.87	.013	E.04	.23
26...	2.15	.050	<.04	.63
SEP				
13...	2.72	.037	E.03	.29
445150093365402 RAIN GARDEN BACKGROUND LYSIMETER NR CHANHASSEN,MN. (LAT 44 51 50N LONG 093 36 54W)				
SEP 2004				
15...	--	--	--	E.03
18...	<.06	<.008	E.03	E.02
445150093365403 RAIN GARDEN OUTFLOW NR CHANHASSEN, MN. (LAT 44 51 50N LONG 093 36 54W)				
OCT 2003				
31...	.24	<.008	E.04	.04
AUG 2004				
23...	--	--	--	--
27...	<.06	<.008	E.04	E.03
SEP				
14...	<.06	<.008	.05	.05

MERCURY FLUX CHAMBER WATER QUALITY

MISCELLANEOUS STATION ANALYSES

Date	Time	Sample type	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Mercury water unfltrd ng/L (50286)	Methylmercury water unfltrd ng/L (50284)
450915092482501 Square Lake GW Seepage (LAT 45 09 15N LONG 092 48 25W)											
NOV 2003											
20...	1440	Environmental	--	--	--	--	--	--	--	.47	<.04
20...	1445	Replicate	--	--	--	--	--	--	--	.53	<.04
DEC											
22...	1330	Blank	--	--	--	--	--	--	--	.79	<.04
450915092482601 SQUARE LAKE, SOUTH SIDE, NEAR MARINE ON ST. CROIX (LAT 45 09 15N LONG 092 48 26W)											
NOV 2003											
20...	1430	Environmental	730	9.1	79	7.8	267	11.0	6.9	.27	<.04

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LANDSCAPE INDICATOR STUDY FOR PESTICIDES AND NUTRIENTS

MISCELLANEOUS STATION ANALYSES

Date	Time	Sample type	Instantaneous discharge, cfs (00061)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf lab, uS/cm 25 degC (90095)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)
05329898 SILVER CREEK NEAR EAST UNION, MN (LAT 44 41 29N LONG 093 44 14W)												
JUL 2004												
28...	1300	Environmental	3.3	741	9.7	108	8.4	8.3	798	814	24.0	8.5
05339721 RUSH CREEK ABOVE MOUTH NEAR RUSH CITY, MN (LAT 45 39 22N LONG 092 53 25W)												
JUL 2004												
27...	1130	Environmental	23	748	9.4	106	8.2	8.2	344	357	21.5	20.1
05377550 DEERING VALLEY CREEK NEAR WHITMAN, MN (LAT 44 08 03N LONG 091 47 19W)												
AUG 2004												
14...	1400	Environmental	1.3	757	10.7	109	8.2	8.1	527	541	21.5	16.2
14...	1406	Replicate	--	--	--	--	--	8.2	491	--	--	--
05351400 DEVIL CREEK NEAR MORRISTOWN, MN (LAT 44 15 15N LONG 093 28 04W)												
AUG 2004												
15...	1230	Environmental	9.3	747	9.1	94	7.8	E7.8	309	361	20.0	16.7
05355307 WELLS CREEK NEAR BELVIDERE MILLS, MN (LAT 44 27 28N LONG 092 28 38W)												
SEP 2004												
03...	1130	Environmental	14	743	10.1	107	7.7	8.1	502	552	--	18.0
05377508 TROUT CREEK NEAR WEAVER, MN (LAT 44 12 02N LONG 091 56 40W)												
SEP 2004												
03...	0830	Environmental	6.4	745	9.8	94	7.9	8.1	494	528	--	13.6
05384110 DUSCHEE CREEK ABOVE LANESBORO, MN (LAT 43 41 58N LONG 091 59 24W)												
SEP 2004												
02...	1300	Environmental	7.5	--	10.0	105	7.8	8.2	549	598	--	18.2
02...	1302	Blank	--	--	--	--	--	E7.7	<3	--	--	--
05325580 CHERRY CREEK NEAR OTTAWA, MN (LAT 44 21 28N LONG 093 54 32W)												
SEP 2004												
03...	1040	Environmental	E.50	735	7.3	80	8.0	8.1	492	455	23.5	19.5

LANDSCAPE INDICATOR STUDY FOR PESTICIDES AND NUTRIENTS—CONTINUED

MISCELLANEOUS STATION ANALYSES—CONTINUED

Date	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	Alkalinity, wat flt inc tit field, mg/L as CaCO3 (39086)	Bicarbonate, wat flt incrm. titr., field, mg/L (00453)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Ammonia + org-N, water, fltrd, mg/L as N (00623)	Ammonia + org-N, water, unfltrd mg/L as N (00625)
05329898 SILVER CREEK NEAR EAST UNION, MN (LAT 44 41 29N LONG 093 44 14W)													
JUL 2004													
28...	117	36.0	3.16	8.55	156	190	28.2	.4	27.5	44.4	516	1.2	1.2
05339721 RUSH CREEK ABOVE MOUTH NEAR RUSH CITY, MN (LAT 45 39 22N LONG 092 53 25W)													
JUL 2004													
27...	37.2	19.2	4.50	6.90	157	192	13.2	<.2	12.1	4.6	219	.87	.89
05377550 DEERING VALLEY CREEK NEAR WHITMAN, MN (LAT 44 08 03N LONG 091 47 19W)													
AUG 2004													
14...	69.6	33.5	1.39	2.45	276	337	4.69	<.2	15.8	12.8	284	.27	.44
14...	71.4	33.5	1.42	2.46	--	--	4.93	<.2	15.8	13.3	298	.27	.45
05351400 DEVIL CREEK NEAR MORRISTOWN, MN (LAT 44 15 15N LONG 093 28 04W)													
AUG 2004													
15...	51.2	15.9	2.93	4.38	172	210	9.87	<.2	21.5	7.2	249	1.6	1.6
05355307 WELLS CREEK NEAR BELVIDERE MILLS, MN (LAT 44 27 28N LONG 092 28 38W)													
SEP 2004													
03...	68.0	31.2	1.27	3.65	265	318	7.32	<.2	19.0	10.5	340	.14	.19
05377508 TROUT CREEK NEAR WEAVER, MN (LAT 44 12 02N LONG 091 56 40W)													
SEP 2004													
03...	68.7	31.3	1.03	2.53	274	334	5.16	<.2	15.7	10.3	327	E.09	.16
05384110 DUSCHEE CREEK ABOVE LANESBORO, MN (LAT 43 41 58N LONG 091 59 24W)													
SEP 2004													
02...	92.0	25.8	1.65	4.19	282	344	8.11	<.2	18.4	15.7	307	.17	.19
02...	.06	E.004	<.16	.11	--	--	<.20	<.2	E.04	<.2	<10	<.10	<.10
05325580 CHERRY CREEK NEAR OTTAWA, MN (LAT 44 21 28N LONG 093 54 32W)													
SEP 2004													
03...	59.1	28.6	6.15	9.74	231	282	25.4	.3	20.3	16.3	336	1.8	1.9

LANDSCAPE INDICATOR STUDY FOR PESTICIDES AND NUTRIENTS—CONTINUED

MISCELLANEOUS STATION ANALYSES—CONTINUED

Date	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Phos-phorus, water, fltrd, mg/L (00666)	Phos-phorus, water, unfltrd mg/L (00665)	Iron, water, fltrd, ug/L (01046)	Mangan-ese, water, fltrd, ug/L (01056)	1,4-Di-chloro-benzene water, fltrd, ug/L (34572)	1-Methyl-naphth-alene, water, fltrd, ug/L (62054)	2,6-Di-ethyl-aniline water fltrd 0.7u GF ug/L (82660)	2,6-Di-methyl-naphth-alene, water, fltrd, ug/L (62055)	2-[(2-Ethyl-6methyl phenyl) amino]2 oxoESA ug/L (62850)
05329898 SILVER CREEK NEAR EAST UNION, MN (LAT 44 41 29N LONG 093 44 14W)													
JUL 2004													
28...	<.04	14.8	.017	.15	.172	.195	E4	7.9	<.5	<.5	<.006	<.5	.65
05339721 RUSH CREEK ABOVE MOUTH NEAR RUSH CITY, MN (LAT 45 39 22N LONG 092 53 25W)													
JUL 2004													
27...	<.04	.09	<.008	.04	.065	.092	41	23.0	<.5	<.5	<.006	<.5	<.02
05377550 DEERING VALLEY CREEK NEAR WHITMAN, MN (LAT 44 08 03N LONG 091 47 19W)													
AUG 2004													
14...	E.03	1.43	E.007	.03	.035	.110	E6	37.5	<.5	<.5	<.006	<.5	<.02
14...	E.03	1.47	E.007	.03	.035	.112	6	37.3	<.5	<.5	<.006	<.5	<.02
05351400 DEVIL CREEK NEAR MORRISTOWN, MN (LAT 44 15 15N LONG 093 28 04W)													
AUG 2004													
15...	.08	.21	.017	.18	.22	.23	46	45.0	--	--	<.006	--	<.02
05355307 WELLS CREEK NEAR BELVIDERE MILLS, MN (LAT 44 27 28N LONG 092 28 38W)													
SEP 2004													
03...	<.04	2.69	.064	<.02	.013	.055	E4	45.1	<.5	<.5	<.006	<.5	<.02
05377508 TROUT CREEK NEAR WEAVER, MN (LAT 44 12 02N LONG 091 56 40W)													
SEP 2004													
03...	<.04	1.11	.032	<.02	.018	.072	9	22.7	<.5	<.5	<.006	<.5	<.02
05384110 DUSCHEE CREEK ABOVE LANESBORO, MN (LAT 43 41 58N LONG 091 59 24W)													
SEP 2004													
02...	<.04	5.00	.016	.04	.059	.068	<6	10.6	<.5	<.5	<.006	<.5	<.02
02...	<.04	<.06	<.008	<.02	<.004	<.004	<6	<.8	<.5	<.5	<.006	<.5	<.02
05325580 CHERRY CREEK NEAR OTTAWA, MN (LAT 44 21 28N LONG 093 54 32W)													
SEP 2004													
03...	E.02	.37	.014	.16	.20	.27	14	313	<.5	<.5	<.006	<.5	.10

LANDSCAPE INDICATOR STUDY FOR PESTICIDES AND NUTRIENTS—CONTINUED

MISCELLANEOUS STATION ANALYSES—CONTINUED

Date	CIAT, water, fltrd, ug/L (04040)	2-Methyl-naphth-alene, water, fltrd, ug/L (62056)	3-beta-Copros-tanol, water, fltrd, ug/L (62057)	3-Methyl-1H-indole, water, fltrd, ug/L (62058)	3-tert-Butyl-4-hy-droxy-anisole wat flt ug/L (62059)	4-Cumyl-phenol, water, fltrd, ug/L (62060)	4-Octyl-phenol, water, fltrd, ug/L (62061)	4-Nonyl-phenol, water, fltrd, ug/L (62085)	4-tert-Octyl-phenol, water, fltrd, ug/L (62062)	5-Meth-yl-1H-benzo-tri-azole, wat flt ug/L (62063)	9,10-Anthra-quinone water, fltrd, ug/L (62066)	Aceto-chlor ESA, water, fltrd 0.7u GF ug/L (61029)	Aceto-chlor OA, water, fltrd 0.7u GF ug/L (61030)
05329898 SILVER CREEK NEAR EAST UNION, MN (LAT 44 41 29N LONG 093 44 14W)													
JUL 2004 28...	E.021	<.5	<2	<1	<5	<1	<1	E3	<1	<2	<.5	1.89	.34
05339721 RUSH CREEK ABOVE MOUTH NEAR RUSH CITY, MN (LAT 45 39 22N LONG 092 53 25W)													
JUL 2004 27...	E.017	<.5	<2	<1	<5	<1	<1	<5	<1	<2	<.5	.08	.11
05377550 DEERING VALLEY CREEK NEAR WHITMAN, MN (LAT 44 08 03N LONG 091 47 19W)													
AUG 2004 14...	E.016	<.5	<2	M	<5	<1	<1	E1	<1	<2	<.5	<.02	<.02
14...	E.017	<.5	<2	M	<5	<1	<1	E2	M	<2	<.5	<.02	<.02
05351400 DEVIL CREEK NEAR MORRISTOWN, MN (LAT 44 15 15N LONG 093 28 04W)													
AUG 2004 15...	E.014	--	--	--	--	--	--	--	--	--	--	.77	.53
05355307 WELLS CREEK NEAR BELVIDERE MILLS, MN (LAT 44 27 28N LONG 092 28 38W)													
SEP 2004 03...	E.049	<.5	<2	<1	<5	<1	<1	<5	<1	<2	<.5	<.02	<.02
05377508 TROUT CREEK NEAR WEAVER, MN (LAT 44 12 02N LONG 091 56 40W)													
SEP 2004 03...	E.019	<.5	<2	<1	<5	<1	<1	<5	<1	<2	<.5	<.02	<.02
05384110 DUSCHEE CREEK ABOVE LANESBORO, MN (LAT 43 41 58N LONG 091 59 24W)													
SEP 2004 02...	E.064	<.5	<2	<1	<5	<1	<1	<5	<1	<2	<.5	<.02	<.02
02...	<.006	<.5	<2	<1	<5	<1	<1	<5	<1	<2	<.5	<.02	<.02
05325580 CHERRY CREEK NEAR OTTAWA, MN (LAT 44 21 28N LONG 093 54 32W)													
SEP 2004 03...	E.040	<.5	<2	<1	<5	<1	<1	<5	<1	<2	<.5	.66	.50

LANDSCAPE INDICATOR STUDY FOR PESTICIDES AND NUTRIENTS—CONTINUED

MISCELLANEOUS STATION ANALYSES—CONTINUED

Date	Aceto-chlor SAA, water, fltrd, ug/L (62847)	Aceto-chlor, water, fltrd, ug/L (49260)	Aceto-phenone water, fltrd, ug/L (62064)	AHTN, water, fltrd, ug/L (62065)	Ala-chlor ESA SA, water, fltrd, ug/L (62849)	Ala-chlor ESA, water, fltrd 0.7u GF ug/L (50009)	Ala-chlor OA, water, fltrd 0.7u GF ug/L (61031)	Ala-chlor SAA, water, fltrd, ug/L (62848)	Ala-chlor, water, fltrd, ug/L (46342)	alpha-HCH, water, fltrd, ug/L (34253)	alpha-HCH-d6, surrog, wat flt 0.7u GF percent recovry (91065)	Anthra-cene, water, fltrd, ug/L (34221)	Atra-zine, water, fltrd, ug/L (39632)
05329898 SILVER CREEK NEAR EAST UNION, MN (LAT 44 41 29N LONG 093 44 14W)													
JUL 2004 28...	<.02	.011	<.5	M	.02	.21	.04	<.02	<.005	<.005	93.4	<.5	.193
05339721 RUSH CREEK ABOVE MOUTH NEAR RUSH CITY, MN (LAT 45 39 22N LONG 092 53 25W)													
JUL 2004 27...	<.02	.008	<.5	<.5	<.02	<.02	.02	<.02	<.005	<.005	92.7	<.5	.185
05377550 DEERING VALLEY CREEK NEAR WHITMAN, MN (LAT 44 08 03N LONG 091 47 19W)													
AUG 2004 14...	<.02	<.010	<.5	<.5	<.02	<.02	<.02	<.02	<.005	<.005	84.6	<.5	.025
14...	<.02	<.006	<.5	M	<.02	<.02	<.02	<.02	<.005	<.005	87.5	<.5	.026
05351400 DEVIL CREEK NEAR MORRISTOWN, MN (LAT 44 15 15N LONG 093 28 04W)													
AUG 2004 15...	<.02	<.006	--	--	<.02	.19	.04	<.02	<.005	<.005	90.8	--	.069
05355307 WELLS CREEK NEAR BELVIDERE MILLS, MN (LAT 44 27 28N LONG 092 28 38W)													
SEP 2004 03...	<.02	<.006	<.5	<.5	<.02	.12	<.02	<.02	<.005	<.005	87.9	<.5	.087
05377508 TROUT CREEK NEAR WEAVER, MN (LAT 44 12 02N LONG 091 56 40W)													
SEP 2004 03...	<.02	<.006	<.5	<.5	<.02	<.02	<.02	<.02	<.005	<.005	86.6	<.5	.039
05384110 DUSCHEE CREEK ABOVE LANESBORO, MN (LAT 43 41 58N LONG 091 59 24W)													
SEP 2004 02...	<.02	<.006	<.5	<.5	<.02	.14	<.02	<.02	<.005	<.005	90.9	<.5	.084
02...	<.02	<.006	<.5	<.5	<.02	<.02	<.02	<.02	<.005	<.005	94.3	<.5	<.007
05325580 CHERRY CREEK NEAR OTTAWA, MN (LAT 44 21 28N LONG 093 54 32W)													
SEP 2004 03...	<.02	<.006	<.5	<.5	.04	.49	.12	<.02	<.005	<.005	119	<.5	E.456

LANDSCAPE INDICATOR STUDY FOR PESTICIDES AND NUTRIENTS—CONTINUED

MISCELLANEOUS STATION ANALYSES—CONTINUED

Date	Azinphos-methyl, water, fltrd 0.7u GF ug/L (82686)	Benfluralin, water, fltrd 0.7u GF ug/L (82673)	Benzo-[a]-pyrene, water, fltrd, ug/L (34248)	Benzophenone water, fltrd, ug/L (62067)	beta-Sitosterol, water, fltrd, ug/L (62068)	beta-Stigmastanol, water, fltrd, ug/L (62086)	Bisphenol A, water, fltrd, ug/L (62069)	Bisphenol A-d3 sur Sch 2033 & 8033, wat flt pct rcv (99583)	Bromacil, water, fltrd, ug/L (04029)	Butylate, water, fltrd, ug/L (04028)	Caffeine, water, fltrd, ug/L (50305)	Caffeine-13C sur Sch 2033 & 8033, wat flt pct rcv (99584)	Camphor water, fltrd, ug/L (62070)
05329898 SILVER CREEK NEAR EAST UNION, MN (LAT 44 41 29N LONG 093 44 14W)													
JUL 2004													
28...	<.050	<.010	<.5	M	<20	<20	<1	82.2	<.5	<.004	E.1	98.4	<.5
05339721 RUSH CREEK ABOVE MOUTH NEAR RUSH CITY, MN (LAT 45 39 22N LONG 092 53 25W)													
JUL 2004													
27...	<.050	<.010	<.5	<.5	<20	<20	<1	123	<.5	<.004	M	102	<.5
05377550 DEERING VALLEY CREEK NEAR WHITMAN, MN (LAT 44 08 03N LONG 091 47 19W)													
AUG 2004													
14...	<.050	<.010	<.5	E.1	<2	<2	M	82.6	<.5	<.004	<.5	60.9	<.5
14...	<.050	<.010	<.5	E.1	<2	<2	<1	93.0	<.5	<.004	M	90.8	M
05351400 DEVIL CREEK NEAR MORRISTOWN, MN (LAT 44 15 15N LONG 093 28 04W)													
AUG 2004													
15...	<.050	<.010	--	--	--	--	--	--	--	<.004	--	--	--
05355307 WELLS CREEK NEAR BELVIDERE MILLS, MN (LAT 44 27 28N LONG 092 28 38W)													
SEP 2004													
03...	<.050	<.010	<.5	<.5	<2	<2	<1	58.7	<.5	<.004	<.5	74.0	<.5
05377508 TROUT CREEK NEAR WEAVER, MN (LAT 44 12 02N LONG 091 56 40W)													
SEP 2004													
03...	<.050	<.010	<.5	<.5	<2	<2	<1	60.9	<.5	<.004	<.5	82.3	<.5
05384110 DUSCHEE CREEK ABOVE LANESBORO, MN (LAT 43 41 58N LONG 091 59 24W)													
SEP 2004													
02...	<.050	<.010	<.5	<.5	<2	<2	<1	39.0	<.5	<.004	<.5	80.1	<.5
02...	<.050	<.010	<.5	<.5	<2	<2	<1	.0	<.5	<.004	<.5	79.8	<.5
05325580 CHERRY CREEK NEAR OTTAWA, MN (LAT 44 21 28N LONG 093 54 32W)													
SEP 2004													
03...	<.050	<.010	<.5	<.5	<2	<2	<1	95.5	<.5	<.004	<.5	83.4	<.5

LANDSCAPE INDICATOR STUDY FOR PESTICIDES AND NUTRIENTS—CONTINUED

MISCELLANEOUS STATION ANALYSES—CONTINUED

Date	Carbaryl, water, fltrd 0.7u GF ug/L (82680)	Carbazole, water, fltrd, ug/L (62071)	Carbofuran, water, fltrd 0.7u GF ug/L (82674)	Chlorpyrifos water, fltrd, ug/L (38933)	Cholesterol, water, fltrd, ug/L (62072)	cis-Permethrin water fltrd 0.7u GF ug/L (82687)	Cotinine, water, fltrd, ug/L (62005)	Cyanazine, water, fltrd, ug/L (04041)	DCPA, water fltrd 0.7u GF ug/L (82682)	DecaFbiphenl sur Sch 2033 & 8033, wat flt pct rcv (99585)	DEET, water, fltrd, ug/L (62082)	Desulfinyl fipronil, water, fltrd, ug/L (62170)	Diazinon, water, fltrd, ug/L (39572)
05329898 SILVER CREEK NEAR EAST UNION, MN (LAT 44 41 29N LONG 093 44 14W)													
JUL 2004													
28...	<.041	<.5	<.020	<.005	<20	<.006	<1.00	<.018	<.003	61.5	E.4	<.012	<.005
05339721 RUSH CREEK ABOVE MOUTH NEAR RUSH CITY, MN (LAT 45 39 22N LONG 092 53 25W)													
JUL 2004													
27...	<.041	<.5	<.020	<.005	<20	<.006	<1.00	<.018	<.003	58.4	E.1	<.012	<.005
05377550 DEERING VALLEY CREEK NEAR WHITMAN, MN (LAT 44 08 03N LONG 091 47 19W)													
AUG 2004													
14...	<.041	<.5	<.020	E.003	M	<.006	<1.00	<.018	<.003	28.0	E.1	<.012	<.005
14...	<.041	<.5	<.020	<.005	<2	<.006	<1.00	<.018	<.003	40.2	E.4	<.012	<.005
05351400 DEVIL CREEK NEAR MORRISTOWN, MN (LAT 44 15 15N LONG 093 28 04W)													
AUG 2004													
15...	<.041	--	<.020	<.005	--	<.006	--	<.018	<.003	--	--	<.012	<.005
05355307 WELLS CREEK NEAR BELVIDERE MILLS, MN (LAT 44 27 28N LONG 092 28 38W)													
SEP 2004													
03...	<.041	<.5	<.020	<.005	<2	<.006	<1.00	<.018	<.003	35.4	<.5	<.012	<.005
05377508 TROUT CREEK NEAR WEAVER, MN (LAT 44 12 02N LONG 091 56 40W)													
SEP 2004													
03...	<.041	<.5	<.020	<.005	<2	<.006	<1.00	<.018	<.003	36.4	<.5	<.012	<.005
05384110 DUSCHEE CREEK ABOVE LANESBORO, MN (LAT 43 41 58N LONG 091 59 24W)													
SEP 2004													
02...	<.041	<.5	<.020	<.005	<2	<.006	<1.00	<.018	<.003	29.5	<.5	<.012	<.005
02...	<.041	<.5	<.020	<.005	<2	<.006	<1.00	<.018	<.003	34.0	E.1	<.012	<.005
05325580 CHERRY CREEK NEAR OTTAWA, MN (LAT 44 21 28N LONG 093 54 32W)													
SEP 2004													
03...	<.041	<.5	<.033	<.005	<2	<.006	<1.00	<.018	<.003	33.8	E.4	<.012	<.005

LANDSCAPE INDICATOR STUDY FOR PESTICIDES AND NUTRIENTS—CONTINUED

MISCELLANEOUS STATION ANALYSES—CONTINUED

Date	Diazinon-d10 surrog. wat flt 0.7u GF percent recovry (91063)	Dieldrin, water, fltrd, ug/L (39381)	Diethoxynonylphenol, water, fltrd, ug/L (62083)	Diethoxyoctylphenol, water, fltrd ug/L (61705)	Dimethenamid ESA, water, fltrd, ug/L (61951)	Dimethenamid OA, water, fltrd, ug/L (62482)	Dimethenamid water, fltrd, ug/L (61588)	Disulfoton, water, fltrd 0.7u GF ug/L (82677)	D-Limonene, water, fltrd, ug/L (62073)	EPTC, water, fltrd 0.7u GF ug/L (82668)	Ethalfluralin, water, fltrd 0.7u GF ug/L (82663)	Ethoprop, water, fltrd 0.7u GF ug/L (82672)	Ethoxyoctylphenol, water, fltrd ug/L (61706)
05329898 SILVER CREEK NEAR EAST UNION, MN (LAT 44 41 29N LONG 093 44 14W)													
JUL 2004													
28...	110	<.009	<5	<1	<.02	<.02	<.02	<.02	<.5	<.010	<.009	<.005	<1
05339721 RUSH CREEK ABOVE MOUTH NEAR RUSH CITY, MN (LAT 45 39 22N LONG 092 53 25W)													
JUL 2004													
27...	111	<.009	<5	<1	<.02	<.02	<.02	<.02	<.5	<.004	<.009	<.005	<1
05377550 DEERING VALLEY CREEK NEAR WHITMAN, MN (LAT 44 08 03N LONG 091 47 19W)													
AUG 2004													
14...	105	<.009	<5	<1	<.02	<.02	<.02	<.02	<.5	<.015	<.009	<.005	<1
14...	107	<.009	<5	<1	<.02	<.02	<.02	<.02	<.5	<.004	<.009	<.005	<1
05351400 DEVIL CREEK NEAR MORRISTOWN, MN (LAT 44 15 15N LONG 093 28 04W)													
AUG 2004													
15...	113	<.009	--	--	.10	<.02	<.02	<.02	--	<.004	<.009	<.005	--
05355307 WELLS CREEK NEAR BELVIDERE MILLS, MN (LAT 44 27 28N LONG 092 28 38W)													
SEP 2004													
03...	105	<.009	<5	<1	<.02	<.02	<.02	<.02	<.5	<.004	<.009	<.005	<1
05377508 TROUT CREEK NEAR WEAVER, MN (LAT 44 12 02N LONG 091 56 40W)													
SEP 2004													
03...	94.9	<.009	<5	<1	<.02	<.02	<.02	<.02	<.5	<.004	<.009	<.005	<1
05384110 DUSCHEE CREEK ABOVE LANESBORO, MN (LAT 43 41 58N LONG 091 59 24W)													
SEP 2004													
02...	113	<.009	<5	<1	<.02	<.02	<.02	<.02	<.5	<.004	<.009	<.005	<1
02...	116	<.009	<5	<1	<.02	<.02	<.02	<.02	<.5	<.004	<.009	<.005	<1
05325580 CHERRY CREEK NEAR OTTAWA, MN (LAT 44 21 28N LONG 093 54 32W)													
SEP 2004													
03...	154	<.024	<5	<1	<.02	<.02	<.02	<.02	<.5	<.013	<.009	<.005	<1

LANDSCAPE INDICATOR STUDY FOR PESTICIDES AND NUTRIENTS—CONTINUED

MISCELLANEOUS STATION ANALYSES—CONTINUED

Date	Desulf-inyl-fipro-nil amide, wat flt ug/L (62169)	Fipro-nil sulfide water, fltrd, ug/L (62167)	Fipro-nil sulfone water, fltrd, ug/L (62168)	Fipro-nil, water, fltrd, ug/L (62166)	Flufen-acet ESA, water, fltrd, ug/L (61952)	Flufe-nacet OA, water, fltrd, ug/L (62483)	Flufe-nacet, water, fltrd, ug/L (62481)	Fluor-anthene water, fltrd, ug/L (34377)	Fluor-anthene -d10, sur Sch 20/8033 wat flt pct rcv (99586)	Fonofos water, fltrd, ug/L (04095)	HHCB, water, fltrd, ug/L (62075)	Indole, water, fltrd, ug/L (62076)	Isobor-neol, water, fltrd, ug/L (62077)
05329898 SILVER CREEK NEAR EAST UNION, MN (LAT 44 41 29N LONG 093 44 14W)													
JUL 2004													
28...	<.029	<.013	<.024	<.016	<.02	<.02	<.02	<.5	95.1	<.003	M	<.5	<.5
05339721 RUSH CREEK ABOVE MOUTH NEAR RUSH CITY, MN (LAT 45 39 22N LONG 092 53 25W)													
JUL 2004													
27...	<.029	<.013	<.024	<.016	<.02	<.02	<.02	<.5	92.1	<.003	<.5	<.5	<.5
05377550 DEERING VALLEY CREEK NEAR WHITMAN, MN (LAT 44 08 03N LONG 091 47 19W)													
AUG 2004													
14...	<.029	<.013	<.024	<.016	<.02	<.02	<.02	<.5	58.0	<.003	<.5	<.5	<.5
14...	<.029	<.013	<.024	<.016	<.02	<.02	<.02	<.5	90.1	<.003	M	<.5	<.5
05351400 DEVIL CREEK NEAR MORRISTOWN, MN (LAT 44 15 15N LONG 093 28 04W)													
AUG 2004													
15...	<.029	<.013	<.024	<.016	<.02	<.02	<.02	--	--	<.003	--	--	--
05355307 WELLS CREEK NEAR BELVIDERE MILLS, MN (LAT 44 27 28N LONG 092 28 38W)													
SEP 2004													
03...	<.029	<.013	<.024	<.016	<.02	<.02	<.02	<.5	82.5	<.003	<.5	<.5	<.5
05377508 TROUT CREEK NEAR WEAVER, MN (LAT 44 12 02N LONG 091 56 40W)													
SEP 2004													
03...	<.029	<.013	<.024	<.016	<.02	<.02	<.02	<.5	83.0	<.003	<.5	<.5	<.5
05384110 DUSCHEE CREEK ABOVE LANESBORO, MN (LAT 43 41 58N LONG 091 59 24W)													
SEP 2004													
02...	<.029	<.013	<.024	<.016	<.02	<.02	<.02	<.5	81.5	<.003	<.5	<.5	<.5
02...	<.029	<.013	<.024	<.016	<.02	<.02	<.02	<.5	79.1	<.003	<.5	<.5	<.5
05325580 CHERRY CREEK NEAR OTTAWA, MN (LAT 44 21 28N LONG 093 54 32W)													
SEP 2004													
03...	<.029	<.013	<.024	<.016	<.02	<.02	<.02	<.5	75.1	<.003	<.5	<.5	<.5

LANDSCAPE INDICATOR STUDY FOR PESTICIDES AND NUTRIENTS—CONTINUED

MISCELLANEOUS STATION ANALYSES—CONTINUED

Date	Isophorone water, fltrd, ug/L (34409)	Isopropylbenzene water, fltrd, ug/L (62078)	Isoquinoline, water, fltrd, ug/L (62079)	Lindane water, fltrd, ug/L (39341)	Linuron water fltrd 0.7u GF ug/L (82666)	Malathion, water, fltrd, ug/L (39532)	Menthol water, fltrd, ug/L (62080)	Metalaxyl, water, fltrd, ug/L (50359)	Methyl parathion, water, fltrd 0.7u GF ug/L (82667)	Methyl salicylate, water, fltrd, ug/L (62081)	Metolachlor ESA, water, fltrd 0.7u GF ug/L (61043)	Metolachlor OA, water, fltrd 0.7u GF ug/L (61044)	Metolachlor, water, fltrd, ug/L (39415)
05329898 SILVER CREEK NEAR EAST UNION, MN (LAT 44 41 29N LONG 093 44 14W)													
JUL 2004													
28...	M	<.5	<.5	<.004	<.035	<.027	<.5	<.5	<.015	<.5	1.10	.31	.088
05339721 RUSH CREEK ABOVE MOUTH NEAR RUSH CITY, MN (LAT 45 39 22N LONG 092 53 25W)													
JUL 2004													
27...	<.5	<.5	<.5	<.004	<.035	<.027	<.5	<.5	<.015	<.5	.13	.06	.017
05377550 DEERING VALLEY CREEK NEAR WHITMAN, MN (LAT 44 08 03N LONG 091 47 19W)													
AUG 2004													
14...	M	<.5	<.5	<.004	<.035	<.027	<.5	<.5	<.015	<.5	<.02	<.02	<.013
14...	M	<.5	<.5	<.004	<.035	<.027	<.5	<.5	<.015	M	<.02	<.02	<.013
05351400 DEVIL CREEK NEAR MORRISTOWN, MN (LAT 44 15 15N LONG 093 28 04W)													
AUG 2004													
15...	--	--	--	<.004	<.035	<.027	--	--	<.015	--	.48	.11	E.013
05355307 WELLS CREEK NEAR BELVIDERE MILLS, MN (LAT 44 27 28N LONG 092 28 38W)													
SEP 2004													
03...	<.5	<.5	<.5	<.004	<.035	<.027	<.5	<.5	<.015	<.5	.02	<.02	<.013
05377508 TROUT CREEK NEAR WEAVER, MN (LAT 44 12 02N LONG 091 56 40W)													
SEP 2004													
03...	<.5	<.5	<.5	<.004	<.035	<.027	<.5	<.5	<.015	<.5	<.02	<.02	<.013
05384110 DUSCHEE CREEK ABOVE LANESBORO, MN (LAT 43 41 58N LONG 091 59 24W)													
SEP 2004													
02...	<.5	<.5	<.5	<.004	<.035	<.064	<.5	<.5	<.015	<.5	.37	.02	<.013
02...	<.5	<.5	<.5	<.004	<.035	<.027	<.5	<.5	<.015	<.5	<.02	<.02	<.013
05325580 CHERRY CREEK NEAR OTTAWA, MN (LAT 44 21 28N LONG 093 54 32W)													
SEP 2004													
03...	<.5	<.5	<.5	<.004	<.035	<.088	<.5	<.5	<.015	<.5	1.56	.68	<.021

LANDSCAPE INDICATOR STUDY FOR PESTICIDES AND NUTRIENTS—CONTINUED

MISCELLANEOUS STATION ANALYSES—CONTINUED

Date	Metribuzin, water, fltrd, ug/L (82630)	Molinate, water, fltrd 0.7u GF ug/L (82671)	Naphthalene, water, fltrd, ug/L (34443)	Napropamide, water, fltrd 0.7u GF ug/L (82684)	p,p-' DDE, water, fltrd, ug/L (34653)	Parathion, water, fltrd, ug/L (39542)	p-Cresol, water, fltrd, ug/L (62084)	Pebulate, water, fltrd 0.7u GF ug/L (82669)	Pendimethalin, water, fltrd 0.7u GF ug/L (82683)	Pentachlorophenol, water, fltrd, ug/L (34459)	Phenanthrene, water, fltrd, ug/L (34462)	Phenol, water, fltrd, ug/L (34466)	Phorate water fltrd 0.7u GF ug/L (82664)
05329898 SILVER CREEK NEAR EAST UNION, MN (LAT 44 41 29N LONG 093 44 14W)													
JUL 2004													
28...	<.006	<.003	<.5	<.007	<.003	<.010	M	<.004	<.022	<2	<.5	E.5	<.011
05339721 RUSH CREEK ABOVE MOUTH NEAR RUSH CITY, MN (LAT 45 39 22N LONG 092 53 25W)													
JUL 2004													
27...	<.006	<.003	<.5	<.007	<.003	<.010	<1	<.004	<.022	<2	<.5	E.4	<.011
05377550 DEERING VALLEY CREEK NEAR WHITMAN, MN (LAT 44 08 03N LONG 091 47 19W)													
AUG 2004													
14...	<.006	<.003	<.5	<.007	<.003	<.010	<1	<.004	<.022	<2	<.5	E.1	<.011
14...	<.006	<.003	<.5	<.007	<.003	<.010	M	<.004	<.022	<2	<.5	E.3	<.011
05351400 DEVIL CREEK NEAR MORRISTOWN, MN (LAT 44 15 15N LONG 093 28 04W)													
AUG 2004													
15...	<.006	<.003	--	<.007	<.003	<.010	--	<.004	<.022	--	--	--	<.011
05355307 WELLS CREEK NEAR BELVIDERE MILLS, MN (LAT 44 27 28N LONG 092 28 38W)													
SEP 2004													
03...	<.006	<.003	<.5	<.007	<.003	<.010	<1	<.004	<.022	<2	<.5	<.5	<.011
05377508 TROUT CREEK NEAR WEAVER, MN (LAT 44 12 02N LONG 091 56 40W)													
SEP 2004													
03...	<.006	<.003	<.5	<.007	<.003	<.010	<1	<.004	<.022	<2	<.5	<.6	<.011
05384110 DUSCHEE CREEK ABOVE LANESBORO, MN (LAT 43 41 58N LONG 091 59 24W)													
SEP 2004													
02...	<.006	<.003	<.5	<.007	<.112	<.010	<1	<.004	<.022	<2	<.5	<.5	<.011
02...	<.006	<.003	<.5	<.007	<.003	<.010	<1	<.004	<.022	<2	<.5	<.7	<.011
05325580 CHERRY CREEK NEAR OTTAWA, MN (LAT 44 21 28N LONG 093 54 32W)													
SEP 2004													
03...	<.006	<.003	<.5	<.007	<.222	<.010	<1	<.004	<.022	<2	<.5	<.5	<.011

LANDSCAPE INDICATOR STUDY FOR PESTICIDES AND NUTRIENTS—CONTINUED

MISCELLANEOUS STATION ANALYSES—CONTINUED

Date	Prometon, water, fltrd, ug/L (04037)	Propyzamide, water, fltrd 0.7u GF ug/L (82676)	Propachlor ESA, water, fltrd 0.7u GF ug/L (62766)	Propachlor OA, water, fltrd 0.7u GF ug/L (62767)	Propachlor, water, fltrd, ug/L (04024)	Propanil, water, fltrd 0.7u GF ug/L (82679)	Propargite, water, fltrd 0.7u GF ug/L (82685)	Pyrene, water, fltrd, ug/L (34470)	Simazine, water, fltrd, ug/L (04035)	Tebuthiuron water fltrd 0.7u GF ug/L (82670)	Terbacil, water, fltrd 0.7u GF ug/L (82665)	Terbufos, water, fltrd 0.7u GF ug/L (82675)	Tetrachloroethene, water, fltrd, ug/L (34476)
05329898 SILVER CREEK NEAR EAST UNION, MN (LAT 44 41 29N LONG 093 44 14W)													
JUL 2004													
28...	.01	<.004	<.05	<.02	<.025	<.011	<.02	<.5	<.005	<.02	<.034	<.02	<.5
05339721 RUSH CREEK ABOVE MOUTH NEAR RUSH CITY, MN (LAT 45 39 22N LONG 092 53 25W)													
JUL 2004													
27...	<.01	<.004	<.05	<.02	<.025	<.011	<.02	<.5	.015	<.02	<.034	<.02	<.5
05377550 DEERING VALLEY CREEK NEAR WHITMAN, MN (LAT 44 08 03N LONG 091 47 19W)													
AUG 2004													
14...	<.01	<.004	<.05	<.02	<.025	<.011	<.02	<.5	<.005	<.02	<.034	<.02	<.5
14...	<.01	<.004	<.05	<.02	<.025	<.011	<.02	<.5	<.005	<.02	<.034	<.02	<.5
05351400 DEVIL CREEK NEAR MORRISTOWN, MN (LAT 44 15 15N LONG 093 28 04W)													
AUG 2004													
15...	.01	<.004	<.05	<.02	<.025	<.011	<.02	--	<.005	<.02	<.034	<.02	--
05355307 WELLS CREEK NEAR BELVIDERE MILLS, MN (LAT 44 27 28N LONG 092 28 38W)													
SEP 2004													
03...	<.01	<.004	<.05	<.02	<.025	<.011	<.02	<.5	<.010	<.02	<.034	<.02	<.5
05377508 TROUT CREEK NEAR WEAVER, MN (LAT 44 12 02N LONG 091 56 40W)													
SEP 2004													
03...	<.01	<.004	<.05	<.02	<.025	<.011	<.02	<.5	<.005	<.02	<.034	<.02	<.5
05384110 DUSCHEE CREEK ABOVE LANESBORO, MN (LAT 43 41 58N LONG 091 59 24W)													
SEP 2004													
02...	<.01	<.004	<.05	<.02	<.025	<.011	<.02	<.5	<.005	<.02	<.034	<.02	<.5
02...	<.01	<.004	<.05	<.02	<.025	<.011	<.02	<.5	<.005	<.02	<.034	<.02	<.5
05325580 CHERRY CREEK NEAR OTTAWA, MN (LAT 44 21 28N LONG 093 54 32W)													
SEP 2004													
03...	<.01	<.004	<.05	<.02	<.025	<.011	<.02	<.5	<.005	<.02	<.034	<.02	<.5

LANDSCAPE INDICATOR STUDY FOR PESTICIDES AND NUTRIENTS—CONTINUED

MISCELLANEOUS STATION ANALYSES—CONTINUED

Date	Thio-bencarb water fltrd 0.7u GF ug/L (82681)	Tri-allate, water, fltrd 0.7u GF ug/L (82678)	Tri-bromo-methane water, fltrd, ug/L (34288)	Tri-butyl phos-phate, water, fltrd, ug/L (62089)	Triclo-san, water, fltrd, ug/L (62090)	Tri-ethyl citrate water, fltrd, ug/L (62091)	Tri-flur-alin, water, fltrd 0.7u GF ug/L (82661)	Tri-phenyl phos-phate, water, fltrd, ug/L (62092)	Tris(2-butoxy-ethyl) phos-phate, wat flt ug/L (62093)	Tris(2-chloro-ethyl) phos-phate, wat flt ug/L (62087)	Tris(di chloro-i-Pr) phos-phate, wat flt ug/L (62088)
05329898 SILVER CREEK NEAR EAST UNION, MN (LAT 44 41 29N LONG 093 44 14W)											
JUL 2004											
28...	<.010	<.002	<.5	E.1	<1	<.5	<.009	<.5	<.5	M	<.5
05339721 RUSH CREEK ABOVE MOUTH NEAR RUSH CITY, MN (LAT 45 39 22N LONG 092 53 25W)											
JUL 2004											
27...	<.010	<.002	<.5	<.5	<1	<.5	<.009	<.5	<.5	<.5	<.5
05377550 DEERING VALLEY CREEK NEAR WHITMAN, MN (LAT 44 08 03N LONG 091 47 19W)											
AUG 2004											
14...	<.010	<.002	<.5	E.1	<1	<.5	<.009	E.1	E.3	E.1	<.5
14...	<.010	<.002	<.5	E.1	<1	<.5	<.009	E.1	E.2	E.1	<.5
05351400 DEVIL CREEK NEAR MORRISTOWN, MN (LAT 44 15 15N LONG 093 28 04W)											
AUG 2004											
15...	<.010	<.002	--	--	--	--	<.009	--	--	--	--
05355307 WELLS CREEK NEAR BELVIDERE MILLS, MN (LAT 44 27 28N LONG 092 28 38W)											
SEP 2004											
03...	<.010	<.002	<.5	<.5	<1	<.5	<.009	<.5	<.5	<.5	<.5
05377508 TROUT CREEK NEAR WEAVER, MN (LAT 44 12 02N LONG 091 56 40W)											
SEP 2004											
03...	<.010	<.002	<.5	<.5	<1	<.5	<.009	<.5	<.5	<.5	<.5
05384110 DUSCHEE CREEK ABOVE LANESBORO, MN (LAT 43 41 58N LONG 091 59 24W)											
SEP 2004											
02...	<.010	<.002	<.5	<.5	<1	<.5	<.009	<.5	<.5	<.5	<.5
02...	<.010	<.002	<.5	<.5	<1	<.5	<.009	<.5	<.5	<.5	<.5
05325580 CHERRY CREEK NEAR OTTAWA, MN (LAT 44 21 28N LONG 093 54 32W)											
SEP 2004											
03...	<.010	<.002	<.5	E.1	<1	<.5	<.009	<.5	<.5	<.5	<.5

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MERCURY CYCLING IN VOYAGEURS NATIONAL PARK

MISCELLANEOUS STATION ANALYSES

Date	Time	Sample type	Sampling depth, meters (00098)	Transparency Secchi disc, meters (00078)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf lab, uS/cm 25 degC (90095)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)
482951092531601 SHOEPACK LAKE NR INTERNATIONAL FALLS,MN (LAT 48 29 51N LONG 092 53 16W)												
AUG 2004												
25...	1130	Environmental	.05	--	--	--	--	--	--	--	--	--
SEP												
22...	1420	Environmental	.05	1.50	8.6	88	6.4	E7.1	35	29	13.5	16.8
22...	1450	Environmental	1.0	--	8.5	88	6.4	--	--	29	--	16.8
22...	1452	Environmental	2.0	--	8.5	87	6.4	--	--	29	--	16.8
22...	1453	Environmental	3.0	--	8.4	87	6.3	--	--	29	--	16.7
22...	1455	Environmental	4.0	--	8.0	82	6.3	--	--	29	--	16.5
483059092474501 BROWN LAKE NR INTERNATIONAL FALLS MN (LAT 48 30 59N LONG 092 47 45W)												
MAY												
2004												
19...	1200	Environmental	.05	3.00	11.4	112	6.9	7.0	26	22	--	12.9
AUG												
05...	1545	Environmental	.05	3.00	8.3	100	7.4	6.6	26	26	22.5	24.2
05...	1616	Environmental	1.0	--	8.3	100	7.4	--	--	26	--	24.2
05...	1618	Environmental	2.0	--	8.4	97	7.4	--	--	26	--	22.5
05...	1620	Environmental	3.0	--	8.2	94	7.2	--	--	26	--	21.7
05...	1622	Environmental	4.0	--	6.1	64	6.5	--	--	26	--	17.4
05...	1624	Environmental	5.0	--	2.2	20	6.1	--	--	27	--	14.3
05...	1626	Environmental	6.0	--	.3	3	6.0	--	--	29	--	11.0
05...	1628	Environmental	7.0	--	.2	2	6.3	--	--	43	--	9.7
SEP												
23...	1315	Environmental	.05	2.50	9.2	96	7.0	7.0	27	23	21.5	17.2
23...	1348	Environmental	1.0	--	9.2	95	6.9	--	--	23	--	17.1
23...	1350	Environmental	2.0	--	9.1	94	6.9	--	--	23	--	16.8
23...	1352	Environmental	3.0	--	9.0	92	6.9	--	--	23	--	16.7
23...	1354	Environmental	4.0	--	8.8	90	6.8	--	--	23	--	16.6
23...	1356	Environmental	5.0	--	7.8	79	6.7	--	--	24	--	16.2
23...	1358	Environmental	6.0	--	6.6	67	6.5	--	--	24	--	15.8
483109092422601 RYAN LAKE NR INTERNATIONAL FALLS MN (LAT 48 31 09N LONG 092 42 26W)												
MAY												
2004												
19...	0955	Blank	--	--	--	--	--	--	--	--	--	--
19...	1010	Environmental	.05	3.50	11.1	110	6.8	7.2	31	27	16.5	13.4
AUG												
05...	1145	Environmental	.05	2.50	8.4	100	7.0	6.5	29	30	--	22.8
05...	1215	Environmental	.50	--	8.3	97	7.0	--	--	30	--	22.7
05...	1216	Environmental	1.0	--	8.3	96	7.0	--	--	30	--	22.4
05...	1217	Environmental	1.5	--	8.3	95	7.0	--	--	29	--	22.0
05...	1218	Environmental	2.0	--	8.2	93	7.0	--	--	29	--	22.0
05...	1230	Environmental	2.5	--	8.2	93	7.0	--	--	29	--	21.9
05...	1232	Environmental	3.0	--	7.9	90	6.9	--	--	30	--	21.7
05...	1234	Environmental	3.5	--	5.1	56	6.3	--	--	31	--	20.3
SEP												
23...	0915	Environmental	.05	2.00	8.8	90	6.8	7.0	32	27	15.0	16.8
23...	0942	Environmental	.05	--	8.8	91	6.8	--	--	27	--	16.8
23...	0944	Environmental	1.0	--	8.8	90	6.8	--	--	27	--	16.8
23...	0945	Environmental	2.0	--	8.8	90	6.8	--	--	27	--	16.8
23...	0947	Environmental	3.0	--	8.7	90	6.8	--	--	27	--	16.7
23...	0948	Environmental	4.0	--	8.7	90	6.8	--	--	27	--	16.7

MERCURY CYCLING IN VOYAGEURS NATIONAL PARK—CONTINUED

MISCELLANEOUS STATION ANALYSES—CONTINUED

Date	Time	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	Alkalinity, wat flt inc tit field, mg/L as CaCO3 (39086)	Bicarbonate, wat flt incrm. titr., field, mg/L (00453)	Carbonate, wat flt incrm. titr., field, mg/L (00452)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)
482951092531601 SHOEPACK LAKE NR INTERNATIONAL FALLS,MN (LAT 48 29 51N LONG 092 53 16W)													
AUG 2004													
25...	1130	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
22...	1420	2.68	1.15	.85	1.23	4	5	.0	.28	<.2	1.35	2.9	41
483059092474501 BROWN LAKE NR INTERNATIONAL FALLS MN (LAT 48 30 59N LONG 092 47 45W)													
MAY													
2004													
19...	1200	2.10	.852	.60	1.08	6	8	.0	.24	<.2	2.41	1.5	22
AUG													
05...	1545	2.10	.884	.65	1.10	--	--	--	.23	<.2	1.06	1.9	24
SEP													
23...	1315	2.08	.853	.62	1.06	6	8	.0	E.20	<.2	1.06	1.3	24
483109092422601 RYAN LAKE NR INTERNATIONAL FALLS MN (LAT 48 31 09N LONG 092 42 26W)													
MAY													
2004													
19...	0955	--	--	--	--	--	--	--	--	--	--	--	--
19...	1010	2.65	.953	.56	1.10	6	7	.0	.26	<.2	2.61	3.3	27
AUG													
05...	1145	2.49	.995	.53	1.12	6	7	.0	.24	<.2	1.69	3.5	32
SEP													
23...	0915	2.48	.954	.55	1.12	6	7	.0	.23	<.2	1.71	2.7	29

Date	Time	Ammonia + org-N, water, fltrd, mg/L as N (00623)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Orthophosphate, water, fltrd, mg/L as P (00671)	Phosphorus, water, fltrd, mg/L (00666)	Phosphorus, water, unfltrd mg/L (00665)	Iron, water, fltrd, ug/L (01046)	Manganese, water, fltrd, ug/L (01056)	Mercury water unfltrd ng/L (50286)	Methylmercury water unfltrd ng/L (50284)
482951092531601 SHOEPACK LAKE NR INTERNATIONAL FALLS,MN (LAT 48 29 51N LONG 092 53 16W)													
AUG 2004													
25...	1130	--	--	--	--	--	--	--	--	--	--	2.46	.20
SEP													
22...	1420	.59	.71	<.04	<.06	<.008	<.02	.008	.026	291	10.9	2.78	.11
483059092474501 BROWN LAKE NR INTERNATIONAL FALLS MN (LAT 48 30 59N LONG 092 47 45W)													
MAY													
2004													
19...	1200	.35	.43	E.02	.09	<.008	<.02	E.004	<.004	141	3.4	1.97	<.04
AUG													
05...	1545	.38	.46	<.04	<.06	<.008	<.02	<.004	.005	27	E.4	1.21	<.04
SEP													
23...	1315	.36	.46	<.04	<.06	<.008	<.02	E.002	.010	47	1.5	1.59	.06
483109092422601 RYAN LAKE NR INTERNATIONAL FALLS MN (LAT 48 31 09N LONG 092 42 26W)													
MAY													
2004													
19...	0955	--	--	--	--	--	--	--	--	--	--	.31	<.04
19...	1010	.50	.50	.10	.06	<.008	<.02	.005	.005	190	29.5	3.43	.16
AUG													
05...	1145	.40	.48	<.04	<.06	<.008	<.02	E.003	.007	35	E.6	2.40	.11
SEP													
23...	0915	.42	.53	<.04	<.06	<.008	<.02	E.003	.012	26	1.7	2.49	.08

MERCURY CYCLING IN VOYAGEURS NATIONAL PARK—CONTINUED

MISCELLANEOUS STATION ANALYSES—CONTINUED

Date	Time	Sample type	Sampling depth, meters (00098)	Transparency Secchi disc, meters (00078)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf lab, uS/cm 25 degC (90095)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)
483129092462001 PEARY LAKE NR INTERNATIONAL FALLS MN (LAT 48 31 29N LONG 092 46 20W)												
MAY 2004												
19...	1410	Environmental	.05	2.25	11.8	117	--	7.1	30	26	18.5	13.1
AUG												
05...	1355	Environmental	.05	2.50	8.5	100	7.3	6.4	31	32	24.0	26.7
05...	1425	Environmental	1.0	--	8.4	98	7.4	--	--	32	--	23.0
05...	1427	Environmental	2.0	--	8.4	97	7.3	--	--	32	--	22.2
05...	1429	Environmental	3.0	--	8.2	94	7.2	--	--	32	--	21.9
05...	1431	Environmental	4.0	--	4.3	47	6.5	--	--	32	--	19.9
05...	1433	Environmental	4.5	--	2.3	25	6.3	--	--	33	--	18.9
SEP												
23...	1110	Environmental	.05	2.70	8.9	92	6.9	6.9	32	28	18.0	16.9
23...	1142	Environmental	1.0	--	8.8	91	--	--	--	28	--	16.8
23...	1144	Environmental	3.0	--	8.6	88	--	--	--	28	--	16.7
23...	1146	Environmental	3.0	--	8.6	88	6.9	--	--	28	--	16.6
23...	1148	Environmental	4.0	--	8.3	86	6.9	--	--	28	--	16.6
23...	1150	Environmental	4.5	--	7.7	78	6.8	--	--	28	--	16.6

Date	Time	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	Alkalinity, wat flt inc tit field, mg/L as CaCO3 (39086)	Bicarbonate, wat flt incrm. titr., field, mg/L (00453)	Carbonate, wat flt incrm. titr., field, mg/L (00452)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)
483129092462001 PEARY LAKE NR INTERNATIONAL FALLS MN (LAT 48 31 29N LONG 092 46 20W)													
MAY 2004													
19...	1410	2.48	1.06	.71	1.14	10	8	.0	.28	<.2	1.56	1.9	29
AUG													
05...	1355	2.65	1.16	.61	1.17	10	12	.0	.25	<.2	.55	1.9	26
SEP													
23...	1110	2.56	1.15	.57	1.17	10	12	.0	.22	<.2	.75	1.2	29

Date	Time	Ammonia + org-N, water, fltrd, mg/L as N (00623)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Orthophosphate, water, fltrd, mg/L as P (00671)	Phosphorus, water, fltrd, mg/L (00666)	Phosphorus, water, unfltrd mg/L (00665)	Iron, water, fltrd, ug/L (01046)	Manganese, water, fltrd, ug/L (01056)	Mercury water unfltrd ng/L (50286)	Methylmercury water unfltrd ng/L (50284)
483129092462001 PEARY LAKE NR INTERNATIONAL FALLS MN (LAT 48 31 29N LONG 092 46 20W)													
MAY 2004													
19...	1410	.37	.44	<.04	<.06	<.008	<.02	.006	E.004	81	.9	1.72	<.04
AUG													
05...	1355	.41	.55	<.04	<.06	<.008	<.02	E.004	.015	42	.9	1.11	.07
SEP													
23...	1110	.44	.53	<.04	<.06	<.008	<.02	.005	.017	47	2.5	1.33	<.04

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Ground-Water Wells by County

Ground-Water Levels

Ground-water observation well at Glacial Ridge, 2003

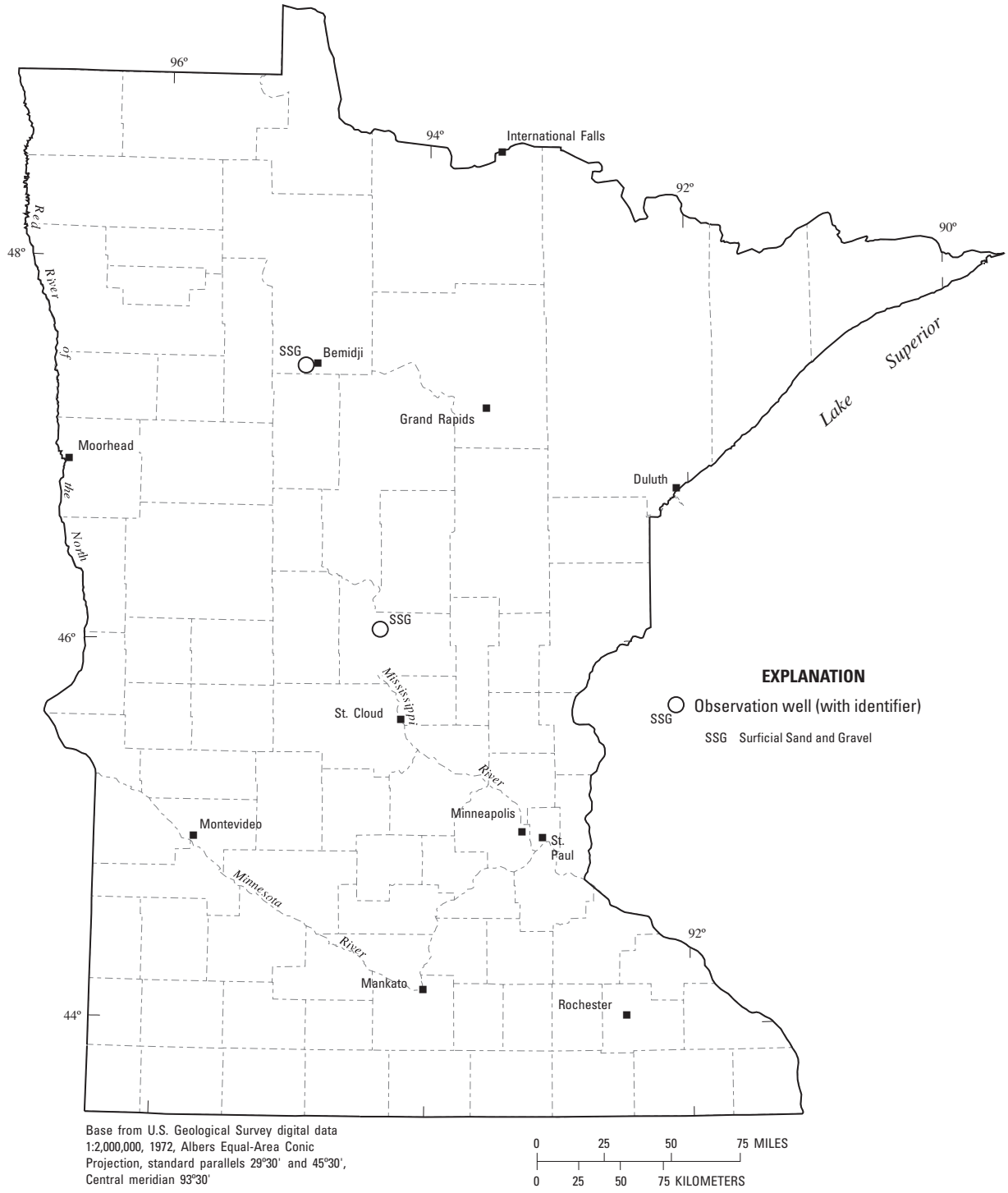


Figure 8. Location of ground-water wells.

BELTRAMI COUNTY

473423095053301. Local number, 147N35W02CDCBDD.

LOCATION.-- Lat 47°34'23", long 95°05'33", in SW ¼ SE ¼ SW ¼ sec.2, T.147 N., R.35 W., Hydrologic Unit 07010101, northwest of Bemidji.

Owner: U.S. Geological Survey

AQUIFER.-- Surficial outwash sand and gravel of Pleistocene Age.

WELL CHARACTERISTICS.-- Drilled water-table observation well, diameter 2 in., depth 34.83 ft., screened 30 to 33 ft.

INSTRUMENTATION.-- Monthly measurements by USGS; continuous recordings with a data logger.

DATUM.-- Land-surface datum is 1,420.49 ft above sea level. Measuring point: floor of shelter, 2.70 ft above land-surface datum.

REMARKS.-- Well number 310D, at crude-oil spill research site near Bemidji.

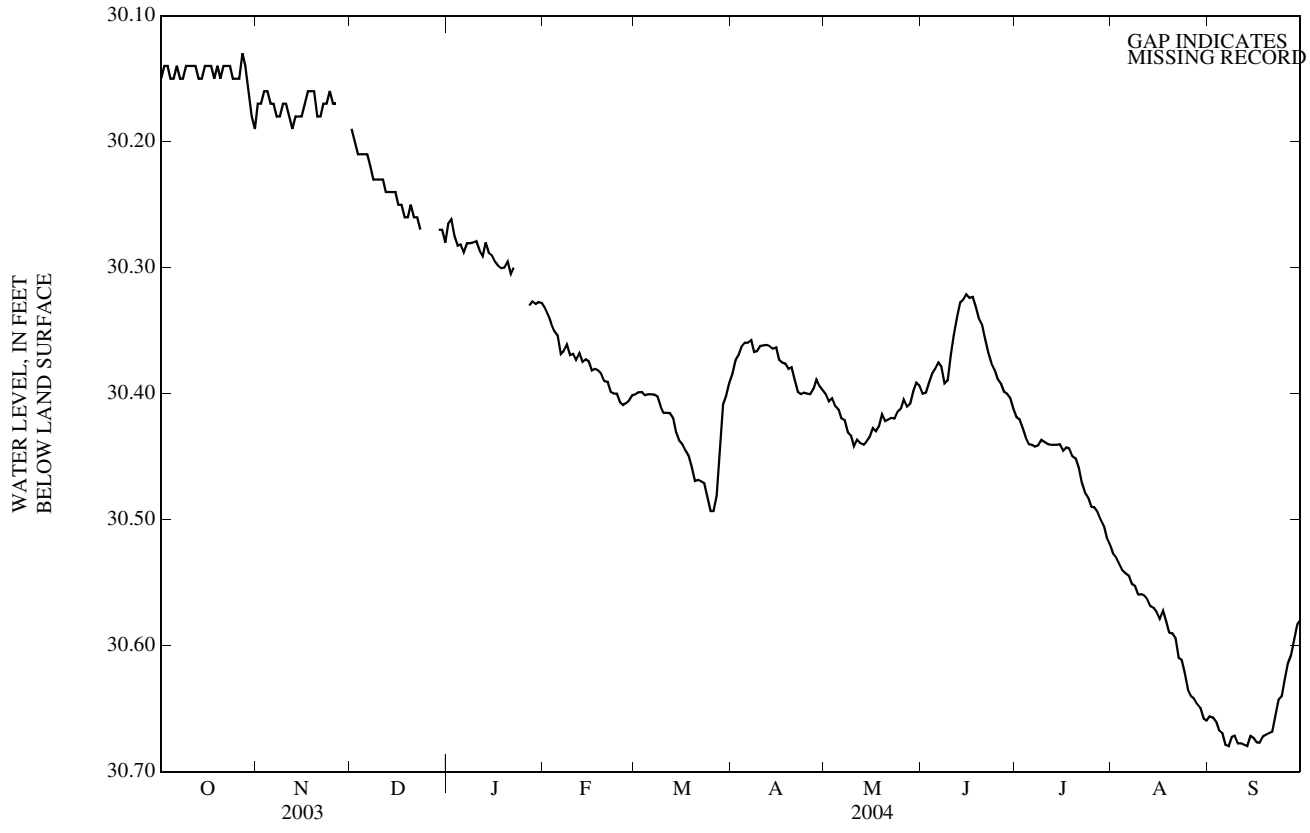
PERIOD OF RECORD.-- Apr. 1983 to current year.

EXTREMES FOR PERIOD OF RECORD.-- Highest water level observed, 27.59 ft. below land-surface datum Jun. 21, 2001; lowest observed, 30.69 ft. below land-surface datum, Feb. 27, 1997, Sep. 13, 14, 2004.

EXTREMES FOR CURRENT WATER YEAR.-- Highest water level recorded, 30.11 ft. below land-surface datum, Oct. 27; lowest recorded, 30.69 ft. below land-surface datum, Sep. 13, 14.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	30.15	30.17	30.21	30.28	30.35	30.40	30.36	30.41	30.38	30.44	30.54	30.67
10	30.14	30.17	30.23	30.28	30.37	30.42	30.36	30.44	30.37	30.44	30.56	30.68
15	30.14	30.18	30.24	30.29	30.37	30.44	30.36	30.43	30.32	30.44	30.57	30.67
20	30.15	30.18	30.25	30.30	30.39	30.47	30.38	30.42	30.34	30.45	30.59	30.67
25	30.15	30.17	---	---	30.41	30.49	30.40	30.41	30.39	30.49	30.63	30.63
EOM	30.19	---	30.28	30.33	30.40	30.39	30.40	30.39	30.41	30.52	30.66	30.58
MAX	30.19	---	---	---	30.41	30.49	30.40	30.44	30.41	30.52	30.66	30.68



MORRISON COUNTY

460444094212501. Local number, 130N29W08DCC01.

LOCATION.-- Lat 46°04'44", long 94°21'25", in SW ¼ SW ¼ SE ¼ sec.8, T.130 N., R.29 W., Hydrologic Unit 07010104, at Camp Ripley. Owner: Minnesota Army National Guard, Camp Ripley.

AQUIFER.-- Surficial outwash sand and gravel of Pleistocene Age.

WELL CHARACTERISTICS.-- Drilled water-table observation well, diameter 2 in., depth 59 ft, screened 56 to 59 ft.

INSTRUMENTATION.-- Monthly measurements by observer and intermittent measurements by USGS personnel. Continuous recordings with a datalogger beginning Dec. 12, 2003.

DATUM.-- Land-surface datum is 1,149.0 ft above sea level. Measuring point: Top of casing, 2.10 ft above land-surface datum.

REMARKS.-- Water level affected by pumping.

PERIOD OF RECORD.-- Apr. 1949 to current year.

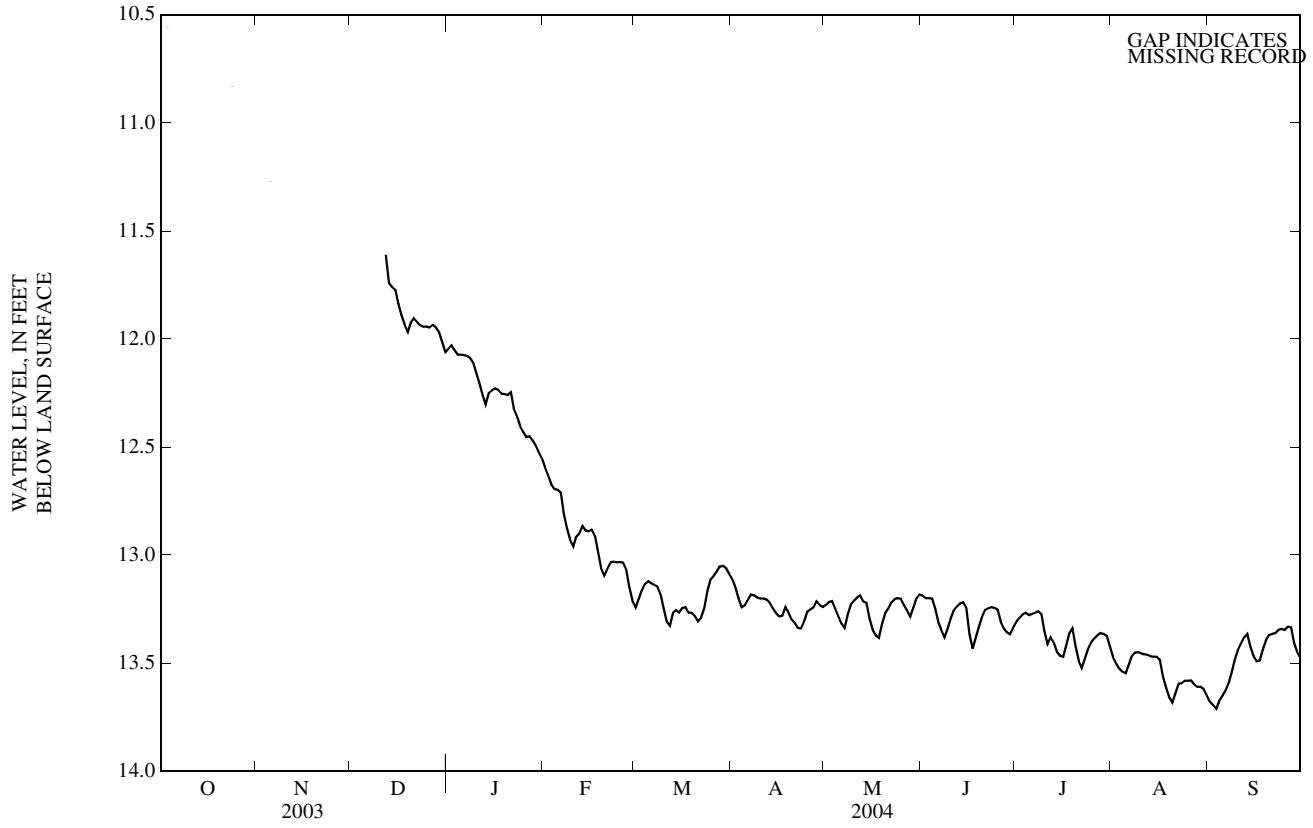
EXTREMES FOR PERIOD OF RECORD.-- Highest water level observed, 7.35 ft below land-surface datum, July 28, 1972; lowest observed, 19.75 ft below land-surface datum, Aug. 4, 1961.

EXTREMES FOR CURRENT WATER YEAR.-- Highest water level recorded, 10.56 ft below land-surface datum, Oct 3; lowest recorded, 13.73 ft below land-surface datum, Sep. 3.

Addintional water level readings: Oct. 3, 10.56 and Oct. 24, 10.83.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	11.27	---	12.07	12.70	13.12	13.23	13.29	13.25	13.28	13.55	13.65
10	---	---	---	12.16	12.96	13.25	13.20	13.21	13.29	13.35	13.46	13.44
15	---	---	11.77	12.24	12.89	13.27	13.27	13.30	13.24	13.47	13.47	13.47
20	---	---	11.93	12.26	13.10	13.28	13.30	13.27	13.29	13.43	13.68	13.37
25	---	---	11.94	12.43	13.03	13.11	13.26	13.20	13.25	13.40	13.58	13.35
EOM	---	---	12.06	12.55	13.21	13.08	13.24	13.18	13.34	13.42	13.65	13.47
MAX	---	---	---	12.55	13.21	13.33	13.34	13.38	13.43	13.52	13.68	13.71



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Conversion Factors

Multiply	By	To obtain
	Length	
inch (in.)	2.54×10^{1}	millimeter (mm)
	2.54×10^{-2}	meter (m)
foot (ft)	3.048×10^{-1}	meter (m)
mile (mi)	1.609×10^{0}	kilometer (km)
	Area	
acre	4.047×10^{3}	square meter (m^2)
	4.047×10^{-1}	square hectometer (hm^2)
	4.047×10^{-3}	square kilometer (km^2)
square mile (mi^2)	2.590×10^{0}	square kilometer (km^2)
	Volume	
gallon (gal)	3.785×10^{0}	liter (L)
	3.785×10^{-3}	cubic meter (m^3)
	3.785×10^{0}	cubic decimeter (dm^3)
million gallons (Mgal)	3.785×10^{3}	cubic meter (m^3)
	3.785×10^{-3}	cubic hectometer (hm^3)
cubic foot (ft^3)	2.832×10^{-2}	cubic meter (m^3)
	2.832×10^{1}	cubic decimeter (dm^3)
cubic-foot-per-second day [(ft^3/s) d]	2.447×10^{3}	cubic meter (m^3)
	2.447×10^{-3}	cubic hectometer (hm^3)
acre-foot (acre-ft)	1.233×10^{3}	cubic meter (m^3)
	1.233×10^{-3}	cubic hectometer (hm^3)
	1.233×10^{-6}	cubic kilometer (km^3)
	Flow	
cubic foot per second (ft^3/s)	2.832×10^{1}	liter per second (L/s)
	2.832×10^{-2}	cubic meter per second (m^3/s)
	2.832×10^{1}	cubic decimeter per second (dm^3/s)
gallon per minute (gal/min)	6.309×10^{-2}	liter per second (L/s)
	6.309×10^{-5}	cubic meter per second (m^3/s)
	6.309×10^{-2}	cubic decimeter per second (dm^3/s)
million gallons per day (Mgal/d)	4.381×10^{-2}	cubic meter per second (m^3/s)
	4.381×10^{1}	cubic decimeter per second (dm^3/s)
	Mass	
ton (short)	9.072×10^{-1}	megagram (Mg) or metric ton

Temperature in degrees Celsius (°C) may be converted to degrees Fahrenheit (°F) as follows:

°F = (1.8 x °C) + 32

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