Station 04010500 -- Pigeon River at Middle Falls near Grand Portage MN
Period of record 1922 -- 2003
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Station 04012500 -- Poplar River at Lutsen, MN
Period of record 1914 -- 1961

Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31
Station 04014500 -- Baptism River near Beaver Bay, MN
Period of record 1929 -- 1993
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Station 04015330 -- Knife River near Two Harbors, MN
Period of record 1975 -- 2004

Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Station 04015500 -- Second Creek near Aurora, MN
Period of record 1956 -- 1980

Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Station 04016000 -- Partridge River near Aurora, MN
Period of record 1943 -- 1982

Appendix 1  23
**Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31**

Station 04016500 -- St. Louis River near Aurora, MN

Period of record 1943 -- 1987

Log Normal Probability plot

December, 2006
Station 04017000 -- Embarrass River at Embarrass, MN
Period of record 1943 -- 1965
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Station 04018750 -- St. Louis River at Forbes, MN

Period of record 1965 -- 1990

Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
### Log Normal Probability plot

Station 04018900 -- East Two River near Iron Junction, MN

Period of record 1967 -- 1979

Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

December, 2006

<table>
<thead>
<tr>
<th>Recurrence Interval (Years)</th>
<th>Streamflow (cubic feet per second)</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>3.3</td>
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<tr>
<td>50</td>
<td>3.7</td>
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<tr>
<td>20</td>
<td>4.1</td>
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<tr>
<td>5</td>
<td>5.0</td>
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<tr>
<td>2</td>
<td>6.1</td>
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</tbody>
</table>

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<th>Streamflow (cubic feet per second)</th>
</tr>
</thead>
<tbody>
<tr>
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<tr>
<td>10</td>
<td>4.9</td>
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<tr>
<td>5</td>
<td>5.4</td>
</tr>
<tr>
<td>2</td>
<td>6.7</td>
</tr>
</tbody>
</table>
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Station 04019000 -- West Two River near Iron Junction, MN
Period of record 1955 -- 1979

Log Normal Probability plot

December, 2006
Station 04024000 -- St. Louis River at Scanlon, MN
Period of record 1909 -- 2004
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Station 04024098 -- Deer Creek near Holyoke, MN
Period of record 1977 -- 2002
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Station 05030000 -- Otter Tail River near Detroit Lakes, MN
Period of record 1938 -- 1971

Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Station 05040500 -- Pelican River near Fergus Falls, MN
Period of record 1910 -- 1981
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Station 05046000 -- Otter Tail River below Orwell Dam near Fergus Falls, MN
Period of record 1932 -- 2004
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Station 05049000 -- Mustinka River above Wheaton, MN
Period of record 1917 -- 1958
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Station 05050000 -- Bois De Sioux River near White Rock, SD
Period of record 1943 -- 2004
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Station 05051500 -- Red River of the North at Wahpeton
Period of record: 1943 -- 2004

Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31
Station 05054000 -- Red River of the North at Fargo, ND
Period of record 1902 -- 2004
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Station 05061000 -- Buffalo River near Hawley, MN
Period of record 1946 -- 2004
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Station 05061500 -- South Branch Buffalo River at Sabin, MN
Period of record 1946 -- 2004

Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Station 05062000 -- Buffalo River near Dilworth, MN
Period of record 1932 -- 2004
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Station 05062500 -- Wild Rice River at Twin Valley, MN
Period of record 1910 -- 2004
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Appendix 1   41

December, 2006
Station 05064000 -- Wild Rice River at Hendrum, MN
Period of record 1945 -- 2004

Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Station 05064500 -- Red River of the North at Halstad, MN
Period of record 1962 -- 2004
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Station 05067500 -- Marsh River near Shelly, MN
Period of record 1945 -- 2004
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Station 05069000 -- Sand Hill River at Climax, MN
Period of record 1944 -- 2004
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Station 05074500 -- Red Lake River near Red Lake, MN
Period of record  1934 -- 2004
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Station 05075000 -- Red Lake River at High Landing near Goodridge, MN
Period of record 1931 -- 2000
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Station 05076000 -- Thief River near Thief River Falls, MN
Period of record 1910 -- 2004

Log Normal Probability plot

December, 2006
Station 05078000 -- Clearwater River at Plummer, MN
Period of record 1940 -- 2004
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Station 05078230 -- Lost River at Oklee, MN
Period of record 1961 -- 2004
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Station 05078500 -- Clearwater River at Red Lake Falls, MN
Period of record 1910 -- 2004
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Station 05079000 -- Red Lake River at Crookston, MN
Period of record 1902 -- 2004
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Station 05082500 -- Red River of the North at Grand Forks, ND
Period of record 1905 -- 2004
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Station 05087500 -- Middle River at Argyle, MN
Period of record 1946 -- 2004
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Station 05092000 -- Red River of the North at Drayton, ND
Period of record 1937 -- 2004
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31
Station 05096000 – North Branch Two Rivers near Lancaster, MN
Period of Record 1929–1955

The 1-, 7- and 30-day low-flow discharges were 0.00 ft³/s for all years of record at this continuous-record streamflow gaging station. As a result, the 1-, 7-, and 30-day low-flow statistics were not calculated and the low-flow discharges were not graphed for this station.
Station 05102500 -- Red River of the North at Emerson, Manitoba, Canada
Period of record  1913  --  2004
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Station 05104500 -- Roseau River below South Fork near Malung, MN
Period of record 1948 -- 2004
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Station 05106000 -- Sprague Creek near Sprague, Manitoba, Canada
Period of record 1930 -- 2004
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Station 05107000 -- Pine Creek near Pine Creek, MN
Period of record 1929 -- 1953
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Station 05107500 -- Roseau River at Ross, MN
Period of record  1929 -- 2004
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Station 05112000 -- Roseau River below State Ditch 51 near Caribou, MN
Period of record 1918 -- 2004

Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Station 05124480 -- Kawishiwi River near Ely, MN
Period of record 1967 -- 2004
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31
Station 05127000 -- Kawishiwi River near Winton, MN
Period of record 1906 -- 2004
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot
December, 2006
Station 05127500 -- Basswood River near Winton, MN

Period of record 1932 -- 2004

Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Station 05129000 -- Vermilion River below Vermilion Lake near Tower, MN
Period of record 1912 -- 1982
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Station 05129115 -- Vermilion River near Crane Lake, MN
Period of record 1980 -- 2004
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Station 05130500 -- Sturgeon River near Chisholm, MN
Period of record 1943 -- 2004
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Station 05131000 -- Dark River near Chisholm, MN
Period of record 1943 -- 1979
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Station 05131500 -- Little Fork River at Littlefork, MN
Period of record 1910 -- 2004
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Station 05132000 -- Big Fork River at Big Falls, MN
Period of record 1910 -- 2004
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

Station 05133500 -- Rainy River at Manitou Rapids, MN
Period of record 1929 -- 2004
Station 05134200 -- Rapid River near Baudette, MN
Period of record 1958 -- 1986
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

**1-Day Lowflow**
- 27 non-zero values
- 1 zero value
- Estimated streamflow

**7-Day Lowflow**
- 27 non-zero values
- 1 zero value
- Estimated streamflow

**30-Day Lowflow**
- 27 non-zero values
- 1 zero value
- Estimated streamflow

**Recurrence Streamflow**
- 100 years: 0.0
- 50 years: 0.0
- 20 years: 0.3
- 10 years: 0.8
- 5 years: 1.9
- 2 years: 5.4

**Recurrence Streamflow**
- 100 years: 0.0
- 50 years: 0.0
- 20 years: 0.3
- 10 years: 0.9
- 5 years: 2.0
- 2 years: 5.9

**Recurrence Streamflow**
- 100 years: 0.0
- 50 years: 0.0
- 20 years: 0.7
- 10 years: 1.6
- 5 years: 2.8
- 2 years: 6.9

**Log Normal Probability plot**

December, 2006
Station 05139500 -- Warroad River near Warroad, MN
Period of record 1947 -- 1980
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

Appendix 1  75

December, 2006
1-Day Lowflow

- 60 non-zero values
- 1 zero value
- Estimated streamflow

Recurrence Streamflow
- 100 years: 0.0
- 50 years: 13.7
- 20 years: 49.7
- 10 years: 83.1
- 5 years: 137
- 2 years: 280

 STREAMFLOW, IN CUBIC FEET PER SECOND

Non-exceedence Probability

- Log Normal Probability plot

Station 05211000 -- Mississippi River at Grand Rapids, MN
Period of record: 1944 -- 2004
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Station 05212700 -- Prairie River near Taconite, MN
Period of record 1968 -- 2004
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31.

Station 05216860 -- Swan River near Calumet, MN
Period of record 1965 -- 1991

Log Normal Probability plot

December, 2006
Station 05227500 -- Mississippi River at Aitkin, MN
Period of record 1946 -- 2004
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot
December, 2006
Station 05242300 -- Mississippi River at Brainerd, MN
Period of record 1988 -- 2004
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31
Log Normal Probability plot

December, 2006
Station 05243725 -- Straight River near Park Rapids, MN  
Period of record 1988 -- 2004
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Station 05244000 -- Crow Wing River at Nimrod, MN
Period of record  1911  --  2004

Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Station 05245100 -- Long Prairie River at Long Prairie, MN
Period of record 1973 -- 2004

Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Station 05247500 -- Crow Wing River near Pillager, MN
Period of record 1969 -- 2004
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Station 05267000 -- Mississippi River near Royalton, MN

Period of record  1925 -- 2004

Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Station 05270500 -- Sauk River near St. Cloud, MN

Period of record 1910 -- 2004

Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Station 05270700 -- Mississippi River at St. Cloud, MN
Period of record 1989 -- 2004
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Station 05275000 -- Elk River near Big Lake, MN

Period of record 1912 -- 2004

Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Station 05278000 -- Middle Fork Crow River near Spicer, MN
Period of record 1950 -- 1989

Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Station 05279000 -- South Fork Crow River near Mayer, MN
Period of record 1935 -- 1979
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Station 05280000 -- Crow River at Rockford, MN
Period of record 1907 -- 2004
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Station 05286000 -- Rum River near St. Francis, MN
Period of record 1930 -- 2004
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot
Station 05287890 -- Elm Creek near Champlin, MN
Period of record 1980 -- 2004
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Station 05288500 -- Mississippi River near Anoka, MN
Period of record 1932 -- 2004
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Station 05290000 -- Little Minnesota River near Peever, SD
Period of record 1941 -- 2002

Log Normal Probability plot

December, 2006
Station 05291000 -- Whetstone River near Big Stone City, SD
Period of record 1911 -- 2004
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Station 05292000 -- Minnesota River at Ortonville, MN
Period of record 1939 -- 2004
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Station 05293000 -- Yellow Bank River near Odessa, MN
Period of record 1941 -- 2004
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Station 05294000 -- Pomme De Terre River at Appleton, MN
Period of record 1932 -- 2004
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Station 05300000 -- Lac Qui Parle River near Lac Qui Parle, MN
Period of record 1911 -- 2004
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
The 7-day lowflow statistics were not calculated for this station because the absolute value of the skew was greater than 3.3. The skew was -3.37.
Station 05304500 -- Chippewa River near Milan, MN
Period of record 1939 -- 2004
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Station 05311000 -- Minnesota River at Montevideo, MN
Period of record 1910 -- 2004
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Station 05311400 -- South Branch Yellow Medicine River at Minneota, MN
Period of record 1961 -- 1987
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Station 05313500 -- Yellow Medicine River near Granite Falls, MN
Period of record  1932  --  2004
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Station 05315000 -- Redwood River near Marshall, MN
Period of record 1941 -- 2004
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Station 05316500 -- Redwood River near Redwood Falls, MN
Period of record 1910 -- 2004

Log Normal Probability plot
Station 05317000 -- Cottonwood River near New Ulm, MN
Period of record 1910 -- 2004
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Station 05317200 -- Little Cottonwood River near Courtland, MN
Period of record 1975 -- 2004
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31
Log Normal Probability plot

December, 2006
Station 05319500 -- Watonwan River near Garden City, MN
Period of record 1941 -- 2004
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Station 05320000 -- Blue Earth River near Rapidan, MN
Period of record 1910 -- 2004
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Station 05320500 -- Le Sueur River near Rapidan, MN
Period of record 1941 -- 2004
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Non-exceedence probability
(Cunnane plotting position)

1-Day Lowflow
- 59 non-zero values
- 0 zero values
- Estimated streamflow

1-Day Lowflow Recurrence Streamflow
- 100 years 1.9
- 50 years 2.6
- 20 years 4.1
- 10 years 6.1
- 5 years 9.6
- 2 years 21.6

7-Day Lowflow
- 59 non-zero values
- 0 zero values
- Estimated streamflow

7-Day Lowflow Recurrence Streamflow
- 100 years 2.0
- 50 years 2.7
- 20 years 4.3
- 10 years 6.4
- 5 years 10.2
- 2 years 23.0

30-Day Lowflow
- 59 non-zero values
- 0 zero values
- Estimated streamflow

30-Day Lowflow Recurrence Streamflow
- 100 years 2.2
- 50 years 3.1
- 20 years 5.1
- 10 years 7.7
- 5 years 12.5
- 2 years 29.4

Log Normal Probability plot

December, 2006
Station 05325000 -- Minnesota River at Mankato, MN
Period of record: 1904 -- 2004
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Station 05327000 -- High Island Creek near Henderson, MN
Period of record 1975 -- 2004
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31
Log Normal Probability plot

December, 2006
Station 05330000 -- Minnesota River near Jordan, MN
Period of record 1936 -- 2004
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

Appendix 1

December, 2006
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Station 05331000 -- Mississippi River at St. Paul, MN
Period of record 1893 -- 2004

Log Normal Probability plot

December, 2006
Station 05336700 -- Kettle River below Sandstone, MN
Period of record 1969 -- 2004
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31
Station 05337400 -- Knife River near Mora, MN
Period of record 1975 -- 2002

Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
### Recurrence Interval, in Years

#### 1-Day Lowflow
- 100 years: 26.2
- 50 years: 30.4
- 20 years: 37.6
- 10 years: 44.9
- 5 years: 54.9
- 2 years: 78.0

#### 7-Day Lowflow
- 100 years: 30.9
- 50 years: 35.0
- 20 years: 42.1
- 10 years: 49.3
- 5 years: 59.3
- 2 years: 82.8

#### 30-Day Lowflow
- 100 years: 39.6
- 50 years: 43.9
- 20 years: 51.2
- 10 years: 58.6
- 5 years: 69.0
- 2 years: 93.6

### Non-Exceedence Probability
(Cunnane plotting position)

Station 05338500 -- Snake River near Pine City, MN
Period of record 1981 -- 2004
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Station 05340050 -- Sunrise River near Lindstrom, MN
Period of record 1966 -- 1985
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Station 05344500 -- Mississippi River at Prescott, WI
Period of record 1929 -- 2004
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot
Recurrence Streamflow

100 years 7.3
50 years 8.7
20 years 11.0
10 years 13.4
5 years 16.9
2 years 25.0

1-Day Lowflow
- 31 non-zero values
- 0 zero values
- Estimated streamflow

Station 05345000 -- Vermillion River near Empire, MN
Period of record 1943 -- 2004
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

30-Day Lowflow
- 31 non-zero values
- 0 zero values
- Estimated streamflow

Log Normal Probability plot

December, 2006
Station 05353800 -- Straight River near Faribault, MN
Period of record 1967 -- 2004
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31
Station 05355200 -- Cannon River at Welch, MN
Period of record 1910 -- 2004

Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Appendix 1 125

Station 05372995 -- South Fork Zumbro River at Rochester, MN
Period of record 1982 -- 2004

Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Station 05373000 -- South Fork Zumbro River near Rochester, MN
Period of record 1953 -- 1982
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Station 05374000 -- Zumbro River at Zumbro Falls, MN
Period of record  1910  --  1980
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31
Log Normal Probability plot

December, 2006
Station 05376000 -- North Fork Whitewater River near Elba, MN
Period of record 1940 -- 1994
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Station 05376500 -- South Fork Whitewater River near Altura, MN
Period of record 1941 -- 1971
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Station 05378500 -- Mississippi River at Winona, MN

Period of record 1929 -- 2004

Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Station 05379000 -- Gilmore Creek at Winona, MN
Period of record 1941 -- 1963
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

1-Day Lowflow
- 23 non-zero values
- 0 zero values
- Estimated streamflow

Recurrence Streamflow
- 100 years: 0.7
- 50 years: 0.9
- 20 years: 1.1
- 10 years: 1.3
- 5 years: 1.6
- 2 years: 2.2

7-Day Lowflow
- 23 non-zero values
- 0 zero values
- Estimated streamflow

Recurrence Streamflow
- 100 years: 0.8
- 50 years: 0.9
- 20 years: 1.2
- 10 years: 1.5
- 5 years: 1.8
- 2 years: 2.4

30-Day Lowflow
- 23 non-zero values
- 0 zero values
- Estimated streamflow

Recurrence Streamflow
- 100 years: 1.4
- 50 years: 1.5
- 20 years: 1.7
- 10 years: 1.9
- 5 years: 2.2
- 2 years: 2.7

Non-Exceedance Probability (Cunnane plotting position)
Station 05384000 -- Root River near Lanesboro, MN
Period of record 1911 -- 1999

Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Station 05384500 -- Rush Creek near Rushford, MN
Period of record 1943 -- 1979
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Station 05385000 -- Root River near Houston, MN
Period of record 1911 -- 2004
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Station 05385500 -- South Fork Root River near Houston, MN
Period of record 1954 -- 1984
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006
Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31.

Station 05457000 -- Cedar River near Austin, MN
Period of record 1910 -- 2004

Log Normal Probability plot

December, 2006
Station 05476000 -- Des Moines River at Jackson, MN
Period of record 1910 -- 2004

Streamflow and probability of the flow being equal to or less than the discharge for the 12-month period ending March 31

Log Normal Probability plot

December, 2006