Annual Peak-Flow Frequency Analysis
For more information on the contents of this documentation, see Kessler and others (2013).

Streamgage number and name:

05287890 Elm Creek near Champlin, Minn.

Peak-flow information:

Number of systematic peak flows in record	33
Systematic period begins	1979
Systematic period ends	2011
Length of systematic record	33
Years without information	0
Number of historical peak flows in record	0

Frequency analysis options:

Method	Expected moments algorithm (EMA)
Skew option	Weighted
Generalized skew	-0.21
Standard error of generalized skew	0.4266
Low-outlier method	Single Grubbs-Beck test

EMA systematic record analysis results:

Moments of the common logarithms of the peak flows:

Mean	Standard deviation	Skewness
2.4656	0.3510	-1.389

Low-outlier information:

Number of low outliers	1
Low-outlier threshold	44

Final analysis results:

Moments of the common logarithms of the peak flows:

Mean	Standard deviation	Skewness
2.4685	0.3400	-0.618

Annual frequency curve at selected exceedance probabilities:

[WIE, Weighted independent estimate; ––, not computed]

Exceedance probability	Peak estimate	Lower-95 level	Upper 95 level	WIE estimate	Lower-95 WIE level	Upper 95 WIE level
0.9950	25.0	2.75	50.1	––	––	––
0.9900	33.7	4.96	62.1	––	––	––
0.9500	71.8	22.20	111.0	––	––	––
0.9000	104.0	46.70	150.0	––	––	––
0.8000	158.0	94.00	216.0	––	––	––
0.6667	225.0	155.00	300.0	––	––	––
0.5000	319.0	234.00	417.0	334	259	429
0.4292	365.0	273.00	476.0	––	––	––
0.2000	575.0	442.00	768.0	594	466	758
0.1000	751.0	578.00	1,060.0	782	602	1,020
0.0400	968.0	731.00	1,520.0	1,030	753	1,400
0.0200	1,120.0	823.00	1,920.0	1,210	850	1,720
0.0100	1,270.0	894.00	2,380.0	1,400	937	2,100
0.0050	1,410.0	950.00	2,900.0	––	––	––
0.0020	1,580.0	1,000.00	3,720.0	1,860	1,110	3,130

Peak-flow data used in the analysis:

Explanation of symbols and codes

−−	none
*	Less than low-outlier threshold

Water year	Peak flow	Peak-flow code
1979	307	−−
1980	199	−−
1981	44	−−
1982	471	−−
1983	408	−−
1984	341	−−
1985	579	−−
1986	812	−−
1987	185	−−
1988	39	*
1989	159	−−
1990	225	−−
1991	371	−−
1992	380	−−
1993	315	−−
1994	669	−−
1995	237	−−
1996	407	−−
1997	511	−−
1998	306	−−
1999	538	−−
2000	112	−−
2001	875	−−
2002	554	−−
2003	695	−−
2004	350	−−
2005	118	−−
2006	295	−−
2007	223	−−
2008	205	−−
2009	119	−−
2010	369	−−
2011	803	−−