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

Streamgage number and name:

05075700 Mud River near Grygla, 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	-0.49
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
2.9459	0.2955	-0.645

Low-outlier information:

Number of low outliers	1
Low-outlier threshold	217

Final analysis results:

Moments of the common logarithms of the peak flows:

Mean	Standard deviation	Skewness
2.9462	0.2946	-0.556

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	108	17.6	195	––	––	––
0.9900	139	28.6	233	––	––	––
0.9500	263	106.0	381	––	––	––
0.9000	359	190.0	494	––	––	––
0.8000	512	335.0	673	––	––	––
0.6667	697	507.0	893	––	––	––
0.5000	940	722.0	1,190	881	706	1,100
0.4292	1,060	822.0	1,340	––	––	––
0.2000	1,580	1,250.0	2,040	1,510	1,220	1,870
0.1000	2,000	1,590.0	2,720	1,920	1,530	2,420
0.0400	2,520	1,960.0	3,770	2,430	1,850	3,200
0.0200	2,890	2,190.0	4,680	2,780	2,030	3,810
0.0100	3,230	2,370.0	5,690	3,120	2,180	4,480
0.0050	3,560	2,510.0	6,830	––	––	––
0.0020	3,980	2,640.0	8,560	3,870	2,430	6,160

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	1,480	−−
1980	670	−−
1981	455	−−
1982	800	−−
1983	670	−−
1984	715	−−
1985	1,330	−−
1986	960	−−
1987	644	−−
1988	450	−−
1989	1,000	−−
1990	90	*
1991	450	−−
1992	740	−−
1993	1,240	−−
1994	1,150	−−
1995	450	−−
1996	1,950	−−
1997	1,400	−−
1998	960	−−
1999	1,960	−−
2000	420	−−
2001	1,400	−−
2002	2,840	−−
2003	217	−−
2004	1,300	−−
2005	1,070	−−
2006	2,230	−−
2007	688	−−
2008	400	−−
2009	2,070	−−
2010	1,770	−−
2011	1,410	−−