

Annual Peak-Flow Frequency Analysis

For more information on the contents of this documentation, see Kessler and others (2013).

Streamgauge number and name:

05096500 State Ditch Number 85 near Lancaster, Minn.

Peak-flow information:

Number of systematic peak flows in record	24
Systematic period begins	1929
Systematic period ends	1955
Length of systematic record	27
Years without information	3
Number of historical peak flows in record	0

Frequency analysis options:

Method	Expected moments algorithm (EMA)
Skew option	Weighted
Generalized skew	-0.5
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:

	Standard	
Mean	deviation	Skewness
2.1065	0.4024	-0.019

Low-outlier information:

Number of low outliers	1
Low-outlier threshold	22

Final analysis results:

Moments of the common logarithms of the peak flows:

	Standard		
Mean	deviation	Skewness	
2.1047	0.4074	-0.320	

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	8.58	0.71	19.0	--	--	--
0.9900	11.60	1.29	23.5	--	--	--
0.9500	25.10	6.53	42.9	--	--	--
0.9000	37.20	14.20	59.8	--	--	--
0.8000	58.80	30.50	89.8	--	--	--
0.6667	88.60	53.50	132.0	--	--	--
0.5000	134.00	87.20	198.0	177	128	245
0.4292	158.00	105.00	235.0	--	--	--
0.2000	283.00	192.00	454.0	356	255	495
0.1000	408.00	273.00	736.0	500	348	720
0.0400	590.00	380.00	1,310.0	703	459	1,080
0.0200	741.00	458.00	1,960.0	865	537	1,390
0.0100	903.00	531.00	2,850.0	1,030	607	1,760
0.0050	1,080.00	598.00	4,060.0	--	--	--
0.0020	1,320.00	676.00	6,350.0	1,410	734	2,720

Peak-flow data used in the analysis:

Explanation of symbols and codes

* Less than low-outlier threshold

Water	Peak	Peak-flow
year	flow	code
1929	102	--
1930	160	--
1931	99	--
1932	202	--
1933	112	--
1934	11	*
1935	47	--
1936	22	--
1937	180	--
1938	60	--
Gap in systematic record		
1942	298	--
1943	190	--
1944	190	--
1945	180	--
1946	113	--
1947	218	--
1948	288	--
1949	136	--
1950	1,480	--
1951	250	--
1952	57	--
1953	56	--
1954	124	--
1955	211	--