

U. S. GEOLOGICAL SURVEY  
 ANNUAL PEAK FLOW FREQUENCY ANALYSIS  
 Following Bulletin 17-B Guidelines  
 Program peakfq  
 (Version 4.0, December, 2000)

Station - 05339500 ST. CROIX RIVER NEAR RUSH CITY, MN  
 2002 MAR 13 09:02:47

I N P U T   D A T A   S U M M A R Y

Number of peaks in record	=	39
Peaks not used in analysis	=	0
Systematic peaks in analysis	=	39
Historic peaks in analysis	=	0
Years of historic record	=	0
Generalized skew	=	-0.337
Standard error of generalized skew	=	0.550
Skew option	=	WEIGHTED
Gage base discharge	=	0.0
User supplied high outlier threshold	=	--
User supplied low outlier criterion	=	--
Plotting position parameter	=	0.00

\*\*\*\*\* NOTICE -- Preliminary machine computations. \*\*\*\*\*  
 \*\*\*\*\* User responsible for assessment and interpretation. \*\*\*\*\*

WCF134I-NO SYSTEMATIC PEAKS WERE BELOW GAGE BASE.	0.0
WCF195I-NO LOW OUTLIERS WERE DETECTED BELOW CRITERION.	3936.3
WCF163I-NO HIGH OUTLIERS OR HISTORIC PEAKS EXCEEDED HHBASE.	88864.9

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ANNUAL FREQUENCY CURVE PARAMETERS -- LOG-PEARSON TYPE III

	FLOOD BASE		LOGARITHMIC		
	DISCHARGE	EXCEEDANCE PROBABILITY	MEAN	STANDARD DEVIATION	SKEW
SYSTEMATIC RECORD	0.0	1.0000	4.2719	0.2534	-0.476
BULL.17B ESTIMATE	0.0	1.0000	4.2719	0.2534	-0.426

ANNUAL FREQUENCY CURVE -- DISCHARGES AT SELECTED EXCEEDANCE PROBABILITIES

ANNUAL EXCEEDANCE PROBABILITY	BULL.17B ESTIMATE	SYSTEMATIC RECORD	'EXPECTED PROBABILITY' ESTIMATE	95-PCT CONFIDENCE LIMITS FOR BULL. 17B ESTIMATES	
				LOWER	UPPER
0.9950	3300.0	3214.0	2869.0	2130.0	4499.0
0.9900	4023.0	3942.0	3617.0	2708.0	5335.0
0.9500	6710.0	6664.0	6409.0	5010.0	8333.0
0.9000	8666.0	8650.0	8427.0	6779.0	10470.0
0.8000	11630.0	11660.0	11470.0	9525.0	13710.0
0.5000	19490.0	19590.0	19490.0	16690.0	22830.0
0.2000	30810.0	30820.0	31120.0	26100.0	37740.0
0.1000	38270.0	38110.0	38980.0	31850.0	48490.0
0.0400	47460.0	46930.0	48950.0	38630.0	62450.0
0.0200	54050.0	53180.0	56330.0	43340.0	72910.0
0.0100	60420.0	59130.0	63670.0	47790.0	83300.0
0.0050	66600.0	64840.0	70970.0	52030.0	93630.0
0.0020	74510.0	72040.0	80690.0	57360.0	107200.0
0.6667	15070.4	( 1.50-year flood )			
0.4292	21634.9	( 2.33-year flood )			

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I N P U T   D A T A   L I S T I N G

WATER YEAR	DISCHARGE	CODES	WATER YEAR	DISCHARGE	CODES
1923	8300.0		1943	26000.0	
1924	9320.0		1944	38900.0	
1925	5700.0		1945	37600.0	
1926	4780.0		1946	30500.0	
1927	20300.0		1947	15300.0	
1928	19100.0		1948	15300.0	
1929	12700.0		1949	20900.0	
1930	15900.0		1950	60600.0	
1931	15400.0		1951	35100.0	
1932	14600.0		1952	43100.0	
1933	5610.0		1953	26700.0	
1934	8740.0		1954	43700.0	
1935	21400.0		1955	18500.0	
1936	27700.0		1956	28100.0	
1937	11700.0		1957	23000.0	
1938	24600.0		1958	27200.0	
1939	23200.0		1959	13200.0	
1940	19700.0		1960	11100.0	
1941	24200.0		1961	24700.0	
1942	16400.0				

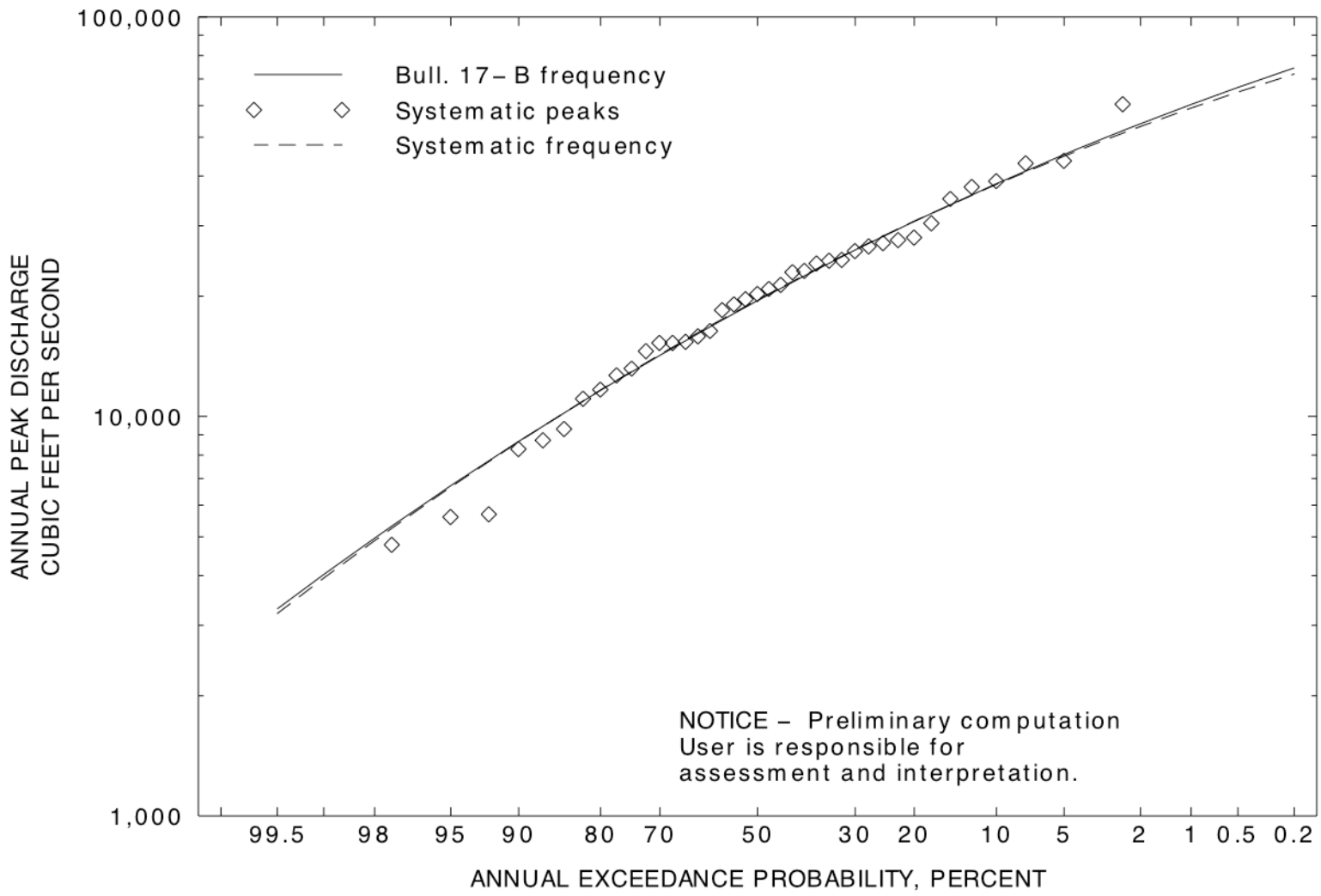
Explanation of peak discharge qualification codes

PEAKFQ	WATSTORE	CODE	DEFINITION
D		3	Dam failure, non-recurrent flow anomaly
G		8	Discharge greater than stated value
X		3+8	Both of the above
L		4	Discharge less than stated value
K	6 OR C		Known effect of regulation or urbanization
H		7	Historic peak

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EMPIRICAL FREQUENCY CURVES -- WEIBULL PLOTTING POSITIONS

WATER YEAR	RANKED DISCHARGE	SYSTEMATIC RECORD	BULL.17B ESTIMATE
1950	60600.0	0.0250	0.0250
1954	43700.0	0.0500	0.0500
1952	43100.0	0.0750	0.0750
1944	38900.0	0.1000	0.1000
1945	37600.0	0.1250	0.1250
1951	35100.0	0.1500	0.1500
1946	30500.0	0.1750	0.1750
1956	28100.0	0.2000	0.2000
1936	27700.0	0.2250	0.2250
1958	27200.0	0.2500	0.2500
1953	26700.0	0.2750	0.2750
1943	26000.0	0.3000	0.3000
1961	24700.0	0.3250	0.3250
1938	24600.0	0.3500	0.3500
1941	24200.0	0.3750	0.3750
1939	23200.0	0.4000	0.4000
1957	23000.0	0.4250	0.4250
1935	21400.0	0.4500	0.4500
1949	20900.0	0.4750	0.4750
1927	20300.0	0.5000	0.5000
1940	19700.0	0.5250	0.5250
1928	19100.0	0.5500	0.5500
1955	18500.0	0.5750	0.5750
1942	16400.0	0.6000	0.6000
1930	15900.0	0.6250	0.6250
1931	15400.0	0.6500	0.6500
1947	15300.0	0.6750	0.6750
1948	15300.0	0.7000	0.7000
1932	14600.0	0.7250	0.7250
1959	13200.0	0.7500	0.7500
1929	12700.0	0.7750	0.7750
1937	11700.0	0.8000	0.8000
1960	11100.0	0.8250	0.8250
1924	9320.0	0.8500	0.8500
1934	8740.0	0.8750	0.8750
1923	8300.0	0.9000	0.9000
1925	5700.0	0.9250	0.9250
1933	5610.0	0.9500	0.9500
1926	4780.0	0.9750	0.9750



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