

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

Station - 05336000 ST. CROIX RIVER NEAR GRANTSBURG, WI
 2002 MAR 15 14:48:30

I N P U T D A T A S U M M A R Y

Number of peaks in record	=	48
Peaks not used in analysis	=	0
Systematic peaks in analysis	=	47
Historic peaks in analysis	=	1
Years of historic record	=	90
Generalized skew	=	-0.305
Standard error of generalized skew	=	0.550
Skew option	=	WEIGHTED
Gage base discharge	=	0.0
User supplied high outlier threshold	=	26300.0
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.		3395.8
*WCF161I-USER HIGH OUTLIER CRITERION REPLACES 17B.	26300.0	30013.5
WCF165I-HIGH OUTLIERS AND HISTORIC PEAKS ABOVE HHBASE.	0 1	26300.0

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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	4.0041	0.1724	-0.171
BULL.17B ESTIMATE	0.0	1.0000	4.0088	0.1761	-0.121

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	3428.0	3407.0	3218.0	2671.0	4119.0
0.9900	3832.0	3815.0	3648.0	3048.0	4540.0
0.9500	5165.0	5157.0	5050.0	4330.0	5912.0
0.9000	6038.0	6029.0	5953.0	5189.0	6805.0
0.8000	7272.0	7255.0	7221.0	6412.0	8079.0
0.5000	10290.0	10210.0	10290.0	9322.0	11360.0
0.2000	14390.0	14140.0	14480.0	12940.0	16320.0
0.1000	17060.0	16660.0	17280.0	15150.0	19820.0
0.0400	20400.0	19750.0	20860.0	17800.0	24380.0
0.0200	22850.0	22000.0	23570.0	19690.0	27850.0
0.0100	25280.0	24190.0	26320.0	21520.0	31370.0
0.0050	27700.0	26340.0	29140.0	23320.0	34950.0
0.0020	30900.0	29170.0	33010.0	25660.0	39790.0
0.6667	8626.8	(1.50-year flood)			
0.4292	11059.8	(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
-1950	26300.0	H	1946	15100.0	
1923	5920.0		1947	7060.0	
1924	7000.0		1948	8700.0	
1925	6460.0		1949	13400.0	
1926	4180.0		1951	14500.0	
1927	13300.0		1952	19000.0	
1928	8500.0		1953	16300.0	
1929	7740.0		1954	21100.0	
1930	5850.0		1955	9660.0	
1931	7560.0		1956	12600.0	
1932	8280.0		1957	10000.0	
1933	4890.0		1958	18300.0	
1934	6020.0		1959	7550.0	
1935	12600.0		1960	7770.0	
1936	13300.0		1961	16500.0	
1937	6730.0		1962	11500.0	
1938	12600.0		1963	5360.0	
1939	10500.0		1964	11800.0	
1940	7830.0		1965	16800.0	
1941	12700.0		1966	11700.0	
1942	7850.0		1967	14700.0	
1943	9800.0		1968	9320.0	
1944	15900.0		1969	15100.0	
1945	14400.0		1970	7550.0	

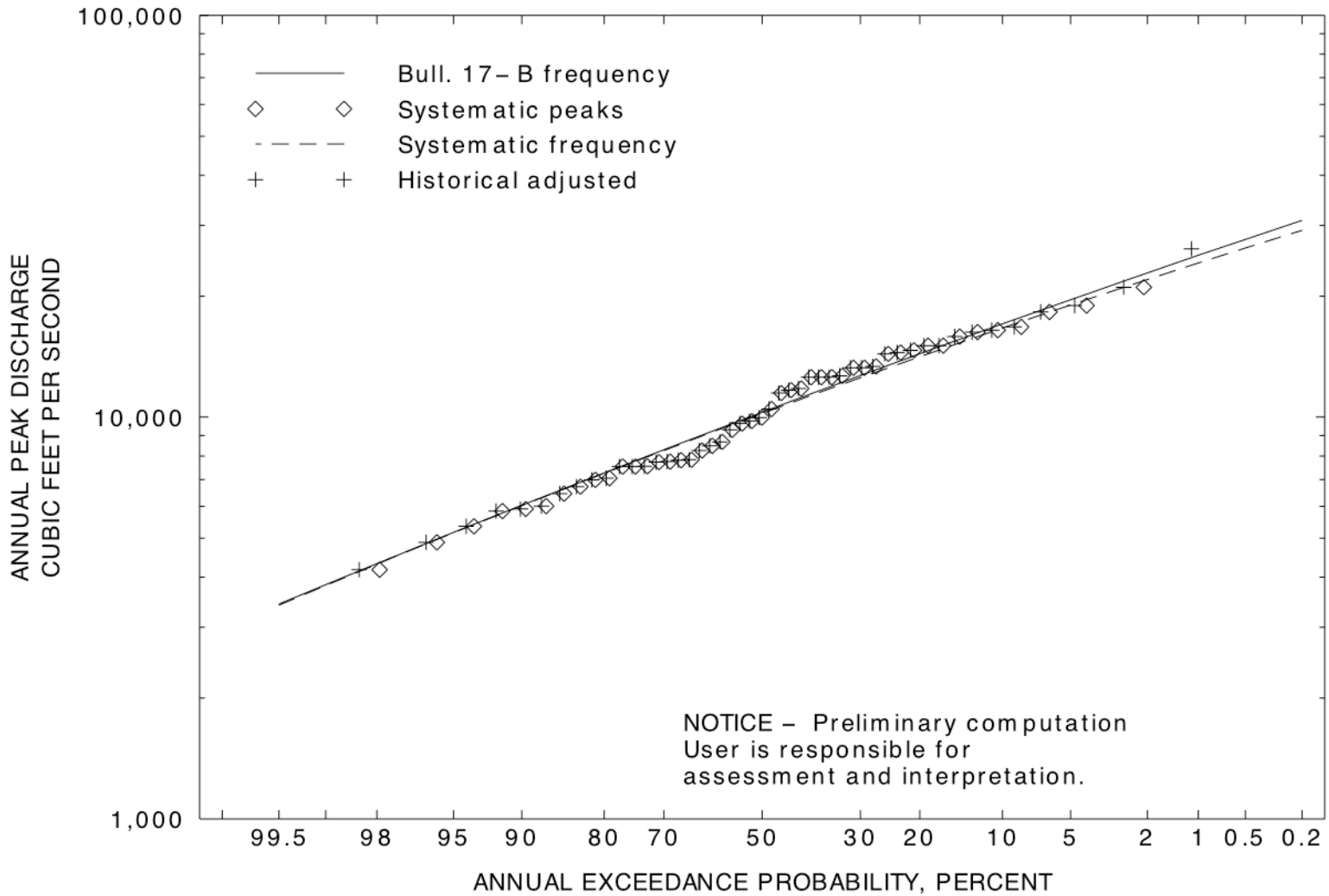
Explanation of peak discharge qualification codes

PEAKFQ	WATSTORE	DEFINITION
CODE	CODE	
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	26300.0	--	0.0110
1954	21100.0	0.0208	0.0269
1952	19000.0	0.0417	0.0477
1958	18300.0	0.0625	0.0685
1965	16800.0	0.0833	0.0893
1961	16500.0	0.1042	0.1101
1953	16300.0	0.1250	0.1309
1944	15900.0	0.1458	0.1517
1946	15100.0	0.1667	0.1726
1969	15100.0	0.1875	0.1934
1967	14700.0	0.2083	0.2142
1951	14500.0	0.2292	0.2350
1945	14400.0	0.2500	0.2558
1949	13400.0	0.2708	0.2766
1927	13300.0	0.2917	0.2974
1936	13300.0	0.3125	0.3182
1941	12700.0	0.3333	0.3390
1935	12600.0	0.3542	0.3598
1938	12600.0	0.3750	0.3806
1956	12600.0	0.3958	0.4014
1964	11800.0	0.4167	0.4223
1966	11700.0	0.4375	0.4431
1962	11500.0	0.4583	0.4639
1939	10500.0	0.4792	0.4847
1957	10000.0	0.5000	0.5055
1943	9800.0	0.5208	0.5263
1955	9660.0	0.5417	0.5471
1968	9320.0	0.5625	0.5679
1948	8700.0	0.5833	0.5887
1928	8500.0	0.6042	0.6095
1932	8280.0	0.6250	0.6303
1942	7850.0	0.6458	0.6512
1940	7830.0	0.6667	0.6720
1960	7770.0	0.6875	0.6928
1929	7740.0	0.7083	0.7136
1931	7560.0	0.7292	0.7344
1959	7550.0	0.7500	0.7552
1970	7550.0	0.7708	0.7760
1947	7060.0	0.7917	0.7968
1924	7000.0	0.8125	0.8176
1937	6730.0	0.8333	0.8384
1925	6460.0	0.8542	0.8592
1934	6020.0	0.8750	0.8801
1923	5920.0	0.8958	0.9009
1930	5850.0	0.9167	0.9217
1963	5360.0	0.9375	0.9425
1933	4890.0	0.9583	0.9633
1926	4180.0	0.9792	0.9841



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