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

Station - 05381000 BLACK RIVER AT NEILLSVILLE, WI
2002 MAR 15 14:49:11

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

Number of peaks in record	=	89
Peaks not used in analysis	=	0
Systematic peaks in analysis	=	88
Historic peaks in analysis	=	1
Years of historic record	=	139
Generalized skew	=	-0.334
Standard error of generalized skew	=	0.550
Skew option	=	WEIGHTED
Gage base discharge	=	0.0
User supplied high outlier threshold	=	48800.0
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
WCF198I-LOW OUTLIERS BELOW FLOOD BASE WERE DROPPED.		1	2335.6
*WCF161I-USER HIGH OUTLIER CRITERION REPLACES 17B.	48800.0		58832.3
WCF165I-HIGH OUTLIERS AND HISTORIC PEAKS ABOVE HHBASE.	0	1	48800.0

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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	4.0890	0.2424	-0.676
BULL.17B ESTIMATE	2335.6	0.9887	4.0996	0.2313	-0.271

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	--	2057.0	--	--	--
0.9900	--	2562.0	--	--	--
0.9500	5037.0	4461.0	4952.0	4276.0	5764.0
0.9000	6270.0	5837.0	6205.0	5451.0	7056.0
0.8000	8102.0	7888.0	8062.0	7213.0	8976.0
0.5000	12880.0	13070.0	12880.0	11730.0	14160.0
0.2000	19800.0	19810.0	19880.0	17860.0	22270.0
0.1000	24460.0	23820.0	24660.0	21780.0	28050.0
0.0400	30340.0	28330.0	30770.0	26590.0	35610.0
0.0200	34700.0	31300.0	35360.0	30060.0	41350.0
0.0100	39000.0	33980.0	39960.0	33450.0	47140.0
0.0050	43290.0	36400.0	44600.0	36770.0	52990.0
0.0020	48940.0	39280.0	50830.0	41090.0	60840.0
0.6667	10203.6	(1.50-year flood)			
0.4292	14170.9	(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
-1938	48800.0	H	1955	9700.0	
1905	41100.0		1956	21500.0	
1906	11300.0		1957	3730.0	
1907	12200.0		1958	15500.0	
1908	9820.0		1959	7630.0	
1914	29400.0		1960	12600.0	
1915	6600.0		1961	13700.0	
1916	12100.0		1962	6400.0	
1917	7450.0		1963	12800.0	
1918	9670.0		1964	4890.0	
1919	9490.0		1965	18300.0	
1920	20200.0		1966	13400.0	
1921	12900.0		1967	25700.0	
1922	14300.0		1968	11700.0	
1923	7370.0		1969	13300.0	
1924	16500.0		1970	8510.0	
1925	4420.0		1971	14900.0	
1926	10800.0		1972	16600.0	
1927	9360.0		1973	19900.0	
1928	22900.0		1974	9260.0	
1929	12400.0		1975	11900.0	
1930	20100.0		1976	15000.0	
1931	3090.0		1977	1750.0	
1932	16500.0		1978	19500.0	
1933	6400.0		1979	18000.0	
1934	19300.0		1980	28300.0	
1935	19300.0		1981	9420.0	
1936	19300.0		1982	16600.0	
1937	3860.0		1983	18300.0	
1939	16000.0		1984	12600.0	
1940	12800.0		1985	5820.0	
1941	10200.0		1986	28100.0	
1942	24600.0		1987	12300.0	
1943	41600.0		1988	10300.0	
1944	8620.0		1989	15300.0	
1945	17200.0		1990	15300.0	
1946	12400.0		1991	10700.0	
1947	11300.0		1993	30400.0	
1948	9620.0		1994	8050.0	
1949	4080.0		1995	5780.0	
1950	14400.0		1996	11100.0	
1951	21300.0		1997	12800.0	
1952	21500.0		1998	11200.0	
1953	15500.0		1999	8600.0	
1954	15100.0				

Explanation of peak discharge qualification codes

PEAKFQ CODE	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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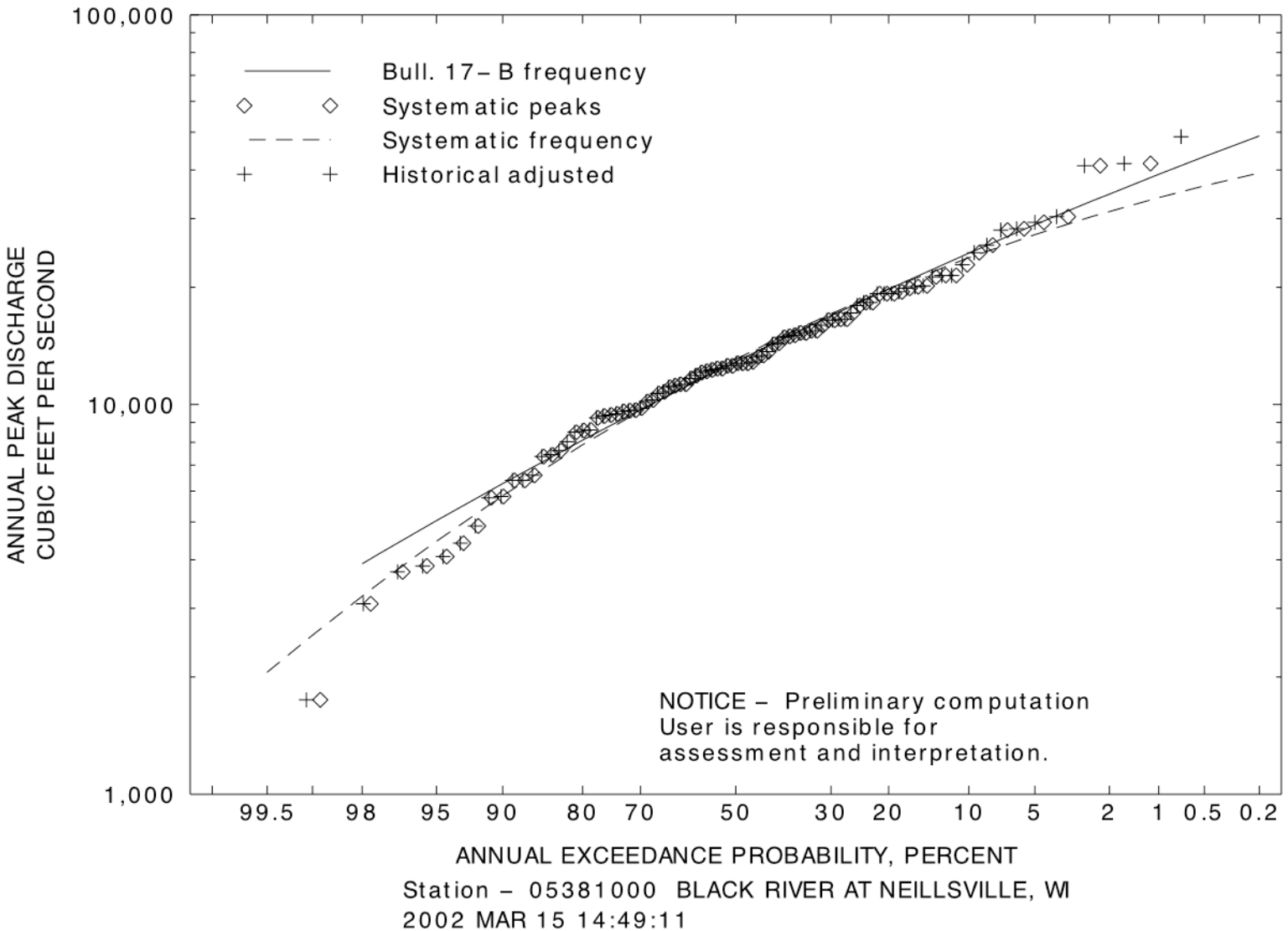
EMPIRICAL FREQUENCY CURVES -- WEIBULL PLOTTING POSITIONS

WATER YEAR	RANKED DISCHARGE	SYSTEMATIC RECORD	BULL.17B ESTIMATE
-1938	48800.0	--	0.0071
1943	41600.0	0.0112	0.0163
1905	41100.0	0.0225	0.0275
1993	30400.0	0.0337	0.0387
1914	29400.0	0.0449	0.0499
1980	28300.0	0.0562	0.0611
1986	28100.0	0.0674	0.0723
1967	25700.0	0.0787	0.0835
1942	24600.0	0.0899	0.0947
1928	22900.0	0.1011	0.1059
1952	21500.0	0.1124	0.1171
1956	21500.0	0.1236	0.1283
1951	21300.0	0.1348	0.1395
1920	20200.0	0.1461	0.1507
1930	20100.0	0.1573	0.1619
1973	19900.0	0.1685	0.1731
1978	19500.0	0.1798	0.1843
1934	19300.0	0.1910	0.1955
1935	19300.0	0.2022	0.2067
1936	19300.0	0.2135	0.2179
1965	18300.0	0.2247	0.2291
1983	18300.0	0.2360	0.2403
1979	18000.0	0.2472	0.2515
1945	17200.0	0.2584	0.2627
1972	16600.0	0.2697	0.2739
1982	16600.0	0.2809	0.2851
1924	16500.0	0.2921	0.2963
1932	16500.0	0.3034	0.3075
1939	16000.0	0.3146	0.3188
1953	15500.0	0.3258	0.3300
1958	15500.0	0.3371	0.3412
1989	15300.0	0.3483	0.3524
1990	15300.0	0.3596	0.3636
1954	15100.0	0.3708	0.3748
1976	15000.0	0.3820	0.3860
1971	14900.0	0.3933	0.3972
1950	14400.0	0.4045	0.4084
1922	14300.0	0.4157	0.4196
1961	13700.0	0.4270	0.4308
1966	13400.0	0.4382	0.4420
1969	13300.0	0.4494	0.4532
1921	12900.0	0.4607	0.4644
1940	12800.0	0.4719	0.4756
1963	12800.0	0.4831	0.4868
1997	12800.0	0.4944	0.4980
1960	12600.0	0.5056	0.5092
1984	12600.0	0.5169	0.5204
1929	12400.0	0.5281	0.5316

1946	12400.0	0.5393	0.5428
1987	12300.0	0.5506	0.5540
1907	12200.0	0.5618	0.5652
1916	12100.0	0.5730	0.5764
1975	11900.0	0.5843	0.5876
1968	11700.0	0.5955	0.5988
1906	11300.0	0.6067	0.6100
1947	11300.0	0.6180	0.6212
1998	11200.0	0.6292	0.6324
1996	11100.0	0.6404	0.6436
1926	10800.0	0.6517	0.6548
1991	10700.0	0.6629	0.6660
1988	10300.0	0.6742	0.6772
1941	10200.0	0.6854	0.6884
1908	9820.0	0.6966	0.6996
1955	9700.0	0.7079	0.7108
1918	9670.0	0.7191	0.7220
1948	9620.0	0.7303	0.7332
1919	9490.0	0.7416	0.7444
1981	9420.0	0.7528	0.7556
1927	9360.0	0.7640	0.7668
1974	9260.0	0.7753	0.7780
1944	8620.0	0.7865	0.7892
1999	8600.0	0.7978	0.8004
1970	8510.0	0.8090	0.8116
1994	8050.0	0.8202	0.8228
1959	7630.0	0.8315	0.8340
1917	7450.0	0.8427	0.8452
1923	7370.0	0.8539	0.8564
1915	6600.0	0.8652	0.8676
1933	6400.0	0.8764	0.8788
1962	6400.0	0.8876	0.8900
1985	5820.0	0.8989	0.9012
1995	5780.0	0.9101	0.9124
1964	4890.0	0.9213	0.9236
1925	4420.0	0.9326	0.9348
1949	4080.0	0.9438	0.9460
1937	3860.0	0.9551	0.9572
1957	3730.0	0.9663	0.9684
1931	3090.0	0.9775	0.9796
1977	1750.0	0.9888	0.9908


100,000
10,000
1,000
ANNUAL PEAK DISCHARGE
CUBIC FEET PER SECOND
Bull. 17-B frequency
Systematic peaks
Systematic frequency
Historical adjusted
NOTICE - Preliminary computation
User is responsible for
assessment and interpretation.
99.5
98
95
90
80
70
50
30
20
10
5
2
1
0.5
0.2
ANNUAL EXCEEDANCE PROBABILITY, PERCENT
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