

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

Station - 04085427 MANITOWOC RIVER AT MANITOWOC, WI
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I N P U T D A T A S U M M A R Y

Number of peaks in record	=	27
Peaks not used in analysis	=	0
Systematic peaks in analysis	=	27
Historic peaks in analysis	=	0
Years of historic record	=	0
Generalized skew	=	-0.344
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.	481.6
WCF163I-NO HIGH OUTLIERS OR HISTORIC PEAKS EXCEEDED HHBASE.	10090.6

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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	3.3433	0.2623	0.101
BULL.17B ESTIMATE	0.0	1.0000	3.3433	0.2623	-0.072

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	446.8	492.9	379.2	265.9	630.1
0.9900	524.1	566.0	461.5	325.4	720.8
0.9500	806.6	831.0	760.8	558.9	1042.0
0.9000	1012.0	1024.0	976.1	739.3	1272.0
0.8000	1329.0	1323.0	1305.0	1026.0	1629.0
0.5000	2220.0	2182.0	2220.0	1825.0	2703.0
0.2000	3672.0	3653.0	3736.0	2995.0	4760.0
0.1000	4757.0	4810.0	4920.0	3788.0	6499.0
0.0400	6250.0	6478.0	6642.0	4813.0	9101.0
0.0200	7443.0	7871.0	8105.0	5593.0	11320.0
0.0100	8700.0	9394.0	9741.0	6388.0	13780.0
0.0050	10030.0	11060.0	11580.0	7202.0	16490.0
0.0020	11890.0	13500.0	14370.0	8313.0	20480.0
0.6667	1709.9	(1.50-year flood)			
0.4292	2472.9	(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
1973	3140.0		1987	1400.0	
1974	3070.0		1988	1100.0	
1975	3710.0		1989	4640.0	
1976	4010.0		1990	1790.0	
1977	1320.0		1991	1970.0	
1978	2810.0		1992	1480.0	
1979	8280.0		1993	3620.0	
1980	930.0		1994	1900.0	
1981	1480.0		1995	800.0	
1982	3220.0		1996	2160.0	
1983	1850.0		1998	2200.0	
1984	3200.0		1999	746.0	
1985	3020.0		2000	1240.0	
1986	5900.0				

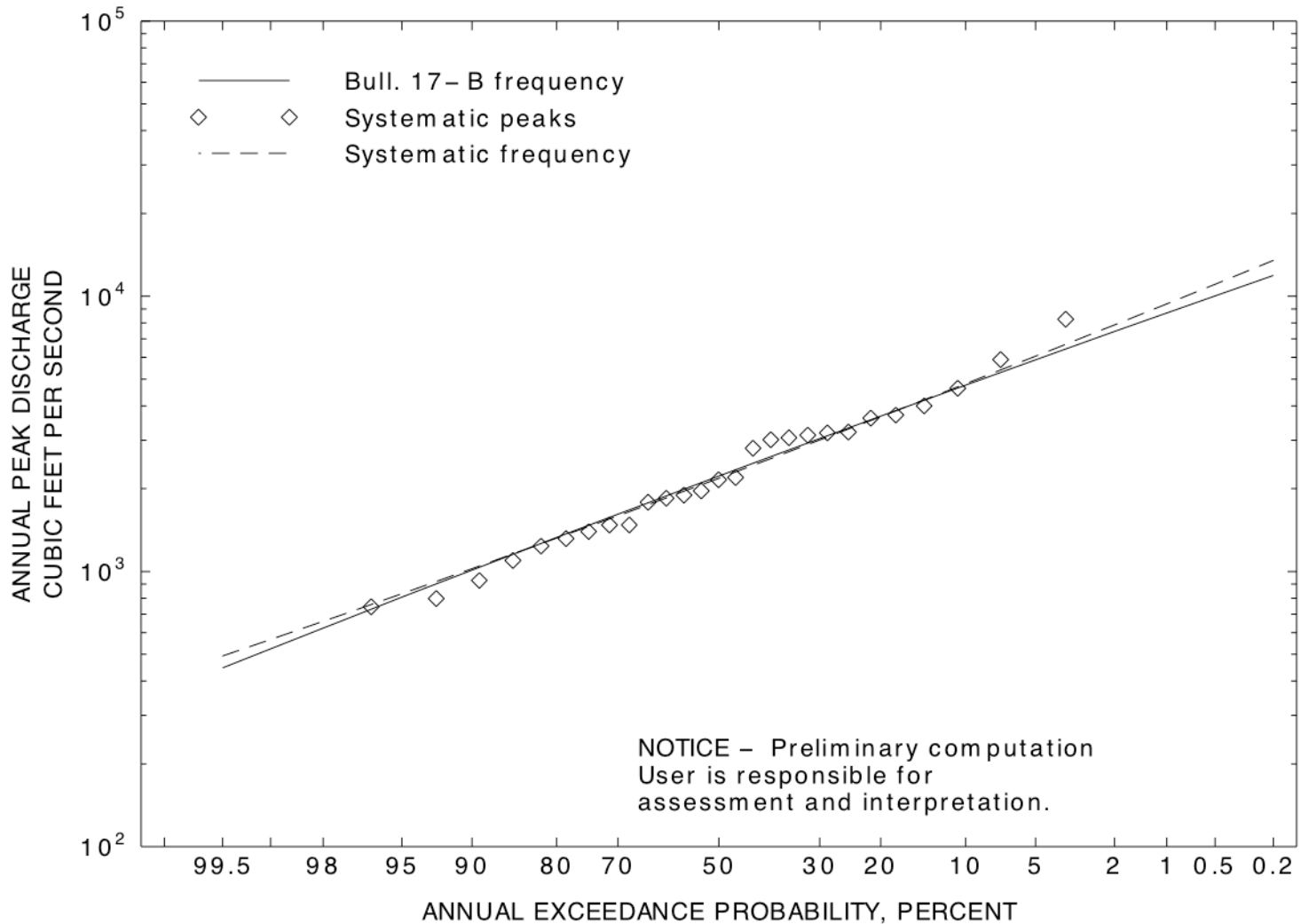
Explanation of peak discharge qualification codes

PEAKFQ	WATSTORE	
CODE	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
1979	8280.0	0.0357	0.0357
1986	5900.0	0.0714	0.0714
1989	4640.0	0.1071	0.1071
1976	4010.0	0.1429	0.1429
1975	3710.0	0.1786	0.1786
1993	3620.0	0.2143	0.2143
1982	3220.0	0.2500	0.2500
1984	3200.0	0.2857	0.2857
1973	3140.0	0.3214	0.3214
1974	3070.0	0.3571	0.3571
1985	3020.0	0.3929	0.3929
1978	2810.0	0.4286	0.4286
1998	2200.0	0.4643	0.4643
1996	2160.0	0.5000	0.5000
1991	1970.0	0.5357	0.5357
1994	1900.0	0.5714	0.5714
1983	1850.0	0.6071	0.6071
1990	1790.0	0.6429	0.6429
1981	1480.0	0.6786	0.6786
1992	1480.0	0.7143	0.7143
1987	1400.0	0.7500	0.7500
1977	1320.0	0.7857	0.7857
2000	1240.0	0.8214	0.8214
1988	1100.0	0.8571	0.8571
1980	930.0	0.8929	0.8929
1995	800.0	0.9286	0.9286
1999	746.0	0.9643	0.9643



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