

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

Station - 05431022 DELAVAN LAKE OUTLET AT BORG RD NEAR DELAVAN, WI  
 2002 MAR 13 09:03:23

I N P U T   D A T A   S U M M A R Y

Number of peaks in record	=	17
Peaks not used in analysis	=	2
Systematic peaks in analysis	=	15
Historic peaks in analysis	=	0
Years of historic record	=	0
Generalized skew	=	-0.400
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. \*\*\*\*\*

**WCF109W-PEAKS WITH MINUS-FLAGGED DISCHARGES WERE BYPASSED.		2
**WCF113W-NUMBER OF SYSTEMATIC PEAKS HAS BEEN REDUCED TO NSYS	=	15
WCF134I-NO SYSTEMATIC PEAKS WERE BELOW GAGE BASE.		0.0
WCF195I-NO LOW OUTLIERS WERE DETECTED BELOW CRITERION.		75.7
WCF163I-NO HIGH OUTLIERS OR HISTORIC PEAKS EXCEEDED HHBASE.		632.8
WCF002J-CALCS COMPLETED. RETURN CODE = 2		

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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	2.3401	0.2052	-0.607
BULL.17B ESTIMATE	0.0	1.0000	2.3401	0.2052	-0.492

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	52.2	49.7	36.7	26.2	76.6
0.9900	61.7	59.4	47.5	33.2	87.4
0.9500	94.7	93.5	85.1	60.6	123.8
0.9000	117.1	116.8	110.0	81.0	148.1
0.8000	149.3	150.0	144.9	111.7	183.8
0.5000	227.4	229.5	227.4	184.8	282.2
0.2000	328.0	328.1	335.0	266.0	441.1
0.1000	389.0	385.7	404.4	309.7	552.7
0.0400	459.7	450.0	491.2	357.3	693.3
0.0200	508.0	492.5	554.9	388.3	795.6
0.0100	552.8	530.8	617.6	416.4	894.9
0.0050	594.8	565.8	680.8	442.1	991.4
0.0020	646.7	607.6	762.8	473.0	1115.0
0.6667	184.6	( 1.50-year flood )			
0.4292	247.5	( 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
1984	134.0		1993	372.0	
1985	163.0		1994	473.0	
1986	226.0		1995	288.0	
1987	228.0		1996	248.0	
1988	93.0		1997	295.0	
1989	-189.0	K	1998	325.0	
1990	-172.0	K	1999	258.0	
1991	89.0		2000	225.0	
1992	194.0				

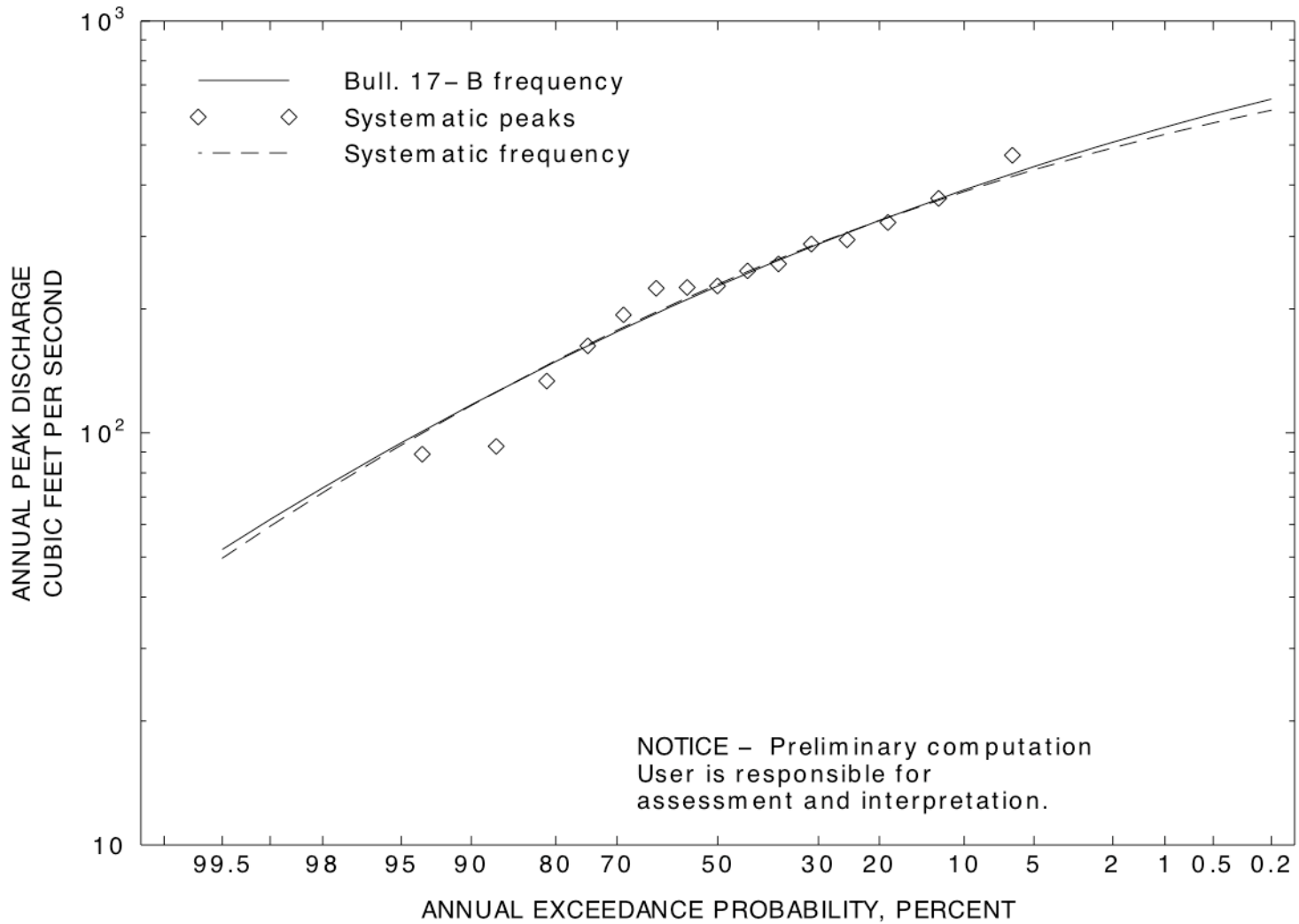
Explanation of peak discharge qualification codes

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
1994	473.0	0.0625	0.0625
1993	372.0	0.1250	0.1250
1998	325.0	0.1875	0.1875
1997	295.0	0.2500	0.2500
1995	288.0	0.3125	0.3125
1999	258.0	0.3750	0.3750
1996	248.0	0.4375	0.4375
1987	228.0	0.5000	0.5000
1986	226.0	0.5625	0.5625
2000	225.0	0.6250	0.6250
1992	194.0	0.6875	0.6875
1985	163.0	0.7500	0.7500
1984	134.0	0.8125	0.8125
1988	93.0	0.8750	0.8750
1991	89.0	0.9375	0.9375
1990	-172.0	--	--
1989	-189.0	--	--



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