

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

Station - 04086600 MILWAUKEE RIVER NEAR CEDARBURG, 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            | = | 19       |
| Peaks not used in analysis           | = | 0        |
| Systematic peaks in analysis         | = | 19       |
| Historic peaks in analysis           | = | 0        |
| Years of historic record             | = | 0        |
| Generalized skew                     | = | -0.386   |
| 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.      | 1203.2 |
| WCF163I-NO HIGH OUTLIERS OR HISTORIC PEAKS EXCEEDED HHBASE. | 6983.2 |

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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                 | 3.4622      | 0.1617             | -0.070 |
| BULL.17B ESTIMATE | 0.0        | 1.0000                 | 3.4622      | 0.1617             | -0.217 |

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                        | 1030.0            | 1084.0              | 868.9                           | 673.9  | 1330.0  |
| 0.9900                        | 1149.0            | 1196.0              | 1010.0                          | 781.1  | 1455.0  |
| 0.9500                        | 1537.0            | 1560.0              | 1452.0                          | 1150.0   | 1852.0  |
| 0.9000                        | 1785.0            | 1794.0              | 1724.0                          | 1398.0   | 2106.0  |
| 0.8000                        | 2128.0            | 2122.0              | 2092.0                          | 1747.0   | 2466.0  |
| 0.5000                        | 2938.0            | 2911.0              | 2938.0                          | 2541.0   | 3404.0  |
| 0.2000                        | 3979.0            | 3970.0              | 4037.0                          | 3431.0   | 4857.0  |
| 0.1000                        | 4628.0            | 4658.0              | 4759.0                          | 3930.0   | 5880.0  |
| 0.0400                        | 5407.0            | 5514.0              | 5682.0                          | 4494.0   | 7199.0  |
| 0.0200                        | 5960.0            | 6142.0              | 6384.0                          | 4878.0   | 8188.0  |
| 0.0100                        | 6494.0            | 6763.0              | 7106.0                          | 5239.0   | 9177.0  |
| 0.0050                        | 7013.0            | 7383.0              | 7855.0                          | 5582.0   | 10170.0 |
| 0.0020                        | 7681.0            | 8204.0              | 8897.0                          | 6014.0   | 11490.0 |
| 0.6667                        | 2497.0            | ( 1.50-year flood ) |                                 |  |         |
| 0.4292                        | 3140.0            | ( 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 |
|------------|-----------|-------|------------|-----------|-------|
| 1982       | 3140.0    |       | 1992       | 1870.0    |       |
| 1983       | 3040.0    |       | 1993       | 4700.0    |       |
| 1984       | 2910.0    |       | 1994       | 2160.0    |       |
| 1985       | 2700.0    |       | 1995       | 1330.0    |       |
| 1986       | 4640.0    |       | 1996       | 5500.0    |       |
| 1987       | 2650.0    |       | 1997       | 2060.0    |       |
| 1988       | 2600.0    |       | 1998       | 3310.0    |       |
| 1989       | 4860.0    |       | 1999       | 3110.0    |       |
| 1990       | 3910.0    |       | 2000       | 2360.0    |       |
| 1991       | 1910.0    |       |            |           |       |

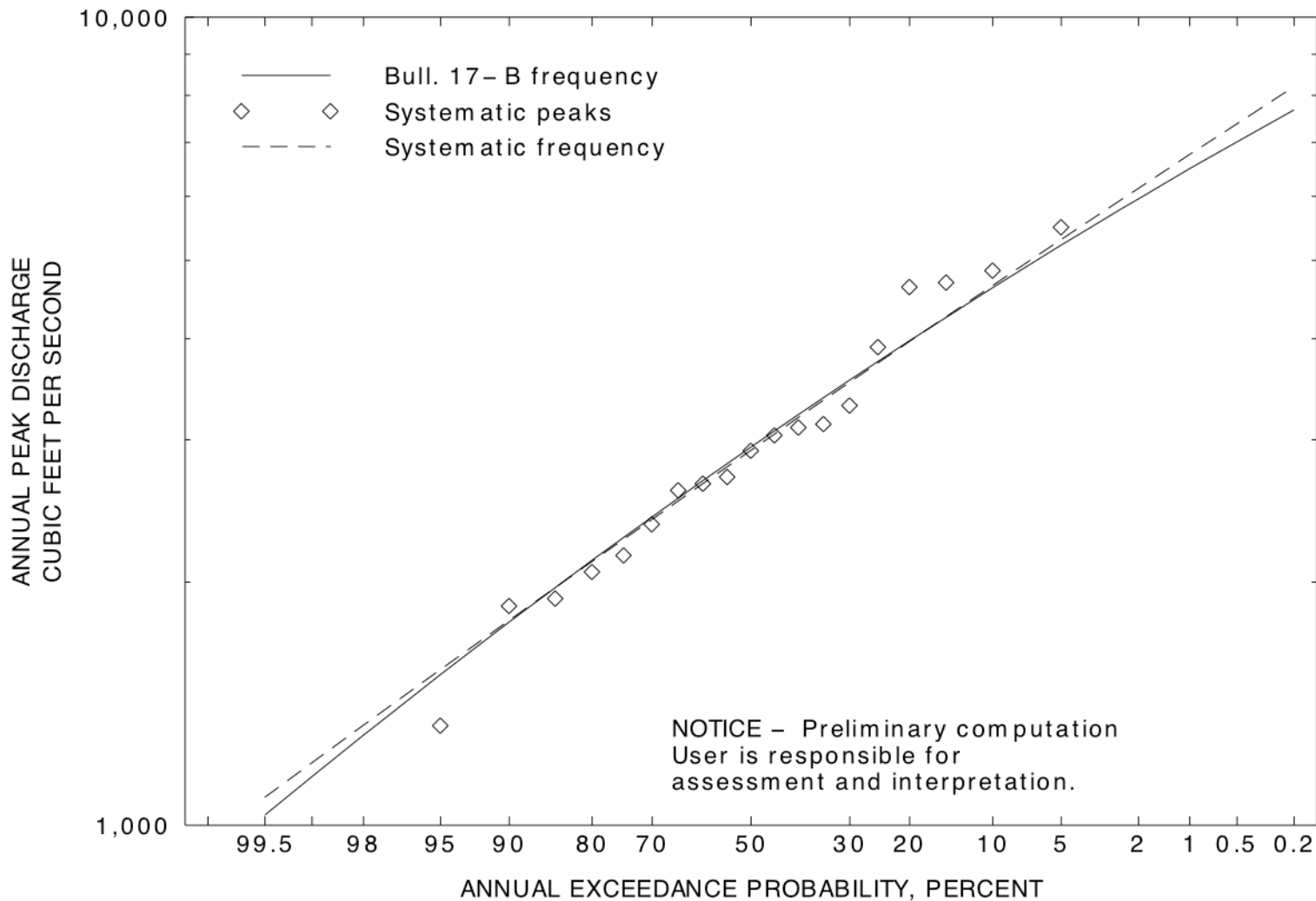
Explanation of peak discharge qualification codes

| 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<br>YEAR | RANKED<br>DISCHARGE | SYSTEMATIC<br>RECORD | BULL.17B<br>ESTIMATE |
|---------------|---------------------|----------------------|----------------------|
| 1996          | 5500.0              | 0.0500               | 0.0500               |
| 1989          | 4860.0              | 0.1000               | 0.1000               |
| 1993          | 4700.0              | 0.1500               | 0.1500               |
| 1986          | 4640.0              | 0.2000               | 0.2000               |
| 1990          | 3910.0              | 0.2500               | 0.2500               |
| 1998          | 3310.0              | 0.3000               | 0.3000               |
| 1982          | 3140.0              | 0.3500               | 0.3500               |
| 1999          | 3110.0              | 0.4000               | 0.4000               |
| 1983          | 3040.0              | 0.4500               | 0.4500               |
| 1984          | 2910.0              | 0.5000               | 0.5000               |
| 1985          | 2700.0              | 0.5500               | 0.5500               |
| 1987          | 2650.0              | 0.6000               | 0.6000               |
| 1988          | 2600.0              | 0.6500               | 0.6500               |
| 2000          | 2360.0              | 0.7000               | 0.7000               |
| 1994          | 2160.0              | 0.7500               | 0.7500               |
| 1997          | 2060.0              | 0.8000               | 0.8000               |
| 1991          | 1910.0              | 0.8500               | 0.8500               |
| 1992          | 1870.0              | 0.9000               | 0.9000               |
| 1995          | 1330.0              | 0.9500               | 0.9500               |



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