

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

Station - 05407000 WISCONSIN RIVER AT MUSCODA, WI  
 2002 JUL 10 11:21:17

I N P U T   D A T A   S U M M A R Y

|                                      |   |              |
|--------------------------------------|---|--------------|
| Number of peaks in record            | = | 86           |
| Peaks not used in analysis           | = | 0            |
| Systematic peaks in analysis         | = | 86           |
| Historic peaks in analysis           | = | 0            |
| Years of historic record             | = | 0            |
| Generalized skew                     | = | 0.000        |
| Standard error of generalized skew   | = | 0.550        |
| Skew option                          | = | STATION SKEW |
| 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      |    |
| WCF198I-LOW OUTLIERS BELOW FLOOD BASE WERE DROPPED.         | 1      | 9375.7   |    |
| WCF163I-NO HIGH OUTLIERS OR HISTORIC PEAKS EXCEEDED HHBASE. |        | 115747.2 |    |
| *WCF151I-17B WEIGHTED SKEW REPLACED BY USER OPTION.         | -0.514 | -0.689   | -1 |

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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                 | 4.5308      | 0.1884             | -0.862 |
| BULL.17B ESTIMATE | 9375.7     | 0.9884                 | 4.5350      | 0.1791             | -0.689 |

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                        | --                | 7877.0              | --                              | --   | --      |
| 0.9900                        | --                | 9514.0              | --                              | --   | --      |
| 0.9500                        | 16200.0           | 15210.0             | 15940.0                         | 14180.0  | 18070.0 |
| 0.9000                        | 19780.0           | 19000.0             | 19590.0                         | 17710.0  | 21710.0 |
| 0.8000                        | 24730.0           | 24270.0             | 24620.0                         | 22600.0  | 26780.0 |
| 0.5000                        | 35920.0           | 36100.0             | 35920.0                         | 33390.0  | 38710.0 |
| 0.2000                        | 48810.0           | 49190.0             | 48940.0                         | 45020.0  | 53530.0 |
| 0.1000                        | 55880.0           | 56010.0             | 56160.0                         | 51130.0  | 62050.0 |
| 0.0400                        | 63440.0           | 62930.0             | 63940.0                         | 57510.0  | 71390.0 |
| 0.0200                        | 68230.0           | 67090.0             | 68910.0                         | 61500.0  | 77410.0 |
| 0.0100                        | 72430.0           | 70590.0             | 73300.0                         | 64960.0  | 82740.0 |
| 0.0050                        | 76150.0           | 73540.0             | 77200.0                         | 67990.0  | 87510.0 |
| 0.0020                        | 80460.0           | 76800.0             | 81780.0                         | 71490.0  | 93080.0 |
| 0.6667                        | 29917.0           | ( 1.50-year flood ) |                                 |  |         |
| 0.4292                        | 38654.9           | ( 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 |
|------------|-----------|-------|------------|-----------|-------|
| 1915       | 21200.0   | K     | 1958       | 12700.0   | K     |
| 1916       | 50700.0   | K     | 1959       | 29400.0   | K     |
| 1917       | 24300.0   | K     | 1960       | 71600.0   | K     |
| 1918       | 39300.0   | K     | 1961       | 34900.0   | K     |
| 1919       | 37700.0   | K     | 1962       | 32200.0   | K     |
| 1920       | 48300.0   | K     | 1963       | 26100.0   | K     |
| 1921       | 32100.0   | K     | 1964       | 16700.0   | K     |
| 1922       | 65300.0   | K     | 1965       | 52400.0   | K     |
| 1923       | 44500.0   | K     | 1966       | 31800.0   | K     |
| 1924       | 33600.0   | K     | 1967       | 50300.0   | K     |
| 1925       | 23200.0   | K     | 1968       | 42100.0   | K     |
| 1926       | 39700.0   | K     | 1969       | 48300.0   | K     |
| 1927       | 33700.0   | K     | 1970       | 26200.0   | K     |
| 1928       | 55500.0   | K     | 1971       | 38800.0   | K     |
| 1929       | 49600.0   | K     | 1972       | 50800.0   | K     |
| 1930       | 38600.0   | K     | 1973       | 73600.0   | K     |
| 1931       | 8430.0    | K     | 1974       | 25200.0   | K     |
| 1932       | 28900.0   | K     | 1975       | 38200.0   | K     |
| 1933       | 23100.0   | K     | 1976       | 44900.0   |       |
| 1934       | 21200.0   | K     | 1977       | 11400.0   |       |
| 1935       | 44100.0   | K     | 1978       | 31800.0   | K     |
| 1936       | 30100.0   | K     | 1979       | 44300.0   | K     |
| 1937       | 28400.0   | K     | 1980       | 47200.0   |       |
| 1938       | 82700.0   | K     | 1981       | 28800.0   |       |
| 1939       | 34700.0   | K     | 1982       | 43600.0   |       |
| 1940       | 52600.0   | K     | 1983       | 51100.0   |       |
| 1941       | 39200.0   | K     | 1984       | 39300.0   |       |
| 1942       | 51000.0   | K     | 1985       | 31500.0   |       |
| 1943       | 56100.0   | K     | 1986       | 47600.0   |       |
| 1944       | 27900.0   | K     | 1987       | 55500.0   |       |
| 1945       | 37000.0   | K     | 1988       | 13200.0   |       |
| 1946       | 40500.0   | K     | 1989       | 24200.0   |       |
| 1947       | 25700.0   | K     | 1990       | 42600.0   |       |
| 1948       | 24000.0   | K     | 1991       | 36600.0   | K     |
| 1949       | 12300.0   | K     | 1992       | 33500.0   | K     |
| 1950       | 32100.0   | K     | 1993       | 59600.0   | K     |
| 1951       | 53700.0   | K     | 1994       | 31200.0   | K     |
| 1952       | 37200.0   | K     | 1995       | 24700.0   | K     |
| 1953       | 25500.0   | K     | 1996       | 44800.0   | K     |
| 1954       | 28300.0   | K     | 1997       | 39700.0   | K     |
| 1955       | 26800.0   | K     | 1998       | 39200.0   | K     |
| 1956       | 33800.0   | K     | 1999       | 22600.0   | K     |
| 1957       | 11300.0   | K     | 2000       | 28600.0   | K     |

Explanation of peak discharge qualification codes

PEAKFQ   WATSTORE

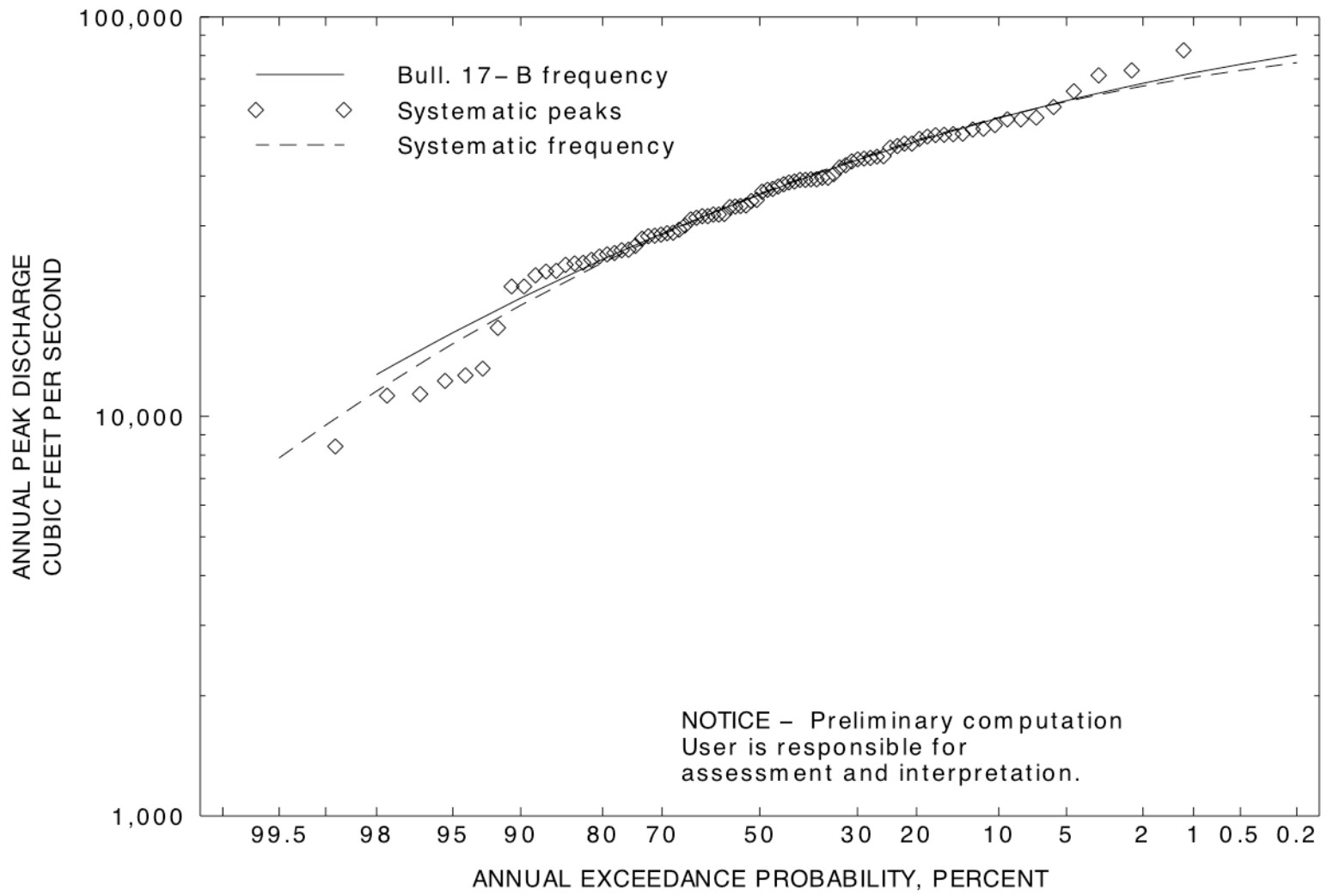
| CODE | CODE   | DEFINITION                                 |
|------|--------|--|
| D    | 3      | Dam failure, non-recurrent flow anomaly    |
| G    | 8      | Discharge greater than stated value        |
| X    | 3+8    | Both of the above                          |
| L    | 4      | Discharge 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 |
|---------------|---------------------|----------------------|----------------------|
| 1938          | 82700.0             | 0.0115               | 0.0115               |
| 1973          | 73600.0             | 0.0230               | 0.0230               |
| 1960          | 71600.0             | 0.0345               | 0.0345               |
| 1922          | 65300.0             | 0.0460               | 0.0460               |
| 1993          | 59600.0             | 0.0575               | 0.0575               |
| 1943          | 56100.0             | 0.0690               | 0.0690               |
| 1928          | 55500.0             | 0.0805               | 0.0805               |
| 1987          | 55500.0             | 0.0920               | 0.0920               |
| 1951          | 53700.0             | 0.1034               | 0.1034               |
| 1940          | 52600.0             | 0.1149               | 0.1149               |
| 1965          | 52400.0             | 0.1264               | 0.1264               |
| 1983          | 51100.0             | 0.1379               | 0.1379               |
| 1942          | 51000.0             | 0.1494               | 0.1494               |
| 1972          | 50800.0             | 0.1609               | 0.1609               |
| 1916          | 50700.0             | 0.1724               | 0.1724               |
| 1967          | 50300.0             | 0.1839               | 0.1839               |
| 1929          | 49600.0             | 0.1954               | 0.1954               |
| 1920          | 48300.0             | 0.2069               | 0.2069               |
| 1969          | 48300.0             | 0.2184               | 0.2184               |
| 1986          | 47600.0             | 0.2299               | 0.2299               |
| 1980          | 47200.0             | 0.2414               | 0.2414               |
| 1976          | 44900.0             | 0.2529               | 0.2529               |
| 1996          | 44800.0             | 0.2644               | 0.2644               |
| 1923          | 44500.0             | 0.2759               | 0.2759               |
| 1979          | 44300.0             | 0.2874               | 0.2874               |
| 1935          | 44100.0             | 0.2989               | 0.2989               |
| 1982          | 43600.0             | 0.3103               | 0.3103               |
| 1990          | 42600.0             | 0.3218               | 0.3218               |
| 1968          | 42100.0             | 0.3333               | 0.3333               |
| 1946          | 40500.0             | 0.3448               | 0.3448               |
| 1926          | 39700.0             | 0.3563               | 0.3563               |
| 1997          | 39700.0             | 0.3678               | 0.3678               |
| 1918          | 39300.0             | 0.3793               | 0.3793               |
| 1984          | 39300.0             | 0.3908               | 0.3908               |
| 1941          | 39200.0             | 0.4023               | 0.4023               |
| 1998          | 39200.0             | 0.4138               | 0.4138               |
| 1971          | 38800.0             | 0.4253               | 0.4253               |
| 1930          | 38600.0             | 0.4368               | 0.4368               |
| 1975          | 38200.0             | 0.4483               | 0.4483               |
| 1919          | 37700.0             | 0.4598               | 0.4598               |
| 1952          | 37200.0             | 0.4713               | 0.4713               |
| 1945          | 37000.0             | 0.4828               | 0.4828               |
| 1991          | 36600.0             | 0.4943               | 0.4943               |
| 1961          | 34900.0             | 0.5057               | 0.5057               |
| 1939          | 34700.0             | 0.5172               | 0.5172               |
| 1956          | 33800.0             | 0.5287               | 0.5287               |
| 1927          | 33700.0             | 0.5402               | 0.5402               |
| 1924          | 33600.0             | 0.5517               | 0.5517               |

|      |         |        |        |
|------|---------|--------|--------|
| 1992 | 33500.0 | 0.5632 | 0.5632 |
| 1962 | 32200.0 | 0.5747 | 0.5747 |
| 1921 | 32100.0 | 0.5862 | 0.5862 |
| 1950 | 32100.0 | 0.5977 | 0.5977 |
| 1966 | 31800.0 | 0.6092 | 0.6092 |
| 1978 | 31800.0 | 0.6207 | 0.6207 |
| 1985 | 31500.0 | 0.6322 | 0.6322 |
| 1994 | 31200.0 | 0.6437 | 0.6437 |
| 1936 | 30100.0 | 0.6552 | 0.6552 |
| 1959 | 29400.0 | 0.6667 | 0.6667 |
| 1932 | 28900.0 | 0.6782 | 0.6782 |
| 1981 | 28800.0 | 0.6897 | 0.6897 |
| 2000 | 28600.0 | 0.7011 | 0.7011 |
| 1937 | 28400.0 | 0.7126 | 0.7126 |
| 1954 | 28300.0 | 0.7241 | 0.7241 |
| 1944 | 27900.0 | 0.7356 | 0.7356 |
| 1955 | 26800.0 | 0.7471 | 0.7471 |
| 1970 | 26200.0 | 0.7586 | 0.7586 |
| 1963 | 26100.0 | 0.7701 | 0.7701 |
| 1947 | 25700.0 | 0.7816 | 0.7816 |
| 1953 | 25500.0 | 0.7931 | 0.7931 |
| 1974 | 25200.0 | 0.8046 | 0.8046 |
| 1995 | 24700.0 | 0.8161 | 0.8161 |
| 1917 | 24300.0 | 0.8276 | 0.8276 |
| 1989 | 24200.0 | 0.8391 | 0.8391 |
| 1948 | 24000.0 | 0.8506 | 0.8506 |
| 1925 | 23200.0 | 0.8621 | 0.8621 |
| 1933 | 23100.0 | 0.8736 | 0.8736 |
| 1999 | 22600.0 | 0.8851 | 0.8851 |
| 1915 | 21200.0 | 0.8966 | 0.8966 |
| 1934 | 21200.0 | 0.9080 | 0.9080 |
| 1964 | 16700.0 | 0.9195 | 0.9195 |
| 1988 | 13200.0 | 0.9310 | 0.9310 |
| 1958 | 12700.0 | 0.9425 | 0.9425 |
| 1949 | 12300.0 | 0.9540 | 0.9540 |
| 1977 | 11400.0 | 0.9655 | 0.9655 |
| 1957 | 11300.0 | 0.9770 | 0.9770 |
| 1931 | 8430.0  | 0.9885 | 0.9885 |



NOTICE - Preliminary computation  
 User is responsible for  
 assessment and interpretation.

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