

Water-Data Report 2013

**06337000 LITTLE MISSOURI RIVER NEAR WATFORD CITY, ND**

Little Missouri Basin  
Lower Little Missouri Subbasin

LOCATION.--Lat 47°35'25", long 103°15'05" referenced to North American Datum of 1927, in NW ¼ SE ¼ SE ¼ sec.35, T.148 N., R.99 W., McKenzie County, ND, Hydrologic Unit 10110205, at bridge on U.S. Highway 85 bridge crossing, 17 mi upstream from Cherry Creek, and 17.5 mi south of Watford City.

DRAINAGE AREA.--8,310 mi<sup>2</sup>, approximately.

**SURFACE-WATER RECORDS**

PERIOD OF RECORD.--DAILY DISCHARGE--October 1934 to current year.

PERIOD OF RECORD.--DAILY GAGE HEIGHT--October 2000 to current year.

REVISED RECORDS.--WSP 926: 1935. WSP 1270: 1943.

GAGE.--Water-stage recorder. Datum of gage is 1,929.03 ft above National Geodetic Vertical Datum of 1929. From October 1, 1990, to November 3, 2009, at site 0.8 mi upstream at present datum. From October 2, 1959, to June 17, 1963, and November 28, 1964, to September 30, 1990, water-stage recorder at site at U.S. Highway 85 crossing at present datum. From June 18, 1963, to November 28, 1964, at site 700 ft upstream at present datum. See WSP 1729 or 1917 for history of changes prior to October 2, 1959.

REMARKS.--Records fair except for estimated daily discharges, which are poor.

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**DISCHARGE, CUBIC FEET PER SECOND**  
**WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013**  
**DAILY MEAN VALUES**

[e, estimated]

| Day          | Oct   | Nov   | Dec   | Jan   | Feb   | Mar    | Apr    | May    | Jun     | Jul    | Aug    | Sep    |
|--------------|-------|-------|-------|-------|-------|--------|--------|--------|---------|--------|--------|--------|
| 1            | 11    | 57    | e42   | e24   | e22   | e34    | 1,140  | 231    | 6,520   | 420    | 101    | 144    |
| 2            | 11    | 59    | e42   | e24   | e22   | e39    | 1,020  | 214    | 7,240   | 403    | 97     | 112    |
| 3            | 83    | 69    | e41   | e24   | e23   | e47    | 1,100  | 200    | 7,910   | 360    | 95     | 96     |
| 4            | 220   | 73    | e42   | e24   | e24   | e58    | 983    | 185    | 6,700   | 338    | 95     | 86     |
| 5            | 113   | 74    | e44   | e24   | e24   | e70    | 849    | 175    | 5,010   | e316   | 93     | 79     |
| 6            | 73    | 69    | e46   | e24   | e24   | e80    | 697    | 166    | 4,000   | 303    | 112    | 77     |
| 7            | 68    | 67    | e45   | e24   | e24   | e84    | e599   | 158    | 4,000   | 300    | 270    | 75     |
| 8            | 60    | 63    | e43   | e24   | e24   | e86    | 534    | 150    | 3,390   | e535   | 251    | 81     |
| 9            | 50    | 65    | e40   | e24   | e23   | e85    | 464    | 144    | 3,340   | 836    | 580    | 458    |
| 10           | 47    | e59   | e37   | e23   | e23   | e84    | 420    | 138    | 2,740   | 853    | 452    | 426    |
| 11           | 43    | e53   | e34   | e23   | e23   | e83    | 400    | 133    | 2,250   | 548    | 589    | 2,050  |
| 12           | 40    | e49   | e32   | e23   | e24   | e85    | 386    | 129    | 1,790   | 636    | 584    | 4,720  |
| 13           | 45    | e45   | e31   | e23   | e24   | e94    | 363    | 126    | 1,350   | 669    | 410    | 2,230  |
| 14           | 45    | e46   | e31   | e24   | e24   | e100   | e350   | 122    | 1,100   | 713    | 331    | 1,180  |
| 15           | 43    | e49   | e31   | e24   | e24   | e106   | e347   | 119    | 1,020   | 384    | 243    | 734    |
| 16           | 42    | e52   | e31   | e24   | e24   | e108   | e347   | 118    | 930     | 272    | 277    | 546    |
| 17           | 46    | e54   | e31   | e24   | e23   | e109   | 344    | 116    | e751    | 254    | 244    | 429    |
| 18           | 47    | e57   | e30   | e24   | e23   | e107   | e315   | 127    | e615    | 274    | 203    | 377    |
| 19           | 51    | e58   | e29   | e23   | e23   | e105   | 353    | 274    | 535     | e211   | 177    | 373    |
| 20           | 56    | e59   | e28   | e22   | e24   | e103   | 375    | 1,230  | e480    | e197   | 163    | 297    |
| 21           | 62    | e59   | e28   | e21   | e24   | e102   | 391    | e1,850 | 445     | e250   | 141    | 260    |
| 22           | 51    | e58   | e28   | e21   | e25   | e106   | e455   | e1,850 | 424     | e190   | 240    | 226    |
| 23           | 49    | e56   | e28   | e21   | e25   | e114   | 469    | 1,660  | 545     | e157   | 218    | 206    |
| 24           | 50    | e53   | e27   | e21   | e26   | e127   | e439   | 1,290  | 725     | 141    | 184    | 188    |
| 25           | 48    | e50   | e26   | e21   | e27   | e145   | 394    | 1,010  | 517     | 131    | 160    | 166    |
| 26           | 65    | e48   | e25   | e22   | e28   | e173   | 399    | 870    | 693     | 124    | 146    | 167    |
| 27           | 67    | e46   | e25   | e22   | e29   | e204   | 374    | 892    | 665     | 118    | 129    | 148    |
| 28           | 60    | e45   | e25   | e23   | e30   | e280   | 337    | 2,160  | 577     | 111    | 119    | 132    |
| 29           | 58    | e44   | e25   | e23   | ---   | e450   | 293    | 2,820  | 486     | 112    | 180    | 122    |
| 30           | 56    | e43   | e25   | e23   | ---   | e750   | 258    | 3,490  | 421     | 113    | 474    | e115   |
| 31           | 55    | ---   | e24   | e22   | ---   | e1,300 | ---    | 5,690  | ---     | 110    | 212    | ---    |
| <b>Total</b> | 1,815 | 1,679 | 1,016 | 713   | 683   | 5,418  | 15,195 | 27,837 | 67,169  | 10,379 | 7,570  | 16,300 |
| <b>Mean</b>  | 58.5  | 56.0  | 32.8  | 23.0  | 24.4  | 175    | 506    | 898    | 2,239   | 335    | 244    | 543    |
| <b>Max</b>   | 220   | 74    | 46    | 24    | 30    | 1,300  | 1,140  | 5,690  | 7,910   | 853    | 589    | 4,720  |
| <b>Min</b>   | 11    | 43    | 24    | 21    | 22    | 34     | 258    | 116    | 421     | 110    | 93     | 75     |
| <b>Ac-ft</b> | 3,600 | 3,330 | 2,020 | 1,410 | 1,350 | 10,750 | 30,140 | 55,210 | 133,200 | 20,590 | 15,020 | 32,330 |

**STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1935 - 2013, BY WATER YEAR (WY)**

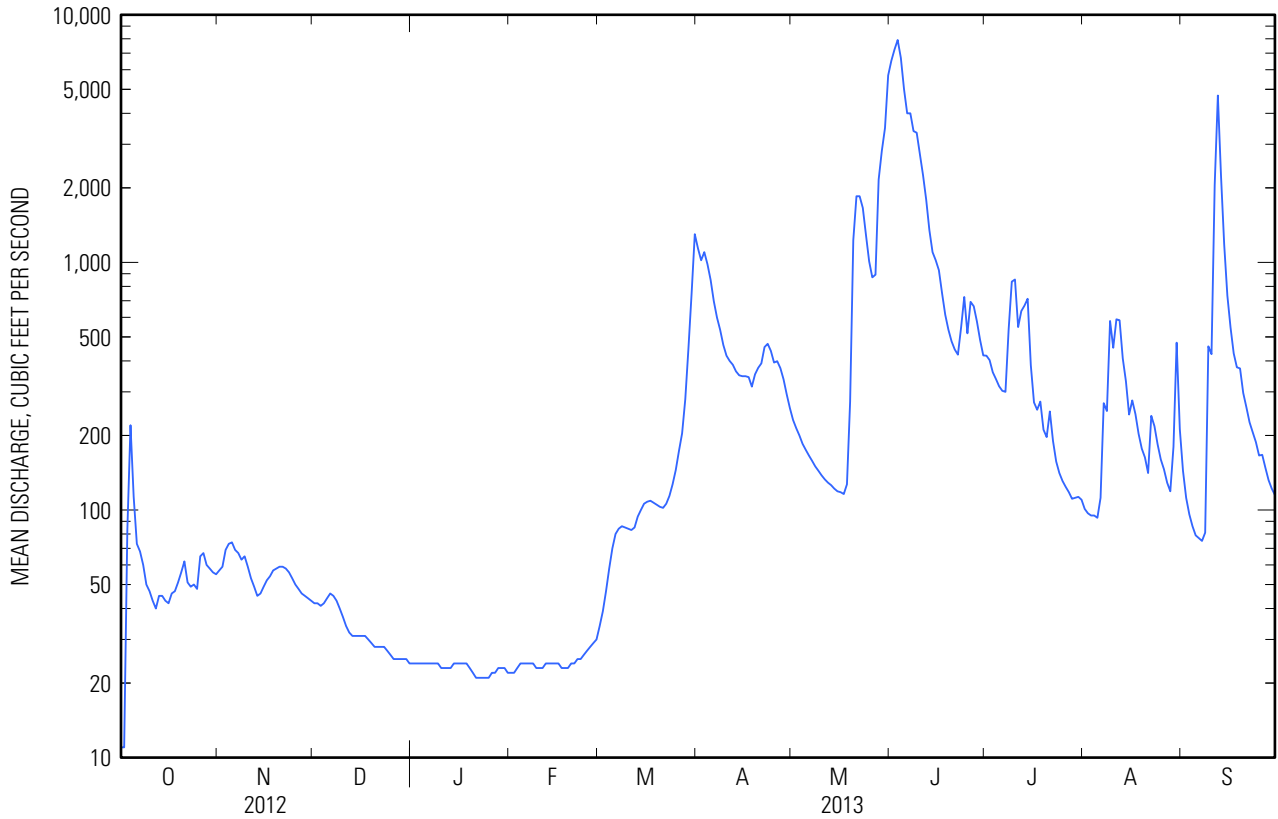
|             | Oct    | Nov    | Dec    | Jan    | Feb    | Mar    | Apr    | May    | Jun    | Jul    | Aug    | Sep    |
|-------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| <b>Mean</b> | 155    | 66.2   | 20.5   | 14.6   | 233    | 1,787  | 1,436  | 876    | 1,092  | 494    | 212    | 159    |
| <b>Max</b>  | 2,364  | 509    | 138    | 123    | 3,023  | 10,220 | 12,170 | 10,060 | 5,646  | 2,759  | 1,405  | 1,174  |
| <b>(WY)</b> | (1972) | (2001) | (1947) | (2006) | (1943) | (1972) | (1952) | (2011) | (1944) | (1993) | (1937) | (1941) |
| <b>Min</b>  | 0.83   | 0.33   | 0.00   | 0.00   | 0.00   | 22.2   | 29.5   | 18.0   | 14.8   | 9.26   | 0.02   | 1.38   |
| <b>(WY)</b> | (1989) | (1989) | (1989) | (1935) | (1935) | (1964) | (1981) | (1981) | (1988) | (1980) | (1988) | (1936) |

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SUMMARY STATISTICS

|                                 | Calendar Year 2012 |        | Water Year 2013 |        | Water Years 1935 - 2013 |              |
|---------------------------------|--------------------|--------|-----------------|--------|-------------------------|--------------|
| <b>Annual total</b>             | 40,288             |        | 155,774         |        |                         |              |
| <b>Annual mean</b>              | 110                |        | 427             |        | 546                     |              |
| <b>Highest annual mean</b>      |                    |        |                 |        | 2,037                   | 2011         |
| <b>Lowest annual mean</b>       |                    |        |                 |        | 38.0                    | 1988         |
| <b>Highest daily mean</b>       | 798                | Mar 15 | 7,910           | Jun 3  | 55,000                  | Mar 25, 1947 |
| <b>Lowest daily mean</b>        | 11                 | Sep 22 | 11              | Oct 1  | 0.00                    | Jan 1, 1935  |
| <b>Annual seven-day minimum</b> | 11                 | Sep 26 | 21              | Jan 20 | 0.00                    | Jan 1, 1935  |
| <b>Maximum peak flow</b>        |                    |        | 8,360           | Jun 3  | 110,000                 | Mar 25, 1947 |
| <b>Maximum peak stage</b>       |                    |        | 7.16            | Jun 3  | <sup>a</sup> 24.00      | Mar 25, 1947 |
| <b>Annual runoff (ac-ft)</b>    | 79,910             |        | 309,000         |        | 395,800                 |              |
| <b>10 percent exceeds</b>       | 220                |        | 879             |        | 1,180                   |              |
| <b>50 percent exceeds</b>       | 90                 |        | 110             |        | 78                      |              |
| <b>90 percent exceeds</b>       | 25                 |        | 24              |        | 1.0                     |              |

<sup>a</sup> From floodmark, site and datum then in use.



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**GAGE HEIGHT, FEET**  
**WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013**  
**DAILY MEAN VALUES**

| Day         | Oct   | Nov   | Dec   | Jan   | Feb  | Mar  | Apr  | May   | Jun  | Jul   | Aug   | Sep   |
|-------------|-------|-------|-------|-------|------|------|------|-------|------|-------|-------|-------|
| 1           | -0.90 | -0.48 | -0.22 | -0.28 | ---  | 0.25 | 1.78 | 0.15  | 6.19 | 0.44  | -0.35 | -0.15 |
| 2           | -0.90 | -0.47 | -0.22 | -0.27 | ---  | 0.46 | 1.60 | 0.09  | 6.55 | 0.40  | -0.38 | -0.30 |
| 3           | -0.39 | -0.40 | -0.17 | -0.27 | ---  | 0.77 | 1.72 | 0.04  | 6.92 | 0.29  | -0.39 | -0.38 |
| 4           | 0.28  | -0.37 | -0.18 | ---   | ---  | 1.06 | 1.54 | -0.01 | 6.23 | 0.23  | -0.39 | -0.44 |
| 5           | -0.15 | -0.36 | -0.17 | ---   | ---  | 1.42 | 1.32 | -0.05 | 5.24 | ---   | -0.40 | -0.48 |
| 6           | -0.37 | -0.40 | -0.14 | ---   | ---  | 1.71 | 1.06 | -0.09 | 4.57 | 0.14  | -0.31 | -0.50 |
| 7           | -0.41 | -0.41 | -0.14 | ---   | ---  | 1.77 | ---  | -0.12 | 4.57 | 0.14  | 0.27  | -0.51 |
| 8           | -0.47 | -0.44 | -0.13 | ---   | 0.18 | 1.51 | 0.74 | -0.16 | 4.12 | ---   | 0.21  | -0.47 |
| 9           | -0.55 | -0.43 | ---   | ---   | 0.15 | 1.41 | 0.59 | -0.18 | 4.08 | 1.36  | 0.99  | 0.69  |
| 10          | -0.58 | -0.31 | ---   | -0.23 | 0.12 | 1.26 | 0.50 | -0.21 | 3.57 | 1.45  | 0.72  | 0.66  |
| 11          | -0.62 | -0.34 | -0.17 | -0.23 | 0.15 | 1.14 | 0.46 | -0.23 | 3.11 | 0.93  | 0.99  | 2.43  |
| 12          | -0.65 | ---   | -0.19 | ---   | 0.13 | 1.04 | 0.44 | -0.24 | 2.61 | 1.11  | 1.00  | 5.06  |
| 13          | -0.60 | -0.39 | -0.20 | ---   | 0.13 | 1.04 | 0.40 | -0.26 | 2.07 | 1.15  | 0.62  | 3.14  |
| 14          | -0.60 | -0.34 | -0.19 | ---   | 0.14 | 1.31 | ---  | -0.28 | 1.72 | 1.23  | 0.44  | 1.97  |
| 15          | -0.62 | -0.30 | -0.18 | ---   | 0.14 | ---  | ---  | -0.29 | 1.60 | 0.56  | 0.20  | 1.29  |
| 16          | -0.63 | -0.25 | -0.19 | -0.20 | 0.14 | ---  | ---  | -0.30 | 1.45 | 0.28  | 0.30  | 0.92  |
| 17          | -0.59 | -0.22 | -0.21 | -0.21 | 0.16 | ---  | 0.40 | -0.31 | ---  | 0.23  | 0.20  | 0.67  |
| 18          | -0.58 | -0.15 | -0.23 | -0.20 | 0.17 | ---  | ---  | -0.25 | ---  | 0.28  | 0.07  | 0.55  |
| 19          | -0.54 | -0.08 | ---   | -0.22 | 0.15 | ---  | 0.44 | 0.19  | 0.70 | ---   | -0.02 | 0.54  |
| 20          | -0.49 | -0.07 | ---   | ---   | 0.15 | ---  | 0.50 | 2.10  | ---  | ---   | -0.08 | 0.35  |
| 21          | -0.45 | -0.02 | -0.27 | ---   | 0.18 | ---  | 0.55 | ---   | 0.49 | ---   | -0.17 | 0.25  |
| 22          | -0.53 | 0.01  | -0.27 | -0.19 | 0.19 | ---  | ---  | ---   | 0.45 | ---   | 0.18  | 0.14  |
| 23          | -0.56 | -0.08 | ---   | -0.17 | 0.18 | ---  | 0.76 | 2.68  | 0.72 | ---   | 0.12  | 0.08  |
| 24          | -0.55 | -0.07 | ---   | -0.14 | 0.21 | ---  | ---  | 2.21  | 1.08 | -0.16 | 0.00  | 0.01  |
| 25          | -0.57 | -0.09 | ---   | -0.11 | 0.22 | ---  | 0.59 | 1.80  | 0.66 | -0.21 | -0.09 | -0.07 |
| 26          | -0.42 | -0.19 | ---   | -0.11 | 0.23 | ---  | 0.60 | 1.57  | 1.00 | -0.24 | -0.15 | -0.07 |
| 27          | -0.41 | -0.22 | ---   | -0.12 | 0.23 | ---  | 0.55 | 1.58  | 0.97 | -0.26 | -0.22 | -0.14 |
| 28          | -0.46 | -0.23 | ---   | -0.12 | 0.25 | ---  | 0.45 | 3.17  | 0.79 | -0.30 | -0.26 | -0.20 |
| 29          | -0.48 | -0.23 | ---   | -0.11 | ---  | ---  | 0.33 | 3.81  | 0.59 | -0.30 | -0.04 | -0.24 |
| 30          | -0.49 | -0.24 | -0.28 | ---   | ---  | ---  | 0.23 | 4.32  | 0.44 | -0.29 | 0.76  | ---   |
| 31          | -0.50 | ---   | -0.29 | ---   | ---  | 2.57 | ---  | 5.74  | ---  | -0.31 | 0.09  | ---   |
| <b>Mean</b> | -0.51 | ---   | ---   | ---   | ---  | ---  | ---  | ---   | ---  | ---   | 0.13  | ---   |
| <b>Max</b>  | 0.28  | ---   | ---   | ---   | ---  | ---  | ---  | ---   | ---  | ---   | 1.00  | ---   |
| <b>Min</b>  | -0.90 | ---   | ---   | ---   | ---  | ---  | ---  | ---   | ---  | ---   | -0.40 | ---   |

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