

Water-Data Report 2013

06818000 MISSOURI RIVER AT ST. JOSEPH, MO

Missouri River Main Stem

LOCATION.--Lat 39°45'11.7", long 94°51'24.6" referenced to North American Datum of 1983, in NW ¼ SE ¼ sec.17, T.57 N., R.35 W., Buchanan County, MO, Hydrologic Unit 10240011, on left bank at downstream abutment of St. Joseph and Grand Island Railroad Bridge in St. Joseph, and at mile 448.2.

DRAINAGE AREA.--426,500 mi², the 3,959 mi² in Great Divide basin are not included.

SURFACE-WATER RECORDS

PERIOD OF RECORD.--October 1928 to current year. Gage-height records collected in vicinity 1873-99 are contained in reports of the Missouri River Commission; since 1900 in reports of the National Weather Service.

REVISED RECORDS.--WDR MO-76-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 789.27 ft above North American Vertical Datum of 1988. Prior to Oct. 21, 1931 nonrecording gage and from Oct. 21, 1931, to Dec. 31, 1933, water-stage recorder, both at same site at datum 793.69 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Water-discharge records good. Some regulation from many upstream reservoirs.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 397,000 ft³/s, Apr. 22, 1952; maximum gage-height, 32.07 ft; July 26, 1993; minimum discharge, 2,300 ft³/s, Jan. 9, 1937.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Apr. 29, 1881, reached a stage of 27.2 ft, present datum, discharge, about 370,000 ft³/s, computed by the U.S. Army Corps of Engineers. Flood of June 1844 reached a stage of 24.5 ft, discharge, about 350,000 ft³/s, computed by the U.S. Army Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 136,000 ft³/s, May 31, gage height, 22.43 ft; minimum discharge, 17,900 ft³/s, Feb. 25, gage height, 0.98 ft.

06818000 MISSOURI RIVER AT ST. JOSEPH, MO—Continued

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

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	40,300	41,400	33,000	22,400	21,800	20,500	35,600	30,900	114,000	51,600	37,900	38,500
2	40,300	41,300	30,600	22,300	21,100	21,500	37,100	31,400	92,100	49,300	37,900	40,300
3	40,100	41,200	29,200	22,000	20,700	22,400	37,700	46,100	77,600	47,500	39,100	39,500
4	40,100	42,000	28,000	21,700	20,100	23,000	36,900	49,200	66,600	46,100	39,000	38,800
5	39,900	41,700	26,900	21,600	19,000	23,100	35,400	45,600	60,400	45,200	37,300	38,400
6	39,900	40,700	26,500	21,700	20,500	23,100	33,800	43,300	60,400	44,200	37,500	38,600
7	40,600	40,900	26,100	22,400	23,700	23,600	33,300	40,900	55,600	43,300	36,300	38,700
8	40,900	41,200	25,900	22,000	24,300	23,100	33,700	39,000	50,900	42,400	35,300	38,600
9	41,000	41,500	25,100	21,400	23,700	22,900	34,000	37,700	55,300	41,600	33,800	38,400
10	40,900	41,900	24,200	21,700	23,000	22,600	34,600	38,800	64,600	41,200	32,100	38,300
11	40,200	42,600	23,700	22,100	23,600	23,500	37,200	41,000	63,100	40,500	31,300	38,200
12	40,000	43,300	23,200	22,700	25,200	25,100	41,400	41,600	59,100	39,600	30,800	38,600
13	40,100	43,800	22,100	22,900	26,700	27,300	44,900	39,200	59,400	38,500	30,900	39,400
14	41,300	44,100	20,500	22,500	25,400	28,000	40,300	37,400	60,400	37,500	30,200	38,600
15	43,100	44,000	20,600	21,700	23,800	28,000	36,700	36,400	59,300	36,800	30,100	38,200
16	43,000	43,700	21,000	21,300	23,900	29,700	34,800	35,700	69,600	36,100	30,800	38,300
17	41,700	42,600	21,500	20,900	24,200	29,800	34,300	35,200	63,900	35,200	32,600	38,800
18	41,400	41,900	22,000	20,800	23,300	29,300	62,200	34,300	61,300	34,700	33,100	38,700
19	41,100	41,800	23,200	21,200	22,200	30,300	58,900	34,900	60,300	34,200	32,500	39,100
20	40,800	41,800	23,800	21,500	21,600	31,000	47,900	36,700	57,100	34,000	32,300	39,600
21	41,000	41,700	23,100	21,100	22,000	29,900	43,500	41,100	53,500	34,200	32,200	38,800
22	41,400	41,600	22,700	20,500	22,100	29,200	38,900	38,600	51,400	34,800	32,100	38,300
23	40,900	42,200	21,500	20,200	20,600	29,700	36,100	36,200	49,300	35,500	31,700	36,900
24	40,800	42,500	21,000	19,800	18,400	31,000	37,100	35,100	49,900	35,500	31,900	36,300
25	41,100	42,700	21,500	19,800	18,300	31,300	36,800	35,200	51,900	35,600	33,600	36,100
26	41,800	42,300	22,200	19,700	19,400	31,300	34,800	35,700	58,600	35,800	35,400	35,400
27	42,500	41,500	22,600	19,900	20,300	32,900	34,500	40,300	56,800	35,800	36,300	35,100
28	42,300	39,800	21,800	20,500	20,600	34,100	33,900	81,000	57,600	35,900	37,000	35,400
29	41,800	37,200	21,300	21,000	---	34,200	32,500	117,000	55,300	36,500	37,100	35,100
30	41,600	35,000	21,300	21,600	---	34,600	31,600	121,000	53,200	38,500	37,000	35,200
31	41,600	---	21,900	22,000	---	35,200	---	132,000	---	37,800	37,500	---
Mean	41,080	41,660	23,810	21,380	22,120	27,780	38,350	48,020	61,620	39,210	34,280	37,940
Max	43,100	44,100	33,000	22,900	26,700	35,200	62,200	132,000	114,000	51,600	39,100	40,300
Min	39,900	35,000	20,500	19,700	18,300	20,500	31,600	30,900	49,300	34,000	30,100	35,100
In.	0.11	0.11	0.06	0.06	0.05	0.08	0.10	0.13	0.16	0.11	0.09	0.10

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1958 - 2013^a, BY WATER YEAR (WY)

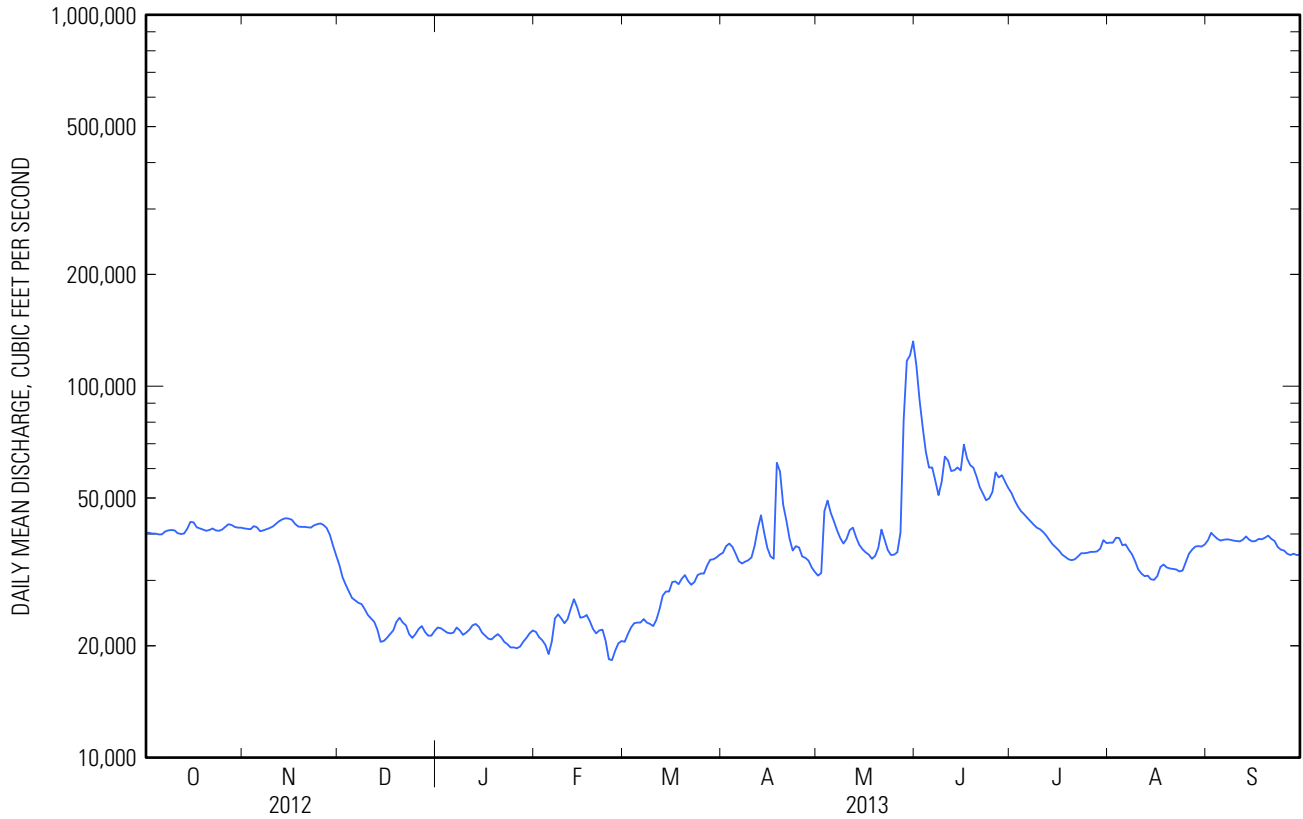
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	47,240	43,600	30,500	25,830	31,850	44,950	55,330	58,540	64,490	58,370	50,120	48,840
Max	87,650	85,040	61,820	45,740	60,570	96,800	113,600	107,200	163,900	232,200	190,200	117,900
(WY)	(1987)	(1998)	(1987)	(1973)	(1983)	(1979)	(1984)	(2011)	(2011)	(2011)	(2011)	(2011)
Min	25,890	18,510	11,560	12,210	15,790	19,490	32,920	36,390	34,650	31,450	30,900	31,670
(WY)	(2007)	(1991)	(1964)	(1959)	(1964)	(1964)	(1990)	(1958)	(2006)	(2002)	(2003)	(2005)

06818000 MISSOURI RIVER AT ST. JOSEPH, MO—Continued

SUMMARY STATISTICS

	Calendar Year 2012		Water Year 2013		Water Years 1958 - 2013 ^a	
Annual mean	41,950		36,460		46,680	
Highest annual mean					104,500	2011
Lowest annual mean					29,790	2006
Highest daily mean	92,600	Apr 16	132,000	May 31	328,000	Jul 26, 1993
Lowest daily mean	20,500	Dec 14	18,300	Feb 25	4,000	Jan 17, 1963
Annual seven-day minimum	21,600	Dec 12	19,700	Feb 23	5,030	Dec 15, 1963
Maximum peak flow			136,000	May 31	335,000	Jul 26, 1993
Maximum peak stage			22.43	May 31	32.07	Jul 26, 1993
Instantaneous low flow			17,900	Feb 25	4,000	Jan 17, 1963
Annual runoff (inches)	1.34		1.16		1.49	
10 percent exceeds	51,000		49,500		73,700	
50 percent exceeds	41,400		36,100		41,200	
90 percent exceeds	34,900		21,500		21,800	

^a Period of Regulated Streamflow



06818000 MISSOURI RIVER AT ST. JOSEPH, MO—Continued

GAGE HEIGHT, FEET
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013
OBSERVATION AT 0800
[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	7.60	7.82	5.73	2.56	2.52	1.89	6.41	5.31	20.32	9.96	6.93	7.01
2	7.62	7.85	5.16	2.56	2.30	2.21	6.83	5.22	17.23	9.52	6.92	7.55
3	7.54	7.76	4.68	2.47	2.12	2.53	7.09	8.52	14.84	9.12	7.07	7.35
4	7.56	7.92	4.40	2.36	1.99	2.77	6.88	9.93	12.89	8.78	7.24	7.21
5	7.53	7.93	4.09	2.39	1.48	2.81	6.53	8.99	11.68	8.59	6.78	7.10
6	7.46	e7.67	3.97	2.37	1.80	2.79	6.06	8.47	11.73	8.41	6.91	7.14
7	7.64	7.65	3.90	2.69	3.08	3.01	6.00	7.92	10.89	8.20	6.58	7.20
8	7.75	7.73	3.88	2.57	3.33	2.89	5.91	7.45	9.82	8.00	6.33	7.23
9	7.76	7.72	3.67	2.36	3.18	2.73	6.07	7.06	10.03	7.79	6.00	7.15
10	7.75	7.85	3.39	2.40	2.83	2.70	6.27	7.18	12.48	7.72	5.54	7.19
11	7.62	7.94	3.30	2.53	2.97	2.99	6.71	7.82	12.24	7.56	5.28	7.16
12	7.49	8.00	3.18	2.74	3.44	3.44	7.72	8.09	11.38	7.38	5.08	7.21
13	7.48	e8.06	2.81	2.83	4.00	4.17	8.89	7.50	11.33	7.08	5.19	7.50
14	7.76	8.16	2.18	2.80	3.69	4.49	7.83	7.00	11.69	6.84	4.95	7.35
15	8.17	8.15	2.18	2.47	3.13	4.30	6.88	6.78	11.43	6.67	4.91	7.15
16	8.23	8.11	2.29	2.31	3.08	4.91	6.42	6.53	13.28	6.48	5.02	7.17
17	7.96	7.84	2.42	2.17	3.24	5.01	6.12	6.47	12.33	e6.28	5.56	7.33
18	7.85	7.64	2.54	2.12	2.94	4.81	12.25	6.18	11.77	6.14	5.74	7.27
19	7.76	7.63	2.92	2.26	2.55	5.01	12.37	6.26	11.66	6.02	e5.57	7.36
20	7.74	7.64	3.18	2.38	2.29	5.40	9.63	6.54	11.13	5.94	5.54	7.56
21	7.72	7.61	2.95	2.26	2.33	5.07	8.60	8.00	10.28	5.98	5.46	7.33
22	7.87	7.60	2.80	2.04	2.54	4.75	7.56	7.35	9.87	6.10	5.50	7.26
23	7.74	7.78	2.38	1.93	2.13	4.83	6.70	6.78	9.52	6.32	5.41	6.85
24	e7.67	7.79	2.10	1.79	1.16	5.27	6.87	6.36	9.50	6.31	5.35	6.67
25	7.77	7.85	2.29	1.78	1.04	5.40	6.94	6.46	9.88	6.32	5.76	6.67
26	7.89	7.78	2.52	1.74	1.49	5.30	6.37	6.44	11.10	6.38	6.23	6.48
27	8.09	7.67	2.66	1.80	1.79	5.78	6.25	7.19	11.10	6.43	6.47	6.37
28	8.05	7.37	2.45	2.00	1.96	6.11	6.17	13.66	11.14	6.41	6.69	6.46
29	7.90	6.74	2.22	2.18	---	6.17	5.76	20.34	10.71	6.46	6.75	6.37
30	7.90	6.23	2.18	2.36	---	6.24	5.51	20.17	10.27	7.20	6.69	6.38
31	7.90	---	2.38	2.55	---	6.42	---	22.33	---	e6.86	6.80	---
Mean	7.77	7.72	3.12	2.32	2.51	4.26	7.19	8.72	11.78	7.20	6.01	7.07
Max	8.23	8.16	5.73	2.83	4.00	6.42	12.37	22.33	20.32	9.96	7.24	7.56
Min	7.46	6.23	2.10	1.74	1.04	1.89	5.51	5.22	9.50	5.94	4.91	6.37

06818000 MISSOURI RIVER AT ST. JOSEPH, MO—Continued**WATER-QUALITY RECORDS**

PERIOD OF RECORD.--October 1969 to July 1992, November 1992 to current year. National Stream-Quality Accounting Network station October 1974 to September 1986. Ambient Water-Quality Monitoring Network station October 1969 to July 1992, November 1992 to current year. Discrete suspended and bed material sediment collection October 1947 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: February 2006 to current year (Seasonally).

pH: February 2006 to September 2007.

WATER TEMPERATURE: May 1984 to December 1984, July 1985 to September 1985, April 1986 to September 1986, February 2006 to current year (Seasonally).

DISSOLVED OXYGEN: May 1984 to November 1984, July 1985 to September 1985, April 1986 to September 1986, February 2006 to current year (Seasonally).

TURBIDITY: February 2006 to current year (Seasonally).

SUSPENDED-SEDIMENT CONCENTRATION: October 2008 to current year.

SUSPENDED-SEDIMENT LOAD: October 2008 to current year.

INSTRUMENTATION.--Water-quality monitor, May 1984 to December 1984, July 1985 to September 1985, April 1986 to September 1986, February 2006 to current year. U.S.G.S. satellite telemeter at station.

REMARKS.--The magnitude of extreme turbidity values has been found to vary depending on the probe used. The manufacturer's specified range for turbidity sensors used is 0 to 1,000 FNU. Values >1,000 FNU have been maintained in some cases for continuity of the record. All values greater than the manufacturer's specified limit should be considered as >1,000 FNU. In some cases partial daily maximum or minimum values were included with the record and were rated poor because no corresponding daily mean values were reported for these days. These values were reported because they are representative of stream conditions at the time and are a valid part of the record.

SPECIFIC CONDUCTANCE: Record is rated excellent, except for the following periods: Oct. 26-30, Jul. 13-18, rated good; Nov. 1, rated poor.

WATER TEMPERATURE: Record is rated excellent, except for the following periods: Jan. 28, Feb. 6, 28, rated poor.

DISSOLVED OXYGEN: Record is rated excellent, except for the following periods: Oct. 16-19, Mar. 22 - Apr. 1, rated good; Oct. 20-26, rated fair; Oct. 27-30, May 17, 20, rated poor.

TURBIDITY: Record is rated excellent, except for the following periods: Mar. 22 - Apr. 1, rated good; June 22, rated fair; Nov. 22-24, 26, Dec. 2-7, 26, Jan. 4-8, Feb. 28, Apr. 18-19, May 28-31, June 25, Jul. 15-16, rated poor. Data collected using a YSI 6136 turbidity sensor.

Interruptions or periods of missing record may be due to instrument failure, ice conditions, or data corrections exceeding allowable criteria, which were deleted.

SUSPENDED-SEDIMENT: Record fair except for estimated days, which are poor.

EXTREMES FOR PERIOD OF RECORD.--

SPECIFIC CONDUCTANCE: Maximum recorded, 882 $\mu\text{S}/\text{cm}$, May 1, 2011, but may have been higher during periods of missing record; minimum recorded 308 $\mu\text{S}/\text{cm}$, May 8, 2007.

pH: Maximum recorded, 8.8 standard units, June 15-19, Aug. 24-25, Oct. 10, 2006; minimum recorded, 7.6 standard units, May 6-11, 24-27, 2007.

WATER TEMPERATURE: Maximum recorded, 31.2 $^{\circ}\text{C}$, Jul. 20, 2006; minimum recorded, -0.2 $^{\circ}\text{C}$, Jan. 16, 30, Feb. 10, 16, 18, 2007, Jan. 2, 17-18, 2008.

DISSOLVED OXYGEN: Maximum recorded 13.6 mg/L, Jan. 2-4, 2008; minimum recorded, 1.0 mg/L, Jul. 21, 1985, but may have been lower during periods of missing record.

TURBIDITY: Maximum recorded, 1990 FNU, May 6, 2007, but may have been higher during periods of missing record; minimum recorded, 2.5 FNU, Jan. 3, 2008, but may have been lower during periods of missing record; .

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 879 $\mu\text{S}/\text{cm}$, May 1, 2011, but may have been higher during periods of missing record; minimum daily, 313 $\mu\text{S}/\text{cm}$, May 8, 2007.

pH: Maximum daily, 8.8 standard units, Jun., 16, 18, 2006; minimum daily, 7.6 standard units, May 7-10, 25-26, 2007.

WATER TEMPERATURE: Maximum daily, 30.7 $^{\circ}\text{C}$, Jul. 20, 2006; minimum daily, -0.1 $^{\circ}\text{C}$, several days Jan.-Feb., 2007, Jan.-Feb., 2008 and Feb. 14-15, 2012.

DISSOLVED OXYGEN: Maximum daily, 13.5 mg/L, Jan. 3, 2008, but may have been higher during periods of missing record; minimum daily, 1.8 mg/L, Jul. 21, 1985, but may have been lower during periods of missing record.

TURBIDITY: Maximum daily, 1,780, May 7, 2007, but may have been higher during periods of missing record; minimum daily, 6.9 FNU, Jan. 25, 2008, but may have been lower during periods of missing record.

SUSPENDED-SEDIMENT CONCENTRATION: Maximum daily, 3,410 mg/L, Jun. 1, 2013; minimum daily, 91 mg/L (estimated), Feb. 25, 2013.

SUSPENDED-SEDIMENT DISCHARGE: Maximum daily, 1,140,000 (estimated) tons, May 31, 2013; minimum daily, 4,530 tons (estimated), Feb. 25, 2013.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum recorded, 859 $\mu\text{S}/\text{cm}$, Sept. 11; minimum recorded, 367 $\mu\text{S}/\text{cm}$, May 31, but may have been lower during period of missing record.

06818000 MISSOURI RIVER AT ST. JOSEPH, MO—Continued

WATER TEMPERATURE: Maximum recorded, 30.1 °C, Jul. 19; minimum recorded, -0.1 °C, Dec. 26, 29-30, Jan. 2, 4, Feb. 23.

DISSOLVED OXYGEN: Maximum recorded, 12.1 mg/L, Mar. 25-28, but may have been higher during period of missing record; minimum recorded, 4.1 mg/L, May 29.

TURBIDITY: Maximum recorded, >1,310 FNU, May 28-30, but may have been higher due to exceeding the maximum recording limit of the sensor and during periods of missing record; minimum recorded, 8.0 FNU, Jan. 28.

SUSPENDED-SEDIMENT CONCENTRATION: Maximum daily mean 3,410 mg/L, Jun. 1; minimum daily mean 91 mg/L (estimated), Feb. 25.

SUSPENDED-SEDIMENT DISCHARGE: Maximum daily 1,260,000 tons (estimated), May 30; minimum daily 10,600 tons, Feb. 3.

**SPECIFIC CONDUCTANCE, WATER, UNFILTERED, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013**

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
	October			November			December			January		
1	830	826	828	792	785	788	---	---	---	---	---	---
2	828	825	826	---	---	---	---	---	---	---	---	---
3	826	822	824	---	---	---	---	---	---	---	---	---
4	823	818	820	---	---	---	---	---	---	---	---	---
5	820	817	818	---	---	---	---	---	---	---	---	---
6	821	819	820	---	---	---	---	---	---	---	---	---
7	820	815	816	---	---	---	---	---	---	---	---	---
8	815	811	812	---	---	---	---	---	---	---	---	---
9	813	810	811	---	---	---	---	---	---	---	---	---
10	811	806	808	---	---	---	---	---	---	---	---	---
11	810	807	809	---	---	---	---	---	---	---	---	---
12	811	808	809	---	---	---	---	---	---	---	---	---
13	811	786	805	---	---	---	---	---	---	---	---	---
14	803	740	798	---	---	---	---	---	---	---	---	---
15	798	776	787	---	---	---	---	---	---	---	---	---
16	776	766	770	---	---	---	---	---	---	---	---	---
17	796	767	784	---	---	---	---	---	---	---	---	---
18	794	790	792	---	---	---	---	---	---	---	---	---
19	794	791	792	---	---	---	---	---	---	---	---	---
20	794	789	792	---	---	---	---	---	---	---	---	---
21	796	793	794	---	---	---	---	---	---	---	---	---
22	797	791	794	---	---	---	---	---	---	---	---	---
23	794	790	792	---	---	---	---	---	---	---	---	---
24	797	792	795	---	---	---	---	---	---	---	---	---
25	798	795	797	---	---	---	---	---	---	---	---	---
26	802	796	799	---	---	---	---	---	---	---	---	---
27	799	788	796	---	---	---	---	---	---	---	---	---
28	795	788	793	---	---	---	---	---	---	---	---	---
29	807	794	802	---	---	---	---	---	---	---	---	---
30	794	789	791	---	---	---	---	---	---	---	---	---
31	794	790	792	---	---	---	---	---	---	---	---	---
Month	830	740	802	---	---	---	---	---	---	---	---	---

06818000 MISSOURI RIVER AT ST. JOSEPH, MO—Continued

SPECIFIC CONDUCTANCE, WATER, UNFILTERED, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

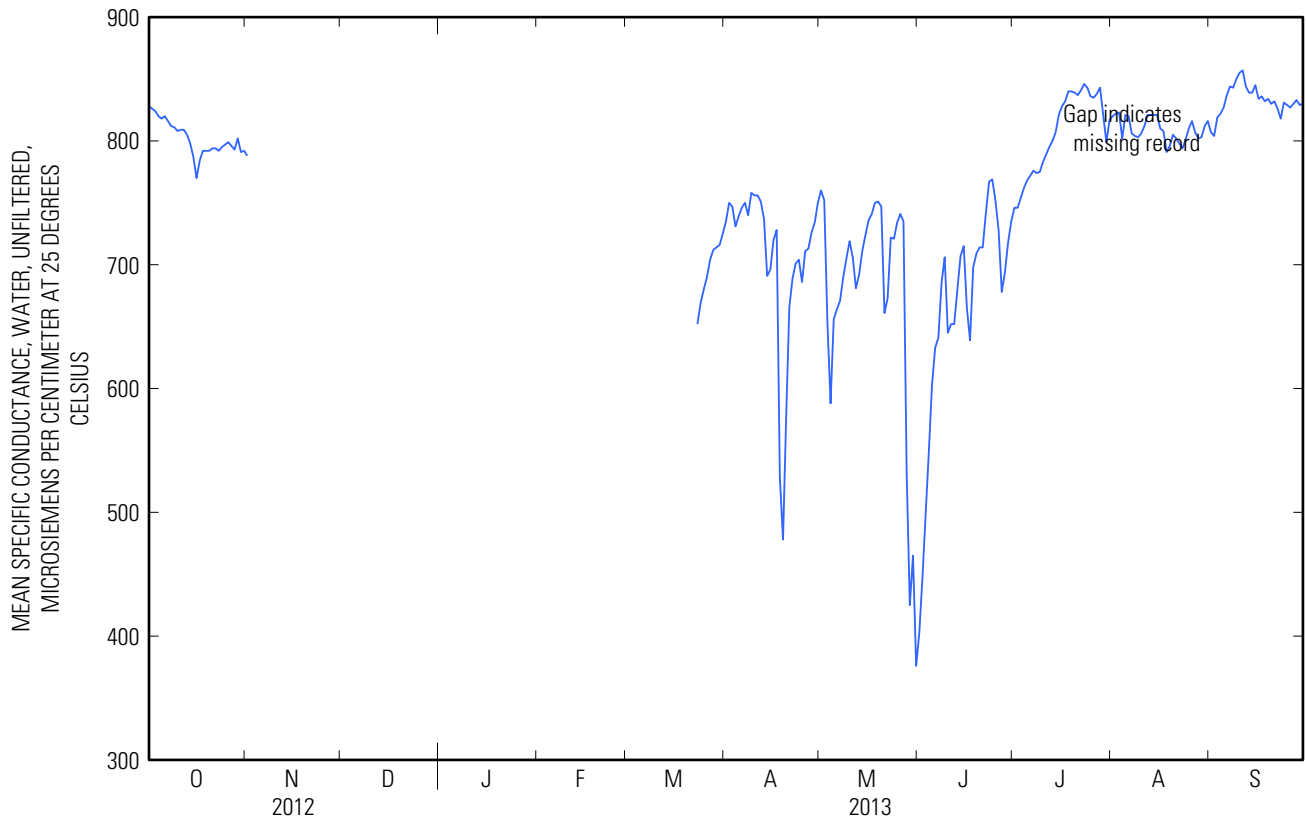
Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
	February			March			April			May		
1	---	---	---	---	---	---	753	725	735	765	755	760
2	---	---	---	---	---	---	757	746	750	764	735	752
3	---	---	---	---	---	---	761	731	747	754	563	654
4	---	---	---	---	---	---	736	728	731	619	559	588
5	---	---	---	---	---	---	741	736	739	678	619	656
6	---	---	---	---	---	---	750	741	746	672	661	664
7	---	---	---	---	---	---	756	562	750	678	663	671
8	---	---	---	---	---	---	748	562	740	699	678	690
9	---	---	---	---	---	---	765	744	758	716	695	705
10	---	---	---	---	---	---	765	721	756	727	714	719
11	---	---	---	---	---	---	768	751	756	726	672	706
12	---	---	---	---	---	---	772	730	751	688	672	681
13	---	---	---	---	---	---	754	706	737	705	686	692
14	---	---	---	---	---	---	706	686	691	720	705	711
15	---	---	---	---	---	---	706	693	696	733	720	724
16	---	---	---	---	---	---	728	706	720	742	732	736
17	---	---	---	---	---	---	738	662	728	749	737	741
18	---	---	---	---	---	---	721	423	528	754	745	750
19	---	---	---	---	---	---	525	443	478	759	676	751
20	---	---	---	---	---	---	626	525	578	762	712	747
21	---	---	---	---	---	---	683	626	666	712	642	661
22	---	---	---	---	---	---	696	683	689	721	642	673
23	---	---	---	661	648	652	708	694	701	733	708	722
24	---	---	---	677	661	669	711	692	704	731	708	721
25	---	---	---	686	676	680	718	670	686	737	731	734
26	---	---	---	700	686	690	719	704	711	753	736	741
27	---	---	---	710	700	704	719	704	713	759	596	735
28	---	---	---	717	710	712	731	718	726	706	381	532
29	---	---	---	717	712	714	742	727	734	472	402	425
30	---	---	---	724	636	716	758	742	750	494	401	465
31	---	---	---	727	723	725	---	---	---	401	367	376
Month	---	---	---	---	---	---	772	423	706	765	367	674

06818000 MISSOURI RIVER AT ST. JOSEPH, MO—Continued

**SPECIFIC CONDUCTANCE, WATER, UNFILTERED, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013**

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
	June			July			August			September		
1	425	384	403	749	742	746	822	818	820	821	644	807
2	471	425	448	750	733	746	839	793	822	809	798	804
3	527	471	499	760	749	754	839	801	823	828	808	819
4	578	527	549	766	760	762	811	747	802	829	814	822
5	626	577	603	769	766	768	846	810	821	831	824	827
6	637	626	633	773	768	772	847	806	820	840	831	837
7	662	630	641	780	773	776	809	803	806	846	840	844
8	704	662	685	776	771	774	808	797	804	851	732	843
9	718	678	706	781	770	775	809	797	803	852	846	850
10	682	630	645	787	779	783	813	796	806	857	851	855
11	654	650	652	794	785	789	823	801	812	859	855	857
12	660	649	652	800	791	795	829	813	821	857	761	844
13	695	660	680	803	797	800	828	818	821	849	827	839
14	713	695	707	816	801	807	825	816	821	854	828	839
15	722	710	715	826	816	821	829	809	821	858	821	845
16	720	641	665	831	826	828	819	806	810	837	832	834
17	678	619	639	835	830	832	813	800	808	840	831	836
18	710	678	698	844	835	840	802	786	791	838	828	832
19	722	694	709	843	836	840	808	783	796	850	683	834
20	722	710	714	843	836	839	811	795	805	838	826	830
21	724	710	714	840	834	837	808	795	802	836	830	832
22	760	724	742	846	834	841	806	785	798	836	817	826
23	770	760	767	849	842	846	802	785	794	826	815	818
24	779	752	769	847	837	843	810	785	801	836	826	831
25	757	745	752	839	832	836	819	799	810	835	823	829
26	751	676	728	839	832	835	823	806	816	831	823	827
27	693	670	678	843	832	838	815	795	807	834	827	830
28	702	686	694	849	834	843	809	795	802	835	831	833
29	734	699	718	835	744	821	809	798	803	831	827	829
30	742	731	735	823	779	799	820	800	812	832	828	830
31	---	---	---	821	808	817	822	807	816	---	---	---
Month	779	384	665	849	733	807	847	747	809	859	644	833

06818000 MISSOURI RIVER AT ST. JOSEPH, MO—Continued



06818000 MISSOURI RIVER AT ST. JOSEPH, MO—Continued

TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
	October			November			December			January		
1	19.3	18.7	18.9	10.0	9.4	9.7	5.8	5.2	5.6	0.4	0.0	0.2
2	19.1	18.4	18.8	9.9	9.5	9.7	6.2	5.8	6.0	0.3	-0.1	0.1
3	18.8	18.2	18.6	10.0	9.5	9.8	7.2	6.2	6.8	0.3	0.0	0.1
4	18.5	17.8	18.1	9.9	9.6	9.8	7.2	6.6	6.9	0.4	-0.1	0.1
5	17.8	17.0	17.4	9.8	9.4	9.6	7.0	6.6	6.8	1.0	0.3	0.6
6	17.0	16.0	16.4	9.6	9.3	9.4	7.0	6.7	6.8	1.1	0.6	0.8
7	16.0	15.4	15.7	9.4	8.9	9.2	7.1	6.9	7.0	1.2	0.6	0.9
8	15.4	14.7	15.0	9.6	8.9	9.3	7.0	6.5	6.7	1.9	1.1	1.4
9	14.7	13.8	14.3	10.4	9.6	10	6.7	6.0	6.5	2.1	1.5	1.8
10	13.8	13.2	13.5	11.1	10.4	10.8	6.0	4.5	5.2	2.2	1.9	2.0
11	13.5	13.0	13.3	11.5	10.0	10.8	4.5	3.8	4.1	3.1	2.2	2.6
12	13.4	12.9	13.0	10.0	9.2	9.6	4.0	3.5	3.8	3.1	2.2	2.6
13	13.9	12.9	13.4	9.2	8.8	9.0	3.5	2.8	3.0	2.2	1.3	1.7
14	14.4	13.8	14.0	8.9	8.0	8.4	3.8	2.8	3.2	1.3	0.8	1.1
15	14.0	13.3	13.6	8.0	7.5	7.8	4.4	3.8	4.1	1.1	0.6	0.9
16	14.3	13.5	13.9	7.5	6.7	7.1	4.2	4.0	4.1	1.2	0.5	0.9
17	14.1	13.9	14.0	6.8	6.3	6.6	4.3	3.9	4.1	1.4	0.7	1.0
18	13.9	13.1	13.4	7.3	6.7	7.0	5.0	4.2	4.6	1.4	0.3	0.9
19	13.1	12.6	12.8	8.0	7.3	7.7	4.9	4.4	4.7	2.5	1.4	1.9
20	12.7	12.2	12.5	8.1	7.7	7.9	4.4	2.8	3.4	2.6	2.1	2.3
21	13.2	12.3	12.7	8.0	7.5	7.8	2.8	2.3	2.5	2.1	1.3	1.6
22	13.8	13.2	13.4	8.3	7.8	8.0	2.4	2.0	2.2	---	---	---
23	13.9	13.4	13.6	8.1	7.3	7.7	2.1	1.4	1.6	---	---	---
24	14.6	13.7	14.1	7.3	6.8	7.0	1.5	0.9	1.2	---	---	---
25	14.6	13.1	14.0	6.9	6.6	6.7	0.9	0.2	0.6	---	---	---
26	13.1	12.0	12.6	6.6	6.0	6.3	0.2	-0.1	0.0	---	---	---
27	12.0	11.0	11.4	6.0	5.3	5.6	0.0	0.0	0.0	---	---	---
28	11.0	10.4	10.6	5.3	4.6	4.9	0.0	0.0	0.0	2.9	---	---
29	10.4	9.7	10.0	4.8	4.4	4.6	0.0	-0.1	0.0	3.3	2.7	3.1
30	9.7	9.2	9.4	5.4	4.8	5.0	0.0	-0.1	0.0	2.7	1.7	2.2
31	9.5	9.0	9.3	---	---	---	0.3	0.0	0.2	1.7	0.9	1.3
Month	19.3	9.0	13.9	11.5	4.4	8.1	7.2	-0.1	3.6	---	---	---

06818000 MISSOURI RIVER AT ST. JOSEPH, MO—Continued

TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

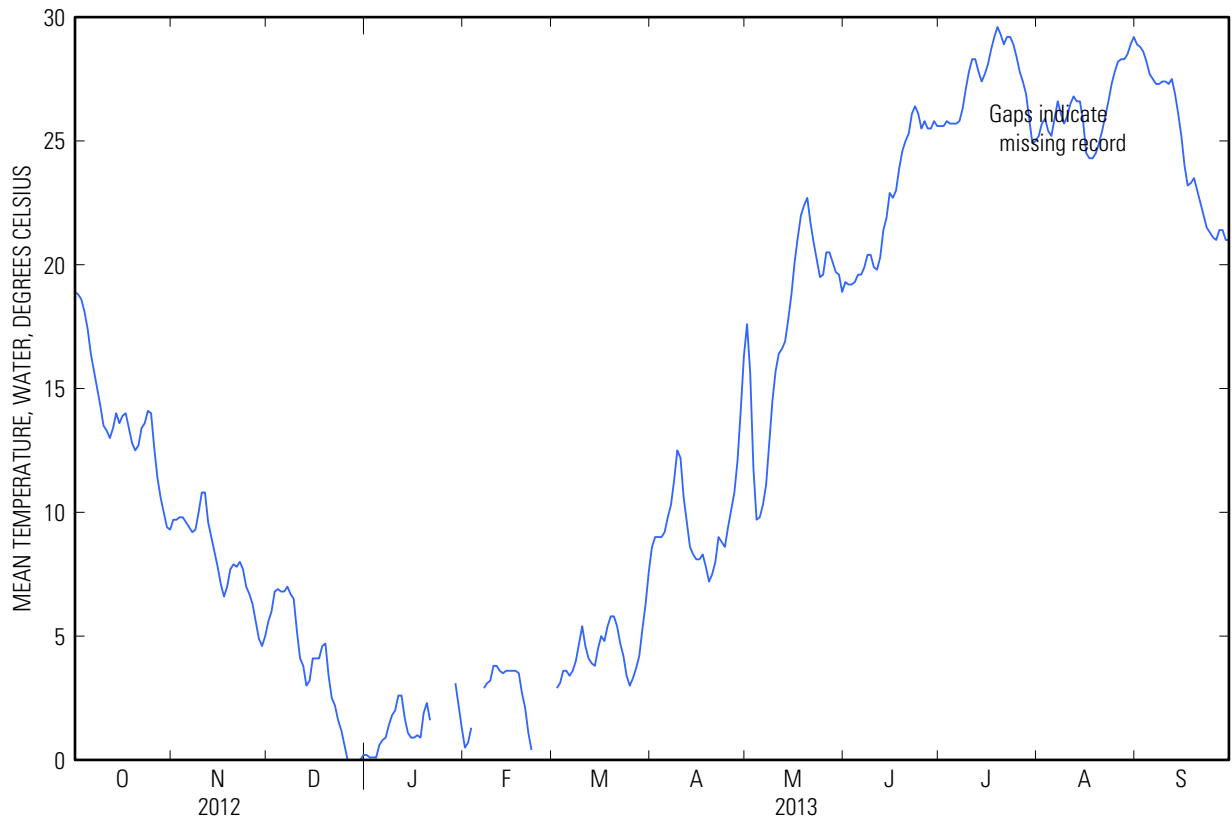
Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
	February			March			April			May		
1	0.9	0.3	0.5	---	---	---	9.1	8.2	8.6	18.3	17.2	17.6
2	1.1	0.4	0.7	3.4	2.4	2.9	9.4	8.5	9.0	17.3	14.0	15.6
3	1.8	0.9	1.3	3.5	2.6	3.1	9.2	8.7	9.0	14.0	9.8	11.8
4	---	---	---	4.1	3.2	3.6	9.5	8.5	9.0	9.8	9.5	9.7
5	---	---	---	3.9	3.2	3.6	9.7	8.8	9.2	10.0	9.6	9.8
6	2.9	---	---	4.0	2.9	3.4	10.3	9.3	9.8	10.8	10.0	10.3
7	3.1	2.7	2.9	4.2	3.1	3.6	11.6	9.9	10.3	12.0	10.5	11.1
8	3.4	2.9	3.1	4.4	3.6	4.0	11.9	10.8	11.3	13.8	12.0	12.8
9	3.5	2.9	3.2	5.2	4.3	4.7	13.2	11.9	12.5	15.2	13.8	14.5
10	4.2	3.4	3.8	5.6	5.1	5.4	13.0	11.4	12.2	16.3	15.2	15.7
11	4.2	3.5	3.8	5.1	4.2	4.6	11.4	10.1	10.6	16.9	16.0	16.4
12	3.8	3.4	3.6	4.4	3.9	4.1	10.1	9.1	9.6	16.9	16.2	16.6
13	3.9	3.1	3.5	4.1	3.5	3.9	9.1	8.3	8.6	17.4	16.4	16.9
14	4.0	3.3	3.6	4.4	3.3	3.8	8.5	8.0	8.3	18.5	17.2	17.8
15	3.9	3.2	3.6	5.2	4.0	4.5	8.3	8.0	8.1	19.5	18.3	18.8
16	3.8	3.3	3.6	5.2	4.9	5.0	8.3	8.0	8.1	20.8	19.4	20.1
17	4.0	3.2	3.6	5.0	4.7	4.8	8.5	8.3	8.3	21.7	20.7	21.1
18	3.7	3.0	3.5	6.1	4.7	5.4	8.4	7.3	7.8	22.5	21.5	22.0
19	3.0	2.2	2.7	6.0	5.6	5.8	7.5	6.9	7.2	22.8	22.0	22.4
20	2.6	1.8	2.1	6.2	5.4	5.8	7.8	7.1	7.5	23.1	22.4	22.7
21	1.8	0.5	1.1	5.9	5.0	5.4	8.6	7.5	8.0	22.5	21.4	21.7
22	0.8	0.0	0.4	5.0	4.3	4.7	9.4	8.6	9.0	21.4	20.7	20.9
23	---	---	---	4.3	4.0	4.2	9.3	8.3	8.8	20.7	19.7	20.2
24	---	---	---	4.0	3.1	3.4	9.2	8.0	8.6	19.8	19.1	19.5
25	---	---	---	3.2	2.8	3.0	10.1	8.9	9.4	20.1	19.1	19.6
26	---	---	---	3.9	2.8	3.3	10.3	9.9	10.1	21.0	20.1	20.5
27	---	---	---	4.0	3.4	3.7	11.1	10.3	10.8	20.9	20.1	20.5
28	---	2.2	---	4.9	3.6	4.2	13.1	11.1	12.1	20.5	19.6	20.1
29	---	---	---	6.0	4.8	5.3	15.3	13.1	14.1	20.0	19.4	19.7
30	---	---	---	6.8	5.9	6.3	17.3	15.3	16.3	19.9	19.2	19.6
31	---	---	---	8.4	6.8	7.6	---	---	---	19.2	18.8	18.9
Month	---	---	---	---	---	---	17.3	6.9	9.7	23.1	9.5	17.6

06818000 MISSOURI RIVER AT ST. JOSEPH, MO—Continued

TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
	June			July			August			September		
1	19.5	19.1	19.3	26.0	25.2	25.6	25.7	24.7	25.2	29.3	26.9	28.9
2	19.4	19.0	19.2	26.0	25.2	25.6	26.1	25.3	25.7	29.1	28.3	28.8
3	19.5	18.8	19.2	26.1	25.4	25.8	26.2	25.6	25.9	28.9	28.2	28.6
4	19.7	18.9	19.3	26.1	25.4	25.7	25.9	24.9	25.4	28.5	27.8	28.2
5	19.7	19.5	19.6	26.0	25.2	25.7	25.6	24.9	25.2	28.2	27.4	27.7
6	19.8	19.3	19.6	26.0	25.4	25.7	26.6	25.4	25.9	27.8	27.1	27.5
7	20.3	19.5	19.9	26.3	25.4	25.8	27.0	26.2	26.6	27.6	26.8	27.3
8	20.6	20.1	20.4	26.7	26.0	26.3	26.6	25.8	26.1	27.6	26.9	27.3
9	20.6	20.2	20.4	27.7	26.6	27.1	25.9	25.4	25.7	27.7	27.1	27.4
10	20.2	19.5	19.9	28.3	27.3	27.8	26.6	25.4	26.0	27.7	27.1	27.4
11	20.0	19.6	19.8	28.8	27.9	28.3	27.1	25.9	26.5	27.6	27.0	27.3
12	21.1	19.7	20.3	28.6	28.0	28.3	27.2	26.5	26.8	27.8	26.8	27.5
13	21.8	21.0	21.4	28.3	27.5	27.8	27.1	26.2	26.6	27.4	26.6	26.9
14	22.6	21.5	21.9	27.8	27.0	27.4	27.0	26.3	26.6	26.6	25.8	26.1
15	23.2	22.6	22.9	28.1	27.4	27.7	26.6	25.0	25.8	25.8	24.7	25.2
16	23.0	22.4	22.7	28.7	27.6	28.1	25.0	24.2	24.5	24.7	23.4	24.0
17	23.5	22.6	23.0	29.3	28.2	28.7	24.6	23.8	24.3	23.4	23.0	23.2
18	24.3	23.5	23.9	29.7	28.6	29.2	24.8	23.8	24.3	23.7	22.9	23.3
19	25.0	24.2	24.6	30.1	29.1	29.6	25.0	24.1	24.5	23.8	23.3	23.5
20	25.4	24.7	25.0	29.8	28.8	29.3	25.4	24.4	24.9	23.4	22.8	23.0
21	25.7	25.1	25.3	29.4	28.5	28.9	25.9	24.8	25.4	22.8	22.2	22.5
22	26.7	25.6	26.1	29.8	28.7	29.2	26.4	25.7	26.0	22.5	21.7	22.0
23	26.7	26.1	26.4	29.6	28.9	29.2	27.2	26.2	26.6	21.8	21.1	21.5
24	26.2	25.7	26.1	29.3	28.4	28.9	27.9	26.8	27.3	21.5	21.1	21.3
25	25.8	25.2	25.5	28.9	28.0	28.4	28.3	27.3	27.8	21.4	20.8	21.1
26	26.2	25.5	25.8	28.0	27.5	27.8	28.6	27.7	28.2	21.4	20.6	21.0
27	25.9	25.3	25.5	27.7	27.0	27.4	28.6	27.9	28.3	21.9	21.0	21.4
28	25.9	25.2	25.5	27.3	26.5	26.9	28.8	27.9	28.3	21.7	21.1	21.4
29	26.0	25.6	25.8	26.9	24.9	25.9	28.8	28.2	28.5	21.4	20.7	21.0
30	25.8	25.3	25.6	25.1	24.6	24.9	29.4	28.4	28.9	21.2	20.7	21.0
31	---	---	---	25.5	24.7	25.0	29.3	29.0	29.2	---	---	---
Month	26.7	18.8	22.7	30.1	24.6	27.4	29.4	23.8	26.4	29.3	20.6	24.8

06818000 MISSOURI RIVER AT ST. JOSEPH, MO—Continued



06818000 MISSOURI RIVER AT ST. JOSEPH, MO—Continued

DISSOLVED OXYGEN, WATER, UNFILTERED, MILLIGRAMS PER LITER
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
	October			November			December			January		
1	9.2	8.7	8.9	---	---	---	---	---	---	---	---	---
2	9.3	8.6	8.9	---	---	---	---	---	---	---	---	---
3	9.4	8.8	9.1	---	---	---	---	---	---	---	---	---
4	9.0	8.8	8.9	---	---	---	---	---	---	---	---	---
5	8.9	8.6	8.8	---	---	---	---	---	---	---	---	---
6	9.2	8.7	9.0	---	---	---	---	---	---	---	---	---
7	9.6	9.0	9.3	---	---	---	---	---	---	---	---	---
8	9.9	9.3	9.6	---	---	---	---	---	---	---	---	---
9	10.0	9.6	9.8	---	---	---	---	---	---	---	---	---
10	10.1	9.7	9.9	---	---	---	---	---	---	---	---	---
11	10.2	9.8	10.0	---	---	---	---	---	---	---	---	---
12	10.2	9.9	10.0	---	---	---	---	---	---	---	---	---
13	10.0	9.7	9.9	---	---	---	---	---	---	---	---	---
14	9.9	9.6	9.7	---	---	---	---	---	---	---	---	---
15	9.8	9.4	9.6	---	---	---	---	---	---	---	---	---
16	9.4	9.1	9.2	---	---	---	---	---	---	---	---	---
17	9.7	9.0	9.4	---	---	---	---	---	---	---	---	---
18	9.8	9.3	9.6	---	---	---	---	---	---	---	---	---
19	9.8	9.4	9.7	---	---	---	---	---	---	---	---	---
20	10.1	9.4	9.7	---	---	---	---	---	---	---	---	---
21	10.0	9.5	9.8	---	---	---	---	---	---	---	---	---
22	10.0	9.5	9.7	---	---	---	---	---	---	---	---	---
23	9.8	9.4	9.6	---	---	---	---	---	---	---	---	---
24	9.6	9.1	9.4	---	---	---	---	---	---	---	---	---
25	9.6	9.1	9.4	---	---	---	---	---	---	---	---	---
26	9.9	9.4	9.7	---	---	---	---	---	---	---	---	---
27	10.0	9.5	9.8	---	---	---	---	---	---	---	---	---
28	10.5	9.6	10.0	---	---	---	---	---	---	---	---	---
29	10.7	9.8	10.3	---	---	---	---	---	---	---	---	---
30	10.6	9.9	10.4	---	---	---	---	---	---	---	---	---
31	10.8	10.5	10.6	---	---	---	---	---	---	---	---	---
Month	10.8	8.6	9.6	---	---	---	---	---	---	---	---	---

06818000 MISSOURI RIVER AT ST. JOSEPH, MO—Continued

DISSOLVED OXYGEN, WATER, UNFILTERED, MILLIGRAMS PER LITER
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

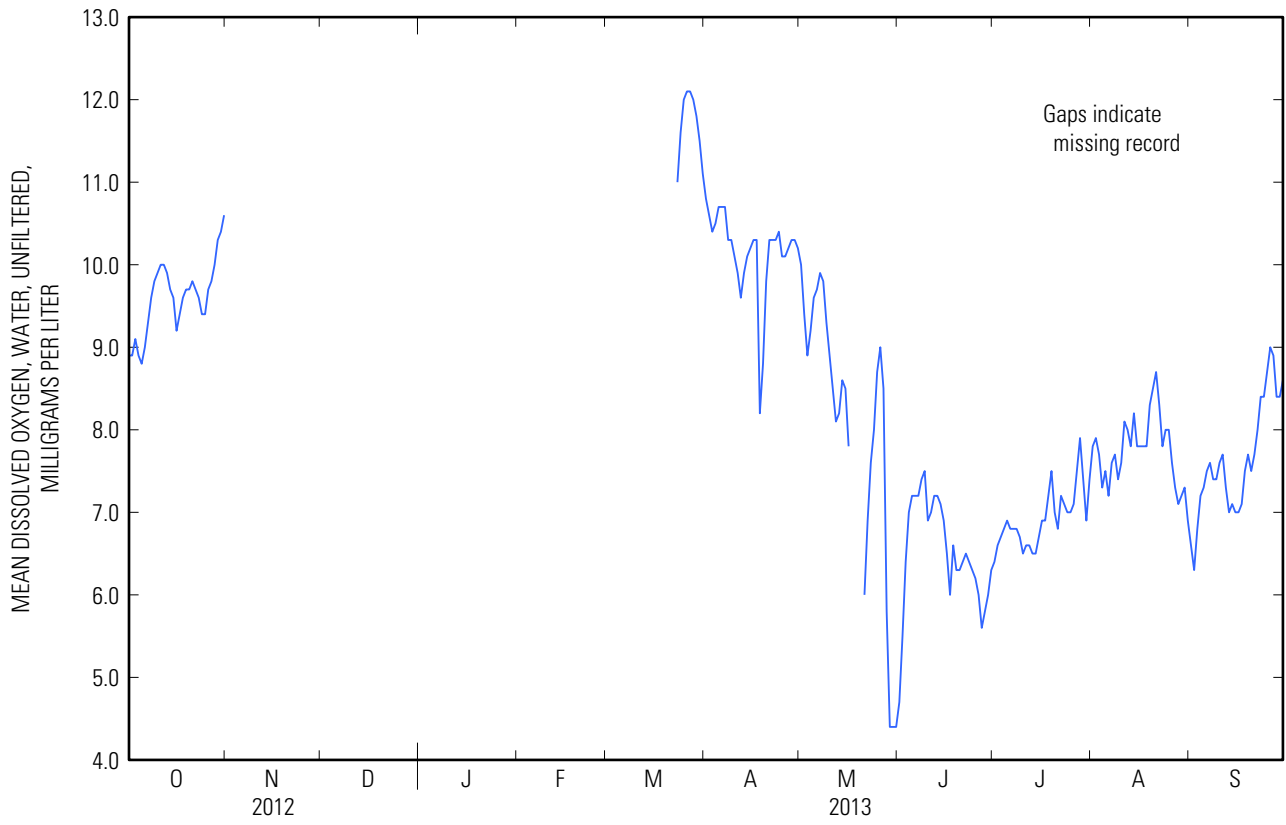
Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
	February			March			April			May		
1	---	---	---	---	---	---	10.9	10.6	10.8	10.6	9.5	10.0
2	---	---	---	---	---	---	10.6	10.5	10.6	9.8	9.1	9.4
3	---	---	---	---	---	---	10.5	10.3	10.4	9.3	8.6	8.9
4	---	---	---	---	---	---	10.6	10.3	10.5	9.5	8.6	9.2
5	---	---	---	---	---	---	10.8	10.5	10.7	9.7	9.4	9.6
6	---	---	---	---	---	---	10.8	10.6	10.7	9.8	9.6	9.7
7	---	---	---	---	---	---	10.8	10.5	10.7	10.0	9.8	9.9
8	---	---	---	---	---	---	10.8	10.0	10.3	9.9	9.6	9.8
9	---	---	---	---	---	---	10.6	10.0	10.3	9.6	9.1	9.3
10	---	---	---	---	---	---	10.3	9.9	10.1	9.2	8.8	8.9
11	---	---	---	---	---	---	10.0	9.8	9.9	8.8	8.0	8.5
12	---	---	---	---	---	---	9.8	9.4	9.6	8.2	8.0	8.1
13	---	---	---	---	---	---	10.1	9.8	9.9	8.5	8.0	8.2
14	---	---	---	---	---	---	10.2	10.0	10.1	8.8	8.4	8.6
15	---	---	---	---	---	---	10.3	10.2	10.2	8.7	8.2	8.5
16	---	---	---	---	---	---	10.4	10.2	10.3	8.3	7.4	7.8
17	---	---	---	---	---	---	10.5	10.2	10.3	7.5	6.6	---
18	---	---	---	---	---	---	10.4	7.1	8.2	---	---	---
19	---	---	---	---	---	---	9.3	8.0	8.8	---	---	---
20	---	---	---	---	---	---	10.1	9.3	9.8	---	6.2	---
21	---	---	---	---	---	---	10.5	10.1	10.3	6.5	5.8	6.0
22	---	---	---	---	---	---	10.4	10.2	10.3	7.6	6.4	6.9
23	---	---	---	11.3	10.8	11.0	10.4	10.2	10.3	7.7	7.5	7.6
24	---	---	---	11.9	11.3	11.6	10.4	10.2	10.4	8.4	7.5	8.0
25	---	---	---	12.1	11.8	12.0	10.2	10.0	10.1	9.0	8.4	8.7
26	---	---	---	12.1	12.0	12.1	10.2	10.0	10.1	9.4	8.8	9.0
27	---	---	---	12.1	12.0	12.1	10.3	10.1	10.2	9.2	7.6	8.5
28	---	---	---	12.1	11.9	12.0	10.6	10.0	10.3	7.9	4.2	5.8
29	---	---	---	11.9	11.7	11.8	10.7	9.8	10.3	4.8	4.1	4.4
30	---	---	---	11.7	11.3	11.5	10.7	9.8	10.2	4.7	4.2	4.4
31	---	---	---	11.3	10.9	11.1	---	---	---	4.5	4.2	4.4
Month	---	---	---	---	---	---	10.9	7.1	10.2	---	---	---

06818000 MISSOURI RIVER AT ST. JOSEPH, MO—Continued

DISSOLVED OXYGEN, WATER, UNFILTERED, MILLIGRAMS PER LITER
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
	June			July			August			September		
1	5.0	4.5	4.7	6.6	6.3	6.4	8.3	7.4	7.8	7.4	6.2	6.6
2	5.9	5.0	5.5	6.7	6.5	6.6	8.3	7.5	7.9	6.6	5.9	6.3
3	6.8	5.9	6.4	6.8	6.5	6.7	8.2	7.0	7.7	7.4	6.5	6.8
4	7.2	6.8	7.0	7.0	6.6	6.8	7.6	6.9	7.3	7.8	6.7	7.2
5	7.3	7.1	7.2	7.1	6.7	6.9	7.9	7.2	7.5	7.9	6.9	7.3
6	7.3	7.1	7.2	7.0	6.7	6.8	7.5	7.0	7.2	8.2	7.0	7.5
7	7.3	7.0	7.2	7.1	6.6	6.8	8.2	7.2	7.6	8.2	7.1	7.6
8	7.5	7.3	7.4	7.0	6.7	6.8	7.9	7.5	7.7	7.7	7.1	7.4
9	7.5	7.2	7.5	6.9	6.5	6.7	7.6	7.1	7.4	8.0	6.9	7.4
10	7.2	6.7	6.9	6.8	6.3	6.5	8.3	7.1	7.6	8.2	7.1	7.6
11	7.1	6.9	7.0	7.0	6.3	6.6	9.0	7.4	8.1	8.2	7.2	7.7
12	7.2	7.0	7.2	6.9	6.2	6.6	8.7	7.5	8.0	7.7	6.8	7.3
13	7.2	7.1	7.2	6.6	6.2	6.5	8.6	7.2	7.8	7.2	6.7	7.0
14	7.2	7.0	7.1	7.0	6.1	6.5	9.2	7.4	8.2	7.6	6.7	7.1
15	7.0	6.7	6.9	7.1	6.3	6.7	8.4	7.5	7.8	7.2	6.8	7.0
16	6.8	6.2	6.5	7.3	6.5	6.9	8.5	7.2	7.8	7.3	6.7	7.0
17	6.4	5.6	6.0	7.4	6.5	6.9	8.3	7.4	7.8	7.4	6.9	7.1
18	6.7	6.4	6.6	8.0	6.5	7.2	8.5	7.2	7.8	8.0	7.0	7.5
19	6.4	6.2	6.3	8.3	6.9	7.5	9.1	7.7	8.3	8.1	7.4	7.7
20	6.4	6.1	6.3	7.6	6.6	7.0	9.3	7.9	8.5	7.8	7.2	7.5
21	6.5	6.3	6.4	7.4	6.2	6.8	9.5	8.0	8.7	8.2	7.4	7.7
22	6.6	6.4	6.5	7.8	6.6	7.2	8.8	7.8	8.3	8.4	7.5	8.0
23	6.6	6.3	6.4	7.5	6.7	7.1	8.5	7.2	7.8	9.0	7.9	8.4
24	6.4	6.1	6.3	7.6	6.5	7.0	8.8	7.2	8.0	8.8	8.0	8.4
25	6.3	6.1	6.2	7.2	6.7	7.0	8.7	7.2	8.0	9.4	8.1	8.7
26	6.2	5.4	6.0	7.7	6.6	7.1	8.2	7.0	7.6	9.6	8.4	9.0
27	5.8	5.3	5.6	8.2	7.0	7.5	7.8	6.9	7.3	9.5	8.3	8.9
28	5.9	5.7	5.8	8.5	7.3	7.9	7.6	6.7	7.1	8.9	8.0	8.4
29	6.2	5.9	6.0	8.0	7.2	7.4	7.6	6.8	7.2	9.0	7.9	8.4
30	6.4	6.1	6.3	7.2	6.5	6.9	7.9	6.8	7.3	9.1	8.1	8.6
31	---	---	---	7.8	7.0	7.4	7.3	6.6	6.9	---	---	---
Month	7.5	4.5	6.5	8.5	6.1	6.9	9.5	6.6	7.7	9.6	5.9	7.6

06818000 MISSOURI RIVER AT ST. JOSEPH, MO—Continued



06818000 MISSOURI RIVER AT ST. JOSEPH, MO—Continued

TURBIDITY, WATER, UNFILT, NEAR IR LED LIGHT, 780-900 NM, DETECT ANG. 90 DEG, FORMAZIN NEPHELOMETRIC UNITS
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
	October			November			December			January		
1	40	33	36	---	---	---	19	15	17	19	14	15
2	42	31	35	---	---	---	19	16	17	18	9.0	13
3	37	30	33	---	---	---	21	16	18	16	11	13
4	34	29	31	---	---	---	23	17	20	17	11	13
5	38	32	34	---	---	---	24	20	22	18	12	15
6	39	31	35	---	---	---	23	19	21	19	12	15
7	37	30	33	---	---	---	22	17	20	20	13	16
8	37	30	33	---	---	---	20	16	17	21	13	17
9	39	31	34	19	16	18	19	16	17	---	---	---
10	42	33	38	20	17	18	19	16	17	---	---	---
11	43	35	38	33	18	21	19	16	17	14	12	13
12	46	34	37	23	19	21	21	17	18	16	13	14
13	57	35	38	24	19	21	19	17	18	16	13	15
14	53	35	40	22	18	20	22	17	19	19	15	16
15	54	40	46	21	18	19	37	18	20	18	14	15
16	67	48	55	22	18	19	22	18	20	15	12	13
17	60	42	50	24	19	22	32	22	27	14	12	13
18	53	41	45	25	20	23	40	27	34	16	12	13
19	54	43	47	23	19	20	32	26	28	15	12	13
20	51	44	47	22	18	20	46	29	34	15	12	13
21	62	46	51	22	17	19	34	27	30	15	11	13
22	67	51	59	21	16	18	28	23	25	14	12	13
23	110	62	80	21	17	18	25	22	24	---	---	---
24	160	100	130	20	15	17	25	20	22	---	---	---
25	170	140	150	19	15	17	22	19	20	---	---	---
26	---	---	---	18	15	16	20	12	15	---	---	---
27	---	---	---	17	13	15	18	11	13	---	---	---
28	---	---	---	18	14	15	14	9.0	12	10	8.1	8.6
29	---	---	---	20	15	18	16	9.0	12	11	9.0	9.7
30	---	---	---	19	15	17	22	9.0	14	14	10	12
31	---	---	---	---	---	---	20	13	16	13	11	12
Month	---	---	---	---	---	---	46	9.0	20	---	---	---

06818000 MISSOURI RIVER AT ST. JOSEPH, MO—Continued

TURBIDITY, WATER, UNFILT, NEAR IR LED LIGHT, 780-900 NM, DETECT ANG. 90 DEG, FORMAZIN NEPHELOMETRIC UNITS
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

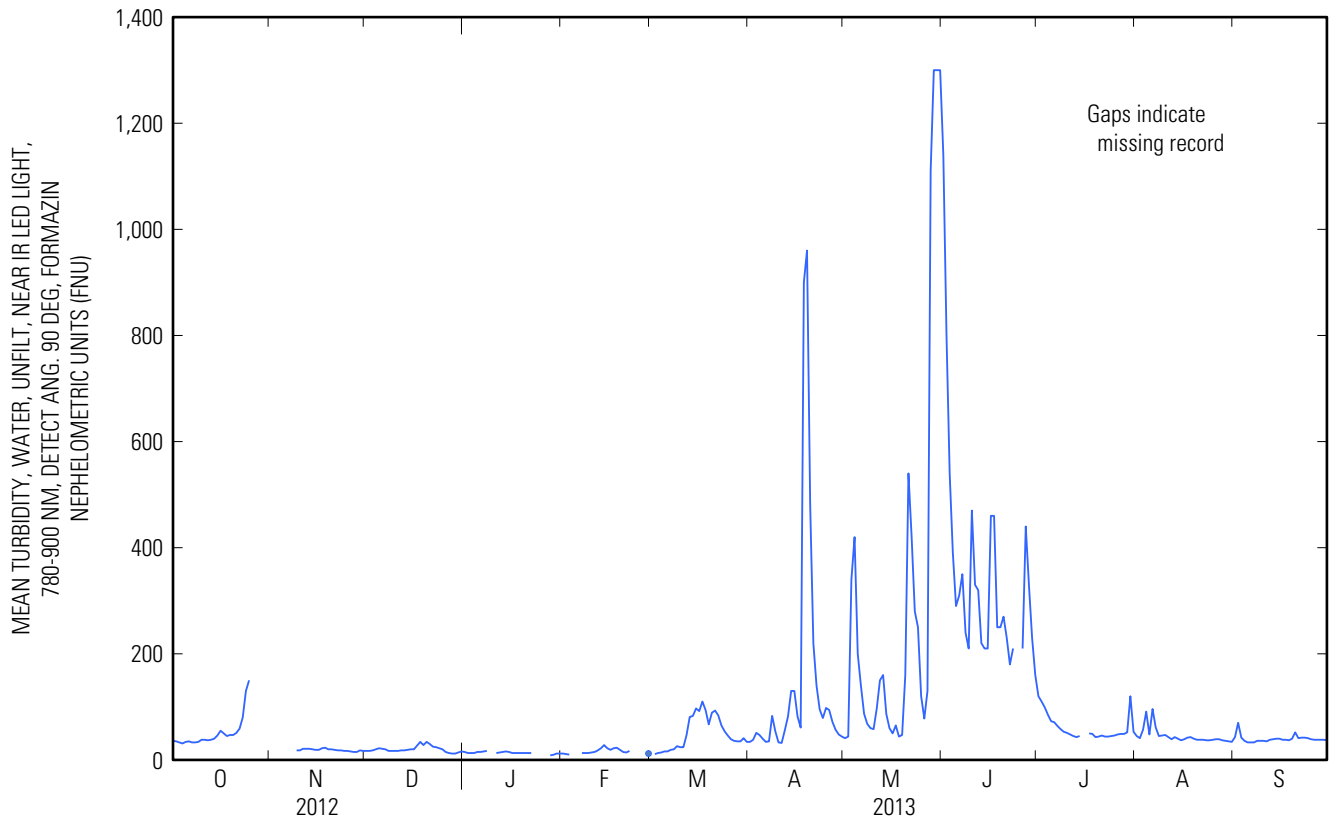
Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
	February			March			April			May		
1	12	11	12	---	---	---	37	31	34	58	37	41
2	13	10	11	13	10	11	46	33	38	53	38	44
3	12	10	10	13	12	13	59	43	51	610	48	340
4	---	---	---	18	12	14	53	40	47	580	280	420
5	---	---	---	18	14	16	44	34	40	280	150	200
6	---	---	---	18	14	16	37	30	34	170	100	140
7	15	12	13	21	17	19	220	29	35	120	71	87
8	14	12	13	22	19	20	220	31	83	88	56	68
9	14	12	13	92	18	26	120	32	54	73	53	60
10	16	13	14	30	20	24	46	30	33	74	51	58
11	17	13	15	34	21	24	35	27	32	130	60	97
12	20	16	18	61	34	47	75	32	56	220	110	150
13	27	19	22	92	59	81	120	58	82	220	110	160
14	29	25	28	88	80	83	150	110	130	110	64	87
15	25	19	22	110	84	97	150	98	130	70	48	60
16	21	18	19	100	85	92	100	66	82	68	44	50
17	25	20	22	120	91	110	100	51	61	98	43	65
18	26	20	23	120	72	94	1,120	53	900	69	36	44
19	21	16	19	73	63	67	1,120	700	960	120	37	47
20	17	13	15	100	68	89	700	300	480	490	60	160
21	16	14	14	100	87	93	300	160	220	680	360	540
22	18	15	17	90	73	84	170	110	140	510	290	420
23	---	---	---	78	53	65	110	81	95	340	230	280
24	---	---	---	58	47	54	93	71	79	340	160	250
25	---	---	---	53	41	46	110	80	98	170	82	120
26	---	---	---	44	33	39	110	79	94	93	60	78
27	---	---	---	38	32	36	82	60	72	410	64	130
28	13	11	12	41	32	35	63	48	57	1,310	380	1,110
29	---	---	---	37	32	35	58	43	48	1,310	1,300	1,300
30	---	---	---	220	32	41	54	38	44	1,310	1,300	1,300
31	---	---	---	38	32	34	---	---	---	1,300	1,270	1,300
Month	---	---	---	---	---	---	1,120	27	140	1,310	36	300

06818000 MISSOURI RIVER AT ST. JOSEPH, MO—Continued

TURBIDITY, WATER, UNFILT, NEAR IR LED LIGHT, 780-900 NM, DETECT ANG. 90 DEG, FORMAZIN NEPHELOMETRIC UNITS
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
	June			July			August			September		
1	1,290	940	1,140	140	100	120	50	39	45	190	31	43
2	1,050	630	800	120	99	110	45	38	41	91	49	70
3	650	440	540	110	90	99	150	38	57	51	34	42
4	490	320	390	97	69	85	160	53	91	41	31	36
5	390	240	290	82	62	73	54	43	48	38	29	33
6	420	240	310	84	59	71	150	42	96	36	29	33
7	420	270	350	72	57	64	94	45	61	37	29	33
8	280	170	240	77	49	58	48	42	45	81	29	36
9	390	160	210	66	46	53	51	42	46	41	31	36
10	610	340	470	66	44	51	51	43	47	41	33	36
11	370	290	330	64	39	48	46	39	43	39	32	35
12	370	260	320	56	37	45	43	37	39	77	33	38
13	300	160	220	56	34	43	50	38	43	44	33	39
14	290	160	210	61	33	45	43	37	40	45	35	40
15	240	180	210	---	38	---	40	33	37	45	35	40
16	590	180	460	63	42	---	45	33	39	43	35	38
17	540	310	460	63	39	50	48	37	42	43	34	38
18	330	190	250	80	39	49	47	40	43	42	33	37
19	290	220	250	46	40	43	44	35	40	120	32	40
20	310	240	270	48	41	44	41	35	38	65	36	52
21	260	180	230	52	42	46	40	36	38	47	36	41
22	200	150	180	47	38	44	40	35	38	48	36	42
23	260	170	210	47	40	44	40	35	37	46	37	42
24	---	---	---	49	41	45	40	34	37	45	36	41
25	---	120	---	49	43	46	41	35	38	43	35	39
26	500	130	210	52	42	48	42	36	39	42	33	38
27	590	290	440	53	45	49	41	35	39	43	34	38
28	400	280	330	53	45	49	40	34	37	42	34	38
29	310	190	230	87	44	52	39	32	36	41	33	38
30	200	130	160	240	47	120	40	32	35	41	32	37
31	---	---	---	68	46	53	38	31	34	---	---	---
Month	---	---	---	---	33	---	160	31	45	190	29	40

06818000 MISSOURI RIVER AT ST. JOSEPH, MO—Continued



06818000 MISSOURI RIVER AT ST. JOSEPH, MO—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

[e, estimated]

Day	Mean	Mean	Sediment	Mean	Mean	Sediment	Mean	Mean	Sediment
	discharge	concentration	discharge	discharge	concentration	discharge	discharge	concentration	discharge
	(ft ³ /s)	(mg/L)	(tons/day)	(ft ³ /s)	(mg/L)	(tons/day)	(ft ³ /s)	(mg/L)	(tons/day)
	October			November			December		
1	40,300	262	28,500	41,400	e397	e44,500	33,000	208	18,500
2	40,300	261	28,400	41,300	e396	e44,200	30,600	210	17,400
3	40,100	255	27,600	41,200	e394	e43,900	29,200	213	16,800
4	40,100	249	27,000	42,000	e408	e46,300	28,000	218	16,500
5	39,900	259	27,900	41,700	e402	e45,400	26,900	223	16,200
6	39,900	260	28,000	40,700	e385	e42,400	26,500	220	15,700
7	40,600	254	27,800	40,900	e389	e43,000	26,100	217	15,300
8	40,900	255	28,200	41,200	e394	e43,900	25,900	210	14,700
9	41,000	258	28,600	41,500	211	23,600	25,100	209	14,200
10	40,900	268	29,600	41,900	213	24,100	24,200	209	13,700
11	40,200	268	29,100	42,600	220	25,300	23,700	209	13,400
12	40,000	266	28,700	43,300	220	25,700	23,200	211	13,200
13	40,100	269	29,100	43,800	221	26,100	22,100	211	12,600
14	41,300	275	30,700	44,100	217	25,800	20,500	214	11,800
15	43,100	291	33,900	44,000	215	25,500	20,600	216	12,000
16	43,000	316	36,700	43,700	216	25,500	21,000	218	12,400
17	41,700	302	34,000	42,600	222	25,500	21,500	238	13,800
18	41,400	288	32,200	41,900	226	25,600	22,000	257	15,300
19	41,100	296	32,800	41,800	219	24,700	23,200	239	15,000
20	40,800	296	32,600	41,800	217	24,500	23,800	257	16,500
21	41,000	305	38,300	41,700	215	24,200	23,100	246	15,300
22	41,400	e397	e44,500	41,600	212	23,800	22,700	233	14,300
23	40,900	e389	e43,000	42,200	213	24,300	21,500	228	13,200
24	40,800	e387	e42,700	42,500	210	24,100	21,000	224	12,700
25	41,100	e392	e43,600	42,700	208	24,000	21,500	217	12,600
26	41,800	e404	e45,700	42,300	207	23,600	22,200	203	12,200
27	42,500	e416	e47,800	41,500	203	22,700	22,600	198	12,100
28	42,300	e413	e47,200	39,800	205	22,000	21,800	196	11,500
29	41,800	e404	e45,700	37,200	211	21,200	21,300	195	11,200
30	41,600	e401	e45,100	35,000	209	19,800	21,300	201	11,600
31	41,600	e401	e45,100	---	---	---	21,900	205	12,100
Total	1,273,500	---	1,090,100	1,249,900	---	885,200	738,000	---	433,800

06818000 MISSOURI RIVER AT ST. JOSEPH, MO—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

[e, estimated]

Day	Mean discharge (ft ³ /s)	Mean concentration (mg/L)	Sediment discharge (tons/day)	Mean discharge (ft ³ /s)	Mean concentration (mg/L)	Sediment discharge (tons/day)	Mean discharge (ft ³ /s)	Mean concentration (mg/L)	Sediment discharge (tons/day)
	January			February			March		
1	22,400	205	12,400	21,800	194	11,400	20,500	e112	e6,220
2	22,300	198	11,900	21,100	193	11,000	21,500	193	11,200
3	22,000	197	11,700	20,700	190	10,600	22,400	197	11,900
4	21,700	e124	e7,300	20,100	e108	e5,890	23,000	201	12,500
5	21,600	203	11,800	19,000	e98	e5,030	23,100	206	12,800
6	21,700	203	11,900	20,500	e112	e6,220	23,100	206	12,800
7	22,400	207	12,500	23,700	199	12,700	23,600	214	13,600
8	22,000	209	12,400	24,300	198	13,000	23,100	218	13,600
9	21,400	e121	e7,020	23,700	198	12,700	22,900	227	14,000
10	21,700	e124	e7,300	23,000	202	12,500	22,600	230	14,000
11	22,100	198	11,800	23,600	204	13,000	23,500	230	14,600
12	22,700	202	12,400	25,200	212	14,400	25,100	295	20,000
13	22,900	203	12,600	26,700	224	16,100	27,300	390	28,700
14	22,500	207	12,600	25,400	239	16,400	28,000	396	29,900
15	21,700	205	12,000	23,800	222	14,300	28,000	435	32,900
16	21,300	199	11,400	23,900	215	13,900	29,700	423	33,900
17	20,900	198	11,200	24,200	223	14,600	29,800	462	37,200
18	20,800	199	11,200	23,300	226	14,200	29,300	429	33,900
19	21,200	199	11,400	22,200	214	12,800	30,300	351	28,700
20	21,500	198	11,500	21,600	203	11,800	31,000	414	34,700
21	21,100	197	11,200	22,000	202	12,000	29,900	426	34,400
22	20,500	197	10,900	22,100	208	12,400	29,200	398	31,400
23	20,200	e109	e5,970	20,600	e113	e6,310	29,700	346	27,700
24	19,800	e105	e5,650	18,400	e92	e4,600	31,000	314	26,300
25	19,800	e105	e5,650	18,300	e91	e4,530	31,300	292	24,700
26	19,700	e104	e5,570	19,400	e101	e5,330	31,300	272	23,000
27	19,900	e106	e5,730	20,300	e110	e6,060	32,900	262	23,300
28	20,500	e112	e6,220	20,600	e113	e6,310	34,100	260	23,900
29	21,000	188	10,700	---	---	---	34,200	260	24,000
30	21,600	195	11,400	---	---	---	34,600	263	24,600
31	22,000	194	11,500	---	---	---	35,200	259	24,600
Total	662,900	---	314,810	619,500	---	300,080	861,200	---	705,020

06818000 MISSOURI RIVER AT ST. JOSEPH, MO—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

[e, estimated]

Day	Mean discharge (ft ³ /s)	Mean concentration (mg/L)	Sediment discharge (tons/day)	Mean discharge (ft ³ /s)	Mean concentration (mg/L)	Sediment discharge (tons/day)	Mean discharge (ft ³ /s)	Mean concentration (mg/L)	Sediment discharge (tons/day)
	April			May			June		
1	35,600	258	24,800	30,900	279	23,300	114,000	3,410	1,050,000
2	37,100	268	26,800	31,400	285	24,200	92,100	2,430	604,000
3	37,700	305	31,000	46,100	1,130	141,000	77,600	1,710	358,000
4	36,900	295	29,400	49,200	1,350	179,000	66,600	1,260	227,000
5	35,400	273	26,100	45,600	732	90,100	60,400	978	159,000
6	33,800	258	23,500	43,300	548	64,100	60,400	1,040	170,000
7	33,300	253	22,700	40,900	409	45,200	55,600	1,140	171,000
8	33,700	388	35,300	39,000	354	37,300	50,900	830	114,000
9	34,000	314	28,800	37,700	330	33,600	55,300	769	115,000
10	34,600	256	23,900	38,800	326	34,200	64,600	1,500	262,000
11	37,200	251	25,200	41,000	437	48,400	63,100	1,090	186,000
12	41,400	321	35,900	41,600	595	66,800	59,100	1,070	171,000
13	44,900	395	47,900	39,200	616	65,200	59,400	793	127,000
14	40,300	542	59,000	37,400	407	41,100	60,400	770	126,000
15	36,700	516	51,100	36,400	330	32,400	59,300	756	121,000
16	34,800	395	37,100	35,700	302	29,100	69,600	1,470	276,000
17	34,300	334	30,900	35,200	346	32,900	63,900	1,480	255,000
18	62,200	e826	e139,000	34,300	285	26,400	61,300	865	143,000
19	58,900	e749	e119,000	34,900	294	27,700	60,300	871	142,000
20	47,900	1,510	195,000	36,700	616	61,000	57,100	934	144,000
21	43,500	773	90,800	41,100	1,690	188,000	53,500	808	117,000
22	38,900	563	59,100	38,600	1,360	142,000	51,400	662	91,900
23	36,100	432	42,100	36,200	952	93,000	49,300	768	102,000
24	37,100	385	38,600	35,100	885	83,900	49,900	e556	e75,000
25	36,800	438	43,500	35,200	500	47,500	51,900	e597	e83,700
26	34,800	428	40,200	35,700	381	36,700	58,600	766	121,000
27	34,500	364	33,900	40,300	519	56,500	56,800	1,400	215,000
28	33,900	322	29,500	81,000	e1,330	e291,000	57,600	1,090	170,000
29	32,500	298	26,100	117,000	e2,570	e813,000	55,300	808	121,000
30	31,600	286	24,400	121,000	e2,730	e893,000	53,200	622	89,300
31	---	---	---	132,000	e3,200	e1,140,000	---	---	---
						0			
Total	1,150,400	---	1,440,600	1,488,500	---	4,887,600	1,848,500	---	6,106,900

06818000 MISSOURI RIVER AT ST. JOSEPH, MO—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

[e, estimated]

Day	Mean discharge (ft ³ /s)	Mean concentration (mg/L)	Sediment discharge (tons/ day)	Mean discharge (ft ³ /s)	Mean concentration (mg/L)	Sediment discharge (tons/ day)	Mean discharge (ft ³ /s)	Mean concentration (mg/L)	Sediment discharge (tons/ day)
1	51,600	509	70,900	37,900	288	29,500	38,500	268	27,900
2	49,300	469	62,400	37,900	277	28,300	40,300	360	39,200
3	47,500	443	56,800	39,100	323	34,100	39,500	279	29,800
4	46,100	403	50,200	39,000	420	44,200	38,800	262	27,400
5	45,200	369	45,000	37,300	297	29,900	38,400	255	26,400
6	44,200	363	43,300	37,500	435	44,000	38,600	254	26,500
7	43,300	344	40,200	36,300	333	32,600	38,700	254	26,500
8	42,400	326	37,300	35,300	288	27,400	38,600	261	27,200
9	41,600	312	35,000	33,800	291	26,600	38,400	263	27,300
10	41,200	305	33,900	32,100	294	25,500	38,300	264	27,300
11	40,500	298	32,600	31,300	282	23,800	38,200	262	27,000
12	39,600	288	30,800	30,800	273	22,700	38,600	267	27,800
13	38,500	284	29,500	30,900	284	23,700	39,400	272	28,900
14	37,500	288	29,200	30,200	274	22,300	38,600	274	28,600
15	36,800	e321	e32,000	30,100	266	21,600	38,200	276	28,500
16	36,100	e310	e30,300	30,800	272	22,600	38,300	270	27,900
17	35,200	302	28,700	32,600	280	24,600	38,800	269	28,200
18	34,700	300	28,100	33,100	284	25,400	38,700	265	27,700
19	34,200	284	26,200	32,500	275	24,100	39,100	268	28,300
20	34,000	285	26,200	32,300	269	23,500	39,600	309	33,000
21	34,200	291	26,900	32,200	269	23,400	38,800	277	29,000
22	34,800	286	26,900	32,100	268	23,200	38,300	280	29,000
23	35,500	285	27,300	31,700	267	22,900	36,900	281	28,000
24	35,500	290	27,800	31,900	265	22,800	36,300	277	27,100
25	35,600	291	28,000	33,600	269	24,400	36,100	273	26,600
26	35,800	298	28,800	35,400	272	26,000	35,400	269	25,700
27	35,800	300	29,000	36,300	271	26,600	35,100	268	25,400
28	35,900	301	29,200	37,000	266	26,600	35,400	268	25,600
29	36,500	310	30,600	37,100	262	26,200	35,100	268	25,400
30	38,500	495	51,500	37,000	260	26,000	35,200	265	25,200
31	37,800	312	31,800	37,500	259	26,200	---	---	---
Total	1,215,400	---	1,106,400	1,062,600	---	830,700	1,138,200	---	838,400

	Total discharge (ft ³ /s)	Total suspended sediment discharge (tons)
Year	13,308,600	18,939,610