Water-Data Report 2013

06817000 Nodaway River at Clarinda, IA

Missouri-Nishnabotna Basin
West Nodaway Subbasin

LOCATION.--Lat 40°44'35.8", long 95°00'51.1" referenced to North American Datum of 1983, in SE ¼ SE ¼ SW ¼ sec.29, T.69 N., R.36 W., Page County, IA, Hydrologic Unit 10240009, on right bank 500 ft upstream from dam, at eastern edge of Clarinda, 1300 ft downstream from North Branch, 7.8 mi upstream from East Nodaway River, and 12.3 mi upstream from Iowa-Missouri state line.

DRAINAGE AREA.--762 mi^2.

SURFACE-WATER RECORDS

PERIOD OF RECORD.--Discharge records from May 1918 to July 1925 (no winter records), May 1936 to current year. May 1918 to July 1925, monthly mean discharge for some periods published in WSP 1310.

REVISED RECORDS.--WSP 1240: 1918-20 (M), 1921, 1922-25 (M), 1936-38, 1942, 1943-45 (M), 1948. WSP 1440: Drainage area. WSP 1710: 1958, 1959 (P).

GAGE.--Water-stage recorder. Datum of gage is 955.36 ft above National Geodetic Vertical Datum of 1929. Prior to July 5, 1925, and May 28, 1936, to March 26, 1957, non-recording gage, and March 27, 1957, to September 30, 2010, water-stage recorder, all at site 1,500 ft downstream and 1,000 ft below dam. Prior to October 1, 1987, at datum 5.00 ft higher.

COOPERATION.--Average pumpage provided by Clarinda Water Treatment Plant.

REMARKS.--Records good except for estimated daily discharges, which are poor. Clarinda municipal water supply is withdrawn from Nodaway River, 500 ft downstream from gage. Average daily pumpage was 1.65 ft^3/s. U.S. Geological Survey data collection platform with satellite telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1903 reached a stage of 25.4 ft, from high-water mark, discharge not determined.

Suggested citation: U.S. Geological Survey, 2014, Water-resources data for the United States, Water Year 2013: U.S. Geological Survey Water-Data Report WDR-US-2013, site 06817000, accessed at http://wdr.water.usgs.gov/wy2013/pdfs/06817000.2013.pdf

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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	42	48	54	e28	e46	57	92	303	2,440	595	120	66
2	37	51	57	30	63	52	86	2,100	1,750	546	116	58
3	34	49	55	30	50	55	72	3,850	1,380	521	112	44
4	35	49	53	29	39	57	65	2,150	1,170	496	105	42
5	30	53	48	31	43	60	63	1,500	1,470	456	94	44
6	35	53	49	32	52	57	67	1,190	1,480	422	95	42
7	38	49	55	30	69	60	62	957	1,060	389	94	42
8	34	50	51	35	70	63	79	801	946	371	118	43
9	36	50	55	42	86	80	73	808	1,640	355	99	40
10	37	49	28	43	132	464	89	1,850	1,890	345	86	35
11	39	76	33	54	100	506	122	1,150	1,350	316	84	36
12	38	71	45	e40	88	192	191	854	1,130	293	83	40
13	50	62	53	e36	88	134	189	699	953	281	73	33
14	118	58	54	e38	90	134	147	626	868	265	70	35
15	160	52	74	e44	71	128	130	562	5,890	251	100	38
16	106	52	67	50	50	233	120	492	3,140	236	136	58
17	73	54	65	e46	65	224	331	492	1,830	227	105	72
18	61	57	61	54	62	149	3,550	434	1,370	217	84	80
19	58	53	58	61	e28	122	2,920	413	1,150	200	69	75
20	59	55	29	41	27	104	1,290	2,990	990	192	69	108
21	54	51	30	e35	33	90	792	1,530	872	186	69	125
22	88	54	51	e38	33	83	633	887	791	183	62	85
23	110	48	45	e50	44	85	666	700	776	167	61	57
24	78	45	40	e44	55	81	689	579	1,030	154	60	49
25	65	50	36	47	55	72	575	538	2,420	146	60	46
26	58	49	34	37	53	74	485	618	1,320	141	55	44
27	58	36	30	48	54	77	430	2,350	1,000	132	53	39
28	52	43	32	59	58	75	381	8,520	860	126	50	42
29	51	55	e30	77	---	79	355	3,280	749	121	50	43
30	51	55	e29	56	---	86	326	6,710	661	125	48	38
31	53	---	32	43	---	98	---	3,900	---	126	47	---
Total	1,838	1,577	1,433	1,328	1,704	3,831	15,070	53,833	44,376	8,581	2,527	1,599
Mean	59.3	52.6	46.2	42.8	60.9	124	502	1,737	1,479	277	81.5	53.3
Max	160	76	74	77	132	506	3,550	8,520	5,890	595	136	125
Min	30	36	28	28	27	52	62	303	661	121	47	33
Ac-ft	3,650	3,130	2,840	2,630	3,380	7,600	29,890	106,800	88,020	17,020	5,010	3,170
Cfsm	0.08	0.07	0.06	0.06	0.08	0.16	0.66	2.28	1.94	0.36	0.11	0.07
In.	0.09	0.08	0.07	0.06	0.08	0.19	0.74	2.63	2.17	0.42	0.12	0.08

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1919 - 2013, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	195	172	138	133	303	582	576	783	865	436	234	293
Max	2,355	1,602	1,090	853	1,857	2,782	2,450	3,959	6,067	6,778	1,953	3,019
(WY)	(2008)	(1973)	(1993)	(1974)	(1973)	(2010)	(1973)	(2007)	(2008)	(1993)	(1987)	(1972)
Min	7.52	8.27	2.10	6.00	11.3	14.0	14.4	10.3	20.0	17.3	9.81	6.83
(WY)	(1938)	(1938)	(1924)	(1924)	(1940)	(1938)	(1956)	(1939)	(1968)	(1954)	(1936)	(1937)

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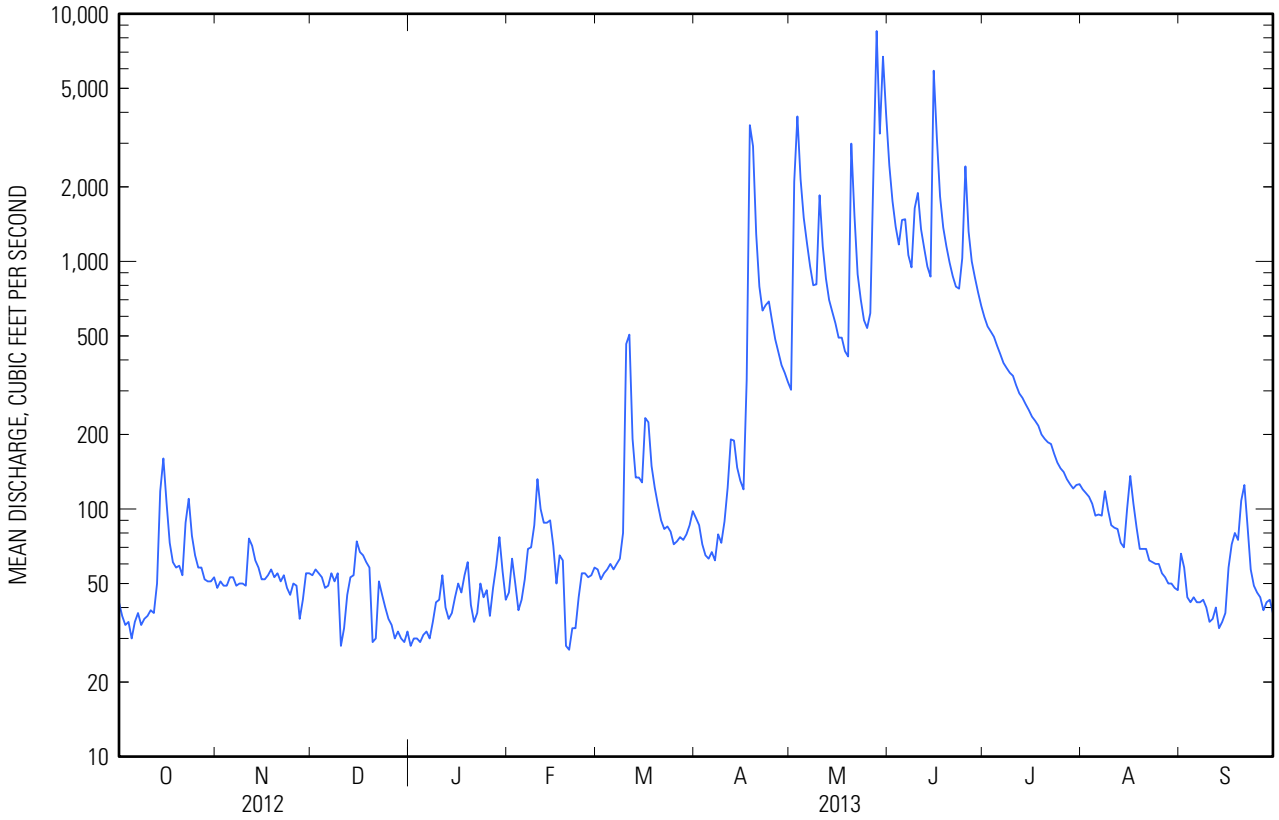
SUMMARY STATISTICS

	Calendar Year 2012		Water Year 2013		Water Years 1919 - 2013	
Annual total	117,733		137,697			
Annual mean	322		377		398	
Highest annual mean					1,577	1993
Lowest annual mean					36.8	1968
Highest daily mean	19,400	Apr 15	8,520	May 28	35,900	Jun 5, 2008
Lowest daily mean	28	Dec 10	27	Feb 20	1.0	Dec 9, 1923[a]
Annual seven-day minimum	32	Dec 25	30	Dec 29	1.3	Dec 25, 1923
Maximum peak flow			14,700	May 28	47,900	Jun 5, 2008
Maximum peak stage			19.15	May 28	26.61	Jun 5, 2008
Instantaneous low flow			[b]6.1	Dec 21		
Annual runoff (ac-ft)	233,500		273,100		288,500	
Annual runoff (cfsm)	0.422		0.495		0.523	
Annual runoff (inches)	5.75		6.72		7.10	
10 percent exceeds	696		1,010		866	
50 percent exceeds	110		70		110	
90 percent exceeds	46		37		22	

[a] Also Dec 27-31, 1923.
[b] Result of freeze-up.



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WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1977-1992, 2008.

PERIOD OF DAILY RECORD.--
NITRATE + NITRITE: May 2012 to current year, records fragmentary.
WATER TEMPERATURE: September 2012 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: Maximum daily mean, 30°C, July 17, 2013; minimum daily mean, -0.1°C, January 27, 2013, February 26, 2013.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURE: Maximum daily mean, 30°C, July 17, 2013; minimum daily mean, -0.1°C, January 27, 2013, February 26, 2013.

NITRATE PLUS NITRITE, WATER, IN SITU, MILLIGRAMS PER LITER AS NITROGEN
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013
DAILY MEAN VALUES

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	0.39	1.33	---	---	---	---	1.77	7.43	11.6	11.6	3.48	0.45
2	0.34	1.31	---	---	---	---	1.66	6.74	12.3	11.3	3.21	0.54
3	0.30	1.24	---	---	---	---	1.49	8.84	12.2	11.1	2.89	0.55
4	0.29	1.26	---	---	---	---	1.30	12.2	12.1	10.9	2.61	0.59
5	0.38	1.16	---	---	---	---	1.11	12.6	11.2	10.7	2.30	0.57
6	0.46	1.14	---	---	---	---	0.91	12.2	9.62	10.4	2.02	0.60
7	0.67	1.13	---	---	---	1.78	0.74	11.7	11.1	10.1	1.72	0.56
8	0.81	1.08	---	---	---	1.72	0.64	11.1	11.3	9.72	1.52	0.54
9	0.78	1.02	---	---	---	1.67	0.61	10.3	9.71	9.35	1.63	0.54
10	0.78	0.97	---	---	---	2.38	0.68	9.45	9.71	9.15	1.32	0.49
11	0.80	0.85	---	---	---	5.42	0.89	11.7	11.0	9.00	1.05	0.46
12	0.73	0.99	---	---	---	5.63	1.20	12.1	11.7	8.82	0.98	0.52
13	0.78	1.16	---	---	---	5.47	2.21	11.7	11.8	8.51	0.92	0.49
14	0.72	1.14	---	---	---	5.14	4.03	11.2	11.6	8.44	0.82	0.42
15	1.16	1.15	---	---	---	4.91	4.89	10.8	6.07	8.26	0.90	0.44
16	1.05	1.13	---	---	---	4.92	4.80	10.2	8.00	8.02	1.14	0.75
17	1.19	1.14	---	---	---	5.10	4.67	9.60	10.7	7.48	1.14	0.94
18	1.03	1.10	---	---	---	5.19	6.80	9.22	11.6	6.97	1.15	0.98
19	0.97	---	---	---	---	4.89	11.2	8.86	11.7	6.58	1.03	0.86
20	1.06	---	---	---	---	4.76	14.1	6.34	11.7	6.35	0.85	0.93
21	1.10	---	---	---	---	4.50	13.5	9.73	11.6	6.06	0.68	1.32
22	1.04	---	---	---	---	4.31	11.8	11.1	11.4	5.78	0.60	1.23
23	1.88	---	---	---	---	4.05	10.8	10.8	11.0	5.54	0.64	1.08
24	1.24	---	---	---	---	3.80	9.83	10.5	9.99	5.39	0.50	0.99
25	0.97	---	---	---	---	3.72	9.92	9.89	8.18	5.17	0.38	0.91
26	0.94	---	---	---	---	3.62	10.0	9.16	10.4	4.89	0.45	0.74
27	1.03	---	---	---	---	3.42	9.65	7.85	11.6	4.58	0.48	0.56
28	1.13	---	---	---	---	3.19	9.11	6.44	11.7	4.29	0.43	0.49
29	1.22	---	---	---	---	2.92	8.58	8.82	11.8	4.01	0.39	0.59
30	1.26	---	---	---	---	2.52	7.98	7.66	11.6	3.85	0.36	0.53
31	1.30	---	---	---	---	2.09	---	9.30	---	3.68	0.35	---
Mean	0.90	---	---	---	---	---	5.56	9.86	10.9	7.61	1.22	0.69
Max	1.88	---	---	---	---	---	14.1	12.6	12.3	11.6	3.48	1.32
Min	0.29	---	---	---	---	---	0.61	6.34	6.07	3.68	0.35	0.42

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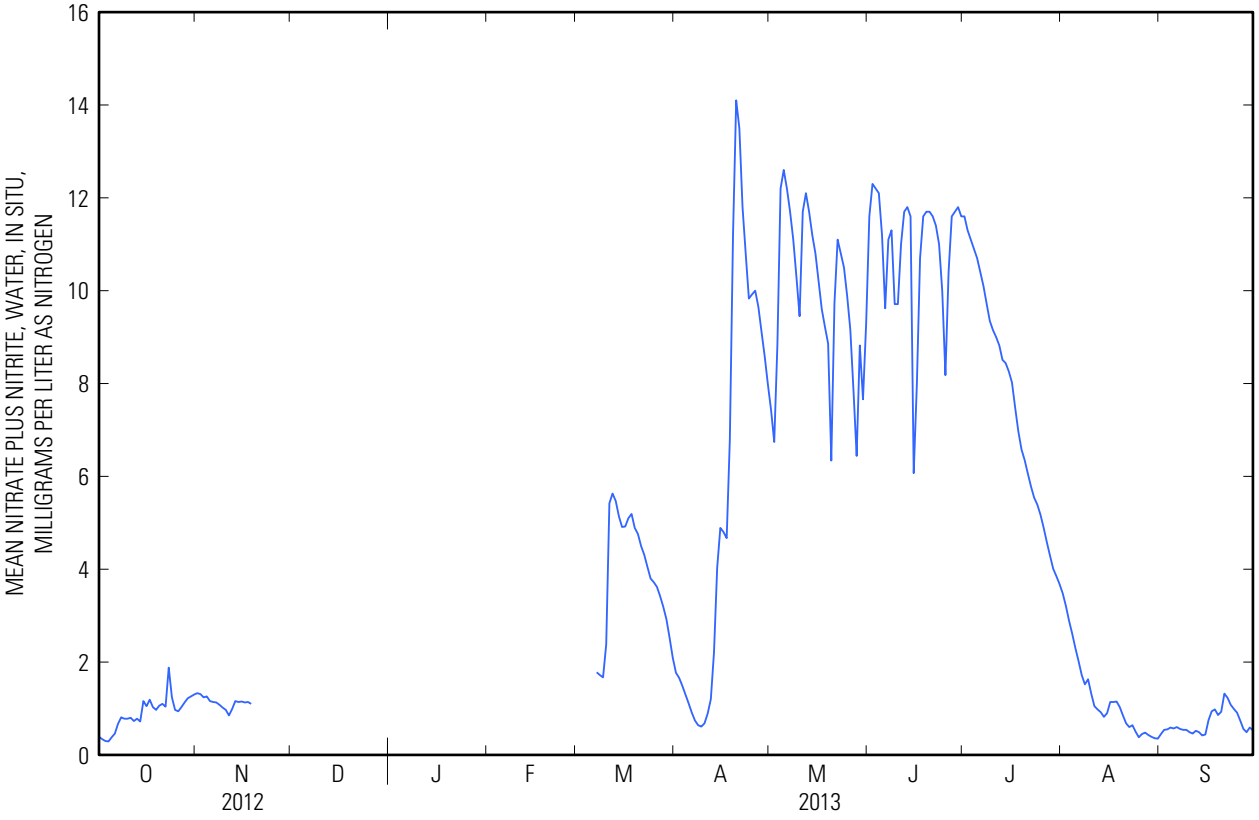

06817000 Nodaway River at Clarinda, IA—Continued

TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013
DAILY MEAN VALUES

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	18.3	9.9	4.7	0.0	0.0	0.2	9.6	15.7	17.4	23.0	26.2	26.3
2	16.9	9.5	7.0	0.0	0.0	0.9	8.8	6.0	15.9	23.5	26.1	25.0
3	16.8	8.7	9.1	0.0	0.1	2.0	9.8	5.7	16.5	23.3	26.2	24.4
4	15.3	8.9	6.7	0.0	0.0	3.9	11.2	5.9	17.3	23.7	24.4	25.7
5	11.6	9.1	4.7	0.1	0.1	2.8	12.5	7.9	17.3	24.5	25.6	25.6
6	8.8	9.1	5.4	0.2	0.1	2.2	14.0	11.7	17.5	25.4	27.6	26.2
7	9.2	8.2	6.2	0.2	0.1	3.7	14.5	16.0	18.5	26.3	28.0	26.8
8	10.5	8.5	4.2	0.2	0.0	5.2	15.1	16.8	18.1	26.5	25.2	28.2
9	10.9	10.4	3.8	0.2	0.2	6.4	16.5	16.6	16.8	28.0	25.2	27.6
10	9.8	14.4	0.5	0.0	0.9	4.3	10.3	15.8	17.8	29.3	25.1	26.1
11	11.2	10.0	0.4	0.1	0.6	0.9	7.1	15.7	19.5	27.1	25.8	26.8
12	10.6	3.4	0.3	0.0	0.9	1.0	5.7	15.2	22.0	26.5	26.6	26.0
13	14.6	3.6	0.5	0.1	2.1	1.5	7.3	16.5	22.5	24.7	25.2	22.3
14	16.6	6.0	0.8	0.1	3.5	5.8	10.3	19.6	21.6	25.8	23.9	20.5
15	14.3	7.0	5.2	0.1	1.2	8.2	9.9	21.5	19.2	27.5	20.9	19.5
16	15.4	6.3	4.5	0.1	0.3	6.2	8.5	22.3	20.1	28.8	20.7	18.0
17	15.4	6.8	2.2	0.1	1.6	4.4	7.7	22.7	22.7	30.0	22.7	18.4
18	10.1	7.8	1.9	0.2	2.6	6.4	5.7	23.3	22.3	29.7	23.7	22.3
19	8.9	9.4	1.3	0.2	0.4	5.1	5.5	22.9	22.5	29.3	24.2	23.6
20	10.8	8.7	0.2	0.0	0.2	4.3	6.3	17.2	24.1	28.5	25.9	20.7
21	14.2	8.8	0.3	0.1	0.0	2.5	9.4	18.3	25.6	27.0	26.4	19.1
22	19.5	10.3	0.2	0.0	0.0	2.4	12.1	17.1	26.2	28.5	26.1	19.8
23	18.5	5.6	0.2	0.0	0.0	2.5	8.6	17.0	24.3	27.0	27.0	19.4
24	19.3	1.6	0.1	0.0	0.1	1.9	8.8	18.6	23.0	26.1	27.4	19.2
25	13.9	2.9	0.2	0.1	0.1	2.1	11.3	19.4	22.3	25.4	27.7	20.7
26	7.9	1.8	0.2	0.1	-0.1	4.2	13.4	20.9	25.0	25.5	28.4	21.6
27	6.9	0.4	0.1	-0.1	0.1	6.0	14.8	18.5	24.2	23.2	28.1	22.0
28	7.9	0.4	0.0	0.0	0.1	8.4	16.5	17.3	24.1	23.1	28.1	20.4
29	8.7	1.5	0.1	0.0	---	11.3	19.0	18.1	23.3	21.0	28.3	17.5
30	7.7	2.4	0.1	0.0	---	12.8	20.6	17.5	22.8	22.3	29.2	17.9
31	8.2	---	0.1	0.0	---	13.0	---	17.7	---	25.3	28.0	---
Mean	12.5	6.7	2.3	0.1	0.5	4.6	11.0	16.6	21.0	26.0	25.9	22.6
Max	19.5	14.4	9.1	0.2	3.5	13.0	20.6	23.3	26.2	30.0	29.2	28.2
Min	6.9	0.4	0.0	-0.1	-0.1	0.2	5.5	5.7	15.9	21.0	20.7	17.5