



Water-Data Report 2011

421653088370901 Local number MARN-09-02

Sand and gravel aquifers (glaciated regions)
Quaternary System

McHenry County, IL

LOCATION.--Lat 42°16'52", long 88°37'09" referenced to North American Datum of 1983, in SE ¼ NE ¼ NW ¼ sec.23, T.44 N., R.5 E., McHenry County, IL, Hydrologic Unit 07090006, 26 feet east of ground-water well MARN-10-04 (421653088370903), 49 feet southwest of River Road, 240 feet west of intersection of River Road and Elizabeth Street, 0.5 miles west of Route 23, 0.3 miles east of Tributary to Kishwaukee River, 1.0 mile north of Kishwaukee River, and 2.3 miles northwest of Marengo. Owner: Illinois State Geological Survey.

GROUNDWATER RECORDS

WELL CHARACTERISTICS.--Depth 110.6 ft. Upper casing diameter undefined; top of first opening 105.3 ft, bottom of last opening 110.3 ft. Well-casing includes 2-inch schedule 40 PVC pipe, 5.5 in. diameter borehole sealed with benseal grout, observation well.

DATUM.--Land-surface datum is 827 ft above North American Vertical Datum of 1988. Measuring point: File mark on top of PVC well casing, 2.82 ft above land-surface datum, September 11, 2009 to present.

PERIOD OF RECORD.--

GROUND-WATER LEVELS: September 2009 to current year. Prior to September 2009, observation well readings available from the Illinois State Geological Survey.

GROUND-WATER QUALITY:

CHEMICAL: Water year 2011.

GAGE.--Water level recorder and satellite telemeter.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 15.64 ft below land-surface datum, May 17, 2010; lowest, 21.09 ft below land-surface datum, February 14, 2011.

EXTREMES FOR CURRENT YEAR.--Water Year 2009: Highest recorded water level, 18.23 ft below land-surface datum, September 11; lowest recorded, 18.77 ft below land-surface datum, September 30.

Water Year 2010: Highest water level, 15.64 ft below land-surface datum, May 17; lowest, 19.06 ft below land-surface datum, October 21.

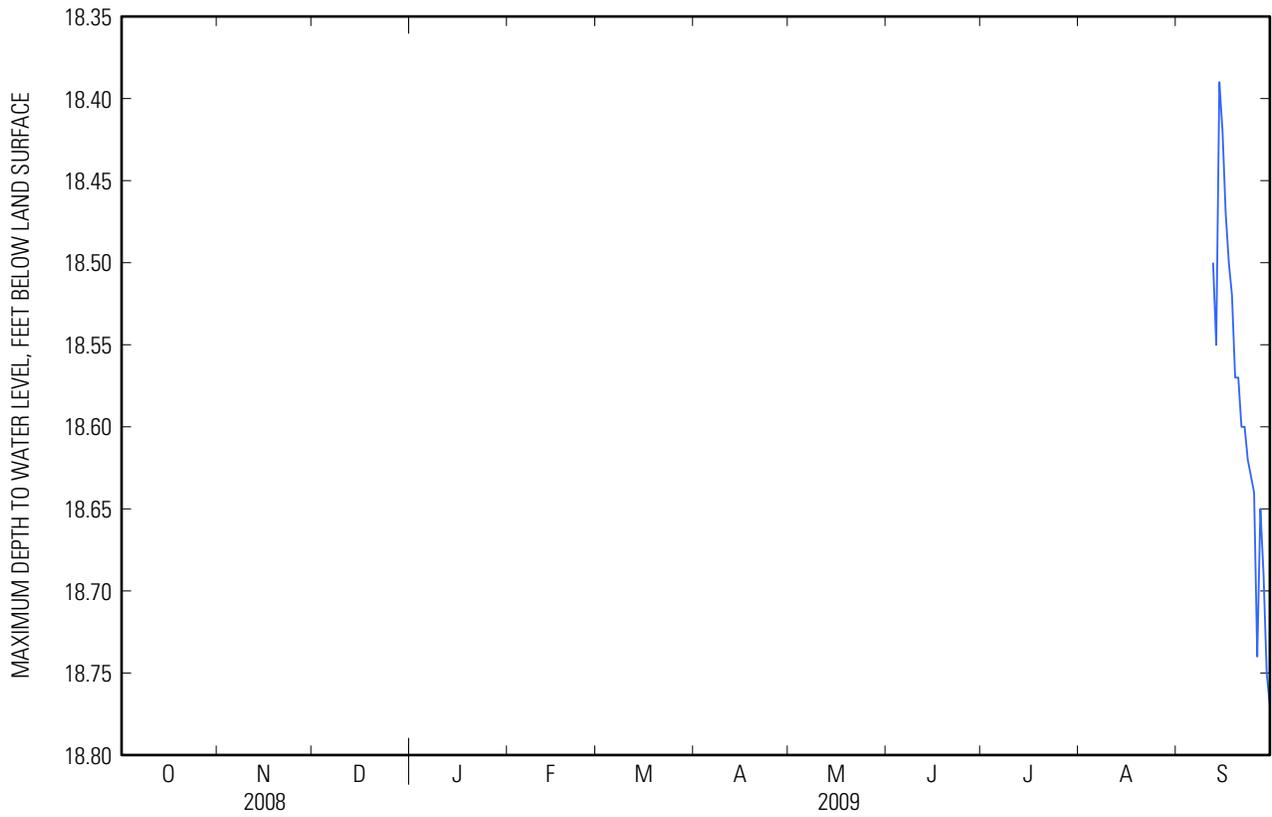
Water Year 2011: Highest water level, 16.75 ft below land-surface datum, May 31; lowest, 21.09 ft below land-surface datum, February 14.

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DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE
WATER YEAR OCTOBER 2008 TO SEPTEMBER 2009
DAILY MAXIMUM VALUES

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	18.50
13	---	---	---	---	---	---	---	---	---	---	---	18.55
14	---	---	---	---	---	---	---	---	---	---	---	18.39
15	---	---	---	---	---	---	---	---	---	---	---	18.42
16	---	---	---	---	---	---	---	---	---	---	---	18.47
17	---	---	---	---	---	---	---	---	---	---	---	18.50
18	---	---	---	---	---	---	---	---	---	---	---	18.52
19	---	---	---	---	---	---	---	---	---	---	---	18.57
20	---	---	---	---	---	---	---	---	---	---	---	18.57
21	---	---	---	---	---	---	---	---	---	---	---	18.60
22	---	---	---	---	---	---	---	---	---	---	---	18.60
23	---	---	---	---	---	---	---	---	---	---	---	18.62
24	---	---	---	---	---	---	---	---	---	---	---	18.63
25	---	---	---	---	---	---	---	---	---	---	---	18.64
26	---	---	---	---	---	---	---	---	---	---	---	18.74
27	---	---	---	---	---	---	---	---	---	---	---	18.65
28	---	---	---	---	---	---	---	---	---	---	---	18.69
29	---	---	---	---	---	---	---	---	---	---	---	18.75
30	---	---	---	---	---	---	---	---	---	---	---	18.77
31	---	---	---	---	---	---	---	---	---	---	---	---
Mean	---	---	---	---	---	---	---	---	---	---	---	---
Max	---	---	---	---	---	---	---	---	---	---	---	---
Min	---	---	---	---	---	---	---	---	---	---	---	---

421653088370901 Local number MARN-09-02—Continued



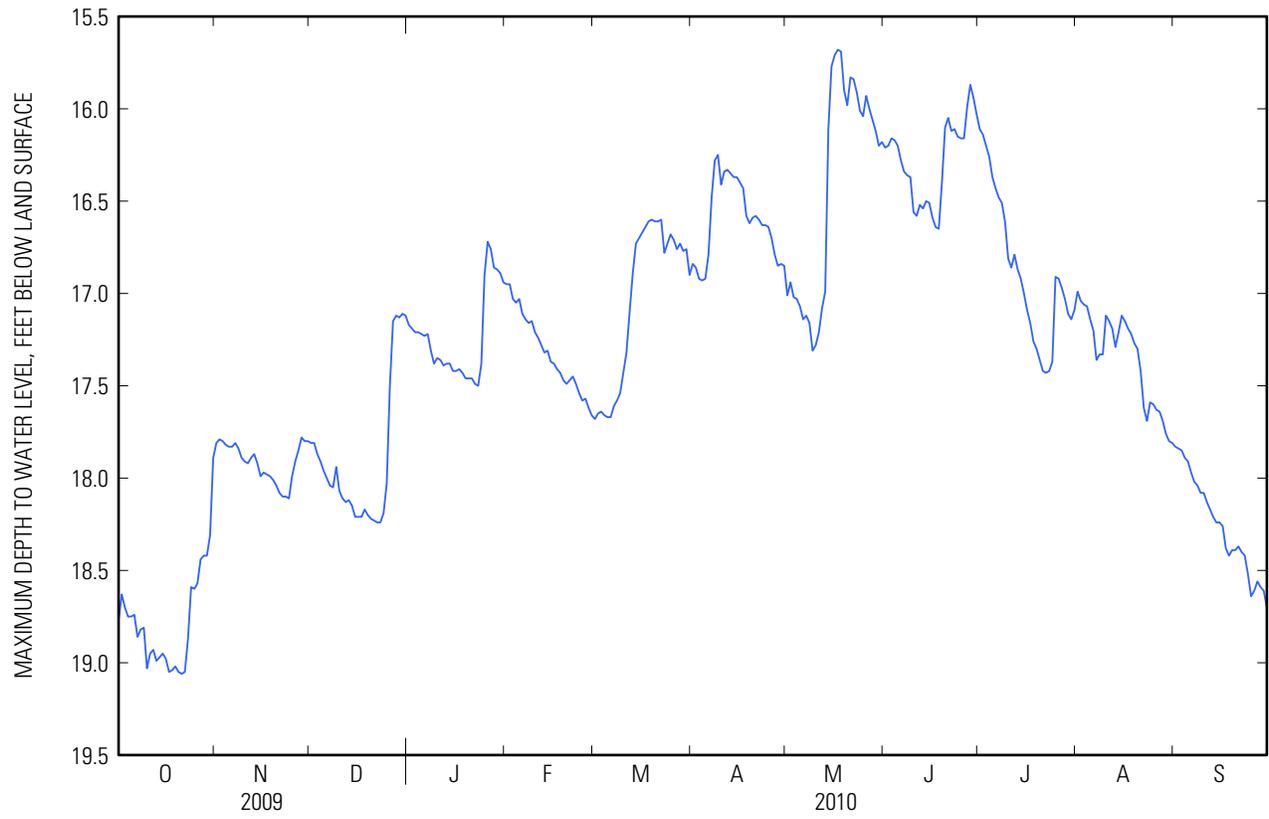
421653088370901 Local number MARN-09-02—Continued

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE
WATER YEAR OCTOBER 2009 TO SEPTEMBER 2010
DAILY MAXIMUM VALUES

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	18.77	17.81	17.81	17.17	16.95	17.68	16.84	17.01	16.21	16.11	16.99	17.83
2	18.63	17.79	17.81	17.19	16.95	17.65	16.86	16.94	16.20	16.14	17.04	17.84
3	18.70	17.80	17.87	17.21	17.03	17.64	16.92	17.02	16.16	16.20	17.06	17.85
4	18.75	17.82	17.91	17.21	17.05	17.66	16.93	17.03	16.17	16.26	17.07	17.89
5	18.75	17.83	17.96	17.22	17.03	17.67	16.92	17.07	16.20	16.37	17.14	17.91
6	18.74	17.83	18.00	17.23	17.11	17.67	16.79	17.14	16.28	16.43	17.20	17.97
7	18.86	17.81	18.04	17.22	17.14	17.61	16.48	17.12	16.34	16.48	17.36	18.02
8	18.82	17.84	18.05	17.31	17.16	17.58	16.28	17.16	16.36	16.51	17.33	18.04
9	18.81	17.89	17.94	17.38	17.15	17.54	16.25	17.31	16.37	16.61	17.33	18.08
10	19.03	17.91	18.07	17.35	17.21	17.43	16.41	17.28	16.56	16.81	17.12	18.08
11	18.95	17.92	18.11	17.36	17.24	17.32	16.34	17.21	16.58	16.86	17.15	18.13
12	18.93	17.89	18.13	17.39	17.28	17.10	16.33	17.08	16.52	16.79	17.19	18.17
13	18.99	17.87	18.12	17.38	17.32	16.89	16.35	16.99	16.54	16.87	17.29	18.21
14	18.97	17.92	18.15	17.38	17.31	16.73	16.37	16.11	16.50	16.92	17.21	18.24
15	18.95	17.99	18.21	17.42	17.37	16.70	16.37	15.77	16.51	17.00	17.12	18.24
16	18.98	17.97	18.21	17.42	17.38	16.67	16.40	15.71	16.59	17.09	17.15	18.26
17	19.05	17.98	18.21	17.41	17.41	16.64	16.43	15.68	16.64	17.16	17.19	18.38
18	19.04	17.99	18.17	17.43	17.43	16.61	16.58	15.69	16.65	17.26	17.22	18.42
19	19.02	18.01	18.20	17.46	17.47	16.60	16.62	15.90	16.40	17.30	17.27	18.39
20	19.05	18.04	18.22	17.46	17.49	16.61	16.59	15.98	16.10	17.36	17.30	18.39
21	19.06	18.08	18.23	17.46	17.47	16.61	16.58	15.83	16.05	17.42	17.42	18.37
22	19.05	18.10	18.24	17.49	17.45	16.60	16.60	15.84	16.12	17.43	17.62	18.40
23	18.87	18.10	18.24	17.50	17.49	16.78	16.63	15.91	16.11	17.42	17.69	18.42
24	18.59	18.11	18.19	17.38	17.54	16.73	16.63	16.01	16.15	17.37	17.59	18.52
25	18.60	17.99	18.03	16.90	17.58	16.68	16.64	16.04	16.16	16.91	17.60	18.64
26	18.57	17.91	17.50	16.72	17.57	16.71	16.70	15.93	16.16	16.92	17.63	18.61
27	18.44	17.85	17.15	16.76	17.62	16.76	16.79	16.00	15.99	16.97	17.64	18.56
28	18.42	17.78	17.12	16.86	17.66	16.73	16.85	16.06	15.87	17.03	17.69	18.59
29	18.42	17.80	17.13	16.87	---	16.77	16.84	16.12	15.94	17.11	17.76	18.61
30	18.31	17.80	17.11	16.89	---	16.76	16.85	16.20	16.03	17.14	17.80	18.70
31	17.89	---	17.12	16.94	---	16.90	---	16.18	---	17.09	17.81	---
Mean	18.77	17.91	17.91	17.24	17.32	17.03	16.61	16.43	16.28	16.88	17.35	18.26
Max	19.06	18.11	18.24	17.50	17.66	17.68	16.93	17.31	16.65	17.43	17.81	18.70
Min	17.89	17.78	17.11	16.72	16.95	16.60	16.25	15.68	15.87	16.11	16.99	17.83

Water Year 2010	
Mean	17.33
High	15.68
Low	19.06

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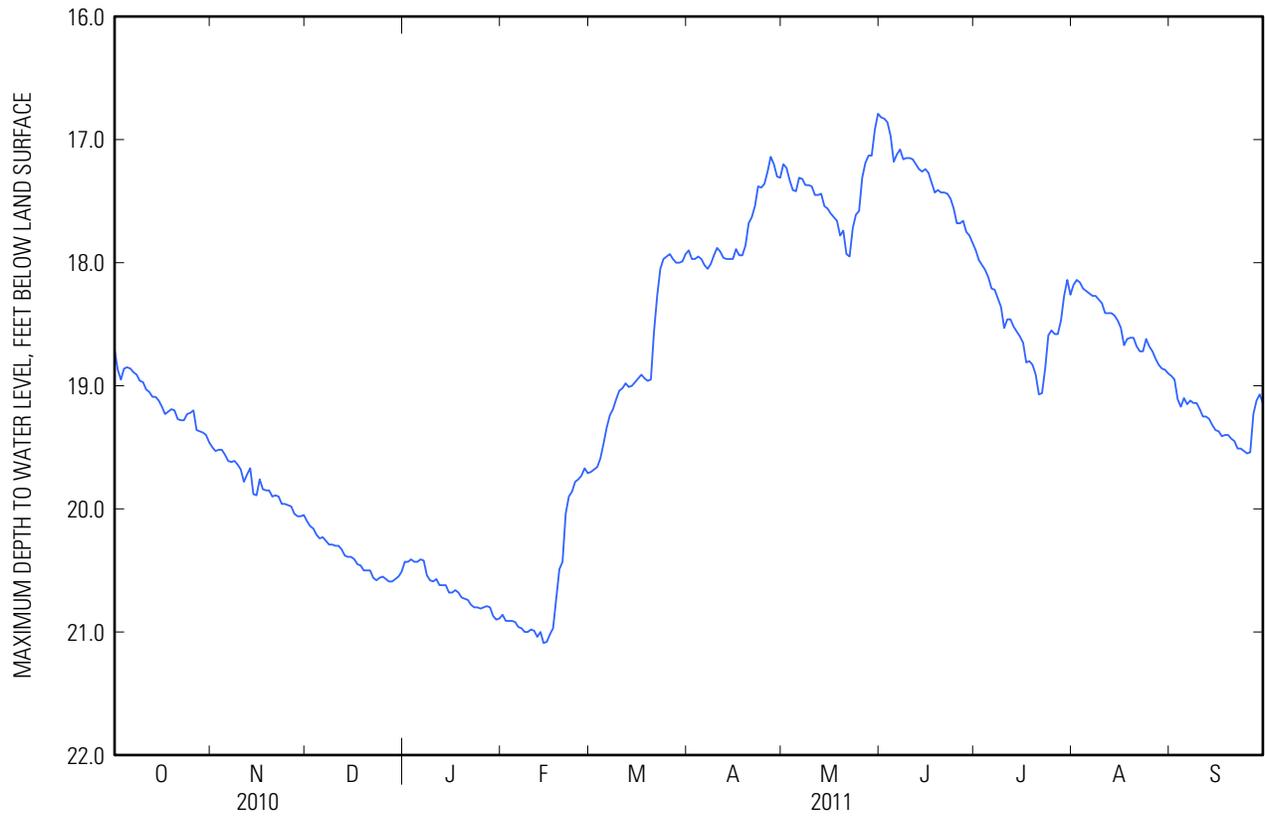
421653088370901 Local number MARN-09-02—Continued

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE
WATER YEAR OCTOBER 2010 TO SEPTEMBER 2011
DAILY MAXIMUM VALUES

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	18.71	19.50	20.10	20.43	20.86	19.70	17.90	17.20	16.82	17.90	18.18	18.92
2	18.87	19.53	20.14	20.43	20.91	19.68	17.97	17.23	16.83	17.98	18.14	18.95
3	18.95	19.52	20.16	20.41	20.91	19.66	17.97	17.33	16.86	18.02	18.16	19.11
4	18.86	19.52	20.21	20.43	20.91	19.59	17.95	17.41	16.97	18.06	18.21	19.17
5	18.85	19.56	20.24	20.43	20.92	19.47	17.97	17.42	17.18	18.12	18.23	19.10
6	18.86	19.61	20.23	20.41	20.96	19.34	18.02	17.31	17.12	18.21	18.25	19.15
7	18.89	19.62	20.26	20.42	20.97	19.24	18.05	17.32	17.08	18.22	18.27	19.12
8	18.91	19.61	20.29	20.54	21.00	19.19	18.01	17.37	17.16	18.29	18.27	19.14
9	18.96	19.64	20.29	20.58	21.00	19.11	17.94	17.37	17.15	18.36	18.30	19.14
10	18.97	19.68	20.30	20.59	20.98	19.04	17.88	17.38	17.15	18.53	18.33	19.19
11	19.03	19.78	20.30	20.57	20.99	19.02	17.91	17.45	17.16	18.46	18.41	19.25
12	19.05	19.72	20.33	20.62	21.04	18.98	17.96	17.45	17.20	18.46	18.41	19.25
13	19.09	19.67	20.38	20.62	21.00	19.01	17.97	17.44	17.24	18.52	18.41	19.27
14	19.09	19.88	20.39	20.62	21.09	19.00	17.97	17.54	17.26	18.56	18.43	19.32
15	19.12	19.89	20.39	20.68	21.08	18.97	17.97	17.56	17.24	18.60	18.47	19.36
16	19.17	19.76	20.41	20.68	21.02	18.94	17.89	17.60	17.27	18.65	18.53	19.37
17	19.23	19.84	20.45	20.66	20.97	18.91	17.94	17.63	17.35	18.81	18.67	19.41
18	19.21	19.85	20.46	20.68	20.73	18.94	17.94	17.66	17.43	18.80	18.62	19.40
19	19.19	19.85	20.50	20.72	20.49	18.96	17.86	17.78	17.41	18.83	18.61	19.40
20	19.20	19.90	20.50	20.73	20.43	18.95	17.68	17.74	17.43	18.91	18.61	19.43
21	19.27	19.89	20.50	20.74	20.04	18.56	17.63	17.93	17.43	19.07	18.68	19.45
22	19.28	19.90	20.56	20.78	19.90	18.27	17.54	17.95	17.44	19.06	18.72	19.51
23	19.28	19.96	20.58	20.80	19.86	18.05	17.38	17.72	17.48	18.86	18.72	19.51
24	19.23	19.96	20.56	20.80	19.78	17.97	17.39	17.61	17.56	18.59	18.62	19.53
25	19.22	19.97	20.55	20.81	19.76	17.95	17.36	17.58	17.68	18.55	18.68	19.55
26	19.20	19.98	20.57	20.80	19.73	17.93	17.26	17.31	17.68	18.58	18.72	19.54
27	19.36	20.04	20.59	20.79	19.67	17.97	17.14	17.19	17.66	18.58	18.78	19.23
28	19.37	20.06	20.59	20.80	19.71	18.00	17.20	17.13	17.75	18.47	18.83	19.12
29	19.38	20.06	20.57	20.87	---	18.00	17.30	17.13	17.78	18.27	18.86	19.07
30	19.40	20.05	20.55	20.90	---	17.99	17.31	16.92	17.84	18.14	18.87	19.14
31	19.46	---	20.51	20.89	---	17.93	---	16.79	---	18.26	18.90	---
Mean	19.12	19.79	20.40	20.65	20.60	18.78	17.74	17.43	17.32	18.47	18.51	19.27
Max	19.46	20.06	20.59	20.90	21.09	19.70	18.05	17.95	17.84	19.07	18.90	19.55
Min	18.71	19.50	20.10	20.41	19.67	17.93	17.14	16.79	16.82	17.90	18.14	18.92

	Calendar Year 2010	Water Year 2011
Mean	17.73	19.00
High	15.68	16.79
Low	20.59	21.09

421653088370901 Local number MARN-09-02—Continued



421653088370901 Local number MARN-09-02—Continued

WATER-QUALITY RECORDS

WATER-QUALITY DATA
WATER YEAR OCTOBER 2010 TO SEPTEMBER 2011

Part 1 of 5

[CaCO₃, calcium carbonate; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO₂, silicon dioxide; mg/L, milligrams per liter; mm Hg, millimeters of mercury; nm, nanometers; °C, degrees Celsius; μS/cm, microsiemens per centimeter; μg/L, micrograms per liter; <, less than; U, analyzed for but not detected]

Sample date-time	Barometric pressure, mm Hg (00025)	Temperature, air, °C (00020)	Dissolved oxygen, water, unfiltered, mg/L (00300)	pH, water, unfiltered, field, standard units (00400)	Specific conductance, water, unfiltered, μS/cm at 25°C (00095)	Temperature, water, °C (00010)	Turbidity, water, unfiltered, broad band light source (400-680 nm), detectors at multiple angles including 90 +/- 30 degrees, ratiometric correction, NTRU (63676)	Depth of well, feet below land surface datum (72008)	Dissolved solids dried at 180°C, water, filtered, mg/L (70300)
10-18-2010 1300	742	16.5	0.0	7.4	683	12.4	1.0	110.60	396

WATER-QUALITY DATA
WATER YEAR OCTOBER 2010 TO SEPTEMBER 2011

Part 2 of 5

[CaCO₃, calcium carbonate; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO₂, silicon dioxide; mg/L, milligrams per liter; mm Hg, millimeters of mercury; nm, nanometers; °C, degrees Celsius; μS/cm, microsiemens per centimeter; μg/L, micrograms per liter; <, less than; U, analyzed for but not detected]

Sample date-time	Calcium, water, filtered, mg/L (00915)	Magnesium, water, filtered, mg/L (00925)	Potassium, water, filtered, mg/L (00935)	Sodium, water, filtered, mg/L (00930)	Alkalinity, water, filtered, fixed endpoint (pH 4.5) titration, laboratory, mg/L as CaCO ₃ (29801)	Bromide, water, filtered, mg/L (71870)	Chloride, water, filtered, mg/L (00940)	Fluoride, water, filtered, mg/L (00950)	Hydrogen sulfide, water, unfiltered, mg/L (71875)
10-18-2010 1300	71.1	39.7	1.85	22.2	391	0.025	1.31	0.42	U

421653088370901 Local number MARN-09-02—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2010 TO SEPTEMBER 2011

Part 3 of 5

[CaCO₃, calcium carbonate; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO₂, silicon dioxide; mg/L, milligrams per liter; mm Hg, millimeters of mercury; nm, nanometers; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; <, less than; U, analyzed for but not detected]

Sample date-time	Silica, water, filtered, mg/L as SiO ₂ (00955)	Sulfate, water, filtered, mg/L (00945)	Sulfide, water, unfiltered, field, milligrams per liter (99119)	Ammonia, water, filtered, mg/L as N (00608)	Nitrate plus nitrite, water, filtered, mg/L as N (00631)	Nitrite, water, filtered, mg/L as N (00613)	Orthophosphate, water, filtered, mg/L as P (00671)	Total nitrogen, water, filtered, analytically determined, mg/L (62854)	Aluminum, water, filtered, µg/L (01106)
10-18-2010 1300	23.6	< .09	0.007	1.59	< .02	< .001	0.035	1.70	< 1.7

WATER-QUALITY DATA
WATER YEAR OCTOBER 2010 TO SEPTEMBER 2011

Part 4 of 5

[CaCO₃, calcium carbonate; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO₂, silicon dioxide; mg/L, milligrams per liter; mm Hg, millimeters of mercury; nm, nanometers; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; <, less than; U, analyzed for but not detected]

Sample date-time	Barium, water, filtered, µg/L (01005)	Beryllium, water, filtered, µg/L (01010)	Cadmium, water, filtered, µg/L (01025)	Chromium, water, filtered, µg/L (01030)	Cobalt, water, filtered, µg/L (01035)	Copper, water, filtered, µg/L (01040)	Iron(II), water, filtered, field, milligrams per liter (99114)	Iron, water, filtered, µg/L (01046)	Lead, water, filtered, µg/L (01049)
10-18-2010 1300	144	< .006	< .016	0.25	0.133	< .50	1.26	1,750	< .015

WATER-QUALITY DATA
WATER YEAR OCTOBER 2010 TO SEPTEMBER 2011

Part 5 of 5

[CaCO₃, calcium carbonate; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO₂, silicon dioxide; mg/L, milligrams per liter; mm Hg, millimeters of mercury; nm, nanometers; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; <, less than; U, analyzed for but not detected]

Sample date-time	Manganese, water, filtered, µg/L (01056)	Molybdenum, water, filtered, µg/L (01060)	Nickel, water, filtered, µg/L (01065)	Silver, water, filtered, µg/L (01075)	Zinc, water, filtered, µg/L (01090)	Antimony, water, filtered, µg/L (01095)	Arsenic, water, filtered, µg/L (01000)	Selenium, water, filtered, µg/L (01145)	Uranium (natural), water, filtered, µg/L (22703)
10-18-2010 1300	29.4	4.15	0.42	< .005	< 1.4	< .027	11.9	< .03	0.017