

Water-Data Report 2011

421914088125301 Local number WAUC-08-13

Sand and gravel aquifers (glaciated regions)
Quaternary System

McHenry County, IL

LOCATION.--Lat 42°19'14", long 88°12'53" referenced to North American Datum of 1983, in NE ¼ NW ¼ SW ¼ sec.5, T.44 N., R.9 E., McHenry County, IL, Hydrologic Unit 07120006, 56 feet northeast of road in Moraine Hills State Park, 309 feet west of Lily Lake Road, 0.4 miles east of Defiance Lake, 1.0 mile southwest of Lakemoor, and 1.9 miles east of Fox River. Owner: Illinois State Geological Survey.

GROUNDWATER RECORDS

WELL CHARACTERISTICS.--Depth 105.3 ft. Upper casing diameter undefined; top of first opening 100 ft, bottom of last opening 105 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 766 ft above North American Vertical Datum of 1988. Measuring point: File mark on top of PVC well casing, 2.58 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, 19.97 ft below land-surface datum, May 18-19, 21-22, 2010; lowest, 21.64 ft below land-surface datum, February 28 and March 2, 2011.

EXTREMES FOR CURRENT YEAR.--Water Year 2009: Highest recorded water level, 20.56 ft below land-surface datum, September 12; lowest recorded, 20.86 ft below land-surface datum, September 29-30.

Water Year 2010: Highest water level, 19.97 ft below land-surface datum, May 18-19, 21-22; lowest, 21.05 ft below land-surface datum, October 20-21 and September 30.

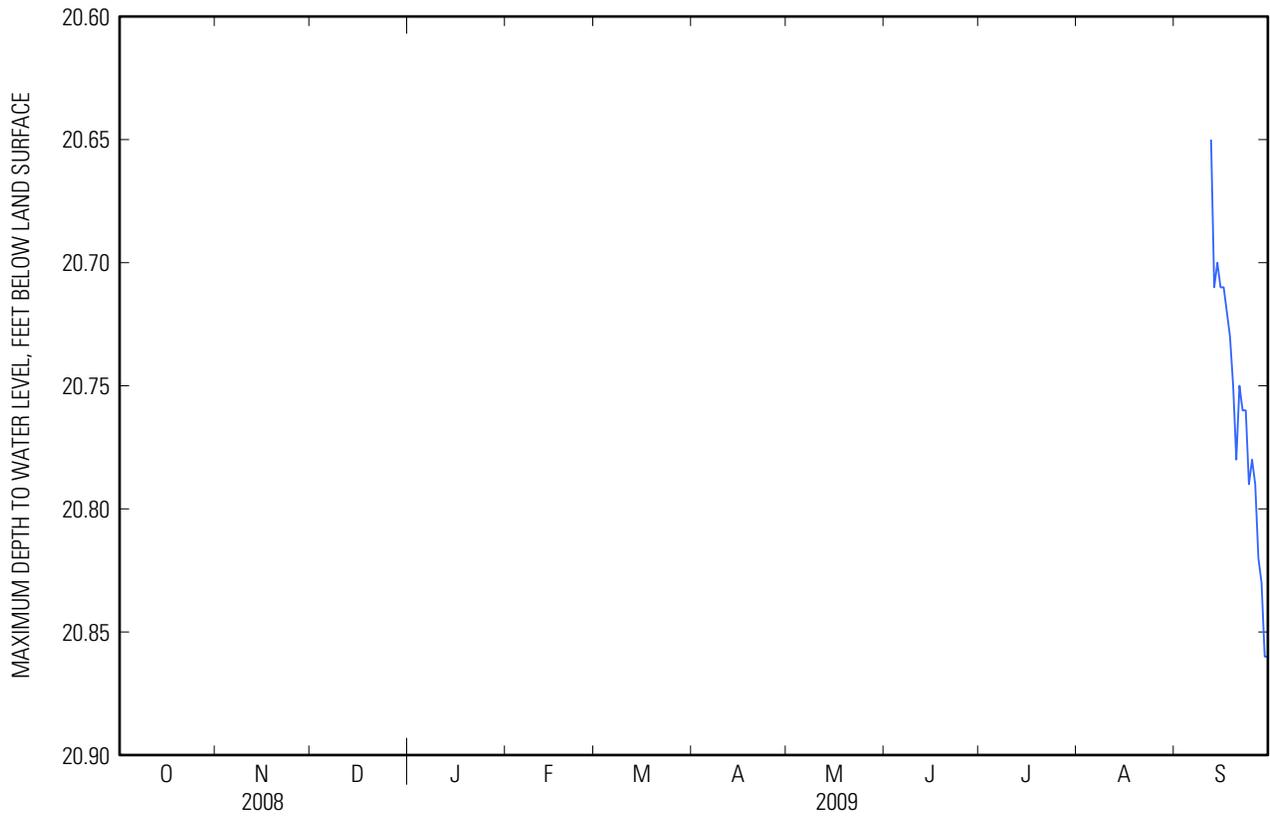
Water Year 2011: Highest recorded water level, 20.07 ft below land-surface datum, May 31, June 3, 11-13 and 16; lowest recorded, 21.64 ft below land-surface datum, February 28 and March 2.

421914088125301 Local number WAUC-08-13—Continued

**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	---	---	---	---	---	---	---	---	---	---	---	20.65
13	---	---	---	---	---	---	---	---	---	---	---	20.71
14	---	---	---	---	---	---	---	---	---	---	---	20.70
15	---	---	---	---	---	---	---	---	---	---	---	20.71
16	---	---	---	---	---	---	---	---	---	---	---	20.71
17	---	---	---	---	---	---	---	---	---	---	---	20.72
18	---	---	---	---	---	---	---	---	---	---	---	20.73
19	---	---	---	---	---	---	---	---	---	---	---	20.75
20	---	---	---	---	---	---	---	---	---	---	---	20.78
21	---	---	---	---	---	---	---	---	---	---	---	20.75
22	---	---	---	---	---	---	---	---	---	---	---	20.76
23	---	---	---	---	---	---	---	---	---	---	---	20.76
24	---	---	---	---	---	---	---	---	---	---	---	20.79
25	---	---	---	---	---	---	---	---	---	---	---	20.78
26	---	---	---	---	---	---	---	---	---	---	---	20.79
27	---	---	---	---	---	---	---	---	---	---	---	20.82
28	---	---	---	---	---	---	---	---	---	---	---	20.83
29	---	---	---	---	---	---	---	---	---	---	---	20.86
30	---	---	---	---	---	---	---	---	---	---	---	20.86
31	---	---	---	---	---	---	---	---	---	---	---	---
Mean	---	---	---	---	---	---	---	---	---	---	---	---
Max	---	---	---	---	---	---	---	---	---	---	---	---
Min	---	---	---	---	---	---	---	---	---	---	---	---

421914088125301 Local number WAUC-08-13—Continued



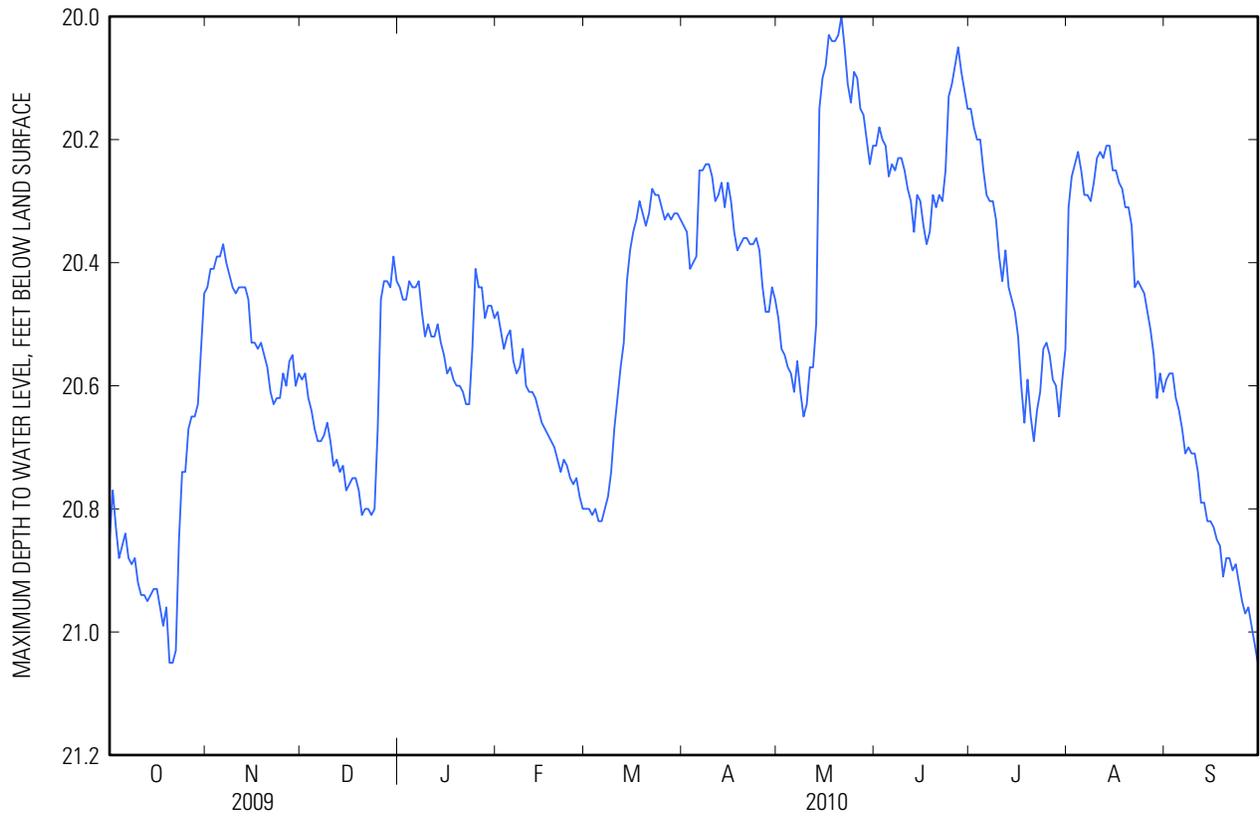
421914088125301 Local number WAUC-08-13—Continued

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	20.85	20.44	20.59	20.44	20.48	20.80	20.34	20.49	20.21	20.15	20.31	20.59
2	20.77	20.41	20.58	20.46	20.51	20.80	20.35	20.54	20.18	20.18	20.26	20.58
3	20.83	20.41	20.62	20.46	20.54	20.81	20.41	20.55	20.20	20.20	20.24	20.58
4	20.88	20.39	20.64	20.43	20.52	20.80	20.40	20.57	20.21	20.20	20.22	20.62
5	20.86	20.39	20.67	20.44	20.51	20.82	20.39	20.58	20.26	20.25	20.25	20.64
6	20.84	20.37	20.69	20.44	20.56	20.82	20.25	20.61	20.24	20.29	20.29	20.67
7	20.88	20.40	20.69	20.43	20.58	20.80	20.25	20.56	20.25	20.30	20.29	20.71
8	20.89	20.42	20.68	20.48	20.57	20.78	20.24	20.61	20.23	20.30	20.30	20.70
9	20.88	20.44	20.66	20.52	20.54	20.74	20.24	20.65	20.23	20.33	20.27	20.71
10	20.92	20.45	20.69	20.50	20.60	20.67	20.26	20.63	20.25	20.39	20.23	20.71
11	20.94	20.44	20.73	20.52	20.61	20.62	20.30	20.57	20.28	20.43	20.22	20.74
12	20.94	20.44	20.72	20.52	20.61	20.57	20.29	20.57	20.30	20.38	20.23	20.79
13	20.95	20.44	20.74	20.50	20.62	20.53	20.27	20.50	20.35	20.44	20.21	20.79
14	20.94	20.46	20.73	20.53	20.64	20.43	20.31	20.15	20.29	20.46	20.21	20.82
15	20.93	20.53	20.77	20.55	20.66	20.38	20.27	20.10	20.30	20.48	20.25	20.82
16	20.93	20.53	20.76	20.58	20.67	20.35	20.30	20.08	20.34	20.52	20.25	20.83
17	20.96	20.54	20.75	20.57	20.68	20.33	20.35	20.03	20.37	20.60	20.27	20.85
18	20.99	20.53	20.75	20.59	20.69	20.30	20.38	20.04	20.35	20.66	20.28	20.86
19	20.96	20.55	20.77	20.60	20.70	20.32	20.37	20.04	20.29	20.59	20.31	20.91
20	21.05	20.57	20.81	20.60	20.72	20.34	20.36	20.03	20.31	20.65	20.31	20.88
21	21.05	20.61	20.80	20.61	20.74	20.32	20.36	20.00	20.29	20.69	20.34	20.88
22	21.03	20.63	20.80	20.63	20.72	20.28	20.37	20.05	20.30	20.64	20.44	20.90
23	20.85	20.62	20.81	20.63	20.73	20.29	20.37	20.11	20.25	20.61	20.43	20.89
24	20.74	20.62	20.80	20.54	20.75	20.29	20.36	20.14	20.13	20.54	20.44	20.92
25	20.74	20.58	20.67	20.41	20.76	20.31	20.38	20.09	20.11	20.53	20.45	20.95
26	20.67	20.60	20.46	20.44	20.75	20.33	20.44	20.10	20.08	20.55	20.48	20.97
27	20.65	20.56	20.43	20.44	20.78	20.32	20.48	20.15	20.05	20.59	20.51	20.96
28	20.65	20.55	20.43	20.49	20.80	20.33	20.48	20.16	20.09	20.60	20.55	20.99
29	20.63	20.60	20.44	20.47	---	20.32	20.44	20.20	20.12	20.65	20.62	21.02
30	20.54	20.58	20.39	20.47	---	20.32	20.46	20.24	20.15	20.59	20.58	21.05
31	20.45	---	20.43	20.49	---	20.33	---	20.21	---	20.54	20.61	---
Mean	20.84	20.50	20.66	20.51	20.64	20.50	20.35	20.30	20.23	20.46	20.34	20.81
Max	21.05	20.63	20.81	20.63	20.80	20.82	20.48	20.65	20.37	20.69	20.62	21.05
Min	20.45	20.37	20.39	20.41	20.48	20.28	20.24	20.00	20.05	20.15	20.21	20.58

Water Year 2010	
Mean	20.51
High	20.00
Low	21.05

421914088125301 Local number WAUC-08-13—Continued

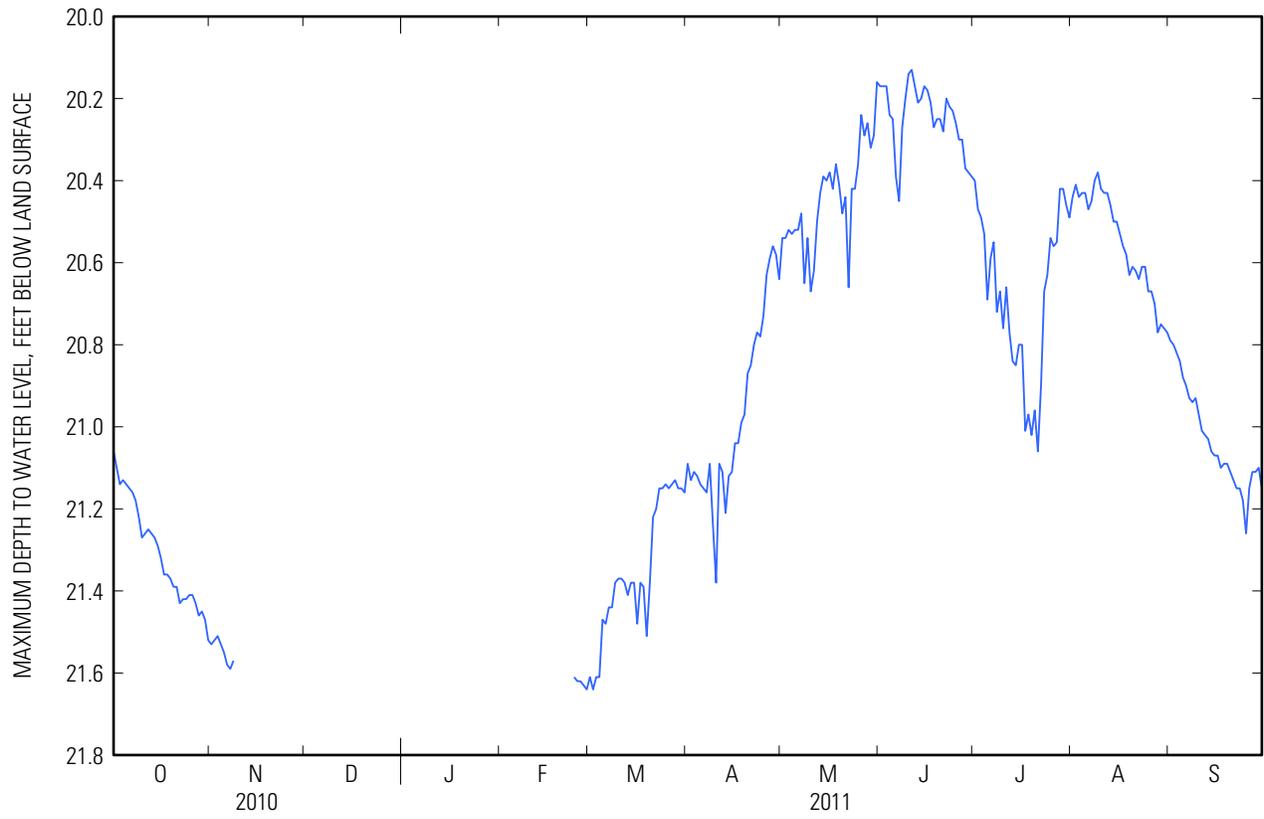


421914088125301 Local number WAUC-08-13—Continued

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	21.06	21.53	---	---	---	21.61	21.09	20.54	20.17	20.40	20.44	20.79
2	21.10	21.52	---	---	---	21.64	21.13	20.54	20.17	20.47	20.41	20.80
3	21.14	21.51	---	---	---	21.61	21.11	20.52	20.17	20.49	20.44	20.82
4	21.13	21.53	---	---	---	21.61	21.12	20.53	20.24	20.53	20.43	20.84
5	21.14	21.55	---	---	---	21.47	21.14	20.52	20.25	20.69	20.43	20.88
6	21.15	21.58	---	---	---	21.48	21.15	20.52	20.39	20.59	20.47	20.90
7	21.16	21.59	---	---	---	21.44	21.16	20.48	20.45	20.55	20.45	20.93
8	21.18	21.57	---	---	---	21.44	21.09	20.65	20.27	20.72	20.40	20.94
9	21.22	---	---	---	---	21.38	21.24	20.54	20.20	20.67	20.38	20.93
10	21.27	---	---	---	---	21.37	21.38	20.67	20.14	20.76	20.42	20.97
11	21.26	---	---	---	---	21.37	21.09	20.62	20.13	20.66	20.43	21.01
12	21.25	---	---	---	---	21.38	21.11	20.50	20.17	20.77	20.43	21.02
13	21.26	---	---	---	---	21.41	21.21	20.43	20.21	20.84	20.46	21.03
14	21.27	---	---	---	---	21.38	21.12	20.39	20.20	20.85	20.50	21.06
15	21.29	---	---	---	---	21.38	21.11	20.40	20.17	20.80	20.50	21.07
16	21.32	---	---	---	---	21.48	21.04	20.38	20.18	20.80	20.53	21.07
17	21.36	---	---	---	---	21.38	21.04	20.42	20.21	21.01	20.56	21.10
18	21.36	---	---	---	---	21.39	20.99	20.36	20.27	20.97	20.58	21.09
19	21.37	---	---	---	---	21.51	20.97	20.41	20.25	21.02	20.63	21.09
20	21.39	---	---	---	---	21.38	20.87	20.48	20.25	20.96	20.61	21.11
21	21.39	---	---	---	---	21.22	20.85	20.44	20.28	21.06	20.62	21.13
22	21.43	---	---	---	---	21.20	20.80	20.66	20.20	20.90	20.64	21.15
23	21.42	---	---	---	---	21.15	20.77	20.42	20.22	20.67	20.61	21.15
24	21.42	---	---	---	21.61	21.15	20.78	20.42	20.23	20.63	20.61	21.18
25	21.41	---	---	---	21.62	21.14	20.73	20.36	20.26	20.54	20.67	21.26
26	21.41	---	---	---	21.62	21.15	20.63	20.24	20.30	20.56	20.67	21.15
27	21.43	---	---	---	21.63	21.14	20.59	20.29	20.30	20.55	20.70	21.11
28	21.46	---	---	---	21.64	21.13	20.56	20.26	20.37	20.42	20.77	21.11
29	21.45	---	---	---	---	21.15	20.58	20.32	20.38	20.42	20.75	21.10
30	21.47	---	---	---	---	21.15	20.64	20.29	20.39	20.46	20.76	21.15
31	21.52	---	---	---	---	21.16	---	20.16	---	20.49	20.77	---
Mean	21.31	---	---	---	---	21.35	20.97	20.44	20.25	20.69	20.55	21.03
Max	21.52	---	---	---	---	21.64	21.38	20.67	20.45	21.06	20.77	21.26
Min	21.06	---	---	---	---	21.13	20.56	20.16	20.13	20.40	20.38	20.79

421914088125301 Local number WAUC-08-13—Continued



421914088125301 Local number WAUC-08-13—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)
10-25-2010 1400	730	22.2	1.0	7.3	766	12.6	0.2	105.30	460

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)
10-25-2010 1400	92.0	47.1	1.48	8.75	385	0.023	3.94	0.23	U

421914088125301 Local number WAUC-08-13—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)
10-25-2010 1400	22.0	48.2	0.005	0.166	< .02	< .001	0.023	0.41	< 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)
10-25-2010 1400	94.7	0.007	< .016	0.12	0.177	1.4	1.26	1,210	< .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)
10-25-2010 1400	38.7	0.501	0.44	< .005	< 1.4	0.027	0.98	< .03	0.151