

01466500 MCDONALDS BRANCH IN BYRNE STATE FOREST, NJ

DELAWARE RIVER BASIN

LOCATION.--Lat 39°53'06", long 74°30'19" referenced to North American Datum of 1983, Woodland Township, Burlington County, NJ, Hydrologic Unit 02040202, on right bank, 25 ft upstream from culvert on Butterworth Road in Brendan T. Byrne State Forest, 3.4 mi upstream from confluence with Cooper Branch, and 7.0 mi southeast of Browns Mills.

DRAINAGE AREA.--2.35 mi².

SURFACE-WATER RECORDS

PERIOD OF RECORD.--October 1953 to current year. Prior to October 1962, published as "McDonald Branch in Lebanon State Forest". October 1962 through September 2003, published as "McDonalds Branch in Lebanon State Forest".

REVISED RECORDS.--WDR NJ-82-2: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 117.73 ft above NGVD of 1929 (levels from New Jersey Geological Survey benchmark).

REMARKS.--Records fair. Gage-height record is collected upstream of concrete control, and discharge record, which includes leakage around control, is measured at site 785 ft downstream. Several measurements of water temperature were made during the year. Satellite telemetry at station.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 7.0 ft³/s and (or) maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Sep 5	2345	*6.4	*1.67

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DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012
DAILY MEAN VALUES

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	2.8	2.5	2.3	2.6	2.3	2.2	1.7	1.6	1.6	1.4	1.3	1.2
2	2.7	2.3	2.2	2.5	2.3	2.2	1.7	1.6	1.6	1.4	1.3	1.2
3	2.5	2.2	2.2	2.4	2.3	2.2	1.7	1.6	1.6	1.4	1.3	1.2
4	2.5	2.1	2.1	2.3	2.2	2.2	1.7	1.6	1.6	1.4	1.3	2.5
5	2.4	2.0	2.0	2.2	2.2	2.1	1.7	1.6	1.6	1.4	1.3	3.9
6	2.2	1.9	2.0	2.2	2.2	2.0	1.7	1.6	1.5	1.3	1.6	5.4
7	2.2	1.9	2.5	2.2	2.1	2.0	1.6	1.6	1.5	1.3	1.5	3.8
8	2.1	1.9	3.6	2.2	2.0	1.9	1.6	1.6	1.5	1.3	1.4	2.9
9	2.1	1.9	3.6	2.2	2.0	1.9	1.6	1.9	1.5	1.3	1.3	2.7
10	2.1	1.9	3.1	2.2	2.0	1.9	1.6	2.1	1.5	1.3	1.4	2.6
11	2.1	1.9	2.7	2.2	2.0	1.9	1.6	1.9	1.5	1.3	1.4	2.3
12	2.1	1.9	2.5	3.1	2.0	1.9	1.6	2.1	1.5	1.3	1.4	2.1
13	2.1	1.8	2.5	3.6	2.0	1.9	1.5	2.0	1.7	1.3	1.3	2.0
14	2.2	1.7	2.3	3.2	2.0	1.9	1.5	1.9	1.7	1.3	1.3	1.9
15	2.2	1.7	2.3	2.8	2.0	1.9	1.5	1.9	1.7	1.3	1.3	1.8
16	2.1	1.8	2.3	2.5	2.0	1.9	1.5	1.9	1.6	1.3	1.3	1.7
17	2.1	1.9	2.2	2.5	2.0	1.8	1.5	1.8	1.5	1.3	1.3	1.7
18	2.0	1.8	2.1	2.5	2.0	1.8	1.5	1.6	1.5	1.3	1.3	1.7
19	2.1	1.8	2.1	2.5	1.9	1.8	1.5	1.6	1.5	1.3	1.2	2.5
20	2.2	1.7	2.0	2.4	1.9	1.8	1.5	1.6	1.4	1.3	1.2	2.2
21	2.0	1.7	2.0	2.3	1.9	1.8	1.5	1.6	1.4	1.3	1.2	2.0
22	2.0	1.9	2.0	2.3	1.9	1.8	1.8	1.6	1.7	1.3	1.2	1.7
23	1.9	3.0	2.9	2.4	1.9	1.8	2.6	1.6	2.1	1.2	1.2	1.7
24	1.9	3.8	3.1	2.6	1.9	1.8	2.1	1.6	1.7	1.2	1.2	1.7
25	1.9	3.3	2.9	2.6	2.0	1.8	1.8	1.8	1.6	1.2	1.2	1.6
26	1.9	2.8	2.6	2.5	1.9	1.8	1.7	1.8	1.5	1.2	1.2	1.6
27	1.9	2.5	2.7	2.6	1.9	1.8	1.7	1.7	1.5	1.3	1.2	1.6
28	1.9	2.3	3.6	2.6	1.9	1.7	1.7	1.7	1.5	1.3	1.2	1.6
29	2.3	2.3	3.4	2.6	2.0	1.7	1.7	1.7	1.5	1.4	1.2	1.6
30	2.8	2.3	3.0	2.4	---	1.7	1.6	1.7	1.4	1.4	1.2	1.6
31	2.8	---	2.8	2.3	---	1.7	---	1.6	---	1.3	1.2	---
Total	68.1	64.5	79.6	77.5	58.7	58.6	50.0	53.5	47.0	40.6	39.9	64.0
Mean	2.20	2.15	2.57	2.50	2.02	1.89	1.67	1.73	1.57	1.31	1.29	2.13
Max	2.8	3.8	3.6	3.6	2.3	2.2	2.6	2.1	2.1	1.4	1.6	5.4
Min	1.9	1.7	2.0	2.2	1.9	1.7	1.5	1.6	1.4	1.2	1.2	1.2
Cfsm	0.93	0.91	1.09	1.06	0.86	0.80	0.71	0.73	0.67	0.56	0.55	0.91
In.	1.08	1.02	1.26	1.23	0.93	0.93	0.79	0.85	0.74	0.64	0.63	1.01

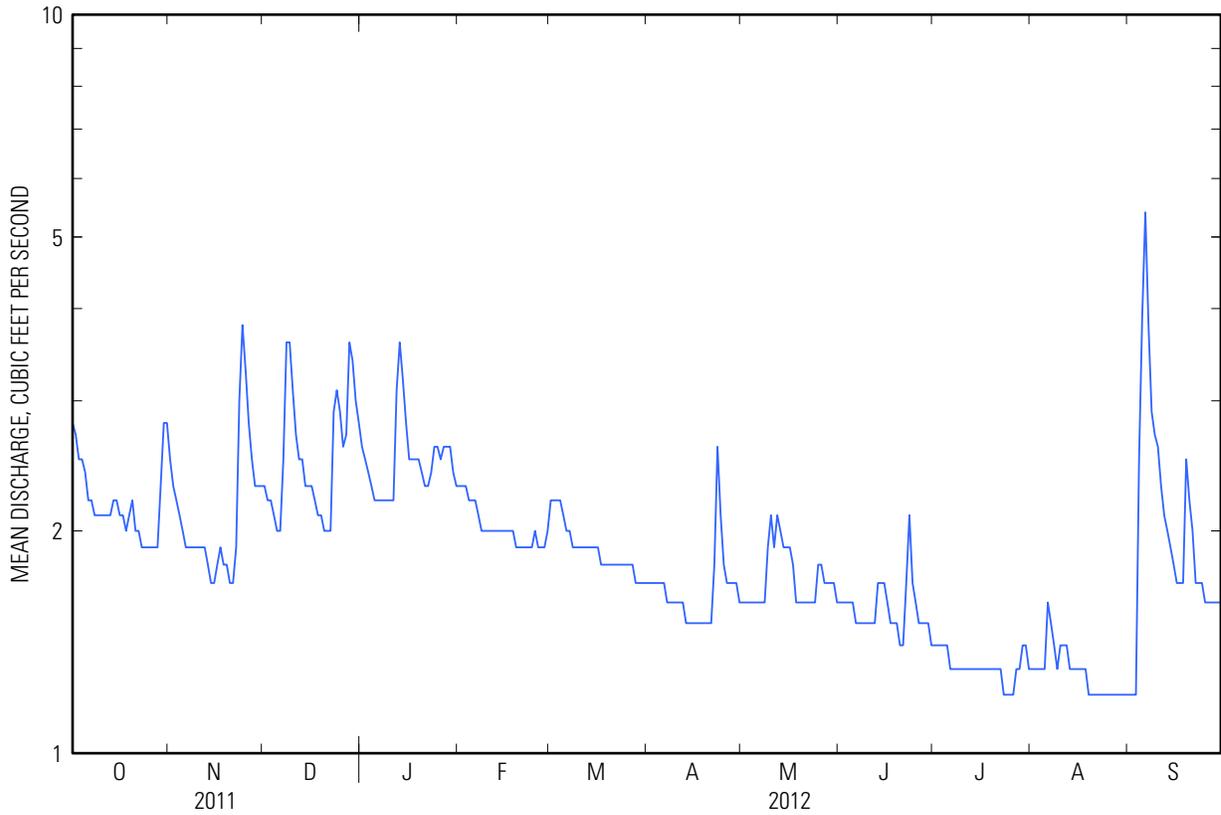
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1954 - 2012, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	1.52	1.68	2.05	2.27	2.37	2.86	2.87	2.55	2.08	1.79	1.74	1.61
Max	4.45	4.82	5.75	4.78	5.69	7.18	5.74	6.86	5.35	4.15	5.65	4.31
(WY)	(1959)	(1973)	(1973)	(1973)	(1973)	(2010)	(1984)	(1998)	(1979)	(1958)	(1958)	(1958)
Min	0.80	0.85	0.87	0.85	0.83	0.94	1.10	1.17	1.05	0.90	0.80	0.71
(WY)	(1996)	(2008)	(2002)	(2002)	(2002)	(2002)	(2002)	(1995)	(1995)	(2002)	(2002)	(1995)

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SUMMARY STATISTICS

	Calendar Year 2011		Water Year 2012		Water Years 1954 - 2012	
Annual total	796.6		702.0			
Annual mean	2.18		1.92		2.11	
Highest annual mean					3.85	1973
Lowest annual mean					0.95	2002
Highest daily mean	31	Aug 28	5.4	Sep 6	31	Aug 28, 2011
Lowest daily mean	1.2	Jan 16	1.2	Many days	0.50	Oct 13, 1995
Annual seven-day minimum	1.3	Jan 11	1.2	Aug 19	0.58	Oct 8, 1995
Maximum peak flow			6.4	Sep 5	61	Aug 28, 2011
Maximum peak stage			1.67	Sep 5	2.54	Aug 28, 2011
Instantaneous low flow			1.2	Many days	0.49	Oct 13, 1995
Annual runoff (cfsm)	0.929		0.816		0.900	
Annual runoff (inches)	12.61		11.11		12.22	
10 percent exceeds	3.0		2.6		3.5	
50 percent exceeds	2.0		1.9		1.8	
90 percent exceeds	1.4		1.3		1.1	



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WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1963-96, 1998 to current year.

PERIOD OF DAILY RECORD.--

DISSOLVED OXYGEN: August 1984 to September 1992, September 2000.

pH: October 1981 to March 1982, May 1984 to September 1992, September 2000.

SPECIFIC CONDUCTANCE: December 1968 to September 1992, September 2000.

WATER TEMPERATURE: October 1960 to September 1992, September 2000, February 2012 to current year.

INSTRUMENTATION.--Electronic data logger with integral water temperature probe since February 2012. Water temperature measurements, in degrees Celsius, recorded at 15-minute intervals.

REMARKS.--The accuracy of continuous water-quality data is routinely verified through inspections for fouling and calibration drift. The New Jersey Water Science Center requires that either constant or prorated adjustments be made to the continuous water-quality record when the difference between a sensor's response and a known value exceeds the following criteria: Water Temperature, 0.2 degrees Celsius (+ or -). Data from the following period(s) were adjusted - none.

Chemical analyses are from samples collected as water flows over the weir at the gaging station. All discharge record represents flow at a point 785 ft downstream of the gaging station. Discharges at the weir may be about 1 ft³/s less than the discharge values in the following water-quality table. Cooperative Network Site Descriptor: Background, NJ Department of Environmental Protection Watershed Management Area 19. Samples on Nov 30, 2011, and Feb 15, May 24, and Aug 29, 2012 were collected as part of the Ambient Surface-Water-Quality Monitoring Network. All other samples were collected as part of the U.S. Geological Survey Hydrologic Benchmark Network.

COOPERATION.--Physical measurements and samples for laboratory analysis were collected in cooperation with the NJ Department of Environmental Protection. Determinations of dissolved ammonia and suspended residue were performed by the NJ Department of Health and Senior Services, Environmental and Chemical Laboratory. Analyses of samples collected as part of the Hydrologic Benchmark Network were performed by the USGS New York Water Science Center Laboratory in Troy, New York and the National Water Quality Laboratory. Continuous records were collected in cooperation with the USGS New York Water Science Center Laboratory in Troy, New York.

EXTREMES FOR PERIOD OF RECORD.--

WATER TEMPERATURE: Maximum, 21.3°C, Sept. 5; minimum, 4.9°C, Feb. 13

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 21.3°C, Sept. 5; minimum, 4.9°C, Feb. 13.

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TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012

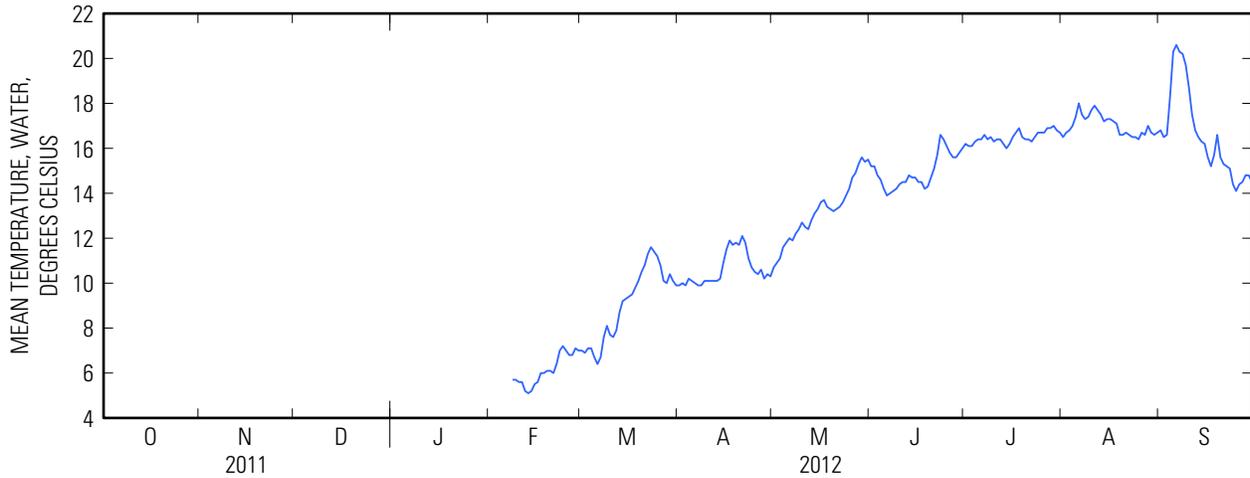
Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
	February			March			April			May		
1	---	---	---	7.2	6.8	7.0	10.2	9.7	9.9	11.2	10.4	10.7
2	---	---	---	7.1	6.7	6.9	10.8	9.7	10	11.0	10.8	10.9
3	---	---	---	7.4	6.9	7.1	10.9	9.3	9.9	11.3	10.9	11.1
4	---	---	---	7.4	6.8	7.1	10.9	9.8	10.2	12.9	11.1	11.6
5	---	---	---	7.1	6.4	6.7	11.1	9.5	10.1	11.9	11.6	11.8
6	---	---	---	6.9	6.2	6.4	11.0	9.5	10	13.1	11.6	12.0
7	---	---	---	7.3	6.3	6.7	10.9	9.3	9.9	13.5	11.4	11.9
8	5.9	5.5	5.7	8.2	7.0	7.6	11.1	9.2	9.9	13.4	11.8	12.2
9	5.9	5.4	5.7	8.5	7.9	8.1	11.0	9.8	10.1	12.6	12.2	12.4
10	5.8	5.3	5.6	8.2	7.4	7.7	10.8	9.7	10.1	13.7	12.4	12.7
11	5.7	5.5	5.6	8.2	7.2	7.6	11.0	9.7	10.1	13.8	12.1	12.5
12	5.5	5.0	5.2	8.5	7.4	7.9	10.8	9.8	10.1	13.6	11.8	12.4
13	5.4	4.9	5.1	9.3	8.2	8.7	11.2	9.3	10.1	13.5	12.3	12.8
14	5.4	5.0	5.2	9.8	8.9	9.2	11.4	9.4	10.2	13.4	12.9	13.1
15	5.7	5.3	5.5	9.4	9.1	9.3	11.9	10.4	10.9	13.5	13.2	13.3
16	5.7	5.3	5.6	9.6	9.3	9.4	12.6	10.9	11.5	14.1	13.4	13.6
17	6.3	5.7	6.0	10.2	9.1	9.5	12.9	11.4	11.9	14.7	13.3	13.7
18	6.3	5.6	6.0	10.5	9.5	9.8	11.9	11.4	11.7	14.6	12.9	13.4
19	6.3	5.8	6.1	10.9	9.6	10.1	13.0	11.4	11.8	14.6	12.6	13.3
20	6.5	5.8	6.1	11.1	10.2	10.5	12.3	11.0	11.7	14.1	12.7	13.2
21	6.4	5.6	6.0	11.0	10.6	10.8	12.9	11.7	12.1	13.4	13.2	13.3
22	6.8	6.0	6.4	11.9	10.9	11.3	12.1	11.3	11.8	13.6	13.2	13.4
23	7.4	6.6	7.0	12.3	11.2	11.6	11.4	10.7	11.1	14.0	13.4	13.6
24	7.3	7.1	7.2	11.6	11.2	11.4	11.2	10.4	10.7	15.0	13.6	13.9
25	7.3	6.8	7.0	11.3	10.9	11.2	11.0	10.0	10.5	14.8	13.8	14.2
26	7.2	6.5	6.8	11.5	10.2	10.8	10.7	10.0	10.4	15.7	14.4	14.7
27	7.4	6.4	6.8	10.9	9.6	10.1	11.2	10.2	10.6	15.6	14.6	14.9
28	7.5	6.8	7.1	10.6	9.5	10.0	10.6	9.8	10.2	16.6	14.9	15.3
29	7.1	6.8	7.0	10.9	10.1	10.4	11.5	9.9	10.4	16.8	15.1	15.6
30	---	---	---	11.1	9.6	10.1	11.3	9.6	10.3	15.5	15.2	15.4
31	---	---	---	10.0	9.8	9.9	---	---	---	16.8	15.1	15.5
Month	---	---	---	12.3	6.2	9.1	13.0	9.2	10.6	16.8	10.4	13.2

01466500 MCDONALDS BRANCH IN BYRNE STATE FOREST, NJ—Continued

TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
	June			July			August			September		
1	15.7	14.8	15.2	17.9	15.6	16.2	16.9	16.3	16.5	18.7	16.2	16.8
2	16.7	14.6	15.2	17.8	15.7	16.1	18.5	16.2	16.7	16.8	16.3	16.5
3	15.6	14.3	14.8	17.7	15.5	16.1	18.1	16.4	16.8	16.9	16.4	16.6
4	15.4	14.3	14.6	17.9	15.7	16.3	18.6	16.5	17.0	19.8	16.5	18.3
5	14.5	13.9	14.2	18.1	16.0	16.4	19.2	16.7	17.4	21.3	19.7	20.3
6	14.8	13.3	13.9	18.4	15.9	16.4	19.3	17.2	18.0	21.2	20.3	20.6
7	15.2	13.6	14.0	18.1	16.0	16.6	18.2	17.2	17.5	20.6	20.0	20.3
8	15.6	13.5	14.1	17.0	16.2	16.4	17.8	17.1	17.3	20.6	20.0	20.2
9	16.0	13.7	14.2	18.0	16.1	16.5	18.9	17.0	17.4	20.2	19.2	19.7
10	15.8	14.0	14.4	17.8	15.9	16.3	18.9	17.1	17.7	19.4	18.0	18.7
11	15.3	14.2	14.5	18.3	15.8	16.4	18.4	17.6	17.9	18.2	17.0	17.5
12	14.8	14.4	14.5	18.4	15.8	16.4	18.7	17.4	17.7	17.6	16.4	16.8
13	14.9	14.7	14.8	16.7	15.8	16.2	19.2	17.0	17.5	17.4	16.1	16.5
14	15.1	14.5	14.7	16.2	15.9	16.0	17.5	16.9	17.2	17.2	15.8	16.3
15	16.2	14.2	14.7	16.9	15.8	16.2	18.3	17.0	17.3	17.1	15.6	16.2
16	16.2	13.9	14.5	18.0	16.1	16.5	19.3	16.8	17.3	16.6	15.2	15.6
17	15.7	14.1	14.5	18.4	16.1	16.7	18.8	16.6	17.2	16.2	14.7	15.2
18	14.9	13.6	14.2	18.5	16.3	16.9	18.6	16.7	17.1	16.5	15.2	15.7
19	14.8	14.1	14.3	16.6	16.4	16.5	17.4	16.1	16.6	17.0	16.0	16.6
20	16.1	14.2	14.7	16.6	16.2	16.4	17.9	16.3	16.6	16.2	15.4	15.6
21	16.5	14.6	15.1	17.8	16.0	16.4	18.8	16.2	16.7	16.1	15.0	15.3
22	16.6	14.9	15.7	17.8	15.7	16.3	18.8	16.1	16.6	15.8	14.8	15.2
23	17.6	16.3	16.6	18.2	15.9	16.5	17.8	15.9	16.5	15.9	14.4	15.1
24	17.6	15.9	16.4	18.6	16.1	16.7	18.6	16.0	16.5	15.3	13.9	14.4
25	16.6	15.9	16.1	18.6	16.0	16.7	16.7	16.1	16.4	15.1	13.4	14.1
26	17.2	15.4	15.8	18.4	16.0	16.7	18.8	16.1	16.7	14.8	14.1	14.4
27	17.4	14.8	15.6	18.3	16.6	16.9	17.1	16.1	16.6	15.1	14.4	14.5
28	17.0	15.0	15.6	17.5	16.5	16.9	18.7	16.5	17.0	15.3	14.5	14.8
29	17.4	15.3	15.8	17.6	16.7	17.0	18.7	16.3	16.7	15.1	14.4	14.8
30	17.8	15.6	16.0	17.9	16.5	16.8	18.7	15.8	16.6	15.4	14.1	14.5
31	---	---	---	17.7	16.4	16.7	19.0	16.1	16.7	---	---	---
Month	17.8	13.3	15.0	18.6	15.5	16.5	19.3	15.8	17.0	21.3	13.4	16.6

01466500 MCDONALDS BRANCH IN BYRNE STATE FOREST, NJ—Continued



WATER-QUALITY DATA
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012

Part 1 of 6

[%, percent; ANC, acid neutralizing capacity; CaCO₃, calcium carbonate; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO₂, silicon dioxide; cm, centimeter; ft³/s, cubic feet per second; 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]

Date	Sample start time	Barometric pressure, mm Hg (00025)	Temperature, air, °C (00020)	Absorbance, UV, 254 nm, 1 cm path length, water, filtered, units per cm (50624)	Absorbance, UV, organic constituents, 280 nm, 1 cm path length, water, filtered, units per cm (61726)	Discharge, instantaneous, ft ³ /s (00061)	Dissolved oxygen, water, unfiltered, mg/L (00300)	Dissolved oxygen, water, unfiltered, % saturation (00301)	pH, water, unfiltered, field, standard units (00400)
11-30-2011	0930	754	8.5	0.552	0.421	2.3	6.9	61	4.8
02-15-2012	1000	762	9.5	.361	.278	2.0	7.9	65	--
05-24-2012	0930	762	21.5	.307	.230	1.6	6.4	63	4.5
08-29-2012	0945	758	19.8	.225	.175	1.2	3.4	35	4.5

01466500 MCDONALDS BRANCH IN BYRNE STATE FOREST, NJ—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012

Part 2 of 6

[%, percent; ANC, acid neutralizing capacity; CaCO₃, calcium carbonate; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO₂, silicon dioxide; cm, centimeter; ft³/s, cubic feet per second; 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]

Date	Sample start time	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)	Dissolved solids dried at 180°C, water, filtered, mg/L (70300)	Dissolved solids, water, filtered, sum of constituents, mg/L (70301)	Hardness, water, mg/L as CaCO ₃ (00900)	Suspended solids, water, unfiltered, mg/L (00530)	Calcium, water, filtered, mg/L (00915)
11-30-2011	0930	47	9.9	0.7	38	< 17	2.87	< 1.0	0.477
02-15-2012	1000	43	5.2	2.7	29	< 17	3.01	< 1.0	.495
05-24-2012	0930	--	13.4	.5	28	< 15	2.69	1.0	.419
08-29-2012	0945	70	15.8	.6	< 20	< 17	2.62	1.0	.407

WATER-QUALITY DATA
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012

Part 3 of 6

[%, percent; ANC, acid neutralizing capacity; CaCO₃, calcium carbonate; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO₂, silicon dioxide; cm, centimeter; ft³/s, cubic feet per second; 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]

Date	Sample start time	Magnesium, water, filtered, mg/L (00925)	Potassium, water, filtered, mg/L (00935)	Sodium, water, filtered, mg/L (00930)	ANC, water, unfiltered, fixed endpoint (pH 4.5) titration, laboratory, mg/L as CaCO ₃ (90410)	Carbon (inorganic plus organic), suspended sediment, total, mg/L (00694)	Chloride, water, filtered, mg/L (00940)	Fluoride, water, filtered, mg/L (00950)	Inorganic carbon, suspended sediment, total, mg/L (00688)	Silica, water, filtered, mg/L as SiO ₂ (00955)
11-30-2011	0930	0.407	0.25	1.94	< 1.74	0.27	3.96	< .04	< .03	4.34
02-15-2012	1000	.430	.25	1.88	< 1.74	1.96	3.52	< .04	< .03	4.03
05-24-2012	0930	.399	.29	2.00	< 1.74	.61	3.35	< .04	< .03	3.58
08-29-2012	0945	.389	1.17	1.93	< 1.74	.46	4.23	< .04	.04	4.79

01466500 MCDONALDS BRANCH IN BYRNE STATE FOREST, NJ—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012

Part 4 of 6

[%, percent; ANC, acid neutralizing capacity; CaCO₃, calcium carbonate; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO₂, silicon dioxide; cm, centimeter; ft³/s, cubic feet per second; 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]

Date	Sample start time	Sulfate, water, filtered, mg/L (00945)	Ammonia plus organic nitrogen, water, filtered, mg/L as N (00623)	Ammonia, water, filtered, mg/L as N (00608)	Nitrate plus nitrite, water, filtered, mg/L as N (00631)	Particulate nitrogen, suspended in water, mg/L (49570)	Phosphorus, water, filtered, mg/L as P (00666)	Phosphorus, water, unfiltered, mg/L as P (00665)	Total nitrogen, water, filtered, mg/L (00602)	Total nitrogen, water, unfiltered, mg/L (00600)
11-30-2011	0930	4.78	0.27	0.006	< .040	< .017	0.006	0.006	< .30	< .32
02-15-2012	1000	5.43	.22	.020	< .040	.092	.005	.010	< .26	< .35
05-24-2012	0930	3.69	.11	.012	< .040	.035	< .004	< .004	< .15	< .19
08-29-2012	0945	3.28	.18	< .010	< .040	.073	.004	.016	< .22	< .29

WATER-QUALITY DATA
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012

Part 5 of 6

[%, percent; ANC, acid neutralizing capacity; CaCO₃, calcium carbonate; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO₂, silicon dioxide; cm, centimeter; ft³/s, cubic feet per second; 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]

Date	Sample start time	Barium, water, unfiltered, recoverable, µg/L (01007)	Beryllium, water, unfiltered, recoverable, µg/L (01012)	Cadmium, water, unfiltered, µg/L (01027)	Chromium, water, unfiltered, recoverable, µg/L (01034)	Copper, water, unfiltered, recoverable, µg/L (01042)	Iron, water, unfiltered, recoverable, µg/L (01045)	Lead, water, unfiltered, recoverable, µg/L (01051)	Manganese, water, unfiltered, recoverable, µg/L (01055)	Mercury, water, unfiltered, recoverable, µg/L (71900)
11-30-2011	0930	--	--	--	--	--	--	--	--	--
02-15-2012	1000	13.3	.03	.038	.33	< .70	276	1.61	11.5	< .005
05-24-2012	0930	--	--	--	--	--	--	--	--	--
08-29-2012	0945	9.4	< .02	.023	< .30	< .70	306	.69	6.95	< .005

01466500 MCDONALDS BRANCH IN BYRNE STATE FOREST, NJ—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012

Part 6 of 6

[%, percent; ANC, acid neutralizing capacity; CaCO₃, calcium carbonate; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO₂, silicon dioxide; cm, centimeter; ft³/s, cubic feet per second; 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]

Date	Sample start time	Nickel, water, unfiltered, recoverable, µg/L (01067)	Silver, water, unfiltered, recoverable, µg/L (01077)	Zinc, water, unfiltered, recoverable, µg/L (01092)	Arsenic, water, filtered, µg/L (01000)	Arsenic, water, unfiltered, µg/L (01002)	Boron, water, unfiltered, recoverable, micrograms per liter (01022)	Selenium, water, unfiltered, µg/L (01147)	Organic carbon, suspended sediment, total, mg/L (00689)	Organic carbon, water, filtered, mg/L (00681)
11-30-2011	0930	--	--	--	--	--	--	--	0.26	12.2
02-15-2012	1000	.45	< .015	7.4	.23	< .28	8	.126	1.96	6.29
05-24-2012	0930	--	--	--	--	--	--	--	.58	6.85
08-29-2012	0945	.42	< .015	3.8	.20	< .28	< 7	.086	.42	4.59

WATER-QUALITY DATA
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012

Part 1 of 10

[µg/L, micrograms per liter; <, less than; E, estimated]

Date	Sample start time	1-Naphthol, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (49295)	2,6-Diethyl-aniline, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (82660)	2-Chloro-2',6'-diethyl-acetanilide, water, filtered, recoverable, µg/L (61618)	2-Chloro-4-amino-6-isopropyl-amino-s-triazine, water, filtered, recoverable, µg/L (04040)	2-Ethyl-6-methyl-aniline, water, filtered, recoverable, µg/L (61620)	3,4-Dichloro-aniline, water, filtered, recoverable, µg/L (61625)	3,5-Di-chloro-aniline, water, filtered, recoverable, µg/L (61627)	4-Chloro-2-methyl-phenol, water, filtered, recoverable, µg/L (61633)	Aceto-chlor, water, filtered, recoverable, µg/L (49260)
05-24-2012	0930	< .0360	< .0060	< .010	E .006	< .010	< .0060	< .006	< .0080	< .010

WATER-QUALITY DATA
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012

Part 2 of 10

[µg/L, micrograms per liter; <, less than; E, estimated]

Date	Sample start time	Alachlor, water, filtered, recoverable, µg/L (46342)	alpha-Endo-sulfan, water, filtered, recoverable, µg/L (34362)	Atrazine, water, filtered, recoverable, µg/L (39632)	Azinphos-methyl oxygen analog, water, filtered, recoverable, µg/L (61635)	Azinphos-methyl, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (82686)	Benfluralin, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (82673)	Carbaryl, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (82680)	Carbofuran, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (82674)
05-24-2012	0930	< .008	< .006	0.006	< .042	< .120	< .014	< .060	< .060

01466500 MCDONALDS BRANCH IN BYRNE STATE FOREST, NJ—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012

Part 3 of 10

[µg/L, micrograms per liter; <, less than; E, estimated]

Date	Sample start time	Chlorpyrifos oxygen analog, water, filtered, recoverable, µg/L (61636)	Chlorpyrifos, water, filtered, recoverable, µg/L (38933)	cis-Permethrin, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (82687)	cis-Propiconazole, water, filtered, recoverable, µg/L (79846)	Cyanazine, water, filtered, recoverable, µg/L (04041)	Cyfluthrin, water, filtered, recoverable, µg/L (61585)	Cypermethrin, water, filtered, recoverable, µg/L (61586)	DCPA, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (82682)	Desulfinyl-fipronil amide, water, filtered, recoverable, µg/L (62169)
05-24-2012	0930	< .08	< .0036	< .010	< .008	< .022	< .016	< .020	< .0076	< .029

WATER-QUALITY DATA
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012

Part 4 of 10

[µg/L, micrograms per liter; <, less than; E, estimated]

Date	Sample start time	Desulfinyl-fipronil, water, filtered, recoverable, µg/L (62170)	Diazinon, water, filtered, recoverable, µg/L (39572)	Dichlorvos, water, filtered, recoverable, µg/L (38775)	Dicrotophos, water, filtered, recoverable, µg/L (38454)	Dieldrin, water, filtered, recoverable, µg/L (39381)	Dimethoate, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (82662)	Disulfoton sulfone, water, filtered, recoverable, µg/L (61640)	Disulfoton, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (82677)	Endosulfan sulfate, water, filtered, recoverable, µg/L (61590)
05-24-2012	0930	< .012	< .0060	< .04	< .08	< .008	< .0100	< .014	< .040	< .016

WATER-QUALITY DATA
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012

Part 5 of 10

[µg/L, micrograms per liter; <, less than; E, estimated]

Date	Sample start time	EPTC, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (82668)	Ethion monoxon, water, filtered, recoverable, µg/L (61644)	Ethion, water, filtered, recoverable, µg/L (82346)	Ethoprop, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (82672)	Fenamiphos sulfone, water, filtered, recoverable, µg/L (61645)	Fenamiphos sulfoxide, water, filtered, recoverable, µg/L (61646)	Fenamiphos, water, filtered, recoverable, µg/L (61591)	Fipronil sulfide, water, filtered, recoverable, µg/L (62167)	Fipronil sulfone, water, filtered, recoverable, µg/L (62168)
05-24-2012	0930	< .0056	< .021	< .010	< .016	< .054	< .08	< .030	< .012	< .024

01466500 MCDONALDS BRANCH IN BYRNE STATE FOREST, NJ—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012

Part 6 of 10

[µg/L, micrograms per liter; <, less than; E, estimated]

Date	Sample start time	Fipronil, water, filtered, recoverable, µg/L (62166)	Fonofos, water, filtered, recoverable, µg/L (04095)	Hexazinone, water, filtered, recoverable, µg/L (04025)	Iprodione, water, filtered, recoverable, µg/L (61593)	Isofenphos, water, filtered, recoverable, µg/L (61594)	lambda-Cyhalothrin, water, filtered, recoverable, µg/L (61595)	Malaoxon, water, filtered, recoverable, µg/L (61652)	Malathion, water, filtered, recoverable, µg/L (39532)	Metalaxyl, water, filtered, recoverable, µg/L (61596)
05-24-2012	0930	<.018	<.0048	<.012	<.014	<.008	<.010	<.022	<.016	<.014

WATER-QUALITY DATA
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012

Part 7 of 10

[µg/L, micrograms per liter; <, less than; E, estimated]

Date	Sample start time	Methidathion, water, filtered, recoverable, µg/L (61598)	Methyl parathion, water, filtered, recoverable, µg/L (61664)	Methyl parathion, water, filtered, recoverable, (0.7 micron glass fiber filter), µg/L (82667)	Metolachlor, water, filtered, recoverable, µg/L (39415)	Metribuzin, water, filtered, recoverable, µg/L (82630)	Molinate, water, filtered, recoverable, (0.7 micron glass fiber filter), µg/L (82671)	Myclobutanol, water, filtered, recoverable, µg/L (61599)	Oxyfluorfen, water, filtered, recoverable, µg/L (61600)	Pendimethalin, water, filtered, recoverable, (0.7 micron glass fiber filter), µg/L (82683)
05-24-2012	0930	<.012	<.014	<.008	0.008	<.012	<.0040	<.010	<.010	<.012

WATER-QUALITY DATA
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012

Part 8 of 10

[µg/L, micrograms per liter; <, less than; E, estimated]

Date	Sample start time	Phorate oxygen analog, water, filtered, recoverable, µg/L (61666)	Phorate, water, filtered, (0.7 micron glass fiber filter), recoverable, µg/L (82664)	Phosmet oxygen analog, water, filtered, recoverable, µg/L (61668)	Phosmet, water, filtered, recoverable, µg/L (61601)	Prometon, water, filtered, recoverable, µg/L (04037)	Prometryn, water, filtered, recoverable, µg/L (04036)	Propanil, water, filtered, (0.7 micron glass fiber filter), recoverable, µg/L (82679)	Propargite, water, filtered, (0.7 micron glass fiber filter), recoverable, µg/L (82685)	Propyzamide, water, filtered, (0.7 micron glass fiber filter), recoverable, µg/L (82676)
05-24-2012	0930	<.027	<.020	<.0511	<.080	<.012	<.010	<.010	<.020	<.0036

01466500 MCDONALDS BRANCH IN BYRNE STATE FOREST, NJ—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012

Part 9 of 10

[µg/L, micrograms per liter; <, less than; E, estimated]

Date	Sample start time	Simazine, water, filtered, recoverable, µg/L (04035)	Tebu-thiuron, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (82670)	Tefluthrin, water, filtered, recoverable, µg/L (61606)	Terbufos oxygen sulfone, water, filtered, recoverable, µg/L (61674)	Terbufos, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (82675)	Terbuthyl-azine, water, filtered, recoverable, µg/L (04022)	Thioben-carb, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (82681)	trans-Propicon-azole, water, filtered, recoverable, µg/L (79847)	Tribuphos, water, filtered, recoverable, µg/L (61610)
05-24-2012	0930	< .006	< .028	< .014	< .045	< .018	< .008	< .016	< .018	< .018

WATER-QUALITY DATA
WATER YEAR OCTOBER 2011 TO
SEPTEMBER 2012

Part 10 of 10

[µg/L, micrograms per liter; <, less than; E, estimated]

Date	Sample start time	Trifluralin, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (82661)
05-24-2012	0930	< .018

01466500 MCDONALDS BRANCH IN BYRNE STATE FOREST, NJ—Continued

WATER-QUALITY DATA, HYDROLOGIC BENCHMARK NETWORK
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012

Part 1 of 2

[ANC, acid neutralizing capacity; CaCO₃, calcium carbonate; N, nitrogen; SiO₂, silicon dioxide; meq/L, milliequivalents per liter; mg/L, milligrams per liter; °C, degrees Celsius; µg/L, micrograms per liter; <, less than]

Date	Sample start time	Temperature, water, °C (00010)	Hardness, water, mg/L as CaCO ₃ (00900)	Calcium, water, filtered, mg/L (00915)	Magnesium, water, filtered, mg/L (00925)	Potassium, water, filtered, mg/L (00935)	Sodium, water, filtered, mg/L (00930)	ANC, water, unfiltered, Gran titration, meq/L (00409)	Carbon (inorganic plus organic), suspended sediment, total, mg/L (00694)	Chloride, water, filtered, mg/L (00940)
01-18-2012	0935	3.6	2.97	0.545	0.389	0.214	1.92	-50.8	0.20	3.47
03-27-2012	0835	9.7	3.32	.641	.418	.283	2.00	-29.3	.60	3.50
04-24-2012	1020	10.6	2.93	.487	.417	.235	1.99	-53.4	.4	3.40
06-06-2012	1230	14.1	--	--	--	--	--	--	.1	--
06-26-2012	0945	15.5	2.65	.422	.387	.288	1.92	-52.2	.13	3.48
07-27-2012	1245	17.1	2.89	.519	.388	.289	1.86	-38.4	.14	3.51
09-13-2012	1030	16.2	3.40	.678	.414	.359	2.00	-76.4	.30	3.56

WATER-QUALITY DATA, HYDROLOGIC BENCHMARK NETWORK
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012

Part 2 of 2

[ANC, acid neutralizing capacity; CaCO₃, calcium carbonate; N, nitrogen; SiO₂, silicon dioxide; meq/L, milliequivalents per liter; mg/L, milligrams per liter; °C, degrees Celsius; µg/L, micrograms per liter; <, less than]

Date	Sample start time	Silica, water, filtered, mg/L as SiO ₂ (00955)	Sulfate, water, filtered, mg/L (00945)	Ammonia, water, unfiltered, mg/L as N (00610)	Nitrate, water, filtered, mg/L as N (00618)	Particulate nitrogen, suspended in water, mg/L (49570)	Aluminum, water, filtered, µg/L (01106)	Organic carbon, water, filtered, mg/L (00681)	Organic monomeric aluminum, water, unfiltered, µg/L (49288)
01-18-2012	0935	1.86	4.02	< .028	< .028	< .017	244	9.84	83
03-27-2012	0835	1.71	3.70	.039	< .028	.039	176	6.49	62
04-24-2012	1020	1.58	3.68	< .028	< .028	.03	228	10.8	94
06-06-2012	1230	--	--	--	--	.01	--	--	--
06-26-2012	0945	1.77	2.79	< .028	< .028	< .017	162	7.11	78
07-27-2012	1245	2.16	3.09	.029	< .028	< .017	105	4.14	< 40
09-13-2012	1030	1.94	3.63	< .028	< .028	< .017	414	16.6	171