



Water-Data Report 2010

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, except for estimated daily discharges, which are poor. 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)
Dec 27	0215	17	2.03
Feb 24	0915	9.1	1.79
Mar 14	0845	*21	*2.10
Mar 30	1330	16	2.00

01466500 MCDONALDS BRANCH IN BYRNE STATE FOREST, NJ—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2009 TO SEPTEMBER 2010
DAILY MEAN VALUES
[*e*, estimated]

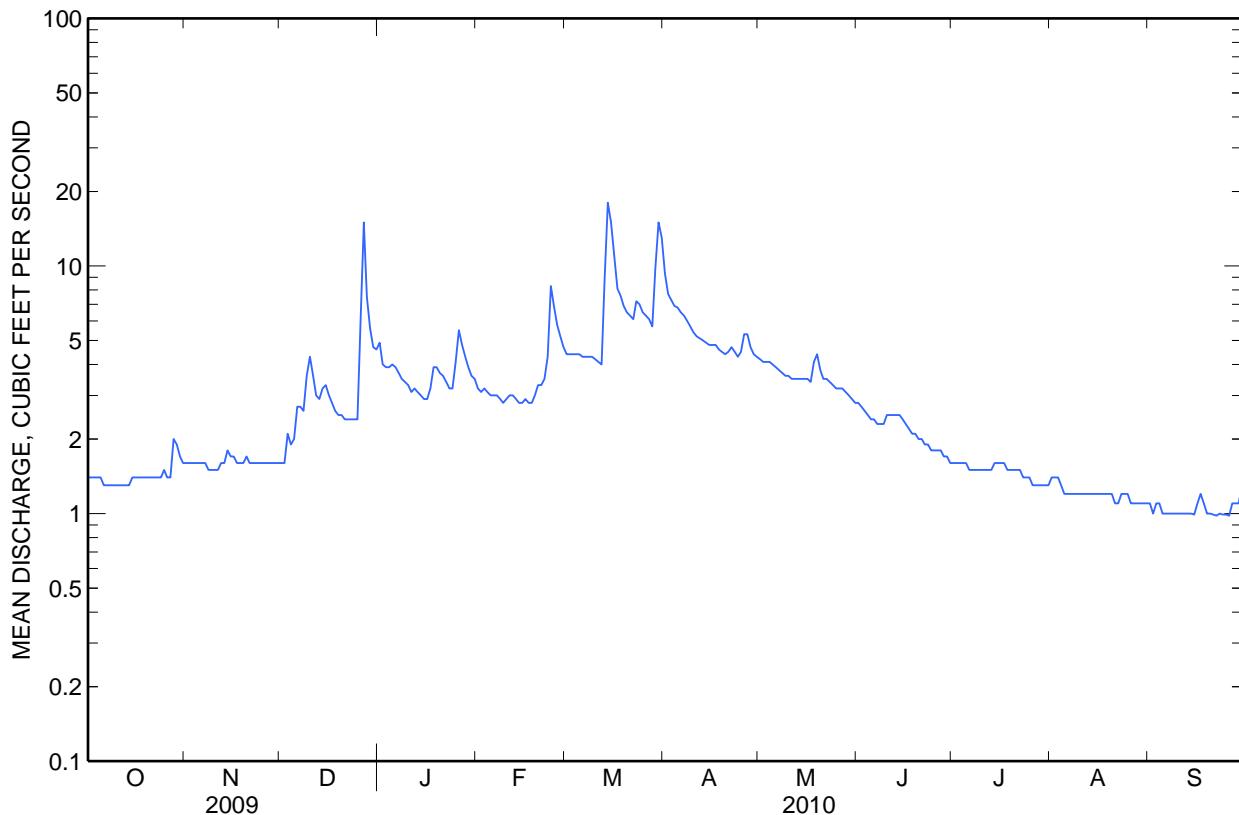
Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	1.4	1.6	1.6	e4.9	e3.2	4.4	9.3	4.2	2.8	1.6	1.4	1.1
2	1.4	1.6	1.6	e4.0	e3.1	4.4	7.7	4.1	2.7	1.6	1.4	1.0
3	1.4	1.6	2.1	e3.9	e3.2	4.4	7.3	4.1	2.6	1.6	1.4	1.1
4	1.4	1.6	1.9	e3.9	e3.1	4.4	6.9	4.1	2.5	1.6	1.3	1.1
5	1.4	1.6	2.0	e4.0	e3.0	4.4	6.8	4.0	2.4	1.6	1.2	1.0
6	1.3	1.6	2.7	e3.9	e3.0	4.3	6.5	3.9	2.4	1.5	1.2	1.0
7	1.3	1.6	2.7	e3.7	e3.0	4.3	6.3	3.8	2.3	1.5	1.2	1.0
8	1.3	1.5	2.6	e3.5	e2.9	4.3	6.0	3.7	2.3	1.5	1.2	1.0
9	1.3	1.5	3.6	e3.4	e2.8	4.3	5.7	3.6	2.3	1.5	1.2	1.0
10	1.3	1.5	4.3	e3.3	e2.9	4.2	5.4	3.6	2.5	1.5	1.2	1.0
11	1.3	1.5	3.6	e3.1	e3.0	4.1	5.2	3.5	2.5	1.5	1.2	1.0
12	1.3	1.6	3.0	e3.2	e3.0	4.0	5.1	3.5	2.5	1.5	1.2	1.0
13	1.3	1.6	2.9	e3.1	e2.9	8.9	5.0	3.5	2.5	1.5	1.2	1.0
14	1.3	1.8	3.2	e3.0	e2.8	18	4.9	3.5	2.5	1.6	1.2	1.0
15	1.4	1.7	3.3	2.9	e2.8	15	4.8	3.5	2.4	1.6	1.2	0.99
16	1.4	1.7	3.0	2.9	e2.9	11	4.8	3.5	2.3	1.6	1.2	1.1
17	1.4	1.6	2.8	3.2	e2.8	8.1	4.8	3.4	2.2	1.6	1.2	1.2
18	1.4	1.6	2.6	3.9	e2.8	7.6	4.6	4.1	2.1	1.5	1.2	1.1
19	1.4	1.6	2.5	3.9	e3.0	6.9	4.5	4.4	2.1	1.5	1.2	1.0
20	1.4	1.7	2.5	3.7	e3.3	6.5	4.4	3.8	2.0	1.5	1.2	1.0
21	1.4	1.6	2.4	3.6	e3.3	6.3	4.5	3.5	2.0	1.5	1.1	0.99
22	1.4	1.6	2.4	3.4	e3.5	6.1	4.7	3.5	1.9	1.5	1.1	0.98
23	1.4	1.6	2.4	3.2	4.3	7.2	4.5	3.4	1.9	1.4	1.2	1.0
24	1.4	1.6	2.4	3.2	8.3	7.0	4.3	3.3	1.8	1.4	1.2	0.99
25	1.5	1.6	2.4	4.1	6.9	6.5	4.5	3.2	1.8	1.4	1.2	0.99
26	1.4	1.6	6.1	5.5	5.8	6.3	5.3	3.2	1.8	1.3	1.1	0.98
27	1.4	1.6	15	4.8	5.2	6.1	5.3	3.2	1.8	1.3	1.1	1.1
28	2.0	1.6	7.5	4.3	4.7	5.7	4.7	3.1	1.7	1.3	1.1	1.1
29	1.9	1.6	5.6	3.9	---	9.8	4.4	3.0	1.7	1.3	1.1	1.1
30	1.7	1.6	4.7	e3.6	---	15	4.3	2.9	1.6	1.3	1.1	1.3
31	1.6	---	e4.6	e3.5	---	13	---	2.8	---	1.3	1.1	---
Total	44.2	48.1	110.0	114.5	101.5	222.5	162.5	110.9	65.9	45.9	37.1	31.22
Mean	1.43	1.60	3.55	3.69	3.62	7.18	5.42	3.58	2.20	1.48	1.20	1.04
Max	2.0	1.8	15	5.5	8.3	18	9.3	4.4	2.8	1.6	1.4	1.3
Min	1.3	1.5	1.6	2.9	2.8	4.0	4.3	2.8	1.6	1.3	1.1	0.98
Cfsm	0.61	0.68	1.51	1.57	1.54	3.05	2.30	1.52	0.93	0.63	0.51	0.44
In.	0.70	0.76	1.74	1.81	1.61	3.52	2.57	1.76	1.04	0.73	0.59	0.49

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1954 - 2010, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	1.52	1.68	2.05	2.28	2.39	2.89	2.90	2.57	2.10	1.80	1.72	1.57
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)

01466500 MCDONALDS BRANCH IN BYRNE STATE FOREST, NJ—Continued**SUMMARY STATISTICS**

	Calendar Year 2009		Water Year 2010		Water Years 1954 - 2010	
Annual total	655.0		1,094.32			
Annual mean	1.79		3.00		2.12	
Highest annual mean					3.85	1973
Lowest annual mean					0.95	2002
Highest daily mean	15	Dec 27	18	Mar 14	20	Feb 28, 1958
Lowest daily mean	1.3	Jul 20	0.98	Sep 22, 26	0.50	Oct 13, 1995
Annual seven-day minimum	1.3	Aug 31	0.99	Sep 20	0.58	Oct 8, 1995
Maximum peak flow			21	Mar 14	38	Jul 13, 2004
Maximum peak stage			2.10	Mar 14	2.33	Aug 25, 1958
Instantaneous low flow			0.98	Many days	0.49	Oct 13, 1995
Annual runoff (cfsm)	0.764		1.28		0.903	
Annual runoff (inches)	10.37		17.32		12.26	
10 percent exceeds	2.4		5.4		3.5	
50 percent exceeds	1.6		2.4		1.8	
90 percent exceeds	1.4		1.2		1.1	



01466500 MCDONALDS BRANCH IN BYRNE STATE FOREST, NJ—Continued**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.

REMARKS.--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 Dec 9, 2009, and Mar 2, May 25, and Aug 24, 2010 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(HBN). Water year 2009 HBN samples are also included in this report.

COOPERATION.--Physical measurements and samples for laboratory analyses on Dec 9, 2009, and Mar 2, May 25, and Aug 24, 2010 were provided by personnel of the NJ Department of Environmental Protection. Determinations of dissolved ammonia, dissolved orthophosphate, 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.

**WATER-QUALITY DATA
WATER YEAR OCTOBER 2009 TO SEPTEMBER 2010**

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; --, no data; <, less than; E, estimated]

Date	Sample start time	Barometric pressure, mm Hg (00025)	Temperature, air, °C (00020)	Absorbance, UV, organic constituents, UV, 254 nm, 1 cm path length, cm path length, water, filtered, units		Discharge, instantaneous, ft ³ /s (00061)	Dissolved oxygen, water, filtered, mg/L (00300)	Dissolved oxygen, water, unfiltered, mg/L (00301)	pH, water, unfiltered, % saturation	pH, water, field, standard units (00400)
				per centimeter (50624)	per centimeter (61726)					
12-09-2009	1045	744	12.8	.763	.573	4.1	8.7	72	4.1	
03-02-2010	1045	758	5.5	.701	.529	4.4	9.4	69	4.0	
05-25-2010	1015	764	20.7	.679	.518	3.2	5.5	54	4.1	
08-24-2010	0900	758	18.4	.201	.159	1.2	5.9	61	4.4	

01466500 MCDONALDS BRANCH IN BYRNE STATE FOREST, NJ—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2009 TO SEPTEMBER 2010

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; --, no data; <, less than; E, estimated]

Date	Turbidity, water, unfiltered, broad band light source			Dissolved solids,					
	Specific conduc- tance, water, unfiltered, µS/cm at	Tempera- ture, water,	including 90 +/- 30 degrees, ratiometric correction, NTRU	Dissolved solids detectors at multiple angles	Dried at 180 °C, water, filtered,	sum of constit- uents, milligrams per liter	Hardness, water, CaCO ₃	Suspended solids, water, unfiltered,	Calcium, water, filtered,
	25 °C (00095)	°C (00010)	(63676)	mg/L (70300)	mg/L (70301)	mg/L as (00900)	mg/L (00530)	mg/L (00915)	mg/L (00925)
12-09-2009	64	6.6	1.9	46	< 17	4.25	5	.81	.540
03-02-2010	59	1.7	.6	41	< 15	2.57	1	.54	.299
05-25-2010	53	14.1	.5	28	--	2.19	1	.44	.263
08-24-2010	32	15.5	.8	21	< 15	2.34	1	.36	.348

WATER-QUALITY DATA
WATER YEAR OCTOBER 2009 TO SEPTEMBER 2010

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; --, no data; <, less than; E, estimated]

Date	ANC, water, unfiltered,			Carbon				Ammonia plus organic		
	Potassium, water, filtered, mg/L (00935)	Sodium, water, filtered, mg/L (00930)	CaCO ₃ (90410)	fixed endpoint (pH 4.5) titration, laboratory, mg/L as CaCO ₃	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)	Sulfate, water, filtered, mg/L (00945)
12-09-2009	.21	1.91	< 1.7	.97	3.77	< .08	< .06	3.3	5.84	.37
03-02-2010	.10	1.64	< 1.7	.14	3.00	< .08	< .06	2.7	5.23	.28
05-25-2010	.10	1.81	--	.37	3.39	< .08	< .06	3.1	4.13	.31
08-24-2010	.27	1.74	< 1.7	.34	3.53	< .08	< .06	5.0	2.94	.15

01466500 MCDONALDS BRANCH IN BYRNE STATE FOREST, NJ—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2009 TO SEPTEMBER 2010

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; --, no data; <, less than; E, estimated]

Date	Nitrate plus Ammonia, water, filtered, mg/L as N (00608)	Orthophos- phate, water, filtered, mg/L as N (00631)	Particulate nitrogen, water, filtered, mg/L (49570)	Phosphorus, suspended in water, mg/L (00666)	Phosphorus, water, filtered, mg/L as P (00665)	Total nitrogen, water, unfiltered, mg/L (00602)	Total nitrogen, water, unfiltered, mg/L (00600)	Barium, water, unfiltered, µg/L (01007)
12-09-2009	.016	< .04	< .010	.06	< .008	E .005	< .41	< .47
03-02-2010	< .010	< .04	E .005	< .03	< .008	< .008	< .32	< .35
05-25-2010	< .010	< .04	--	E .02	< .008	< .008	< .35	< .36
08-24-2010	.019	< .04	--	.03	< .008	E .005	< .20	< .23
								25.2

WATER-QUALITY DATA
WATER YEAR OCTOBER 2009 TO SEPTEMBER 2010

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; --, no data; <, less than; E, estimated]

Date	Beryllium, water, unfiltered, recover- able, µg/L (01012)	Chromium, water, unfiltered, recover- able, µg/L (01027)	Copper, water, unfiltered, recover- able, µg/L (01034)	Iron, water, unfiltered, recover- able, µg/L (01042)	Lead, water, unfiltered, recover- able, µg/L (01045)	Manga- nese, water, unfiltered, recover- able, µg/L (01051)	Mercury, water, unfiltered, recover- able, µg/L (71900)	Nickel, water, unfiltered, recover- able, µg/L (01067)	Silver, water, unfiltered, recover- able, µg/L (01077)
12-09-2009	--	--	--	--	--	--	--	--	--
03-02-2010	E .04	.05	.55	< 1.4	264	1.60	19.2	E .006	.64
05-25-2010	--	--	--	--	--	--	--	--	--
08-24-2010	< .04	E .03	E .34	2.2	259	.63	43.6	< .010	.76
									< .02

WATER-QUALITY DATA
WATER YEAR OCTOBER 2009 TO SEPTEMBER 2010

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; --, no data; <, less than; E, estimated]

Date	Zinc, water, unfiltered, recoverable, µg/L (01092)	Arsenic, water, filtered, µg/L (01000)	Arsenic, water, unfiltered, µg/L (01002)	Boron, water, unfiltered, recoverable, µg/L (01022)	Selenium, water, unfiltered, µg/L (01147)	Organic carbon, suspended sediment, total, mg/L (00689)	Organic carbon, water, filtered, mg/L (00681)
12-09-2009	--	--	--	--	--	.97	17.9
03-02-2010	10.9	.43	.40	< 14	.15	.14	14.7
05-25-2010	--	--	--	--	--	.37	13.5
08-24-2010	5.1	.16	.87	23	.22	.33	3.3

01466500 MCDONALDS BRANCH IN BYRNE STATE FOREST, NJ—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2009 TO SEPTEMBER 2010

Part 1 of 9

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

		2,6-		2-Chloro-4-					
Date	Sample start time	1-Naphthol, water, filtered (0.7 micron glass fiber filter),	Diethyl-aniline, water, filtered (0.7 micron glass fiber filter),	2-Chloro-2',6'-diethylacetanilide, water, filtered,	isopropyl-amino-6-s-triazine, water, filtered,	2-Ethyl-6-methyl-aniline, water, filtered,	3,4-Dichloro-aniline, water, filtered,	3,5-Dichloro-aniline, water, filtered,	4-Chloro-2-methyl-phenol, water, , water, filtered, recovered,
05-25-2010	1015	< .04	< .006	< .010	< .014	< .010	< .004	< .003	< .010

WATER-QUALITY DATA
WATER YEAR OCTOBER 2009 TO SEPTEMBER 2010

Part 2 of 9

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

		Azinphos-		Azinphos-		Carbaryl,		Carbofuran,	
Date	Sample start time	alpha-Endosulfan, water, filtered, recoverable, µg/L (46342)	Atrazine, water, filtered, recoverable, µg/L (34362)	methyl oxygen analog, water, filtered, recoverable, µg/L (39632)	methyl micron glass fiber recoverable, µg/L (61635)	Benfluralin, water, filtered (0.7 micron glass fiber filter),	water, filtered (0.7 micron glass fiber filter),	Chlorpyrifos water, analog, water, filter, recoverable, µg/L (82686)	water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (82673)
05-25-2010	< .008	< .006	< .007	< .04	< .120	< .014	< .060	< .060	< .05

WATER-QUALITY DATA
WATER YEAR OCTOBER 2009 TO SEPTEMBER 2010

Part 3 of 9

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

		cis-Permethrin, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (38933)		Propiconazole, water, filtered, recoverable, µg/L (82687)		Cyanazine, water, filtered, recoverable, µg/L (79846)		Cyfluthrin, water, filtered, recoverable, µg/L (04041)		Cypermethrin, water, filtered, recoverable, µg/L (61585)		DCPA, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (61586)		Desulfinyl-fipronil, amide, water, filtered, recoverable, µg/L (82682)		Desulfinyl-fipronil, water, filtered, recoverable, µg/L (62169)		Desulfinyl-fipronil, water, filtered, recoverable, µg/L (62170)		Diazinon, water, filtered, recoverable, µg/L (39572)	
Date	Sample start time	cis-Permethrin, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (38933)	cis-Propiconazole, water, filtered, recoverable, µg/L (82687)	cis-Permethrin, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (79846)	cis-Propiconazole, water, filtered, recoverable, µg/L (82687)	cis-Cyanazine, water, filtered, recoverable, µg/L (79846)	cis-Cyanazine, water, filtered, recoverable, µg/L (04041)	cis-Cyfluthrin, water, filtered, recoverable, µg/L (04041)	cis-Cyfluthrin, water, filtered, recoverable, µg/L (61585)	cis-Cypermethrin, water, filtered, recoverable, µg/L (61585)	cis-Cypermethrin, water, filtered, recoverable, µg/L (61586)	cis-DCPA, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (61586)	cis-DCPA, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (82682)	cis-Desulfinyl-fipronil, amide, water, filtered, recoverable, µg/L (82682)	cis-Desulfinyl-fipronil, amide, water, filtered, recoverable, µg/L (62169)	cis-Desulfinyl-fipronil, water, filtered, recoverable, µg/L (62170)	cis-Desulfinyl-fipronil, water, filtered, recoverable, µg/L (39572)				
05-25-2010	< .010	< .014	< .006	< .022	< .016	< .020	< .008	< .029	< .012	< .005											

01466500 MCDONALDS BRANCH IN BYRNE STATE FOREST, NJ—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2009 TO SEPTEMBER 2010

Part 4 of 9

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

Date	Dichlorvos , water, filtered, recover- able, µg/L (38775)	Dicro- tophos, water, filtered, recover- able, µg/L (38454)	Dieldrin, water, filtered, recover- able, µg/L (39381)	Dimetho- ate, water, filtered (0.7 micron glass fiber)	Disulfoton water, sulfone, filtered, recover- able, µg/L (82662)	Disulfoton, water, filtered (0.7 micron glass fiber)	Endosulfan water, sulfate, filtered, recover- able, µg/L (61640)	EPTC, water, filtered (0.7 micron glass fiber)	Ethion monoxon, water, filtered, recover- able, µg/L (61644)	Ethion, water, filtered, recover- able, µg/L (82346)
	µg/L (38775)	µg/L (38454)	µg/L (39381)	µg/L (82662)	µg/L (61640)	µg/L (82677)	µg/L (61590)	µg/L (82668)	µg/L (61644)	µg/L (82346)
05-25-2010	< .02	< .08	< .009	< .006	< .01	< .04	< .014	< .002	< .02	< .008

WATER-QUALITY DATA
WATER YEAR OCTOBER 2009 TO SEPTEMBER 2010

Part 5 of 9

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

Date	Ethoprop, water, filtered (0.7 micron glass fiber)	Fenami- phos water, filtered, recover- able, µg/L (82672)	Fenami- sulfone, water, filtered, recover- able, µg/L (61645)	Fenami- sulfoxide, water, filtered, recover- able, µg/L (61646)	Fipronil water, filtered, recover- able, µg/L (61591)	Fipronil sulfone, water, filtered, recover- able, µg/L (62167)	Fipronil sulfone, water, filtered, recover- able, µg/L (62168)	Fipronil, water, filtered, recover- able, µg/L (62166)	Fonofos, water, filtered, recover- able, µg/L (04095)	Hexa- zinone, water, filtered, recover- able, µg/L (04025)	Iprodione, water, filtered, recover- able, µg/L (61593)
	µg/L (82672)	µg/L (61645)	µg/L (61646)	µg/L (61591)	µg/L (62167)	µg/L (62168)	µg/L (62166)	µg/L (04095)	µg/L (04025)	µg/L (61593)	
05-25-2010	< .016	< .053	< .08	< .03	< .013	< .024	< .018	< .004	< .008	< .014	

WATER-QUALITY DATA
WATER YEAR OCTOBER 2009 TO SEPTEMBER 2010

Part 6 of 9

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

Date	Isofen- phos, water, filtered, recover- able, µg/L (61594)	lambda- Cyhalo- thrin, water, filtered, recover- able, µg/L (61595)	Malaoxon, water, filtered, recover- able, µg/L (61652)	Malathion, water, filtered, recover- able, µg/L (61652)	Metalaxyl, water, filtered, recover- able, µg/L (39532)	Methida- thion, water, filtered, recover- able, µg/L (61596)	Methyl paraoxon, water, filtered, recover- able, µg/L (61598)	Methyl paraoxon, water, filtered, recover- able, µg/L (61664)	Methyl filtered (0.7 micron glass fiber)	Metola- chlor, water, filtered, recover- able, µg/L (82667)	Metribuzin , water, filtered, recover- able, µg/L (39415)
	µg/L (61594)	µg/L (61595)	µg/L (61652)	µg/L (61652)	µg/L (39532)	µg/L (61596)	µg/L (61598)	µg/L (61664)	µg/L (82667)	µg/L (39415)	µg/L (82630)
05-25-2010	< .006	< .010	< .080	< .016	< .007	< .006	< .006	< .01	< .008	< .014	< .012

01466500 MCDONALDS BRANCH IN BYRNE STATE FOREST, NJ—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2009 TO SEPTEMBER 2010

Part 7 of 9

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

Date	Molinate, water, filtered (0.7 micron glass fiber filter), recover- able, µg/L (82671)	Pendi- methalin, water, filtered (0.7 micron water, filtered, recover- able, µg/L (61599)	Phorate oxygen analog, water, filtered, recover- able, µg/L (82683)	Phorate, water, filtered (0.7 micron glass fiber filter), recover- able, µg/L (61666)	Phosmet oxygen analog, water, filtered, recover- able, µg/L (82664)	Phosmet, water, filtered, recover- able, µg/L (61668)	Prometon, water, filtered, recover- able, µg/L (04037)	Prometryn, water, filtered, recover- able, µg/L (04036)		
	Myclo- butanil, water, filtered, recover- able, µg/L (61600)	Oxy- fluorfen, water, recover- able, µg/L (61600)	µg/L (82683)	µg/L (61666)	µg/L (82664)	µg/L (61668)	µg/L (61601)	µg/L (04037)		
05-25-2010	< .003	< .010	< .010	< .012	< .03	< .020	< .05	< .034	< .01	< .006

WATER-QUALITY DATA
WATER YEAR OCTOBER 2009 TO SEPTEMBER 2010

Part 8 of 9

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

Date	Propyz- Propanil, water, filtered (0.7 micron glass fiber filter), recover- able, µg/L (82679)	Propargite, water, filtered (0.7 micron glass fiber filter), recover- able, µg/L (82685)	amide, water, filtered (0.7 micron glass fiber filter), recover- able, µg/L (82676)	Tebu- thiuron, water, filtered (0.7 micron glass fiber filter), recover- able, µg/L (04035)	Tebu- thiuron, water, filtered (0.7 micron glass fiber filter), recover- able, µg/L (82670)	Terbufos oxygen analog, water, filtered, recover- able, µg/L (61606)	Terbufos, water, filtered (0.7 micron glass fiber filter), recover- able, µg/L (61674)	Thioben- carb, water, filtered (0.7 micron glass fiber filter), recover- able, µg/L (82675)		
	µg/L (82679)	µg/L (82685)	µg/L (82676)	µg/L (04035)	µg/L (82670)	µg/L (61606)	µg/L (61674)	µg/L (82675)		
05-25-2010	< .010	< .02	< .004	< .006	< .03	< .010	< .04	< .02	< .01	< .016

WATER-QUALITY DATA
**WATER YEAR OCTOBER 2009 TO SEPTEMBER
2010**

Part 9 of 9

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

Date	Trifluralin, water, filtered (0.7 micron glass fiber filter), recover- able, µg/L (79847)	Propicon- azole, water, filtered, recover- able, µg/L (61610)	Tribuphos, water, filtered, recover- able, µg/L (82661)
	µg/L (79847)	µg/L (61610)	µg/L (82661)
05-25-2010	< .02	< .018	< .018

01466500 MCDONALDS BRANCH IN BYRNE STATE FOREST, NJ—Continued**WATER-QUALITY DATA, HYDROLOGIC BENCHMARK NETWORK, WATER YEAR 2009
WATER YEAR OCTOBER 2008 TO SEPTEMBER 2009**

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	Tempera-ture, water, °C (00010)	Hardness, water, mg/L as CaCO ₃ (00900)	Calcium, water, filtered, mg/L (00915)	Magne-sium, 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)	Chloride, water, filtered, mg/L (00940)	Silica, water, filtered, mg/L as SiO ₂ (00955)
10-30-2008	2355	10.3	4.15	.68	.59	.34	2.17	-46	4.4	2.43
11-07-2008	0625	11.3	3.33	.49	.51	.33	2.08	-22	4.0	2.27
12-12-2008	1445	8.0	5.12	.78	.77	.39	2.13	-42	3.8	2.16
12-12-2008	2005	8.1	5.00	.75	.76	.41	2.16	-57	3.6	1.98
12-13-2008	0805	8.3	4.51	.70	.67	.46	2.10	-113	3.3	1.36
12-14-2008	1010	7.5	6.30	.92	.97	.48	2.64	-140	4.0	1.98
12-18-2008	1137	6.7	6.32	.93	.97	.38	2.59	-62	4.4	2.20
12-18-2008	1151	--	6.00	.91	.90	.36	2.50	-57	3.9	1.76
02-11-2009	1150	5.6	4.28	.72	.60	.29	2.08	-84	3.7	2.03
03-20-2009	0910	7.5	4.89	1.09	.53	.34	2.00	-34	3.6	1.97
04-06-2009	1055	10.0	3.85	.63	.56	.35	2.02	-60	3.5	1.97
04-15-2009	1620	8.2	4.47	.75	.63	.34	2.17	-56	3.4	1.84
05-08-2009	0505	12.8	3.80	.68	.51	.13	1.95	-106	3.1	1.43
05-14-2009	0946	12.3	3.24	.57	.44	.14	1.87	-71	3.3	1.54
05-29-2009	0455	--	3.32	.59	.45	.19	1.88	-24	3.4	1.79
06-17-2009	0830	14.0	2.83	.48	.39	.17	1.82	-20	3.5	1.81
08-09-2009	0747	--	4.54	1.10	.44	.20	1.75	-13	3.5	2.39
08-12-2009	2237	--	7.02	2.12	.42	.19	1.76	-40	3.6	2.27
08-22-2009	0357	--	3.05	.59	.38	.23	1.71	-38	3.4	2.24
08-22-2009	0652	--	4.33	1.04	.42	.21	1.73	-46	3.4	2.22
09-04-2009	0752	14.8	2.56	.41	.37	.21	1.72	-4	3.5	2.12
09-11-2009	0655	15.2	3.51	.64	.47	.23	1.86	-31	3.6	1.93
09-27-2009	1605	14.7	3.46	.61	.47	.22	1.98	-18	3.8	2.16

01466500 MCDONALDS BRANCH IN BYRNE STATE FOREST, NJ—Continued**WATER-QUALITY DATA, HYDROLOGIC BENCHMARK NETWORK, WATER YEAR 2009
WATER YEAR OCTOBER 2008 TO SEPTEMBER 2009**

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	Sulfate, water, filtered, mg/L (00945)	Ammonia, water, unfiltered, mg/L as N (00610)	Nitrate, water, filtered, mg/L as N (00618)	Aluminum, water, filtered, µg/L (01106)	Organic carbon, water, filtered, mg/L (00681)	Organic monomeric aluminum, water, unfiltered, µg/L (49288)
10-30-2008	5.7	<.028	<.03	97	4.5	<40
11-07-2008	5.1	--	<.03	82	3.9	<40
12-12-2008	6.7	--	<.03	125	4.9	<40
12-12-2008	6.7	--	.03	176	7.8	65
12-13-2008	7.0	--	.08	362	20.0	150
12-14-2008	10.8	--	.08	410	16.4	144
12-18-2008	11.4	<.028	.06	356	10.9	112
12-18-2008	10.2	.032	.05	360	11.6	104
02-11-2009	7.4	<.028	.06	257	6.2	62
03-20-2009	6.1	<.028	.05	379	4.9	54
04-06-2009	6.2	.036	.04	206	6.4	61
04-15-2009	7.3	.085	<.03	348	11.8	120
05-08-2009	6.2	.037	<.03	444	17.5	167
05-14-2009	5.1	<.028	<.03	332	11.7	116
05-29-2009	3.7	.068	<.03	258	10.9	96
06-17-2009	3.4	<.028	<.03	217	7.7	80
08-09-2009	3.0	.061	<.03	440	6.7	73
08-12-2009	3.0	.034	<.03	821	7.0	62
08-22-2009	2.7	<.028	<.03	183	6.1	50
08-22-2009	2.8	<.028	<.03	355	6.9	53
09-04-2009	3.0	<.028	<.03	86	3.3	<40
09-11-2009	3.1	.067	.05	188	12.0	85
09-27-2009	3.5	.030	.07	147	7.3	61

01466500 MCDONALDS BRANCH IN BYRNE STATE FOREST, NJ—Continued**WATER-QUALITY DATA, HYDROLOGIC BENCHMARK NETWORK, WATER YEAR 2010
WATER YEAR OCTOBER 2009 TO SEPTEMBER 2010**

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	Tempera-ture, water, °C (00010)	Hardness, water, mg/L as CaCO ₃ (00900)	Calcium, water, filtered, mg/L (00915)	Magne-sium, 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)	Chloride, water, filtered, mg/L (00940)	Silica, water, filtered, mg/L as SiO ₂ (00955)
10-06-2009	0810	21.4	2.87	.44	.43	.20	1.85	-5	3.5	2.17
01-14-2010	1037	1.9	3.29	.64	.41	.12	1.99	-67	3.7	1.82
01-25-2010	0950	3.7	3.28	.64	.41	.13	1.94	-98	4.0	1.59
01-26-2010	1005	3.9	3.28	.70	.37	.09	1.91	-90	4.0	1.43
02-23-2010	0435	2.0	3.90	.92	.39	.13	1.86	-98	3.6	1.48
02-24-2010	0225	.4	3.39	.79	.34	.12	1.76	-109	3.2	1.16
02-24-2010	1555	.3	3.58	.88	.33	.10	1.71	-114	3.1	1.07
02-25-2010	1815	.3	3.05	.71	.31	.10	1.68	-117	3.0	1.11
03-04-2010	0955	2.3	2.84	.61	.32	.10	1.70	-33	3.0	1.24
03-13-2010	0335	6.0	2.72	.58	.31	.08	1.74	-111	3.1	1.21
03-13-2010	1835	7.3	2.64	.64	.25	.11	1.56	-102	2.8	.834
03-14-2010	1015	7.4	2.80	.70	.25	.10	1.55	-112	2.7	.834
03-15-2010	1010	7.0	2.32	.57	.22	.08	1.40	-104	2.3	.755
03-30-2010	0805	8.5	2.86	.69	.28	.05	1.60	-63	2.9	.925
03-30-2010	1145	8.2	2.51	.61	.24	.05	1.62	-113	2.6	.976
04-12-2010	0815	11.4	2.90	.67	.30	.04	1.82	-113	3.2	1.41
04-25-2010	2220	10.6	2.79	.64	.29	.06	1.74	-42	3.3	1.54
04-26-2010	1710	10.7	2.58	.60	.27	<.04	1.67	-91	3.2	1.47
05-18-2010	0525	12.8	2.29	.46	.28	.08	1.75	-30	3.5	1.60
06-10-2010	0815	15.5	2.40	.50	.28	.13	1.76	-19	4.0	1.72
06-13-2010	1515	16.2	2.74	.60	.30	.19	1.69	-50	3.7	2.52
08-01-2010	1310	16.1	2.69	.52	.34	.30	1.66	-1	3.3	2.19
08-04-2010	1203	16.1	3.42	.76	.37	.22	1.77	-4	3.5	2.12
09-28-2010	0844	15.5	3.46	.76	.38	.24	1.91	-9	3.5	2.34

01466500 MCDONALDS BRANCH IN BYRNE STATE FOREST, NJ—Continued**WATER-QUALITY DATA, HYDROLOGIC BENCHMARK NETWORK, WATER YEAR 2010
WATER YEAR OCTOBER 2009 TO SEPTEMBER 2010**

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	Sulfate, water, filtered, mg/L (00945)	Ammonia, water, unfiltered, mg/L as N (00610)	Nitrate, water, filtered, mg/L as N (00618)	Aluminum, water, filtered, µg/L (01106)	Organic carbon, water, filtered, mg/L (00681)	Organic monomeric aluminum, water, unfiltered, µg/L (49288)
10-06-2009	3.5	<.028	<.03	97	3.8	<40
01-14-2010	5.7	<.028	<.03	311	11.3	141
01-25-2010	5.7	.068	<.03	339	12.9	127
01-26-2010	5.5	.062	<.03	371	19.4	148
02-23-2010	5.7	.057	.03	394	13.3	129
02-24-2010	5.4	.036	.03	332	14.5	124
02-24-2010	5.1	.037	<.03	361	17.3	137
02-25-2010	4.5	.038	<.03	360	18.6	160
03-04-2010	4.9	.040	<.03	369	14.3	136
03-13-2010	5.2	<.028	<.03	299	15.2	142
03-13-2010	4.4	<.028	<.03	281	15.5	125
03-14-2010	3.9	<.028	<.03	371	20.9	167
03-15-2010	3.0	<.028	<.03	374	22.6	172
03-30-2010	4.7	<.028	<.03	302	15.7	146
03-30-2010	4.2	<.028	<.03	299	17.2	150
04-12-2010	5.3	<.028	<.03	304	12.7	128
04-25-2010	5.4	.052	<.03	237	10.7	126
04-26-2010	5.2	.043	<.03	358	11.1	153
05-18-2010	4.1	.034	<.03	265	12.1	138
06-10-2010	2.3	<.028	<.03	299	13.6	164
06-13-2010	2.2	.155	<.03	295	12.4	136
08-01-2010	2.6	.038	.09	105	5.3	72
08-04-2010	2.8	.059	<.03	202	4.0	72
09-28-2010	3.4	<.028	<.03	197	2.7	<40