

ADMINISTRATIVE REPORT NO. 14-02-04

HYDROGRAPHS AND TABLES SHOWING
GROUND-WATER LEVEL RECORDS
FOR SELECTED OBSERVATION WELLS
IN ANNE ARUNDEL COUNTY, MARYLAND

AND

HYDROGRAPH SHOWING SURFACE-WATER FLOW
IN SAWMILL CREEK

Compiled by
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In cooperation with
U.S. Geological Survey

July 2014

Maryland Department of Natural Resources
Resource Assessment Service
Maryland Geological Survey
Richard A. Ort, Jr., Director

GROUND-WATER MONITORING WELLS

Well Number	Location	Aquifer
AA Ad 90	Aviation Blvd., Glen Burnie	Patuxent
AA Ad 102	Aviation Blvd., Glen Burnie	Lower Patapsco
AA Ad 108	Aviation Blvd., Glen Burnie	Upper Patapsco
AA Ad 109	Dorsey Road, Glen Burnie	Lower Patapsco
AA Bc 215	Telegraph Road	Lower Patapsco
AA Bd 152	Woodside School, Glen Burnie	Lower Patapsco
AA Bd 155	State Highway Administration, Glen Burnie	Lower Patapsco
AA Bd 156	Baltimore-Annapolis Bike Trail, Glen Burnie	Lower Patapsco
AA Bd 157	Rippling Woods Elementary School, Glen Burnie	Lower Patapsco
AA Bd 158	Center for Applied Technology, Glen Burnie	Lower Patapsco
AA Bd 159	Rippling Woods ES, near Glen Burnie	Upper Patapsco
AA Bd 160	Queenstown Park, near Glen Burnie	Lower Patapsco
AA Cb 1	Patuxent Wildlife Refuge Center	Patuxent
AA Cc 82	King Heights Water-Treatment Plant	Lower Patapsco
AA Cc 89	Crofton Water-Treatment Plant	Lower Patapsco
AA Cc 102	Crofton Water-Treatment Plant	Patuxent
AA Cc 115	Crofton Meadows Water-Treatment Plant	Lower Patapsco
AA Cc 116	Crofton Meadows Water-Treatment Plant	Lower Patapsco
AA Cc 135	Crofton Meadows Water-Treatment Plant	Patuxent
AA Cc 137	Crofton Meadows Water-Treatment Plant	Lower Patapsco
AA Ce 117	Severndale Water-Treatment Plant	Patuxent
AA Cf 99	Traffic Engineering Building, Broad Neck	Magothy
AA Cf 134	Amberly Water-Treatment Plant	Upper Patapsco
AA Cf 137	Arnold Water-Treatment Plant	Lower Patapsco
AA Cf 166	Arnold Water-Treatment Plant (remote site)	Patuxent
AA Cf 167	Arnold Water-Treatment Plant (remote site)	Lower Patapsco
AA Cg 22	Sandy Point State Park	Patuxent
AA Cg 23	Sandy Point State Park	Lower Patapsco
AA Cg 24	Sandy Point State Park	Upper Patapsco
AA Dd 42	Route 50 and Howard Grove Road	Magothy
AA De 1	City of Annapolis Water Works Building	Magothy
AA De 95	Broad Creek Water-Treatment Plant	Upper Patapsco
AA De 124	Central Avenue well field	Magothy
AA De 128	Central Avenue well field	Upper Patapsco
AA De 206	Broad Creek Water-Treatment Plant	Lower Patapsco
AA De 219	City of Annapolis	Upper Patapsco
AA De 232	City of Annapolis	Lower Patapsco
AA Df 19	U.S. Navy Radio Station	Upper Patapsco
AA Df 20	U.S. Navy Radio Station	Magothy
AA Df 79	U.S. Naval Academy	Magothy
AA Fe 92	Deale Athletic Field	Aquia
AA Fe 93	Deale Athletic Field	Magothy

SURFACE-WATER MONITORING GAGE

Gage Number	Location
01589500	Sawmill Creek

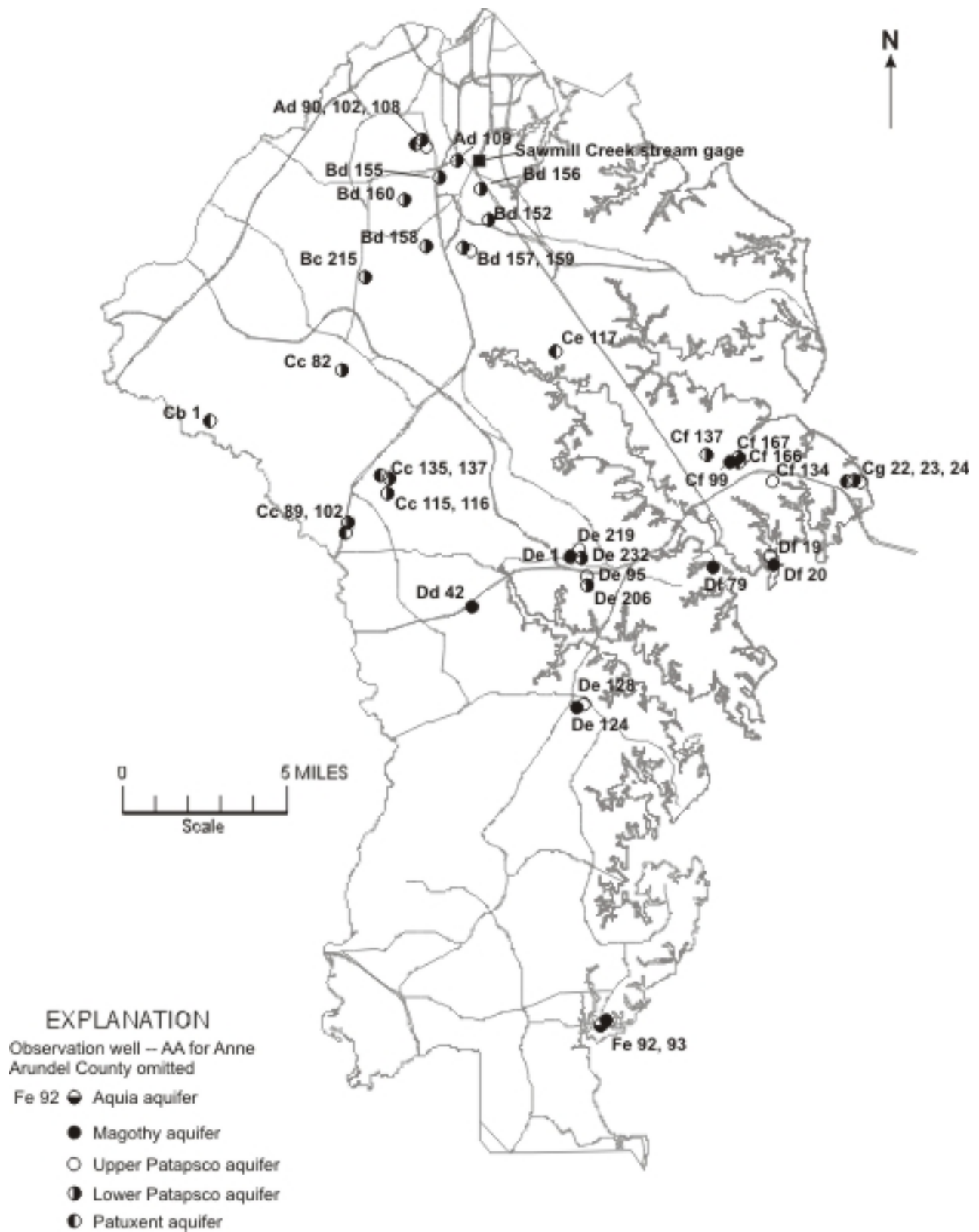


Figure 1. Location of observation wells and stream gage.

WELL NUMBER: AA Ad 90

PERMIT NUMBER: AA-04-0298

LOCATION: Aviation Blvd., Glen Burnie

LAT. 39° 10' 32", LONG. 76° 38' 59"

AQUIFER: Patuxent Formation of Lower Cretaceous age

WELL CHARACTERISTICS: Drilled, observation, artesian well, depth 453 ft;

Casing diameter: 6 in. to 443 ft;

Screen diameter: 6 in. from 443 to 453 ft.

INSTRUMENTATION: Periodic measurements.

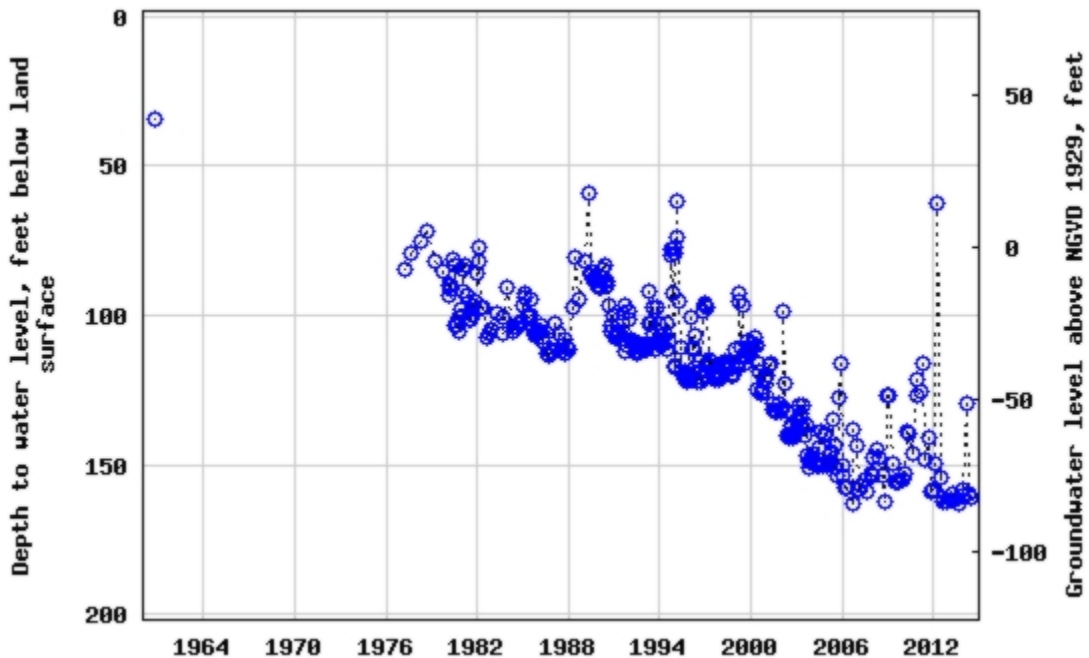
DATUM: Altitude of land surface is 77.85 ft above NGVD of 1929.

MEASURING POINT: Top of hole in flange 2.2 ft above land surface.

PERIOD OF RECORD: April 1977 to current year.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

Date	Water level
11/30/2012	162.28
2/6/2013	161.47
4/8/2013	159.34
6/12/13	161.42
9/23/2013	162.80
11/19/2013	160.54
12/18/2013	158.30
2/25/2014	129.60
4/28/2014	159.81
6/11/2014	161.25



WELL NUMBER: AA Ad 102

PERMIT NUMBER: AA-81-2641

LOCATION: Aviation Blvd., Glen Burnie

LAT. 39° 10' 32", LONG. 76° 38' 59"

AQUIFER: Lower Patapsco aquifer in the Patapsco Formation of Lower Cretaceous age.

WELL CHARACTERISTICS: Drilled, observation, artesian well, depth 108 ft;

Casing diameter: 6 in. to 80 ft;

Screen diameter: 6 in. from 80 to 90 ft.

INSTRUMENTATION: Periodic measurements.

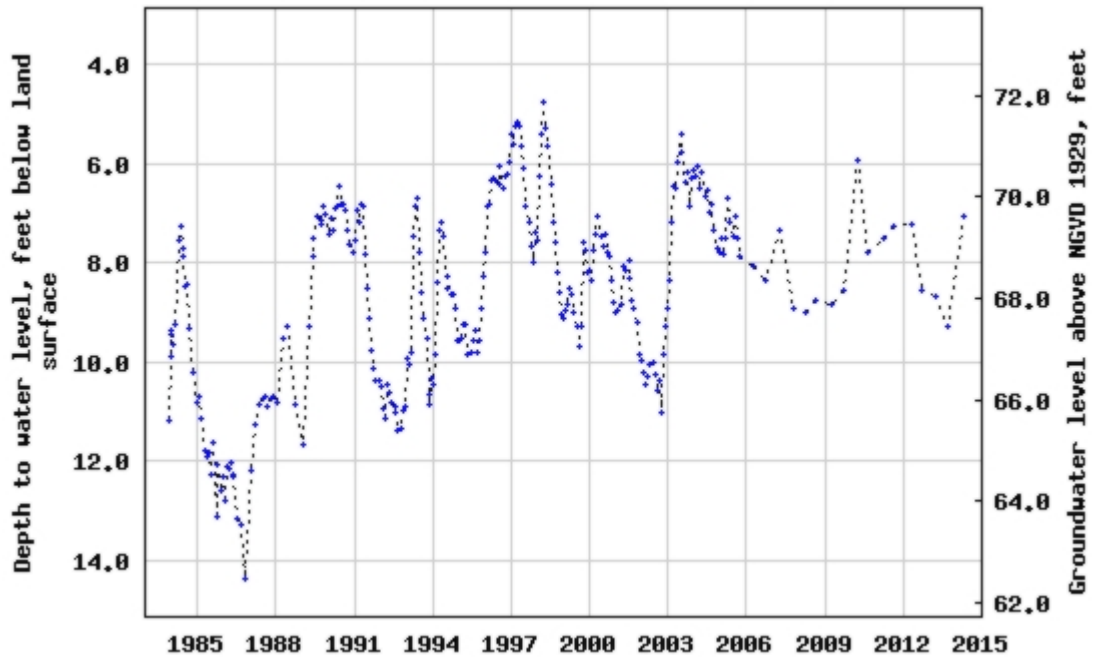
DATUM: Altitude of land surface is 76.72 ft above NGVD of 1929.

MEASURING POINT: Top of casing 5.27 ft above land surface.

PERIOD OF RECORD: December 1983 to current year.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

Date	Water level
4/14/2011	7.51
8/30/2011	7.28
4/16/2012	7.22
9/10/2012	8.57
4/8/2013	8.68
9/23/2013	9.29
4/28/2014	7.07



WELL NUMBER: AA Ad 108

PERMIT NUMBER: AA-81-3475

LOCATION: Aviation Blvd., Glen Burnie

LAT. 39° 10' 32", LONG. 76° 38' 59"

AQUIFER: Upper Patapsco aquifer in the Patapsco Formation of Lower Cretaceous age.

WELL CHARACTERISTICS: Drilled, observation, water-table well, depth 11.5 ft;

Casing diameter: 4 in. to 6 ft;

Screen diameter: 4 in. from 6 to 11 ft.

INSTRUMENTATION: Periodic measurements.

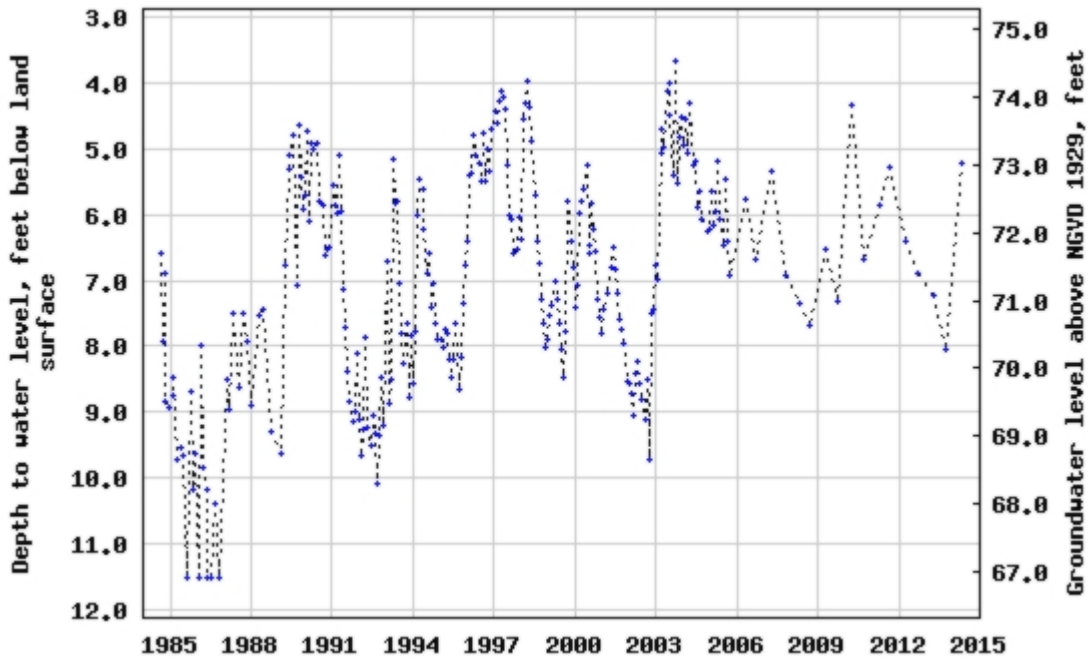
DATUM: Altitude of land surface is 78.31 ft above NGVD of 1929.

MEASURING POINT: Top of casing 5.5 ft above land surface.

PERIOD OF RECORD: August 1984 to current year.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

Date	Water level
4/14/2011	5.87
8/30/2011	5.29
4/16/2012	6.40
9/10/2012	6.88
4/8/2013	7.24
9/23/2013	8.04
4/28/2014	5.23



WELL NUMBER: AA Ad 109

PERMIT NUMBER: AA-81-4890

LOCATION: Dorsey Road, Glen Burnie

LAT. 39° 10' 06", LONG. 76° 38' 01"

AQUIFER: Lower Patapsco aquifer in the Patapsco Formation of Lower Cretaceous age.

WELL CHARACTERISTICS: Drilled, observation, artesian well, depth 46 ft;

Casing diameter: 4 in. to 36 ft;

Screen diameter: 4 in. from 36 to 46 ft.

INSTRUMENTATION: Periodic measurements.

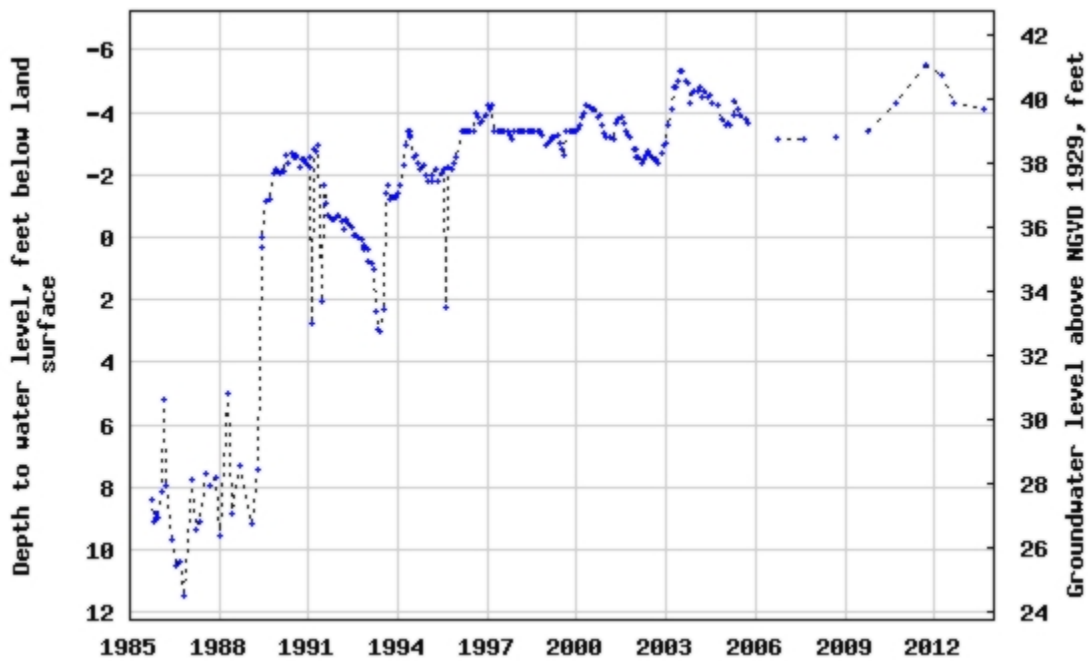
DATUM: Altitude of land surface is 35.78 ft above NGVD of 1929.

MEASURING POINT: Top of recorder platform 4.29 ft above land surface.

PERIOD OF RECORD: October 1985 to current year.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM (READINGS ABOVE LAND-SURFACE INDICATED BY "-")

Date	Water level
9/21/2011	-5.51
4/9/2012	-5.19
9/5/2012	-4.27
9/4/2013	-4.08



WELL NUMBER: AA Bc 215

PERMIT NUMBER: AA-81-1035

LOCATION: Telegraph Road

LAT. 39° 07' 00", LONG. 76° 41' 26"

AQUIFER: Lower Patapsco aquifer in the Patapsco Formation of Lower Cretaceous age.

WELL CHARACTERISTICS: Drilled, production, artesian well, depth 325 ft;

Casing diameter: 16 in. to 236 ft

Screen diameter: 10 in. from 235 to 239 ft, 250 to 284 ft, and 288 to 316 ft.

INSTRUMENTATION: Periodic measurements.

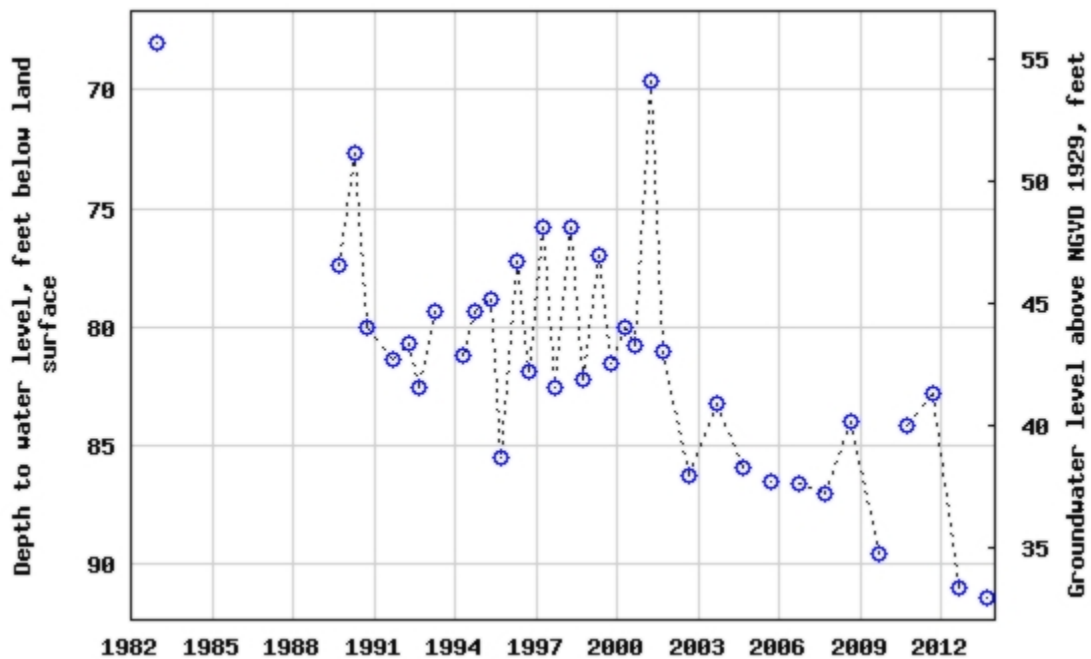
DATUM: Altitude of land surface is 124 ft above NGVD of 1929.

MEASURING POINT: Top of riser pipe 1 ft above land surface.

PERIOD OF RECORD: December 1989 to current year.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

Date	Water level
9/8/2011	82.82
9/5/2012	91.01
9/13/2013	91.40



WELL NUMBER: AA Bd 152

PERMIT NUMBER: AA-81-3463

LOCATION: Woodside School, Glen Burnie

LAT. 39° 08' 21", LONG. 76° 36' 54"

AQUIFER: Lower Patapsco aquifer in the Patapsco Formation of Lower Cretaceous age.

WELL CHARACTERISTICS: Drilled, observation, artesian well, depth 103 ft;

Casing diameter: 6 in. to 90 ft;

Screen diameter: 4 in. from 90 to 100 ft.

INSTRUMENTATION: Periodic measurements.

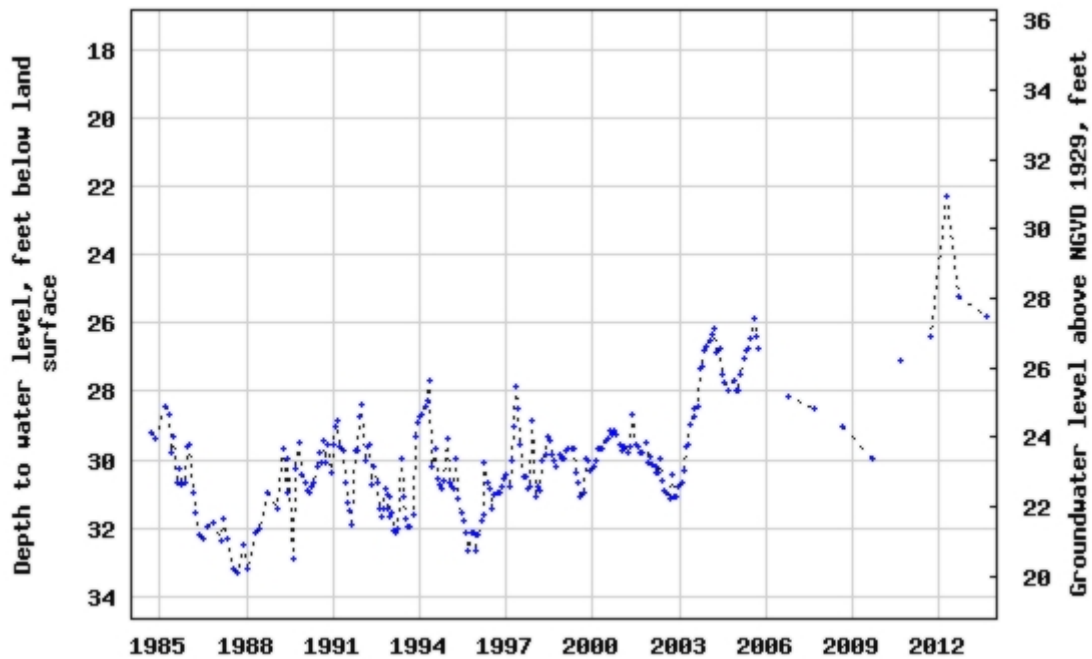
DATUM: Altitude of land surface is 53.29 ft above NGVD of 1929.

MEASURING POINT: Top of recorder platform 3.0 ft above land surface.

PERIOD OF RECORD: March 1985 to current year.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

Date	Water level
9/21/2011	26.37
4/9/2012	22.29
9/5/2012	25.20
9/4/2013	25.81



WELL NUMBER: AA Bd 155

PERMIT NUMBER: AA-81-3460

LOCATION: State Highway Administration, Glen Burnie

LAT. 39° 09' 38", LONG. 76° 38' 37"

AQUIFER: Lower Patapsco aquifer in the Patapsco Formation of Lower Cretaceous age.

WELL CHARACTERISTICS: Drilled, observation, artesian well, depth 159 ft;

Casing diameter: 6 in. to 145 ft;

Screen diameter: 4 in. from 145 to 155 ft.

INSTRUMENTATION: Periodic measurements.

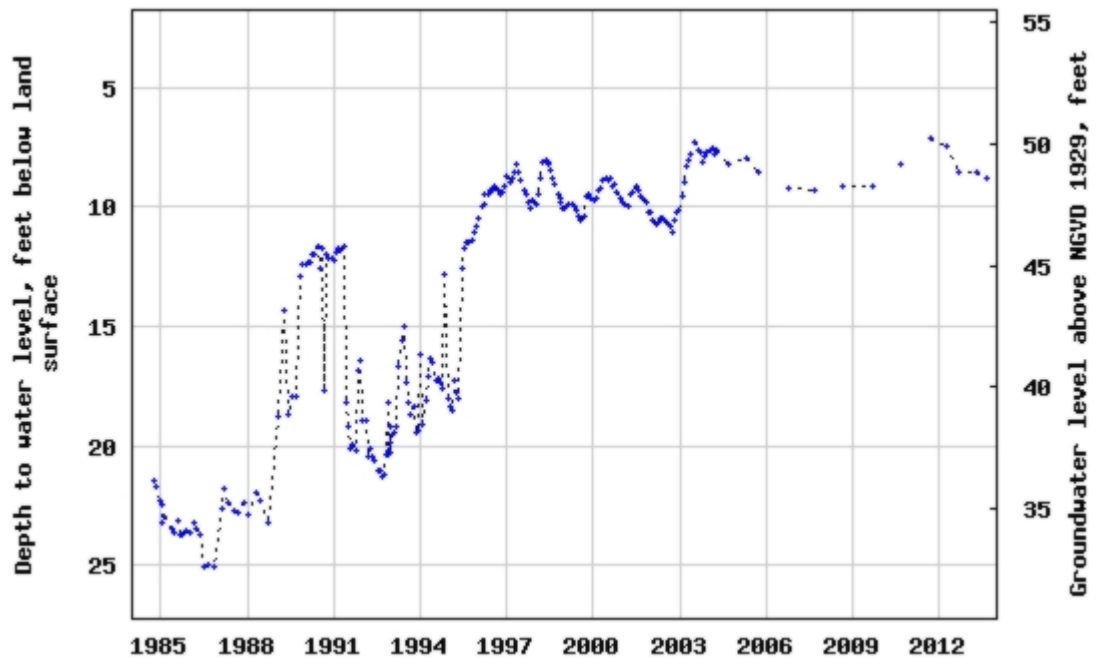
DATUM: Altitude of land surface is 57.50 ft above NGVD of 1929.

MEASURING POINT: Top of recorder platform 2.5 ft above land surface.

PERIOD OF RECORD: October 1984 to current year.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

Date	Water level
9/21/2011	7.09
4/9/2012	7.48
9/5/2012	8.56
4/29/2013	8.51
9/5/2013	8.78



WELL NUMBER: AA Bd 156

PERMIT NUMBER: AA-81-3462

LOCATION: Baltimore-Annapolis Bike Trail, 0.3 mi. north
of Aquahart Rd., Glen Burie

LAT. 39° 09' 22", LONG. 76° 37' 10"

AQUIFER: Lower Patapsco aquifer in the Patapsco Formation of Lower Cretaceous age.

WELL CHARACTERISTICS: Drilled, observation, artesian well, depth 173 ft;

Casing diameter: 6 in. to 160 ft; 4 in. from 170 to 173 ft;

Screen diameter: 4 in. from 160 to 170 ft.

INSTRUMENTATION: Periodic measurements.

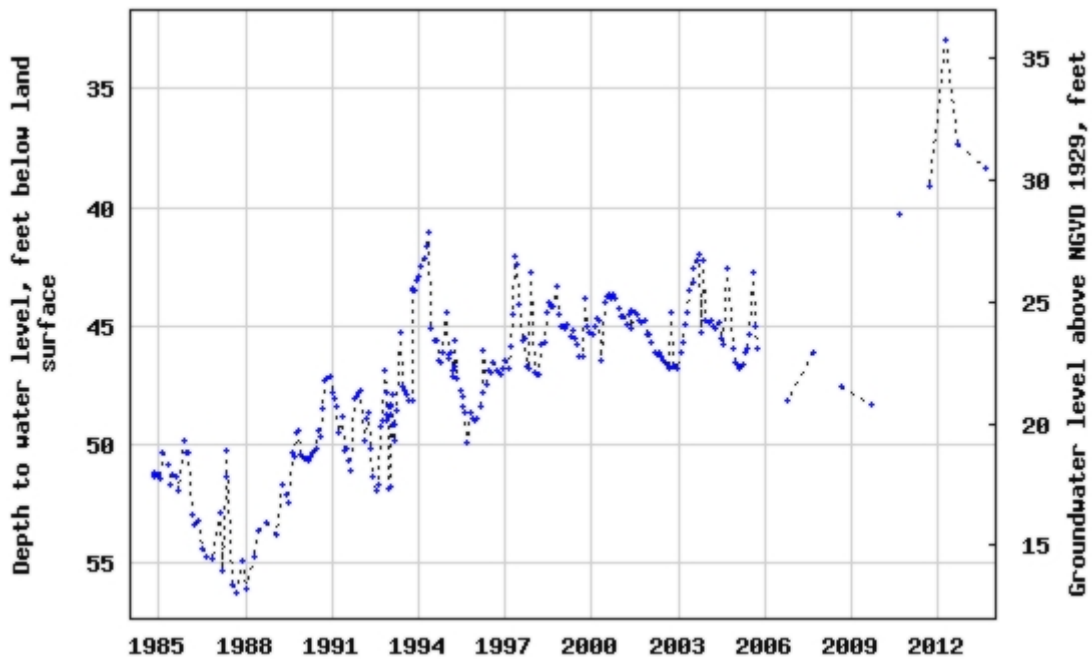
DATUM: Altitude of land surface is 68.99 ft above NGVD of 1929.

MEASURING POINT: Top of recorder platform 2.26 ft above land surface.

PERIOD OF RECORD: October 1984 to current year.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

Date	Water level
9/21/2011	39.11
4/9/2012	32.95
9/5/2012	37.33
9/4/2013	38.37



WELL NUMBER: AA Bd 157

PERMIT NUMBER: AA-81-3464

LOCATION: Rippling Woods Elementary School, Glen Burnie LAT. 39° 07' 37", LONG. 76° 37' 44"

AQUIFER: Lower Patapsco aquifer in the Patapsco Formation of Lower Cretaceous age.

WELL CHARACTERISTICS: Drilled, observation, artesian well, depth 180 ft;

Casing diameter: 6 in. to 167 ft;

Screen diameter: 4 in. from 167 to 177 ft.

INSTRUMENTATION: Periodic measurements.

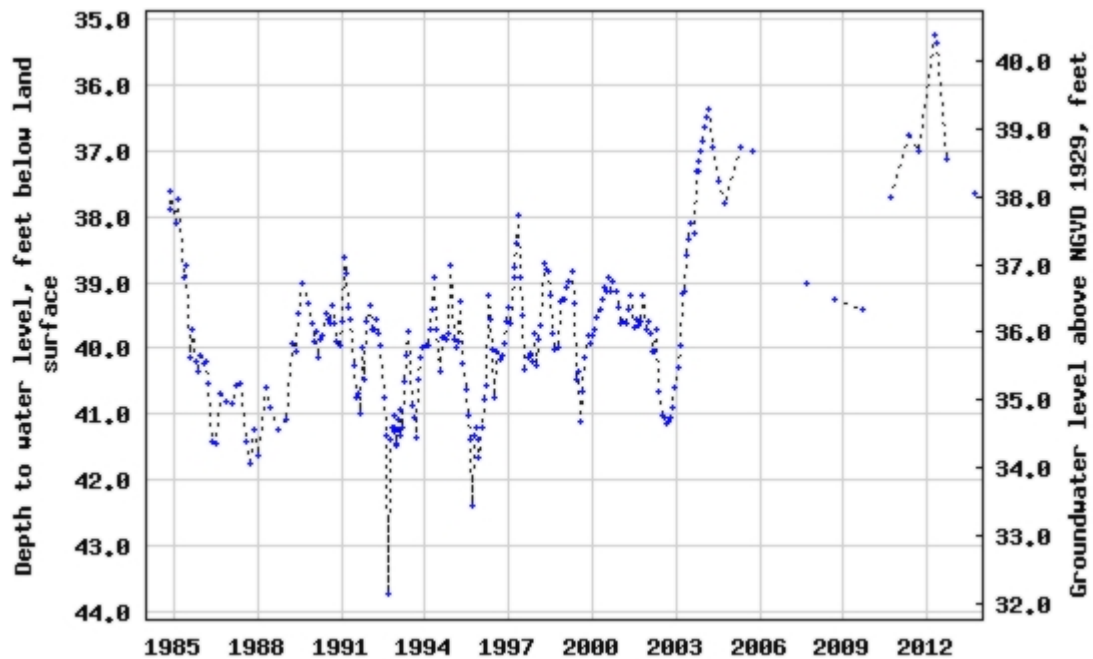
DATUM: Altitude of land surface is 75.75 ft above NGVD of 1929.

MEASURING POINT: Top of recorder platform 2.5 ft above land surface.

PERIOD OF RECORD: March 1985 to current year*.

WATER LEVEL IN FEET BELOW LAND SURFACE DATUM

Date	Water level
4/26/2011	36.77
9/21/2011	37
4/9/2012	35.25
5/2/2012	35.36
9/5/2012	37.12
9/5/2013	37.66



WELL NUMBER: AA Bd 158

PERMIT NUMBER: AA-81-3459

LOCATION: Center for Applied Technology, Glen Burnie

LAT. 39° 07' 44", LONG. 76° 37' 00"

AQUIFER: Lower Patapsco aquifer in the Patapsco Formation of Lower Cretaceous age.

WELL CHARACTERISTICS: Drilled, observation, artesian well, depth 187 ft;

Casing diameter: 6 in. to 174 ft;

Screen diameter: 4 in. from 174 to 184 ft.

INSTRUMENTATION: Periodic measurements.

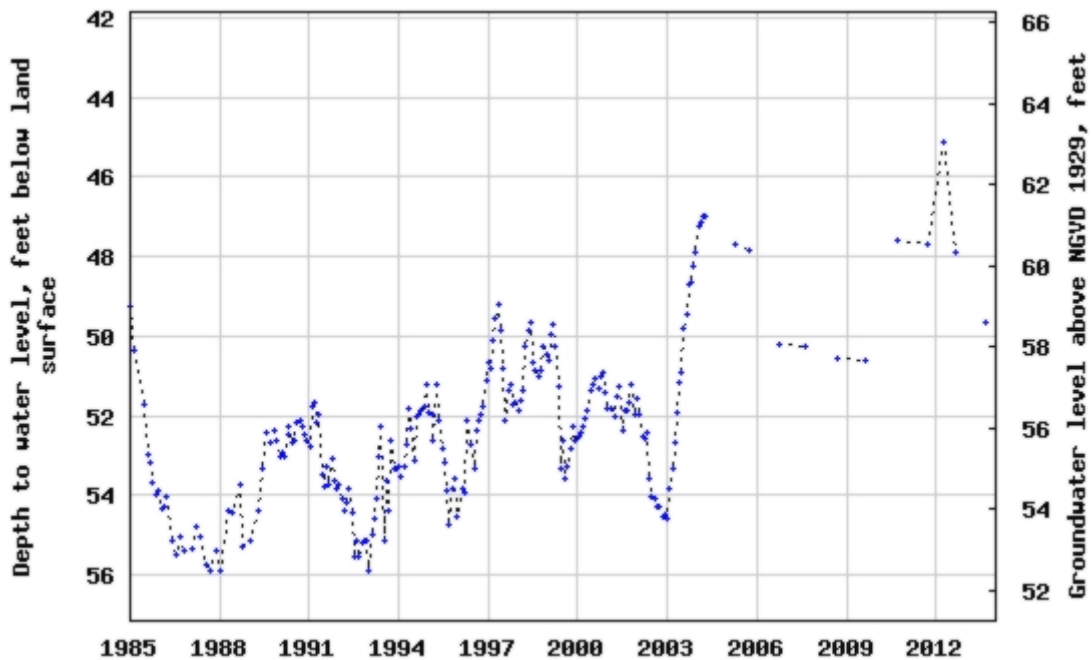
DATUM: Altitude of land surface is 108.25 ft above NGVD of 1929.

MEASURING POINT: Top of recorder platform 2.6 ft above land surface.

PERIOD OF RECORD: January 1985 to current year.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

Date	Water level
9/22/2011	47.69
4/9/2012	45.12
9/5/2012	47.91
9/5/2013	49.63



WELL NUMBER: AA Bd 159

PERMIT NUMBER: AA-81-3949

LOCATION: Rippling Woods Elementary School,
near Glen Burnie

LAT. 39° 07' 37", LONG. 76° 37' 44"

AQUIFER: Upper Patapsco aquifer in the Patapsco Formation of Lower Cretaceous age.

WELL CHARACTERISTICS: Drilled, observation, artesian well, depth 100 ft;

Casing diameter: 6 in. to 89 ft;

Screen diameter: 4 in. from 89 to 99 ft.

INSTRUMENTATION: Periodic measurements.

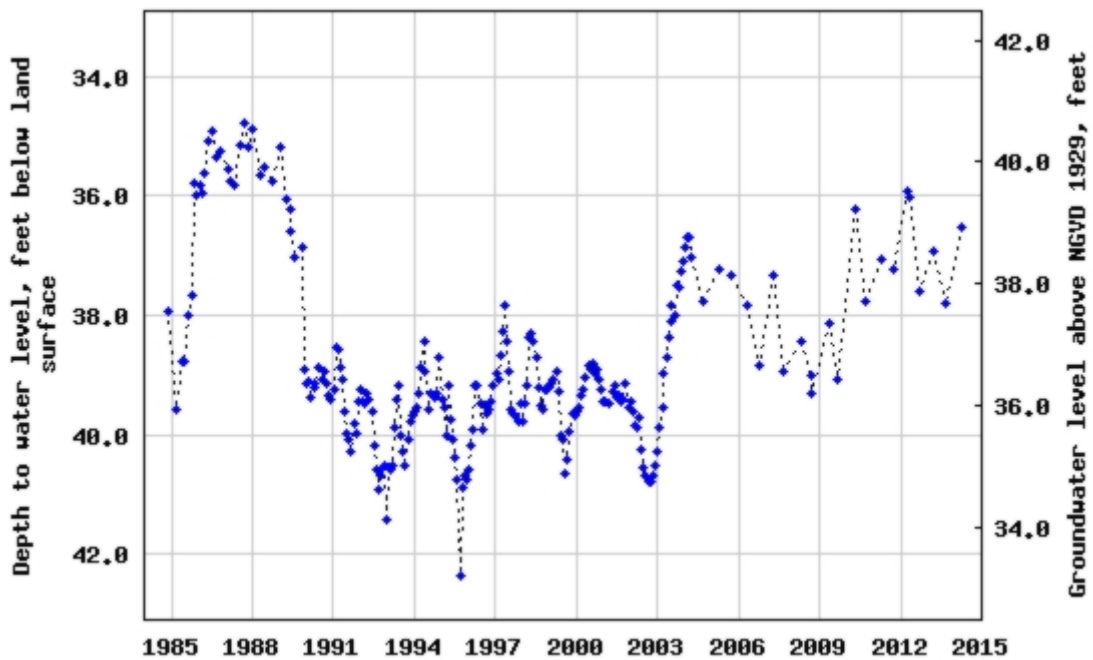
DATUM: Altitude of land surface is 75.48 ft above NGVD of 1929.

MEASURING POINT: Top of casing 2.5 ft above land surface.

PERIOD OF RECORD: 1984 to current year.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

Date	Water level
4/26/2011	37.05
9/21/2011	37.24
4/9/2012	35.92
5/2/2012	36.03
9/5/2012	37.59
4/2/2013	36.93
9/5/2013	37.80
4/14/2014	36.52



WELL NUMBER: AA Bd 160

PERMIT NUMBER: AA-81-3461

LOCATION: Queenstown Park, near Glen Burnie

LAT. 39° 09' 08", LONG. 76° 39' 44"

AQUIFER: Lower Patapsco aquifer in the Patapsco Formation of Lower Cretaceous age.

WELL CHARACTERISTICS: Drilled, observation, artesian well, depth 118 ft;

Casing diameter: 6 in. to 105 ft;

Screen diameter: 4 in. from 105 to 115 ft.

INSTRUMENTATION: Periodic measurements.

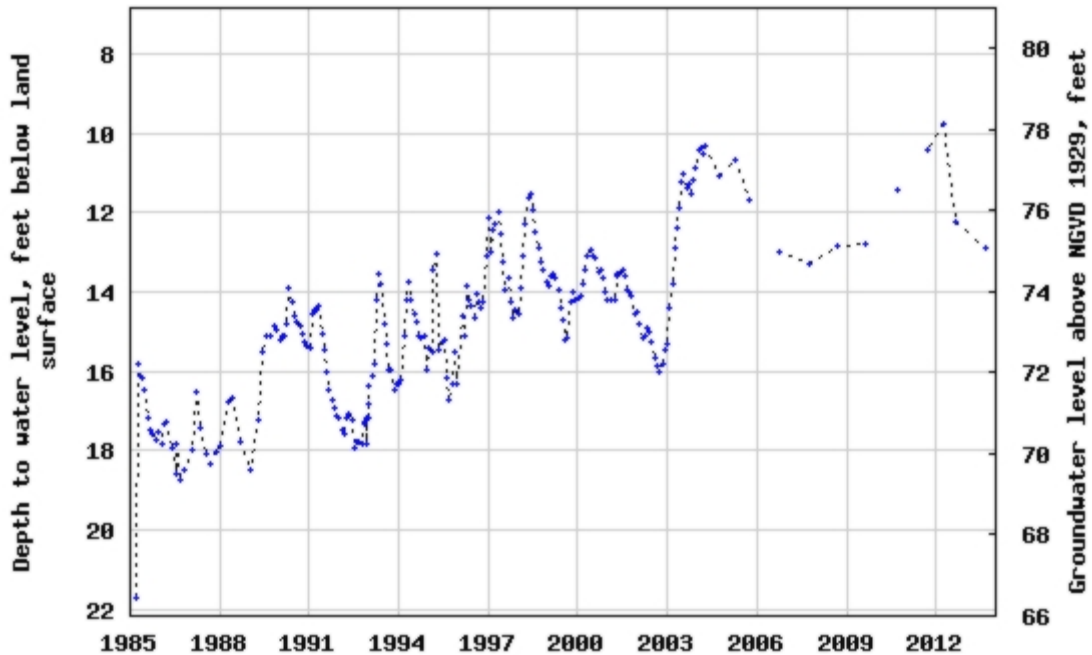
DATUM: Altitude of land surface is 88 ft above NGVD of 1929.

MEASURING POINT: Top of recorder platform 2.5 ft above land surface.

PERIOD OF RECORD: March 1985 to current year.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

Date	Water level
9/21/2011	10.41
4/9/2012	9.77
9/5/2012	12.22
9/5/2013	12.89



WELL NUMBER: AA Cb 1

PERMIT NUMBER: AA-03-5695

LOCATION: Patuxent Wildlife Refuge Center

LAT. 39° 03' 03", LONG. 76° 46' 32"

AQUIFER: Patuxent Formation of Lower Cretaceous age.

WELL CHARACTERISTICS: Drilled, observation, artesian well, depth 505 ft;

Casing diameter: 6 in. to 485 ft;

Screen diameter: 6 in. from 485 to 505 ft.

INSTRUMENTATION: Periodic measurements.

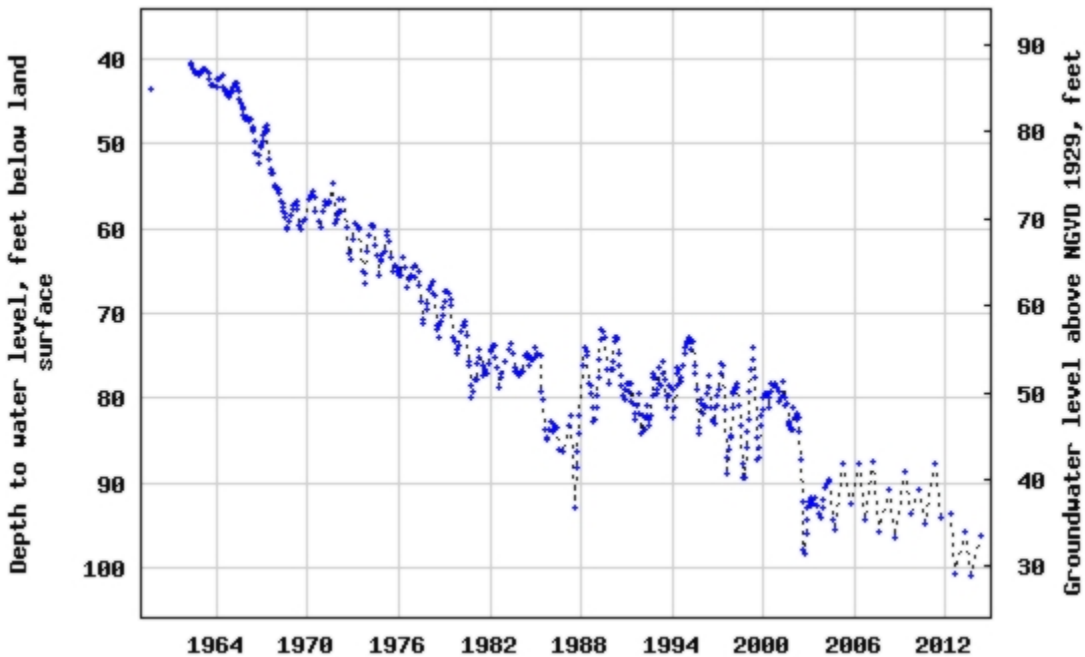
DATUM: Altitude of land surface is 129.10 ft above NGVD of 1929.

MEASURING POINT: Top of recorder platform 3.35 ft above land surface.

PERIOD OF RECORD: March 1962 to current year.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

Date	Water level
4/26/2011	87.61
9/20/2011	94.15
5/1/2012	93.56
9/4/2012	100.60
4/4/2013	95.80
9/13/2013	100.94
4/14/2014	96.19



WELL NUMBER: AA Cc 82

PERMIT NUMBER: AA-04-6965

LOCATION: King Heights Water-Treatment Plant

LAT. 39° 04' 22", LONG. 76° 41' 45"

AQUIFER: Lower Patapsco aquifer in the Patapsco Formation of Lower Cretaceous age.

WELL CHARACTERISTICS: Drilled, observation, artesian well, depth 458 ft;

Casing diameter: 1 in. to 455 ft;

Screen diameter: 1.25 in. from 455 to 458 ft.

INSTRUMENTATION: Periodic measurements.

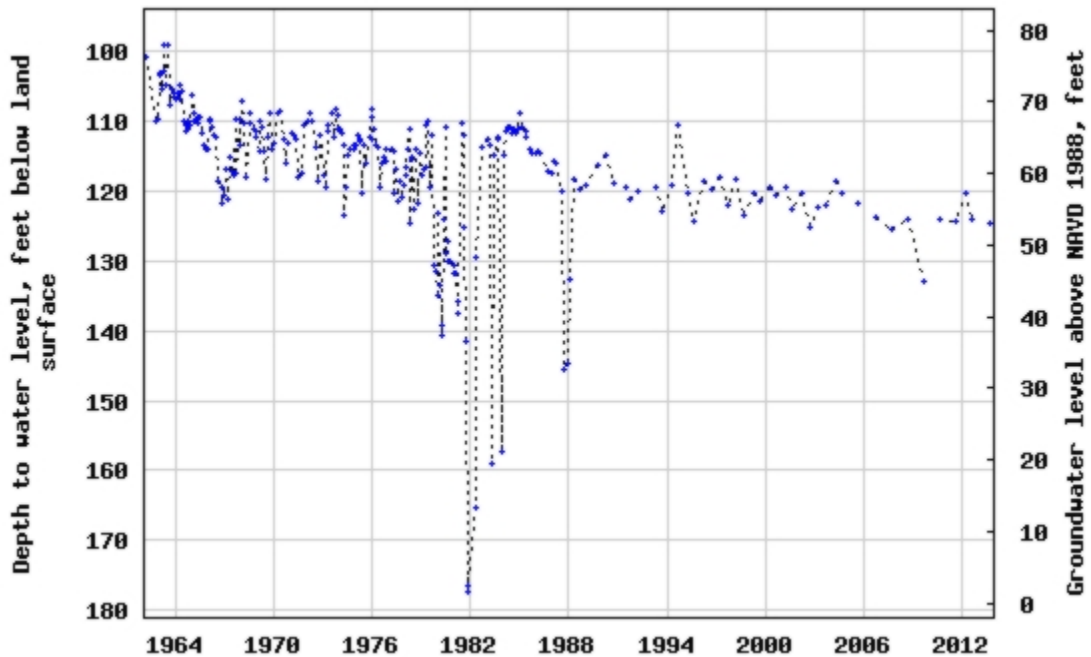
DATUM: Altitude of land surface is 178.39 ft above NGVD of 1929.

MEASURING POINT: Top of casing 0.5 ft above land surface.

PERIOD OF RECORD: 1962 to current year.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

Date	Water level
9/2/2011	124.27
4/9/2012	120.25
9/5/2012	124.13
9/12/2013	124.61



WELL NUMBER: AA Cc 89

PERMIT NUMBER: AA-65-0672

LOCATION: Crofton Water-Treatment Plant

LAT. 39° 00' 10", LONG. 76° 41' 57"

AQUIFER: Lower Patapsco aquifer in the Patapsco Formation of Lower Cretaceous age.

WELL CHARACTERISTICS: Drilled, observation, artesian well, depth 605 ft;

Casing diameter: 20 in. to 525 ft; 10 in. to 260 ft; 8 in. from 260 to 575 ft;

Screen diameter: 8 in. from 575 to 605 ft.

INSTRUMENTATION: Periodic measurements.

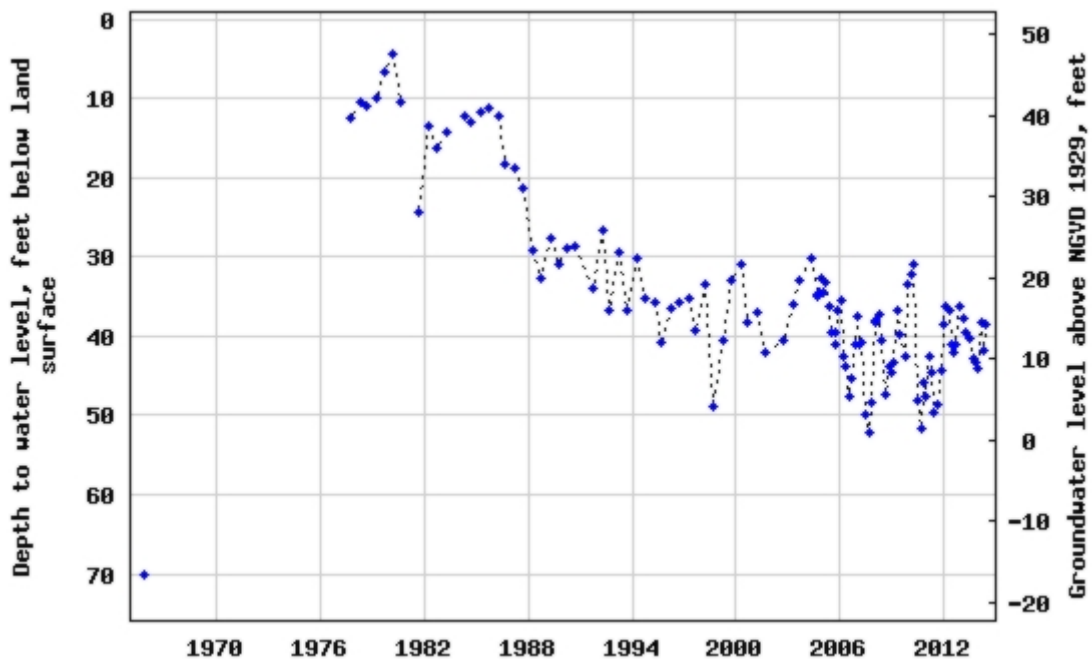
DATUM: Altitude of land surface is 53 ft above NGVD of 1929.

MEASURING POINT: Top of recorder platform 3.6 ft above land surface.

PERIOD OF RECORD: 1977 to current year.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

Date	Water level
2/6/2013	37.78
4/8/2013	39.51
6/12/2013	40.23
9/23/2013	42.90
11/19/2013	43.35
12/18/2013	44.17
2/25/2014	38.19
4/28/2014	41.92
6/11/2014	38.58



WELL NUMBER: AA Cc 102

PERMIT NUMBER: AA-72-0907

LOCATION: Crofton Water-Treatment Plant

LAT. 39° 00' 04", LONG. 76° 42' 00"

AQUIFER: Patuxent Formation of Lower Cretaceous age.

WELL CHARACTERISTICS: Drilled, observation, artesian well, depth 960 ft;

Casing diameter: 20 in. to 820 ft; 10 in. to 850 ft;

Screen diameter: 10 in. from 850 to 960 ft.

INSTRUMENTATION: Periodic measurements.

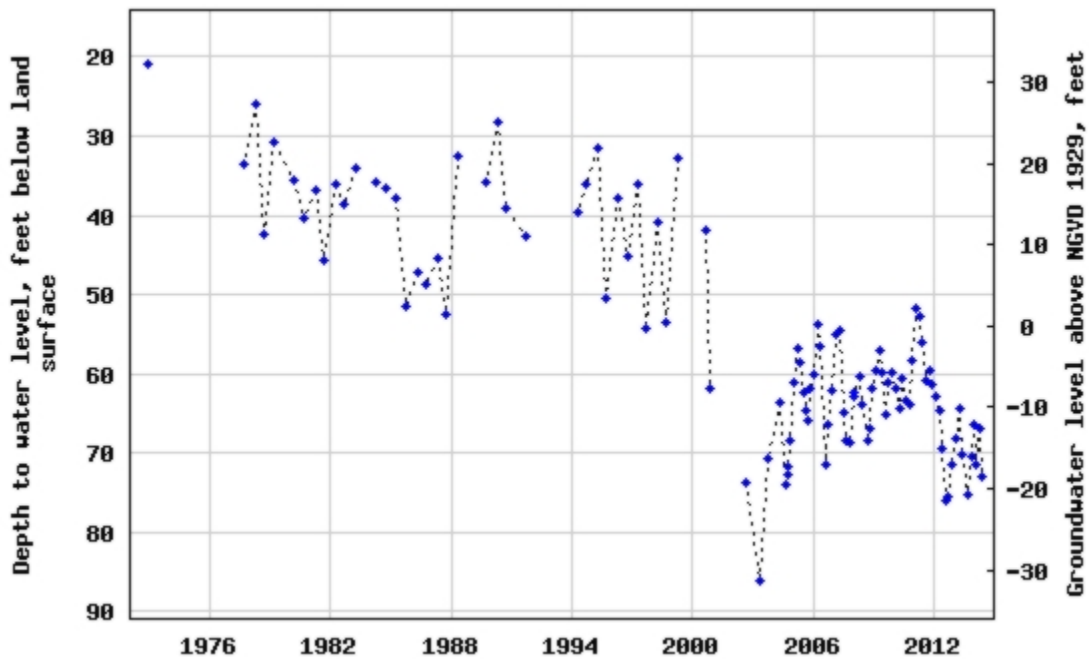
DATUM: Altitude of land surface is 54 ft above NGVD of 1929.

MEASURING POINT: Top of recorder platform 3.3 ft above land surface.

PERIOD OF RECORD: 1972 to current year.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

Date	Water level
2/6/2013	68.10
4/8/2013	64.35
6/12/2013	70.14
9/23/2013	75.20
11/19/2013	70.40
12/18/2013	66.44
2/25/2014	71.46
4/28/2014	66.88
6/11/2014	73.02



WELL NUMBER: AA Cc 115

PERMIT NUMBER: AA-73-9755

LOCATION: Crofton Meadows Water-Treatment Plant

LAT. 39° 01' 03", LONG. 76° 40' 26"

AQUIFER: Lower Patapsco aquifer in the Patapsco Formation of Lower Cretaceous age.

WELL CHARACTERISTICS: Drilled, observation, artesian well, depth 671 ft;

Casing diameter: 4 in. to 661 ft;

Screen diameter: 4 in. from 661 to 671 ft;

INSTRUMENTATION: Periodic measurements.

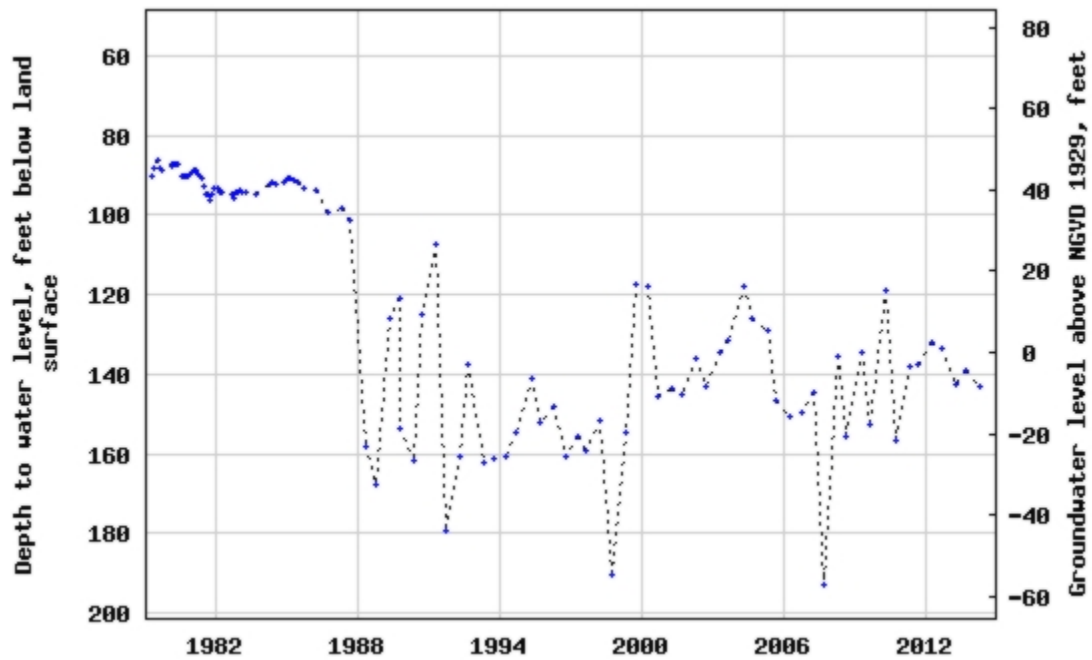
DATUM: Altitude of land surface is 134.38 ft above NGVD of 1929.

MEASURING POINT: Top of recorder platform 3.55 ft above land surface.

PERIOD OF RECORD: 1979 to current year.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

Date	Water level
4/16/2012	131.97
9/4/2012	133.55
4/11/2013	142.70
9/10/2013	138.91
4/14/2014	143.30



WELL NUMBER: AA Cc 116

PERMIT NUMBER: AA-73-9756

LOCATION: Crofton Meadows Water-Treatment Plant

LAT. 39° 01' 03", LONG. 76° 40' 26"

AQUIFER: Lower Patapsco aquifer in the Patapsco Formation of Lower Cretaceous age.

WELL CHARACTERISTICS: Drilled, observation, artesian well, depth 483 ft;

Casing diameter: 4 in. to 473 ft;

Screen diameter: 4 in. from 473 to 483 ft;

INSTRUMENTATION: Periodic measurements.

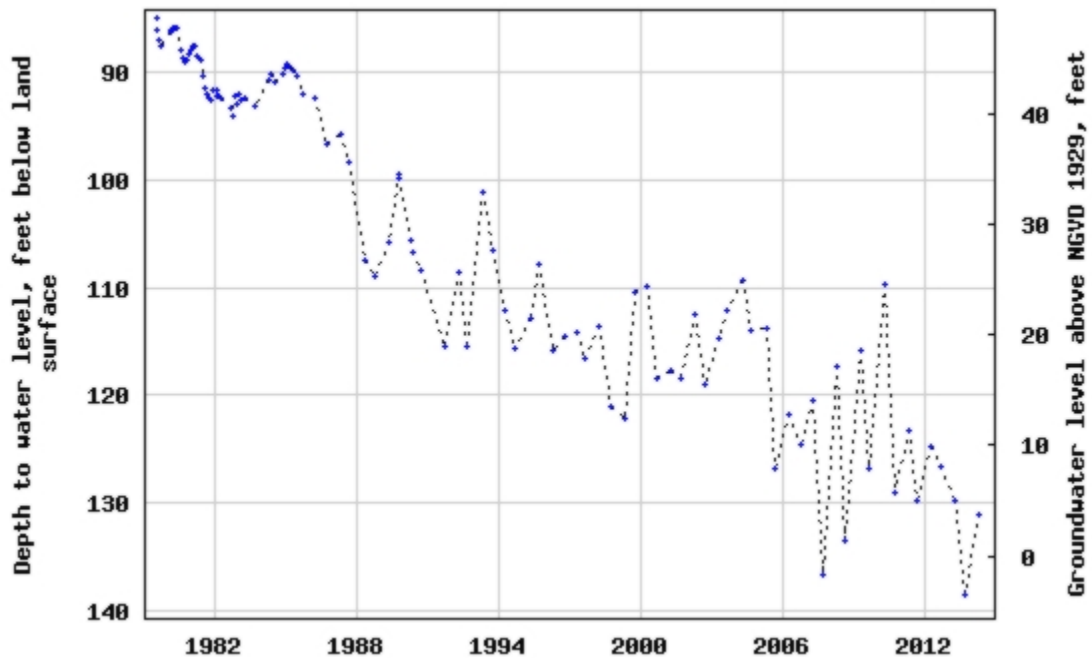
DATUM: Altitude of land surface is 134.35 ft above NGVD of 1929.

MEASURING POINT: Top of recorder platform 3.0 ft above land surface.

PERIOD OF RECORD: 1979 to current year.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

Date	Water level
4/16/2012	124.69
9/4/2012	126.57
4/11/2013	129.84
9/10/2013	138.45
4/14/2014	131.01



WELL NUMBER: AA Cc 135

PERMIT NUMBER: AA-93-0998

LOCATION: Crofton Meadows Water-Treatment Plant

LAT. 39° 01' 26", LONG. 76° 40' 30"

AQUIFER: Patuxent Formation of Lower Cretaceous age.

WELL CHARACTERISTICS: Drilled, observation, artesian well, depth 1,100 ft.

Casing diameter: 4 in. to 299 ft; 2 in. from 299 to 985 ft, and 1,035 to 1,070 ft;

Screen diameter: 2 in. from 985 to 1,035 ft, and 1,070 to 1,100 ft.

INSTRUMENTATION: Periodic measurements.

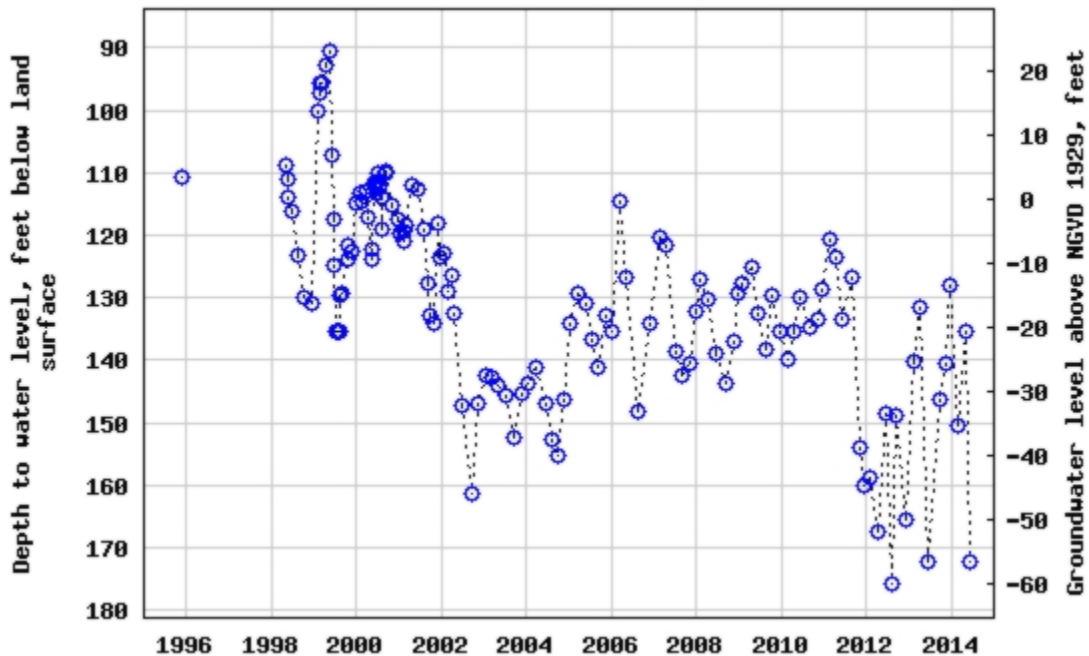
DATUM: Altitude of land surface is 114.81 ft above NGVD of 1929.

MEASURING POINT: Top of 6-inch steel flange 3.48 ft above land surface.

PERIOD OF RECORD: 1997 to current year.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

Date	Water level
2/6/2013	140.30
4/8/2013	131.52
6/12/2013	172.39
9/23/2013	146.40
11/19/2013	140.38
12/18/2013	128.03
2/25/2014	150.40
4/28/2014	135.39
6/11/2014	172.34



WELL NUMBER: AA Cc 137

PERMIT NUMBER: AA-93-0993

LOCATION: Crofton Meadows Water-Treatment Plant

LAT. 39° 01' 26", LONG. 76° 40' 29"

AQUIFER: Lower Patapsco aquifer in the Patapsco Formation of Lower Cretaceous age.

WELL CHARACTERISTICS: Drilled, observation, artesian well, depth 690 ft.

Casing diameter: 4 in. to 300 ft; 2 in. from 300 to 476 ft, 506 to 536 ft, and 576 to 606 ft;

Screen diameter: 2 in. from 476 to 506 ft, 536 to 576 ft, and 606 to 686 ft.

INSTRUMENTATION: Periodic measurements.

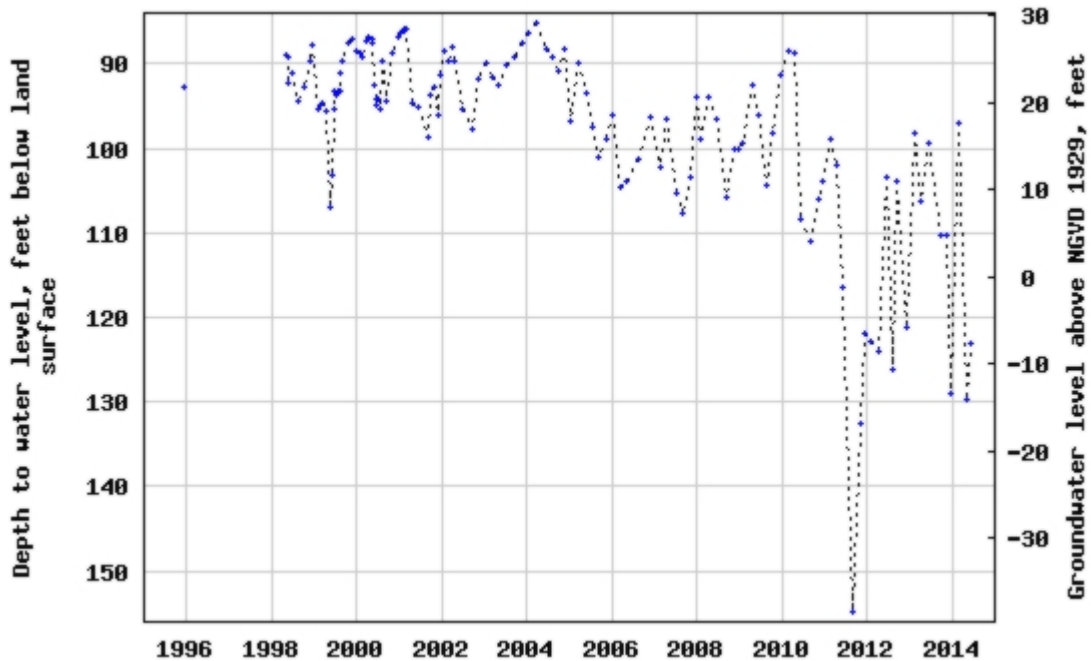
DATUM: Altitude of land surface is 117.00 ft above NGVD of 1929.

MEASURING POINT: Top of 4-inch PVC casing 2.2 ft above land surface.

PERIOD OF RECORD: 1997 to current year.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

Date	Water level
2/6/2013	98.16
4/5/2013	106.22
6/12/2013	99.50
9/23/2013	110.24
11/19/2013	110.22
12/18/2013	129.08
2/25/2014	97.00
4/28/2014	139.73
6/11/2014	122.98



WELL NUMBER: AA Ce 117

PERMIT NUMBER: AA-73-0172

LOCATION: Severndale Water-Treatment Plant

LAT. 39° 04' 50", LONG. 76° 34' 34"

AQUIFER: Patuxent Formation of Lower Cretaceous age.

WELL CHARACTERISTICS: Drilled, observation, artesian well, depth 922 ft;

Casing diameter: 6 in. to 836 ft, 851 to 870 ft, and 890 to 907 ft;

Screen diameter: 6 in. from 836 to 851 ft, 870 to 890 ft, and 907 to 922 ft.

INSTRUMENTATION: Periodic measurements.

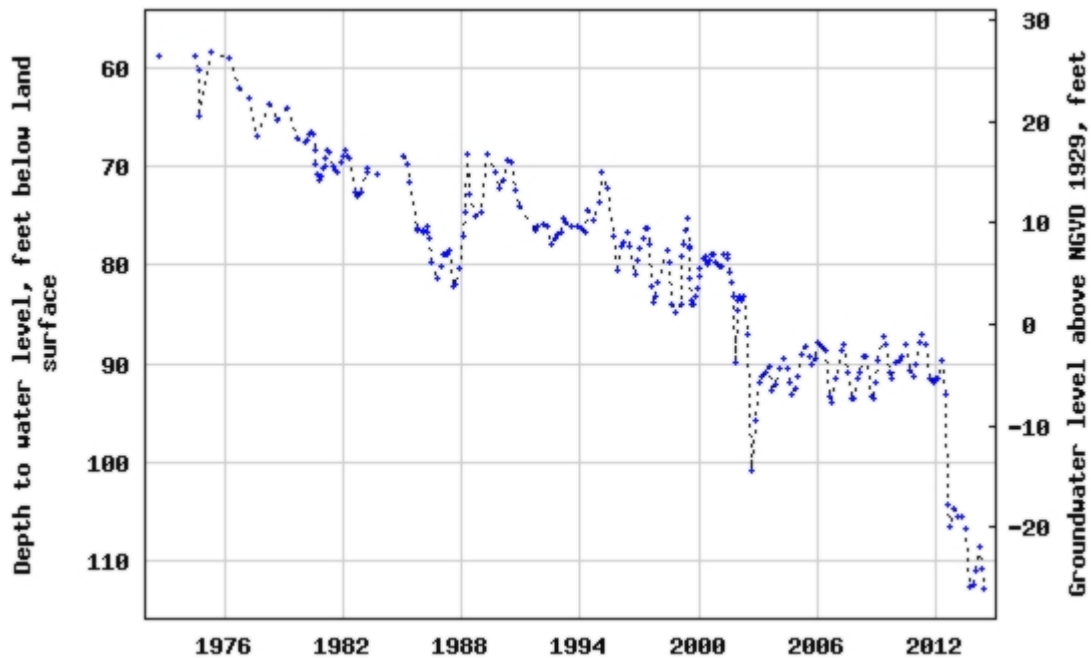
DATUM: Altitude of land surface is 86.0 ft above NGVD of 1929.

MEASURING POINT: Top of recorder platform 0.5 ft above land surface.

PERIOD OF RECORD: 1977 to current year.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

Date	Water level
2/6/2013	105.42
4/8/2013	105.35
6/12/2013	106.71
9/23/2013	112.49
11/19/2013	112.26
12/18/2013	110.88
2/25/2014	108.53
4/28/2014	110.68
6/11/2014	112.65



WELL NUMBER: AA Cf 99

PERMIT NUMBER: AA-70-0199

LOCATION: Traffic Engineering Building, Broad Neck

LAT. 39° 01' 50", LONG. 76° 28' 30"

AQUIFER: Magothy Formation of Upper Cretaceous age.

WELL CHARACTERISTICS: Drilled, observation, artesian well, depth 220 ft.

Casing diameter: 2 in. to 210 ft.

Screen diameter: 2 in. from 210 to 220 ft.

INSTRUMENTATION: Periodic measurements.

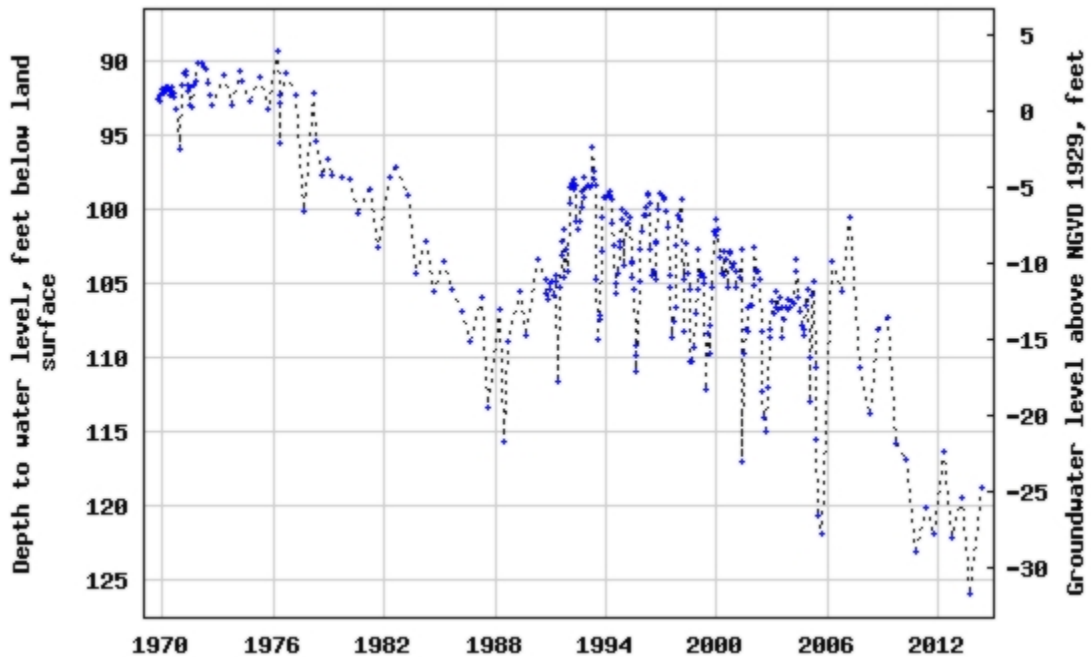
DATUM: Altitude of land surface is 93.70 ft above NGVD of 1929.

MEASURING POINT: Top of casing 3.60 ft above land surface.

PERIOD OF RECORD: January 1971 to current year.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

Date	Water level
4/4/2012	116.35
9/6/2012	122.10
4/25/2013	119.45
9/20/2013	125.80
4/24/2014	118.80



WELL NUMBER: AA Cf 134

PERMIT NUMBER: AA-70-0171

LOCATION: Amberly Water-Treatment Plant

LAT. 39° 01' 21", LONG. 76° 27' 05"

AQUIFER: Upper Patapsco aquifer in the Patapsco Formation of Lower Cretaceous age.

WELL CHARACTERISTICS: Drilled, observation, artesian well, depth 590 ft.

Casing diameter: 24 in. to 370 ft; 16 in. from 270 to 360 ft, 363 to 370 ft, 392 to 455 ft, 495 to 502 ft, 528 to 542 ft, 560 to 566 ft, and 580 to 590 ft.

Screen diameter: 16 in. from 360 to 363 ft, 370 to 392 ft, 455 to 495 ft, 502 to 528 ft, 542 to 560 ft, and 566 to 580 ft.

INSTRUMENTATION: Periodic measurements.

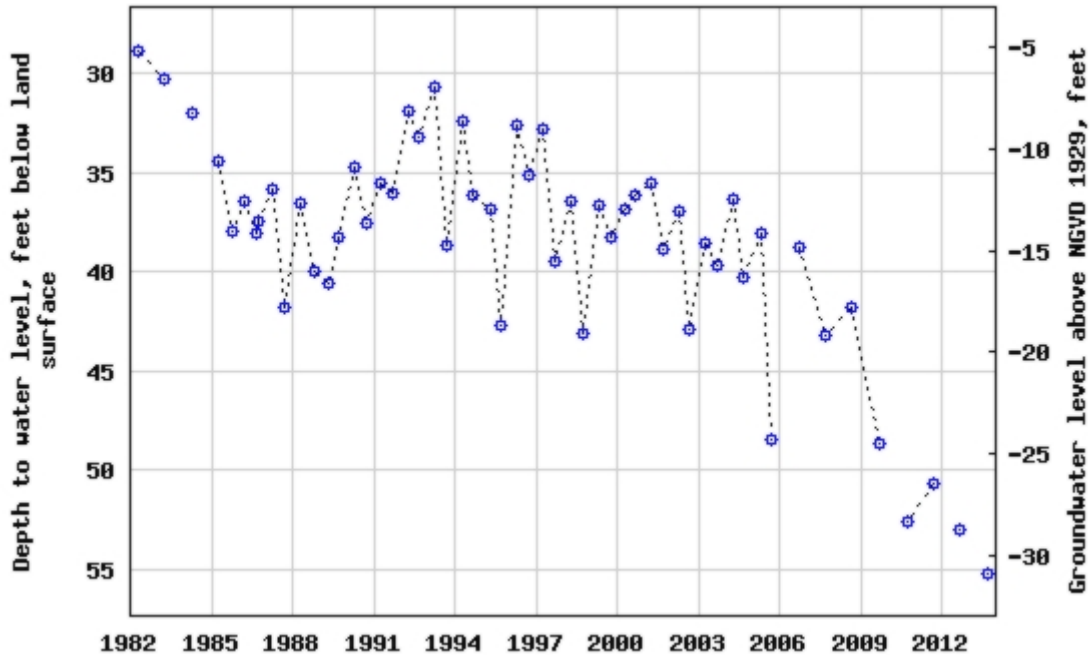
DATUM: Altitude of land surface is 24 ft above NGVD of 1929.

MEASURING POINT: Top of riser pipe 1.45 ft above land surface.

PERIOD OF RECORD: January 1982 to current year.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

Date	Water level
9/2/2011	50.68
9/10/2012	53.05
9/12/2013	55.27



WELL NUMBER: AA Cf 137

PERMIT NUMBER: AA-86-0401

LOCATION: Arnold Water-Treatment Plant

LAT. 39° 02' 05", LONG. 76° 29' 27"

AQUIFER: Lower Patapsco aquifer in the Patapsco Formation of Lower Cretaceous age.

WELL CHARACTERISTICS: Drilled, observation, artesian well, depth 1,030 ft.

Casing diameter: 6 in. to 543 ft, 4 in. from 543 to 791 ft, 816 to 826 ft, 856 to 876 ft, 896 to 916 ft, and 966 to 976 ft.

Screen diameter: 4 in. from 791 to 816 ft, 826 to 856 ft, 876 to 896 ft, and 916 to 966 ft.

INSTRUMENTATION: Periodic measurements.

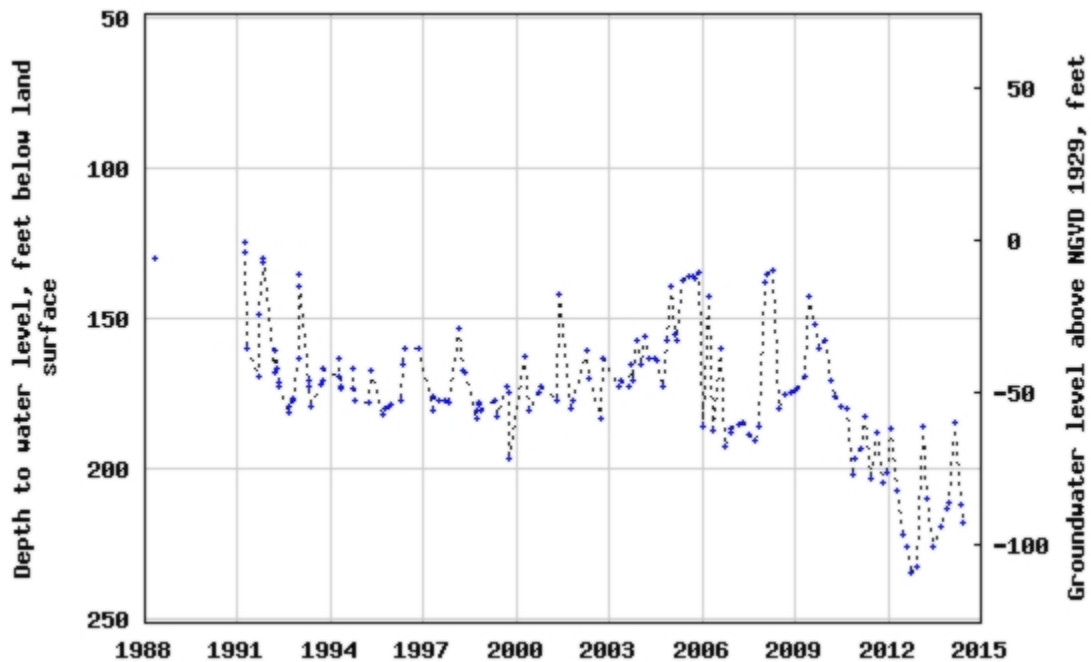
DATUM: Altitude of land surface is 124 ft above NGVD of 1929.

MEASURING POINT: Top of recorder platform 0.5 ft above land surface.

PERIOD OF RECORD: 1989 to current year.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

Date	Water level
2/6/2013	186.36
4/8/2013	210.10
6/12/2013	226.04
9/23/2013	219.70
11/19/2013	213.33
12/18/2013	211.34
2/25/2014	184.84
4/28/2014	211.88
6/11/2014	218.09



WELL NUMBER: AA Cf 166

PERMIT NUMBER: AA-95-3107

LOCATION: Arnold Water-Treatment Plant

LAT. 39° 01' 54", LONG. 76° 28' 29"

AQUIFER: Patuxent aquifer in the Patuxent Formation of Lower Cretaceous age.

WELL CHARACTERISTICS: Drilled, observation, artesian well, depth 1,535 ft.

Casing diameter: 6 in. to 420 ft, 4 in. from 420 to 1,320 ft, 1,340 to 1,360 ft, and 1,400 to 1,500 ft.

Screen diameter: 4 in. from 1,320 to 1,340 ft, 1,360 to 1,400 ft, and 1,500 to 1,530 ft.

INSTRUMENTATION: Periodic measurements.

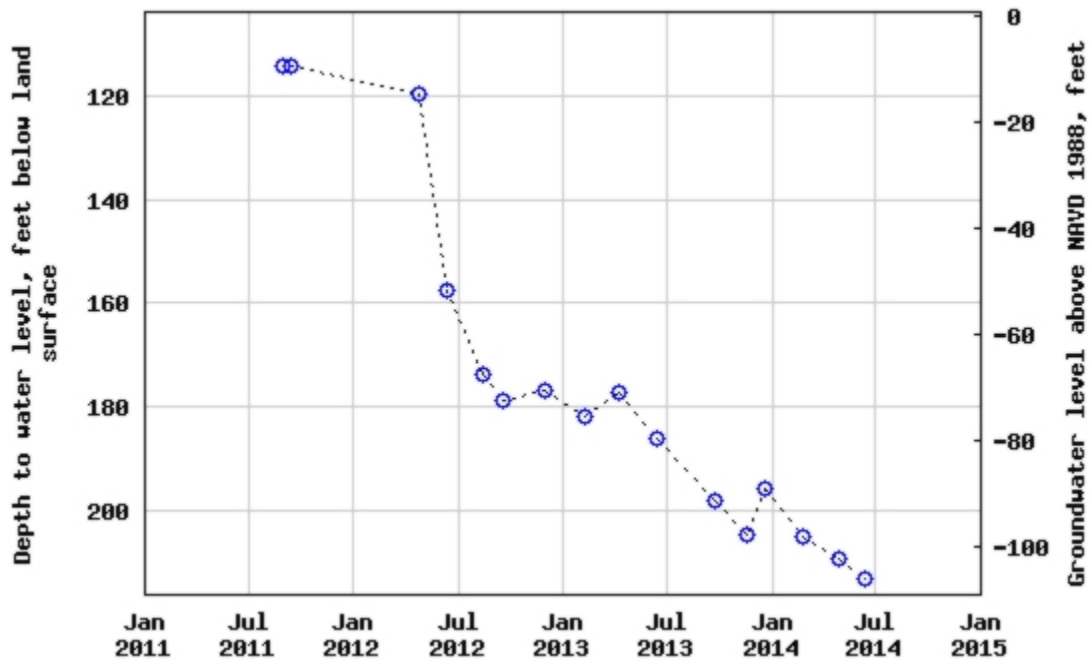
DATUM: Altitude of land surface is 106 ft above NGVD of 1929.

MEASURING POINT: Top of access cover at land surface.

PERIOD OF RECORD: 2011 to current year.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

Date	Water level
4/8/2013	177.44
6/12/2013	186.02
9/23/2013	198.36
11/19/2013	204.86
12/18/2013	195.93
2/25/2014	205.22
4/28/2014	209.56
6/11/2014	213.50



WELL NUMBER: AA Cf 167

PERMIT NUMBER: AA-95-3108

LOCATION: Arnold Water-Treatment Plant

LAT. 39° 01' 54", LONG. 76° 28' 29"

AQUIFER: Lower Patapsco aquifer in the Patapsco Formation of Lower Cretaceous age.

WELL CHARACTERISTICS: Drilled, observation, artesian well, depth 1,505 ft.

Casing diameter: 6 in. to 420 ft, 4 in. from 420 to 750 ft, 775 to 815 ft, 840 to 855 ft, 865 to 880 ft, 890 to 915 ft, 925 to 935 ft, 945 to 960 ft, and 1,000 to 1,032 ft.

Screen diameter: 4 in. from 750 to 775 ft, 815 to 840 ft, 855 to 865 ft, 880 to 890 ft, 915 to 925 ft, 935 to 945 ft, 960 to 1,000 ft, and 1,032 to 1,047 ft.

INSTRUMENTATION: Periodic measurements.

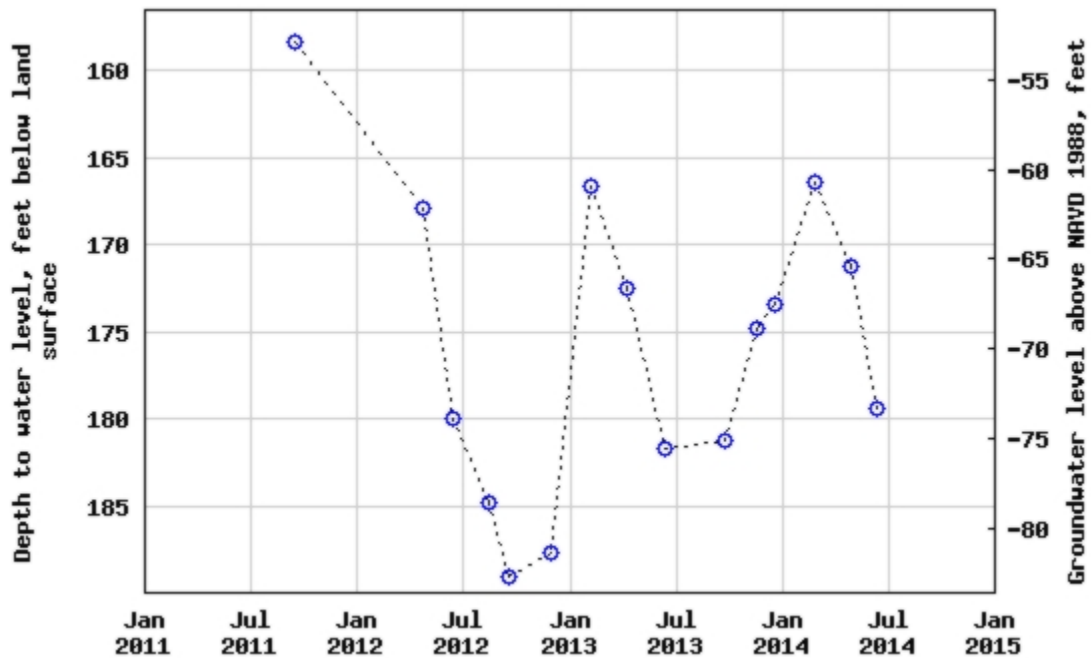
DATUM: Altitude of land surface is 124 ft above NGVD of 1929.

MEASURING POINT: Top of recorder platform 0.5 ft above land surface.

PERIOD OF RECORD: 1989 to current year.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

Date	Water level
4/8/2013	172.55
6/12/2013	181.63
9/23/2013	181.18
11/19/2013	174.81
12/18/2013	173.47
2/25/2014	166.39
4/28/2014	171.25
6/11/2014	179.40



WELL NUMBER: AA Cg 22

PERMIT NUMBER: AA-73-8606

LOCATION: Sandy Point State Park

LAT. 39° 01' 23", LONG. 76° 24' 16"

AQUIFER: Patuxent Formation of Lower Cretaceous age.

WELL CHARACTERISTICS: Drilled, observation, artesian well, depth 1,760 ft.

Casing diameter: 10 in. to 163 ft; 4 in. to 1,735 ft, and from 1,755 to 1,760 ft.

Screen diameter: 4 in. from 1,735 to 1,755 ft.

INSTRUMENTATION: Periodic measurements.

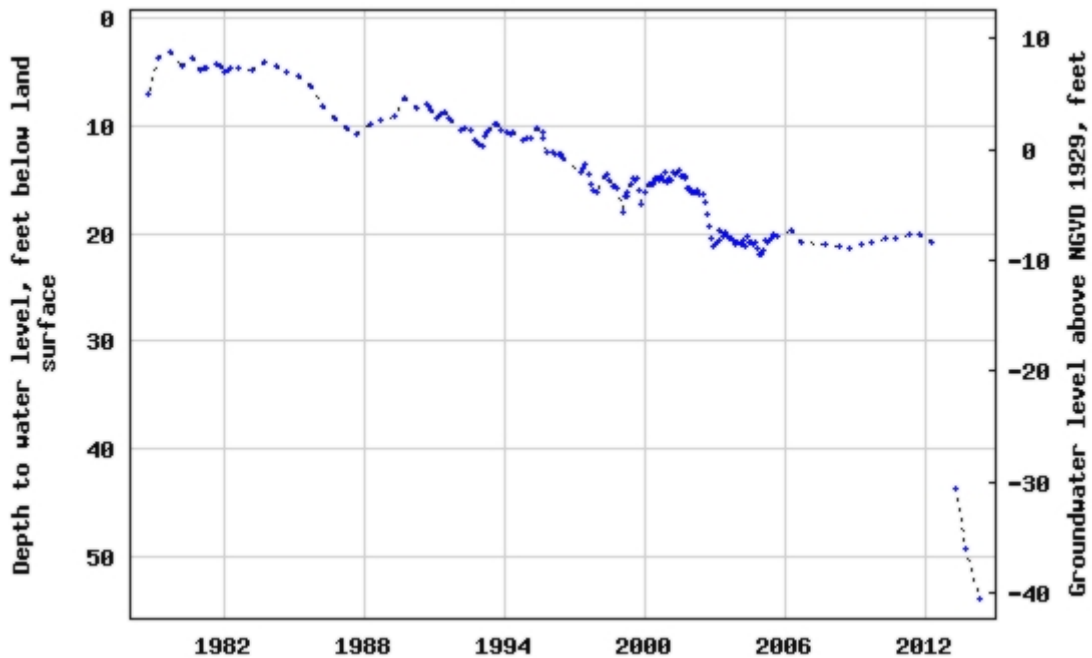
DATUM: Altitude of land surface is 12.61 ft above NGVD of 1929.

MEASURING POINT: Top of casing 3.44 ft above land surface.

PERIOD OF RECORD: 1979 to current year.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

Date	Water level
9/26/2011	20.05
4/4/2012	20.79
4/25/2013	43.60
9/20/2013	49.19
4/23/2014	53.88



WELL NUMBER: AA Cg 23

PERMIT NUMBER: AA-73-8959

LOCATION: Sandy Point State Park

LAT. 39° 01' 23", LONG. 76° 24' 16"

AQUIFER: Lower Patapsco aquifer in the Patapsco Formation of Lower Cretaceous age.

WELL CHARACTERISTICS: Drilled, observation, artesian well, depth 986 ft.

Casing diameter: 10 in. to 163 ft; 4 in. to 968 ft and 978 to 986 ft.

Screen diameter: 4 in. from 968 to 978 ft.

INSTRUMENTATION: Periodic measurements.

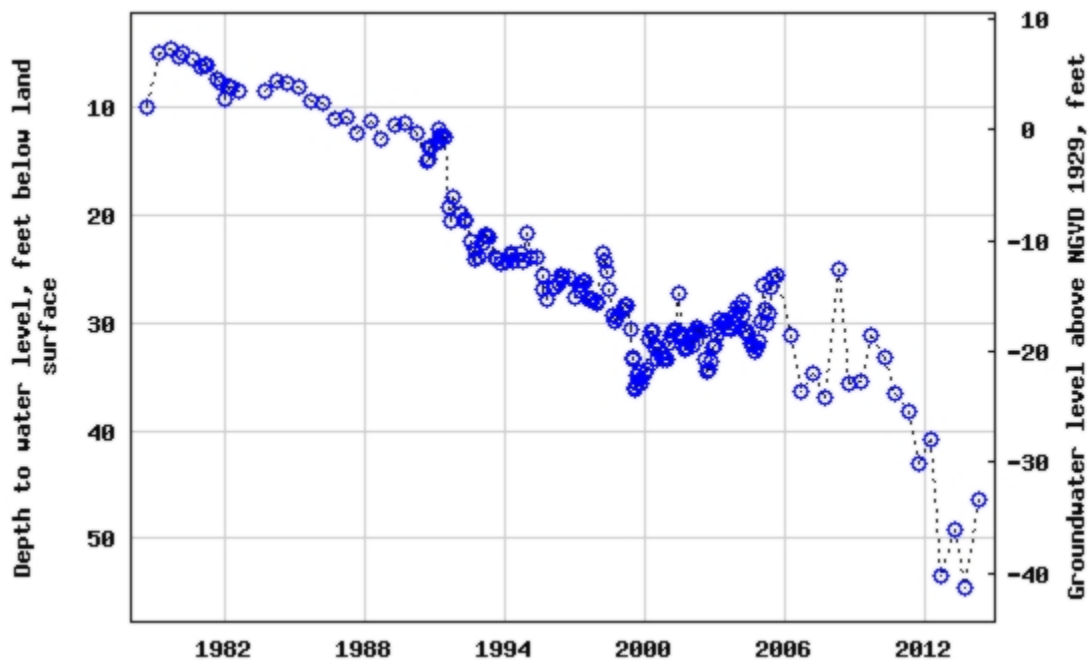
DATUM: Altitude of land surface is 12.57 ft above NGVD of 1929.

MEASURING POINT: Top of recorder platform 3.43 ft above land surface.

PERIOD OF RECORD: 1978 to current year.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

Date	Water level
9/6/2012	53.43
4/25/2013	49.25
9/20/2013	54.64
4/25/2014	46.35



WELL NUMBER: AA Cg 24

PERMIT NUMBER: AA-73-8960

LOCATION: Sandy Point State Park

LAT. 39° 01' 23", LONG. 76° 24' 16"

AQUIFER: Upper Patapsco aquifer in the Patapsco Formation of Lower Cretaceous age.

WELL CHARACTERISTICS: Drilled, observation, artesian well, depth 664 ft.

Casing diameter: 12 in. to 68 ft; 6 in. to 158 ft; 4 in. from 158 to 605 ft, 615 to 648 ft, and 658 to 664 ft.

Screen diameter: 4 in. from 605 to 615 ft, and 648 to 658 ft.

INSTRUMENTATION: Periodic measurements.

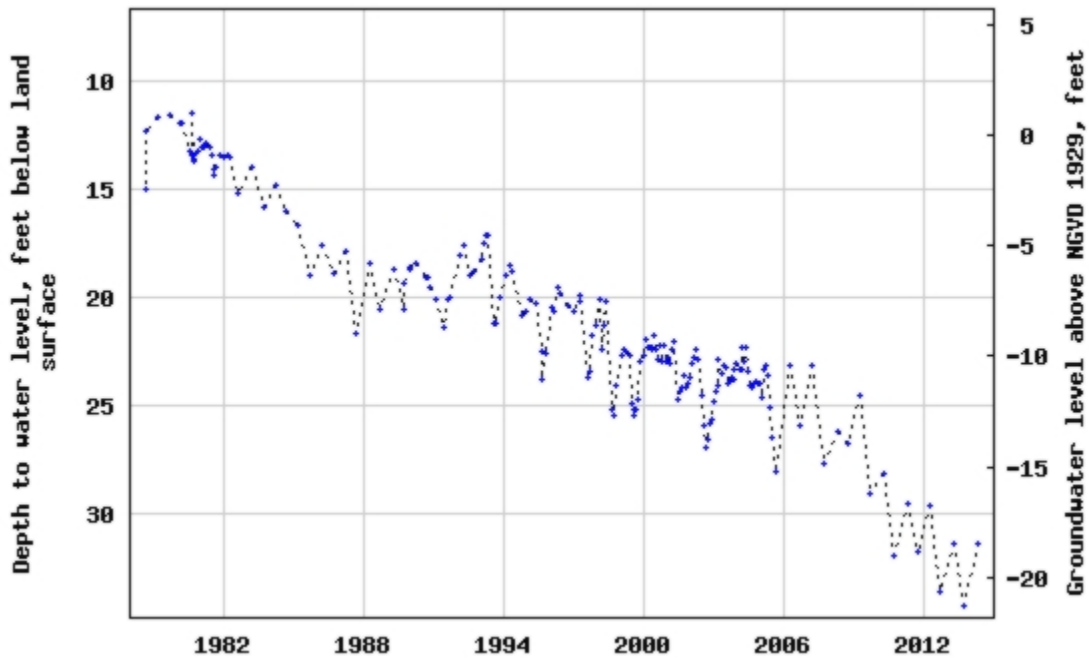
DATUM: Altitude of land surface is 12.68 ft above NGVD of 1929.

MEASURING POINT: Top of recorder platform 3.16 ft above land surface.

PERIOD OF RECORD: 1978 to current year.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

Date	Water level
9/6/2012	33.64
4/25/2013	31.39
9/20/2013	34.27
4/24/2014	31.44



WELL NUMBER: AA Dd 42

PERMIT NUMBER: AA-71-0231

LOCATION: Route 50 and Howard Grove Road

LAT. 38° 58' 08", LONG. 76° 37' 35"

AQUIFER: Magothy Formation of Upper Cretaceous age.

WELL CHARACTERISTICS: Drilled, observation, artesian well, depth 275 ft.

Casing diameter: 4 in. to 190 ft; 2 in. from 220 to 225 ft, and 235 to 265 ft.

Screen diameter: 2 in. from 190 to 200 ft, 225 to 235 ft, and 265 to 275 ft.

INSTRUMENTATION: Periodic measurements.

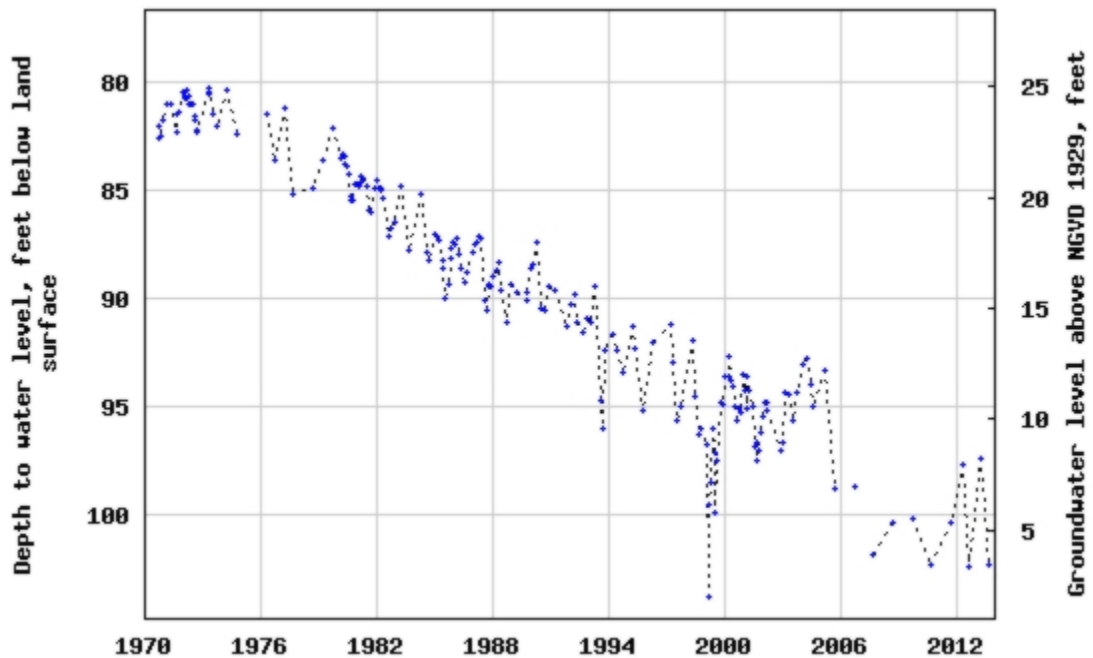
DATUM: Altitude of land surface is 105.48 ft above NGVD of 1929.

MEASURING POINT: Top of casing 0.72 ft above land surface.

PERIOD OF RECORD: 1970 to current year.

WATER LEVEL IN FEET BELOW LAND SURFACE DATUM

Date	Water level
9/10/2012	102.40
4/8/2013	97.40
9/23/2013	102.31



WELL NUMBER: AA De 1

PERMIT NUMBER: --

LOCATION: City of Annapolis

LAT. 38° 59' 15", LONG. 76° 34' 03"

AQUIFER: Magothy Formation of Upper Cretaceous age.

WELL CHARACTERISTICS: Drilled, observation, artesian well, depth 237 ft.

Casing diameter: 10 in. to 207 ft.

Screen diameter: 6 in. from 207 to 237 ft.

INSTRUMENTATION: Periodic measurements.

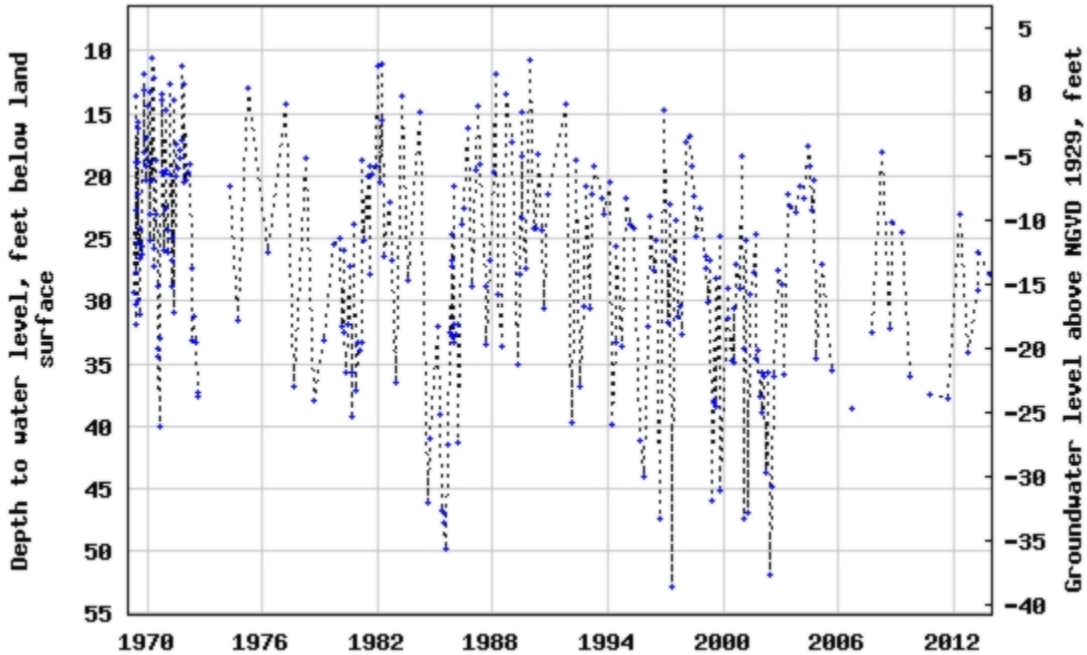
DATUM: Altitude of land surface is 13.72 ft above NGVD of 1929.

MEASURING POINT: Top of recorder platform 2.0 ft above land surface.

PERIOD OF RECORD: 1969 to current year.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

Date	Water level
9/21/2012	34.11
4/17/2013	29.22
4/19/2013	26.04
11/22/2013	27.90



WELL NUMBER: AA De 95

PERMIT NUMBER: AA-68-0175

LOCATION: Broad Creek Water-Treatment Plant

LAT. 38° 58' 53", LONG. 76° 33' 30"

AQUIFER: Upper Patapsco aquifer in the Patapsco Formation of Lower Cretaceous age.

WELL CHARACTERISTICS: Drilled, observation, artesian well, depth 480 ft.

Casing diameter: 6 in. to 465 ft.

Screen diameter: 6 in. from 465 to 480 ft.

INSTRUMENTATION: Periodic measurements.

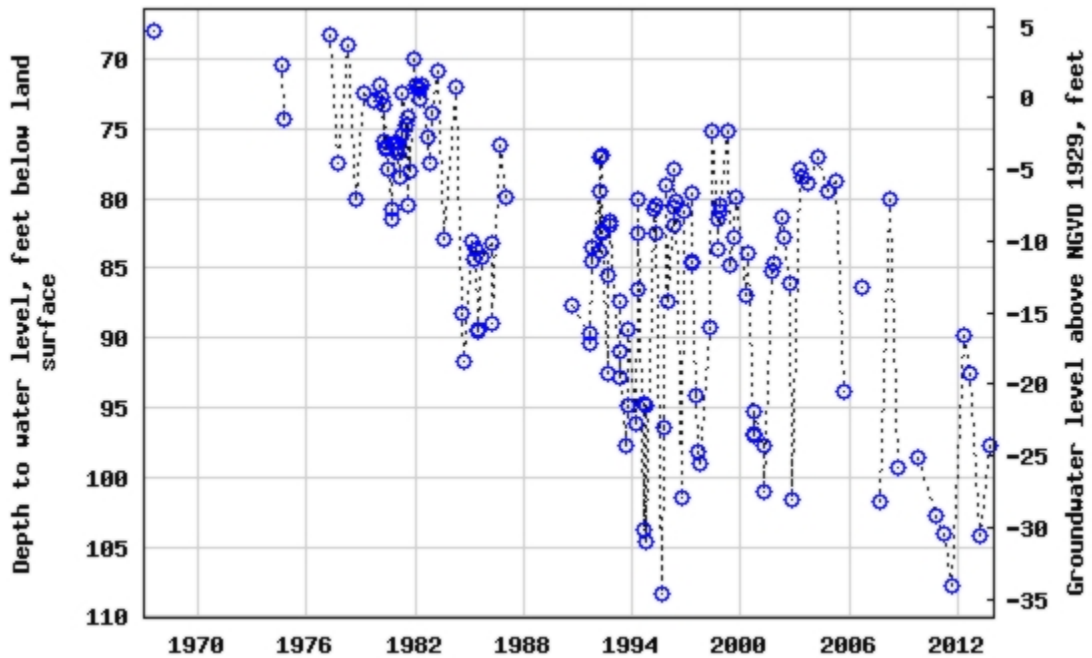
DATUM: Altitude of land surface is 71.28 ft above NGVD of 1929.

MEASURING POINT: Top of recorder platform 5.3 ft above land surface.

PERIOD OF RECORD: 1974 to current year.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

Date	Water level
9/21/2012	92.51
4/11/2013	104.20
9/23/2013	97.77



WELL NUMBER: AA De 124

PERMIT NUMBER: AA-73-5055

LOCATION: Central Avenue well field

LAT. 38° 55' 28", LONG. 76° 33' 46"

AQUIFER: Magothy Formation of Upper Cretaceous age.

WELL CHARACTERISTICS: Drilled, observation, artesian well, depth 480 ft;

Casing diameter: 2 in. to 350 ft;

Screen diameter: 2 in. from 350 to 480 ft.

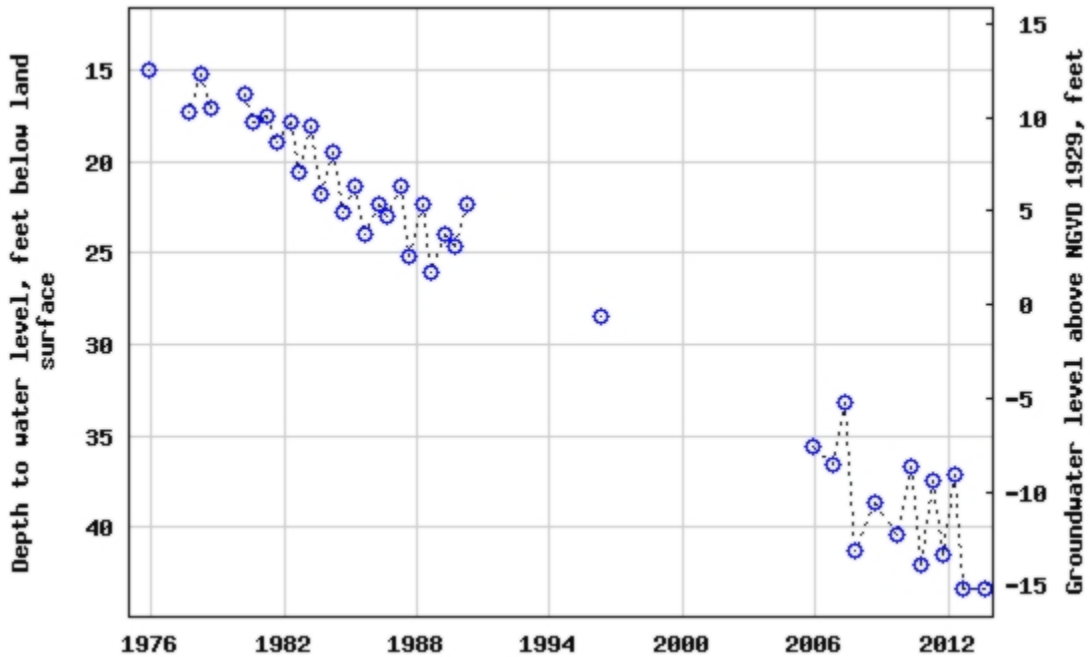
INSTRUMENTATION: Periodic measurements.

DATUM: Altitude of land surface is 27.84 ft above NGVD of 1929.

PERIOD OF RECORD: 1977 to current year.

WATER LEVELS IN EET BELOW LAND SURFACE DATUM

Date	Water level
4/12/2012	37.15
9/6/2012	43.42
9/5/2013	43.41



WELL NUMBER: AA De 128

PERMIT NUMBER: AA-73-8278

LOCATION: Central Avenue well field

LAT. 38° 55' 30", LONG. 76° 33' 47"

AQUIFER: Upper Patapsco aquifer in the Patapsco Formation of Lower Cretaceous age.

WELL CHARACTERISTICS: Drilled, observation, artesian well, depth 708 ft;

Casing diameter: 24 in. to 547 ft; 12 in. to 554 ft, and 644 to 686 ft;

Screen diameter: 12 in. from 554 to 644 ft, and 686 to 708 ft.

INSTRUMENTATION: Periodic measurements.

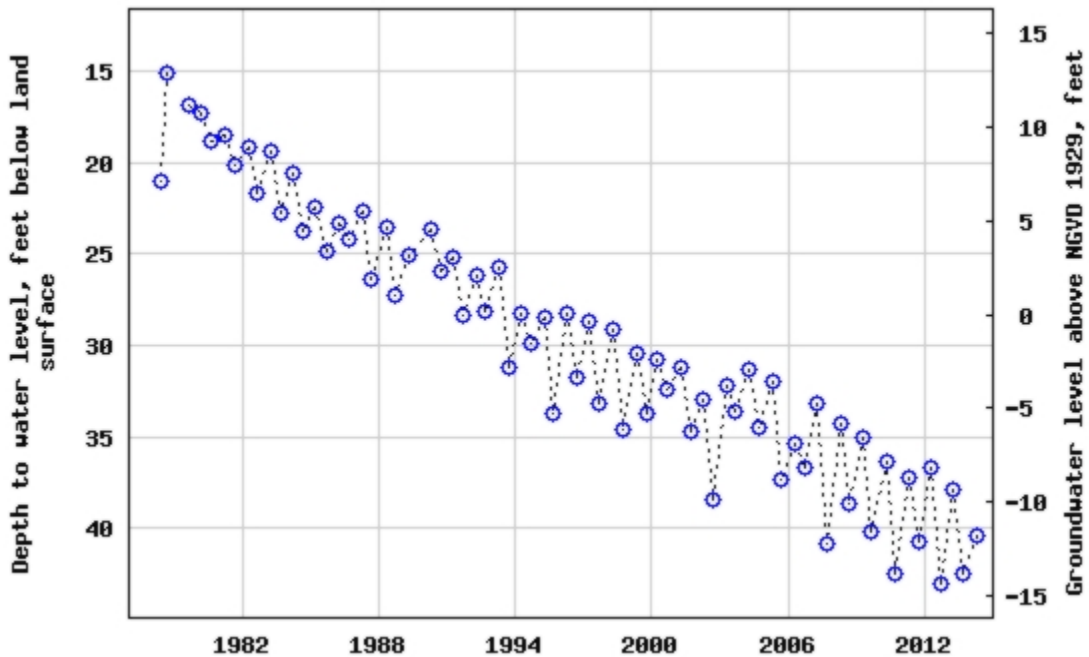
DATUM: Altitude of land surface is 28.31 ft above NGVD of 1929.

MEASURING POINT: Top of 24 in. casing 3.65 ft above land surface.

PERIOD OF RECORD: 1978 to current year.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

Date	Water level
9/6/2012	43.02
4/4/2013	37.87
9/5/2013	42.45
4/16/2014	40.40



WELL NUMBER: AA De 206

PERMIT NUMBER: AA-88-9908

LOCATION: Broad Creek Water Treatment Plant

LAT. 38° 58' 33", LONG. 76° 33' 28"

AQUIFER: Lower Patapsco aquifer in the Patapsco Formation of Lower Cretaceous age.

WELL CHARACTERISTICS: Drilled, observation, artesian well, depth 1,013 ft;

Casing diameter: 4 in. to 288 ft; 2 in. from 288 to 775 ft;

Screen diameter: 2 in. from 775 to 1,013 ft.

INSTRUMENTATION: Periodic measurements.

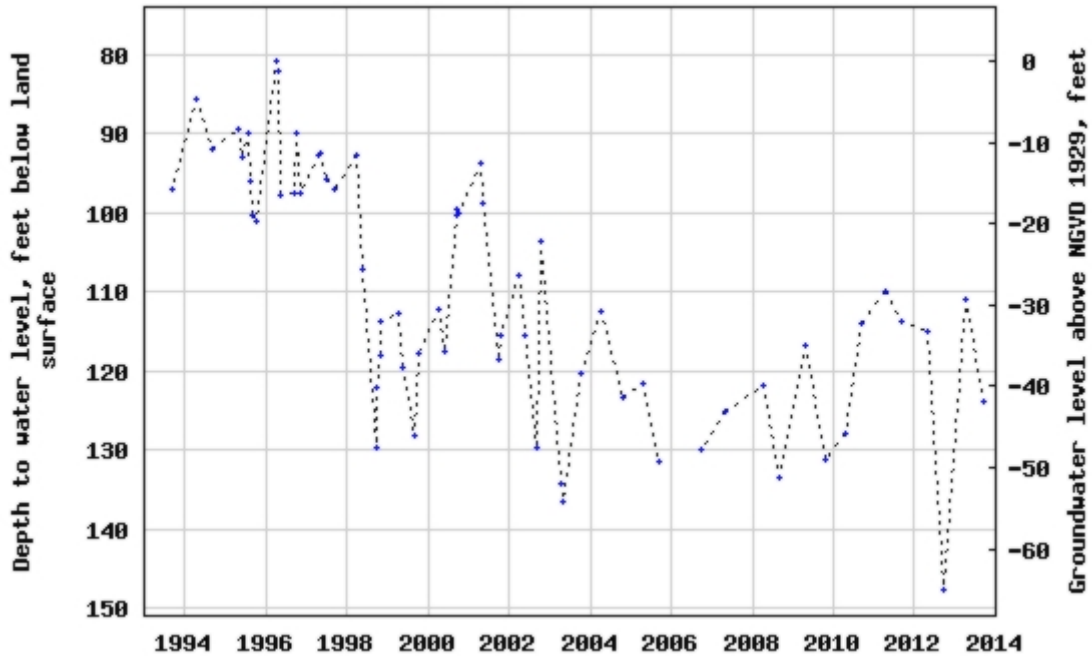
DATUM: Altitude of land surface is 82 ft above NGVD of 1929.

MEASURING POINT: Top of hole in flange 2.8 ft above land surface.

PERIOD OF RECORD: 1993 to current year.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

Date	Water level
9/21/2012	147.68
4/11/2013	110.98
9/23/2013	123.92



WELL NUMBER: AA De 219

PERMIT NUMBER: AA-94-8258

LOCATION: City of Annapolis

LAT. 38° 59' 15", LONG. 76° 33' 53"

AQUIFER: Upper Patapsco aquifer in the Patapsco Formation of Lower Cretaceous age.

WELL CHARACTERISTICS: Drilled, observation, artesian well, depth 520 ft;

Casing diameter: 24 in. to 436 ft; 12 in. from 367 to 427 ft.

Screen diameter: 12 in. from 427 to 432 ft, 440 to 460 ft, 466 to 472 ft, 476 to 482 ft, 492 to 500 ft, and 506 to 515 ft.

INSTRUMENTATION: Periodic measurements.

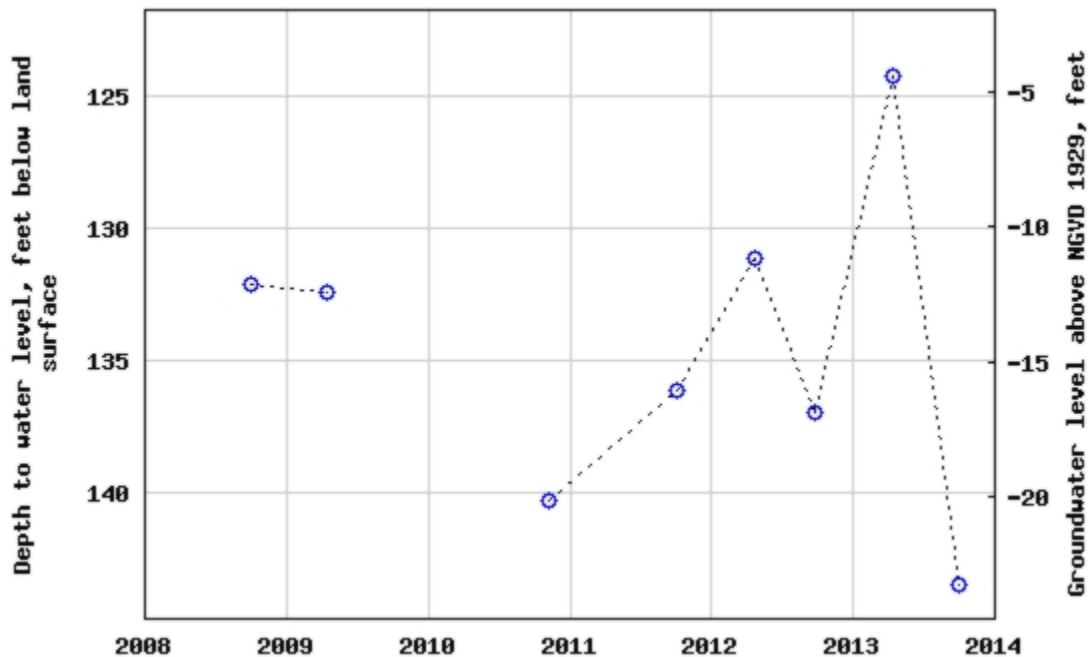
DATUM: Altitude of land surface is 120 ft above NGVD of 1929.

MEASURING POINT: Top of 2-inch measuring tube 3 ft above land surface.

PERIOD OF RECORD: 2010 to current year.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

Date	Water level
4/24/2012	131.10
9/21/2012	136.93
4/12/2013	124.25
10/1/2013	143.48



WELL NUMBER: AA De 232

PERMIT NUMBER: AA-95-4626

LOCATION: City of Annapolis

LAT. 38° 59' 18", LONG. 76° 33' 53"

AQUIFER: Lower Patapsco aquifer in the Patapsco Formation of Lower Cretaceous age.

WELL CHARACTERISTICS: Drilled, observation, artesian well, depth 1,173 ft;

Casing diameter: 24 in. to 829 ft; 14 in. from 739 to 834 ft, 856 to 871 ft, 878 to 886 ft, 894 to 902 ft, 936 to 958 ft, 970 to 1,009 ft, 1,014 to 1,070 ft, and 1,120 to 1,130 ft.

Screen diameter: 14 in. from 834 to 856 ft, 871 to 878 ft, 886 to 894 ft, 902 to 936 ft, 958 to 970 ft, 1,009 to 1,014 ft, 1,070 to 1,120 ft, and 1,130 to 1,146 ft.

INSTRUMENTATION: Periodic measurements.

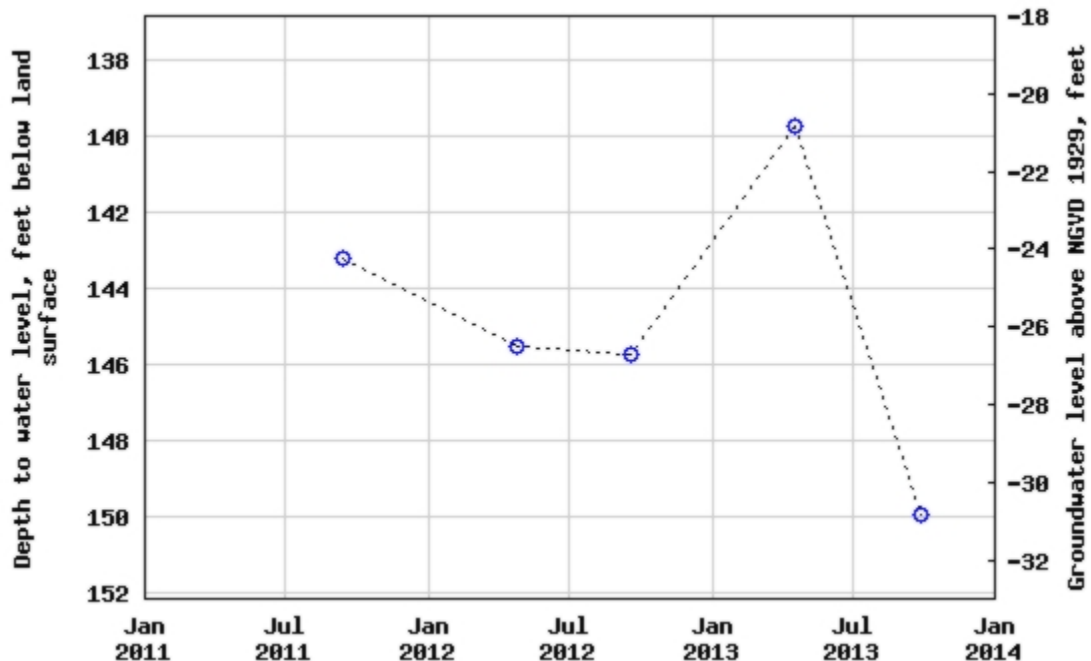
DATUM: Altitude of land surface is 119 ft above NGVD of 1929.

MEASURING POINT: Top of 2-inch measuring tube 1.8 ft above land surface.

PERIOD OF RECORD: 2011 to current year.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

Date	Water level
4/25/2012	145.55
9/19/2012	145.74
4/17/2013	139.74
9/27/2013	149.94



WELL NUMBER: AA Df 19

PERMIT NUMBER: --

LOCATION: U.S. Navy Radio Station

LAT. 38° 59' 22", LONG. 76° 27' 04"

AQUIFER: Upper Patapsco aquifer in the Patapsco Formation of Lower Cretaceous age.

WELL CHARACTERISTICS: Drilled, observation, artesian well, depth 590 ft;

Casing diameter: 10 in. to 565 ft;

Screen diameter: 10 in. from 565 to 590 ft.

INSTRUMENTATION: Periodic measurements.

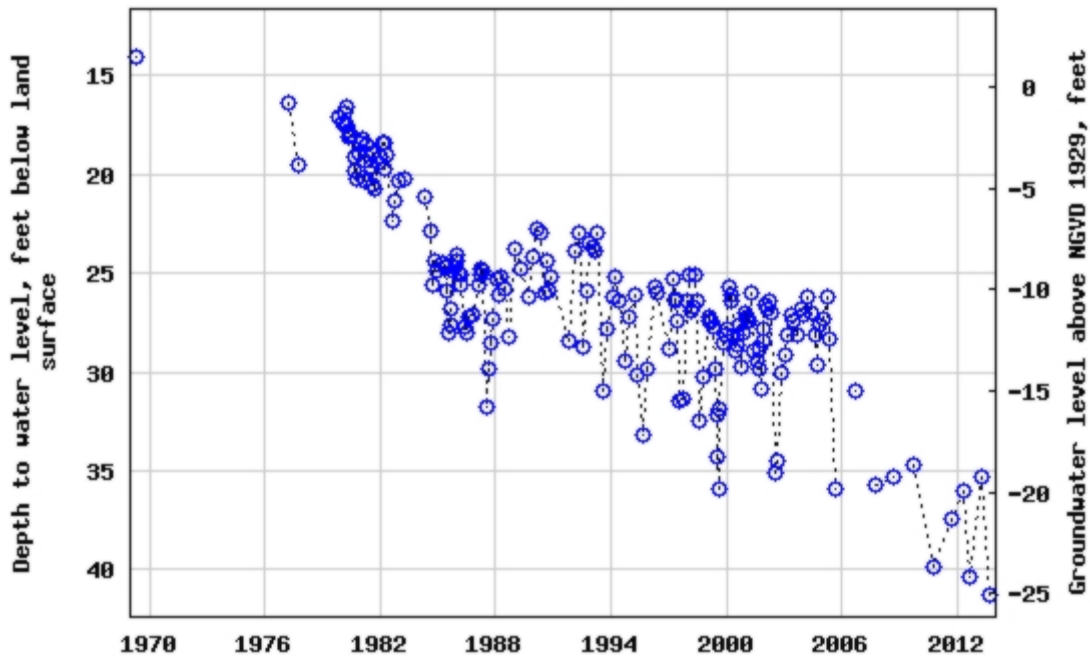
DATUM: Altitude of land surface is 15.84 ft above NGVD of 1929.

MEASURING POINT: Top of flange 2.5 ft above land surface.

PERIOD OF RECORD: 1977 to current year.

WATER LEVEL IN FEET BELOW LAND SURFACE DATUM

Date	Water level
9/10/2012	40.32
4/8/2013	35.34
9/23/2013	41.28



WELL NUMBER: AA Df 20

PERMIT NUMBER: --

LOCATION: U.S. Navy Radio Station

LAT. 38° 59' 16", LONG. 76° 27' 07"

AQUIFER: Magothy Formation of Upper Cretaceous age.

WELL CHARACTERISTICS: Drilled, observation, artesian well, depth 255 ft.

Casing diameter: 10 in. to 150 ft; 8 in. from 135 to 233 ft;

Screen diameter: 8 in. from 233 to 253 ft.

INSTRUMENTATION: Periodic measurements.

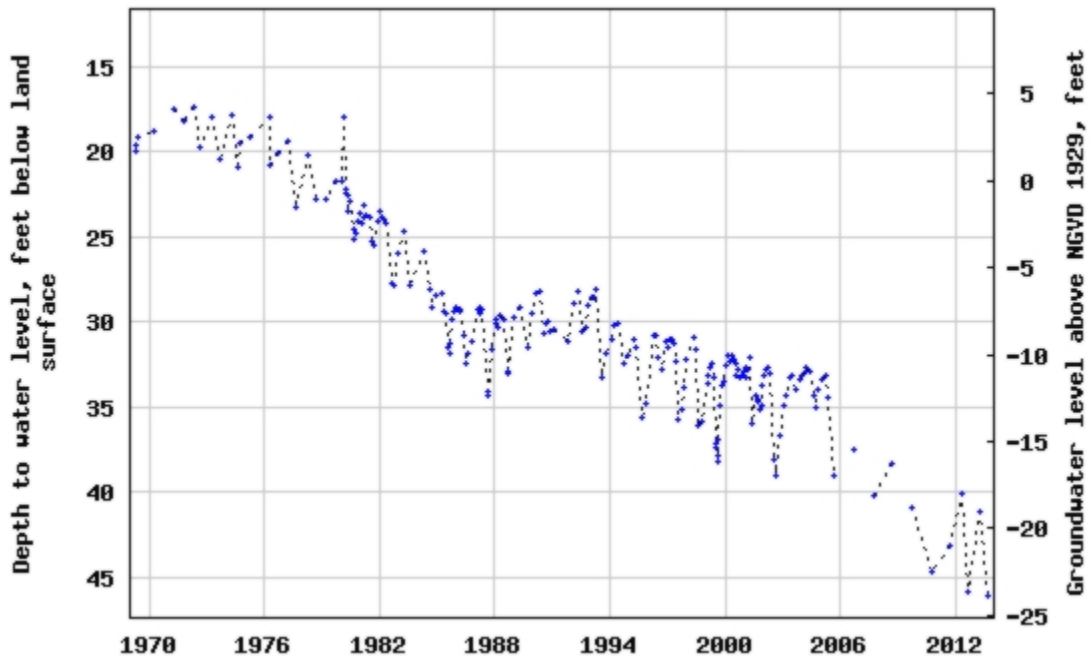
DATUM: Altitude of land surface is 21.62 ft above NGVD of 1929.

MEASURING POINT: Top of recorder platform 3.0 ft above land surface.

PERIOD OF RECORD: 1969 to current year.

WATER LEVEL IN FEET BELOW LAND SURFACE DATUM

Date	Water level
9/10/2012	45.89
4/8/2013	41.12
9/23/2013	46.12



WELL NUMBER: AA Df 79

PERMIT NUMBER: AA-03-7867

LOCATION: U.S. Naval Academy

LAT. 38° 59' 05", LONG. 76° 29' 36"

AQUIFER: Magothy Formation of Upper Cretaceous age.

WELL CHARACTERISTICS: Drilled, observation, artesian well, depth 705 ft.

Casing diameter: 6 in. to 300 ft; 320 to 572 ft, and 592 to 675 ft;

Screen diameter: 6 in. from 300 to 320 ft, 572 to 592 ft, and 675 to 695 ft.

INSTRUMENTATION: Periodic measurements.

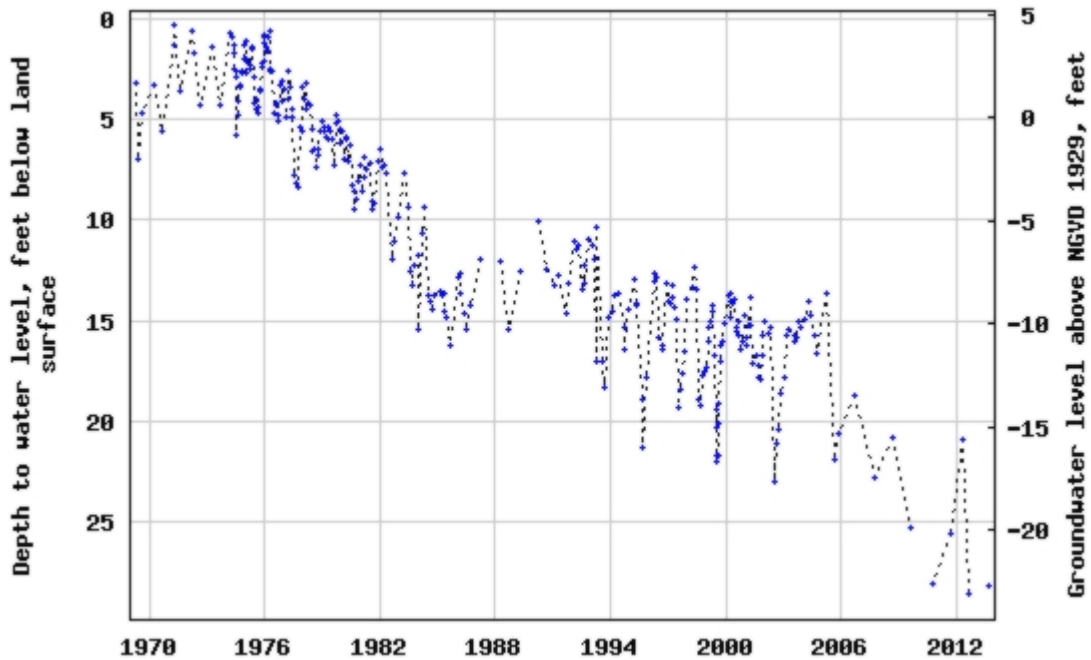
DATUM: Altitude of land surface is 5.17 ft above NGVD of 1929.

MEASURING POINT: Top of recorder platform 2.8 ft above land surface.

PERIOD OF RECORD: 1969 to current year.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

Date	Water level
4/16/2012	20.98
9/4/2012	28.62
9/9/2013	28.23



WELL NUMBER: AA Fe 92

PERMIT NUMBER: AA-94-5386

LOCATION: Deale Athletic Field

LAT. 38° 46' 44", LONG. 76° 33' 12"

AQUIFER: Aquia Formation of Upper Paleocene age.

WELL CHARACTERISTICS: Drilled, observation, artesian well, depth 205 ft.

Casing diameter: 4.5 in. to 170 ft, and 200 to 205 ft.

Screen diameter: 4.5 in. from 170 to 200 ft.

INSTRUMENTATION: Periodic measurements.

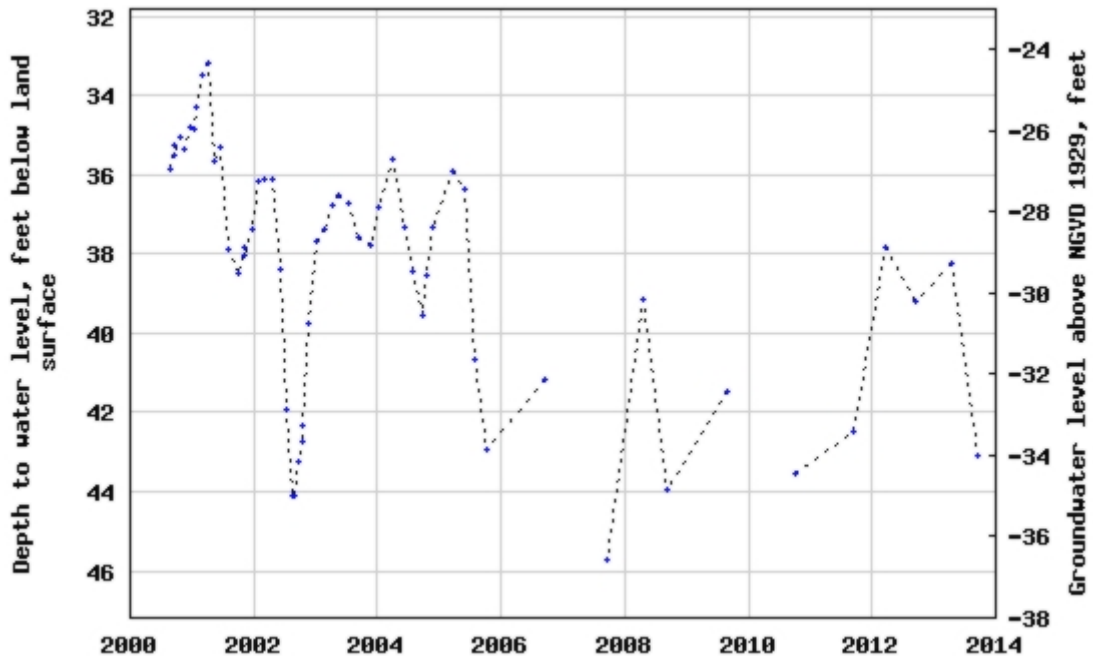
DATUM: Altitude of land surface is 9 ft above sea level from topographic map.

MEASURING POINT: Top of recorder platform, 3.0 ft above land surface.

PERIOD OF RECORD: September 2000 to current year.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

Date	Water level
9/11/2012	39.20
4/11/2013	38.22
9/11/2013	43.11



WELL NUMBER: AA Fe 93

PERMIT NUMBER: AA-94-5391

LOCATION: Deale Athletic Field

LAT. 38° 46' 44", LONG. 76° 33' 12"

AQUIFER: Magothy Formation of Upper Cretaceous age.

WELL CHARACTERISTICS: Drilled, observation, artesian well, depth 470 ft.

Casing diameter: 4.5 in. to 429 ft, 449 to 454 ft, and 464 to 470 ft.

Screen diameter: 4.5 in. from 429 to 449 ft, and 454 to 464 ft.

INSTRUMENTATION: Periodic measurements.

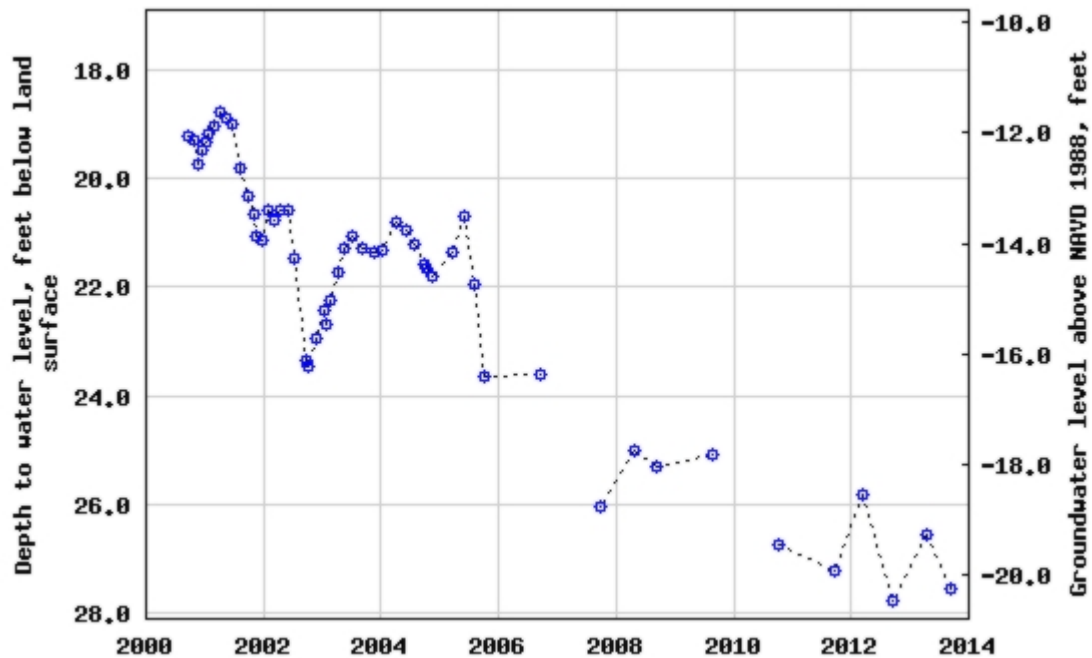
DATUM: Altitude of land surface is 9 ft above sea level from topographic map.

MEASURING POINT: Top of recorder platform, 3.35 ft above land surface.

PERIOD OF RECORD: September 2000 to current year.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

Date	Water level
9/11/2012	27.78
4/11/2013	26.56
9/11/2013	27.57



GAGE NUMBER: 01589500

LAT. 39° 10' 12", LONG. 76° 37' 51"

LOCATION: Sawmill Creek

DRAINAGE AREA: 4.97 mi².

GAGE: Water-stage recorder and concrete control. Datum of gage is 26.07 ft above NGVD of 1929.

PERIOD OF RECORD: May 1944 to September 1952. Annual maximum, water years 1965-70. September 1983 to current year.

