

Water-Data Report 2011

260920080092201 Local number G 2898. USGS Observation Well near Fort Lauderdale, FL.

Biscayne aquifer
Biscayne Limestone Aquifer

Broward County, FL

LOCATION.--Lat 26°09'21.6", long 80°09'21.6" referenced to North American Datum of 1983, in NE ¼ SE ¼ sec.28, T.49 S., R.42 E., Broward County, FL, Hydrologic Unit 03090202, near discontinued toll booth located 0.1 mi west of the Powerline Road (State Road 845) entrance to Mills Pond Park, 0.74 mi south of Oakland Park Boulevard (State Road 816).

WATER-QUALITY RECORDS

WELL CHARACTERISTICS.--Depth 119.5 ft. Upper casing diameter 2 in.; top of first opening 109.5 ft, bottom of last opening 119.5 ft.

DATUM.--Land-surface datum is 5.20 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 5.21 ft above National Geodetic Vertical Datum of 1929 (NGVD), June 5, 2002, to present. From Feb. 21, 2001, to June 4, 2002, measuring point was Top of base, 8.35 ft above NGVD. From Sept. 29, 1997, to Feb. 21, 2001, measuring point was Top of casing, 5.21 ft above NGVD. Between February 21, 2001 and June 4, 2002, the top of base measuring point was incorrectly considered to be 8.43 ft above NGVD (reported as 8.44 ft above NGVD in the 2002 Water Resources Data Report). From July 24, 2002 to January 30, 2003, and prior to February 21, 2001, top of casing measuring point was incorrectly considered to be 5.20 ft NGVD. See REMARKS.

PERIOD OF RECORD.--October 1999 to January 2001 (monthly), February 2001 to June 2002 (daily), July 2002 to current year. See REMARKS.

INSTRUMENTATION.--Monthly measurement with chalked steel tape or electric tape. Annual profile with electromagnetic induction logger. See REMARKS.

REMARKS.--This well is also used for salinity monitoring, including an annual electromagnetic induction log. Quarterly salinity sampling began in October 1999, with monthly sample collection from January 2000 to July 2002. Electromagnetic induction logs were collected from April 2000 to May 2011. The station was temporarily reconstructed between February 21, 2001 and June 4, 2002, and continuous water-level and conductivity data were collected, from March 2001 through June 2002, as part of a salt water intrusion modeling project. Data from this project are available in the files of the U.S. Geological Survey. The figures of water level as elevation, in feet NGVD, from October 1999 to January 2003 are in error. Corrected records are in the files of the U.S. Geological Survey. See DATUM. Induction logs are used to assess the movement of the fresh-water/salt-water interface in ground water. See [RECORDS OF BULK CONDUCTIVITY](#).

In 2008, the induction probe calibration equipment was found to have been misidentified by the manufacturer, resulting in a combination of errors of scale for converting instrument response to units of measurement (mS/m) and errors in correcting the log data to consistent units of measurement among the induction logs collected. The equipment misidentification and resulting errors affect data collected from 2002 to 2008 at this station. As a result, published induction logs released by the U.S. Geological Survey prior to 2008 are considered to be in error. The combined corrections require a 1.33 multiplier to be applied to the bulk conductivity data collected from 2002 to 2008. A 1.0 multiplier has been applied to the remainder of the data, to the current year. The logs published in this report include the noted corrections to date. However, the depths of any hydrologic or lithologic features previously shown in the published logs are not affected.

Because the bulk conductivity data from this well is affected by changes in groundwater salinity throughout the logged depth interval, adjusting the logs for variations in environmental conditions and/or probe calibrations has been determined to be impractical. The resulting plot of logs collected, from 2000 to the current year, is provided in this report. The original and corrected records of bulk conductivity, in millisiemens per meter, are available in files of the U.S. Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--

WATER-LEVEL ELEVATION: Highest daily maximum water level, 4.25 ft NGVD, Sept. 29, 2001; lowest measured water level, 0.16 ft NGVD, Mar. 01, 2011.

CHLORIDE CONCENTRATION: Highest measured chloride concentration, 1,660 mg/L, Jan. 29, 2008; lowest, 360 mg/L, Jan. 5, 2001, Jan. 15, June 4, 2002.

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WATER-QUALITY DATA**WATER YEAR OCTOBER 2010 TO SEPTEMBER 2011**[NGVD, National Geodetic Vertical Datum; ft, feet; mg/L, milligrams per liter; °C, degrees Celsius; $\mu\text{S}/\text{cm}$, microsiemens per centimeter; --, no data]

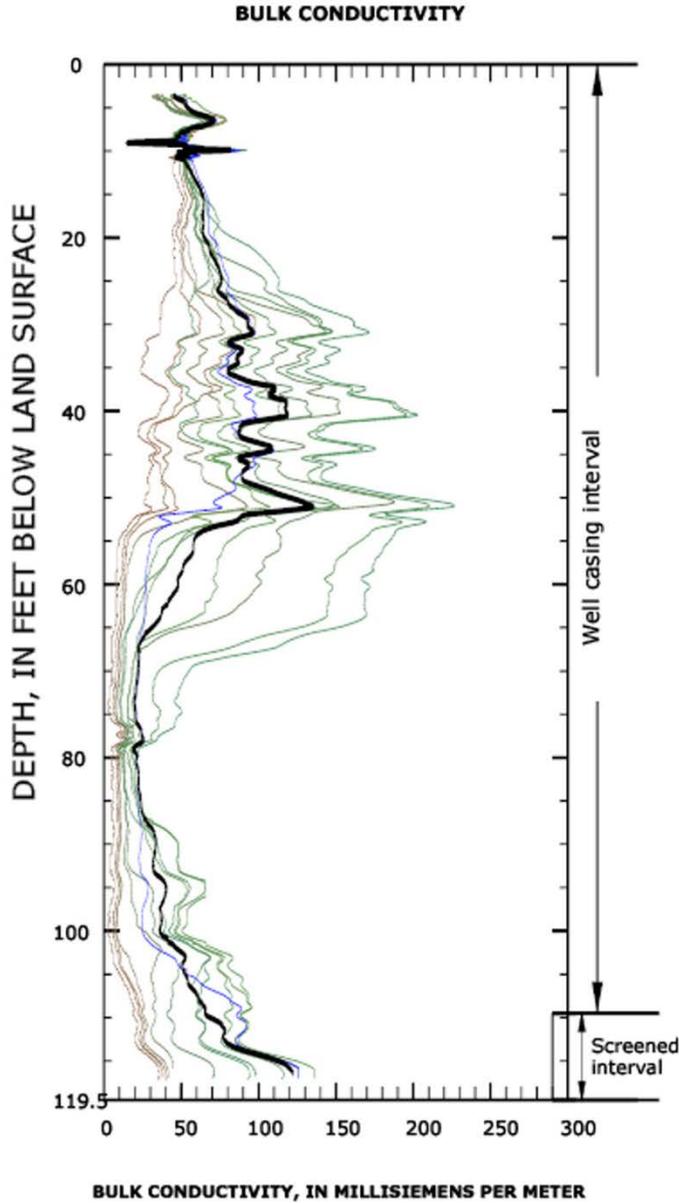
Date	Sample start time	Specific conductance, water, unfiltered, $\mu\text{S}/\text{cm}$ at 25 °C (00095)	Elevation above NGVD 1929, ft (72020)	Chloride, water, unfiltered, mg/L (99220)
October 1, 2010	1423	4,590	2.21	1,280
November 18, 2010	1018	--	1.20	--
December 3, 2010	1232	--	.94	--
January 24, 2011	1335	4,370	.53	1,220
February 1, 2011	1442	--	.31	--
March 1, 2011	1125	--	.16	--
May 3, 2011	1115	4,280	.53	1,170
May 19, 2011	1554	--	.85	--
June 6, 2011	1530	--	.43	--
July 1, 2011	1445	4,230	1.18	1,140
August 17, 2011	1220	--	1.73	--
September 7, 2011	1055	--	1.87	--



WY 2011 Induction log results

Station: USGS 260920080092201

Local name: G -2898



**INDUCTION LOG DATES,
ASSOCIATED CHLORIDE SAMPLE DATES**

Induction log date	Chloride sample date	Dissolved chloride concentration, in mg/L
May 3, 2011	May 3, 2011	1,170
Apr. 30, 2010	Apr. 30, 2010	1,330
May 26, 2009	May 26, 2009	1,400
May 15, 2008	May 15, 2008	1,540
May 29, 2007	May 29, 2007	1,300
May 3, 2006	May 3, 2006	1,040
May 6, 2005	May 6, 2005	1,020
Apr. 30, 2004	Apr. 30, 2004	670
May 6, 2003	May 6, 2003	370
May 29, 2002	June 4, 2002	360
Apr. 16, 2001	Apr. 16, 2001	370
Aug. 28, 2000	July 28, 2000	450
Apr. 19, 2000	Apr. 7, 2000	370

260920080092201 Local number G 2898. USGS Observation Well near Fort Lauderdale, FL.—Continued**Lithologic log, USGS 260920080092201. Local Number G -2898**

Depth interval (ft below land surface)	Lithologic description
0 - 5	Quartz sand, black to tan, moderate to well sorted, fine grained, grains are sub-rounded, with organic matter, shell fragments, and concretions
5 - 10	Quartz sand, gray to tan, fine grained, grains are frosted and angular to sub-angular, with organic matter
10 - 15	Quartz sand, brown to gray, fine grained, grains are frosted and angular to sub-angular, with concretions
15 - 20	Quartz sand, tan to white, well sorted, fine grained, grains are frosted and sub-angular, with concretions
20 - 25	Quartz sand, brown to tan, well sorted, grains are frosted and sub-angular, with organic matter
25 - 30	Quartz sand, brown tan to white, medium to fine grained, grains are frosted and sub-rounded
30 - 35	Sandy limestone concretions, tan to white, calcite cement, with heavy minerals, and shell fragments
35 - 40	Quartz sand, tan to white, fine grained, grains are sub- angular, with heavy minerals, shell fragments, and concretions
40 - 50	Sandy limestone, white to gray, with calcite cement, concretion structures, and heavy minerals; sand, fine to very fine, well sorted, grains are sub-angular to sub-rounded with heavy minerals, and shell fragments
50 - 75	Quartz sand, white to tan, medium to very fine grained, grains are sub-angular to rounded, with shell fragments, heavy minerals, and concretion structures
75 - 80	Sandy limestone concretions, white to tan, fossiliferous, calcite cement; quartz sand very well sorted, with heavy minerals and shell fragments
80 - 90	Limestone, white to yellow, fossiliferous, poorly sorted, calcite cement, with concretion structures and shell fragments
90 - 95	Limestone, white to yellow, fossiliferous, poorly sorted, calcite cement with concretions and burrows
95 - 100	Sandy limestone, white to tan, oolitic; sand, fine to very fine, sub-angular with shell fragments and concretions
100 - 105	Sandy limestone, white, calcite cement with concretions
105 - 110	Quartz sand, white to gray, fine to very fine grained, grains are sub-angular, with shell fragments, heavy minerals, and concretions
110 - 120	Quartz sand concretions, gray, fine to very fine grained, grains are sub-angular and well cemented with calcite, with heavy minerals, and shell fragments

Compiled and modified from the original lithologic description by Hydrologic Associates USA Inc., Miami, FL.