

Water-Data Report 2011

255843080090901 Local number G 2903. USGS Observation Well near Hallandale, FL.

Biscayne aquifer
Biscayne Limestone Aquifer

Broward County, FL

LOCATION.--Lat 25°58'45.1", long 80°09'08.1" referenced to North American Datum of 1983, in SE ¼ NE ¼ SE ¼ sec.28, T.51 S., R.42 E., Broward County, FL, Hydrologic Unit 03090202, 44 ft south of transmit lift station on the east side of SW 4th Avenue and north of SW 6th Street.

WATER-QUALITY RECORDS

WELL CHARACTERISTICS.--Depth 155.5 ft. Upper casing diameter 2 in.; top of first opening 145.5 ft, bottom of last opening 155.5 ft.

DATUM.--Land-surface datum is 5.10 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 5.06 ft above National Geodetic Vertical Datum of 1929, Nov. 20, 1997, to present.

PERIOD OF RECORD.--April 2000 to current year. See REMARKS.

INSTRUMENTATION.--Quarterly 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 water-level measurements and salinity sampling began in October 2000. Electromagnetic induction logs were collected from April 2000 to April 2011. Electromagnetic induction logs are used to assess the movement of the fresh-water/salt-water interface in ground water. See [RECORDS OF BULK CONDUCTIVITY](#).

In WY2008, the instrument used to calibrate the logging probe was re-examined, and found to have been constructed to a different specification than originally communicated by the manufacturer. As a consequence of this calibration problem, logs of bulk conductivity collected from 2002 to 2008 are considered to be in error. The 0.7686 multiplier correction to conductivity data collected prior to WY2002, as referenced in previous data publications, is not required. Instead, a 1.33 multiplier correction is required for 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 seen in the published logs are not affected.

In order to display changes in bulk conductivity between induction logs collected over the period of record, each log has been adjusted to a median conductivity value at a depth that corresponds to a stable lithologic feature which produces a consistent conductivity profile, based on data collected from 2000 to 2007. These adjustments compensate for small variations in equipment response resulting from variations in environmental conditions and/or probe calibrations. For this station, induction logs are adjusted to a median response of 13.3 mS/m at a depth of 19.7 ft below land surface. 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 water level measured, 2.17 ft NGVD, Dec. 9, 2002; lowest, 0.44 ft below NGVD, Jan. 27, 2009.

CHLORIDE CONCENTRATION: Highest measured chloride concentration, 9,400 mg/L, Dec. 9, 2002, Oct. 6, 2008; lowest, 6,900 mg/L, Oct. 30, 2000.

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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]

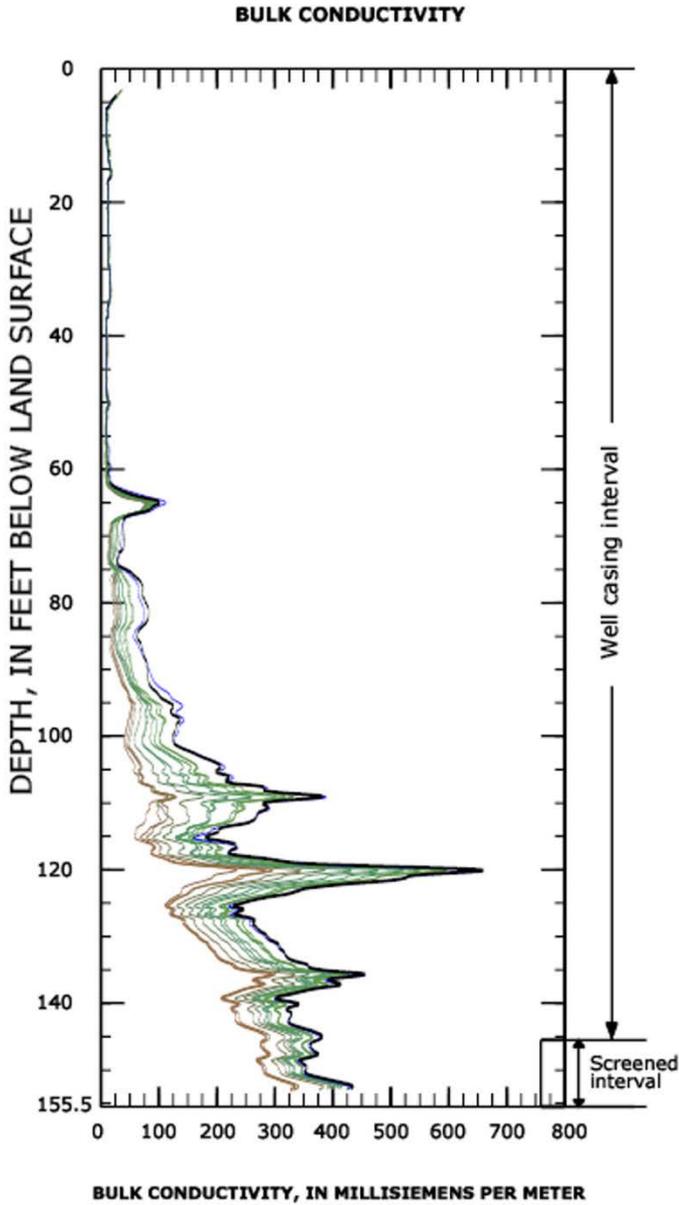
Date	Sample start time	Specific conductance, water, unfiltered, $\mu\text{S}/\text{cm}$ at 25 °C (00095)	Elevation above NGVD 1929, ft (72020)	Chloride, water, unfiltered, mg/L (99220)
October 1, 2010	0906	26,400	2.08	9,100
January 20, 2011	1100	26,500	.15	9,200
April 28, 2011	1132	27,100	-.12	9,350
July 1, 2011	0910	27,500	.27	9,350



WY 2011 Induction log results

Station: USGS 255843080090901

Local name: G -2903



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

Induction log date	Chloride sample date	Dissolved chloride concentration, in mg/L
Apr. 28, 2011	Apr. 28, 2011	9,350
Apr. 28, 2010	Apr. 28, 2010	9,100
May 4, 2009	May 4, 2009	9,100
May 15, 2008	May 15, 2008	9,100
June 19, 2007	June 19, 2007	9,000
Apr. 28, 2006	Apr. 28, 2006	8,600
Apr. 29, 2005	Apr. 29, 2005	8,600
May 10, 2004	May 10, 2004	8,400
May 9, 2003	May 9, 2003	8,400
May 22, 2002	May 22, 2002	8,000
Apr. 16, 2001	Apr. 16, 2001	7,500
Aug. 29, 2000	- no sample -	--
Apr. 17, 2000	- no sample -	--

255843080090901 Local number G 2903. USGS Observation Well near Hallandale, FL.—Continued**Lithologic log, USGS 255843080090901. Local Number G -2903**

Depth interval (ft below land surface)	Lithologic description
0 - 5	Quartz sand, black to tan, well sorted, fine to very fine grained, with organic matter coating grains; organic matter
5 - 10	Sandy limestone, tan to grey, cemented with calcite; quartz sand, fine to very fine grained, grains are frosted and sub-angular
10 - 25	Quartz sand, brown to yellow, fine to very fine grained, grains are frosted and sub-angular to sub-rounded, with organic matter and silt; Sandy limestone concretions with shell fragments
25 - 35	Quartz sand, white, well sorted, fine to very fine grained, grains are clear to frosted and sub-angular to sub-rounded with some heavy minerals
35 - 45	Quartz sand, tan , well sorted, fine to very fine grained, grains are frosted and sub-angular to sub-rounded; Sandy limestone concretions with shell fragments
45 - 70	Quartz sand, tan to white, well sorted, medium to very fine- grained, grains are clear to frosted and rounded to sub-angular, with some heavy minerals and shell fragments; quartz sandstone concretions, with shell fragments, and some heavy minerals
70 - 75	Quartz sand, tan to white, very fine grained, grains are clear and sub-angular, with concretions
75 - 90	Quartz sand, tan to white, fine to very fine-grained, grains are clear and sub-angular with shell fragments and some heavy minerals; quartz sandstone concretions with calcite cement, shell fragments, and heavy minerals
90 - 95	Not sampled
95 - 115	Quartz sand, tan, fine to very fine-grained, grains are clear and rounded, with shell fragments and some heavy minerals; quartz sandstone concretions with shell fragments, and some heavy minerals
115 - 120	Quartz sand, tan, fine to very fine grained, grains are sub-angular, with some heavy minerals; sandy limestone concretions with shell fragments, and some heavy minerals
120 - 130	Quartz sand, tan, medium to very fine grained, grains are sub-angular to sub-rounded with shell fragments and some heavy minerals; quartz sandstone concretions, shell fragments, and some heavy minerals
130 - 140	Quartz sand, white to tan, fine to very fine grained, grains are sub- angular to rounded, with concretions, shell fragments and some heavy minerals
140 - 150	Quartz sand, tan, medium to very fine grained, grains are sub-angular to rounded, with shell fragments and heavy minerals;quartz sand with concretions cemented with calcite, shell fragments, and some heavy minerals
150 - 155	Quartz sand with concretions, tan, well cemented with calcite, with shell fragments

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