

Water-Data Report 2012

26055108011901 Local number G 2957. USGS Observation Well near Ft. Lauderdale, FL.

Biscayne aquifer
Biscayne Limestone Aquifer

Broward County, FL

LOCATION.--Lat 26°05'50.0", long 80°11'18.4" referenced to North American Datum of 1983, in NW ¼ NE ¼ SE ¼ sec.18, T.50 S., R.42 E., Broward County, FL, Hydrologic Unit 03090202, at the northeast corner of the intersection of SW 20th Street and SW 33rd Avenue.

WATER-QUALITY RECORDS

WELL CHARACTERISTICS.--Depth 190 ft. Upper casing diameter 2; top of first opening 180 ft, bottom of last opening 190 ft.

DATUM.--Land-surface datum is 6.20 ft above National Geodetic Vertical Datum of 1929. Measuring point: From August 2004 to present, measuring point has been top of casing, 6.20 ft above National Geodetic Vertical Datum of 1929.

PERIOD OF RECORD.--November 2004 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 groundwater salinity monitoring, including an annual electromagnetic induction log. Quarterly water-level measurements and salinity sampling began in November 2004. Annual induction logging began in May 2005. 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 induction 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 2005 to 2008 are considered to be in error, requiring a 1.33 multiplier correction to bulk conductivity data collected during that period of record. 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.

In order to display changes in bulk conductivity between induction logs collected over the period of record, each log has been adjusted to a mean conductivity value at a depth that corresponds to a stable lithologic feature which produces a consistent conductivity profile, based on data collected from 2005 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 9.1 mS/m at a depth of 132.8 ft below land surface. The resulting plot of logs collected, from 2005 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, 3.95 ft NGVD, Oct. 6, 2008; lowest, 0.95 ft NGVD, Jan. 29, 2009.

CHLORIDE CONCENTRATION: Highest measured chloride concentration, 38 mg/L, Nov. 6, 2006; lowest, 28 mg/L, Jan. 29, 2008.

260551080111901 Local number G 2957. USGS Observation Well near Ft. Lauderdale, FL.—Continued

WATER-QUALITY DATA**WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012**[NGVD, National Geodetic Vertical Datum; ft, feet; mg/L, milligrams per liter; °C, degrees Celsius; μ S/cm, microsiemens per centimeter]

Date	Sample start time	Specific conduc- tance, water, unfiltered, μS/cm at 25°C (00095)	Elevation above NGVD 1929, ft (72020)	Chloride, water, unfiltered, mg/L (99220)
October 27, 2011	1116	568	2.96	36
January 20, 2012	1325	567	1.32	36
May 2, 2012	1400	560	2.83	32
July 6, 2012	1320	572	2.42	36

260551080111901 Local number G 2957. USGS Observation Well near Ft. Lauderdale, FL.—Continued

Depth interval (ft below land surface)	Lithologic log, USGS 260551080111901. Local Number G -2957	Lithologic description
0 - 14	Sand, gray, medium-grained quartz, well sorted, subrounded, minor organics.	
14 - 24	Sandy limestone to limey sandstone (grainstone), with bivalve fragments and minor calcite and frosted quartz grains, white to pale orange sparry cement with extensive macroporosity. Sand, very light gray, very fine-grained quartz, well sorted, subrounded.	
24 - 40	Sand, very light gray, fine-grained quartz, well sorted, subangular to subrounded, 1% heavy (dark) minerals.	
40 - 49	Sandy limestone to limey sandstone (grainstone), very pale orange to yellowish brown with bivalve fragments (5%), with extensive macroporosity and calcite infilling. Sand is medium grained, subangular quartz.	
49 - 74	Interbedded sandy limestone and quartz sand, very light gray. Sandy limestone is same as at 40-49 feet. Sand is medium grained, and well sorted.	
74 - 85	Sandy limestone (grainstone)(60%), pale yellowish-brown, with corals, bivalve shells and shell fragments, moderately hard, with extensive macroporosity. Sand(40%) is pale yellowish-brown, quartz, subangular with 1% heavy minerals.	
85 - 86	Sandstone, very light gray, medium-grained quartz, well-sorted.	
86 - 97	Sandy limestone (grainstone), yellowish-gray, extensive macroporosity, fine to coarse grained sand and shell fragments, well cemented, subangular to angular, <1% dark minerals.	
97 - 117	Interbedded sand and limestone. Sand is yellowish-gray, medium grained, quartz, angular, well sorted with shell fragments(25%). Limestone is white to yellowish-gray, and very sandy in some beds, with moderate to extensive macroporosity and shell fragments.	
117 - 122	Sand,very light gray quartz, well-sorted, subangular.	
122 - 123	Limestone and sand, limestone has extensive moldic porosity. Sand is same as from 117 to 122 ft.	
123 - 127	Sandstone, very light gray, well sorted, minor macroporosity.	
127 - 137	Sandy limestone (65%), with 30% shell fragments (gastropods, bivalves), increasing fossil content and extensive moldic macroporosity. Sand, very light gray, quartz, well sorted, subangular. Increase in fluid conductivity.	
137 - 146	Sand, white to pinkish gray, quartz, well sorted, medium to coarse grained, with shell fragments.	
146 - 149	Sandy limestone (grainstone), yellowish-gray with shell fragments and moderate to extensive macroporosity. Sand is moderately well sorted.	
149 - 153	Sand, very pale orange, quartz, well sorted, medium-grained, subangular, with 15% very coarse-grained size, angular shell fragments.	
153 - 159	Interbedded sand and sandy limestone. Similar to lithologies described from 146 to 153 ft.	
159 - 172	Limey sandstone (75%), light gray to very light gray, moderately cemented, minor macroporosity,with very fine to coarse-grained, subangular quartz sand, and 5% shell fragments. Sand (25%), light gray to very light gray, very fine to coarse, well sorted quartz.	
172 - 185	Limey sandstone and sand. Limey sandstone is light gray, moderately cemented, with low to moderate macroporosity, shell fragments, and fine to coarse grained, subangular quartz sand. Sand is well sorted, coarse grained subangular to angular, with shell fragments.	

Compiled and modified from the original lithologic description by Hazen & Sawyer, Hollywood, FL, and Missimer International, Inc., Ft. Myers, FL.



WY 2012 Induction log results
 Station: USGS 260551080111901
 Local name: G -2957

