

Miocene Series

The Plio-Pleistocene sediments unconformably overlay dense phosphatic clays and limey silts of the Hawthorn Group. The Hawthorn Group sediments extend from approximately 210 feet bpl to 992 feet bpl, equating to an approximate total thickness of 750 feet. The lowermost portion of the Hawthorn Group is composed of interbedded carbonate clay, phosphate sand, sandstone, and limestone and exhibits increased limestone content with depth. The phosphate content of these sediments causes the gamma ray log to record high gamma ray counts through this interval.

Oligocene Series

Lying below the Hawthorn Group sediments is the Oligocene-aged Suwannee Limestone, at a depth of 992 feet bpl. The Suwannee Limestone is comprised of white, pale orange and gray-colored fossiliferous packstones and wackestones. Numerous echnoids, corals, and foraminifera fossils are present within this interval. Secondary porosity in the form of solution vugs is present throughout the penetrated interval. The Suwannee Limestone is present to a depth of 1,064 feet bpl.

Eocene Series

At a depth of 1,064 feet bpl, lies the Avon Park Formation. This formation is distinguished by the appearance of a yellowish-brown to brown-colored dolomite interbedded with a pale orange-colored limestone. The limestone is characterized as medium hard, fossiliferous, with low to medium porosity. The dolomite is hard, crystalline, with good secondary porosity and medium to high permeability. This formation is present to the total drilled depth of the pilot borehole, which was 1,650 feet bpl in the FAMW.

Core Analyses

A total of twenty-one conventional cores were collected within the Hawthorn Group, Suwannee and Avon Park formations penetrated by the FAMW and the ASR wells. Table 3-1 presents a summary of the cored intervals. The first eighteen cores were collected from the FAMW and the remaining three cores were collected from the ASR well. All of the cores were mainly composed of relatively "clean" limestones, although some contained small percentages of lime mud, clay, marl, and dolosilt. Detailed core descriptions are contained in Appendix G

TABLE 3-1
CORE SUMMARY

Core Number	Depth Interval (feet bpl)	Recovery Percent	Lithology
Floridan Aquifer Monitor Well (FAMW)			
1	940 - 964	2%	Limestone
2	980 - 995	27%	Limestone
3	995 - 1,005	40%	Limestone
4	1,006 - 1,026	20%	Limestone
5	1,040 - 1,065	30%	Limestone
6	1,065 - 1,090	0%	Limestone
7	1,090 - 1,115	24%	Limestone
8	1,115 - 1,140	24%	Limestone
9	1,140 - 1,165	32%	Limestone
10	1,165 - 1,190	12%	Limestone
11	1,190 - 1,215	4%	Limestone
12	1,215 - 1,240	2%	Limestone
13	1,300 - 1,325	76%	Limestone
14	1,326 - 1,351	12%	Limestone
15	1,351 - 1,376	56%	Limestone
16	1,376 - 1,401	40%	Limestone
17	1,500 - 1,520	70%	Limestone
18	1,600 - 1,625	40%	Limestone
Aquifer Storage and Recovery Well (ASR)			
1	971 - 996	20%	Limestone
2	996 - 1,021	12%	Limestone
3	1,021 - 1,046	28%	Limestone

- EHILL - MW

EHILL - ASR

HYDROGEOLOGY

Surficial Aquifer System

The surficial aquifer system is present to a depth of 210 feet bpl in the wellfield. Within the surficial aquifer system of Palm Beach County is the Gray Limestone/Biscayne Aquifer, which is the source of most of the drinking water in south Florida. The County's WTP No. 9 two Wellfields are completed within the Biscayne aquifer. Supply wells completed within this aquifer are typically pumped at flow rates in the range of 500 to 1,500 gpm in this area. Water within the surficial aquifer is fresh, with chloride concentrations of between 10 mg/L and 100 mg/L. The surficial aquifer system is an unconfined aquifer, recharged by rainfall and surface water lakes and canals.