

Hydrogeologic Framework of the Floridan Aquifer System in Florida and in Parts of Georgia, Alabama, and South Carolina

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REGIONAL AQUIFER-SYSTEM ANALYSIS

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HYDROGEOLOGIC FRAMEWORK OF THE FLORIDAN AQUIFER SYSTEM

B87

Appendix: LITHOLOGIC DESCRIPTION OF PROPOSED REFERENCE SECTION FOR THE AVON PARK FORMATION

Description is of cuttings from Coastal Petroleum Company's No. 1 James B. and Julian P. Ragland well, sec. 16, T. 15 S., R. 13 E., Levy County, Fla. Florida Bureau of Geology well no. W-1537, permit no. 66. Elevation of ground level 5 ft. Carbonate rock classification is that of Leighton and Pendexter (1962). Colors are those illustrated in the Geological Society of America's (1951) rock color chart.

<i>Depth (in feet)</i>	<i>Lithology</i>
	Tertiary
	Late Eocene
	Ocala Limestone
100-110	Limestone (fine- to coarse-grained foraminiferal-micritic limestone), white (N9), consists of 65 percent whole to broken, small to large foraminiferal remains bound by 25 percent finely-crystalline sparry matrix. Echinoid and bryozoan fragments, <i>Camerina</i> sp., <i>Lepidocyclina</i> sp. prominent.
110-221	No sample.
	Tertiary
	Middle Eocene
	Avon Park Formation
221	Dolomite, medium-grained, moderate yellowish-brown (20 YR 5/4), crystalline, consists of well-cemented euhedral to subhedral dolomite crystals. Vuggy porosity prominent, probably a result from selective dissolution of foraminiferal remains in original limestone.
221-410	No sample.
410-420	Dolomitic limestone (medium-grained foraminiferal-micritic limestone), pinkish-gray (5 YR 8/1). 55 percent medium-sized foraminiferal remains (mostly <i>Quinqueloculina</i> sp., with <i>Dictyoconus</i> sp. prominent) in 45 percent very fine crystalline calcite matrix. Much fine-vug porosity (estimated 25 percent).
420-440	Dolomitic limestone as above.
440-460	Dolomitic limestone as above. Add trace of medium to coarse pellets of pinkish-gray micritic limestone.
460-470	Limestone (microcrystalline limestone), very light gray (N8), consists of very finely crystalline sparry calcite, probably representing recrystallized micrite. Fine-vug porosity estimated at 20 percent.
470-480	Limestone as above.
480-500	Limestone as above, porosity decreased to 10 percent.
500-510	Dolomite, fine-grained, very pale orange (10 YR 8/2), texturally uniform, low porosity, finely crystalline. A few scattered, isolated small vugs. Trace of black organic partings that represent original grassy material.

<i>Depth (in feet)</i>	<i>Lithology</i>
510-520	Dolomite as above with trace of large vugs, some lined with very coarsely crystalline clear quartz.
520-530	Dolomite as at 500 to 510 ft. Silt-sized crystals. No open vugs. Trace of scattered white anhydrite as vug fillings.
530-540	Dolomite, medium-grained, pale yellowish-brown (10 YR 6/2), consists of a highly porous (estimated 25 percent intercrystalline porosity) mesh of medium-sized euhedral crystals. Trace of clear selenite as vug fillings.
540-550	Dolomite as above. White gypsum as vug fillings makes up 10 percent of rock.
550-560	Limestone (micrite), pinkish-gray (5 YR 8/1), low porosity, consists of clay- to silt-sized particles of micrite, finely disseminated dark-brown organic material prominent. Trace of organic-rich laminae, <i>Dictyoconus</i> sp.
560-570	Limestone (foraminiferal-micritic limestone), pinkish-gray (5 YR 8/1), consists of 60 percent soft micritic limestone matrix enclosing 40 percent large to small <i>Dictyoconus</i> sp. Low porosity.
570-580	Dolomitic limestone (micrite), pinkish-gray (5 YR 8/1), texturally uniform, low porosity, consists of silt-sized particles of dolomitic limestone.
580-590	Limestone (micrite), pinkish-gray (5 YR 8/1), texturally uniform, hard, low porosity. Consists of silt-sized limestone particles.
590-600	Dolomite, medium-grained, very pale orange (10 YR 8/2), calcareous, medium crystalline, highly vuggy, most vugs filled with white gypsum.
600-620	Dolomite as above.
620-630	Dolomite, fine-grained, grayish orange pink (5 YR 7/2), texturally uniform, very fine crystalline, low porosity. Trace of scattered small vugs, some filled with medium crystalline euhedral dolomite.
630-640	Dolomite as above.
640-650	Dolomite, coarse-grained, pinkish-gray (5 YR 8/1), medium to coarsely crystalline, low porosity, large isolated vugs common.
650-660	Dolomite as at 590 to 600 ft. Decrease in gypsum to trace.
660-670	Dolomite as at 620 to 630 ft.
670-690	Dolomite as at 590 to 600 ft. No gypsum.
690-710	Dolomite as above. Trace of disseminated dark-brown organic material, clear anhydrite filling a few vugs.
700-720	Dolomite as at 620 to 630 ft.

<i>Depth (in feet)</i>	<i>Lithology</i>
720-730	Dolomite as at 690 to 710 ft.
730-740	Dolomite, coarse-grained, pale yellowish-brown (10 YR 6/2), texturally uniform, very coarsely crystalline, low porosity, slightly vuggy. Vugs are large, isolated, filled with clear to white gypsum. Disseminated dark-brown organic material prominent. Trace of pale-brown (5 YR 5/2) clay laminae.
740-770	Dolomite as above, gypsum increased to 10 percent of rock. Gypsum mostly white, very coarsely crystalline.
770-780	Dolomite as at 620 to 630 ft.
780-790	Dolomite as above, disseminated fine-grained white gypsum prominent.
790-820	Dolomite as at 620 to 630 ft.
820-830	Dolomite as above, small-vug porosity prominent. White gypsum fills a few of the vugs.
830-870	Dolomite as above, no gypsum. Very fine grained disseminated dark-brown organic material prominent.
870-880	Dolomite, coarse-grained, pale yellowish-brown (10 YR 6/2), texturally uniform, coarsely crystalline, isolated vuggy porosity common. A few vugs are filled with white gypsum.
880-890	Dolomite as above.
890-900	Limestone (foraminiferal-pellet limestone), pinkish-gray (5 YR 8/1). Consists of 40 percent medium to large Foraminifera and medium-sized pellets of micritic limestone, 40 percent micritic limestone matrix, 20 percent coarse crystalline (recrystallized) calcite as isolated rhombs and aggregates in micritic matrix. Microfauna includes <i>Lituonella floridana</i> Cole, <i>Eponides gunteri</i> Cole, <i>Spirolina coreyensis</i> Cole, <i>Amphistegina lopeztrigoni</i> Palmer, <i>Gyroidina nassauensis</i> Cole, <i>Discorbis inornatus</i> Cole.
900-920	Limestone as above.
920-930	Limestone as above but with most Foraminifera recrystallized. <i>Dictyoconus</i> sp. prominent.
930-940	Limestone as above.
940-960	Limestone as above, about half of matrix altered to coarsely crystalline dolomite.
960-970	Dolomite, coarse-grained, pale yellowish-brown (10 YR 6/2), texturally uniform, friable, coarse crystalline, much small-vug and intercrystalline porosity (estimated 15 percent). Dark-brown to dark-gray disseminated organic material prominent.
970-980	Limestone as at 940 to 960 ft. All of micritic matrix dolomitized.

<i>Depth (in feet)</i>	<i>Lithology</i>
980-1,000	Dolomite as at 960 to 970 ft. White gypsum prominent as filling
1,000-1,010	Limestone (pelletal-micritic limestone), light-gray (N7), well indurated, low porosity. 60 percent hard, micritic, partially dolomitized limestone matrix. 40 percent fine pellets of micritic limestone and small Foraminifera (mostly <i>Quinqueloculina</i> sp.). Very fine-grained dark-green glauconite common, disseminated in micritic matrix.
1,010-1,020	Limestone as above.
1,020-1,050	Dolomite as at 980 to 1,000 ft.
1,050-1,060	Limestone (pelletal-micritic limestone), pinkish-gray (5 YR 8/1), low porosity. 40 percent fine pellets of micritic limestone. 40 percent coarsely crystalline calcite (recrystallized micritic matrix). 20 percent micritic limestone matrix. Fine-grained dark-green weathered glauconite, small Foraminifera, bryozoan fragments prominent.
1,060-1,100	Limestone as above but with 30 percent increase in pellets, and corresponding decrease in coarsely crystalline calcite. Fauna includes <i>Dictyoconus</i> sp., and <i>Cribobulimina floridana</i> Cole.
1,100-1,110	Limestone (pelletal-foraminiferal limestone), pinkish-gray (5 YR 8/1), low porosity, a few high-porosity intercalations. 85 percent medium-sized pellets of micritic limestone and medium to large Foraminifera. 15 percent hard micritic limestone matrix. White gypsum prominent, disseminated in matrix. Echinoid fragments abundant.
1,110-1,120	Limestone as above.
1,120-1,130	Limestone as above but pellets fine to medium grained and poorly sorted. Microfauna includes <i>Gunteria floridana</i> Cushman and Ponton.
1,130-1,140	Limestone as above but texturally uniform, finely pelletal. Pellets are loosely bound with micritic limestone matrix. Much interparticle porosity (estimated 20 percent).
1,140-1,160	Limestone as above, porosity decreased to 10 percent. Most pores are filled with micritic limestone matrix.
1,160-1,170	Limestone (micrite), white (N9), hard, very finely crystalline, micritic, small isolated vugs common. Trace of pelecypod casts and molds. A few vugs filled with white gypsum.
1,170-1,180	Limestone as above, coarsely crystalline calcite (recrystallized) accounts for 30 percent of sample.
1,180-1,190	Limestone as at 1,100 to 1,110 ft. Pellets medium to coarse grained. No gypsum. Fauna includes <i>Pseudorbitolina cubensis</i> Cushman and Bermudez.

<i>Depth (in feet)</i>	<i>Lithology</i>
	Tertiary
	Early Eocene
	Oldsmar Formation
1,190-1,200	Dolomite, coarse-grained, light-gray (N7), friable, consists of interlocking mesh of coarsely euhedral dolomite crystals. High amount of vuggy and intercrystalline porosity (estimated 30 percent). Trace of white gypsum as vug fillings.