IWA S-1

PWS Sanibel

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TABLE A-1. GEOLOGIST'S LOG - WELL L-M-987

Depth(ft.)	Description
0-2	Sand, quartz, lt. gray, fill material, medium permeability
2-10	Sand and shell, tan, interbedded sequence of quartz sand and shell, beds 0.5 to 1.0 feet thick, very high permeability
10-16	Sand and shell, gray, quartz sand - fine subangular, well sorted, interbedded sequence, high permeability
16-20	Clay, gray, and shell, mixed sequence of shell fragments, quartz sand, and lime mud, more than 30% lime mud, low permeability
20-26	Shell and clay, gray, sandy, approximately 20-25% lime mud, 50-60% lime mud, and 20-25% quartz sand, mixed sequence, medium to low permeability
26-33	Limestone, gray and tan, medium hard, mixture of sparse biomicrite and unsorted biosparite, wackestone mixed with crystalline carbonate, 5-10% quartz sand, medium to high permeability
33-34	Limestone, tan and gray, tan limestone is a biosparite, gray limestone is a dismicrite, overall rock is a wackestone, slightly sandy, vugged, high permeability
34-50	Limestone, gray to white, many different lithologies, mostly fossilferous micrite, wackestone, loss of circulation, no samples between 40 and 50 feet; very high permeability
50-55	Limestone, white, hard, fossilferous micrite, wackestone, some quartz sand and microphosphorite nodules, apparent secondary porosity, high permeability
55-60	Limestone, white, hard, dismicrite, mudstone to wackestone, some vugs filled with secondary carbonate, trace of sand and phosphorite, medium to high permeability

IWA 5-1

TABLE A-1. GEOLOGIST'S LOG - WELL L-M-987 (CON'T.)

Depth(ft.)	Description
60-62	Limestone, white, same generally as above, very little phosphorite, decorated vugs, medium to high permeability
62-64	Limestone, tan, with large fragments of phosphatized limestone, sparite, crystalline aggragate, some quartz sand and microphosphorite nodules, medium permeability
64-65	Clay, green, very pure lime mud, less than 10% shell, and quartz sand and silt, very thin bed, very low permeability
65-75	Limestone, gray, soft, mixture of shell and bedded limestone, overall biomicrite, wackestone, sandy, some phosphorite, medium permeability
75-85	Limestone, gray and tan, interbedded biomicrite and biosparite, quartz sand in biomicrite, wackestone, medium permeability
85-95	Limestone and marl, gray, biomicrite, wackestone, grades from limestone into marl from top to bottom, marl at base is a mixture of lime mud and quartz sand and silt, 25-35% matrix, medium to low permeability
95-105	Marl, gray, mixture of lime mud, quartz sand, rock fragments, and phosphorite nodules, low permeability
105-115	Marl, gray, same as above, more than 50% quartz sand and silt, low permeability
115-124	Marl, gray, lime mud (15-25%), shell (25-30%), rock fragments (25-35%), and quartz sand (15-20%), low permeability
124-127	Marl, green, lime mud and clay with shell, rock fragments, and quartz sand, greater percentage of clay, low permeability

IWA 5-1

TABLE A-1. GEOLOGIST'S LOG - WELL L-M-987 (CON'T.)

Depth(ft.)	Description
127-137	Silt and clay, green, trace of microphosphorite nodules, quartz silt and sand, lime mud, with some rock fragments and shell, low permeability
137-147	Clay, green, mixture of lime mud, quartz sand, some shell and rock fragments (may be recirculated from above), trace of phosphorite, low permeability
147-151	Clay, green, lime mud with some clay minerals, mixed with quartz sand and silt and rock fragments; 25-35% matrix, low permeability
151-159	Limestone and clay, cream to lt. gray, clay is green, sandy - either interbedded or from above, limestone - sandy micrite, mudstone, quartz sand impurity, abundant phosphatized limestone, medium to low permeability
159-169	Limestone, tan, gray, and cream, medium hard, biomicrite, wackestone, some sparrey calcite, abundant phosphorite, medium permeability
169-174	Limestone, lt. gray to gray, biomicrite and micrite, mudstone to wackestone, lighter color limestone contains quartz sand, less phosphorite than above, medium permeability
174-179	Limestone, cream to lt. gray, biomicrite, wackestone, abundant very fine, quartz sand, medium permeability
179-184	Limestone, lt. gray, dismicrite, wackestone, quartz sand abundant, some unlithified carbonate mud, medium to low permeability
184-189	Limestone, lt. gray, soft, micrite to biomicrite, wackestone, marly, some unlithified lime mud, low permeability
189-198	Marl, gray-green, lime mud-clay mixture, shell, quartz sand, and limestone fragments, about 15% interbedded limestone, low permeability

IWA S-1

TABLE A-1. GEOLOGIST'S LOG - WELL L-M-987 (CON'T.)

Depth(ft.)	Description
198-209	Limestone, gray, biomicrite, wackestone, immature, lime mud abundant, low permeability
209-216	Limestone, lt. gray, dismicritic, wackestone, sandy limestones, appears pelleted, some phosphorite, metallic mineral, medium permeability
216-220	Limestone, lt. gray, biomicrite, wackestone, sandy, similar to above, medium permeability
220-224	Limestone, lt. gray, same generally as above, some gray-green lime mud, phosphorite nodules abundant, medium to low permeability
224-230	Clay, gray, mostly lime mud matrix, concentrated of phosphorite nodules in or above, poor sample, low permeability
230-240	Clay, gray-green, lime mud with quartz sand, most quartz grains well-rounded, phosphorite nodules abundant, low permeability
240-250	Clay, gray-green, lime mud and clay, very sandy, more than 50% quartz sand and silt, some shell, abundant phosphorite, gravel, low permeability
250-255	Clay, gray, lime mud matrix, 50-70% quartz sand and silt, less phosphate than above, low permeability
255-264	Clay, gray, lime mud matrix, 40-50% quartz sand and silt, micro-phorphorite nodules - less abundant than above, low permeability
264-270	Clay, dark gray, lime mud with 30-40% quartz sand, some phosphorite (very fine sand size), low permeability
270-282	Clay, gray-green, lime mud and quartz sand, phosphorite nodules, low permeability
282-290	Clay, gray, lime mud, quartz sand 50-60%, thin, lower density of phosphorite, low permeability

IWA 5-1

TABLE A-1. GEOLOGIST'S LOG - WELL L-M-987 (CON'T.)

Depth(ft.)	Description
290-300	Sand, gray, quartz sand (65%), lime mud (10%), phosphorite sand (15%), medium to low permeability
300-314	Sand and silt, gray, quartz, similar to above, lime mud (10-15%), low permeability
314-320	Limestone and sand, white and gray, sand ends at above 314 feet, limestone begins at 314 feet, white, soft, marly, wackestone, sandy, phosphatic, could be interbedded with some quartz sand, low permeability
320-324	Marl and sand, lt. gray, marly limestone, wackestone, sandy and quartz sand with lime mud, phosphatic, medium to low permeability
324-330	Marl, lt. gray, micrite, mudstone, lime mud with quartz sand and sand-size phosphorite nodules, low permeability
330-335	Clay and limestone, interbedded lt. gray limestone and gray, lime mud, quartz sand 15-20%, phosphorite nodules abundant, low permeability
335-344	Marl, lt. gray-green, lime mud with quartz sand and phosphorite, some bedded limestone same composition but lithified, low permeability
344-350	Clay, green-gray, lime mud and clay matrix, quartz sand and silt (35-40%), abundant phosphorite nodules (125-250), low permeability
350-360 -355-	Limestone and clay, gray, two separate lithologies, clay - lime mud, quartz sand and phosphorite, limestone (from 355 feet), white to lt. gray, soft, some shell, biomicrite, wackestone, sandy, medium to low permeability
360-370	Limestone, lt. gray, soft, biomicrite, wackestone, some unlithified lime mud, quartz sand abundant, phosphatic, medium to low permeability

IWA 5-1

TABLE A-1. GEOLOGIST'S LOG - WELL L-M-987 (CON'T.)

Depth(ft.)	Description
370-378	Limestone, lt. gray, medium hard, biomicrite, wackestone, trace of quartz sand, some sand-size phosphorite nodules, medium permeability
378-387	Limestone, lt. gray, medium hard, same as above, medium permeability
387-395	Limestone, lt. gray, medium hard, biomicrite, wackestone, 5-10% quartz sand, 1-3% phosphorite, medium to high permeability
395-420	Limestone, lt. gray, medium permeability
420-425	Limestone, white to lt. gray, hard, biomicrite, wackestone, less than 1% quartz sand, trace microphosphorite nodules, evident secondary porosity, medium to high permeability
425-430 427-429? clay	Limestone, white to lt. gray, hard, same as above, with a thin bed of green lime mud, estimated to occur between 427 and 429 feet, limestone - medium to high permeability, clay - low permeability
430-435	Limestone, white to lt. gray, hard, biomicrite, wackestone, decorated vugs, trace of quartz sand, very fine phosphorite nodules, high permeability
435-440	Limestone, white to lt. gray, same as above, medium to high permeability
440-445	Limestone, white to lt. gray, hard, biomicrite, wackestone, some intra-formation breccia - lt. gray limestone fragments in white, limestone matrix, vugged, high permeability
445-450	Limestone, white, hard, biomicrite, wackestone, low percentage of shell fragments, very little quartz sand and phosphorite, medium to high permeability
450-466	Limestone, white, lt. gray and tan, same generally as above, medium permeability

IWA 5-1

TABLE A-1. GEOLOGIST'S LOG - WELL L-M-987 (CON'T.)

Depth(ft.)	Description
466-470	Clay, green, fat, more than 90% lime mud and clay minerals, absence of quartz sand, only small trace of phosphorite, very low permeability
470-472	Clay, green, very uniform lime mud, over 95% matrix, same as above, very low permeability
472-478	Clay, lt. green, silty, appears like erosional clay remnant, more than 85% matrix, probably a higher percentage of the matrix is true clay minerals, very low permeability
478-480	Limestone, tan - lt. green, dolomitic, hard, mudstone, micrite, similar composition to overlying lime mud, very low concentration of phosphorite, low permeability
480-483	Clay and limestone, green, interbedded green limestone - mudstone, hard, and green lime mud, fragments of white, sparite, may be thin bed, low permeability
483-485	Limestone and clay, gray-tan, interbedded, biomicrite (wackestone) and bedded lime mud, reef-backreef complex, medium to low permeability
485-490 muddy	Limestone, white, soft, interbedded with some lime mud, limestone - wackestone, lime mud has some composition, the lithified limestone is just partially cemented lime mud, trace of phosphorite, chalked texture, low permeability
490-495	Dolomite, tan, microcrystalline, very hard, mudstone, brown color at top, lower section vugged, medium permeability
495-499	Limestone, lt. tan, micrite, mudstone, medium hard, highly altered by secondary solution, some fragments of gray limestone cemented in matrix, very high permeability
499-506	Clay, lt. gray-tan, nearly 98% lime mud, dense, very uniform texture, very low permeability

IWA S-1

TABLE A-1. GEOLOGIST'S LOG - WELL L-M-987 (CON'T.)

Depth(ft.)	Description
506-510	Clay, lt. gray-tan, same as above, small quantities of metallic-like mineral, very low permeability
510-512	Limestone, white to gray, two types, upper limestone - mudstone, soft, slightly lithified lime mud, lower limestone - dismicrite mudstone, crystalline, vugged, low to high permeability
512-516	Limestone, lt. tan, hard, dismicrite, mudstone, nearly all shell material selectively removed, vugged, decorated solution cavities, high permeability
557-560	Limestone, lt. gray-tan, soft, micrite, mudstone, chalky texture, poorly lithified lime mud, 5-10% phosphorite, trace of shell and quartz sand, low permeability
560-566	Limestone, lt. gray-tan, soft and medium hard, same generally as above, low permeability
566-569	Limestone, lt. tan, hard, biomicrite, wackestone, shell material selectively removed, molds and casts, some large fragments of phosphatized limestone, medium to high permeability
569-574	Limestone, lt. tan-gray, hard, biomicrite, wackestone, with some thin bedded lime mud near base, mud contains large quantity of phosphorite, limestone - medium permeability
574-578	Clay, lt. gray and gray-green, laminated lime mud, alternating bands 1 to 4 mm thick, quite phosphatic, low to very low permeability
578-579	Limestone, gray-tan, biomicrite, wackestone, appears to be lithified primary lime mud, large concentration of phosphorite, medium to low permeability
579-588	Limestone, and dolomite, tan to lt. gray, very hard, micrite and biomicrite, mudstone and wackestone, all shell material selectively removed, high phosphorite concentration, dolomite, microcrystalline, medium permeability

IWA 5-1

TABLE A-1. GEOLOGIST'S LOG - WELL L-M-987 (CON'T.)

Depth(ft.)	Description
588-589	Clay, lt. tan to cream, lime mud, some small limestone fragments and a trace of phosphorite, low permeability
589-595	Limestone, tan, medium hard, biomicrite, wackestone, recrystallized - could be termed sparrey, lithified primary mud, some shell remains, slightly phosphatic, medium to low permeability
595-599	Marl, lt. gray, lime mud and limestone gragments with phosphorite sand (very fine), low permeability
599-604	Limestone and clay, brown limetsone - microcrystalline, micrite, and gray lime mud, overall medium to low permeability
604-608	Clay, lt. gray-tan, fat, primarily lime mue with some phosphorite, very low permeability
608-610	Limestone, lt. gray-tan, medium hard, micrite to biomicrite, wackestone, widely spaced, trace of phosphorite vugs, medium permeability
610-616	Limestone, lt. gray-tan, very hard, same as above, medium permeability
616-620	Limestone, tan, medium hard, wackestone, same generally as above, higher degree of secondary alteration, medium to high permeability
620-624	Limestone, white to lt. gray, medium hard, biomicrite, wackestone, shell preserved, chalky texture, very minor quantity of phosphorite, low permeability
624-627	Limestone, white and lt. tan, hard, large shells imbedded in lithified - lime mud, shell altered, low permeability
627-632	Limestone and marl, lt. gray to white, biomicrite, wackestone, some unlithified lime mud, overall medium to low permeability

IWA 5-1

TABLE A-1. GEOLOGIST'S LOG - WELL L-M-987 (CON'T.)

Depth (ft.)	Description
749-754	Limestone, tan to lt. brown, same as above, medium permeability
754-759	Limestone, lt. tan, soft, micrite, mudstone, pelleted, no phosphorite, medium permeability
759-764	Limestone, lt. tan to tan, soft, wackestone, most shell selectively removed, medium permeability
764-769	Limestone, tan, medium hard, biomicrite, wackestone, some pellets, molds and casts, medium permeability
769-774	Limestone, lt. tan to white, micrite, mudstone, some nearly unlithified lime mud, medium to low permeability