ROMP TR 8-1 RUBONIA, WRAP #2

Statement of Completed Work Executive Summary Addendum

September, 1992 D.J. DeWitt Geohydrologic Data Section

Introduction

The ROMP TR 8-1 ground water monitoring site is located in northwest Manatee County near the coastal town of Rubonia (Fig. 1). The wellsite is positioned in the SE NW NW quarters of section 30, Township 33 South, Range 18 East. Site coordinates delineated from the U.S. Geological Survey Palmetto topographic quadrangle are latitude 27 34' 58", and longitude 82 32' 47", with an elevation of approximately 15 ft. above NGVD.

ROMP TR 8-1 is an established monitoring station that was selected for additional test drilling and monitor well construction under the Resource Projects Department, Water Resource Assessment Project (WRAP) for the eastern Tampa Bay Water Use Caution Area (WUCA). The TR 8-1 site is one of seven WRAP monitor sites within the WUCA, an area encompassing southern Hillsborough, Manatee, and northern Sarasota counties. Detailed ground water investigations have been, or are in the process of being completed at each of these sites to collect data supporting future ground water resource management programs and regulatory initiatives in the region.

Previous Drilling and Well Construction

Test drilling and monitor well construction at TR 8-1 first took place over a six year period from 1980 to 1986. A test corehole was first drilled in 1980 to a depth of 599 feet, and test drilling continued in 1984, using reverse-air rotary methods, to a total depth of 1260 feet. Numerous data sets were collected during test drilling, characterizing site stratigraphy, hydrogeology, ground water chemistry, and borehole geophysics (ROMP TR 8-1 file). The site was also used in a cooperative study with the USGS Water Resources Division to determine zones of high transmissivity and relative positions of the fresh-saltwater interface (Mahon, 1988; ROMP TR 8-1 file).

Four monitor wells were constructed at the site upon completion of the test drilling (Fig. 2). A triple-zone Floridan Aquifer nested monitor was completed in the test hole; two Avon Park Fm. fresh-saltwater interface monitors, and a Suwannee/Ocala Fm. monitor. A fourth well was constructed to monitor an observed increase in sulfate concentration at the contact between the Intermediate confining unit and the Floridan Aquifer. This well was originally designed as a dual zone well but was never completed. Instead, the well was finished as a single zone monitor, with an open hole interval completed across the observed change in water quality.

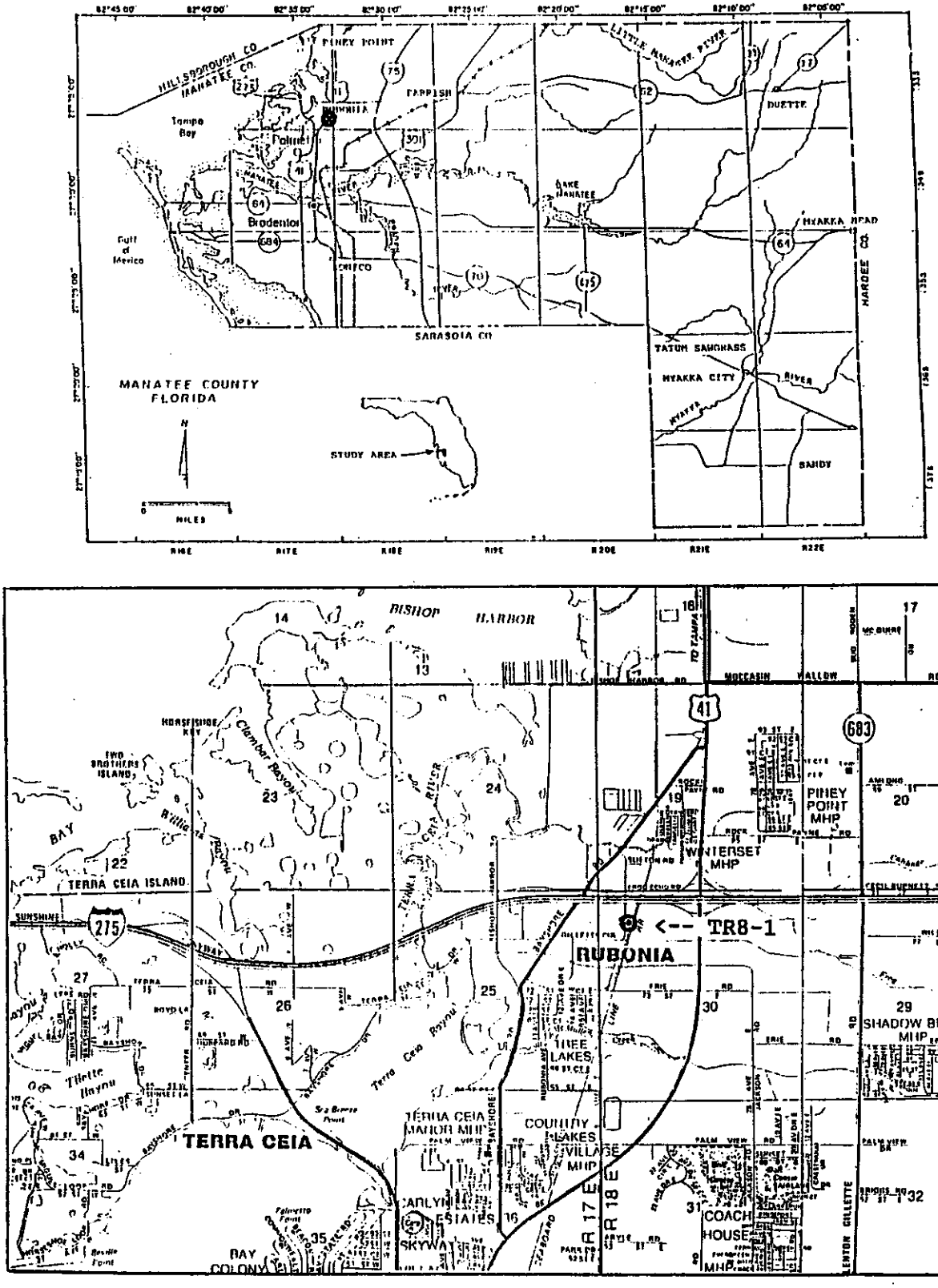


Figure 1. ROMP TR8-1 wellsite location

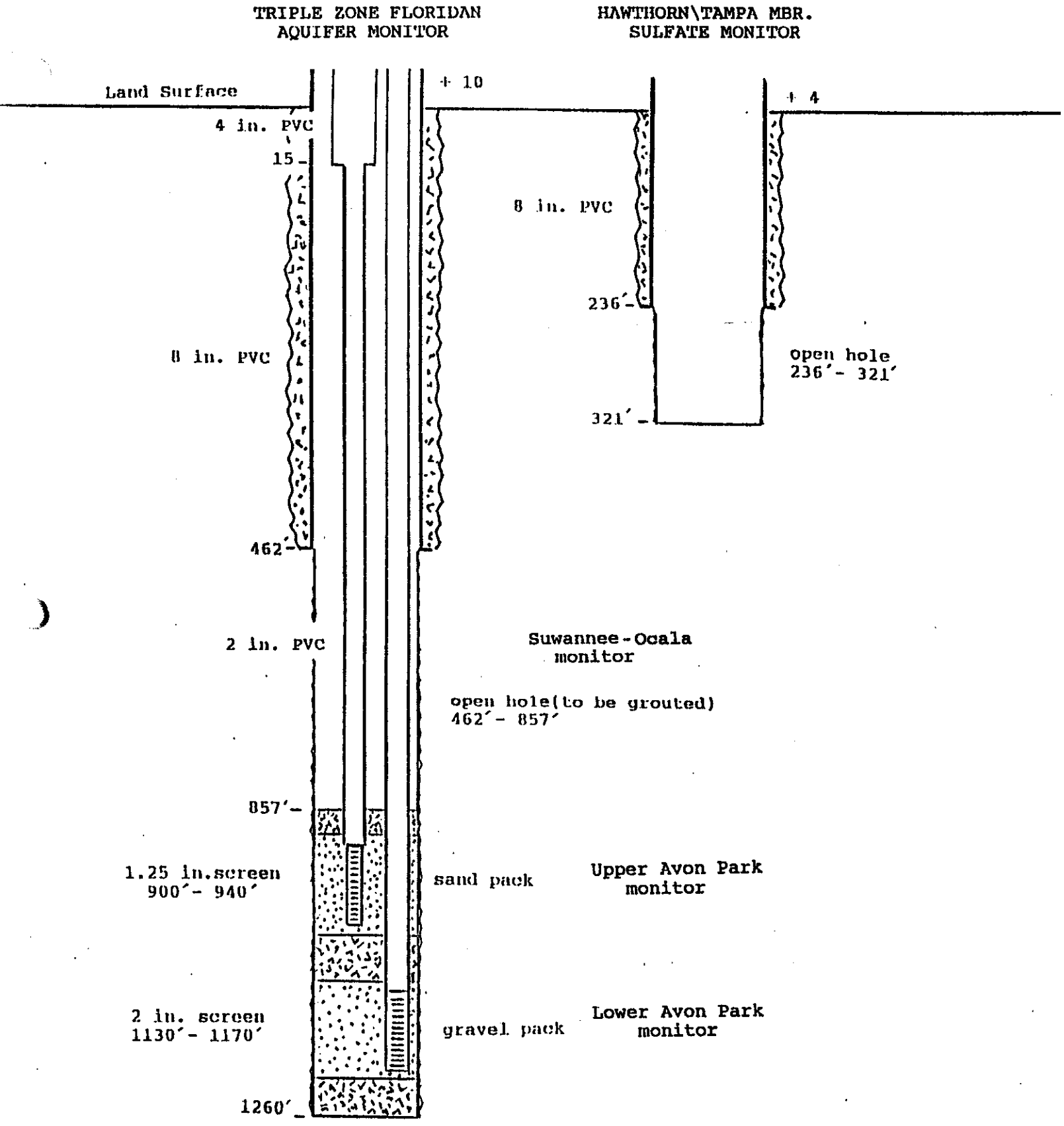


Figure 2. Schematic drawing of existing monitor wells at TR8-1.

Preliminary Drilling for the WRAP

Well drilling at TR 8-1 for the WRAP began in April of 1990. Plans outlined in the Site Investigation and Drilling Plan memorandum dated June 1990 (see TR 8-1 file), called for additional core drilling from 599 feet to a depth, below the fresh-saltwater interface, between 900 ft. and 1100 ft. Water quality profiling and geophysical log data from the corehole would delineate the present position of the interface. Several new wells would be constructed at the site to monitor water levels and water quality in the Surficial, Intermediate, and Floridan aquifers (Fig. 3).

The drilling plan was initiated at the site using a Speedstar 22 rotary rig. Construction details for the Surficial and Intermediate Aquifer monitors were derived from existing lithologic data from previous test drilling at the site. Both wells were constructed with 6 inch diameter PVC casing and slotted-type PVC well screen with silica sandpacks (Fig. 7). The Surficial Aquifer monitor was completed in fine grained quartz sand and clayey sand with a screen interval from 17 ft. to 37 ft. below land surface. The Intermediate Aquifer monitor was completed across sandy phosphatic clays and interbedded dolostones of the upper Hawthorn Group, (Hawthorn Fm.), with a screen interval from 100 ft. to 160 ft. below land surface.

Next, a well was constructed to facilitate core drilling, which was planned to begin at a depth of 599 ft. below land surface. The well was completed at a depth of 595 ft. with 6 inch diameter PVC casing set to a depth of 390 feet. This well was designed to serve as the Suwannee Fm.\ Floridan Aquifer monitor by cement-plugging the corehole back to an appropriate depth after test drilling was complete. The well as-built diagrams in Figure 7 detail final construction specifications of the Suwannee Fm. monitor.

An additional task to the preliminary drilling plan at TR 8-1 was completed by reworking the triple-zone nested well to eliminate the upper monitor. The upper zone was designed to monitor the Upper Floridan Aquifer across the Suwannee and Ocala formations. The well consisted of an open-hole annular space below the 8 inch PVC casing at 462 feet, and above the top of cement grout capping the upper Avon Park monitor, reported at 857 ft.(Fig. 2). The large open hole interval, which included the lower section of Suwannee Fm. and the entire section of the Ocala Fm., was not ideal for a coastal monitor well. Review of construction details of this well also raised concerns about the integrity of the cement cap separating poor quality ground water below 900 feet in the Avon Park Formation from fresher water above in the Ocala and Suwannee Formations.

The best solution was to cement grout the open hole annulus of the well and replace the monitor with a single-zone well completed with a more discrete open hole interval within the Suwannee formation. Grouting procedures used in plugging the annular space monitor are outlined in Table 1. A caliper log run on the well prior to well completion in 1984 was used to estimate the cement volume needed to fill the annulus below 462 feet. A total of 3300 gallons of cement grout was pumped in four stages through tremie pipe to plug the

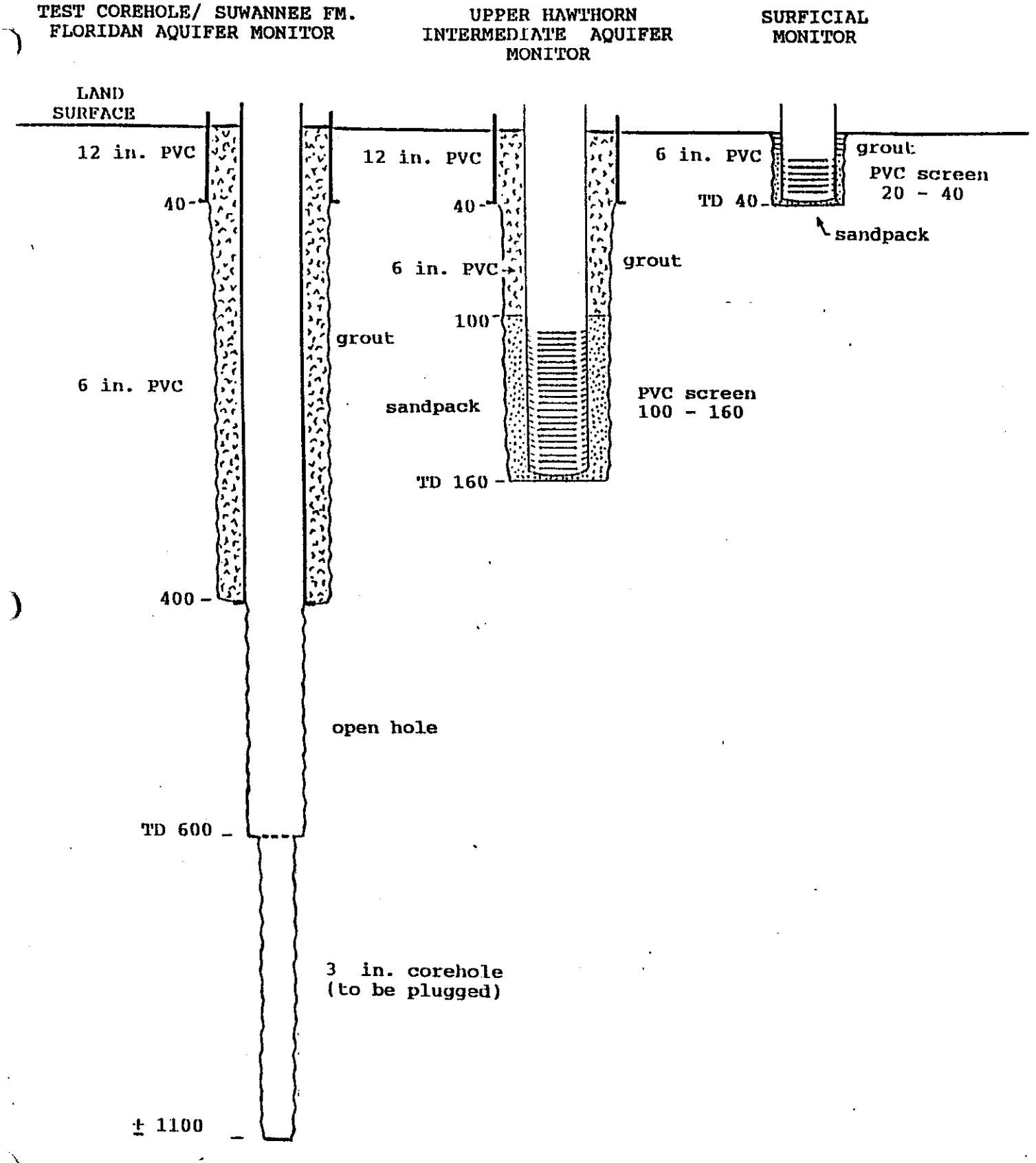


Figure 3. Schematic drawing of proposed monitor wells at TR8-1.

annular space from 462 ft. to 840 ft. An additional 875 gallons of grout filled the existing 8 inch casing from 462 ft. to land surface for a total of 288 sacks of cement and 9 bags of bentonite gel additive (Table 1).

Cement grout with bentonite gel additive pumped through 0.75 inch PVC tremie pipe set at 700 feet BLS.

Caliper log summary of open hole interval

INTERVAL (FEET)	AV. HOLE DIAMETER
462 - 540	22 in.
540 - 585	16 in.
585 - 650	9 in.
650 - 840	16 in.

DATE	SACKS GROUT	SACKS GEL	GALLONS	TOTAL GALLONS	TAG DEPTH
4-26-90	52	0	850	850	680 ft.
5-08-90	50	2	750	1600	600 ft.
5-09-90	56	2	850	2450	530 ft.
5-14-90	62	2	850	3300	470 ft.
5-15-90	68	3	875	4175	L. S.

Table 1. Grouting summary of dual monitor annular space

Test Core Drilling

Core drilling operations for the Eastern Tampa Bay WRAP were conducted at every site using a CME 75 tophead hydraulic drive rotary rig with a Longyear NQ wireline-retrievable coring system. The NQ core barrel produces a 3 inch nominal hole with a 1.75 inch core sample. Core drilling at TR8-1 began in June 13, 1990, at a depth of 599 feet and was completed on July 3, 1990 at a depth of 1074 feet. Prior to drilling, a 4 inch temporary steel casing was set in the Suwannee Fm. monitor from land surface, through the open hole interval, to a depth of 598 feet. Continuous core samples and water quality data were collected through the basal dolostone of the Suwannee Fm., the entire thickness of Ocala Fm., and the uppermost dolostone of Avon Park Formation occurring at a depth of 900 feet below land surface. Core drilling continued below 900 feet after the the corehole was reamed out to a 6 inch nominal diameter and the 4 inch temporary casing was reseated at a depth of 890 ft. Advancing the steel casing to the top of the Avon Park Fm. was necessary to stabilize the well and prevent abrasion of poorly

lithofied rocks of the Ocala Fm. when drilling through more competent lithologies. A deeper position of the temporary casing also improved water sampling conditions in the corehole by isolating the deeper sampling points from water bearing zones above as drilling continued to the total depth of 1074 feet.

Lithologies desribed from core samples ranged from well indurated low porosity dolostone of the lower Suwannee Formation and poorly cemented chalky limestones of the Ocala Formation, to highly permeable fractured and recrystalized dolostone of the Avon Park Formation. Geologic interpretations of core analysis below 600 feet were in general agreement with earlier data obtained from drill cuttings through the same interval at the site. A detailed lithologic log of the core is included in a composite log of all lithologic data from the site, and are available in the ROMP TR8-1 wellsite file.

The collection of core samples was beneficial in developing a clearer qualitative understanding of the hydrogeologic framework in the area, and allowed for more discrete water sampling during drilling. Core samples were also used for laboratory testing of the hydraulic properties of low porosity limestone common to the Ocala Formation. The Ocala Formation has generally been regarded as a semi-confining unit separating permeable zones within the Floridan Aquifer, and is considered to retard upward vertical movement of saline groundwater. Four core samples at representative intervals through the Ocala Fm. were sent to the Florida Geologic Survey (FGS) for falling-head permeameter testing. The results of the permeameter tests conducted by the FGS are listed in Table 2.

Core drilling continued into the permeable section of the Avon Park Formation until seawater-equivalent groundwater conditions were observed, in order to define the apparent position of the fresh-saltwater interface. Water quality profiling was conducted on ten and twenty foot sample intervals during the coring operation. Field parameters measured during sample collection included fluid temperature, specific conductance, pH, density, chloride and sulfate. Groundwater samples were sent to the District in-house laboratory for analysis of major ions, alkalinity, and total dissolved solids.

Groundwater quality remained relatively stable between 639 ft. and 879 ft., with chloride concentrations ranging from 81 ppm to 112 ppm, and sulfate concentrations below 500 ppm. Water quality deteriorated steadily between 889 ft. and 999 ft. with chloride concentrations rising from 809 ppm to nearly 12000 ppm. This change in water quality was coincident with a major contrast in porosity and apparent permeability between the Avon Park Formation and the overlying Ocala Formation. Sulfate and TDS values also increased sharply across this interval, indicating a significant change in water chemistry and a transition from dominantly fresh groundwater to a seawater-influenced groundwater mass. A steep increase in salinity was observed between 1000 ft. and the total core depth of

SAMPLE INTERVAL	GENERALIZED LITHOLOGY	HYDRAULIC CONDUCTIVITY
689' - 690'	fine grained limestone, chalky, unfossiliferous	1.11×10^{-1} ft./ day
741' - 742'	medium to fine grained limestone, abundant forams	1.30×10^{-2} ft./ day
809' - 810'	medium grained limestone, forams, visible porosity	1.33×10^{-2} ft./ day
869' - 870'	fine grained dolomitic limestone with forams	5.35×10^{-3} ft./ day

Table 2. Permeameter data from Ocala Formation core samples.

1074 ft., and seawater-equivalent groundwater was recorded in the last water sample collected at 1069 feet below land surface. Graphs and a table of water quality are shown in Figure 4 and Table 4.

Geophysical log data was collected from the test corehole in three stages in the drilling process (Table 3). Logging in three stages allowed for the collection of a relatively continuous record of geophysical data from the test hole with minimal stand-by time in the drilling operation. Partial suites of logs were run on the well before core drilling commenced at 599 ft, and at the total core depth of 1074 feet. Additional logging was conducted after the corehole was cement-plugged to a depth of approximately 900 feet and the 4 inch temporary steel casing was removed from the well. A caliper log was run, after the well was cement-plugged back to 515 feet below land surface, to record the final construction of the permanent Suwannee Formation monitor. Several partial suites and full suites of geophysical logs have also been recorded from previous drilling activities at TR8-1, and are availablle in the ROMP wellsite files.

	INTERVAL LOGGED	LOG TYPE
STAGE 1	L.S. - 593'	3 arm caliper gamma ray SP-electric single point resisitivity
STAGE 2	860' - 1074'	3 arm caliper gamma ray fluid temp./conductivity
STAGE 3	390' - 892'	3 arm caliper fluid temp./conductivity

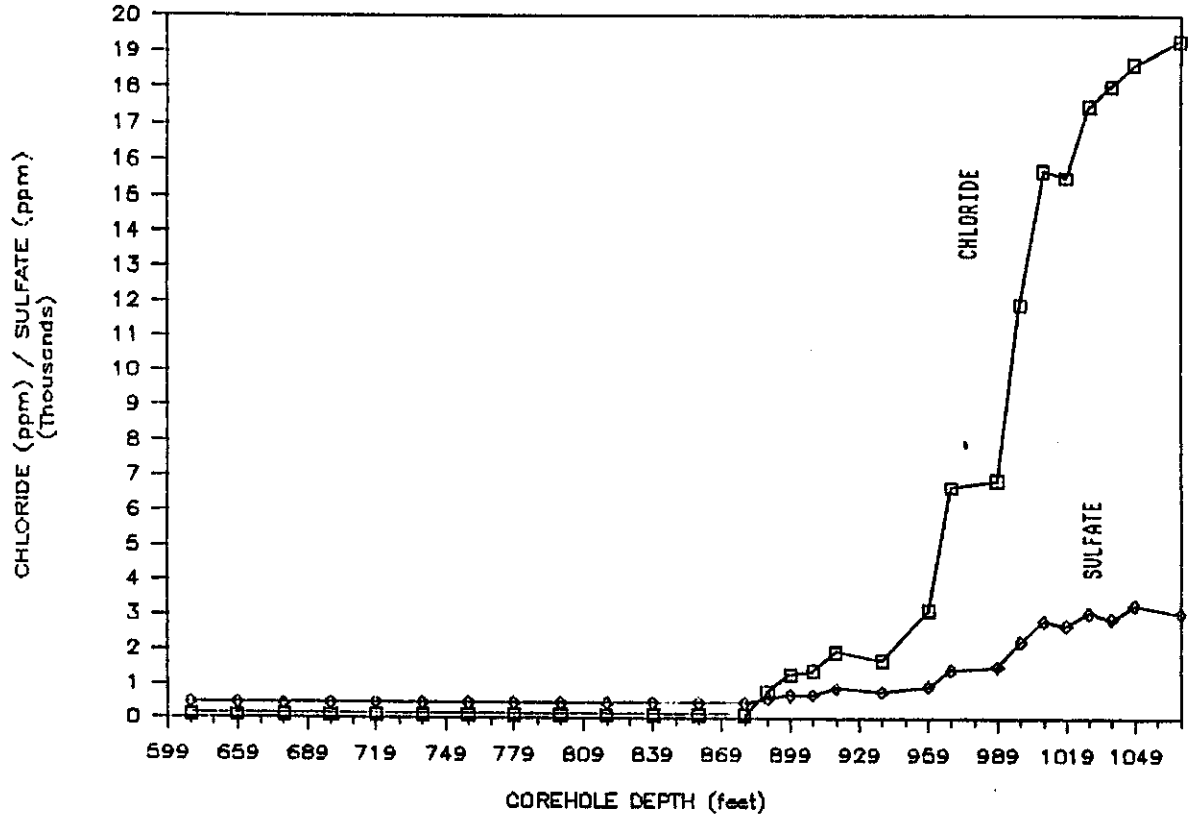
Table 3. Summary of geophysical log data from test drilling.

6-13-91 to 7 91 : ROMP TR8-1 WATER QUALITY DATA : 634 ft. 1069 ft.

Samples collected during core drilling, 599 ft. to 1074 ft.

DATE	TIME	DEPTH	W.L.	FL. COND	TEMP	pH	CHLORIDE	SULFATE	T.D.S.
		629							
6-13-90	0900	639	-1.46	1280	26	7.5	101	456	1028
	1230	649	-1.44	1290	26.5				
	1430	659		1290	27	7.6	81	446	989
	1615	669		1240	26.5				
6-14-90	0800	679	-1.42	1280	25.5	7.4	87	432	970
	0930	689		1220	26				
	1120	699	-1.38	1250	27	7.6	78	446	996
	1430	709	-1.54	1230	26.5				
6-18-90	1130	719	-1.54	1200	27	7.4	92	459	948
	1500	729		1200	27				
	1200	739		1310	28		85	454	942
	1815	749		1320	27				
	2000	759		1340	26.5	7.5	112	455	956
	2130	769		1330	26				
	2330	779		1340	26.5	7.6	86	447	960
6-19-90	0045	789	-1.54	1300	26				
	0845	799		1300	26.5	7.6	88	446	956
	1015	809		1300	27				
	1220	819	-1.46	1310	28	7.6	82	438	911
	1520	829		1310	27				
	1800	839		1350	27.5	7.6	103	445	942
	1950	849		1360	27.5				
	2230	859		1390	26.5	7.6	94	450	953
	2345	869	-1.69	1400	26				
6-20-90	1020	879		1390	28	7.4	95	444	951
	1220	889	-3.74	3720	28.5	7.4	809	586	2250
	1530	899	-1.4	5300	28.5	7.4	1302	684	3192
6-26-90	1530	909		5600	28	7.3	1397	701	5298
	1830	919		7200	28	7.3	1944	885	5108
	2130	929	-1.72	7000	27				
6-27-90	0010	939		6500	26.5	7.4	1692	770	4695
	0145	949	-1.63	6300	26.5				
	1415	959		10400	29	7.2	3118	955	7246
	1630	969		20900	28	7.2	6635	1443	14828
	1800	979		18000	27.5				
	2015	989		21500	27	7.2	6859	1540	15528
6-28-90	0000	999	-13.8	33500	27	7	11897	2235	24195
	1000	1009		41000	26.5	6.9	15682	2830	29612
	1300	1019		43000	26	6.9	15496	2710	31637
	1530	1029		47900	27	6.9	17460	3061	34596
	1830	1039		49200	28.5	6.8	18006	2902	34280
	2130	1049	-20.4	50000	28.5	6.8	18618	3283	34838
7-03-90	1020	1059	-19.6	49200	28				
	1300	1069		50000	28.5	6.8	19285	3063	37500

Table 4. Water quality data fron core drilling at TR8-1.



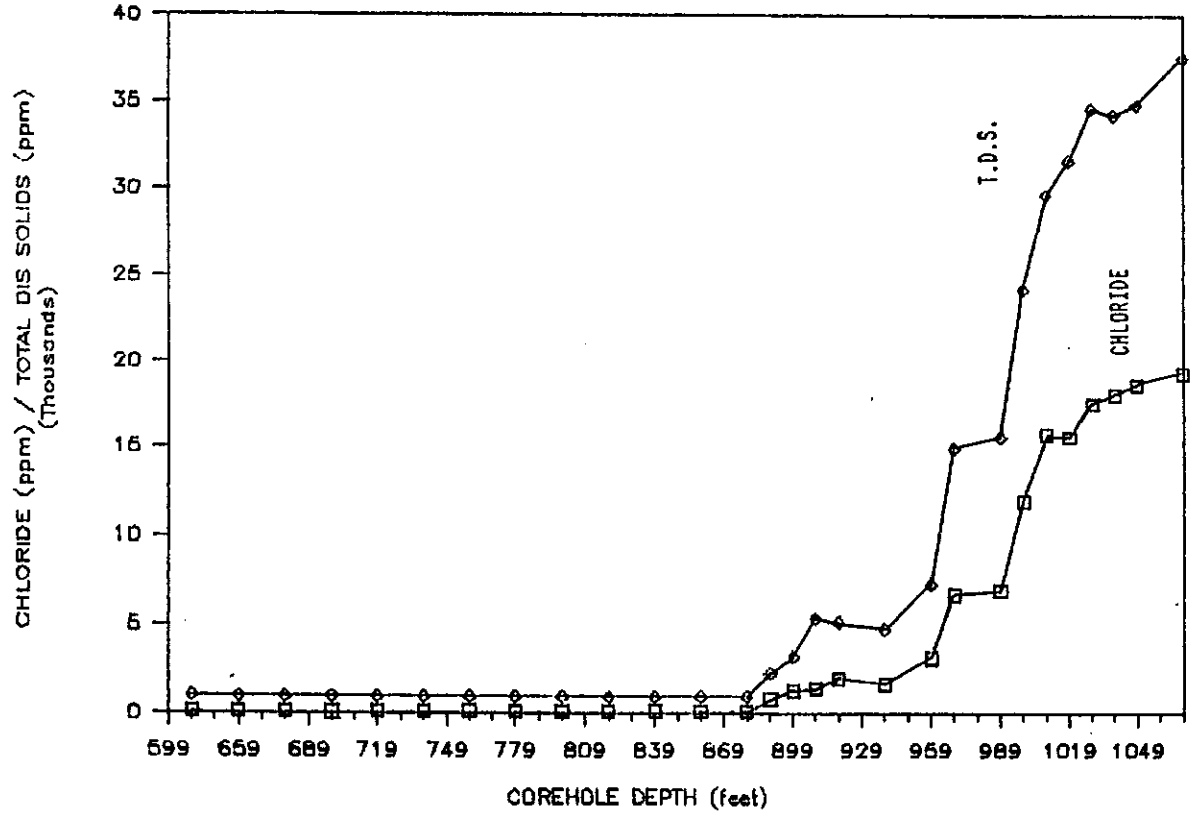


Figure 4. Water quality graphs of test corehole data.

Hydrogeologic Interepretation

Hydrogeologic interpretations at TR8-1 were made through the analysis of lithology, water level and quality data, and geophysical log data collected from drilling efforts occurring over a ten year period. This presented an opportunity to compare changes in water quality from data sets collected several years apart through the same aquifer intervals. Recent core drilling at the site delineated the present position of the fresh-saltwater interface for comparison with previous interface delineations. Core data collected below 600 feet has also provided greater control in delineating permeable zones and confining units within the Floridan Aquifer, resulting in modifications to previous hydrogeologic interpretations.

The hydrogeology in the region of the TR8-1 wellsite consists of a multilayered system containing three distinct aquifers. Aquifers delineated from test drilling at the site are the nonartesian Surficial Aquifer, the Intermediate Aquifer System, and the Floridan Aquifer System. A summary of geology and hydrostratigraphy at TR8-1 is given below:

DEPTH (below L.S.)	GEOLOGIC FORMATIONS	AQUIFER SYSTEM
0 - 39 ft.	Undifferentiated Surficial Deposits	Surficial Aquifer
39 - 263 ft.	Upper Hawthorn Group Peace Rv. Fm.\ Arcadia Fm.	Intermediate Aquifer System
263 - 379 ft.	Lower Hawthorn Group Tampa Mbr., Arcadia Fm.	Floridan Aquifer System
379 - 642 ft.	Suwannee Formation	
642 - 952 ft.	Ocala Formation	
952 - 1074 ft.	Avon Park Formation	

This revised hydrogeologic interpretation differs from previous interpretations in several respects. First, the Tampa Member of the Lower Hawthorn Group (Tampa Formation) has been included in the top of the Floridan Aquifer. The unit was previously described as the lower permeable zone of the Intermediate Aquifer, and was monitored as such for several years. The well constructed in this zone was originally intended to monitor an increase in sulfate concentration observed in the permeable limestones of the Tampa

member (Fig. 2). Records of water quality and potentiometric datacollected from this well are more representative of conditions found in the Floridan Aquifer in western Manatee County than the Intermediate Aquifer. Additionally, the absense of significant confining units between the Tampa and the underlying Suwannee Formation further supports this unit being included in the Floridan Aquifer System.

Water level data collected from the corehole during test drilling fluctuated in apparent response to density variations in the water column as progressively poor water quality was encountered with increased depth. Water levels ranged between 1.4 ft. to 1.7 feet below land surface from 639 ft. to 869 feet, through the interval of relatively stable groundwater quality. A significant drop in water level at a depth of 889 feet coincided with the first major change in water quality. Water levels decreased from 1.7 feet to 3.7 feet below land surface with a corresponding increase in fluid conductivity from 1390 umhos to 3720 umhos at the 889 feet. Water levels rebounded to previous conditions even as water quality continued to decline between 889 ft. and 989 feet. A second major drop in water level was measured at the 999 ft. sampling interval, where the water level declined to -13.8 feet and fluid conductivity increased to 33,500 umhos. The lowest measured water level of -20.35 feet occurred at 1049 feet where seawater-equivalent groundwater conditions were present. Fluid conductivity was measured at a maximum of 50,000 umhos between 1049 ft. and 1069 feet in the corehole. The graphs in Figure 5 shows the correlation between water levels and fluid conductivity data from the corehole.

Revisions in earlier hydrogeologic interpretations of Floridan Aquifer were made from analysis of core material collected between 600 ft. and 1074 feet. A dolostone bed present in the lower Suwannee Fm., from 594 ft. to 634 ft., was previously described as a high permeability zone exibiting significant fracture porosity. This conclusion was based primarily on interpretations made from geophysical logs and a borehole video run across the interval. Core samples collected across the same interval were of a fine grained, well lithofied low porosity dolostone with only minor fractures. Further more, attempts to retrieve a water sample from the open corehole across this interval were unsuccessful due to the low porosity of the unit. The first water sample collected during coring was obtained at a depth of 639 feet, after the well completely penetrated the dolostone unit, and was open to the underlying limestones of the Ocala Formation.

A new interpretation of the lower Suwannee Fm., based primarily on core data, has delineated the basal dolostone unit as a confining bed separating the upper-middle Suwannee Fm. from a permeable cavity zone in the top of the Ocala Fm. The cavity zone, occurring just below the Suwannee-Ocala contact, was coincident with a loss in drilling circulation at 643 feet, and was subsequently confirmed on geophysical logs, which showed significant relative change in fluid temperature and conductivity at 645 feet below land surface.Lithologic interpretation of core through the Ocala Fm. and upper Avon Park Fm. are in general agreement with the existing log

samples collected during reverse-air drilling cannot be considered representative of true conditions existing at the bottom of the hole because there is a potential for movement and mixing of water from above bottom during the drilling process. This is primarily due to a sizeable annular space that is created between the borehole wall and drilling rods. The annular space provides a pathway for downward movement of groundwater occurring at productive zones above the interval being sampled. Conditions exist for fresher water from various points intersected by the open hole interval of the well to mix with and influence the chemistry of water samples collected as bottom-hole samples.

A similar arguement could be made for water samples collected during core drilling in 1990, with one exception. Coring operations utilized a drilling string composed of flush jointed rods and a diamond studded core bit that does not produce a sizeable annular space during drilling. Compared with standard rotary drilling, which may use a drill bit several diameters larger than the rod diameter, the annular space created during core drilling may be only a fraction of the bit diameter when using flush jointed rods. It appears that water samples collected during core drilling are more representative of true in situ groundwater quality conditions than with other drilling methods, although an annular space isstill present and a potential for mixing still exists. Effects from other factors present in the borehole, such as "washout" areas where the well diameter has been enlarged from abrasion, and variations in formation porosity and permeability, ie. cavity zones or confining beds, may also influence water samples collected during drilling. Foregoing the use of other technologies, such as formation packers used to isolate the sample interval in the well, water quality profiles developed from water sampling during any type of drilling process must be considered a best attainable approximation of conditons occurring within the aquifer system. The data is still very useful however in characterizing general water quality trends at different depths in the aquifer, and can be used to aid in proper design and placement of monitors at the wellsite. Trends in the water quality profile can also be compared with geophysical log response to confirm positions of major changes in chemistry in the groundwater flow system.

Table 5 lists the two data sets from water samples collected between 640 feet and 1070 feet during test drilling at TR8-1. Relatively fresh, stable water quality was observed through the Ocala Formation during drilling in both 1983 and 1990. A change in fluid conductivity and corresponding chloride concentrations is observed from 900 feet to 1000 feet in both data sets as drilling continued into more permeable dolostone at the contact between the Ocala Fm. and Avon Park Formation. Although the transition in water quality appears at a similar depth interval, changes observed in the 1990 data set were recorded to be nearly three times higher than in the 1983 data set. This may be a valid representation of water quality degradation in the Floridan Aquifer in coastal Manatee County over a 7 year period, but variations in sampling conditions between the two data sets renders this observation inconclusive.

DEPTH (FT)	CONDUCTIVITY (umhos) 1983 DATA	1990 DATA	CHLORIDE CONC. (PPM) 1983 DATA	1990 DATA
640	1400	1280	130	101
660	1480	1290	130	81
680	1475	1230	130	87
700	1490	1250	130	78
720	1500	1200	130	92
740	1500	1310	130	85
760	1500	1340	135	86
780	1390	1340	113	86
880	1490	1390	145	95
900	2490	5200	470	1302
920	3600	7200	786	1944
1000	6000	33500	1480	11897
1020	34000	43000	13000	15496
1030	35000	47900	13125	17460
1040	33000	49200	12000	18006
1050	36500	50000	13500	18618
1060	45000	49200	16750	-----
1070	43200	50000+	18375	19285

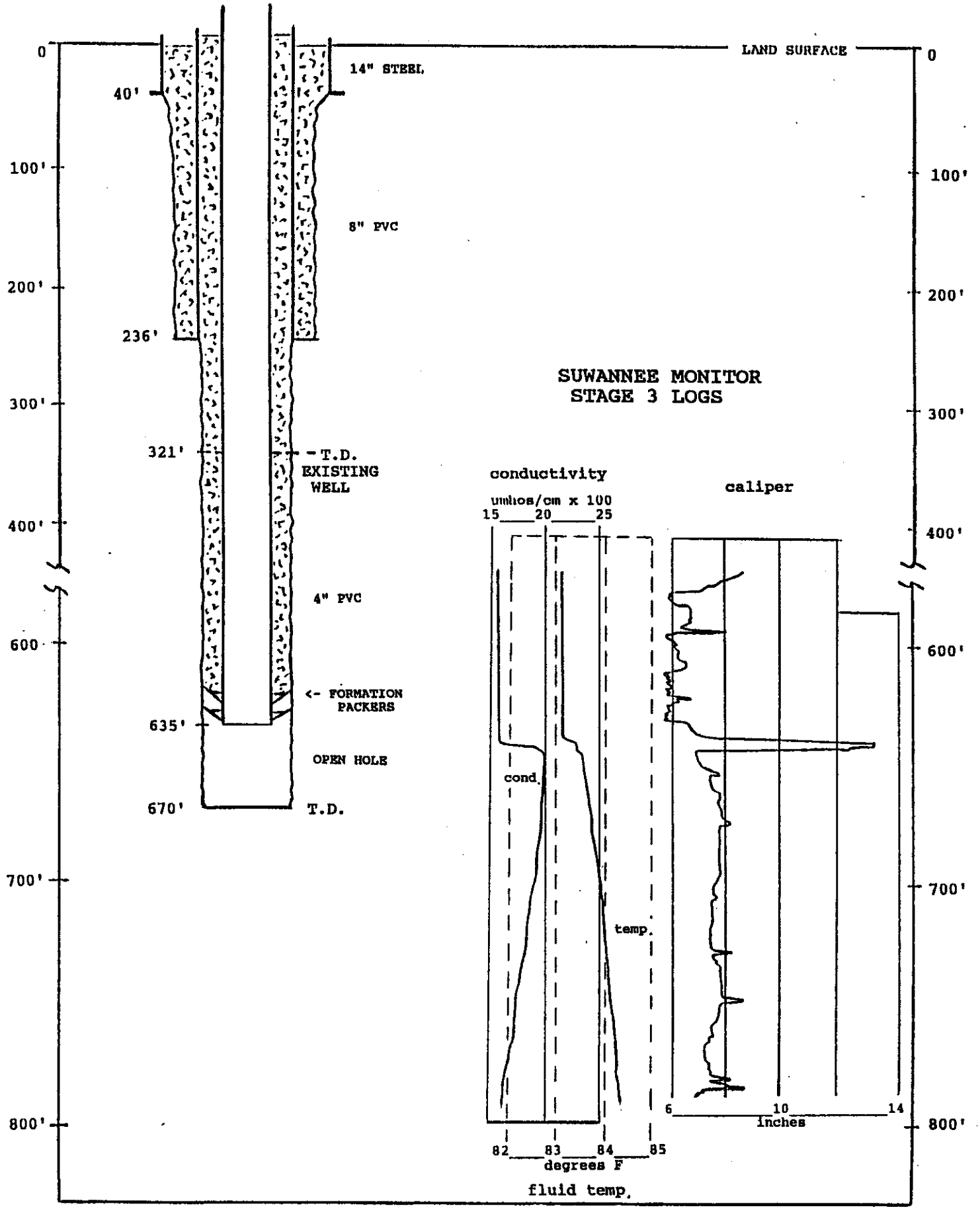
Table 5. Water quality comparison from drilling in 1983 and 1990.

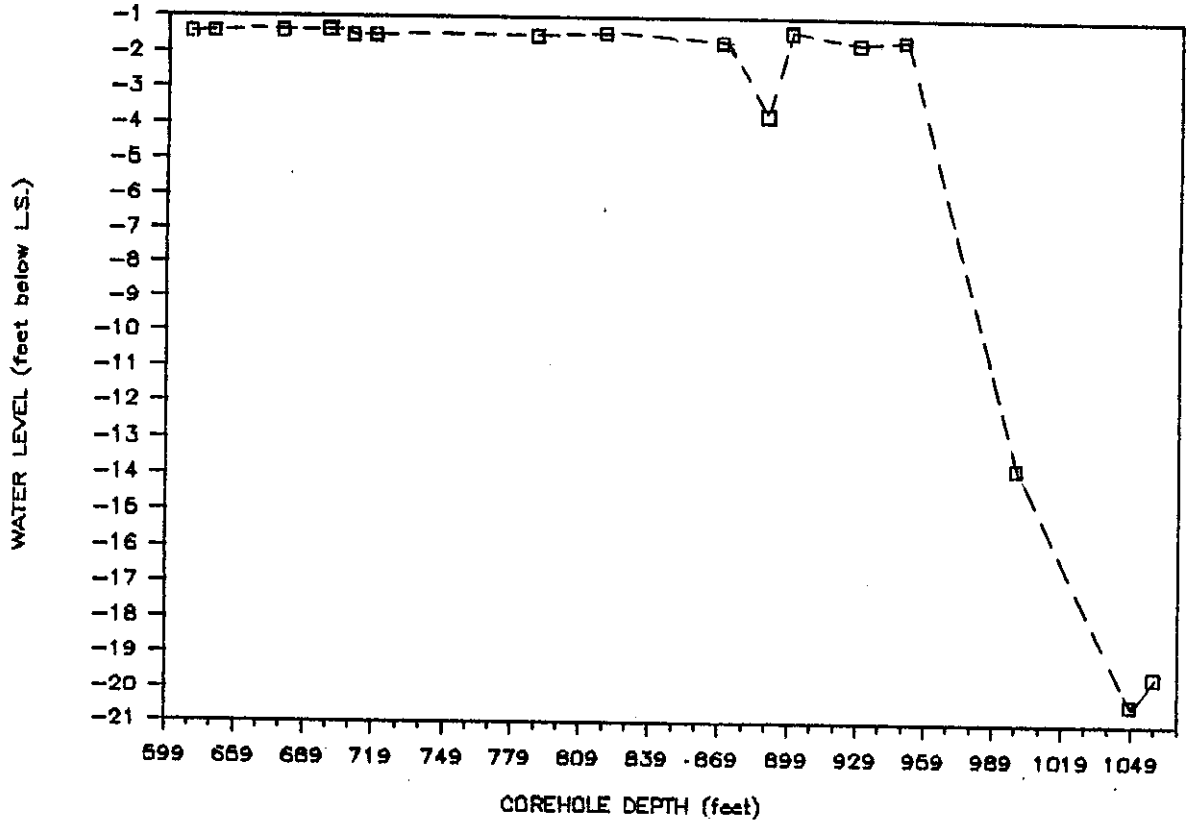
A sharp transition in groundwater quality below 1000 feet is again observed in both data sets, with conductivity and chloride values in much closer agreement. Still the 1990 data, collected during core drilling, shows a more evenly incremented transition from brackish groundwater conditions in the apparent interface mixing zone, to seawater-equivalent groundwater quality at 1070 feet. The 1983 data set appears to exibit a more stepwise transition, with water quality remaining stable over many tens of feet before a continued degradation is observed. This observation may be more an artifact of the drilling process rather than an actual occurrence in the interface mixing zone environment.

COMPLETED MONITOR WELLS

Well drilling activities at the TR8-1 monitor site were completed after construction of a permanent Ocala Formation monitor. A design for the well was proposed when interpretation of core data and geophysical logs indicated a significant permeable interval was present below 640 feet,(SWFWMD/ROMP internal memo, July 23,1990). The well was constructed by converting the existing Hawthorn\Tampa sulfate monitor (see figure 2) into a 4 inch well with a open hole interval from 635 ft. to 670 ft. below land surface. The well was designed primarily as a water quality monitor since water levels in the well should compare with potentiometric levels of other Floridan Aquifer monitors on the site. The final construction details of this well along with geophysical logs across the monitor interval are shown in figure 6.

Figure 6. Conversion of existing Hawthorn\Tampa sulfate monitor to an Ocala Formation monitor.





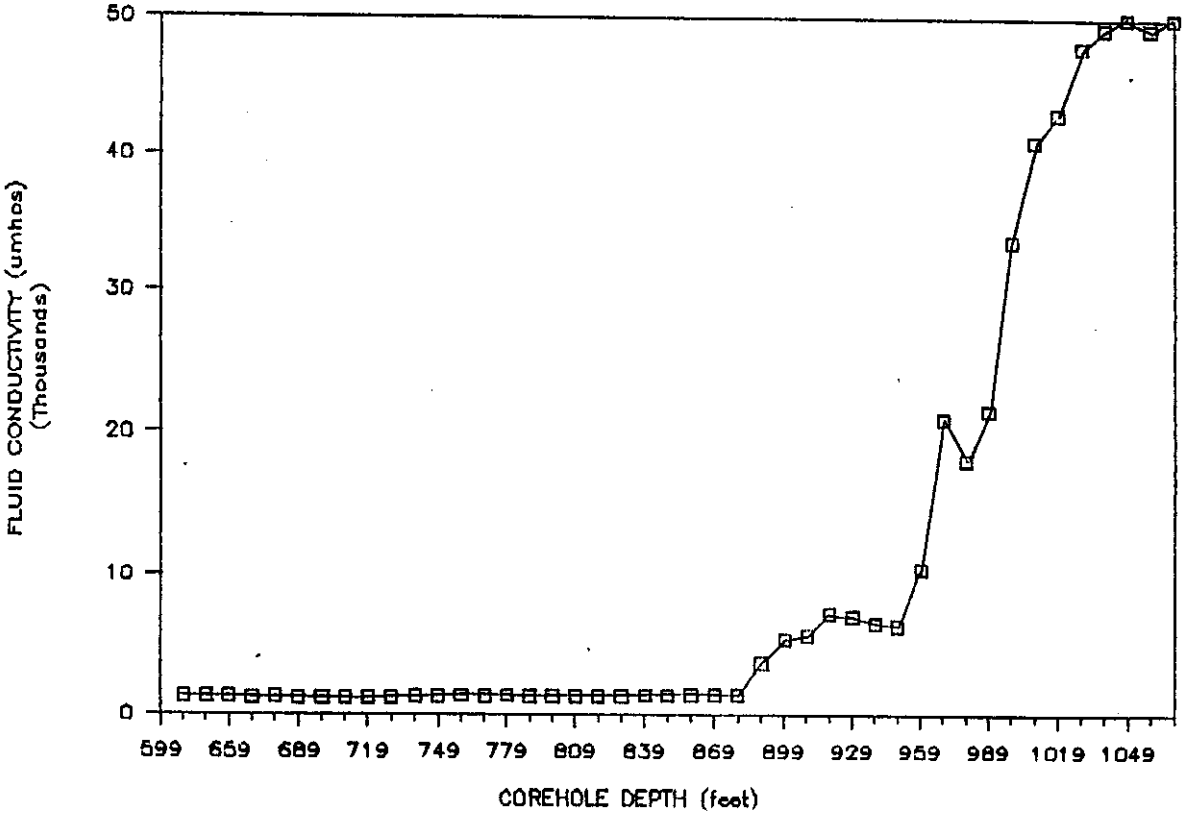


Figure 5. Corehole water level and fluid conductivity graphs .

from cuttings descriptions. Rock type changed from a light orangechalky fossiliferous calcarenite, a characteristic lithology of the Ocala Fm., to a well indurated, recrystallized permeable dolostone at a depth of about 880 feet. Permeable dolostone with calcarenite interbeds continued to a depth of 980 feet. The Ocala-Avon Park contact was picked from the core at 952 feet BLS, based on the presence of organic laminae in dolostone beds, and occurrences of Dictyaconus americanus following at a depth of 978 feet. An earlier formation pick of the Avon Park contact was made at the first occurrence of recrystallized dolostone in cuttings samples at a depth of 905 feet. The first occurrence of middle Eocene echinoids Neolaganum sp. (Peronella dalli), at 902 feet, along with minor amounts of organics occurring in the dolostone may justify this higher formation pick, but the use of the echinoid as an index for the Avon Park Formation is still uncertain.

A highly recrystallized, hard fractured dolostone was present from 980 feet to the total core depth of 1074 feet below land surface. Lithologic descriptions of cuttings from previous deeper drilling shows dolostone as the predominant rock type to a total exploration depth of 1260 feet. Porosity estimates and a noted high degree ofrecrystallization indicate the dolostone section of the upper Avon Park Formation is significantly permeable and transmissive.

An abrupt change in water quality was observed upon penetrating the Avon Park Formation during core drilling due to a relatively sharp contrasts in porosity and apparent permeability between the Ocala Formation and Avon Park Formation. Water quality data from the corehole indicate the position of the saltwater interface is coincident with these apparent permeability contrasts. The presence of macro-porosity features such as fractures and dissolution vugs in the dolostone section, and semi-confining properties of fine grained limestone in the overlying Ocala Fm. may provide lithologic controls necessary to explain the observed position of the fresh-saltwater interface. Groundwater samples collected during core drilling through the calcarenite of the lower Ocala Fm. did not indicate a diffuse water quality transition above the permeable dolostone section. Sample data does show an apparent mixing zone in the dolostone section between 900 ft. and 1000 ft. where increased formation porosity is present. A relatively sharp transition to seawater equivalent groundwater below 1000 feet also correlates with increased fracture development, and what appears to be a higher degree of recrystallization in the dolostone.

Comparisons of water qualitiy data collected across the saltwater interface during drilling in 1983 and during core drilling in 1990 did not reveal any significant upward movement in the interface position. General trends in water quality changes with depth from the two drilling efforts are similar but there are apparent differences in the magnitude of water quality degradation with depth. Before a direct comparison of the two data sets is made however, consideration for how the water samples were collected should be discussed.

Data collected in 1983 took place during monitor well construction where reverse-air rotary drilling methods were being used. Water

samples collected during reverse-air drilling cannot be considered representative of true conditions existing at the bottom of the hole because there is a potential for movement and mixing of water from above bottom during the drilling process. This is primarily due to a sizeable annular space that is created between the borehole wall and drilling rods. The annular space provides a pathway for downward movement of groundwater occurring at productive zones above the interval being sampled. Conditions exist for fresher water from various points intersected by the open hole interval of the well to mix with and influence the chemistry of water samples collected as bottom-hole samples.

A similar arguement could be made for water samples collected during core drilling in 1990, with one exception. Coring operations utilized a drilling string composed of flush jointed rods and a diamond studded core bit that does not produce a sizeable annular space during drilling. Compared with standard rotary drilling, which may use a drill bit several diameters larger than the rod diameter, the annular space created during core drilling may be only a fraction of the bit diameter when using flush jointed rods. It appears that water samples collected during core drilling are more representative of true in situ groundwater quality conditions than with other drilling methods, although an annular space isstill present and a potential for mixing still exists. Effects from other factors present in the borehole, such as "washout" areas where the well diameter has been enlarged from abrasion, and variations in formation porosity and permeability, ie. cavity zones or confining beds, may also influence water samples collected during drilling. Foregoing the use of other technologies, such as formation packers used to isolate the sample interval in the well, water quality profiles developed from water sampling during any type of drilling process must be considered a best attainable approximation of conditons occurring within the aquifer system. The data is still very useful however in characterizing general water quality trends at different depths in the aquifer, and can be used to aid in proper design and placement of monitors at the wellsite. Trends in the water quality profile can also be compared with geophysical log response to confirm positions of major changes in chemistry in the groundwater flow system.

Table 5 lists the two data sets from water samples collected between 640 feet and 1070 feet during test drilling at TR8-1. Relatively fresh, stable water quality was observed through the Ocala Formation during drilling in both 1983 and 1990. A change in fluid conductivity and corresponding chloride concentrations is observed from 900 feet to 1000 feet in both data sets as drilling continued into more permeable dolostone at the contact between the Ocala Fm. and Avon Park Formation. Although the transition in water quality appears at a similar depth interval, changes observed in the 1990 data set were recorded to be nearly three times higher than in the 1983 data set. This may be a valid representation of water quality degradation in the Floridan Aquifer in coastal Manatee County over a 7 year period, but variations in sampling conditions between the two data sets renders this observation inconclusive.

DEPTH (FT)	CONDUCTIVITY (umhos) 1983 DATA	1990 DATA	CHLORIDE CONC. (PPM) 1983 DATA	1990 DATA
640	1400	1280	130	101
660	1480	1290	130	81
680	1475	1230	130	87
700	1490	1250	130	78
720	1500	1200	130	92
740	1500	1310	130	85
760	1500	1340	135	86
780	1390	1340	113	86
880	1490	1390	145	95
900	2490	5200	470	1302
920	3600	7200	786	1944
1000	6000	33500	1480	11897
1020	34000	43000	13000	15496
1030	35000	47900	13125	17460
1040	33000	49200	12000	18006
1050	36500	50000	13500	18618
1060	45000	49200	16750	-----
1070	43200	50000+	18375	19285

Table 5. Water quality comparison from drilling in 1983 and 1990.

A sharp transition in groundwater quality below 1000 feet is again observed in both data sets, with conductivity and chloride values in much closer agreement. Still the 1990 data, collected during core drilling, shows a more evenly incremented transition from brackish groundwater conditions in the apparent interface mixing zone, to seawater-equivalent groundwater quality at 1070 feet. The 1983 data set appears to exibit a more stepwise transition, with water quality remaining stable over many tens of feet before a continued degradation is observed. This observation may be more an artifact of the drilling process rather than an actual occurrence in the interface mixing zone environment.

COMPLETED MONITOR WELLS

Well drilling activities at the TR8-1 monitor site were completed after construction of a permanent Ocala Formation monitor. A design for the well was proposed when interpretation of core data and geophysical logs indicated a significant permeable interval was present below 640 feet,(SWFWMD/ROMP internal memo, July 23,1990). The well was constructed by converting the existing Hawthorn\Tampa sulfate monitor (see figure 2) into a 4 inch well with a open hole interval from 635 ft. to 670 ft. below land surface. The well was designed primarily as a water quality monitor since water levels in the well should compare with potentiometric levels of other Floridan Aquifer monitors on the site. The final construction details of this well along with geophysical logs across the monitor interval are shown in figure 6.

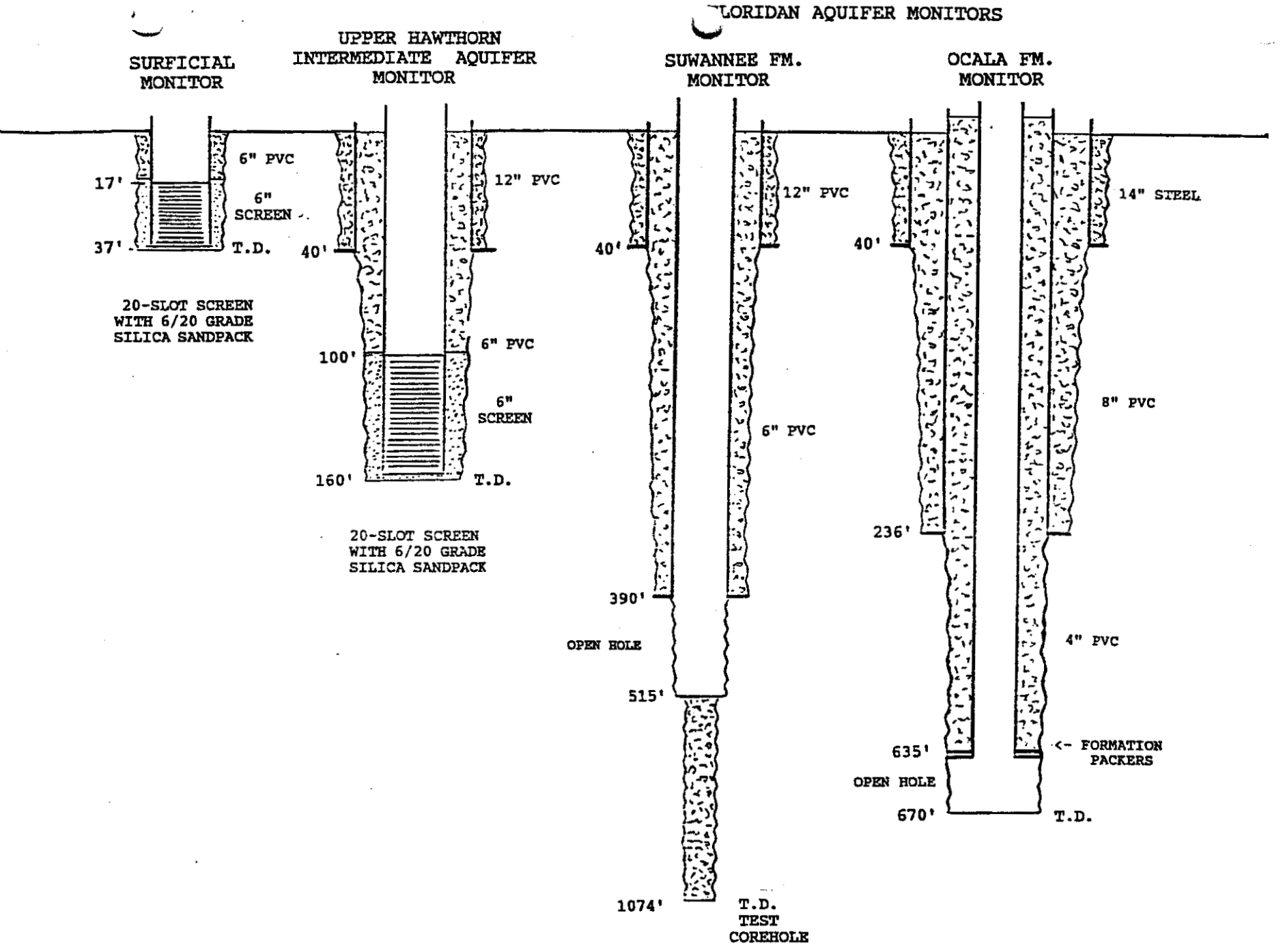


Figure 7. As-built diagrams of new monitor wells at TR8-1.

Well drilling activities at TR8-1 were terminated upon completion of the Ocala Formation monitor. Locations of the monitor wells on the perpetual easement are shown in figure 8. A land survey has also been conducted on the wellsite parcel which shows the well locations and wellhead elevations for completed monitors. All information necessary to instrument the wells with data recording devices has been forwarded to the Hydrologic Data Section in the Resource Data Department.

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Southwest Florida Water Management District, 1988; Ground Water Resource Availability Inventory, Manatee County, Florida.

--- SWFWMD\ROMP TR8-1 Rubonia Wellsite File.

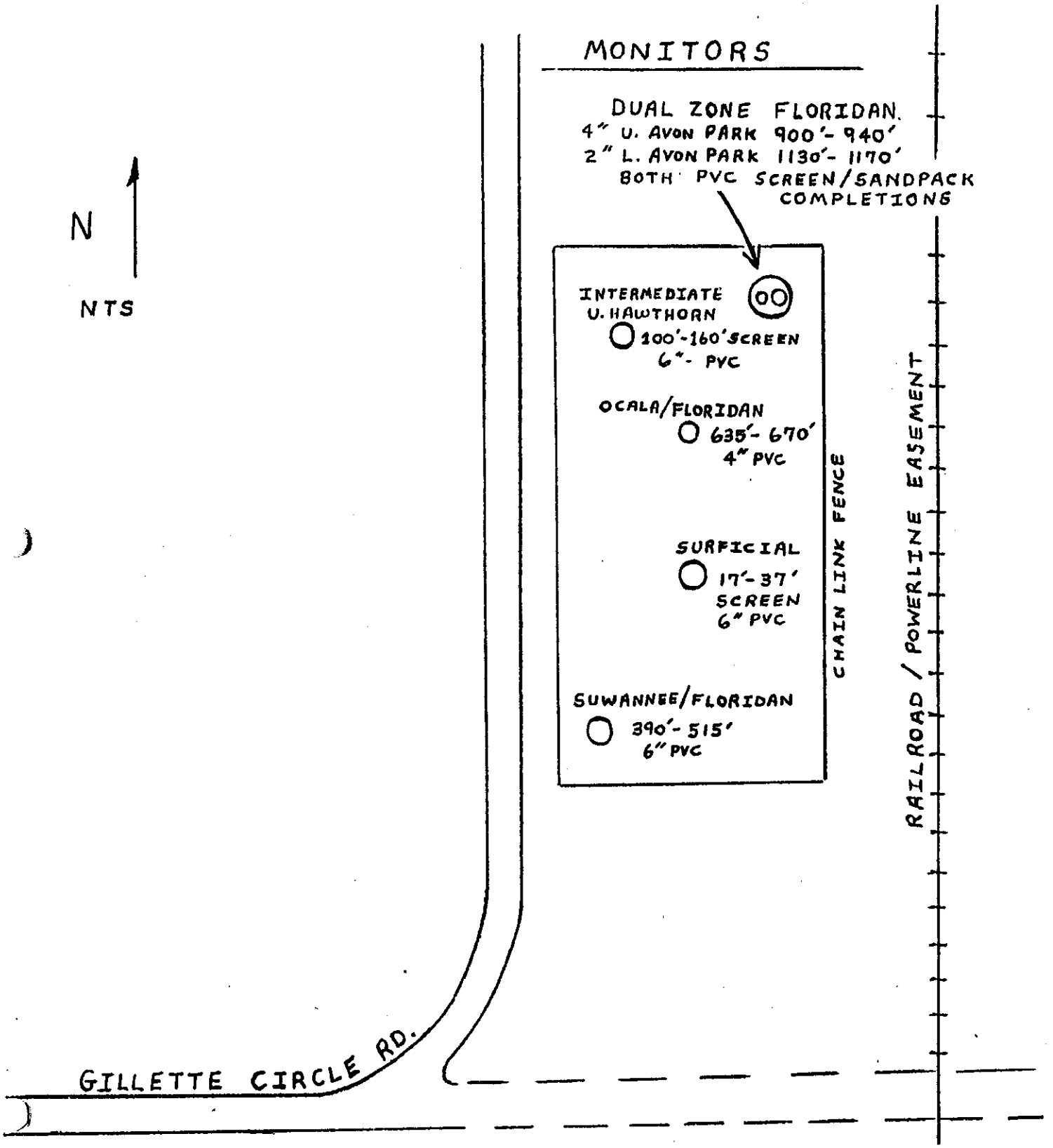

Figure 8. Schematic drawing of well locations on the TR8-1 site.

LITHOLOGIC WELL LOG PRINTOUT SOURCE - FGS

WELL NUMBER: W- 15826 COUNTY - MANATEE
TOTAL DEPTH: 01260 FT. LOCATION: T.33S R.18E S.30AA
SAMPLES - NONE LAT = N 27D 34M 58
LON = W 82D 32M 47
COMPLETION DATE - 07/03/90 ELEVATION - 015 FT
OTHER TYPES OF LOGS AVAILABLE - CALIPER, GEOLOGIST, TEMP

OWNER/DRILLER: SWFWMD/ROMP SITE TR8-1 (PROJECT #21-020-5199) RUBONIA SITE.

WORKED BY: THIS DESCRIPTION IS A COMPOSITE: 0-599' (HENDERSON); 599'-1074' (DEWITT AND CLAYTON); 1074'- TD (DECKER); CORE FROM 39'-1074', CUTTINGS FROM 475' -1260'; FORMATION PICKS FOR 0-599' ARE INCORPORATED FROM DESCRIPTIONS BY T. SCOTT; PICKS GREATER THAN 599' ARE TAKEN FROM DEWITT AND CLAYTON DESCRIPTIONS; THIS IS PART 1 OF A 3 PART WELL.

0.	39.	UNDIFFERENTIATED SAND AND CLAY
39.	379.	HAWTHORN GROUP
263.	379.	TAMPA MEMBER OF ARCADIA FM.
379.	642.	SUWANNEE LIMESTONE
642.	952.	OCALA GROUP
952.	.	AVON PARK FM.

0 - 39 SAND; VERY LIGHT GRAY TO TRANSPARENT;
GRAIN SIZE: COARSE; RANGE: COARSE TO MEDIUM;
ACCESSORY MINERALS: CLAY- %, QUARTZ- %;
OTHER FEATURES: FROSTED;
FOSSILS: MOLLUSKS;
PELECYPOD SHELL FRAGMENTS; HIGH POROSITY.

39 - 43.3 LIMESTONE; LIGHT TAN TO MODERATE GRAY;
SEDIMENTARY STRUCTURES: MASSIVE,
ACCESSORY MINERALS: QUARTZ- %, PHOSPHATIC SAND- %;
FOSSILS: MOLLUSKS, CORAL;
BIOMICRITE; UNIDENTIFIABLE PELECYPOD CASTS AND MOLDS WITH TRACES OF CORAL FRAGMENTS; THIN LENSES OF GRAYISH TAN, SLIGHTLY DOLOMITIZED MICRITE WITH LOW POROSITY NEAR BOTTOM OF SECTION; LOW-HIGH POROSITY; PORTIONS OF THIS CORE SAMPLE ARE MISSING; PROBABLY DUE TO "WASH OUT" OF QUARTZ AND PHOSPHATIC SANDS WHILE THIS SECTION WAS BEING CORED.

43.3- 44 CLAY; LIGHT BROWNISH GRAY TO VERY LIGHT GRAY; VUGULAR;
ACCESSORY MINERALS: QUARTZ- %, CALCITE- %, PHOSPHATIC SAND- %;
ABUNDANT TAN-GRAY-BLACK PHOSPHATIC SANDS; SLIGHTLY VUGGY IN TOP OF SECTION; TRACES OF WORM BORINGS; CAVINGS; LOW-MODERATE POROSITY; PART OF SECTION IS MISSING AS ABOVE.

44 - 49 CLAY; LIGHT BROWNISH GRAY;
SEDIMENTARY STRUCTURES: BEDDED,
ACCESSORY MINERALS: CALCITE- %, QUARTZ- %, PHOSPHATIC SAND- %;
LOW-MODERATE POROSITY; LARGE PARTS OF SECTION MISSING; AS ABOVE.

49 - 50.4 CLAY; LIGHT GRAYISH BROWN;
ACCESSORY MINERALS: CALCITE- %, QUARTZ- %, PHOSPHATIC SAND- %;
SOME QUARTZ AND BLACK PHOSPHATIC SANDS AT TOP OF SECTION, WITH BOTTOM OF SECTION HAVING LESSER AMOUNTS OF ABOVE SANDS; ONE BLACK PHOSPHATIC FRAGMENT FOUND; LOW-MODERATE POROSITY.

50.4- 53.9 CLAY; LIGHT GRAYISH BROWN TO MODERATE GRAY;
ACCESSORY MINERALS: QUARTZ- %, CALCITE- %, PHOSPHATIC SAND- %;
OTHER FEATURES: CHALKY;
LOW-MODERATE POROSITY.

53.9- 59 AS ABOVE

59 - 67.7 CLAY; LIGHT BROWNISH GRAY; VUGULAR;
ACCESSORY MINERALS: CALCITE- %, QUARTZ- %, PHOSPHATIC SAND- %, SHELL- %;
INFILLING OF VUGS WITH A DARK TAN, COQUINAL BORMICRITE, A BLACK PHOSPHATIC LAYER TWO INCHES THICK AT BOTTOM OF SECTION; WORM BORINGS? MODERATE POROSITY.

67.7- 69 CLAY; LIGHT BROWNISH GRAY TO CREAM; VUGULAR;
ACCESSORY MINERALS: QUARTZ- %, PHOSPHATIC SAND- %, CALCITE- %;
QUARTZ AND TANNISH BROWN-GRAY-BLACK PHOSPHATIC SANDS SCATTERED THROUGHOUT SECTION, INFILLED VUGS WITH WELL ROUNDED, GRAY-BLACK PHOSPHATIC PEBBLES; LOW-MODERATE POROSITY.

69 - 69.2 CLAY; LIGHT BROWNISH GRAY TO CREAM;
ACCESSORY MINERALS: CALCITE- %, QUARTZ- %, PHOSPHATIC SAND- %;
LOW-MODERATE POROSITY.

69.2- 71.3 AS ABOVE

71.3- 74.5 CLAY; DARK GRAYISH BROWN;
ACCESSORY MINERALS: QUARTZ- %, CALCITE- %, PHOSPHATIC SAND- %;
AS 69.2.

74.5- 80.9 LIMESTONE; CREAM TO LIGHT TAN; VUGULAR;
ACCESSORY MINERALS: CLAY- %, PHOSPHATIC SAND- %;
FOSSILS: MOLLUSKS;
CLAYEY, WITH DARK GREENISH GRAY CLAY-FILLED VUGS INTERSPERSED THROUGHOUT SECTION, HIGHER CONCENTRATION OF VUGS NEAR TOP OF SECTION; PELECYPOD (PECTEN?) CASTS AND MOLDS; LOW POROSITY.

80.9- 81.2 CLAY; CREAM TO GREENISH GRAY;
ACCESSORY MINERALS: CALCITE- %, QUARTZ- %, PHOSPHATIC SAND- %, CALCILUTITE- %;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
SOME CALCILUTITIC PELECYPOD (PECTEN?) MOLDS FOUND; LOW POROSITY.

81.2- 83.3 LIMESTONE; CREAM TO LIGHT BROWNISH GRAY;
ACCESSORY MINERALS: CALCILUTITE- %, QUARTZ- %, CLAY- %, PHOSPHATIC SAND- %;
FOSSILS: MOLLUSKS;
TRACES OF PELECYPOD MOLDS; LOW POROSITY; QUARTZ AND PHOSPHATIC SANDS (AS ABOVE).

83.3- 84 CLAY; CREAM TO LIGHT GRAYISH BROWN;
ACCESSORY MINERALS: DOLOMITE- %, CALCILUTITE- %, QUARTZ- %;
SOME HIGHLY SILICIFIED, DOLOMITIC CALCILUTITE FRAGMENTS AT TOP OF SECTION; LOW-MODERATE POROSITY.

84 - 85.3 LIMESTONE; CREAM TO LIGHT GRAYISH BROWN;
ACCESSORY MINERALS: CALCILUTITE- %, QUARTZ- %, CLAY- %, PHOSPHATIC SAND- %;
FOSSILS: MOLLUSKS;
TRACE OF PELECYPOD MOLD FRAGMENTS; LOW-MODERATE POROSITY.

85.3- 91 CLAY; CREAM TO LIGHT GRAYISH BROWN; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ- %, PHOSPHATIC SAND- %, CLAY- %;
QUARTZ AND PHOSPHATIC SANDS AS ABOVE, LOW-MODERATE POROSITY.

91 - 96.4 CLAY; LIGHT TAN TO LIGHT BROWNISH GRAY;
ACCESSORY MINERALS: QUARTZ- %, CALCITE- %, PHOSPHATIC SAND- %;
SANDY CLAY GRADING TO A SLIGHTLY UNCONSOLIDATED, LIGHT BLUISH GRAY, FISSLE CALCITIC CLAY AT BOTTOM OF SECTION; WORM BORINGS; LOW-MODERATE POROSITY.

96.4- 100.1 CLAY; CREAM TO LIGHT TAN; POOR INDURATION;
ACCESSORY MINERALS: CALCITE- %, QUARTZ- %, PHOSPHATIC SAND- %, ORGANICS- %;
OTHER FEATURES: CHALKY;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
SANDY CALCITIC CLAY THAT IS SLIGHTLY UNCONSOLIDATED GRADING TO A CHALKY CALCITIC CLAY AT BOTTOM OF SECTION; PELECYPOD MOLDS BEING REPLACED OR FILLED IN BY THE ABOVE DESCRIBED SANDS; DARK GRAY BLACK PHOSPHATIC GRAVEL SCATTERED THROUGHOUT BOTTOM HALF OF SECTION; TRACES OF ORGANIC PLANT REMAINS AT BOTTOM OF SECTION; LOW-MODERATE POROSITY.

100.1- 101.2 CLAY; LIGHT GRAYISH BROWN TO GREENISH GRAY;
ACCESSORY MINERALS: CALCITE- %, QUARTZ- %, PHOSPHATIC SAND- %;
INCLUDING A GREENISH GRAY LENSE AT TOP OF SECTION; SOME CLAYEY PHOSPHATIC NODULES ALSO FOUND; LOW-MODERATE POROSITY.

101.2- 102.9 CLAY; CREAM TO LIGHT BROWNISH GRAY; POOR INDURATION;
ACCESSORY MINERALS: CALCITE- %, PHOSPHATIC SAND- %, PHOSPHATIC GRAVEL- %;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
GASTROPOD CAST IN LOWER HALF OF SECTION; LOW-MODERATE POROSITY.

102.9- 103.7 CLAY; LIGHT GRAYISH BROWN TO WHITE;
SEDIMENTARY STRUCTURES: INTERBEDDED,
ACCESSORY MINERALS: CALCITE- %, QUARTZ- %;
FISSLE, CALCITIC CLAY; VERY SMALL RECRYSTALLIZED QUARTZ CRYSTALS INTERBEDDED WITH THE CLAY; LOW POROSITY.

103.7- 109 LIMESTONE; CREAM TO LIGHT TAN; VUGULAR;
ACCESSORY MINERALS: QUARTZ- %, PHOSPHATIC SAND- %, CLAY- %;
OTHER FEATURES: CHALKY;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
FOSSILIFEROUS MICRITE; SLIGHTLY VUGGY THROUGHOUT SECTION; PELECYPOD AND GASTROPOD MOLDS (CERITHIUM SP.?); SMALL WORM BORINGS IN UPPER HALF OF SECTION; ONE GRAYISH BROWN CHERT FRAGMENT NEAR BOTTOM OF SECTION; LOW POROSITY.

109 - 110 CLAY; LIGHT TAN TO DARK GRAYISH BROWN; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ- %, CALCITE- %, PHOSPHATIC SAND- %;
UNCONSOLIDATED CLAY WITH SOME QUARTZ AND PHOSPHATIC SANDS; LOW MODERATE POROSITY.

110 - 110.5 LIMESTONE; CREAM TO LIGHT TAN;
SEDIMENTARY STRUCTURES: MASSIVE,
ACCESSORY MINERALS: QUARTZ- %, PHOSPHATIC SAND- %;
OTHER FEATURES: CHALKY;
CALCILUTITE; MASSIVE-CHALKY; LOW POROSITY.

110.5- 114.9 CLAY; CREAM TO LIGHT GRAYISH BROWN; VUGULAR; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ- %, CALCITE- %, PHOSPHATIC SAND- %, PHOSPHATIC GRAVEL- %;
SLIGHTLY VUGGY NEAR TOP OF SECTION INCLUDING WORM BORINGS; PHOSPHATIC PEBBLES MORE ABUNDANT IN BOTTOM HALF OF SECTION.

114.9- 119 CLAY; CREAM TO DARK GRAYISH BROWN; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ- %, CALCITE- %, PHOSPHATIC SAND- %, PHOSPHATIC GRAVEL- %;
SOME LOCALLY ABUNDANT LAYERS OF QUARTZ AND PHOSPHATIC SANDS NEAR MIDDLE OF SECTION; LENSES OF CREAM-COLORED CLAY AT MIDDLE AND BOTTOM; ONE DARK BROWNISH GRAY CHERT FRAGMENT AT 117.5'; LOW-MODERATE POROSITY.

119 - 119.1 LIMESTONE; CREAM TO LIGHT TAN;
ACCESSORY MINERALS: QUARTZ- %, PHOSPHATIC SAND- %;
LOW POROSITY.

119.1- 121.9 CLAY; LIGHT TAN TO MODERATE BLUISH GRAY; POOR INDURATION;
SEDIMENTARY STRUCTURES: LAMINATED,
ACCESSORY MINERALS: CALCITE- %, QUARTZ- %, PHOSPHATIC SAND- %;
SOME LOCALLY ABUNDANT, THIN LAYERS OF QUARTZ AND TANNISH BROWN- GRAY-BLACK PHOSPHATIC SANDS THROUGHOUT SECTION, MODERATE POROSITY.

121.9- 128.3 LIMESTONE; CREAM TO MODERATE BLUISH GRAY; VUGULAR;
POOR INDURATION;
ACCESSORY MINERALS: CLAY- %, QUARTZ- %, PHOSPHATIC GRAVEL- %;
FOSSILS: MOLLUSKS, FOSSIL FRAGMENTS, FOSSIL MOLDS;
SOME TAN CLAY INCLUSIONS AND PHOSPHATE FILLED VUGS IN UPPER HALF OF SECTION; POSSIBLY INCLUDING A DARK BLUISH GRAY ORGANIC CLAY? ONE LARGE PELECYPOD CAST AND MOLD FOUND WITH SOME BROWN PHOSPHATIC CASTS OF WORM BORINGS?; LOW-MODERATE POROSITY.

128.3- 130.2 LIMESTONE; CREAM TO MODERATE BLUISH GRAY;
POOR INDURATION;
ACCESSORY MINERALS: CALCILUTITE- %, QUARTZ- %, PHOSPHATIC SAND- %,
PHOSPHATIC GRAVEL- %;
OTHER FEATURES: CHALKY;

130.2- 133.8 CLAY; CREAM TO LIGHT TAN; POOR INDURATION;
SEDIMENTARY STRUCTURES: LAMINATED,
ACCESSORY MINERALS: CALCITE- %, QUARTZ- %, PHOSPHATIC SAND- %;
OTHER FEATURES: CHALKY;
LOW POROSITY.

133.8- 134 CHERT; BROWNISH GRAY TO DARK GRAY; GOOD INDURATION;
ACCESSORY MINERALS: QUARTZ- %, PHOSPHATIC SAND- %, PHOSPHATIC GRAVEL- %;
CHERT WITH INCLUSIONS OF OFF-WHITE-CLEAR QUARTZ SAND AND TANNISH BROWN-BLACK PHOSPHATIC SANDS AND GRAVELS; VERY LOW POROSITY.

134 - 135.1 LIMESTONE; CREAM TO LIGHT BROWNISH GRAY; VUGULAR;
ACCESSORY MINERALS: CALCILUTITE- %, CLAY- %, QUARTZ- %, PHOSPHATIC SAND- %;
WORM BORINGS? ALSO, PHOSPHATIC GRAVELS; LOW-MODERATE POROSITY.

135.1- 136.6 CLAY; CREAM TO LIGHT BLUISH GRAY;
ACCESSORY MINERALS: CALCITE- %, QUARTZ- %, PHOSPHATIC SAND- %, ORGANICS- %;
FOSSILS: ORGANICS;
1" LAYER OF LIGHT TAN CLAY EXHIBITING CIRCULAR SOLUTIONAL- ENRICHMENT RINGS AT TOP OF SECTION; SOME TANNISH BROWN PLANT REMAINS (POSSIBLE EEL GRASS?) NEAR BOTTOM OF SECTION, LOW- MODERATE POROSITY.

136.6- 139 CLAY; CREAM TO MODERATE BLUISH GRAY;
ACCESSORY MINERALS: CALCITE- %, QUARTZ- %, PHOSPHATIC SAND- %, PHOSPHATIC GRAVEL- %;
FOSSILS: MOLLUSKS;
TRACES OF A PELECYPOD MOLD OUTLINED BY QUARTZ AND PHOSPHATIC SANDS; MODERATE POROSITY.

139 - 148.5 CLAY; LIGHT GRAYISH BROWN TO LIGHT BLUISH GRAY; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ- %, CALCITE- %, PHOSPHATIC SAND- %, PHOSPHATIC GRAVEL- %;
SOME SLIGHTLY UNCONSOLIDATED PARTS OF SECTION; MODERATE POROSITY.

148.5- 149 CLAY; LIGHT GRAY TO MODERATE BLUISH GRAY;
ACCESSORY MINERALS: CALCITE- %, QUARTZ- %, PHOSPHATIC SAND- %;
LOW POROSITY.

149 - 154.9 CLAY; CREAM TO DARK GRAYISH BROWN; POOR INDURATION;
ACCESSORY MINERALS: CALCITE- %, QUARTZ- %, PHOSPHATIC SAND- %, CALCILUTITE- %;
OTHER FEATURES: FOSSILIFEROUS;
FOSSIL FRAGMENTS; CREAM-TAN, WELL-ROUNDED CLAYEY LIMESTONE (CALCILUTITE) INCLUSIONS SCATTERED THROUGHOUT BOTTOM HALF OF SECTION; LOW-MODERATE POROSITY.

154.9- 155.2 CHERT; DARK GRAY TO LIGHT TAN;
ACCESSORY MINERALS: CALCILUTITE- %, QUARTZ- %, PHOSPHATIC SAND- %, LIMESTONE- %;
OTHER FEATURES: CHALKY;
DARK GRAY CHERT WITH VERY LOW POROSITY SURROUNDED BY A CHALKY CALCILUTITE; INCLUDING LOW POROSITY LIMESTONE.

155.2- 156 CLAY; TAN TO LIGHT BROWNISH GRAY; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ- %, CALCITE- %, CHERT- %, PHOSPHATIC SAND- %;
SOME FRAGMENTS OF A TAN-GRAY CHERT AT TOP OF SECTION; ALSO SOME SOME DARK GRAY-BLACK PHOSPHATIC PEBBLES; LOW-MODERATE POROSITY.

156 - 156.7 CLAY; DARK GRAYISH BROWN TO VERY LIGHT GRAY; POOR INDURATION;
ACCESSORY MINERALS: CALCITE- %, QUARTZ- %, PHOSPHATIC SAND- %, PHOSPHATIC GRAVEL- %;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;

156.7- 157.6 CLAY; DARK GREENISH GRAY; POOR INDURATION;
ACCESSORY MINERALS: CALCITE- %, QUARTZ- %, PHOSPHATIC SAND- %;

157.6- 164.5 CLAY; CREAM TO LIGHT TAN; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ- %, CALCITE- %, PHOSPHATIC SAND- %, PHOSPHATIC GRAVEL- %;
SECTION BECOMES CLAYEY AND MORE CONSOLIDATED NEAR BOTTOM OF SECTION; MODERATE POROSITY.

164.5- 165.6 CLAY; LIGHT TAN TO LIGHT BROWNISH GRAY;
ACCESSORY MINERALS: CALCITE- %, QUARTZ- %, PHOSPHATIC SAND- %, PHOSPHATIC GRAVEL- %;
LOW-MODERATE POROSITY.

165.6- 169.2 LIMESTONE; CREAM TO LIGHT TAN;
GOOD INDURATION;
ACCESSORY MINERALS: CALCILUTITE- %, QUARTZ- %, CLAY- %, PHOSPHATIC SAND- %;
OTHER FEATURES: VARVED;

169.2- 170 CLAY; TAN TO LIGHT BROWNISH GRAY; POOR INDURATION;
ACCESSORY MINERALS: CALCITE- %, QUARTZ- %, PHOSPHATIC SAND- %, PHOSPHATIC GRAVEL- %;
LOW-MODERATE POROSITY.

170 - 172 CLAY; LIGHT TAN TO LIGHT BROWNISH GRAY; GOOD INDURATION;
ACCESSORY MINERALS: CALCITE- %, QUARTZ- %, PHOSPHATIC SAND- %, PHOSPHATIC GRAVEL- %;
LOW-MODERATE POROSITY.

172 - 173.1 LIMESTONE; CREAM TO LIGHT GRAYISH BROWN;
GOOD INDURATION;
ACCESSORY MINERALS: CALCILUTITE- %, QUARTZ- %, PHOSPHATIC SAND- %,
PHOSPHATIC GRAVEL- %;
SOME LOCALLY ABUNDANT LENSES OF QUARTZ AND GRAY-BLACK PHOSPHATIC SANDS; LOW-MODERATE POROSITY.

173.1- 175.6 CLAY; BUFF TO LIGHT BROWNISH GRAY; MODERATE INDURATION;
ACCESSORY MINERALS: CALCITE- %, QUARTZ- %, PHOSPHATIC SAND- %, PHOSPHATIC GRAVEL- %;
LOW-MODERATE POROSITY.

175.6- 176 LIMESTONE; CREAM TO LIGHT GRAYISH BROWN;
GOOD INDURATION;
ACCESSORY MINERALS: CALCITE- %, CLAY- %, QUARTZ- %, PHOSPHATIC SAND- %;
OTHER FEATURES: CHALKY;
LOW POROSITY.

176 - 176.6 CLAY; CREAM TO LIGHT BROWNISH GRAY; GOOD INDURATION;
ACCESSORY MINERALS: CALCITE- %, QUARTZ- %, PHOSPHATIC SAND- %, PHOSPHATIC GRAVEL- %;
FOSSILS: WORM TRACES;
TRACE OF CREAM CALCILUTITE FRAGMENTS; LOW POROSITY.

176.6- 181.1 LIMESTONE; LIGHT GRAYISH BROWN TO MODERATE GRAY; VUGULAR;
SEDIMENTARY STRUCTURES: BRECCIATED,
ACCESSORY MINERALS: QUARTZ- %, CALCITE- %, CLAY- %, CHERT- %;
FOSSILS: WORM TRACES;
WORM BORINGS THROUGHOUT SECTION, MANY FOUND FROM 178'-179.4'; SOME BORINGS INFILLED WITH A SANDY, LIGHT-DARK GREEN CALCITIC CLAY, SOME "WASHED OUT" DUE TO CORING, GIVING THE MICRITE A VUGGY APPEARANCE; 1" LAYER OF DARK GRAY-BLACK CHERT AT TOP OF SECTION; LIMESTONE SLIGHTLY BRECCIATED AT 179.4'; LOW POROSITY.

181.1- 181.7 CLAY; LIGHT BROWNISH GRAY TO MODERATE GRAY; POOR INDURATION;
ACCESSORY MINERALS: CALCITE- %, QUARTZ- %, PHOSPHATIC SAND- %, PHOSPHATIC GRAVEL- %;
LOW-MODERATE POROSITY.

181.7- 184.6 LIMESTONE; LIGHT GRAYISH BROWN TO MODERATE GRAY;
ACCESSORY MINERALS: QUARTZ- %, CALCITE- %, CLAY- %, DOLOMITE- %;
FOSSILS: WORM TRACES;
FOSSILIFEROUS MICRITE; CALCILUTITE; SECTION BECOMES SLIGHTLY DOLOMITIC TOWARD BOTTOM OF SECTION; SOME THIN LENSES OF CREAM COLORED CALCILUTITE SCATTERED THROUGHOUT BOTTOM HALF OF SECTION; LOW POROSITY.

184.6- 184.7 CLAY; DARK GRAYISH BROWN TO DARK GRAY;
ACCESSORY MINERALS: CALCITE- %, QUARTZ- %, PHOSPHATIC SAND- %, PHOSPHATIC GRAVEL- %;
LOW-MODERATE POROSITY.

184.7- 186.1 LIMESTONE; LIGHT GRAYISH BROWN TO MODERATE GRAY;
ACCESSORY MINERALS: CALCILUTITE- %, QUARTZ- %, PHOSPHATIC SAND- %,
PHOSPHATIC GRAVEL- %;
OTHER FEATURES: CHALKY;
LOW POROSITY.

186.1- 189.6 LIMESTONE; LIGHT GRAYISH BROWN TO MODERATE GRAY; VUGULAR;
ACCESSORY MINERALS: CALCILUTITE- %, CLAY- %, DOLOMITE- %, CALCITE- %;
OTHER FEATURES: CHALKY;
FOSSILS: WORM TRACES;
SLIGHTLY CHALKY IN MIDDLE OF SECTION WITH 1" DOLOMITIC SEGMENT AT 189.1'; SOME VUGS ("WASHED OUT" WORM BORINGS?) INFILLED WITH A GREENISH GRAY CALCITIC CLAY; LOW MODERATE POROSITY.

189.6- 190 CLAY; LIGHT GRAYISH BROWN; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ- %, CALCITE- %, PHOSPHATIC SAND- %;
MODERATE POROSITY.

190 - 194.2 LIMESTONE; LIGHT TAN TO DARK GRAY; VUGULAR;
ACCESSORY MINERALS: CALCILUTITE- %, QUARTZ- %, CLAY- %, CALCITE- %;
SOME VUGS INFILLED WITH A BLUISH GRAY CALCITIC CLAY; LOW POROSITY.

194.2- 197.7 LIMESTONE; LIGHT GRAYISH BROWN TO MODERATE GRAY; VUGULAR;
ACCESSORY MINERALS: CALCILUTITE- %, QUARTZ- %, CLAY- %, CALCITE- %;
INCLUDING PHOSPHATIC SANDS; LOW-MODERATE POROSITY.

197.7- 212.3 CLAY; CREAM TO GREENISH GRAY; POOR INDURATION;
SEDIMENTARY STRUCTURES: MOTTLED,
ACCESSORY MINERALS: CALCITE- %, CLAY- %, QUARTZ- %, PHOSPHATIC SAND- %;
STICKY CALCITIC CLAY; SOME DARK GREENISH GRAY-TANNISH BROWN MOTTLING THROUGHOUT SECTION; LOW POROSITY.

212.3- 212.7 CHERT; GREENISH GRAY TO DARK GRAY;

212.7- 213.9 CLAY; GREENISH GRAY TO DARK GRAY; POOR INDURATION;
ACCESSORY MINERALS: CALCITE- %, CLAY- %, QUARTZ- %, PHOSPHATIC SAND- %;
INCLUDING PHOSPHATIC GRAVELS; LOW-MODERATE POROSITY.

213.9- 219.6 LIMESTONE; LIGHT TAN TO LIGHT BROWNISH GRAY; VUGULAR;
MODERATE INDURATION;
ACCESSORY MINERALS: CALCILUTITE- %, CLAY- %, CALCITE- %, QUARTZ- %;
SOME VERTICAL FRACTURING WITH WEATHERING RINDS IN UPPER PART OF SECTION, SOME VUGS INFILLED WITH A DARK GREENISH GRAY CALCITIC CLAY AT TOP AND BOTTOM OF SECTION; 1.5" DARK BROWN CHERT (PHOSPHORITE?) LAYER AT BOTTOM OF SECTION; LOW POROSITY.

219.6- 220.4 CLAY; LIGHT GRAYISH BROWN TO DARK GREENISH GRAY; GOOD INDURATION;
ACCESSORY MINERALS: QUARTZ- %, CALCITE- %, PHOSPHATIC SAND- %, PHOSPHATIC GRAVEL- %;
LOW-MODERATE POROSITY.

220.4- 221.5 CLAY; CREAM TO LIGHT BROWNISH GRAY; GOOD INDURATION;
ACCESSORY MINERALS: CALCITE- %, CHERT- %, QUARTZ- %, PHOSPHATIC SAND- %;

221.5- 224.6 LIMESTONE; LIGHT TAN TO LIGHT BROWNISH GRAY; VUGULAR;
ACCESSORY MINERALS: CALCILUTITE- %, CHERT- %, CLAY- %, PHOSPHATIC SAND- %;
OTHER FEATURES: CHALKY;
SLIGHTLY CHALKY; VUGGY THROUGHOUT UPPER TWO-THIRDS OF SECTION WITH FRAGMENTS AND SEAMS OF DARK BROWN GRAY CHERT; LOW POROSITY.

224.6- 229 CLAY; CREAM TO TAN; GOOD INDURATION;
ACCESSORY MINERALS: CALCITE- %, PHOSPHATIC SAND- %, QUARTZ- %, PHOSPHATIC GRAVEL- %;
OTHER FEATURES: CHALKY;
WITH VARYING AMOUNTS OF GREENISH GRAY CALCITIC CLAY INTERSPERSED THROUGHOUT SECTION.

229 - 230.1 CLAY; TAN TO LIGHT BROWNISH GRAY; GOOD INDURATION;
ACCESSORY MINERALS: CALCITE- %, ORGANICS- %, PHOSPHATIC SAND- %, QUARTZ- %;
VARYING AMOUNTS OF A POSSIBLY ORGANIC?, DARK GREEN GRAY, CALCITIC CLAY; LOW POROSITY.

230.1- 231 AS ABOVE
LOW POROSITY.

231 - 234.7 CLAY; DARK GRAYISH BROWN TO GREENISH GRAY;
ACCESSORY MINERALS: CALCITE- %, DOLOMITE- %, QUARTZ- %, PHOSPHATIC SAND- %;
LOW-MODERATE POROSITY.

234.7- 237 CLAY; CREAM TO DARK GREENISH GRAY; MODERATE INDURATION;
ACCESSORY MINERALS: CALCITE- %, QUARTZ- %, PHOSPHATIC SAND- %, PHOSPHATIC GRAVEL- %;
FOSSILS: FOSSIL MOLDS, MOLLUSKS;
TRACES OF PELECYPOD AND GASTROPOD MOLDS.

237 - 239 LIMESTONE; CREAM TO LIGHT GRAYISH BROWN;
POOR INDURATION;
ACCESSORY MINERALS: CLAY- %, CALCILUTITE- %, QUARTZ- %, PHOSPHATIC SAND- %;
LOW POROSITY.

239 - 239.3 CLAY; LIGHT BROWN TO DARK GREEN; OE% POROSITY,
ACCESSORY MINERALS: CLAY- %, DOLOMITE- %, CALCILUTITE- %, QUARTZ- %;
FOSSILS: FOSSIL MOLDS;
LOW-MODERATE POROSITY.

239.3- 242.3 LIMESTONE; TAN TO LIGHT BROWNISH GRAY;
ACCESSORY MINERALS: CHERT- %, CLAY- %, QUARTZ- %, PHOSPHATIC SAND- %;
OTHER FEATURES: FROSTED;
FOSSILS: BENTHIC FORAMINIFERA, MOLLUSKS, FOSSIL MOLDS;
FOSSILIFEROUS MICRITE ALTERNATING WITH THIN LENSES OF DARK BROWISH GRAY CHERT; TRACES OF POSSIBLE FORAM MOLDS? AND PELECYPOD MOLDS IN MICRITE; LOW-MODERATE POROSITY.

242.3- 244.2 AS ABOVE
WITHOUT CLAY; LOW MODERATE POROSITY.

244.2- 246 CLAY; LIGHT BROWNISH GRAY TO DARK BROWN; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ- %, CALCITE- %, CHERT- %, PHOSPHATIC SAND- %;
OTHER FEATURES: CRYSTALLINE;
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL MOLDS, FOSSIL FRAGMENTS;

246 - 249 CLAY; LIGHT BROWNISH GRAY TO GREENISH GRAY; MODERATE INDURATION;
ACCESSORY MINERALS: CALCITE- %;
LOW POROSITY; PORTIONS OF THIS CORE SAMPLE ARE MISSING, PROBABLY DUE TO THE "WASHING OUT" OF THE POORLY CONSOLIDATED CLAY WHILE THIS SECTION WAS BEING CORED.

249 - 253.2 LIMESTONE; LIGHT GRAYISH BROWN TO LIGHT TAN;
SEDIMENTARY STRUCTURES: MOTTLED,
ACCESSORY MINERALS: CHERT- %, CLAY- %, DOLOMITE- %, PHOSPHATIC SAND- %;
OTHER FEATURES: CHALKY;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
TRACES OF MICRITE, QUARTZ; ABUNDANT LENSES OF GRAY-DARK GRAY CHERT IN TOP OF SECTION; LOW POROSITY.

253.2- 255.7 LIMESTONE; LIGHT GRAYISH BROWN TO LIGHT TAN;
MODERATE INDURATION;
ACCESSORY MINERALS: CALCILUTITE- %, CALCITE- %, CLAY- %, DOLOMITE- %;
OTHER FEATURES: CHALKY;
LOW POROSITY.

255.7- 259 CLAY; LIGHT TAN TO LIGHT BROWNISH GRAY;
ACCESSORY MINERALS: QUARTZ- %, CALCITE- %, PHOSPHATIC SAND- %;
LOW POROSITY; PORTIONS OF THIS CORE ARE MISSING, PROBABLY DUE TO THE "WASHING OUT" OF THE CLAY INCLUSIONS WHILE THIS SECTION WAS BEING CORED.

259 - 263.3 LIMESTONE; CREAM TO DARK GRAY;
ACCESSORY MINERALS: CHERT- %, PHOSPHATIC SAND- %, QUARTZ- %, PHOSPHATIC GRAVEL- %;
OTHER FEATURES: MEDIUM RECRYSTALLIZATION;
FOSSILS: CORAL, FOSSIL MOLDS, BENTHIC FORAMINIFERA, FOSSIL FRAGMENTS;
BIOMICRITE; SOME SOLITARY CORAL FRAGMENTS AND POSSIBLE FORAM MOLDS? ABUNDANT BUT UNIDENTIFIABLE PELECYPOD (NUCULA SP.?); LOW MODERATE POROSITY.

263.3- 263.5 CLAY; CREAM TO GREENISH GRAY;
ACCESSORY MINERALS: CALCITE- %, QUARTZ- %, PHOSPHATIC SAND- %, PHOSPHATIC GRAVEL- %;
LOW-MODERATE POROSITY.

263.5- 268.7 LIMESTONE; CREAM TO LIGHT BROWN; VUGULAR;
ACCESSORY MINERALS: CHERT- %, CALCITE- %, CLAY- %, QUARTZ- %;
OTHER FEATURES: CRYSTALLINE;
BIOMICRITE; DARK BROWNISH GRAY CHERT AT 264'.

268.7- 280 LIMESTONE; CREAM TO DARK GRAYISH BROWN; MOLDIC;
ACCESSORY MINERALS: QUARTZ- %, PHOSPHATIC SAND- %;
OTHER FEATURES: CHALKY;
FOSSILS: MOLLUSKS, FOSSIL MOLDS, CORAL, BENTHIC FORAMINIFERA, WORM TRACES;
BIOMICRITE; ABUNDANT GASTROPOD (CERITIUM SP.?) AND PELECYPOD (NUCULA SP.?) CASTS AND MOLDS; POSSIBLE SOLITARY CORAL FRAGMENTS; PELECYPOD MOLDS LINED WITH GREENISH GRAY SECONDARY CALCITE CRYSTALS AT 271'; LOW-MODERATE POROSITY.

280 - 284.1 LIMESTONE; CREAM TO LIGHT BROWN; 0M% POROSITY, MOLDIC;
ACCESSORY MINERALS: CALCITE- %, QUARTZ- %, PHOSPHATIC SAND- %;
OTHER FEATURES: CHALKY;
FOSSILS: MOLLUSKS, FOSSIL MOLDS, BENTHIC FORAMINIFERA;
BIOMICRITE; CHALKY-FRIABLE; PELECYPOD AND GASTROPOD CASTS AND MOLDS, MORE ABUNDANT TOWARD BOTTOM OF SECTION; POSSIBLE FORAM MOLDS (ARCHAIAS FLORIDANUS? ROTALIA SP.?), SMALL LENSE OF LIGHT GRAY DOLOMITE NEAR BOTTOM OF SECTION; LOW-MODERATE POROSITY.

284.1- 286.4 LIMESTONE; CREAM TO LIGHT TAN;
ACCESSORY MINERALS: QUARTZ- %, PHOSPHATIC SAND- %;
OTHER FEATURES: CHALKY;
FOSSILS: MOLLUSKS, FOSSIL MOLDS, BRYOZOA, FOSSIL FRAGMENTS;
BIOMICRITE; POSSIBLE FORAM (ROTALIA SP?) CASTS AND MOLDS; TRACE OF BRYOZOAN PAVEMENT; LOW-MODERATE POROSITY.

286.4- 287.7 LIMESTONE; CREAM TO LIGHT BROWN;
OTHER FEATURES: CHALKY;
FOSSILS: MOLLUSKS, FOSSIL MOLDS, BENTHIC FORAMINIFERA, WORM TRACES;
BIOMICRITE; PELECYPOD (NUCULA SP.?) AND GASTROPOD CASTS AND MOLDS; POSSIBLE FORAM (ROTALIA SP.) CASTS AND MOLDS, TRACE WORM BORINGS; MODERATE POROSITY.

287.7- 288.2 LIMESTONE; LIGHT TAN TO BUFF;
ACCESSORY MINERALS: DOLOMITE- %;
FOSSILS: MOLLUSKS, FOSSIL MOLDS, ECHINOID;
BIOMICRITE; ONE ECHINOID (LOVENIA CLARKI?) MOLD AND SOME PELECYPOD CASTS AND MOLDS; ISOLATED STRINGERS OF A LIGHT GRAY SLIGHTLY DOLOMITIC BIOMICRITE SCATTERED THROUGHOUT SECTION; LOW MODERATE POROSITY.

288.2- 293 LIMESTONE; CREAM TO CREAM; 25% POROSITY,
ACCESSORY MINERALS: PHOSPHATIC GRAVEL- %;
OTHER FEATURES: CHALKY;
FOSSILS: MOLLUSKS, FOSSIL MOLDS, BENTHIC FORAMINIFERA;
BIOMICRITE; PELECYPOD (NUCULA GADSDENENSIS?) AND GASTROPOD (CERITHIUM PASCOENSIS?, TURRITELLA TAMPAE?) CASTS AND MOLDS, POSSIBLE FORAM MOLDS? "CASE HARDENING" OF BIOMICRITE NEAR BOTTOM OF SECTION INDICATES THIS PORTION HAS BEEN EXPOSED TO WEATHERING, LOW-MODERATE POROSITY.

293 - 294 LIMESTONE; CREAM TO LIGHT BROWN;
ACCESSORY MINERALS: QUARTZ- %, PHOSPHATIC SAND- %;
OTHER FEATURES: CHALKY;
FOSSILS: MOLLUSKS, FOSSIL MOLDS, BENTHIC FORAMINIFERA;
BIOMICRITE; PELECYPOD (NUCULA SP.) AND GASTROPOD (CERITHIUM SP.) CASTS AND MOLDS; SOME FORAM MOLDS (ARCHAIAS FLORIDANUS?) AT 294'; LOW-MODERATE POROSITY. PARTS II AND III OF THIS WELL DESCRIPTION COVER 294'-1260'.

294 TOTAL DEPTH

LITHOLOGIC WELL LOG PRINTOUT SOURCE - FGS

WELL NUMBER: W- 15826 COUNTY - MANATEE
TOTAL DEPTH: 01260 FT. LOCATION: T.33S R.18E S.30AA
SAMPLES - NONE LAT = N 27D 34M 58
LON = W 82D 32M 47
COMPLETION DATE - 07/03/90 ELEVATION - 015 FT
OTHER TYPES OF LOGS AVAILABLE - CALIPER, GEOLOGIST, TEMP

OWNER/DRILLER: SWFWMD/ROMP SITE TR8-1 (PROJECT #21-020-5199) RUBONIA SITE.

WORKED BY: THIS IS A COMPOSITE: 0-599' (HENDERSON); 599'-1074' (DEWITT AND CLAYTON); 1074'- TD (DECKER); CORE FROM 39'-1074', CUTTINGS FROM 475'-1260'; FORMATION PICKS FOR 0-599' ARE INCORPORATED FROM DESCRIPTIONS BY T. SCOTT; PICKS GREATER THAN 599' ARE TAKEN FROM DEWITT AND CLAYTON DESCRIPTIONS; THIS IS PART 2 OF A 3 PART WELL.

0.	39.	UNDIFFERENTIATED SAND AND CLAY
39.	379.	HAWTHORN GROUP
263.	379.	TAMPA MEMBER OF ARCADIA FM.
379.	642.	SUWANNEE LIMESTONE
642.	952.	OCALA GROUP
952.	.	AVON PARK FM.

0 - 294 NO SAMPLES
FOR DESCRIPTION OF 0-294', SEE PART 1.

294 - 297.6 LIMESTONE; CREAM TO LIGHT BROWN; VUGULAR;
ACCESSORY MINERALS: DOLOMITE- %, QUARTZ- %, PHOSPHATIC SAND- %;
OTHER FEATURES: CHALKY;
BIOMICRITE; CHALKY-CONQUINAL; VUGGY DO TO WASHING OUT OF FOSSIL CASTS OR MOLDS (STEINKERNS?); SOME BRYOZOAN FRAGMENTS, ISOLATED LENSES OR STRINGERS OF A TANNISH GRAY DOLOMITIC BIOMICRITE; TRACE QUARTZ AND PHOSPHATIC SANDS; LOW-MODERATE POROSITY.

297.6- 300.2 LIMESTONE; LIGHT TAN TO LIGHT BROWN;
ACCESSORY MINERALS: DOLOMITE- %;
OTHER FEATURES: CHALKY;
FOSSILS: MOLLUSKS, CORAL;
BIOMICRITE; COQUINAL-SLIGHTLY CHALKY, PELECYPOD (CHLAMYS SP.?) CASTS AND MOLDS; SOME SLIGHTLY DOLOMITIZED OR SILICIFIED, TAN- GRAY PELECYPOD STEINKERNS NEAR BOTTOM OF SECTION; SOME QUITE PROMINENT; MODERATE POROSITY.

300.2- 304 LIMESTONE; CREAM TO LIGHT BROWN;
ACCESSORY MINERALS: DOLOMITE- %, QUARTZ- %, PHOSPHATIC SAND- %, CHERT- %;
OTHER FEATURES: CHALKY;
FOSSILS: MOLLUSKS, FOSSIL MOLDS, BENTHIC FORAMINIFERA, WORM TRACES;
SPARSE BIOMICRITE; LOW-MODERATE POROSITY.

304 - 305.8 LIMESTONE; TAN TO LIGHT BROWN; VUGULAR;
ACCESSORY MINERALS: DOLOMITE- %, QUARTZ- %, PHOSPHATIC SAND- %, CALCITE- %;
OTHER FEATURES: CHALKY;
FOSSILS: CORAL, MOLLUSKS, FOSSIL MOLDS, BENTHIC FORAMINIFERA;
GASTROPOD (CERITHIUM?) CASTS AND MOLDS; DOLOMITIC BIOMICRITE VUG LINED WITH RECRYSTALLIZED CALCITE AT 305'; TANNISH GRAY CORAL FRAGMENTS; MODERATE POROSITY.

305.8- 308.2 LIMESTONE; CREAM TO LIGHT BROWN;
ACCESSORY MINERALS: QUARTZ- %, PHOSPHATIC SAND- %;
OTHER FEATURES: CHALKY;
FOSSILS: MOLLUSKS, CORAL, FOSSIL MOLDS, BENTHIC FORAMINIFERA;
BIOMICRITE; MANY PELECYPOD, GASTROPOD (TURITELLA SP.?), AND FORAM? CASTS AND MOLDS; SOME BRYOZOAN AND CORAL FRAGMENTS; MODERATE POROSITY.

308.2- 308.8 LIMESTONE; CREAM TO LIGHT BROWN;
ACCESSORY MINERALS: CHERT- %, QUARTZ- %, PHOSPHATIC SAND- %;
OTHER FEATURES: CHALKY;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
FOSSILIFEROUS MICRITE; DARK BROWNISH GRAY CHERT FRAGMENTS AT TOP OF SECTION; "YELLOWING" AT BOTTOM OF SECTION INDICATES SOME OXIDATION HAS OCCURED; MODERATE POROSITY.

308.8- 309.9 LIMESTONE; CREAM TO LIGHT BROWN;
ACCESSORY MINERALS: CHERT- %, QUARTZ- %, PHOSPHATIC SAND- %;
OTHER FEATURES: CHALKY;
FOSSILS: MOLLUSKS, FOSSIL MOLDS, CORAL, BENTHIC FORAMINIFERA;
CORAL FRAGMENTS; SOME TANNISH GRAY, SILICIFIED LAYERS OF BIOMICRITE; MODERATE POROSITY.

309.9- 310.6 LIMESTONE; CREAM TO LIGHT BROWN;
ACCESSORY MINERALS: CALCITE- %, CHERT- %, QUARTZ- %, PHOSPHATIC SAND- %;
OTHER FEATURES: CHALKY;
FOSSILS: MOLLUSKS, FOSSIL MOLDS, BENTHIC FORAMINIFERA;
BIOMICRITE; ABUNDANT GASTROPOD AND PELECYPOD CASTS AND MOLDS (SOME STEINKERNS), SOME GASTROPOD MOLDS REPLACED ENTIRELY BY SECONDARY CALCITE; LOW-MODERATE POROSITY.

310.6- 311.6 AS ABOVE
BIOMICRITE; NOT CHALKY AT THIS DEPTH.

311.6- 313.2 LIMESTONE; CREAM TO LIGHT BROWN;
SEDIMENTARY STRUCTURES: LAMINATED,
ACCESSORY MINERALS: CHERT- %, DOLOMITE- %;
OTHER FEATURES: CHALKY;
FOSSILS: ECHINOID, MOLLUSKS, FOSSIL MOLDS;
BIOMICRITE; SOME SOLIFARYCORAD FRAGMENTS; SOME GRAY DOLOMITIC LAYERING AND PATCHES THROUGHOUT SECTION, PELECYPOD AND GASTROPOD MOLDS REPLACED BY SECONDARY CALCITE; LOW-MODERATE POROSITY.

313.2- 314.2 LIMESTONE; CREAM TO LIGHT BROWN;
ACCESSORY MINERALS: CLAY- %;
OTHER FEATURES: CHALKY;
FOSSILS: MOLLUSKS, WORM TRACES, CORAL, FOSSIL MOLDS;
BIOMICRITE; THIS SECTION APPEARS WEATHERED; ABUNDANT PELECYPOD; SOME INCLUSIONS OF DARK GREENISH GRAY CLAY; WORM BORINGS AND CORAL; MODERATE POROSITY.

314.2- 315 LIMESTONE; CREAM TO LIGHT BROWN; OE% POROSITY,
ACCESSORY MINERALS: CALCITE- %, CHERT- %, QUARTZ- %, PHOSPHATIC SAND- %;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
FOSSILIFEROUS MICRITE; SOME FOSSIL MOLDS ENTIRELY REPLACED BY SECONDARY CALCITE AT TOP OF SECTION; THIN SEAM OF BROWN-BLACK CHERT; LOW POROSITY.

315 - 315.3 LIMESTONE; CREAM TO LIGHT BROWN;
ACCESSORY MINERALS: QUARTZ- %, PHOSPHATIC SAND- %;
OTHER FEATURES: CHALKY;
FOSSILS: MOLLUSKS, FOSSIL MOLDS, CORAL, BRYOZOA;
BIOMICRITE; SOME BRYOZOAN AND CORAL (ACROPORA SP.?) FRAGMENTS; LOW-MODERATE POROSITY.

315.3- 319 LIMESTONE; CREAM TO LIGHT BROWN;
ACCESSORY MINERALS: DOLOMITE- %, CHERT- %, PYRITE- %, CALCITE- %;
FOSSILS: MOLLUSKS, MOLLUSKS, BENTHIC FORAMINIFERA;
SPARSE BIOMICRITE; TRACE OF PYRITE IN SOME CALCITIZED PELECYPOD MOLDS; LOW POROSITY.

319 - 323.9 LIMESTONE; CREAM TO LIGHT BROWN;
ACCESSORY MINERALS: DOLOMITE- %, QUARTZ- %, PHOSPHATIC SAND- %, ORGANICS- %;
OTHER FEATURES: CHALKY;
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL MOLDS;
THIN LAYER OF DARK GRAY ORGANIC MATERIAL AT BOTTOM OF SECTION; FOSSILIFEROUS MICRITE; TRACE FORAM MOLDS; SLIGHTLY DOLOMITIC MICRITE; LOW-MODERATE POROSITY.

323.9- 326.3 LIMESTONE; CREAM TO LIGHT BROWNISH GRAY;
ACCESSORY MINERALS: DOLOMITE- %, QUARTZ- %, PHOSPHATIC SAND- %;
OTHER FEATURES: CHALKY;
FOSSILS: BENTHIC FORAMINIFERA, MOLLUSKS;
FOSSILIFEROUS MICRITE; TRACE OF FORAM (ACHAIAS SP?); LOW MODERATE POROSITY.

326.3- 329 LIMESTONE; CREAM TO LIGHT BROWN; VUGULAR;
ACCESSORY MINERALS: DOLOMITE- %, CHERT- %;
FOSSILS: MOLLUSKS, FOSSIL MOLDS, CORAL;
BIOMICRITE; PELECYPOD (NUCULA SP?) AND GASTROPOD (TURITELLA SP?) CASTS AND MOLDS; SMALL FRAGMENT OF DARK BROWNISH GRAY CHERT AT 328.7.

329 - 331.8 LIMESTONE; CREAM TO LIGHT TAN;
ACCESSORY MINERALS: QUARTZ- %, PHOSPHATIC SAND- %;
OTHER FEATURES: CHALKY;
FOSSILS: FOSSIL MOLDS, MOLLUSKS, CORAL;
SPARSE BIOMICRITE; LOW-MODERATE POROSITY.

331.8- 339.7 LIMESTONE; CREAM TO LIGHT TAN;
ACCESSORY MINERALS: DOLOMITE- %;
FOSSILS: MOLLUSKS, FOSSIL MOLDS, WORM TRACES, CORAL, BRYOZOA;
LARGE ABUNDANT PELECYPOD AND GASTROPOD (CONUS SP., TURRITELLA SP.) CASTS AND MOLDS, SOME FORAM (SORITES SP?, ARCHAIAS SP?) CASTS AND MOLDS, SOME PELECYPOD OR GASTROPOD MOLDS HAVE BEEN ENTIRELY REPLACED BY SECONDARY CALCITE; POSSIBLY CALCITIZED MARINE ALGAES; MODERATE-HIGH POROSITY; BIOMICRITE.

339.7- 344.4 LIMESTONE; CREAM TO BROWNISH GRAY;
ACCESSORY MINERALS: CALCITE- %;
OTHER FEATURES: CHALKY, MEDIUM RECRYSTALLIZATION;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
SOME QUITE LARGE PELECYPOD AND GASTROPOD (TURRITELLA SP.?) CASTS AND MOLDS (STEINKERNS), SOME FORAM (SORITES SP.?) ARCHAIAS FLORIDANUS?) CASTS AND MOLDS FOUND IN LARGER FOSSIL CAVITIES ALSO, LOW-MODERATE POROSITY; BIOMICRITE.

344.4- 345.1 LIMESTONE; CREAM TO LIGHT GRAYISH BROWN;
SEDIMENTARY STRUCTURES: MOTTLED,
ACCESSORY MINERALS: DOLOMITE- %, QUARTZ- %, PHOSPHATIC SAND- %;
OTHER FEATURES: CHALKY;
FOSSILS: FOSSIL MOLDS, MOLLUSKS;
SOME GRAY DOLOMITIC MOTTLING THROUGHOUT SECTION, LOW-MODERATE POROSITY;
BIOMICRITE.

345.1- 346.4 LIMESTONE; CREAM TO LIGHT BROWN;
OTHER FEATURES: CHALKY;
FOSSILS: BENTHIC FORAMINIFERA, MOLLUSKS, FOSSIL MOLDS;
BIOMICRITE; LOW MODERATE POROSITY.

346.4- 347.9 LIMESTONE; CREAM TO LIGHT BROWN; VUGULAR;
POOR INDURATION;
CEMENT TYPE(S): SILICIC CEMENT;
ACCESSORY MINERALS: QUARTZ- %, PHOSPHATIC SAND- %;
OTHER FEATURES: CHALKY;
FOSSILS: MOLLUSKS, FOSSIL MOLDS, WORM TRACES;
BIOMICRITE; ABUNDANT GASTROPOD (TURRITELLA) AND PELECYPOD CASTS AND MOLDS; SOME FORAM (ARCHAIAS SP.) SORITES; CASTS AND MOLDS; "WASHING OUT" OF FOSSIL MOLDS INFILLED WITH UNCONSOLIDATED QUARTZ; LOW-MODERATE POROSITY.

347.9- 348.7 LIMESTONE; CREAM TO LIGHT BROWNISH GRAY; VUGULAR;
POOR INDURATION;
SEDIMENTARY STRUCTURES: MOTTLED,
ACCESSORY MINERALS: CALCITE- %, DOLOMITE- %;
OTHER FEATURES: CHALKY;
FOSSILS: WORM TRACES, MOLLUSKS, FOSSIL MOLDS;
PELECYPOD MOLDS REPLACED ENTIRELY BY TANNISH GRAY SECONDARY CALCITE;
LOW-MODERATE POROSITY; SPARSE BIOMICRITE.

348.7- 349.6 LIMESTONE; CREAM TO LIGHT BROWNISH GRAY;
SEDIMENTARY STRUCTURES: MOTTLED,
ACCESSORY MINERALS: DOLOMITE- %;
OTHER FEATURES: CHALKY;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
LOW-MODERATE POROSITY; BIOMICRITE.

349.6- 349.9 AS ABOVE

349.9- 350.6 AS ABOVE
AS 348.7; THIS SECTION APPEARS TO HAVE BEEN SLIGHTLY WEATHERED;

350.6- 351.4 LIMESTONE; CREAM TO LIGHT BROWNISH GRAY;
FOSSILS: MOLLUSKS, FOSSIL MOLDS, BENTHIC FORAMINIFERA;
BIOMICRITE; LOW-MODERATE POROSITY.

351.4- 352.9 LIMESTONE; VERY LIGHT GRAY TO LIGHT BROWNISH GRAY;
ACCESSORY MINERALS: CALCITE- %, QUARTZ- %, PHOSPHATIC SAND- %;
OTHER FEATURES: CHALKY;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
ABUNDANT LARGE PELECYPOD AND GASTROPOD (STEINKERNS) CASTS AND MOLDS; WORM BORINGS; FOSSIL MOLDS REPLACED BY SECONDARY CALCITE. LOW POROSITY; BIOMICRITE.

352.9- 355.1 LIMESTONE; TAN TO LIGHT BROWNISH GRAY;
ACCESSORY MINERALS: QUARTZ- %, PHOSPHATIC SAND- %;
FOSSILS: CORAL, MOLLUSKS, FOSSIL MOLDS;
SOME CORAL FRAGMENTS ALSO AT TOP OF SECTION; LOW-MODERATE POROSITY; BIOMICRITE.

355.1- 361 LIMESTONE; VERY LIGHT GRAY TO LIGHT BROWNISH GRAY;
SEDIMENTARY STRUCTURES: LAMINATED,
ACCESSORY MINERALS: CALCITE- %, CHERT- %, CLAY- %, PHOSPHATIC SAND- %;
OTHER FEATURES: CHALKY;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
SPARSE BIOMICRITE; PELECYPOD CASTS AND MOLDS NEAR TOP OF SECTION; AND AT 357' BECOMING LESS ABUNDANT TOWARD BOTTOM OF SECTION; CHERT FRAGMENTS NEAR BOTTOM OF SECTION; CALCITIC CLAY LAYERING IN MIDDLE OF SECTION GIVING A LAMINATED APPEARANCE, LOW POROSITY.

361 - 362 CLAY; CREAM TO LIGHT TAN;
ACCESSORY MINERALS: QUARTZ- %, PHOSPHATIC SAND- %, CALCITE- %;
OTHER FEATURES: CHALKY;
TRACE OF QUARTZ AND PHOSPHATIC SANDS WITH "FINGERS" OF THE OVERLYING ROCK UNIT IN BOTTOM OF SECTION; MODERATE POROSITY.

362 - 363 LIMESTONE; CREAM TO LIGHT BROWNISH GRAY; VUGULAR;
ACCESSORY MINERALS: DOLOMITE- %, CALCILUTITE- %;
LOW POROSITY.

363 - 364 CLAY; CREAM TO LIGHT TAN;
ACCESSORY MINERALS: CALCITE- %, QUARTZ- %, PHOSPHATIC SAND- %;
LOW-MODERATE POROSITY.

364 - 368.4 LIMESTONE; CREAM TO LIGHT BROWNISH GRAY;
SEDIMENTARY STRUCTURES: BRECCIATED,
ACCESSORY MINERALS: DOLOMITE- %, SHELL- %, CLAY- %, PHOSPHATIC GRAVEL- %;
OTHER FEATURES: CHALKY, WEATHERED;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
BIOMICRITE; ONE GASTROPOD (OSTREA) SHELL FRAGMENT WITH ITS ARAGONITE LAYER INTACT; FOSSIL MOLDS WITH WEATHERING RINDS INFILLED WITH DARK GREENISH GRAY CLAY; PHOSPHATIC SANDS AND GRAVELS SLIGHTLY BRECCIATED IN PARTS OF SECTION; LOW-MODERATE POROSITY.

368.4- 369 CLAY; LIGHT TAN TO LIGHT BROWNISH GRAY;
ACCESSORY MINERALS: CALCITE- %, QUARTZ- %, PHOSPHATIC SAND- %;
LOW POROSITY.

369 - 370.3 LIMESTONE; TAN TO LIGHT BROWNISH GRAY;
GOOD INDURATION;
SEDIMENTARY STRUCTURES: BRECCIATED,
ACCESSORY MINERALS: DOLOMITE- %;
OTHER FEATURES: COQUINA;
FOSSILIFEROUS MICRITE; GRADES TO MORE DOLOMITIC DOWN SECTION; BOTTOM OF SECTION IS BRECCIATED AND APPEARS TO HAVE BEEN WEATHERED; LOW POROSITY.

370.3- 372.3 CLAY; TAN TO LIGHT BROWNISH GRAY;
ACCESSORY MINERALS: CALCITE- %, QUARTZ- %, PHOSPHATIC SAND- %;
OTHER FEATURES: CHALKY;
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL MOLDS, MOLLUSKS;
SOME INCLUSIONS OF OFF-WHITE-OLIVE GRAY SECONDARY CALCITE; TRACE DARK GRAY MICRITE; LOW-MODERATE POROSITY.

372.3- 373.8 AS ABOVE
SOME EVIDENCE OF OXIDATION IN THIS SECTION; LOW-MODERATE MOLDIC POROSITY.

373.8- 374.5 AS ABOVE
CALCILUTITE; NO BRECCIATION THIS SECTION; LOW POROSITY.

374.5- 375.1 AS ABOVE
CALCILUTITE; SLIGHTLY DOLOMITIZED; LOW POROSITY.

375.1- 376.5 AS ABOVE

376.5- 377.7 LIMESTONE; TAN TO LIGHT BROWNISH GRAY;
GOOD INDURATION;
SEDIMENTARY STRUCTURES: BRECCIATED,
ACCESSORY MINERALS: CALCILUTITE- %, CLAY- %, QUARTZ- %, PHOSPHATIC SAND- %;
SECTION BECOMES HARDER DOWN SECTION; CALCILUTITE SCATTERED THROUGHOUT SECTION;
EVIDENCE OF OXIDATION; LOW POROSITY.

377.7- 379.2 LIMESTONE; TAN TO LIGHT BROWNISH GRAY;
GOOD INDURATION;
SEDIMENTARY STRUCTURES: BRECCIATED,
ACCESSORY MINERALS: CALCITE- %, QUARTZ- %, PHOSPHATIC SAND- %, CLAY- %;
FOSSILS: MOLLUSKS, FOSSIL MOLDS, BENTHIC FORAMINIFERA;
BIOMICRITE; DARK TANNISH GRAY CALCITE SEAM AT TOP OF SECTION; SLIGHTLY
BRECCIATED AT BOTTOM OF SECTION; LOW POROSITY.

379.2- 381.5 LIMESTONE; CREAM TO LIGHT BROWN; VUGULAR;
ACCESSORY MINERALS: CALCITE- %;
FOSSILS: MOLLUSKS, FOSSIL MOLDS, WORM TRACES;
BIOMICRITE; LOW MODERATE POROSITY.

381.5- 383.6 LIMESTONE; CREAM TO LIGHT BROWNISH GRAY; VUGULAR;
SEDIMENTARY STRUCTURES: BRECCIATED, LAMINATED,
ACCESSORY MINERALS: CLAY- %, QUARTZ- %, PHOSPHATIC SAND- %;
OTHER FEATURES: CHALKY;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
VUGGY THROUGHOUT; SOME BRECCIATION NEAR BOTTOM OF SECTION; LOW MODERATE
POROSITY; BIOMICRITE.

383.6- 385.6 LIMESTONE; TAN TO LIGHT BROWNISH GRAY; VUGULAR;
ACCESSORY MINERALS: CALCITE- %;
FOSSILS: MOLLUSKS, CORAL, FOSSIL MOLDS, BENTHIC FORAMINIFERA;
GRADES TO A SPARSE BIOMICRITE AT BOTTOM OF SECTION; PELECYPOD (NUCULA) AND
GASTROPOD (TURRITELLA) CASTS (STEINKERNS) AND MOLDS COMMON, TRACE WORM BORINGS;
SOME FOSSIL MOLDS REPLACED BY OLIVE GRAY SECONDARY CALCITE; LOW MODERATE
POROSITY; SPECIAL NOTE: LOST CIRCULATION WAS REPORTED FROM 379' TO 384'
INDICATING THIS AREA WAS EXPOSED TO WEATHERING (NOTE BRECCIATION FOUND IN ABOVE
DESCRIBED UNITS) AND PROBABLY CONTAINED SOLUTION CAVITIES AND/OR FRACTURES.

385.6- 388 AS ABOVE
ABUNDANT GASTROPOD (CERITHIUM) CASTS AND MOLDS; LOW-MODERATE POROSITY;
BIOMICRITE.

388 - 390.5 LIMESTONE; CREAM TO LIGHT BROWNISH GRAY;
ACCESSORY MINERALS: CALCITE- %;
OTHER FEATURES: CHALKY;
FOSSILS: BRYOZOA, CORAL, MOLLUSKS, FOSSIL MOLDS, WORM TRACES;
PELECYPOD (PHACOIDES?) AND GASTROPOD (CERITHIUM) CASTS AND MOLDS; LOW-MODERATE POROSITY; BIOMICRITE.

390.5- 391.9 LIMESTONE; CREAM TO LIGHT BROWNISH GRAY;
ACCESSORY MINERALS: QUARTZ- %, PHOSPHATIC SAND- %;
OTHER FEATURES: CHALKY;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
BIOMICRITE; LOW POROSITY.

391.9- 393.1 AS ABOVE
WITHOUT CLAY INCLUSIONS; SPECIAL NOTE: PORTIONS OF ABOVE SECTION ARE MISSING, POSSIBLY DUE TO "WASHING OUT" WHILE SECTION WAS BEING CORED.

393.1- 394 LIMESTONE; LIGHT TAN TO LIGHT BROWN;
ACCESSORY MINERALS: CALCITE- %;
FOSSILS: WORM TRACES, MOLLUSKS, FOSSIL MOLDS;
SPARSE BIOMICRITE; SOME STROMATOLITE-LIKE STRUCTURES POSSIBLY DUE TO CORALLINE ALGAES (CORALLINA?); LOW POROSITY.

394 - 399.6 LIMESTONE; LIGHT TAN TO TAN; VUGULAR;
POOR INDURATION;
ACCESSORY MINERALS: CALCITE- %, CLAY- %, QUARTZ- %, PHOSPHATIC SAND- %;
OTHER FEATURES: WEATHERED;
BIOMICRITE; SLIGHTLY FRIABLE-SANDY; MODERATE-HIGH POROSITY.

399.6- 400.8 LIMESTONE; LIGHT TAN TO TAN;
ACCESSORY MINERALS: CALCITE- %, QUARTZ- %;
OTHER FEATURES: WEATHERED;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
PELECYPOD (PHACOIDES) AND GASTROPOD (CERITHIUM HERNANDONENSIS?) CASTS AND MOLDS (STEINKERNS); MODERATE-HIGH POROSITY; BIOMICRITE.

400.8- 403.8 LIMESTONE; CREAM TO TAN;
ACCESSORY MINERALS: CHERT- %, QUARTZ- %;
OTHER FEATURES: CHALKY;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
BIOMICRITE; SOME GRAY-DARK BROWN-BLACK CHERT FRAGMENTS; MODERATE POROSITY.

403.8- 404.7 LIMESTONE; LIGHT TAN TO LIGHT BROWNISH GRAY;
ACCESSORY MINERALS: CHERT- %;
OTHER FEATURES: WEATHERED;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
BIOMICRITE; WORM BORINGS; GRAY-BLACK CHERT SEAM AT 404.2'; LOW POROSITY.

404.7- 407.2 AS ABOVE
GASTROPOD (CERITHIUM) CASTS AND MOLDS (STEINKERNS); LOW-MODERATE POROSITY.

407.2- 412.6 LIMESTONE; CREAM TO LIGHT TAN;
ACCESSORY MINERALS: CLAY- %, QUARTZ- %, PHOSPHATIC SAND- %, DOLOMITE- %;
OTHER FEATURES: CHALKY;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
MICRITE FRAGMENTS AT BOTTOM OF SECTION; LOW-MODERATE POROSITY.

412.6- 413.6 AS ABOVE
CENTER OF SECTION CONTAINS HIGHEST FOSSIL DENSITY; LOW-MODERATE POROSITY;
BIOMICRITE.

413.6- 414 CLAY; GREENISH GRAY;
ACCESSORY MINERALS: DOLOMITE- %, QUARTZ- %, PHOSPHATIC SAND- %;
MICRITE; LOW POROSITY.

414 - 416.5 AS ABOVE
AS AT 413.6.

416.5- 424.7 LIMESTONE; LIGHT TAN TO LIGHT BROWNISH GRAY; VUGULAR;
ACCESSORY MINERALS: CLAY- %, CHERT- %;
OTHER FEATURES: CHALKY;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
ONE LARGE GASTROPOD STEINKERN AT 420'; ONE LARGE GASTROPOD MOLD LINED WITH GREENISH OLIVE SECONDARY CALCITE; LOW MODERATE POROSITY; BIOMICRITE.

424.7- 427 LIMESTONE; LIGHT TAN TO LIGHT BROWNISH GRAY;
ACCESSORY MINERALS: QUARTZ- %, PHOSPHATIC SAND- %;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
SOME VERTICAL BANDING AT TOP OF SECTION COMPOSED OF OVERLYING ROCK UNIT; SECTION IS MAINLY TANNISH GRAY BIOMICRITE WITH INCLUSIONS OF A SOFTER, TAN BIOMICRITE; LOW POROSITY.

427 - 434 LIMESTONE; CREAM TO LIGHT BROWNISH GRAY;
SEDIMENTARY STRUCTURES: MOTTLED,
ACCESSORY MINERALS: CALCITE- %, CLAY- %, QUARTZ- %, PHOSPHATIC SAND- %;
POSSIBLE FORAM MOLDS; LIGHT BROWN MICRITE INCLUSIONS AT TOP OF SECTION; GREENISH GRAY WAXY, CALCITIC CLAY POCKETING UPPER HALF OF SECTION, CREAM MICRITE MOTTLING LOWER HALF OF SECTION; ONE BROWN SECONDARY CALCITE SEAM BOTTOM OF SECTION; LOW POROSITY.

434 - 444 LIMESTONE; CREAM TO LIGHT BROWNISH GRAY;
POOR INDURATION;
ACCESSORY MINERALS: CALCITE- %, CLAY- %;
OTHER FEATURES: WEATHERED;
BIOMICRITE; SOME FOSSIL MOLDS INFILLED WITH SECONDARY CALCITE OR LIGHT BROWN MICRITE; BOTTOM OF SECTION APPEARS WEATHERED; MODERATE-HIGH POROSITY; PORTIONS OF THIS CORE SAMPLE ARE MISSING POSSIBLY DUE TO THE "WASHING OUT" OF THE CLAY INCLUSIONS, OR POSSIBLY, THIS SECTION WAS HONEY COMBED WITH NUMEROUS CAVITIES.

444 - 446 CLAY; LIGHT GREENISH GRAY TO DARK GREENISH GRAY;
ACCESSORY MINERALS: QUARTZ- %, CALCITE- %;
LIMESTONE; WAXY CALCITIC CLAY WITH CLAYEY MICRITE; MICRITE INCLUSIONS INCREASE TOWARD BOTTOM OF SECTION; LOW MODERATE POROSITY; GEOLOGIST J. DECKER PICKS THIS INTERVAL AS BOTTOM OF HAWTHORN GROUP IN CUTTINGS.

446 - 448.7 LIMESTONE; CREAM TO LIGHT TAN;
ACCESSORY MINERALS: CLAY- %, QUARTZ- %, PHOSPHATIC SAND- %;
OTHER FEATURES: WEATHERED;
SPARSE BIOMICRITE; HEAVILY WEATHERED; TRACES OF ABOVE DESCRIBED ROCK UNIT POCKETING UPPER PART OF SECTION; LOW POROSITY.

448.7- 454.8 LIMESTONE; CREAM TO LIGHT TAN;
ACCESSORY MINERALS: CLAY- %, QUARTZ- %;
FOSSILS: WORM TRACES, MOLLUSKS, FOSSIL MOLDS;
BIOMICRITE; SOME CORALLINE ALGAE REMAINS (CORALLINA) THROUGHOUT SECTION, TRACE WORM BORINGS; LOW-MODERATE POROSITY.

454.8- 464 LIMESTONE; LIGHT TAN TO TAN;
ACCESSORY MINERALS: QUARTZ- %, PHOSPHATIC SAND- %;
OTHER FEATURES: CHALKY;
TRACE FORAM MOLDS; SOME VERTICAL FRACTURING AT TOP OF SECTION; MODERATE-HIGH POROSITY; BIOMICRITE.

464 - 464.9 LIMESTONE; LIGHT TAN TO TAN;
ACCESSORY MINERALS: QUARTZ- %, PHOSPHATIC SAND- %;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
FOSSILIFEROUS MICRITE; SLIGHLTY TUFACEOUS-SANDY; MODERATE POROSITY.

464.9- 467.8 AS ABOVE

467.8- 473.4 LIMESTONE; CREAM TO TAN;
ACCESSORY MINERALS: QUARTZ- %, PHOSPHATIC SAND- %;
OTHER FEATURES: CHALKY;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
BIOMICRITE; SOME AGGLUTINATED FORAM (ROTALIA MEXICANA?, COSKINOLINA FLORIDANUS?) CASTS AND MOLDS; TRACE OF ECHINOID SPINES? SOME VUGS LINED WITH SECONDARY CALCITE; HIGH POROSITY.

473.4- 474.5 AS ABOVE
AS 467.8.

474.5- 475.6 LIMESTONE; CREAM TO LIGHT TAN;
POOR INDURATION;
ACCESSORY MINERALS: QUARTZ- %, PHOSPHATIC SAND- %, CLAY- %;
OTHER FEATURES: CHALKY, FOSSILIFEROUS;
FOSSILIFEROUS MICRITE; LIMESTONE BECOMES UNCONSOLIDATED TOWARD BOTTOM OF SECTION; MODERATE POROSITY.

475.6- 478.4 LIMESTONE; CREAM TO LIGHT TAN;
ACCESSORY MINERALS: CALCITE- %;
OTHER FEATURES: CHALKY;
FOSSILS: MOLLUSKS, FOSSIL MOLDS, ECHINOID, ALGAE;
BIOMICRITE; GASTROPOD; (TURITELLA, "DRILLIA" CERITHIUM AND PHACOIDES HERNANDOENSIS?) CASTS AND MOLDS COMMON; SOME CORALLINE ALGAE REMAINS (CORALLINA) THROUGHOUT SECTION, TRACE OF FORAM (ROTALIA) CASTS AND MOLDS.

478.4- 484 AS ABOVE
SPARSE BIOMICRITE; TUFACEOUS; HIGH POROSITY.

484 - 489 LIMESTONE; CREAM TO LIGHT TAN;
ACCESSORY MINERALS: CALCITE- %;
OTHER FEATURES: GREASY;
FOSSILS: FOSSIL MOLDS, ECHINOID, WORM TRACES, ALGAE, MOLLUSKS;
BIOMICRITE; MODERATE-HIGH POROSITY; SMALL PORTIONS OF THIS CORE SAMPLE ARE MISSING; POSSIBLY DUE TO THE PRESENCE OF SMALL, INTERCONNECTED CAVITIES.

489 - 490.1 LIMESTONE; CREAM TO LIGHT TAN;
FOSSILS: WORM TRACES, MOLLUSKS, ECHINOID;
BIOMICRITE; MODERATE-HIGH POROSITY.

490.1- 493.6 LIMESTONE; CREAM TO LIGHT TAN;
OTHER FEATURES: COQUINA;
FOSSILS: MOLLUSKS, FOSSIL MOLDS, ALGAE, CRUSTACEA;
BIOMICRITE; COQUINAL IN TOP OF SECTION; PELECYPOD MOLDS AND CASTS (SMALL STEINKERNS), CORALLINA ALGAE REMAINS (CORALLINA); TRACE OF (DECAPOD?) CRUSTACEAN APPENDAGE FRAGMENTS; HIGH POROSITY.

493.6- 495.5 LIMESTONE; CREAM TO LIGHT TAN;
ACCESSORY MINERALS: CALCITE- %;
FOSSILS: BRYOZOA, MOLLUSKS, ECHINOID, WORM TRACES;
BIOMICRITE; HIGH POROSITY.

495.5- 497.6 AS ABOVE
BIOMICRITE; ONE ECHINOID TEST (CASSIDULUS ERICSONI?); TRACE OF WORM BORINGS; MODERATE-HIGH POROSITY.

497.6- 499.3 LIMESTONE; CREAM TO TAN;
ACCESSORY MINERALS: CALCITE- %;
FOSSILS: BENTHIC FORAMINIFERA, WORM TRACES, MOLLUSKS;
SPARSE BIOMICRITE; SOME FORAM MOLDS (COSKINOLINA FLORIDANUS?); HIGH POROSITY.

499.3- 499.3 PHOSPHATE; NO COLOR GIVEN TO NO COLOR GIVEN; TH% POROSITY, , , ; ;
CEMENT TYPE(S): PHOSPHATE CEMENT, , IRON CEMENT;
SEDIMENTARY STRUCTURES: , NODULAR, BRECCIATED, ,
ACCESSORY MINERALS: HEMATITE-ER%, QUARTZ SAND- 4%, -9.%, SILT-SIZED DOLOMITE-'-%;
OTHER FEATURES: FOSSILIFEROUS, , , , ;
FOSSILS: ;

499.3 TOTAL DEPTH

LITHOLOGIC WELL LOG PRINTOUT

SOURCE - FGS

WELL NUMBER: W- 15826
TOTAL DEPTH: 01260 FT.
SAMPLES - NONE

COUNTY - MANATEE
LOCATION: T.33S R.18E S.30AA
LAT = N 27D 34M 58
LON = W 82D 32M 47

COMPLETION DATE - 07/03/90
ELEVATION - 015 FT
OTHER TYPES OF LOGS AVAILABLE - CALIPER, GEOLOGIST, TEMP

OWNER/DRILLER: SWFWMD/ROMP SITE TR8-1 (PROJECT #21-020-5199) RUBONIA SITE.

WORKED BY: THIS DESCRIPTION IS A COMPOSITE: 0-599' (HENDERSON); 599'-1074' (DEWITT AND CLAYTON); 1074'- TD (DECKER); CORE FROM 39'-1074', CUTTINGS FROM 475' -1260'; FORMATION PICKS FOR 0-599' ARE INCORPORATED FROM DESCRIPTIONS BY T. SCOTT; PICKS GREATER THAN 599' ARE TAKEN FROM DEWITT AND CLAYTON DESCRIPTIONS; THIS IS PART 3 OF A 3 PART WELL.

0.	39.	UNDIFFERENTIATED SAND AND CLAY
39.	379.	HAWTHORN GROUP
263.	379.	TAMPA MEMBER OF ARCADIA FM.
379.	642.	SUWANNEE LIMESTONE
642.	952.	OCALA GROUP
952.	.	AVON PARK FM.

0 - 499.3 NO SAMPLES
FOR DESCRIPTION OF 0-499.3, SEE PARTS 1 AND 2.

499.3- 504.6 LIMESTONE; VERY LIGHT GRAY TO LIGHT TAN; VUGULAR;
SEDIMENTARY STRUCTURES: LAMINATED,
ACCESSORY MINERALS: ORGANICS- %;
OTHER FEATURES: CHALKY;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
SPARSE BIOMICRITE; LAMINATED SEAMS OF DARK BROWN FOSSIL PEAT; SMALL PELECYPOD (PECTEN); HIGH POROSITY.

504.6- 507.2 LIMESTONE; CREAM TO LIGHT GRAY;
ACCESSORY MINERALS: CALCITE- %;
FOSSILS: MOLLUSKS, ECHINOID, ALGAE;
SECTION ALTERNATES FROM BIOMICRITE TO SPARSE BIOMICRITE THROUGHOUT THE SECTION; TRACE OF CALCITIZED ECHINOID (RHYNCHOLAMPAS GOULDI?) TEST FRAGMENTS; SOME CORALLINE ALGAES REMAIN (CORALLINA); MODERATE-HIGH POROSITY.

507.2- 508.8 LIMESTONE; CREAM TO LIGHT TAN;
OTHER FEATURES: CHALKY;
FOSSILS: ALGAE, WORM TRACES;
SOME CORALLINE ALGAE REMAINS (LITHOPORELLA??); MODERATE-HIGH POROSITY; FOSSILIFEROUS MICRITE.

508.8- 514 LIMESTONE; CREAM TO LIGHT TAN;
ACCESSORY MINERALS: CALCITE- %;
OTHER FEATURES: CHALKY;
FOSSILS: BENTHIC FORAMINIFERA, MOLLUSKS, FOSSIL MOLDS, WORM TRACES;
BIOMICRITE; ABUNDANT FORAM (QUINQUELLOCULINA?) FRAGMENTS, PELECYPOD (PHACOIDES?) AND GASTROPOD (TURRITELLA, CERITHIUM SP.) CASTS AND MOLDS, AMBER-BROWN CALCITIZED WORM BORINGS; HIGH POROSITY.

514 - 519.5 LIMESTONE; CREAM TO LIGHT TAN;
ACCESSORY MINERALS: CALCITE- %;
OTHER FEATURES: CHALKY;
FOSSILS: MOLLUSKS, FOSSIL MOLDS, ECHINOID, WORM TRACES, BENTHIC FORAMINIFERA;
SPARSE BIOMICRITE; LOCALLY ABUNDANT LAYERS OF FOSSILS THROUGHOUT SECTION; CALCITIZED ECHINOID SPINES; MODERATE-HIGH POROSITY.

519.5- 524 LIMESTONE; CREAM TO LIGHT TAN;
POOR INDURATION;
OTHER FEATURES: CHALKY, WEATHERED;
FOSSILS: MOLLUSKS, WORM TRACES;
BIOMICRITE; LOW-MODERATE POROSITY.

524 - 524.6 AS ABOVE
FOSSILIFEROUS MICRITE; WORM BORINGS INFILLED WITH TANNISH GRAY-GRAY CALCITIC CLAY;
LOW-MODERATE POROSITY.

524.6- 536.7 AS ABOVE
FOSSILIFEROUS MICRITE; TUFACEOUS, SLIGHTLY CLAYEY IN TOP OF SECTION; CHALKY IN MIDDLE;
OXIDATION IN UPPER HALF; SCATTERED CALCITE CRYSTALS; MODERATE HIGH POROSITY.

536.7- 537.4 AS ABOVE
FRIABLE, MODERATE POROSITY.

537.4- 537.9 AS ABOVE
TOP OF SECTION LAMINATED WITH THIN SEEMS OF LIGHT-DARK BROWN FOSSIL PEAT, GIVING IT A "BUTTER AND MOLASSES" APPEARANCE; LOW POROSITY.

537.9- 538.7 AS ABOVE
TRACE OF PELECYPOD MOLDS; LOW POROSITY.

538.7- 540.2 AS ABOVE
BIOMICRITE; GASTROPOD (TURRITELLA) CASTS AND MOLDS; TRACE OF PYRITE-LINED PELECYPOD MOLDS;
LOW POROSITY.

540.2- 542.5 CLAY; LIGHT BROWN TO DARK BROWN;
ACCESSORY MINERALS: CALCITE- %, ORGANICS- %, PYRITE- %;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
VERY EARTHY-ORGANIC, CALCITIC CLAY; A BLACK LIGNITIC SEAM (0.2') AT 541'; TRACE OF PYRITE LINED PELECYPOD MOLDS; LOW POROSITY.

542.5- 544 AS ABOVE

544 - 544 LIMESTONE; CREAM TO LIGHT BROWNISH GRAY;
ACCESSORY MINERALS: CALCITE- %;
FOSSILS: MOLLUSKS, FOSSIL MOLDS, WORM TRACES, BENTHIC FORAMINIFERA;
SPARSE BIOMICRITE; LOW POROSITY.

544 - 545.1 LIMESTONE; TAN TO DARK BROWN;
SEDIMENTARY STRUCTURES: LAMINATED,
ACCESSORY MINERALS: ORGANICS- %, PEAT- %, CLAY- %;
FOSSILS: MOLLUSKS, FOSSIL MOLDS, WORM TRACES;
SOME DARK BROWN, WAXY, FOSSIL PEAT LAMINATING UPPER HALF OF SECTION; LOW-MODERATE POROSITY; FOSSILIFEROUS MICRITE.

545.1- 546.4 AS ABOVE
BIOMICRITE; SOME CORALLINE ALGAE (CORALLINA); MODERATE POROSITY.

546.4- 549.8 AS ABOVE
BIOMICRITE; BLACK ORGANIC OR LIGNITIC CLAY THINLY LAMINATED OR POCKETING THIS SECTION; LOW MODERATE POROSITY.

549.8- 550 LIMESTONE; TAN TO LIGHT BROWNISH GRAY;
ACCESSORY MINERALS: CALCITE- %, PEAT- %, CLAY- %;
FOSSILS: ECHINOID, WORM TRACES, FOSSIL MOLDS, MOLLUSKS;
BIOMICRITE; CALCITIZED ECHINOID TESTS; (CASSIDULUS GOULDI?) UPPER PART OF SECTION; CALICITIZED PELECYPOD MOLDS AND SMALL WORM BORINGS ALSO IN UPPER PART OF SECTION; CENTER PART LAMINATED WITH THIN SEAMS OF DARK BROWN, EARTHY-WAXY, FOSSIL PEAT, GIVING IT A "BUTTER AND MOLASSES" APPEARANCE; BLACK ORGANIC OR LIGNITIC CLAY POCKETING ENTIRE SECTION; LOW POROSITY.

550 - 553.5 LIMESTONE; LIGHT TAN TO TAN;
SEDIMENTARY STRUCTURES: MOTTLED,
ACCESSORY MINERALS: DOLOMITE- %;
FOSSILS: BRYOZOA, MOLLUSKS, FOSSIL MOLDS;
SPARSE BIOMICRITE; LOW-MODERATE POROSITY.

553.5- 556.9 AS ABOVE
SPARSE BIOMICRITE; CORRALLINE ALGAE (CORALLINA); OR CODIACEAN ALGAE (HALIMEDA)? LIGHT GRAY MOTTLING THROUGHOUT SECTION; MODERATE-HIGH POROSITY.

556.9- 558 LIMESTONE; CREAM TO TAN;
SEDIMENTARY STRUCTURES: MOTTLED,
ACCESSORY MINERALS: CLAY- %;
OTHER FEATURES: CHALKY;
FOSSILIFEROUS MICRITE; TRACE OF FORAM MOLDS; SOME TAN-LIGHT GRAY CLAYEY MICRITE MOTTLING THROUGHOUT SECTION; HIGH POROSITY.

558 - 561.3 LIMESTONE; LIGHT TAN TO LIGHT BROWNISH GRAY;
GOOD INDURATION;
SEDIMENTARY STRUCTURES: MOTTLED,
OTHER FEATURES: CHALKY;
FOSSILS: WORM TRACES, FOSSIL MOLDS;
SPARSE BIOMICRITE; POROUS BUT HARD, MICRITE MOTTLING THROUGH THE ENTIRE SECTION;
MODERATE-HIGH POROSITY.

561.3- 563.8 LIMESTONE; CREAM TO LIGHT BROWNISH GRAY;
GOOD INDURATION;
SEDIMENTARY STRUCTURES: MOTTLED,
ACCESSORY MINERALS: CLAY- %;
OTHER FEATURES: CHALKY;
FOSSILS: MOLLUSKS, FOSSIL MOLDS, WORM TRACES;
AS 561.3.

563.8- 564.8 LIMESTONE; CREAM TO TAN;
OTHER FEATURES: CHALKY;
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL MOLDS;
SPARSE BIOMICRITE; MODERATE HIGH POROSITY.

564.8- 569 LIMESTONE; CREAM TO LIGHT TAN;
GOOD INDURATION;
SEDIMENTARY STRUCTURES: MOTTLED,
OTHER FEATURES: CHALKY;
FOSSILS: FOSSIL MOLDS, BENTHIC FORAMINIFERA, MOLLUSKS;
SPARSE BIOMICRITE; SOME LIGHT GRAYISH MICRITE MOTTLING; MODERATE HIGH POROSITY.

569 - 574 LIMESTONE; LIGHT TAN TO LIGHT BROWNISH GRAY;
GOOD INDURATION;
SEDIMENTARY STRUCTURES: MOTTLED,
ACCESSORY MINERALS: DOLOMITE- %;
FOSSILS: MOLLUSKS, FOSSIL MOLDS, BENTHIC FORAMINIFERA, WORM TRACES;
BIOMICRITE; MOTTLED THROUGHOUT BY A LIGHT GRAY-BLUISH GRAY MICRITE; LOW-MODERATE POROSITY;
PORTIONS OF THIS CORE SAMPLE ARE MISSING, POSSIBLY DUE TO "WASHING OUT" OF THE TAN
BIOMICRITE WHILE THIS SECTION WAS BEING CORED.

574 - 581 LIMESTONE; CREAM TO TAN;
ACCESSORY MINERALS: CLAY- %;
OTHER FEATURES: CHALKY;
FOSSILS: WORM TRACES, MOLLUSKS, BENTHIC FORAMINIFERA;
SPARSE BIOMICRITE; LESS CHALKY TOWARD BOTTOM OF SECTION; LOW- MODERATE POROSITY.

581 - 582.4 LIMESTONE; LIGHT BROWNISH GRAY TO LIGHT BROWN; VUGULAR;
ACCESSORY MINERALS: DOLOMITE- %;
OTHER FEATURES: CHALKY;
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL MOLDS, PLANT REMAINS;
FOSSILIFEROUS MICRITE; SOME VUGS FILLED WITH A BLACK ORGANIC LIGNITIC CLAY; FOSSIL PLANT
REMAINS (EELGRASS?) NEAR TOP OF SECTION; LOW POROSITY.

582.4- 588 AS ABOVE
NO CHALK EVIDENT AT THIS DEPTH.

588 - 591.7 LIMESTONE; CREAM TO LIGHT BROWNISH GRAY; VUGULAR;
OTHER FEATURES: CHALKY;
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL MOLDS;
SPARSE BIOMICRITE; SLIGHTLY FRAGMENTAL IN MIDDLE OF SECTION; LOW MODERATE POROSITY.

591.7- 592 CLAY; LIGHT BROWN TO DARK BROWN;
ACCESSORY MINERALS: CALCITE- %;
LOW POROSITY.

592 - 593.8 LIMESTONE; ;
ACCESSORY MINERALS: CALCILUTITE- %, DOLOMITE- %;
OTHER FEATURES: CHALKY;
LOW POROSITY.

593.8- 597.7 DOLOSTONE; LIGHT BROWN TO BROWNISH GRAY;
GOOD INDURATION;
FOSSILS: WORM TRACES, MOLLUSKS, FOSSIL MOLDS;
FOSSILIFEROUS DOLOMITE; LOW POROSITY.

597.7- 599 AS ABOVE
AS 593.8.

599 - 605.5 DOLOSTONE; GRAYISH ORANGE TO MODERATE PINK; PIN POINT VUGS, MOLDIC,
LOW PERMEABILITY; 50-90% ALTERED; SUBHEDRAL;
GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: MASSIVE,
FOSSILS: FOSSIL MOLDS, ORGANICS;

605.5- 616 CALCARENITE; YELLOWISH GRAY TO VERY LIGHT ORANGE; 05% POROSITY, INTERGRANULAR, MOLDIC,
LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: MASSIVE, MOTTLED,
ACCESSORY MINERALS: DOLOMITE- %, CALCITE- %;
OTHER FEATURES: CHALKY, PARTINGS;
FOSSILS: FOSSIL MOLDS, MOLLUSKS, ORGANICS;

616 - 627.5 DOLOSTONE; YELLOWISH GRAY TO GRAYISH BROWN; 05% POROSITY, PIN POINT VUGS, FRACTURE,
LOW PERMEABILITY; 50-90% ALTERED; SUBHEDRAL;
GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: MASSIVE, MOTTLED,
OTHER FEATURES: CALCAREOUS;
FOSSILS: FOSSIL MOLDS, ORGANICS;

627.5- 628.5 CALCILUTITE; VERY LIGHT ORANGE TO YELLOWISH GRAY; NOT OBSERVED, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE;
GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
SEDIMENTARY STRUCTURES: MASSIVE, MOTTLED, BIOTURBATED,
ACCESSORY MINERALS: CLAY- %;
OTHER FEATURES: CHALKY;
FOSSILS: NO FOSSILS, ORGANICS;
ORGANIC CLAY SEAM AT TOP, DARK MOTTLING-INFILLED BURROW STRUCTURES.

628.5- 629 CALCARENITE; YELLOWISH GRAY TO VERY LIGHT ORANGE; 05% POROSITY, INTERGRANULAR,
PIN POINT VUGS;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
SEDIMENTARY STRUCTURES: MASSIVE,
ACCESSORY MINERALS: DOLOMITE-10%;
OTHER FEATURES: CHALKY, SPECKLED, DOLOMITIC;
FOSSILS: FOSSIL MOLDS, ORGANICS;

629 - 630 DOLOSTONE; YELLOWISH GRAY TO GRAYISH BROWN; 05% POROSITY, MOLDIC, PIN POINT VUGS,
INTERGRANULAR; 50-90% ALTERED; SUBHEDRAL;
GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: MASSIVE,
ACCESSORY MINERALS: LIMESTONE-05%, CLAY-01%;
OTHER FEATURES: SPECKLED, CALCAREOUS;
FOSSILS: FOSSIL MOLDS, ORGANICS;

630 - 633.5 DOLOSTONE; YELLOWISH GRAY; 05% POROSITY, MOLDIC, PIN POINT VUGS,
LOW PERMEABILITY; 50-90% ALTERED; SUBHEDRAL;
GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
SEDIMENTARY STRUCTURES: INTERBEDDED, LAMINATED, BIOTURBATED, MOTTLED,
ACCESSORY MINERALS: CALCILUTITE-20%;
OTHER FEATURES: CALCAREOUS;
FOSSILS: FOSSIL MOLDS, MOLLUSKS, ORGANICS;

633.5- 639 DOLOSTONE; YELLOWISH GRAY TO GRAYISH BROWN; 02% POROSITY, PIN POINT VUGS, LOW PERMEABILITY;
50-90% ALTERED; SUBHEDRAL;
GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: INTERBEDDED, LAMINATED, MOTTLED,
ACCESSORY MINERALS: CALCILUTITE-10%, PLANT REMAINS- %;
FOSSILS: NO FOSSILS, PLANT REMAINS, ORGANICS;
ORGANIC LAMINAE PARTINGS CONTAIN CARBONACEOUS PLANT REMAINS.

639 - 642 CALCILUTITE; VERY LIGHT ORANGE; 05% POROSITY, INTERGRANULAR, PIN POINT VUGS,
LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
SEDIMENTARY STRUCTURES: MASSIVE, BRECCIATED, MOTTLED,
ACCESSORY MINERALS: DOLOMITE-02%;
OTHER FEATURES: CHALKY;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;

642 - 651.5 CALCARENITE; VERY LIGHT ORANGE TO YELLOWISH GRAY; 20% POROSITY, MOLDIC, PIN POINT VUGS,
POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: BIOGENIC, SKELETAL;
MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
SEDIMENTARY STRUCTURES: MASSIVE,
OTHER FEATURES: CHALKY, GRANULAR;
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA, WORM TRACES;
LOST CIRCULATION AT 643 FT. TOP OF OCALA FORMATION AT 642 FT.

651.5- 658 CALCARENITE; VERY LIGHT ORANGE; 05% POROSITY, INTERGRANULAR, PIN POINT VUGS,
LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
SEDIMENTARY STRUCTURES: MASSIVE,
ACCESSORY MINERALS: CALCITE-01%;
OTHER FEATURES: CHALKY;
FOSSILS: FOSSIL MOLDS, FOSSIL FRAGMENTS, MOLLUSKS, BENTHIC FORAMINIFERA;

658 - 663 CALCARENITE; VERY LIGHT ORANGE; 10% POROSITY, MOLDIC, PIN POINT VUGS, INTERGRANULAR;
GRAIN TYPE: BIOGENIC, SKELETAL;
GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
SEDIMENTARY STRUCTURES: MASSIVE,
OTHER FEATURES: CHALKY;
FOSSILS: FOSSIL MOLDS, MOLLUSKS, FOSSIL FRAGMENTS;

663 - 675 CALCARENITE; VERY LIGHT ORANGE; 10% POROSITY, MOLDIC, PIN POINT VUGS, INTERGRANULAR;
GRAIN TYPE: BIOGENIC, SKELETAL;
GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
SEDIMENTARY STRUCTURES: MASSIVE,
OTHER FEATURES: CHALKY;
FOSSILS: FOSSIL MOLDS, MOLLUSKS, FOSSIL FRAGMENTS, BRYOZOA;

675 - 679 CALCARENITE; VERY LIGHT ORANGE; 10% POROSITY, INTERGRANULAR, PIN POINT VUGS, MOLDIC;
GRAIN TYPE: BIOGENIC;
GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
SEDIMENTARY STRUCTURES: MASSIVE,
OTHER FEATURES: CHALKY;
FOSSILS: FOSSIL MOLDS, MOLLUSKS, FOSSIL FRAGMENTS;

679 - 682.5 CALCARENITE; VERY LIGHT ORANGE; 10% POROSITY, INTERGRANULAR, PIN POINT VUGS, MOLDIC;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
SEDIMENTARY STRUCTURES: MASSIVE,
OTHER FEATURES: CHALKY;
FOSSILS: FOSSIL MOLDS, MOLLUSKS, FOSSIL FRAGMENTS;

682.5- 684 CALCARENITE; VERY LIGHT ORANGE; 15% POROSITY, MOLDIC, PIN POINT VUGS, INTERGRANULAR;
GRAIN TYPE: BIOGENIC, SKELETAL;
GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
SEDIMENTARY STRUCTURES: MASSIVE,
OTHER FEATURES: CHALKY;
FOSSILS: FOSSIL MOLDS, MOLLUSKS, FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA;

684 - 688 CALCARENITE; VERY LIGHT ORANGE; 10% POROSITY, INTERGRANULAR, PIN POINT VUGS;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
SEDIMENTARY STRUCTURES: MASSIVE,
ACCESSORY MINERALS: CALCITE-01%;
OTHER FEATURES: CHALKY;
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA, FOSSIL FRAGMENTS;
LEPIDOCYCLINA SP. COMMON.

688 - 693 CALCARENITE; VERY LIGHT ORANGE; 05% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
SEDIMENTARY STRUCTURES: MASSIVE,
ACCESSORY MINERALS: CALCITE-01%;
OTHER FEATURES: CHALKY;
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA, FOSSIL FRAGMENTS;

693 - 701 CALCARENITE; VERY LIGHT ORANGE; 10% POROSITY,
GRAIN TYPE: BIOGENIC, CALCILUTITE;
GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
SEDIMENTARY STRUCTURES: MASSIVE,
ACCESSORY MINERALS: CALCITE-02%;
OTHER FEATURES: CHALKY;
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA, FOSSIL FRAGMENTS;
FORAMS COMMON; FIRST OCCURRENCE OF NUMMULITES SP.

701 - 705.5 CALCARENITE; VERY LIGHT ORANGE; 10% POROSITY, MOLDIC, PIN POINT VUGS, INTERGRANULAR;
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL;
GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
SEDIMENTARY STRUCTURES: MASSIVE,
ACCESSORY MINERALS: CALCITE-02%;
OTHER FEATURES: CHALKY;
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL MOLDS, FOSSIL FRAGMENTS;
ABUNDANT NUMMULITES SP.; LEPIDOCYCLINA SP. COMMON.

705.5- 714 CALCARENITE; VERY LIGHT ORANGE; 05% POROSITY, INTERGRANULAR, PIN POINT VUGS, MOLDIC;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
SEDIMENTARY STRUCTURES: MASSIVE,
ACCESSORY MINERALS: CALCITE-01%, PLANT REMAINS- %;
OTHER FEATURES: CHALKY;
FOSSILS: FOSSIL MOLDS, BENTHIC FORAMINIFERA, ORGANICS;

714 - 720 AS ABOVE
MINOR VERTICAL FRACTURES.

720 - 734.5 CALCARENITE; VERY LIGHT ORANGE; 10% POROSITY, INTERGRANULAR, PIN POINT VUGS, MOLDIC;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
SEDIMENTARY STRUCTURES: MASSIVE, BEDDED,
ACCESSORY MINERALS: CALCITE-01%;
OTHER FEATURES: CHALKY;
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL MOLDS, MOLLUSKS;

734.5- 743 FORAMS COMMON, LEPIDOCYCLINA SP.; NUMMULITES SP.

743 - 746 CALCARENITE; VERY LIGHT ORANGE; 10% POROSITY, INTERGRANULAR, PIN POINT VUGS, VUGULAR;
GRAIN TYPE: BIOGENIC, SKELETAL, CALCILUTITE;
GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
SEDIMENTARY STRUCTURES: MASSIVE,
ACCESSORY MINERALS: CALCITE-02%;
OTHER FEATURES: CHALKY;
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL MOLDS, MOLLUSKS;

746 - 749 CALCARENITE; VERY LIGHT ORANGE; 10% POROSITY, INTERGRANULAR, PIN POINT VUGS,
LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
GRAIN SIZE: MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
SEDIMENTARY STRUCTURES: MASSIVE,
OTHER FEATURES: CHALKY;
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL MOLDS, FOSSIL FRAGMENTS;

749 - 759 CALCARENITE; VERY LIGHT ORANGE; 10% POROSITY, INTERGRANULAR, PIN POINT VUGS, MOLDIC;
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL;
GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
SEDIMENTARY STRUCTURES: MASSIVE, BEDDED,
ACCESSORY MINERALS: CALCITE-01%;
OTHER FEATURES: CHALKY;
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL MOLDS, MOLLUSKS;

759 - 769 AS ABOVE
INTERBEDDED FINE/COARSE CALCARENITE WITH VARIABLE FOSSIL ABUNDANCE; MINOR VERTICAL FRACTURES; FORAMS COMMON.

769 - 779 CALCARENITE; VERY LIGHT ORANGE; 05% POROSITY, INTERGRANULAR, PIN POINT VUGS,
LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
SEDIMENTARY STRUCTURES: MASSIVE,
OTHER FEATURES: CHALKY;
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL MOLDS;

779 - 789 CALCARENITE; VERY LIGHT ORANGE; 05% POROSITY, INTERGRANULAR, PIN POINT VUGS, FRACTURE;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
SEDIMENTARY STRUCTURES: MASSIVE,
OTHER FEATURES: CHALKY;
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL MOLDS, MOLLUSKS;
SUB-VERTICAL TO VERTICAL FRACTURES COMMON.

789 - 799 AS ABOVE

799 - 808 CALCARENITE; VERY LIGHT ORANGE; 05% POROSITY, INTERGRANULAR, PIN POINT VUGS,
LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
SEDIMENTARY STRUCTURES: MASSIVE,
OTHER FEATURES: CHALKY;
FOSSILS: BENTHIC FORAMINIFERA, VERTEBRATE;

808 - 812.5 CALCARENITE; VERY LIGHT ORANGE; 15% POROSITY, MOLDIC, PIN POINT VUGS, INTERGRANULAR;
GRAIN TYPE: BIOGENIC, SKELETAL, CALCILUTITE;
GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
SEDIMENTARY STRUCTURES: MASSIVE, BIOTURBATED,
ACCESSORY MINERALS: CALCITE-01%, DOLOMITE-01%;
OTHER FEATURES: CHALKY;
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL MOLDS, MOLLUSKS, ORGANICS;

812.5- 820 CALCARENITE; ; 10% POROSITY, MOLDIC, PIN POINT VUGS, INTERGRANULAR;
GRAIN TYPE: BIOGENIC, SKELETAL, CALCILUTITE;
GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
SEDIMENTARY STRUCTURES: MASSIVE,
ACCESSORY MINERALS: CALCITE-01%;
OTHER FEATURES: CHALKY;
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL MOLDS, MOLLUSKS;

820 - 829 CALCARENITE; VERY LIGHT ORANGE; 10% POROSITY, INTERGRANULAR, PIN POINT VUGS, FRACTURE;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
SEDIMENTARY STRUCTURES: MASSIVE,
ACCESSORY MINERALS: CALCITE-01%;
OTHER FEATURES: CHALKY;
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL MOLDS;

829 - 839 AS ABOVE
FRACTURES COMMON.

839 - 849 CALCARENITE; VERY LIGHT ORANGE; 05% POROSITY, INTERGRANULAR, PIN POINT VUGS, FRACTURE;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
SEDIMENTARY STRUCTURES: MASSIVE,
ACCESSORY MINERALS: CALCITE-01%;
OTHER FEATURES: CHALKY;
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL MOLDS;

849 - 859 CALCARENITE; VERY LIGHT ORANGE TO MODERATE PINK; 01% POROSITY, PIN POINT VUGS, FRACTURE;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
SEDIMENTARY STRUCTURES: MASSIVE,
ACCESSORY MINERALS: CALCITE-01%, DOLOMITE-01%;
OTHER FEATURES: CHALKY, DOLOMITIC;
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL MOLDS, FOSSIL FRAGMENTS, MOLLUSKS;

859 - 865.5 CALCARENITE; VERY LIGHT ORANGE TO YELLOWISH GRAY; 05% POROSITY, INTERGRANULAR,
PIN POINT VUGS, LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
SEDIMENTARY STRUCTURES: MASSIVE,
ACCESSORY MINERALS: DOLOMITE-05%, CALCITE-01%;
OTHER FEATURES: DOLOMITIC, CHALKY;
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL MOLDS, FOSSIL FRAGMENTS, MOLLUSKS;

865.5- 871 CALCARENITE; YELLOWISH GRAY TO VERY LIGHT ORANGE; 05% POROSITY, INTERGRANULAR,
PIN POINT VUGS, LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: MASSIVE, MOTTLED,
ACCESSORY MINERALS: DOLOMITE-05%, CALCITE-02%;
OTHER FEATURES: DOLOMITIC, SUCROSIC, CHALKY;
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL MOLDS, FOSSIL FRAGMENTS, MOLLUSKS;

871 - 875 CALCARENITE; YELLOWISH GRAY TO GRAYISH ORANGE; 05% POROSITY, INTERGRANULAR, PIN POINT VUGS,
VUGULAR;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: MASSIVE, MOTTLED,
ACCESSORY MINERALS: DOLOMITE-20%, CALCITE-01%;
OTHER FEATURES: DOLOMITIC, SUCROSIC;
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL MOLDS, FOSSIL FRAGMENTS, MOLLUSKS, ORGANICS;

875 - 879 DOLOSTONE; GRAYISH ORANGE TO YELLOWISH GRAY; 10% POROSITY, INTERCRYSTALLINE, MOLDIC,
PIN POINT VUGS; 50-90% ALTERED; SUBHEDRAL;
GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: MASSIVE, MOTTLED, STREAKED,
ACCESSORY MINERALS: LIMESTONE-05%, CALCITE-01%;
OTHER FEATURES: CALCAREOUS, CHALKY;
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL MOLDS, FOSSIL FRAGMENTS, MOLLUSKS, ORGANICS;

879 - 882 CALCARENITE; YELLOWISH GRAY TO GRAYISH ORANGE; 05% POROSITY, INTERGRANULAR, PIN POINT VUGS, INTERCRYSTALLINE;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: MASSIVE, MOTTLED,
ACCESSORY MINERALS: DOLOMITE-30%, CALCITE-01%;
OTHER FEATURES: DOLOMITIC;
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL MOLDS, FOSSIL FRAGMENTS, MOLLUSKS, ORGANICS;

882 - 890.5 DOLOSTONE; YELLOWISH GRAY TO GRAYISH BROWN; 10% POROSITY, MOLDIC, PIN POINT VUGS, LOW PERMEABILITY; 50-90% ALTERED; SUBHEDRAL;
GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: MASSIVE,
OTHER FEATURES: SUCROSIC, CHALKY;
FOSSILS: FOSSIL MOLDS, BENTHIC FORAMINIFERA, ORGANICS;

890.5- 896 DOLOSTONE; YELLOWISH GRAY TO GRAYISH BROWN; 05% POROSITY, MOLDIC, PIN POINT VUGS, LOW PERMEABILITY; 50-90% ALTERED; SUBHEDRAL;
GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: MASSIVE,
OTHER FEATURES: SUCROSIC, CHALKY;
FOSSILS: FOSSIL MOLDS, BENTHIC FORAMINIFERA;

896 - 902 DOLOSTONE; YELLOWISH GRAY TO GRAYISH BROWN; 10% POROSITY, MOLDIC, PIN POINT VUGS, FRACTURE; 50-90% ALTERED; SUBHEDRAL;
GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: MASSIVE, MOTTLED,
OTHER FEATURES: SUCROSIC, CHALKY;
FOSSILS: FOSSIL MOLDS, BENTHIC FORAMINIFERA;

902 - 908 CALCARENITE; YELLOWISH GRAY TO VERY LIGHT ORANGE; 05% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC;
MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: MASSIVE,
OTHER FEATURES: DOLOMITIC;
FOSSILS: FOSSIL MOLDS, BENTHIC FORAMINIFERA, ECHINOID, FOSSIL FRAGMENTS;
GEOLOGIST J. DECKER PICKS 905' AS TOP OF AVON PARK IN CUTTINGS.

908 - 914 DOLOSTONE; YELLOWISH GRAY TO GRAYISH BROWN; 10% POROSITY, MOLDIC, PIN POINT VUGS, FRACTURE;
50-90% ALTERED; SUBHEDRAL;
GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: MASSIVE,
OTHER FEATURES: GRANULAR, SUCROSIC;
FOSSILS: FOSSIL MOLDS, ECHINOID, BENTHIC FORAMINIFERA;

914 - 919 CALCARENITE; YELLOWISH GRAY TO VERY LIGHT ORANGE; 10% POROSITY, INTERGRANULAR,
PIN POINT VUGS;
GRAIN TYPE: BIOGENIC;
MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: MASSIVE,
OTHER FEATURES: DOLOMITIC;
FOSSILS: ECHINOID, FOSSIL MOLDS, BENTHIC FORAMINIFERA;

919 - 923 DOLOSTONE; YELLOWISH GRAY TO GRAYISH BROWN; 10% POROSITY, MOLDIC, PIN POINT VUGS,
INTERGRANULAR; 50-90% ALTERED; SUBHEDRAL;
GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: MASSIVE,
FOSSILS: FOSSIL MOLDS, ECHINOID, BENTHIC FORAMINIFERA;

923 - 929.5 CALCARENITE; VERY LIGHT ORANGE TO VERY DARK RED; 10% POROSITY, INTERGRANULAR, MOLDIC,
PIN POINT VUGS;
GRAIN TYPE: BIOGENIC;
MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: MASSIVE,
OTHER FEATURES: DOLOMITIC, CHALKY;
FOSSILS: FOSSIL MOLDS, ECHINOID;

929.5- 935 CALCARENITE; YELLOWISH GRAY TO VERY LIGHT ORANGE; 05% POROSITY, INTERGRANULAR,
LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC;
GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: MASSIVE, MOTTLED,
OTHER FEATURES: DOLOMITIC;
FOSSILS: FOSSIL MOLDS, BENTHIC FORAMINIFERA;

935 - 944 CALCARENITE; VERY LIGHT ORANGE; 10% POROSITY, INTERGRANULAR, PIN POINT VUGS;
GRAIN TYPE: BIOGENIC;
GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
SEDIMENTARY STRUCTURES: MASSIVE,
OTHER FEATURES: CHALKY;
FOSSILS: FOSSIL MOLDS, ECHINOID;

944 - 952 CALCARENITE; VERY LIGHT ORANGE TO YELLOWISH GRAY; 05% POROSITY, INTERGRANULAR,
PIN POINT VUGS, LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC;
SEDIMENTARY STRUCTURES: MASSIVE, INTERBEDDED, MOTTLED,
OTHER FEATURES: CHALKY;
FOSSILS: ECHINOID;
TOP OF AVON PARK FORMATION AT APPROXIMATELY 952'.

952 - 954 DOLOSTONE; YELLOWISH GRAY TO VERY LIGHT ORANGE; 05% POROSITY, INTERGRANULAR,
PIN POINT VUGS, LOW PERMEABILITY; 10-50% ALTERED; SUBHEDRAL;
GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
SEDIMENTARY STRUCTURES: INTERBEDDED, LAMINATED, MOTTLED, BIOTURBATED,
ACCESSORY MINERALS: LIMESTONE-40%;
OTHER FEATURES: CALCAREOUS, CHALKY;
FOSSILS: ORGANICS, NO FOSSILS;

954 - 955.5 CALCARENITE; VERY LIGHT ORANGE TO YELLOWISH GRAY; 05% POROSITY, INTERGRANULAR,
PIN POINT VUGS, LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC;
GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-20%;
OTHER FEATURES: CHALKY, DOLOMITIC;
FOSSILS: ORGANICS, ECHINOID;

955.5- 957.5 DOLOSTONE; GRAYISH ORANGE TO YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR,
PIN POINT VUGS; 10-50% ALTERED; SUBHEDRAL;
GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
SEDIMENTARY STRUCTURES: INTERBEDDED, LAMINATED,
ACCESSORY MINERALS: LIMESTONE-10%;
OTHER FEATURES: SUCROSIC, CALCAREOUS;
FOSSILS: FOSSIL MOLDS;

957.5- 959.5 CALCARENITE; YELLOWISH GRAY TO VERY LIGHT ORANGE; 05% POROSITY, INTERGRANULAR,
PIN POINT VUGS, LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC;
MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: MASSIVE, INTERBEDDED,
OTHER FEATURES: DOLOMITIC, CHALKY, GRANULAR;
FOSSILS: NO FOSSILS;

959.5- 964 DOLOSTONE; GRAYISH ORANGE TO GRAYISH BROWN; 10% POROSITY, MOLDIC, PIN POINT VUGS, INTERGRANULAR; 10-50% ALTERED; SUBHEDRAL;
GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
OTHER FEATURES: CHALKY, SUCROSIC;
FOSSILS: FOSSIL MOLDS, ORGANICS;

964 - 971 DOLOSTONE; GRAYISH ORANGE; 15% POROSITY, MOLDIC, PIN POINT VUGS;
50-90% ALTERED; SUBHEDRAL;
GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: INTERBEDDED,
OTHER FEATURES: SUCROSIC, CALCAREOUS;
FOSSILS: FOSSIL MOLDS;

971 - 976.5 CALCARENITE; VERY LIGHT ORANGE; 15% POROSITY, INTERGRANULAR, PIN POINT VUGS;
GRAIN TYPE: BIOGENIC;
GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
SEDIMENTARY STRUCTURES: INTERBEDDED, LAMINATED,
OTHER FEATURES: CHALKY;
FOSSILS: FOSSIL MOLDS, BENTHIC FORAMINIFERA;

976.5- 978 DOLOSTONE; GRAYISH ORANGE TO VERY LIGHT ORANGE; 10% POROSITY, INTERGRANULAR, PIN POINT VUGS;
GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: INTERBEDDED, BIOTURBATED, LAMINATED,
ACCESSORY MINERALS: DOLOMITE-20%;
OTHER FEATURES: CHALKY, VARVED, DOLOMITIC;
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, ORGANICS;

978 - 983 CALCARENITE; VERY LIGHT ORANGE; 20% POROSITY, MOLDIC, PIN POINT VUGS, INTERGRANULAR;
GRAIN TYPE: BIOGENIC, PELLET;
GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
SEDIMENTARY STRUCTURES: INTERBEDDED, LAMINATED, MASSIVE,
OTHER FEATURES: CHALKY;
FOSSILS: FOSSIL MOLDS, FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA, CONES;
DICTYOCONUS.

983 - 987 CALCARENITE; VERY LIGHT ORANGE TO GRAYISH ORANGE; 10% POROSITY, INTERGRANULAR, PIN POINT VUGS, FRACTURE;
GRAIN TYPE: BIOGENIC;
GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
SEDIMENTARY STRUCTURES: INTERBEDDED, LAMINATED,
OTHER FEATURES: DOLOMITIC, CHALKY;
FOSSILS: NO FOSSILS;

987 - 999.5 DOLOSTONE; GRAYISH ORANGE; 15% POROSITY, MOLDIC, PIN POINT VUGS,
INTERGRANULAR; 50-90% ALTERED; SUBHEDRAL;
GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
SEDIMENTARY STRUCTURES: INTERBEDDED, MOTTLED,
ACCESSORY MINERALS: LIMESTONE- %;
OTHER FEATURES: CALCAREOUS, SUCROSIC;
FOSSILS: FOSSIL MOLDS;

999.5- 1001 DOLOSTONE; GRAYISH ORANGE TO LIGHT YELLOWISH ORANGE; 10% POROSITY, INTERGRANULAR, FRACTURE,
INTERCRYSTALLINE; 50-90% ALTERED; SUBHEDRAL;
GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: MASSIVE,
ACCESSORY MINERALS: CALCILUTITE- %;
OTHER FEATURES: GRANULAR, SUCROSIC;
FOSSILS: NO FOSSILS, ORGANICS;

1001 - 1003 DOLOSTONE; GRAYISH ORANGE TO GRAYISH BROWN; 20% POROSITY, VUGULAR, PIN POINT VUGS,
INTERCRYSTALLINE; 50-90% ALTERED; SUBHEDRAL;
GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: MOTTLED, INTERBEDDED,
OTHER FEATURES: HIGH RECRYSTALLIZATION, GRANULAR, SUCROSIC;
FOSSILS: FOSSIL MOLDS, ORGANICS, BENTHIC FORAMINIFERA;

1003 - 1007 DOLOSTONE; GRAYISH ORANGE; 10% POROSITY, INTERGRANULAR, INTERCRYSTALLINE;
50-90% ALTERED; SUBHEDRAL;
MODERATE INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: MOTTLED, BIOTURBATED,
OTHER FEATURES: GRANULAR, SUCROSIC;
FOSSILS: FOSSIL MOLDS, ORGANICS, BENTHIC FORAMINIFERA, ECHINOID;

1007 - 1009 DOLOSTONE; GRAYISH ORANGE TO GRAYISH BROWN; 15% POROSITY, MOLDIC,
PIN POINT VUGS; 50-90% ALTERED; SUBHEDRAL;
GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: MASSIVE,
OTHER FEATURES: HIGH RECRYSTALLIZATION, GRANULAR;
FOSSILS: FOSSIL MOLDS, BENTHIC FORAMINIFERA, ORGANICS, ECHINOID;

1009 - 1013 DOLOSTONE; GRAYISH ORANGE TO LIGHT YELLOWISH ORANGE; 10% POROSITY, INTERGRANULAR, VUGULAR,
FRACTURE; 50-90% ALTERED; SUBHEDRAL;
MODERATE INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: MOTTLED, MASSIVE,
OTHER FEATURES: GRANULAR, SUCROSIC;
FOSSILS: FOSSIL MOLDS, BENTHIC FORAMINIFERA, ORGANICS;

1013 - 1018 DOLOSTONE; GRAYISH BROWN TO GRAYISH ORANGE; 10% POROSITY, INTERGRANULAR, PIN POINT VUGS, FRACTURE; 50-90% ALTERED; SUBHEDRAL;
GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: INTERBEDDED, MOTTLED,
OTHER FEATURES: GRANULAR, SUCROSIC;
FOSSILS: FOSSIL MOLDS, BENTHIC FORAMINIFERA, ORGANICS;

1018 - 1024.5 DOLOSTONE; GRAYISH ORANGE TO LIGHT YELLOWISH ORANGE; 10% POROSITY, INTERGRANULAR, FRACTURE; 50-90% ALTERED; SUBHEDRAL;
GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: INTERBEDDED, LAMINATED, MOTTLED,
FOSSILS: FOSSIL MOLDS, ORGANICS;

1024.5- 1033 DOLOSTONE; GRAYISH ORANGE TO GRAYISH BROWN; 10% POROSITY, INTERGRANULAR, FRACTURE, LOW PERMEABILITY; 50-90% ALTERED; SUBHEDRAL;
GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: INTERBEDDED, MOTTLED,
ACCESSORY MINERALS: CALCILUTITE- %;
OTHER FEATURES: GRANULAR;
FOSSILS: FOSSIL MOLDS, ECHINOID;

1033 - 1035 DOLOSTONE; GRAYISH BROWN TO MODERATE YELLOWISH BROWN; 25% POROSITY, VUGULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY; 50-90% ALTERED; SUBHEDRAL;
GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: MASSIVE, INTERBEDDED, LAMINATED,
ACCESSORY MINERALS: CALCILUTITE- %;
FOSSILS: FOSSIL MOLDS;

1035 - 1038.5 DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN; 10% POROSITY, INTERGRANULAR, PIN POINT VUGS, FRACTURE; 50-90% ALTERED; SUBHEDRAL;
GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: INTERBEDDED, LAMINATED,
FOSSILS: FOSSIL MOLDS, BENTHIC FORAMINIFERA, ECHINOID, ORGANICS;

1038.5- 1044 DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN; 15% POROSITY, FRACTURE, PIN POINT VUGS; 50-90% ALTERED; SUBHEDRAL;
GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: INTERBEDDED, LAMINATED, MOTTLED,
FOSSILS: FOSSIL MOLDS, ORGANICS;

1044 - 1046.5 DOLOSTONE; GRAYISH BROWN TO GRAYISH ORANGE; 10% POROSITY, FRACTURE, MOLDIC, PIN POINT VUGS;
50-90% ALTERED; SUBHEDRAL;
GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: INTERBEDDED,
OTHER FEATURES: GRANULAR;
FOSSILS: FOSSIL MOLDS, ORGANICS;

1046.5- 1052.5 DOLOSTONE; GRAYISH BROWN TO GRAYISH ORANGE; 10% POROSITY, FRACTURE,
PIN POINT VUGS; 50-90% ALTERED; SUBHEDRAL;
GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: INTERBEDDED,
OTHER FEATURES: GRANULAR;
FOSSILS: FOSSIL MOLDS;

1052.5- 1054 DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN; 20% POROSITY, MOLDIC, FRACTURE,
POSSIBLY HIGH PERMEABILITY; 50-90% ALTERED; SUBHEDRAL;
GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: INTERBEDDED,
OTHER FEATURES: GRANULAR;
FOSSILS: FOSSIL MOLDS, ECHINOID, BENTHIC FORAMINIFERA, ORGANICS;

1054 - 1057 DOLOSTONE; DARK YELLOWISH BROWN TO GRAYISH BROWN; 10% POROSITY, PIN POINT VUGS, FRACTURE,
LOW PERMEABILITY; 50-90% ALTERED; SUBHEDRAL;
GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
OTHER FEATURES: GRANULAR, SUCROSIC;
FOSSILS: FOSSIL MOLDS, ORGANICS;

1057 - 1064 DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN; 10% POROSITY,
PIN POINT VUGS, FRACTURE; 50-90% ALTERED; SUBHEDRAL;
GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: INTERBEDDED,
ACCESSORY MINERALS: CALCILUTITE- %;
OTHER FEATURES: GRANULAR;
FOSSILS: FOSSIL MOLDS, ORGANICS;

1064 - 1074 DOLOSTONE; DARK YELLOWISH BROWN TO GRAYISH BROWN; 10% POROSITY, FRACTURE, VUGULAR,
PIN POINT VUGS; 50-90% ALTERED; SUBHEDRAL;
GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: BEDDED, BANDED,
ACCESSORY MINERALS: LIMESTONE- %;
OTHER FEATURES: HIGH RECRYSTALLIZATION;
FOSSILS: ORGANICS;

1074 - 1075 DOLOSTONE; DARK YELLOWISH BROWN TO YELLOWISH GRAY; 20% POROSITY, MOLDIC, INTERGRANULAR, FRACTURE; 50-90% ALTERED; SUBHEDRAL;
RANGE: CRYPTOCRYSTALLINE TO VERY FINE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SILICIC CEMENT, DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: BEDDED, LAMINATED, INTERBEDDED, LAMINATED,
ACCESSORY MINERALS: LIMESTONE-30%, HEMATITE- %;
OTHER FEATURES: CALCAREOUS, GRANULAR, WEATHERED, SUCROSIC, MEDIUM RECRYSTALLIZATION;
FOSSILS: ECHINOID, BENTHIC FORAMINIFERA, FOSSIL MOLDS;

1075 - 1080 DOLOSTONE; DARK YELLOWISH BROWN TO LIGHT BROWN; 21% POROSITY, MOLDIC, INTERGRANULAR, FRACTURE; 50-90% ALTERED; SUBHEDRAL;
RANGE: VERY FINE TO GRANULE; MODERATE INDURATION;
CEMENT TYPE(S): SILICIC CEMENT, PHOSPHATE CEMENT;
SEDIMENTARY STRUCTURES: BEDDED, LAMINATED, INTERBEDDED,
ACCESSORY MINERALS: LIMESTONE-40%;
OTHER FEATURES: CALCAREOUS, SUCROSIC, WEATHERED, SUCROSIC, MEDIUM RECRYSTALLIZATION;
FOSSILS: ECHINOID, BENTHIC FORAMINIFERA, FOSSIL MOLDS;
COSKINOLINA FLORIDANA.

1080 - 1085 DOLOSTONE; DARK YELLOWISH BROWN TO MODERATE BROWN; 30% POROSITY, MOLDIC, INTERGRANULAR, FRACTURE; 50-90% ALTERED; SUBHEDRAL;
RANGE: CRYPTOCRYSTALLINE TO VERY FINE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SILICIC CEMENT, DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: BEDDED, LAMINATED, INTERBEDDED,
ACCESSORY MINERALS: LIMESTONE-20%;
OTHER FEATURES: CALCAREOUS, GRANULAR, WEATHERED, SUCROSIC, MEDIUM RECRYSTALLIZATION;
FOSSILS: BENTHIC FORAMINIFERA;

1085 - 1090 DOLOSTONE; DARK YELLOWISH BROWN TO MODERATE BROWN; 29% POROSITY, MOLDIC, INTERGRANULAR, FRACTURE; 50-90% ALTERED; SUBHEDRAL;
RANGE: CRYPTOCRYSTALLINE TO VERY FINE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SILICIC CEMENT, DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: MOTTLED, BEDDED, LAMINATED, INTERBEDDED,
ACCESSORY MINERALS: LIMESTONE-40%;
OTHER FEATURES: CALCAREOUS, GRANULAR, WEATHERED, SUCROSIC, MEDIUM RECRYSTALLIZATION;
FOSSILS: MOLLUSKS, BENTHIC FORAMINIFERA, FOSSIL MOLDS, ECHINOID;

1090 - 1095 AS ABOVE

1095 - 1100 DOLOSTONE; VERY LIGHT ORANGE TO MODERATE BROWN; 38% POROSITY, MOLDIC, INTERGRANULAR, FRACTURE; 50-90% ALTERED; SUBHEDRAL;
RANGE: CRYPTOCRYSTALLINE TO VERY FINE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SILICIC CEMENT, DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: INTERBEDDED, BEDDED, LAMINATED,
ACCESSORY MINERALS: LIMESTONE-30%;
OTHER FEATURES: CALCAREOUS, GRANULAR, SUCROSIC, MEDIUM RECRYSTALLIZATION;
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL MOLDS;

1100 - 1105 DOLOSTONE; DARK YELLOWISH BROWN TO MODERATE BROWN; 39% POROSITY, INTERCRYSTALLINE, INTERGRANULAR, FRACTURE; 50-90% ALTERED; SUBHEDRAL;
RANGE: CRYPTOCRYSTALLINE TO VERY FINE; GOOD INDURATION;
CEMENT TYPE(S): SILICIC CEMENT, DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: INTERBEDDED, BEDDED, LAMINATED,
ACCESSORY MINERALS: LIMESTONE-10%;
OTHER FEATURES: GRANULAR, SUCROSIC, MEDIUM RECRYSTALLIZATION;

1105 - 1110 DOLOSTONE; BLACK TO MODERATE BROWN; 38% POROSITY, INTERCRYSTALLINE, INTERGRANULAR, FRACTURE; 50-90% ALTERED; SUBHEDRAL;
RANGE: CRYPTOCRYSTALLINE TO VERY FINE; GOOD INDURATION;
CEMENT TYPE(S): SILICIC CEMENT, DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: INTERBEDDED, BEDDED, LAMINATED,
ACCESSORY MINERALS: LIMESTONE-05%, GYPSUM- %;
OTHER FEATURES: GRANULAR, SUCROSIC, MEDIUM RECRYSTALLIZATION;
FOSSILS: FOSSIL MOLDS;

1110 - 1115 DOLOSTONE; DARK YELLOWISH BROWN TO MODERATE BROWN; INTERCRYSTALLINE, INTERGRANULAR, FRACTURE; 50-90% ALTERED; SUBHEDRAL;
RANGE: CRYPTOCRYSTALLINE TO VERY FINE; GOOD INDURATION;
CEMENT TYPE(S): SILICIC CEMENT, DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: INTERBEDDED, BEDDED, LAMINATED,
ACCESSORY MINERALS: LIMESTONE-15%;
OTHER FEATURES: GRANULAR, SUCROSIC, MEDIUM RECRYSTALLIZATION;
FOSSILS: FOSSIL MOLDS, BENTHIC FORAMINIFERA;

1115 - 1120 DOLOSTONE; BLACK TO MODERATE BROWN; INTERCRYSTALLINE, INTERGRANULAR, FRACTURE; 50-90% ALTERED; SUBHEDRAL;
RANGE: CRYPTOCRYSTALLINE TO VERY FINE; GOOD INDURATION;
CEMENT TYPE(S): SILICIC CEMENT, DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: MOTTLED, INTERBEDDED, BEDDED,
ACCESSORY MINERALS: LIMESTONE-20%;
OTHER FEATURES: GRANULAR, SUCROSIC, MEDIUM RECRYSTALLIZATION;
FOSSILS: BENTHIC FORAMINIFERA;

1120 - 1125 DOLOSTONE; BLACK TO MODERATE BROWN; INTERCRYSTALLINE, INTERGRANULAR, FRACTURE; 50-90% ALTERED; SUBHEDRAL;
RANGE: CRYPTOCRYSTALLINE TO VERY FINE; GOOD INDURATION;
CEMENT TYPE(S): SILICIC CEMENT, DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: MOTTLED, INTERBEDDED, BEDDED,
ACCESSORY MINERALS: LIMESTONE-15%;
OTHER FEATURES: GRANULAR, SUCROSIC, MEDIUM RECRYSTALLIZATION;
FOSSILS: BENTHIC FORAMINIFERA;

1125 - 1130 DOLOSTONE; BLACK TO MODERATE BROWN; PIN POINT VUGS, INTERGRANULAR, FRACTURE; 50-90% ALTERED; SUBHEDRAL;
RANGE: CRYPTOCRYSTALLINE TO VERY FINE; GOOD INDURATION;
CEMENT TYPE(S): SILICIC CEMENT, DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: MOTTLED, INTERBEDDED, BEDDED,
ACCESSORY MINERALS: LIMESTONE-20%;
OTHER FEATURES: GRANULAR, SUCROSIC, MEDIUM RECRYSTALLIZATION;
FOSSILS: BENTHIC FORAMINIFERA;

1130 - 1135 DOLOSTONE; BLACK TO MODERATE BROWN; PIN POINT VUGS, INTERGRANULAR, FRACTURE; 50-90% ALTERED; SUBHEDRAL;
RANGE: CRYPTOCRYSTALLINE TO VERY FINE; GOOD INDURATION;
CEMENT TYPE(S): SILICIC CEMENT, DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: LAMINATED, MOTTLED, INTERBEDDED, BEDDED,
ACCESSORY MINERALS: LIMESTONE-20%;
OTHER FEATURES: GRANULAR, SUCROSIC, MEDIUM RECRYSTALLIZATION;
FOSSILS: ECHINOID, BENTHIC FORAMINIFERA;

1135 - 1140 DOLOSTONE; DARK YELLOWISH BROWN TO MODERATE BROWN; PIN POINT VUGS, INTERGRANULAR, FRACTURE; 50-90% ALTERED; SUBHEDRAL;
RANGE: CRYPTOCRYSTALLINE TO VERY FINE; GOOD INDURATION;
CEMENT TYPE(S): SILICIC CEMENT, DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: MOTTLED, BEDDED,
ACCESSORY MINERALS: LIMESTONE-20%;
OTHER FEATURES: GRANULAR, SUCROSIC, MEDIUM RECRYSTALLIZATION;
FOSSILS: BENTHIC FORAMINIFERA;

1140 - 1145 DOLOSTONE; MODERATE OLIVE BROWN; 37% POROSITY, PIN POINT VUGS, INTERGRANULAR, FRACTURE; 50-90% ALTERED; SUBHEDRAL;
RANGE: CRYPTOCRYSTALLINE TO VERY FINE; GOOD INDURATION;
CEMENT TYPE(S): SILICIC CEMENT, DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: INTERBEDDED, MOTTLED, LAMINATED, BEDDED,
ACCESSORY MINERALS: LIMESTONE-20%;
OTHER FEATURES: GRANULAR, SUCROSIC, MEDIUM RECRYSTALLIZATION;
FOSSILS: BRYOZOA, FOSSIL MOLDS;

1145 - 1155 DOLOSTONE; LIGHT OLIVE GRAY TO VERY LIGHT ORANGE; 37% POROSITY, INTERCRYSTALLINE, INTERGRANULAR, FRACTURE; 50-90% ALTERED; SUBHEDRAL;
RANGE: CRYPTOCRYSTALLINE TO VERY FINE; GOOD INDURATION;
CEMENT TYPE(S): SILICIC CEMENT, DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: MOTTLED, LAMINATED, BEDDED,
ACCESSORY MINERALS: LIMESTONE-20%, CLAY- %, SILT- %;
OTHER FEATURES: GRANULAR, SUCROSIC, MEDIUM RECRYSTALLIZATION;
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS;

1155 - 1160 LIMESTONE; LIGHT BROWN TO VERY LIGHT ORANGE; 38% POROSITY, INTERGRANULAR, PIN POINT VUGS, FRACTURE;
GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS;
MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: INTERBEDDED,
ACCESSORY MINERALS: DOLOMITE-10%, SILT- %;
OTHER FEATURES: GRANULAR, WEATHERED, MEDIUM RECRYSTALLIZATION;
FOSSILS: SPICULES, ECHINOID, BENTHIC FORAMINIFERA, MOLLUSKS, FOSSIL MOLDS;
NUMMULITES, LEPIDOCYCLINA; DICTYOCONUS AMERICANUS?

1160 - 1165 DOLOSTONE; LIGHT BROWN; 38% POROSITY, INTERGRANULAR, PIN POINT VUGS;
10-50% ALTERED; SUBHEDRAL;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: BEDDED,
ACCESSORY MINERALS: LIMESTONE-05%;
OTHER FEATURES: GRANULAR, WEATHERED, MEDIUM RECRYSTALLIZATION;
FOSSILS: VERTEBRATE;

1165 - 1170 DOLOSTONE; LIGHT BROWN; 38% POROSITY, INTERGRANULAR, PIN POINT VUGS;
10-50% ALTERED; SUBHEDRAL;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION;
SEDIMENTARY STRUCTURES: MOTTLED, BEDDED,
ACCESSORY MINERALS: DOLOMITE- %, LIMESTONE- %, QUARTZ SAND- %;
OTHER FEATURES: GRANULAR, WEATHERED, MEDIUM RECRYSTALLIZATION;
FOSSILS: FOSSIL MOLDS;

1170 - 1175 DOLOSTONE; VERY LIGHT ORANGE TO LIGHT BROWN; 38% POROSITY, INTERGRANULAR,
PIN POINT VUGS; 10-50% ALTERED; SUBHEDRAL;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: BANDED, BEDDED,
ACCESSORY MINERALS: LIMESTONE- %;
OTHER FEATURES: GRANULAR, WEATHERED, MEDIUM RECRYSTALLIZATION;
FOSSILS: BENTHIC FORAMINIFERA;
NUMMULITES.

1175 - 1180 DOLOSTONE; VERY LIGHT ORANGE TO LIGHT BROWN; 39% POROSITY, INTERGRANULAR, PIN POINT VUGS, FRACTURE; 10-50% ALTERED; SUBHEDRAL;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: BEDDED,
ACCESSORY MINERALS: LIMESTONE- %;
OTHER FEATURES: GRANULAR, WEATHERED, MEDIUM RECRYSTALLIZATION;

1180 - 1185 DOLOSTONE; LIGHT BROWN; 38% POROSITY, VUGULAR, PIN POINT VUGS, POSSIBLY HIGH PERMEABILITY; 10-50% ALTERED; SUBHEDRAL;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: MASSIVE,
ACCESSORY MINERALS: LIMESTONE- %;
OTHER FEATURES: GRANULAR, WEATHERED, MEDIUM RECRYSTALLIZATION;
FOSSILS: BENTHIC FORAMINIFERA;

1185 - 1190 DOLOSTONE; VERY LIGHT ORANGE TO LIGHT BROWN; 38% POROSITY, VUGULAR, PIN POINT VUGS, POSSIBLY HIGH PERMEABILITY; 10-50% ALTERED; SUBHEDRAL;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: MASSIVE,
ACCESSORY MINERALS: LIMESTONE- %;
OTHER FEATURES: GRANULAR, WEATHERED, MEDIUM RECRYSTALLIZATION;
FOSSILS: ECHINOID, FOSSIL FRAGMENTS;

1190 - 1195 DOLOSTONE; LIGHT OLIVE TO MODERATE GRAY; 39% POROSITY, VUGULAR, PIN POINT VUGS, POSSIBLY HIGH PERMEABILITY; 10-50% ALTERED; SUBHEDRAL;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: BEDDED, MOTTLED,
ACCESSORY MINERALS: LIMESTONE-10%;
OTHER FEATURES: GRANULAR, WEATHERED, MEDIUM RECRYSTALLIZATION;

1195 - 1200 DOLOSTONE; VERY LIGHT ORANGE TO LIGHT BROWN; 39% POROSITY, VUGULAR, PIN POINT VUGS, POSSIBLY HIGH PERMEABILITY; 10-50% ALTERED; SUBHEDRAL;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: BEDDED,
ACCESSORY MINERALS: LIMESTONE-10%;
OTHER FEATURES: GRANULAR, WEATHERED, MEDIUM RECRYSTALLIZATION;

1200 - 1205 DOLOSTONE; MODERATE BROWN TO LIGHT BROWN; 39% POROSITY, POSSIBLY HIGH PERMEABILITY, INTERGRANULAR, PIN POINT VUGS; 10-50% ALTERED; SUBHEDRAL;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: BEDDED,
ACCESSORY MINERALS: LIMESTONE-10%, GYPSUM- %;
OTHER FEATURES: GRANULAR, WEATHERED, MEDIUM RECRYSTALLIZATION;

1205 - 1210 DOLOSTONE; MODERATE BROWN TO LIGHT BROWN; 38% POROSITY, POSSIBLY HIGH PERMEABILITY, INTERGRANULAR, PIN POINT VUGS; 10-50% ALTERED; SUBHEDRAL;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: BEDDED,
ACCESSORY MINERALS: LIMESTONE-10%, LIMESTONE- %;
OTHER FEATURES: GRANULAR, WEATHERED, MEDIUM RECRYSTALLIZATION;
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL MOLDS;

1210 - 1215 DOLOSTONE; LIGHT BROWN TO LIGHT OLIVE; 39% POROSITY, POSSIBLY HIGH PERMEABILITY, INTERGRANULAR, PIN POINT VUGS; 10-50% ALTERED; SUBHEDRAL;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: BEDDED,
ACCESSORY MINERALS: LIMESTONE-20%, GYPSUM- %;
OTHER FEATURES: GRANULAR, WEATHERED, MEDIUM RECRYSTALLIZATION;

1215 - 1220 DOLOSTONE; LIGHT BROWN TO LIGHT OLIVE; 38% POROSITY, POSSIBLY HIGH PERMEABILITY, INTERGRANULAR, PIN POINT VUGS; 10-50% ALTERED; SUBHEDRAL;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: BEDDED,
ACCESSORY MINERALS: LIMESTONE-15%, HEMATITE- %, SILT- %;
OTHER FEATURES: GRANULAR, WEATHERED, MEDIUM RECRYSTALLIZATION;
FOSSILS: ORGANICS, ECHINOID;

1220 - 1225 DOLOSTONE; LIGHT BROWN TO OLIVE GRAY; 39% POROSITY, INTERGRANULAR, PIN POINT VUGS; 10-50% ALTERED; SUBHEDRAL;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: BEDDED,
ACCESSORY MINERALS: LIMESTONE-05%, CLAY- %;
OTHER FEATURES: GRANULAR, WEATHERED, MEDIUM RECRYSTALLIZATION;
FOSSILS: ECHINOID;

1225 - 1230 AS ABOVE

1230 - 1235 DOLOSTONE; VERY LIGHT ORANGE TO LIGHT BROWN; 39% POROSITY, POSSIBLY HIGH PERMEABILITY, INTERGRANULAR, PIN POINT VUGS; 10-50% ALTERED; SUBHEDRAL;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: BEDDED,
ACCESSORY MINERALS: LIMESTONE-05%, HEMATITE- %, CLAY- %, SILT- %;
OTHER FEATURES: GRANULAR, WEATHERED, MEDIUM RECRYSTALLIZATION;
FOSSILS: ECHINOID, BENTHIC FORAMINIFERA;

1235 - 1240 DOLOSTONE; VERY LIGHT ORANGE TO LIGHT BROWN; 39% POROSITY, POSSIBLY HIGH PERMEABILITY, INTERGRANULAR, PIN POINT VUGS; 10-50% ALTERED; SUBHEDRAL;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: BEDDED,
ACCESSORY MINERALS: LIMESTONE-05%, GYPSUM- %, SILT- %;
OTHER FEATURES: GRANULAR, WEATHERED, MEDIUM RECRYSTALLIZATION;

1240 - 1245 DOLOSTONE; LIGHT BROWN TO MODERATE BROWN; 38% POROSITY, INTERGRANULAR, PIN POINT VUGS; 10-50% ALTERED; SUBHEDRAL;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: BEDDED,
ACCESSORY MINERALS: HEMATITE- %, QUARTZ- %;
OTHER FEATURES: GRANULAR, WEATHERED;
FOSSILS: ORGANICS;

1245 - 1250 DOLOSTONE; VERY LIGHT ORANGE TO LIGHT BROWN; 38% POROSITY, INTERGRANULAR, PIN POINT VUGS; 10-50% ALTERED; SUBHEDRAL;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION;
SEDIMENTARY STRUCTURES: BEDDED, BEDDED,
ACCESSORY MINERALS: LIMESTONE-05%, SILT- %;
OTHER FEATURES: GRANULAR, WEATHERED, MEDIUM RECRYSTALLIZATION;

1250 - 1255 AS ABOVE

1255 - 1260 DOLOSTONE; LIGHT BROWN TO MODERATE BROWN; 37% POROSITY, INTERGRANULAR, PIN POINT VUGS; 10-50% ALTERED; SUBHEDRAL;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: INTERBEDDED, LAMINATED, BEDDED,
ACCESSORY MINERALS: LIMESTONE-10%, DOLOMITE- %;
OTHER FEATURES: GRANULAR, WEATHERED, MEDIUM RECRYSTALLIZATION;
FOSSILS: ORGANICS;

1260 TOTAL DEPTH