EXECUTIVE SUMMARY
LP-3 (Marsh Bend Park), Basin 19
19-020-033; S30,T19S,R21 1/2E

September 1, 1987 G. L. Henderson

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II. TYPE AND PURPOSE OF MONITOR
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I. SITE LOCATION

The LP-3 wellsite is located about one mile west of the body of water named Lake Panasoffkee, in Sumter County, Florida. The wellsite can be found by proceeding approximately 5.25 miles west on S.R. 470 from Interstate 75 at the Lake Panasoffkee exit (Site Location Map). The wellsite is located on the west side of S.R. 470 in Marsh Bend Park (about 660 feet north of Outlet River Bridge). The wellsite encompasses a 20' x 30' perpetual easement. The LP-3 wellsite is located in the NW 1/4 of SW 1/4 of SW 1/4 of Section 30, Township 19 South, Range 21 1/2 East; at latitude 28° 48' 10.86" North, longitude 82° 09' 12.66" West.

II. TYPE AND PURPOSE OF MONITOR

The Floridan Monitor will monitor and record any fluctuations in the potentiometric surface (hydrostatic level) of the Floridan aquifer.

Comparison of the recorded water levels (hydrostatic levels) for the Floridan Monitor and Lake Panasoffkee will provide long term information on the hydrologic characteristics exhibited by the groundwater system in the Lake Panasoffkee region. Correlation of LP-3 data with the other LP (Lake Panasoffkee) series wellsites might provide some groundwater flow patterns for the area around Lake Panasoffkee. The LP series wellsites were drilled only to provide regional background data for the Lake Panasoffkee study being conducted by the Resource Evaluation Section.

III. GEOLOGY

The LP-3 wellsite is located in the Tsala Apopka Plain, a physiographic subprovince of the Coastal Highlands topographic province in peninsular Florida. The Tsala Apopka Plain (Figure 1) is bounded on the west by the southern outlier of

the Brooksville Ridge and on the east by the Western Valley subprovince, as defined by W. A. White (1958, Bull. 41). The Tsala Apopka Plain's major drainage pattern is northerly in direction through the coast-parallel stream known as the Withlacoochee River.

The Withlacoochee River flows essentially parallel (NW-SE trend) with the strike of the limestone bedrock as determined by the flank of the Ocala Uplift, a structural feature believed to have occurred during the Tertiary time period (Figure 2). However, near Dunellon the Withlacoochee River abruptly veers left and flows westerly to the Gulf of Mexico. According to White (1958, Bull. 41), the Withlacoochee River owes its present escape route through the Brooksville Ridge to a newly formed gap (Dunellon Gap) produced by solution of limestone beneath that sand ridge.

White believed that a large freshwater lake once occupied that area today known as the Tsala Apopka Plain. At that time, the Withlacoochee River probably drained southeastward via the Hillsborough River to greater Tampa Bay, the largest estuary on the west coast of peninsular Florida. This ancestral lake, of which Lake Tsala Apopka and Lake Panasoffkee are remnants, would have assisted the passage of groundwater through permeable parts of the Brooksville Ridge from landward to seaward (NE-SW trend). This would eventually have opened a subterranean passage of sufficient crossectional area to drain the ancestral lake and facilitate the reversal of flow in the coast-parallel segment of the Withlacoochee River.

Vernon (1951, Bull. 33) showed a fault (NE-SW trend) passing through the Brooksville Ridge at this point which also could have facilitated the leakage of groundwater from the high northwestern side to the lower southwestern side. Solution would have been aided by the fact that water leaking through the ridge should have been mostly lake water which is usually more acidic than ordinary groundwater. White further substantiates the above-described suppositions with numerous subjective evidence (1958, Bull. 41) that will not be elaborated upon in this report.

The LP-3 wellsite is located on a thin veneer of quartz sands lying on the karstic limestones of the Ocala Group (1951, Bull. 33) at a surveyed elevation of

50.40 feet above NGVD (of 1929). The lithology for this wellsite was described utilizing hollow-stem auger samples (LSD-18.5') and wireline core samples (24.5'-154.5'). Unfortunately, no lithologic samples were collected for the 18.5'-24.5' interval due to lost circulation in the borehole. The below described stratigraphic sequence for the LP-3 wellsite was derived by correlation of the lithologic sample descriptions and the geophysical logs performed on the borehole.

DEPTH (Ft. below LSD)	STRATIGRAPHIC UNIT (Age)	LITHOLOGIC DESCRIPTION
LSD - 4.5'	UNDIFFERENTIATED SURFICIAL DEPOSITS (Pleistocene)	QUARTZ SAND= light gray-brown, subangular-rounded, fine-medium grained, unconsolidated, some organic staining at top of section; 30% intergranular porosity, high permeability. QUARTZ SAND=pale brown-grayish orange, subangular-rounded, fine-medium grained, poorly indurated, slightly clayey, trace iron staining; 25% intergranular porosity, low permeability.
4.5' - 9.6'	ALACHUA FORMATION (Miocene)	CLAY=light gray-light olive gray-grayish orange, poorly indurated, greasy, montmorillonitic clay; 15-18% porosity, low permeability. LIMESTONE RESIDUUM FRAGMENTS =offwhite-yellowish gray, moderately indurated, slightly chalky-splintery, calcilutite; 10% intergranular porosity, low permeability.
9.6' - 44.5'	OCALA GROUP (Upper Eocene)	LIMESTONE=very pale orange-yellowish gray moderately-highly indurated, chalky-granular millioloidal-echinoidal (Periarchus lyelli floridanus) calcarenite; 5-18% intergranular-moldic porosity, moderate-high permeability

44.5'-154.5' (T.D.)	AVON PARK FORMATION (Middle Eocene)	LIMESTONE=very pale orange-yellowish gray light olive gray, moderately- highly indurated chalky-granular-greasy in parts, millioloidal calcarenite, trace peatic-lignitic laminations 5-10% intergranular-moldic porosity, low-moderate permeability. DOLOMITE=medium light gray-yellowish gray dusky yellow, moderately indurated, splintery sucrosic, millioloidal-echinoidal (Peronella dalli) dolomite, some peatic-lignitic laminations; 2-14% intergranular-moldic porosity, low-high permeability. CLAY=dark yellowish brown-light olive gray-olive gray, moderately indurated, calcareous, greasy-waxy, organic clay, some embedded limestone fragments; 7% porosity, low permeability.

IV. HYDROGEOLOGY AND WATER QUALITY

The hydrology of the Lake Panasoffkee region is variable due to the hydrogeologic properties of the unconsolidated deposits found above the limestones of the Floridan aquifer. In some areas, the Surficial aquifer is found to be confined by clays (or clayey sands) to the unconsolidated sand deposits lying above the limestones of the Floridan aquifer; thus the water table and the Floridan's potentiometric surface are disparate. In other areas, these unconsolidated sand deposits are hydraulically connected to the limestones of the Floridan aquifer; thus the water table and the Floridan's potentiometric surface are coincident.

At the LP-3 wellsite, the relatively thin veneer of unconsolidated sand deposits appeared to be hydraulically connected to the limestones of the Floridan aquifer; thus the water table and the Floridan's potentiometric surface should be coincident. The preceding statement is substantiated through a comparison of measured water levels for the nearby Outlet River (connecting Lake Panasoffkee to the Withlacoochee River) and the Floridan Monitor constructed at the LP-3 wellsite. On February 2, 1987 the water levels recorded (by Ron Vanlerberghe, Data Collection) for the Outlet River and the Floridan Monitor were 40.01 feet (9:35 a.m.)

and 40.21 feet (9:30 a.m.) above NGVD, respectively. Also, several small springs are known to discharge from the limestones of the Floridan aquifer that line the bottom of the Outlet River.

The Floridan aquifer was only partially penetrated during well construction at the LP-3 wellsite. The Floridan aquifer was found from 9.6 feet below LSD (40.8 feet above NGVD) to 154.5 feet below LSD (104.1 feet below NGVD) at the LP-3 wellsite. The Floridan aquifer was composed primarily of moderately-highly indurated, calcarenitic limestones and moderately indurated dolomites of the Ocala Group and the Avon Park Formation.

Porosity values for the limestones of the Ocala Group ranged from 5 to 18 percent with moderate to high permeability values. Porosity values for the limestones of the Avon Park Formation ranged from 5 to 10 percent with low to moderate permeability values. Porosity values for the dolomites of the Avon Park Formation ranged from 2 to 14 percent with low to high permeability values.

Drillers' well logs for this area indicated that almost all water supply wells were utilizing the limestones of the Floridan aquifer. However, many of these domestic and/or agricultural wells penetrated only a shallow portion of the Floridan aquifer. According to some local residents, supply wells more than 100-120 feet below LSD produced drinking water with a very disagreeable composition ("rotten egg" smell or taste).

During the construction of the test corehole, water quality samples from LSD to 134.5 feet below LSD exhibited conductivity values ranging from 550-700 micromhos per centimeter, chloride values ranging from 5-19 milligrams per liter, and sulfate values ranging from 4-51 milligrams per liter. Two of those water samples, one collected at 34.5 feet below LSD and the other collected at 114.5 feet below LSD, exhibited total dissolved solids' (TDS) values of 396 milligrams per liter and 372 milligrams per liter, respectively. Thus, the water quality for the LSD-134.5 feet interval is assumed to be potable.

During the construction of the test corehole, a water quality sample was collected at the total depth of 154.5 feet below LSD and submitted to Standard Complete Analysis. The water sample exhibited a conductivity value of 700

micromhos per centimeter, chloride value of 14 milligrams per liter, sulfate value of 92 milligrams per liter, and TDS value of 400 milligrams per liter. The sample also exhibited a very high fluoride value of 0.78 milligrams per liter.

Upon completion of the corehole and before its modification into the Floridan Monitor, a "thief " water quality sample was collected at the depth of 145 feet below LSD by the District's geophysical logger. The water quality sample exhibited a conductivity value of 850 micromhos per centimeter, chloride value of 3 milligrams per liter, and sulfate value of 188 milligrams per liter.

Since the water quality samples collected below 134.5 feet exhibited moderately high sulfate, fluoride, and TDS values, then the water quality for the 134.5-154.5 feet interval is assumed to be marginally non-potable.

V. WELL DESIGN AND CONSTRUCTION (See As-Built Well Design Diagram)

The Floridan Monitor was designed to monitor and record any fluctuations in the potentiometric surface (hydrostatic level) of the Floridan aquifer. The land elevation at the Floridan Monitor was surveyed to be 50.40 feet above NGVD. The Floridan's potentiometric surface was found 10.19 feet below LSD (40.21 feet above NGVD) when measured on February 2, 1987.

The driller initiated construction on the Floridan Monitor on May 28, 1986. The driller proceeded to drill a 10 inch nominal borehole utilizing the mud rotary method to 18.5 feet below LSD. The driller utilized the CME rig to set and cement-grout the 6 inch PVC surface casing (+1.8'-18.5').

After allowing the cement-grout to cure over the weekend, the driller proceeded to ream out the bottom cement left (2'-18.5') when the casing was grouted earlier. The driller utilized the water rotary method to drill (with 5 7/8 inch bit) to 24.5 feet below LSD in order to cleanse the borehole of cement and some rock cuttings; in anticipation of wireline coring the remaining rock interval. At 23.5 feet below LSD, a gradual loss of drilling fluids (approximately 500 gallons of water) occurred and all attempts to regain fluid circulation were to no avail. The driller did manage to drill to 24.5 feet below LSD before reaching total lost circulation of drilling fluids.

The driller proceeded to wireline core to 34.5 feet below LSD. At this point, it was decided (by ROMP site hydrologist and Resource Evaluation's project hydrologist) that the final casing (4 inch PVC) for the Floridan Monitor was to be set at the depth of 34.5 feet below LSD. In order to accommodate the above design, the driller was instructed to drill on mud rotary (with 5 7/8 inch bit) to 34.5 feet below LSD. At 31.5 feet below LSD, a sudden loss of drilling fluids occurred and all attempts to regain fluid circulation were to no avail. After consultation with the project hydrologist, it was decided that the final casing (4 inch PVC) would be set later at 31.5 feet below LSD, instead of 34.5 feet below LSD.

The driller then proceeded to wireline core to the total depth of 154.5 feet below LSD while collecting water quality at the appropriate depth intervals. The test corehole was logged by the District's geophysical logger before its modification into the Floridan Monitor.

Upon completion of the test corehole, the driller proceeded to modify it into the Floridan Monitor. Forty feet of 1 1/4 inch PVC wellscreen (0.030" slot) and eighty feet of 1 1/4 inch PVC casing coupled onto approximately thirty two feet of 4 inch PVC casing was inserted into the corehole (inside the preexisting 6 inch PVC casing). The 4 inch PVC casing will facilitate the installation of a "float" type water level recorder. The driller did not sandpack the well's annulus between the 4 inch and 6 inch casing, as the 4 inch casing (attached to the 1 1/4 inch PVC assemblage) is well supported by the rock shoulder at 31.5 feet below LSD. Also, the absence of the sandpack will facilitate the future anticipated plugging of the monitor well or future modifications of the monitor well to better suit District data needs.

After sufficient development by the driller, HTH (10% chlorine) was added to the borehole in order to disinfect the completed Floridan Monitor. All construction on the Floridan Monitor was completed by June 10, 1986.

VI. GEOPHYSICAL LOGS

Before the final casing assembly was inserted into the corehole, the District's geophysical logger ran a full suite of geophysical logs. The types of geophysical logs performed and their respective logging depth intervals are outlined below.

Geophysical Log Type	Borehole Interval (Feet)
Caliper	+1.8' - 148.5'
Temperature	12' - 150.5'
Fluid Conductivity	12' - 150.5'
Electric	+1.8' - 150.0'
Natural Gamma	+1.8' - 150.5'

REFERENCES

Barr, G. L. and Lewelling, B. R.; Potentiometric Surface Of The Upper Floridan Aquifer, West-Central Florida, May 1986; U. S. Geological Survey, Open-File Report #86-409.

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Gilboy, A. E.; March, 1985; Hydrogeology Of The Southwest Florida Water Management District; Regional Analysis/SWFWMD, Technical Report #85-01.

Puri, H. S.; November, 1957; Stratigraphy And Zonation Of The Ocala Group; Florida Geological Survey, Geological Bulletin #38.

Vernon, R. O.; 1951; Geology of Citrus And Levy Counties, Florida; Florida Geological Survey, Geological Bulletin #33.

White, W. A.; August, 1958; Some Geomorphic Features Of Central Peninsular Florida; Florida Bureau of Geology, Geological Bulletin #44.

White, W. A.; 1970; The Geomorphology Of The Florida Peninsula; Florida Bureau of Geology, Geological Bulletin #51.

(FIGURE 1) PHYSIOGRAPHIC MAP OF LAKE PANASOFFKEE REGION (White,1970)

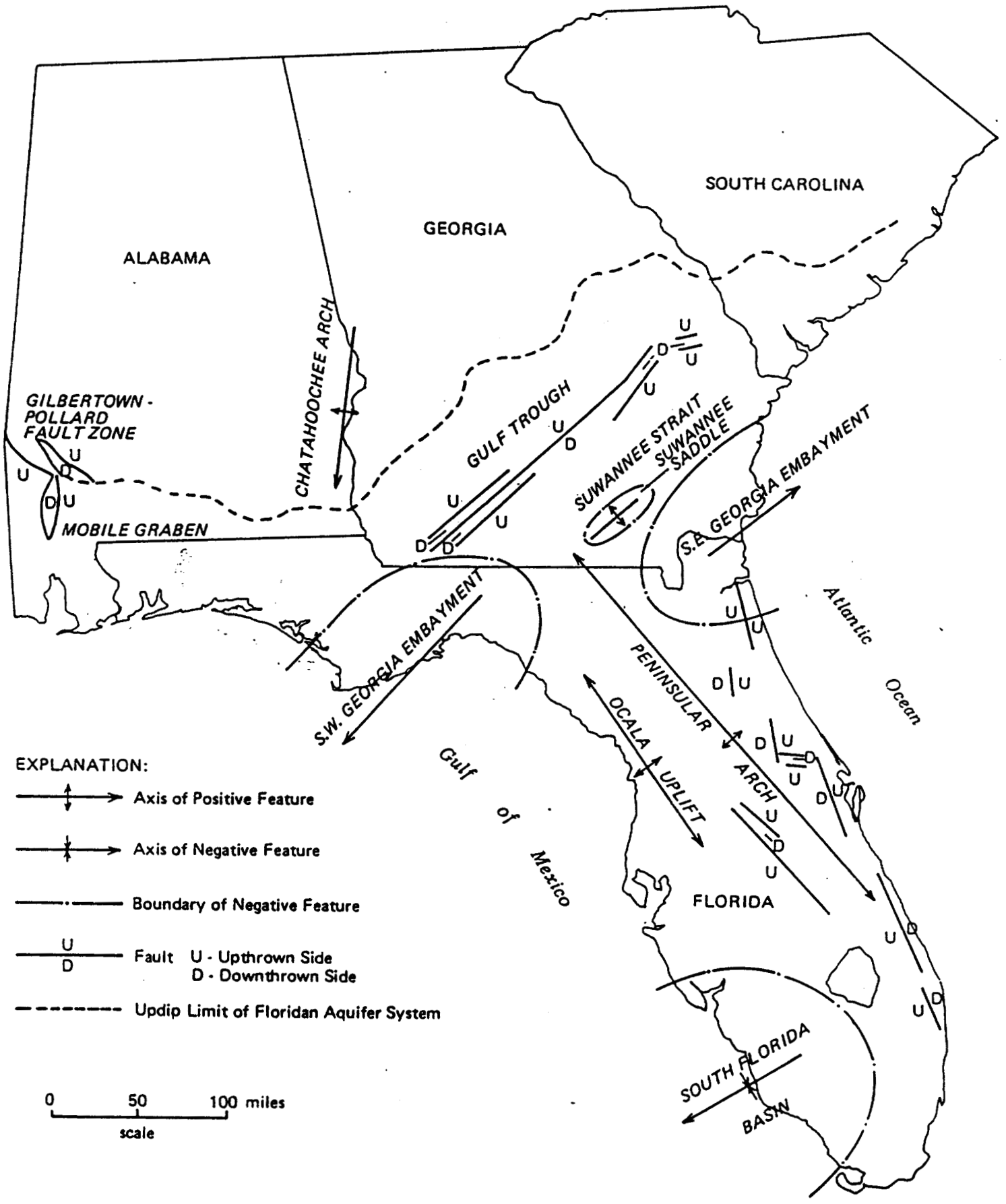
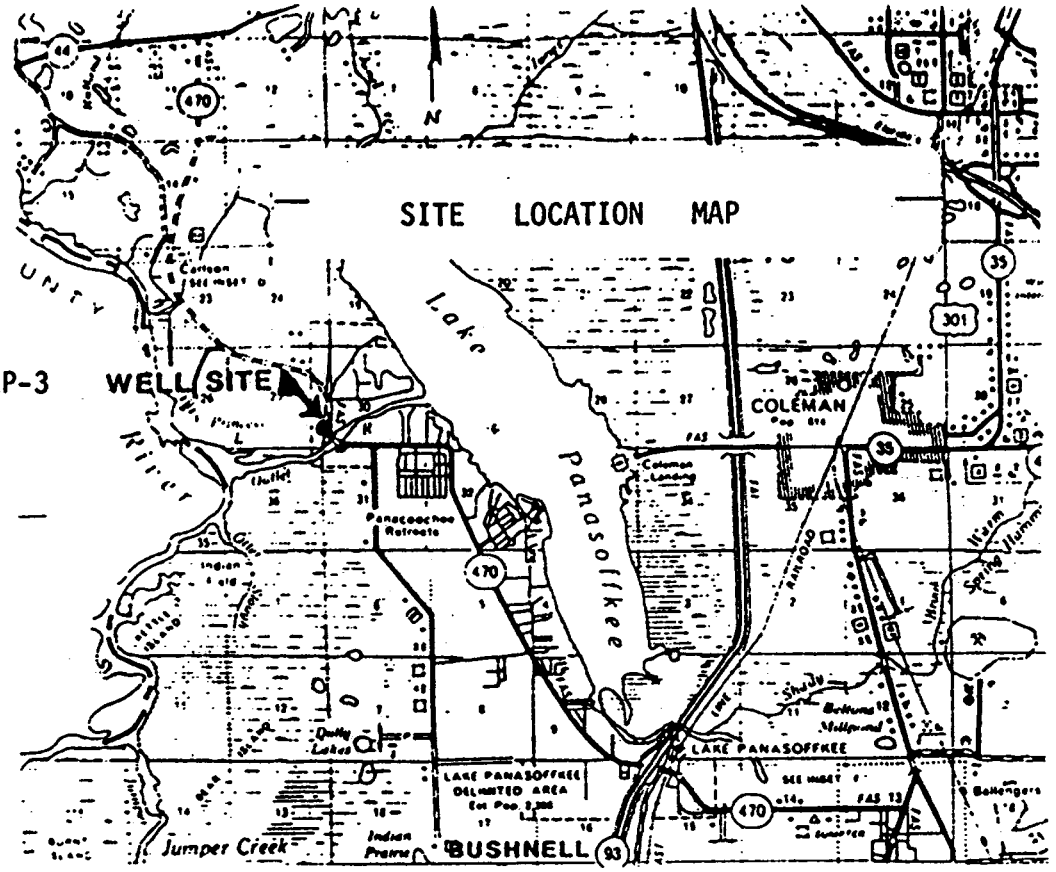
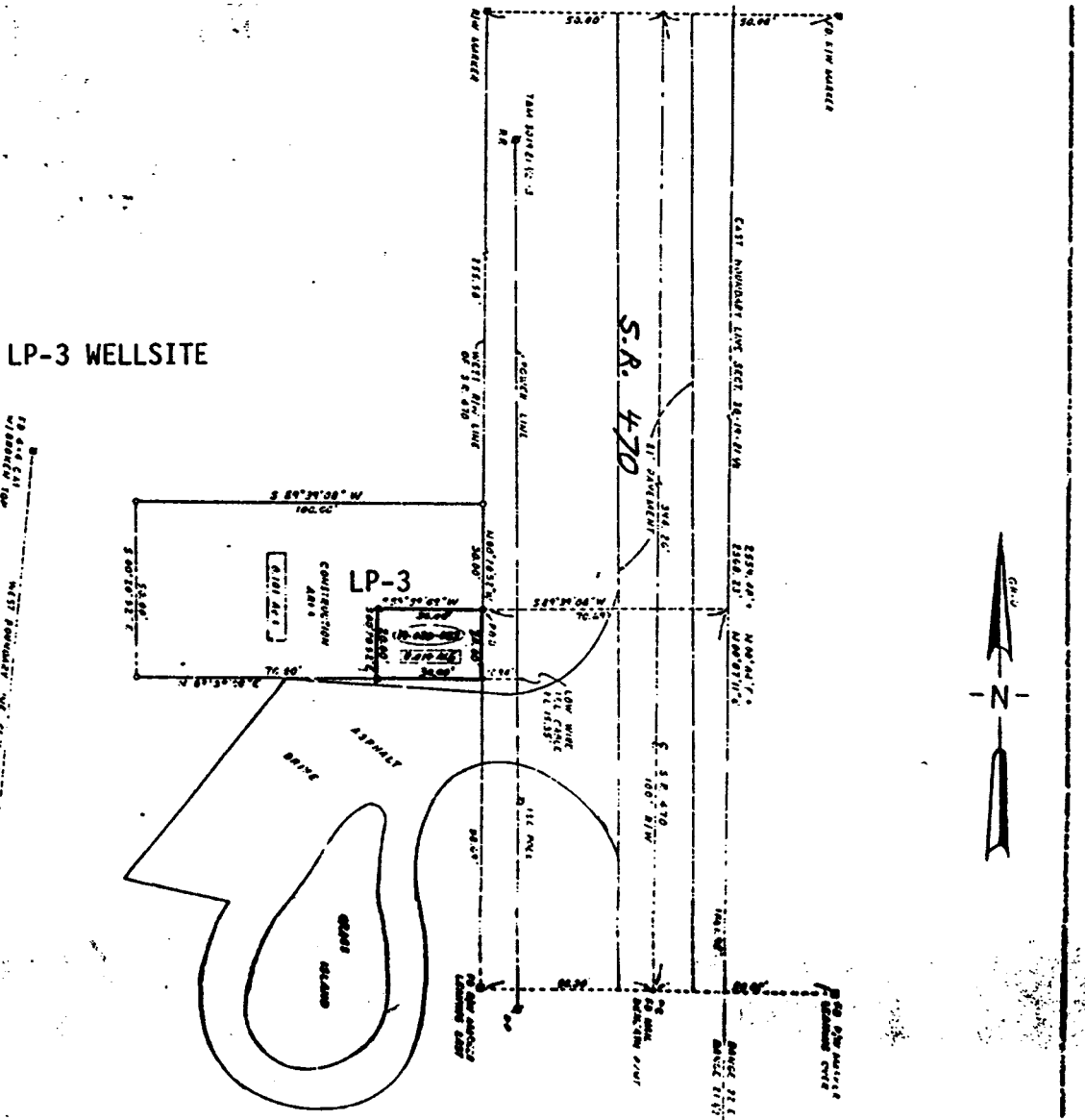


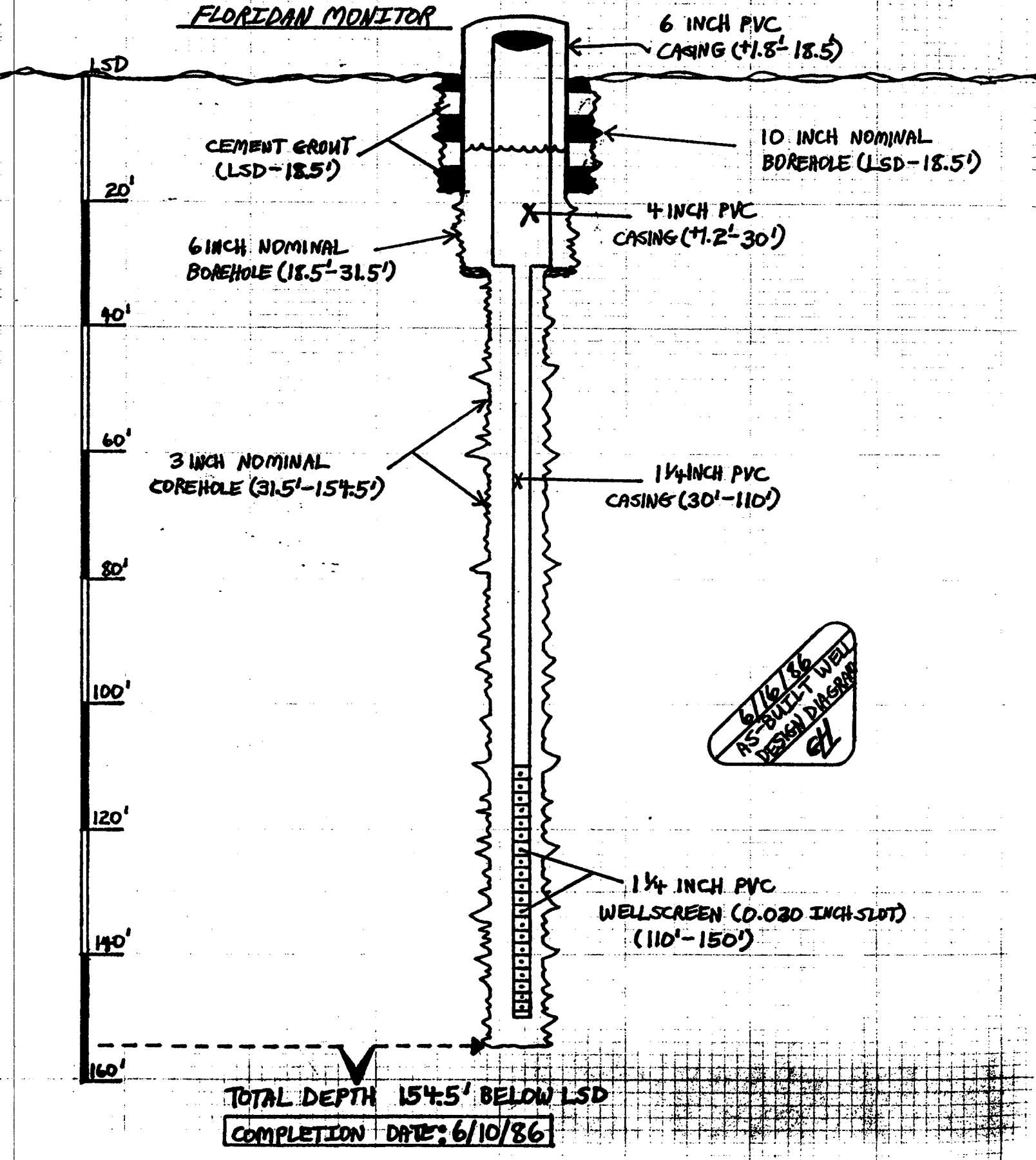
Figure 2. Structural Features that affect the Floridan Aquifer system (adapted from Miller, 1984)



ENLARGED VIEW OF LP-3 WELLSITE



LP-3 (MARSH BEND PARK) AS-BUILT WELL DESIGN DIAGRAM



LITHOLOGIC WELL LOG PRINTOUT SOURCE - SWFW

WELL NUMBER: W-16006 COUNTY - SUMTER
TOTAL DEPTH: 00150 FT. LOCATION: T.19S R.21E S.30 CC
SAMPLES - NONE LAT = 28D 48M 11S
LON = 82D 09M 13S
COMPLETION DATE: 10/06/86 ELEVATION: 49 FT
OTHER TYPES OF LOGS AVAILABLE - NONE

OWNER/DRILLER:S.W.F.W.M.D. [ROMP LP-3] (MARSH BEND PARK)

WORKED BY:G.L. HENDERSON
HOLLOW STEM AUGER (LSD-18.5); WIRELINE CORE (18.5-154.5).

0.	-	4.5	090UDSC	UNDIFFERENTIATED SAND AND CLAY
4.5	-	9.6	122ALCH	ALACHUA FM.
9.6	-	44.5	124OCAL	OCALA GROUP
44.5	-	154.5	124AVPK	AVON PARK FM.

0 - 1 SAND; OLIVE GRAY TO MODERATE BROWN
30% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY
GRAIN SIZE: FINE; RANGE: FINE TO MEDIUM; UNCONSOLIDATED
SEDIMENTARY STRUCTURES: MASSIVE
ACCESSORY MINERALS: PLANT REMAINS-03%
OTHER FEATURES: FROSTED, GRANULAR
FOSSILS: ORGANICS

1 - 2 SAND; VERY LIGHT GRAY TO LIGHT GRAY
30% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY
GRAIN SIZE: FINE; RANGE: FINE TO MEDIUM; UNCONSOLIDATED
SEDIMENTARY STRUCTURES: MASSIVE
OTHER FEATURES: FROSTED, GRANULAR
FOSSILS: NO FOSSILS

2 - 3.5 SAND; GRAYISH BROWN TO GRAYISH ORANGE
25% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN SIZE: FINE; RANGE: FINE TO MEDIUM; POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
SEDIMENTARY STRUCTURES: MASSIVE
ACCESSORY MINERALS: CLAY-04%, IRON STAIN-02%
OTHER FEATURES: GRANULAR, GREASY
FOSSILS: NO FOSSILS
100% HOLLOW STEM RECOVERY.

3.5- 4.5 SAND; GRAYISH BROWN TO GRAYISH ORANGE
25% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN SIZE: FINE; RANGE: FINE TO MEDIUM; POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
SEDIMENTARY STRUCTURES: MASSIVE
ACCESSORY MINERALS: CLAY-05%, IRON STAIN-03%
OTHER FEATURES: GRANULAR, GREASY
FOSSILS: NO FOSSILS

4.5- 6 CLAY; VERY LIGHT GRAY TO GRAYISH ORANGE
18% POROSITY: INTERGRANULAR, LOW PERMEABILITY
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
SEDIMENTARY STRUCTURES: MASSIVE
ACCESSORY MINERALS: QUARTZ SAND-03%
OTHER FEATURES: GREASY, CALCAREOUS
FOSSILS: NO FOSSILS
100% HOLLOW STEM RECOVERY.

6 - 8.5 CLAY; LIGHT OLIVE GRAY TO GRAYISH ORANGE
15% POROSITY: INTERGRANULAR, LOW PERMEABILITY
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
SEDIMENTARY STRUCTURES: MASSIVE, BRECCIATED
ACCESSORY MINERALS: CALCILUTITE-04%
OTHER FEATURES: GREASY, CALCAREOUS
FOSSILS: NO FOSSILS

8.5- 8.5 CALCILUTITE; WHITE TO LIGHT OLIVE GRAY
10% POROSITY: INTERGRANULAR, LOW PERMEABILITY
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
SEDIMENTARY STRUCTURES: BRECCIATED
ACCESSORY MINERALS: DOLOMITE-01%
OTHER FEATURES: DOLOMITIC, SPLINTERY
MEDIUM RECRYSTALLIZATION
FOSSILS: MOLLUSKS, FOSSIL FRAGMENTS
100% HOLLOW STEM RECOVERY.

8.5- 9.6 CLAY; LIGHT OLIVE GRAY TO GRAYISH ORANGE
15% POROSITY: INTERGRANULAR, LOW PERMEABILITY
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
SEDIMENTARY STRUCTURES: MASSIVE, BRECCIATED
ACCESSORY MINERALS: CALCILUTITE-06%
OTHER FEATURES: GREASY, CALCAREOUS
FOSSILS: NO FOSSILS

9.6- 9.6 CALCILUTITE; WHITE TO YELLOWISH GRAY
10% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
SEDIMENTARY STRUCTURES: BRECCIATED
ACCESSORY MINERALS: DOLOMITE-01%
OTHER FEATURES: DOLOMITIC, SPLINTERY, CHALKY
MEDIUM RECRYSTALLIZATION
FOSSILS: MOLLUSKS, FOSSIL FRAGMENTS, FOSSIL MOLDS

9.6- 11 CALCARENITE; VERY LIGHT ORANGE TO GRAYISH ORANGE
15% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELTAL CAST
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
SEDIMENTARY STRUCTURES: MASSIVE
ACCESSORY MINERALS: IRON STAIN-03%, SPAR-01%
OTHER FEATURES: GRANULAR, CHALKY, COQUINA
LOW RECRYSTALLIZATION
FOSSILS: MOLLUSKS, MILIOLIDS, FOSSIL FRAGMENTS
FOSSIL MOLDS
MILIOLIDS COMMON. 100% HOLLOW STEM RECOVERY.

11 - 13.5 CALCARENITE; WHITE TO YELLOWISH GRAY
18% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELTAL CAST
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
SEDIMENTARY STRUCTURES: MASSIVE
ACCESSORY MINERALS: SPAR-02%
OTHER FEATURES: GRANULAR, CHALKY, COQUINA
LOW RECRYSTALLIZATION
FOSSILS: MOLLUSKS, MILIOLIDS, FOSSIL FRAGMENTS

FOSSIL MOLDS
MILIOLIDS COMMON. 100% HOLLOW STEM RECOVERY.

13.5- 17.2 CALCARENITE; WHITE TO YELLOWISH GRAY
15% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELTAL CAST
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
SEDIMENTARY STRUCTURES: MASSIVE
ACCESSORY MINERALS: SPAR-02%
OTHER FEATURES: GRANULAR, CHALKY, COQUINA
LOW RECRYSTALLIZATION
FOSSILS: MOLLUSKS, MILIOLIDS, ECHINOID, FOSSIL FRAGMENTS
FOSSIL MOLDS
MILIOLIDS COMMON; SOME FORAMS (GYPSINA GLOBULA). ECHINOID TEST FRAGMENTS (PERIARCHUS LYELLI FLORIDANUS).

17.2- 18.5 NO SAMPLES
74% HOLLOW STEM RECOVERY.

18.5- 24.5 NO SAMPLES
LOST CIRCULATION AT 23.5 FEET; NO RECOVERY (18.5-24.4).

24.5- 29.5 CALCARENITE; VERY LIGHT ORANGE TO YELLOWISH GRAY
18% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELTAL CAST
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
SEDIMENTARY STRUCTURES: MASSIVE
ACCESSORY MINERALS: SPAR-04%, DOLOMITE-01%
OTHER FEATURES: GRANULAR, CHALKY, COQUINA
LOW RECRYSTALLIZATION
FOSSILS: MOLLUSKS, MILIOLIDS, ECHINOID, FOSSIL FRAGMENTS
FOSSIL MOLDS
MILIOLIDS COMMON; ECHINOID FRAGMENTS (PERIARCHUS? CASSIDULUS GOULDII). 100% CORE RECOVERY (24.5-29.5).

29.5- 30 CALCARENITE; VERY LIGHT ORANGE TO YELLOWISH GRAY
18% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELTAL CAST
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
SEDIMENTARY STRUCTURES: MASSIVE
ACCESSORY MINERALS: SPAR-04%, DOLOMITE-01%
OTHER FEATURES: GRANULAR, CHALKY, COQUINA
LOW RECRYSTALLIZATION
FOSSILS: MOLLUSKS, MILIOLIDS, ECHINOID, FOSSIL FRAGMENTS
FOSSIL MOLDS

30 - 34.2 CALCARENITE; VERY LIGHT ORANGE TO LIGHT OLIVE GRAY
10% POROSITY: INTERGRANULAR, MOLDIC
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
SEDIMENTARY STRUCTURES: MASSIVE
ACCESSORY MINERALS: SPAR-03%, DOLOMITE-02%, IRON STAIN-01%
OTHER FEATURES: GRANULAR, SPLINTERY, CHALKY
LOW RECRYSTALLIZATION
FOSSILS: MOLLUSKS, ECHINOID, CORAL, MILIOLIDS
FOSSIL MOLDS
MOLLUSK MOLDS COMMON, SOME CORAL MOLDS; MILIOLIDAL MATRIX. ECHINOID FRAGMENTS (PERIARCHUS, CASSIDULUS).

34.2- 34.5 NO SAMPLES
94% CORE RECOVERY (29.5-34.5).

34.5- 35.7 CALCARENITE; VERY LIGHT ORANGE TO LIGHT OLIVE GRAY
10% POROSITY: INTERGRANULAR, MOLDIC
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
SEDIMENTARY STRUCTURES: MASSIVE
ACCESSORY MINERALS: SPAR-03%, DOLOMITE-02%, IRON STAIN-01%
OTHER FEATURES: GRANULAR, SPLINTERY, CHALKY
LOW RECRYSTALLIZATION
FOSSILS: MOLLUSKS, ECHINOID, CORAL, MILIOLIDS
FOSSIL MOLDS

35.7- 37.9 CALCARENITE; VERY LIGHT ORANGE TO YELLOWISH GRAY
15% POROSITY: INTERGRANULAR, MOLDIC
POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELTAL CAST
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
SEDIMENTARY STRUCTURES: MASSIVE
ACCESSORY MINERALS: SPAR-04%, DOLOMITE-02%
OTHER FEATURES: GRANULAR, CHALKY, COQUINA
LOW RECRYSTALLIZATION
FOSSILS: MILIOLIDS, BENTHIC FORAMINIFERA, FOSSIL FRAGMENTS
FOSSIL MOLDS
MILIOLIDS COMMON; DICTYOCONUS COOKEI.

37.9- 39.5 NO SAMPLES
68% CORE RECOVERY (34.5-39.5).

39.5- 44.1 NO SAMPLES

44.1- 44.3 CALCARENITE; VERY LIGHT ORANGE TO YELLOWISH GRAY
05% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELTAL CAST
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
SEDIMENTARY STRUCTURES: MASSIVE
ACCESSORY MINERALS: DOLOMITE-02%, SPAR-01%
OTHER FEATURES: GRANULAR, SPLINTERY, LOW RECRYSTALLIZATION
FOSSILS: MILIOLIDS, MOLLUSKS, FOSSIL FRAGMENTS
FOSSIL MOLDS

44.3- 44.5 CALCARENITE; YELLOWISH GRAY TO GRAYISH YELLOW
07% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELTAL CAST
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: MASSIVE
OTHER FEATURES: GRANULAR, CHALKY, GREASY
LOW RECRYSTALLIZATION
FOSSILS: MILIOLIDS, FOSSIL FRAGMENTS, FOSSIL MOLDS
VERY FINE GRAINED CALCARENITE GRADING TO CALCILUTITE. 8% CORE RECOVERY (39.5-44.5).

44.5- 47 CALCILUTITE; LIGHT OLIVE GRAY TO LIGHT OLIVE GRAY
10% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT
CLAY MATRIX

SEDIMENTARY STRUCTURES: MASSIVE
ACCESSORY MINERALS: DOLOMITE-06%, CLAY-02%, HEMATITE-02%
OTHER FEATURES: GREASY, GRANULAR, LOW RECRYSTALLIZATION
FOSSILS: MILIOLIDS, PLANT REMAINS, FOSSIL FRAGMENTS
FOSSIL MOLDS
CLAYEY CALCILUTITE GRADING TO CALCARENITE.

47 - 48.5 CALCARENITE; LIGHT OLIVE GRAY TO LIGHT OLIVE GRAY
05% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
CLAY MATRIX
SEDIMENTARY STRUCTURES: MASSIVE
ACCESSORY MINERALS: DOLOMITE-10%, CLAY-02%, PEAT-02%
OTHER FEATURES: GREASY, GRANULAR, MEDIUM RECRYSTALLIZATION
FOSSILS: MILIOLIDS, MOLLUSKS, PLANT REMAINS
FOSSIL FRAGMENTS, FOSSIL MOLDS
CLAYEY DOLOMITIC CALCARENITE; PEAT BLEBS.

48.5- 49.5 NO SAMPLES
80% CORE RECOVERY (44.5-49.5).

49.5- 50 CALCARENITE; LIGHT OLIVE GRAY TO LIGHT OLIVE GRAY
05% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
CLAY MATRIX
SEDIMENTARY STRUCTURES: MASSIVE
ACCESSORY MINERALS: DOLOMITE-10%, CLAY-02%, PEAT-02%
OTHER FEATURES: GREASY, GRANULAR, MEDIUM RECRYSTALLIZATION
FOSSILS: MILIOLIDS, MOLLUSKS, PLANT REMAINS
FOSSIL FRAGMENTS, FOSSIL MOLDS
TRACE BLACK LIGNITIC MATERIAL.

50 - 51.5 CLAY; LIGHT OLIVE GRAY TO DARK YELLOWISH BROWN
07% POROSITY: INTERGRANULAR, LOW PERMEABILITY
MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: MASSIVE, LAMINATED, BIOTURBATED
ACCESSORY MINERALS: CALCILUTITE-10%, PEAT-08%
DOLOMITE-04%, PYRITE-01%
OTHER FEATURES: GREASY, PLASTIC, CALCAREOUS
FOSSILS: ORGANICS, MILIOLIDS, FOSSIL FRAGMENTS
FOSSIL MOLDS
GREASY CALCAREOUS ORGANIC CLAY; SOME PYRITE, SLICKENSIDES.

51.5- 54.2 CLAY; DARK YELLOWISH BROWN TO LIGHT OLIVE GRAY
07% POROSITY: INTERGRANULAR, LOW PERMEABILITY
MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: MASSIVE, LAMINATED, BIOTURBATED
ACCESSORY MINERALS: CALCILUTITE-10%, PEAT-09%
DOLOMITE-04%, PYRITE-01%
OTHER FEATURES: GREASY, PLASTIC, CALCAREOUS
FOSSILS: ORGANICS, MILIOLIDS, FOSSIL FRAGMENTS
FOSSIL MOLDS
SLICKENSIDES, PYRITE AS ABOVE.

54.2- 54.5 NO SAMPLES
94% CORE RECOVERY (49.5-54.5).

54.5- 57 CLAY; DARK YELLOWISH BROWN TO OLIVE GRAY
07% POROSITY: INTERGRANULAR, LOW PERMEABILITY
MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: MASSIVE, LAMINATED, BIOTURBATED
ACCESSORY MINERALS: CALCILUTITE-10%, PEAT-09%
DOLOMITE-04%
OTHER FEATURES: GREASY, PLASTIC, CALCAREOUS
FOSSILS: ORGANICS, MILIOLIDS, FOSSIL FRAGMENTS
FOSSIL MOLDS
GREASY-WAXY ORGANIC CALCAREOUS CLAY; LIMESTONE INCLUSIONS.

57 - 58.7 CALCARENITE; VERY LIGHT ORANGE TO YELLOWISH GRAY
05% POROSITY: INTERGRANULAR, MOLDIC, LOW PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELTAL CAST
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: MASSIVE, MOTTLED
ACCESSORY MINERALS: DOLOMITE-12%
OTHER FEATURES: DOLOMITIC, SPLINTERY, SPECKLED
HIGH RECRYSTALLIZATION
FOSSILS: MILIOLIDS, CORAL, FOSSIL FRAGMENTS, FOSSIL MOLDS
MILIOLIDS COMMON; CORAL CASTS.

58.7- 59.5 NO SAMPLES
84% CORE RECOVERY (54.5-59.5).

59.5- 63 CALCARENITE; VERY LIGHT ORANGE TO DARK YELLOWISH BROWN
10% POROSITY: INTERGRANULAR, MOLDIC
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELTAL CAST
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: MASSIVE, MOTTLED, STREAKED
ACCESSORY MINERALS: DOLOMITE-06%, PEAT-03%
OTHER FEATURES: GRANULAR, DOLOMITIC, SPLINTERY
HIGH RECRYSTALLIZATION
FOSSILS: MILIOLIDS, MOLLUSKS, CORAL, FOSSIL FRAGMENTS
FOSSIL MOLDS
MILIOLIDS COMMON; SOME MOLLUSK (TURRITELLA) AND CORAL
MOLDS. THIN PEATY-LIGNITIC ZONES MOTTLING UPPER SECTION.

63 - 64.5 NO SAMPLES
70% CORE RECOVERY (59.5-64.5).

64.5- 67.4 CALCARENITE; YELLOWISH GRAY TO GRAYISH ORANGE
07% POROSITY: INTERGRANULAR, MOLDIC
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELTAL CAST
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: MASSIVE, MOTTLED, STREAKED
ACCESSORY MINERALS: DOLOMITE-12%, PEAT-01%
OTHER FEATURES: DOLOMITIC, SPLINTERY
HIGH RECRYSTALLIZATION
FOSSILS: MILIOLIDS, CORAL, BENTHIC FORAMINIFERA
FOSSIL FRAGMENTS, FOSSIL MOLDS
MILIOLIDS COMMON; SOME CORAL MOLDS AND FORAM CASTS
(SORITES). BLACK PEATY CLAY INFILLING FRACTURE.

67.4- 69.5 NO SAMPLES
58% CORE RECOVERY (64.5-69.5).

69.5- 73.9 CALCARENITE; YELLOWISH GRAY TO LIGHT OLIVE GRAY
07% POROSITY: INTERGRANULAR, MOLDIC, LOW PERMEABILITY

GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELTAL CAST
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: MASSIVE, STREAKED
ACCESSORY MINERALS: DOLOMITE-10%, PEAT-01%
OTHER FEATURES: DOLOMITIC, SPLINTERY
HIGH RECRYSTALLIZATION
FOSSILS: MILIOLIDS, CORAL, MOLLUSKS, BENTHIC FORAMINIFERA
FOSSIL MOLDS
MILIOLIDS COMMON; SOME CORAL MOLDS. TRACE FORAMS (SORITES)
BLACK PEATY CLAY LAMINATIONS.

73.9- 74.4 CALCARENITE; LIGHT OLIVE GRAY TO GRAYISH ORANGE
10% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: MASSIVE, STREAKED
ACCESSORY MINERALS: PEAT-01%
OTHER FEATURES: CHALKY, GREASY, LOW RECRYSTALLIZATION
FOSSILS: MILIOLIDS, FOSSIL FRAGMENTS, FOSSIL MOLDS
ORGANICS
VERY FINE CALCARENITE GRADING TO CLAYEY CALCILUTITE. BLACK PEATY CLAY LAMINATIONS.

74.4- 74.5 NO SAMPLES
98% CORE RECOVERY (69.5-74.5).

74.5- 76.8 DOLOSTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
05% POROSITY: INTERGRANULAR, MOLDIC, LOW PERMEABILITY
0-10% ALTERED; FIBROUS
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: INTERBEDDED, STREAKED
ACCESSORY MINERALS: CALCILUTITE-08%, PEAT-01%
OTHER FEATURES: DOLOMITIC, SPLINTERY
HIGH RECRYSTALLIZATION
FOSSILS: MILIOLIDS, MOLLUSKS, FOSSIL FRAGMENTS
FOSSIL MOLDS

76.8- 76.8 CALCILUTITE; YELLOWISH GRAY TO LIGHT OLIVE GRAY
10% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED, MOTTLED
ACCESSORY MINERALS: PEAT-02%
OTHER FEATURES: CHALKY, GREASY, LOW RECRYSTALLIZATION
FOSSILS: MILIOLIDS, FOSSIL FRAGMENTS, FOSSIL MOLDS
ORGANICS
ALTERNATING BEDS OF CLAYEY CALCILUTITE & DOLOMITIC CALCARENITE. SOME BLACK PEATY CLAY STREAKS THROUGHOUT SECTION.

76.8- 79.5 NO SAMPLES
46% CORE RECOVERY (74.5-79.5).

79.5- 82.2 DOLOSTONE; LIGHT OLIVE GRAY TO DARK GRAYISH YELLOW
15% POROSITY: INTERGRANULAR, FRACTURE
POSSIBLY HIGH PERMEABILITY; 10-50% ALTERED; FIBROUS
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION

CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: MASSIVE
ACCESSORY MINERALS: CALCILUTITE-04%
OTHER FEATURES: DOLOMITIC, SPLINTERY
MEDIUM RECRYSTALLIZATION
FOSSILS: MILIOLIDS, FOSSIL FRAGMENTS, FOSSIL MOLDS
SOME YELLOWISH BROWN SUCROSIC DOLOMITE IN FRACTURES. UPPER FOOT OF SECTION FRACTURED OR VUGULAR.

82.2- 83.5 DOLOSTONE; LIGHT GRAY TO MODERATE LIGHT GRAY
04% POROSITY: INTERGRANULAR, MOLDIC, LOW PERMEABILITY
10-50% ALTERED; FIBROUS
GRAIN SIZE: VERY FINE
RANGE: VERY FINE TO MICROCRYSTALLINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: MASSIVE, LAMINATED
ACCESSORY MINERALS: CALCILUTITE-06%
OTHER FEATURES: DOLOMITIC, SPLINTERY, CHALKY
MEDIUM RECRYSTALLIZATION
FOSSILS: MILIOLIDS, MOLLUSKS, FOSSIL MOLDS
VERY SMALL MOLLUSK AND MILIOLID MOLDS COMMON. MOLDS NOT INTERCONNECTED. DOLOMITIC CLAY LENS AT TOP OF SECTION.

83.5- 84.5 NO SAMPLES
80% CORE RECOVERY (79.5-84.5).

84.5- 86 DOLOSTONE; MODERATE LIGHT GRAY TO LIGHT GRAY
04% POROSITY: INTERGRANULAR, MOLDIC, LOW PERMEABILITY
10-50% ALTERED; FIBROUS
GRAIN SIZE: VERY FINE
RANGE: VERY FINE TO MICROCRYSTALLINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: MASSIVE, LAMINATED
ACCESSORY MINERALS: CALCILUTITE-06%
OTHER FEATURES: DOLOMITIC, SPLINTERY, CHALKY
MEDIUM RECRYSTALLIZATION
FOSSILS: MILIOLIDS, MOLLUSKS, FOSSIL MOLDS
VERY SMALL MOLLUSK AND MILIOLID MOLDS COMMON; MOLDS NOT INTERCONNECTED.

86 - 87.2 DOLOSTONE; YELLOWISH GRAY TO MODERATE LIGHT GRAY
03% POROSITY: INTERGRANULAR, LOW PERMEABILITY
0-10% ALTERED; FIBROUS
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
CLAY MATRIX
SEDIMENTARY STRUCTURES: MASSIVE, LAMINATED
ACCESSORY MINERALS: CALCILUTITE-04%, CLAY-03%
CALCILUTITE-02%
OTHER FEATURES: DOLOMITIC, CHALKY, GREASY
LOW RECRYSTALLIZATION
FOSSILS: ORGANICS

87.2- 89.5 NO SAMPLES
54% CORE RECOVERY (84.5-89.5).

89.5- 90.1 DOLOSTONE; YELLOWISH GRAY TO MODERATE LIGHT GRAY
03% POROSITY: INTERGRANULAR, LOW PERMEABILITY
0-10% ALTERED; FIBROUS
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX

CLAY MATRIX
SEDIMENTARY STRUCTURES: MASSIVE, LAMINATED
ACCESSORY MINERALS: CALCILUTITE-04%, CLAY-03%, PEAT-03%
OTHER FEATURES: DOLOMITIC, CHALKY, GREASY
LOW RECRYSTALLIZATION
FOSSILS: ORGANICS
BLACK PEATY CLAY LAMINATIONS.

90.1- 91.2 DOLOSTONE; YELLOWISH GRAY
05% POROSITY: INTERGRANULAR, LOW PERMEABILITY
0-10% ALTERED; FIBROUS
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
CLAY MATRIX
SEDIMENTARY STRUCTURES: MASSIVE
ACCESSORY MINERALS: CALCILUTITE-03%, CLAY-03%
OTHER FEATURES: DOLOMITIC, CHALKY, LOW RECRYSTALLIZATION
DOLOMITIC MUDSTONE-SILTSTONE.

91.2- 94.5 NO SAMPLES
34% CORE RECOVERY (89.5-94.5).

94.5- 94.7 DOLOSTONE; YELLOWISH GRAY
05% POROSITY: INTERGRANULAR, LOW PERMEABILITY
0-10% ALTERED; FIBROUS
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
CLAY MATRIX
SEDIMENTARY STRUCTURES: MASSIVE, BANDED
ACCESSORY MINERALS: CALCILUTITE-03%, CLAY-03%
OTHER FEATURES: DOLOMITIC, CHALKY, LOW RECRYSTALLIZATION

94.7- 98 DOLOSTONE; YELLOWISH GRAY TO LIGHT OLIVE GRAY
02% POROSITY: INTERGRANULAR, LOW PERMEABILITY
10-50% ALTERED; FIBROUS
GRAIN SIZE: VERY FINE
RANGE: VERY FINE TO MICROCRYSTALLINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
CLAY MATRIX
ACCESSORY MINERALS: CALCILUTITE-02%, CLAY-02%
OTHER FEATURES: DOLOMITIC, SPLINTERY
MEDIUM RECRYSTALLIZATION
FOSSILS: MILIOLIDS, MOLLUSKS, FOSSIL MOLDS
SOME CLAYEY DOLOMITE LAMINATING SECTION.

98 - 99.5 DOLOSTONE; YELLOWISH GRAY TO MODERATE LIGHT GRAY
02% POROSITY: INTERGRANULAR, LOW PERMEABILITY, MOLDIC
10-50% ALTERED; FIBROUS
GRAIN SIZE: VERY FINE
RANGE: VERY FINE TO MICROCRYSTALLINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
CLAY MATRIX
ACCESSORY MINERALS: CALCILUTITE-02%, CLAY-01%
OTHER FEATURES: DOLOMITIC, SPLINTERY
MEDIUM RECRYSTALLIZATION
FOSSILS: MILIOLIDS, MOLLUSKS, FOSSIL MOLDS
100% CORE RECOVERY (94.5-99.5).

99.5- 100.5 DOLOSTONE; YELLOWISH GRAY TO MODERATE LIGHT GRAY
02% POROSITY: INTERGRANULAR, LOW PERMEABILITY
10-50% ALTERED; FIBROUS

GRAIN SIZE: VERY FINE
RANGE: VERY FINE TO MICROCRYSTALLINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
CLAY MATRIX
ACCESSORY MINERALS: CALCILUTITE-02%, CLAY-01%
OTHER FEATURES: DOLOMITIC, SPLINTERY
MEDIUM RECRYSTALLIZATION
FOSSILS: MILIOLIDS, MOLLUSKS, FOSSIL MOLDS

100.5- 101.7 DOLOSTONE; DARK GRAYISH YELLOW TO LIGHT OLIVE BROWN
12% POROSITY: INTERGRANULAR, MOLDIC
POSSIBLY HIGH PERMEABILITY; 0-10% ALTERED; FIBROUS
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CLAY MATRIX
ACCESSORY MINERALS: CLAY-01%
OTHER FEATURES: DOLOMITIC, SUCROSIC, GRANULAR
LOW RECRYSTALLIZATION
FOSSILS: MILIOLIDS, CORAL, ECHINOID, FOSSIL MOLDS
MILIOLIDS, ECHINOID MOLDS (PERONELLA DALLI). ORGANIC CLAY
LAMINATIONS AT BOTTOM OF SECTION.

101.7- 104.1 CALCARENITE; VERY LIGHT ORANGE TO YELLOWISH GRAY
14% POROSITY: INTERGRANULAR, MOLDIC
POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELTAL CAST
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
CLAY MATRIX
SEDIMENTARY STRUCTURES: MASSIVE
ACCESSORY MINERALS: SPAR-01%, CLAY-01%
OTHER FEATURES: GRANULAR, CHALKY, LOW RECRYSTALLIZATION
FOSSILS: MILIOLIDS, FOSSIL FRAGMENTS, FOSSIL MOLDS

104.1- 104.5 NO SAMPLES
92% CORE RECOVERY (99.5-104.5).

104.5- 106.9 CALCARENITE; VERY LIGHT ORANGE TO YELLOWISH GRAY
14% POROSITY: INTERGRANULAR, MOLDIC
POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELTAL CAST
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
CLAY MATRIX
SEDIMENTARY STRUCTURES: MASSIVE
ACCESSORY MINERALS: CALCILUTITE-01%, SPAR-01%
OTHER FEATURES: GRANULAR, CHALKY, SPECKLED
LOW RECRYSTALLIZATION
FOSSILS: MILIOLIDS, FOSSIL FRAGMENTS, FOSSIL MOLDS

106.9- 108.7 DOLOSTONE; YELLOWISH GRAY TO LIGHT GRAY
02% POROSITY: INTERGRANULAR, LOW PERMEABILITY
10-50% ALTERED; FIBROUS
GRAIN SIZE: VERY FINE
RANGE: VERY FINE TO MICROCRYSTALLINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: MASSIVE, BANDED
ACCESSORY MINERALS: CALCILUTITE-02%
OTHER FEATURES: DOLOMITIC, SPLINTERY
MEDIUM RECRYSTALLIZATION
FOSSILS: MILIOLIDS, MOLLUSKS, FOSSIL MOLDS

108.7- 108.7 DOLOSTONE; DARK GRAYISH YELLOW TO LIGHT OLIVE BROWN

12% POROSITY: INTERGRANULAR, MOLDIC
POSSIBLY HIGH PERMEABILITY; 0-10% ALTERED; FIBROUS
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: MASSIVE, BIOTURBATED
ACCESSORY MINERALS: CALCILUTITE-01%
OTHER FEATURES: DOLOMITIC, SUCROSIC, GRANULAR
LOW RECRYSTALLIZATION
FOSSILS: MILIOLIDS, FOSSIL MOLDS

108.7- 109.5 NO SAMPLES
84% CORE RECOVERY (104.5-109.5).

109.5- 111.2 CALCARENITE; VERY LIGHT ORANGE TO YELLOWISH GRAY
14% POROSITY: INTERGRANULAR, MOLDIC
POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELTAL CAST
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
CLAY MATRIX
SEDIMENTARY STRUCTURES: MASSIVE
ACCESSORY MINERALS: CALCILUTITE-01%, SPAR-01%
OTHER FEATURES: GRANULAR, CHALKY, SPECKLED
LOW RECRYSTALLIZATION
FOSSILS: MILIOLIDS, FOSSIL FRAGMENTS, FOSSIL MOLDS

111.2- 112.8 DOLOSTONE; DARK GRAYISH YELLOW TO LIGHT OLIVE BROWN
12% POROSITY: INTERGRANULAR, MOLDIC
POSSIBLY HIGH PERMEABILITY; 0-10% ALTERED; FIBROUS
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: MASSIVE
ACCESSORY MINERALS: CALCILUTITE-01%
OTHER FEATURES: DOLOMITIC, SUCROSIC, GRANULAR
LOW RECRYSTALLIZATION
FOSSILS: MILIOLIDS, ECHINOID, FOSSIL MOLDS
MILIOLID, ECHINOID (PERONELLA DALLI) MOLDS.

112.8- 114.5 NO SAMPLES

114.5- 144.5 66% CORE RECOVERY (109.5-114.5).

144.5- 119.5 DOLOSTONE; GRAYISH ORANGE TO DARK GRAYISH YELLOW
07% POROSITY: INTERGRANULAR, MOLDIC, LOW PERMEABILITY
10-50% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: VERY FINE TO MICROCRYSTALLINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: MASSIVE
OTHER FEATURES: DOLOMITIC, PLATY, SPLINTERY, SUCROSIC
MEDIUM RECRYSTALLIZATION
FOSSILS: MILIOLIDS, ECHINOID, FOSSIL MOLDS
MILIOLID, ECHINOID MOLDS. 100% CORE RECOVERY (114.5-119.5).

119.5- 121.5 DOLOSTONE; GRAYISH ORANGE TO DARK GRAYISH YELLOW
07% POROSITY: INTERGRANULAR, MOLDIC, LOW PERMEABILITY
10-50% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: VERY FINE TO MICROCRYSTALLINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: MASSIVE

OTHER FEATURES: DOLOMITIC, SPLINTERY, PLATY, SUCROSIC
MEDIUM RECRYSTALLIZATION
FOSSILS: MILIOLIDS, ECHINOID, FOSSIL MOLDS

121.5- 122.5 DOLOSTONE; GRAYISH ORANGE TO DARK GRAYISH YELLOW
12% POROSITY: INTERGRANULAR, MOLDIC
POSSIBLY HIGH PERMEABILITY; 0-10% ALTERED; FIBROUS
GRAIN SIZE: FINE; RANGE: FINE TO VERY FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: MASSIVE
ACCESSORY MINERALS: CALCILUTITE-01%
OTHER FEATURES: GRANULAR, SUCROSIC, LOW RECRYSTALLIZATION
FOSSILS: MILIOLIDS, ECHINOID, FOSSIL MOLDS
MILIOLID MOLDS COMMON.

122.5- 124 DOLOSTONE; GRAYISH ORANGE TO DARK GRAYISH YELLOW
07% POROSITY: INTERGRANULAR, MOLDIC, LOW PERMEABILITY
10-50% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: VERY FINE TO MICROCRYSTALLINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: MASSIVE
OTHER FEATURES: DOLOMITIC, SPLINTERY, PLATY, SUCROSIC
MEDIUM RECRYSTALLIZATION
FOSSILS: MILIOLIDS, ECHINOID, FOSSIL MOLDS
MILIOLID, ECHINOID (PERONELLA) MOLDS.

124 - 124.5 NO SAMPLES
90% CORE RECOVERY (119.5-124.5).

124.5- 127.2 DOLOSTONE; GRAYISH ORANGE TO DARK GRAYISH YELLOW
14% POROSITY: INTERGRANULAR, MOLDIC
POSSIBLY HIGH PERMEABILITY; 0-10% ALTERED; FIBROUS
GRAIN SIZE: FINE; RANGE: FINE TO VERY FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: MASSIVE
OTHER FEATURES: GRANULAR, SUCROSIC, LOW RECRYSTALLIZATION
FOSSILS: MILIOLIDS, MOLLUSKS, ECHINOID, FOSSIL FRAGMENTS
FOSSIL MOLDS
MILIOLID MOLDS COMMON; SOME MOLLUSK CASTS AND MOLDS.
ECHINOID MOLDS (PERONELLA DALLI).

127.2- 129.5 NO SAMPLES
54% CORE RECOVERY (124.5-129.5).

129.5- 133 DOLOSTONE; GRAYISH ORANGE TO DARK GRAYISH YELLOW
14% POROSITY: INTERGRANULAR, MOLDIC
POSSIBLY HIGH PERMEABILITY; 0-10% ALTERED; FIBROUS
GRAIN SIZE: FINE; RANGE: FINE TO VERY FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: MASSIVE
OTHER FEATURES: GRANULAR, SUCROSIC, LOW RECRYSTALLIZATION
FOSSILS: MILIOLIDS, MOLLUSKS, ECHINOID, FOSSIL FRAGMENTS
FOSSIL MOLDS
MILIOLID, ECHINOID (PERONELLA DALLI) MOLDS COMMON.

133 - 133.6 DOLOSTONE; GRAYISH ORANGE TO DARK GRAYISH YELLOW
07% POROSITY: INTERGRANULAR, MOLDIC, LOW PERMEABILITY
10-50% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE

RANGE: VERY FINE TO MICROCRYSTALLINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: MASSIVE
OTHER FEATURES: DOLOMITIC, SPLINTERY, SUCROSIC, PLATY
MEDIUM RECRYSTALLIZATION
FOSSILS: MILIOLIDS, ECHINOID, FOSSIL MOLDS
MILIOLID MOLDS COMMON. SOME ECHINOID (PERONELLA DALLI) AND MOLLUSK MOLDS.

133.6- 134.5 NO SAMPLES
82% CORE RECOVERY (129.5-134.5).

134.5- 139.1 DOLOSTONE; GRAYISH ORANGE TO DARK GRAYISH YELLOW
09% POROSITY: INTERGRANULAR, MOLDIC; 10-50% ALTERED
FIBROUS
GRAIN SIZE: FINE; RANGE: FINE TO VERY FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: MASSIVE
OTHER FEATURES: DOLOMITIC, SPLINTERY, GRANULAR
MEDIUM RECRYSTALLIZATION
FOSSILS: MILIOLIDS, MOLLUSKS, ECHINOID, FOSSIL FRAGMENTS
FOSSIL MOLDS
MILIOLID, ECHINOID MOLDS COMMON.

139.1- 139.5 NO SAMPLES
92% CORE RECOVERY (134.5-139.5).

139.5- 140.5 DOLOSTONE; GRAYISH ORANGE TO DARK GRAYISH YELLOW
12% POROSITY: INTERGRANULAR, MOLDIC
POSSIBLY HIGH PERMEABILITY; 0-10% ALTERED; FIBROUS
GRAIN SIZE: FINE; RANGE: FINE TO VERY FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: MASSIVE
OTHER FEATURES: GRANULAR, SUCROSIC, LOW RECRYSTALLIZATION
FOSSILS: MILIOLIDS, MOLLUSKS, ECHINOID, FOSSIL FRAGMENTS
FOSSIL MOLDS
MILIOLID, ECHINOID MOLDS.

140.5- 144.1 DOLOSTONE; GRAYISH ORANGE TO DARK GRAYISH YELLOW
09% POROSITY: INTERGRANULAR, MOLDIC; 10-50% ALTERED
FIBROUS
GRAIN SIZE: FINE; RANGE: FINE TO VERY FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: MASSIVE
OTHER FEATURES: DOLOMITIC, SPLINTERY, GRANULAR
MEDIUM RECRYSTALLIZATION
FOSSILS: MILIOLIDS, MOLLUSKS, ECHINOID, FOSSIL FRAGMENTS
FOSSIL MOLDS
MILIOLID MOLDS; PERONELLA DALLI.

144.1- 144.5 NO SAMPLES
92% CORE RECOVERY (139.5-144.5).

144.5- 148.2 DOLOSTONE; GRAYISH ORANGE TO DARK GRAYISH YELLOW
10% POROSITY: INTERGRANULAR, MOLDIC; 0-10% ALTERED
FIBROUS
GRAIN SIZE: FINE; RANGE: FINE TO VERY FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: MASSIVE

OTHER FEATURES: DOLOMITIC, SPLINTERY, GRANULAR
MEDIUM RECRYSTALLIZATION
FOSSILS: MILIOLIDS, MOLLUSKS, ECHINOID, FOSSIL FRAGMENTS
FOSSIL MOLDS
MILIOLID MOLDS COMMON; SOME ECHINOID MOLDS.

148.2- 149.5 NO SAMPLES
74% CORE RECOVERY (144.5-149.5).

149.5- 154.5 NO SAMPLES
NO CORE RECOVERY (149.5-154.5).

154. TOTAL DEPTH