

**DOWN
Construction
Preliminary Data
Titusville Astronaut High School**

**Aquifer System Monitor Wells:
Floridan BR-1572**

SJRWMD Program No. 31-58200

**Division of Ground Water Programs,
Department of Resource Management
St. Johns River Water Management District
Palatka, Florida**

October 27, 1999

*All data, figures, tables and information are provisional and generated
for the Division of Ground Water Program's use.*

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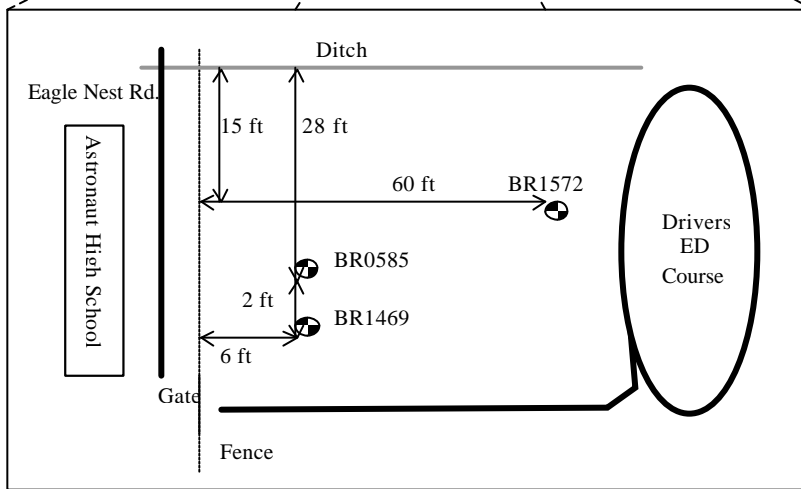
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Titusville, FL



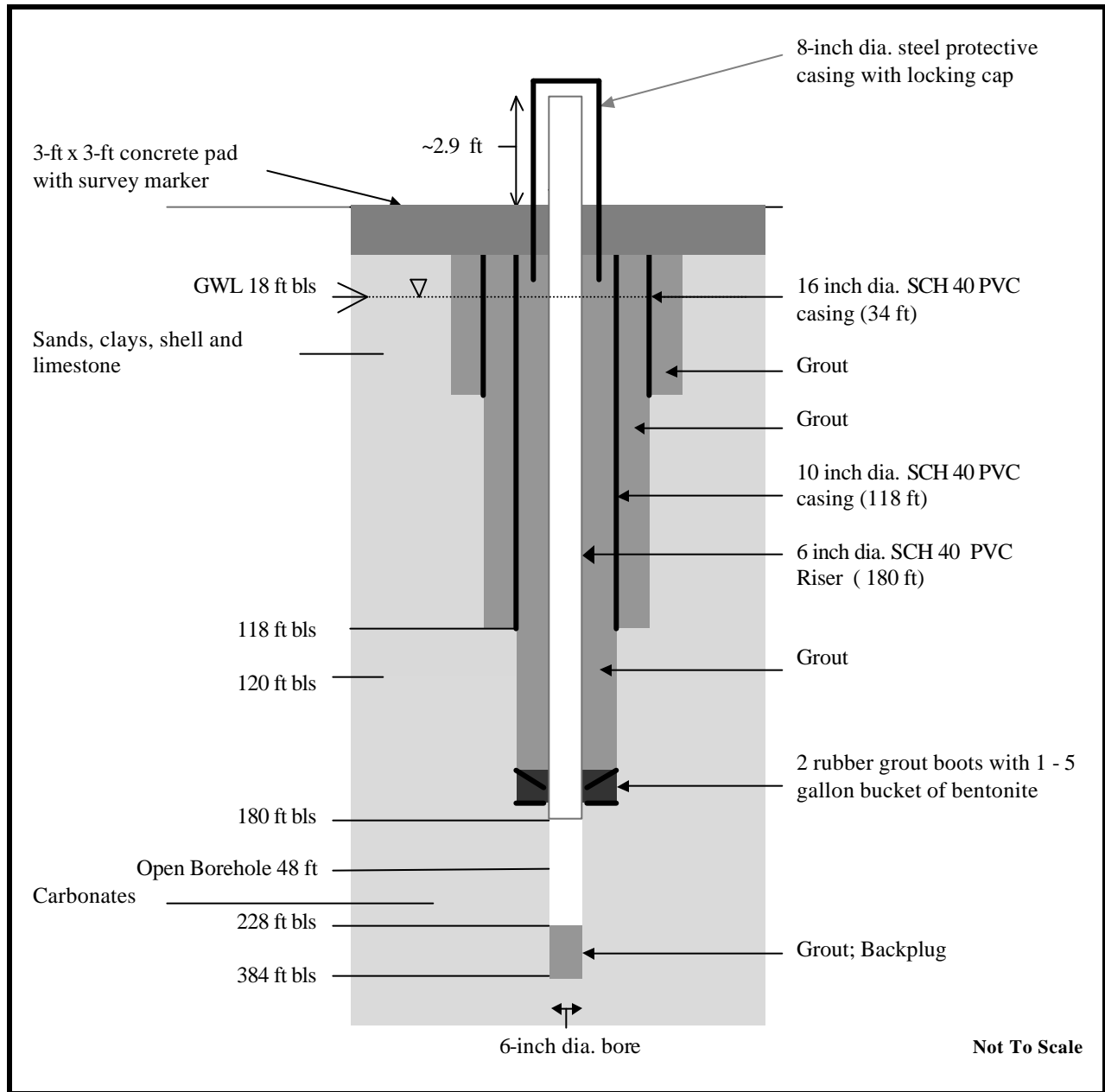
NOT TO SCALE

Site: Titusville Astronaut High School
Lat/Long: 283732/805100
TRS: 213531
Topo: Mims
Site Elevation: ~28 ft NGVD

Project No: 31-58200

SJR WMD

Figure 1. Site Map



Site: Titusville Astronaut High School

Driller: SJRWMD

Well Completed: February 13, 1997

SJRWMD

Figure 2.
Floridan Monitor Well BR-1572

Table 1.**Groundwater Levels**Site: Titusville Astronaut High SchoolWell Number: BR-1572

Water Levels			Borehole	
Date/Time (yy:mm:dd/hh:mm)	Casing (ft, bls)	Rod (ft, bls)	Total Depth (ft, bls)	Open Hole (ft)
970127/1220	14.76	18.95	140	22
970127/1355	17.21	19.16	160	42
970127/1520	17.32	19.26	180	62
970128/0725	18.29	19.18	200	82
970128/0845	18.41	19.42	220	102
970128/1010	18.38	19.46	240	122
970128/1155	18.32	19.49	260	142
970128/1300	18.27	19.45	280	162
970128/1445	18.19	19.51	300	182
970129/0730	18.28	19.38	320	202
970129/0850	18.41	19.61	340	222
970129/1145	18.15	19.45	360	242
970129/1350	18.30	19.67	380	262
970130/0830	18.21	-	380	262

Table 2.**Drilling Data**Site: Titusville Astronaut High SchoolWell Number: BR-1572

From (ft, bls)	To (ft, bls)	Bit Size (in.)	Time (min)	Rate (ft/hr)
118	140	9 7/8	-	-
140	160	9 7/8	31	39
160	180	9 7/8	20	60
180	200	9 7/8	22	55
200	220	9 7/8	27	44
220	240	9 7/8	28	43
240	260	9 7/8	34	35
260	280	9 7/8	23	52
280	300	9 7/8	65	18
300	320	9 7/8	49	24
320	340	9 7/8	28	43
340	360	9 7/8	72	17
360	380	9 7/8	64	19

Table 3. Groundwater QualitySite: Titusville Astronaut High SchoolWell Number: BR-1572Hydrologist: A. Story

LAB 3	Date/Time (yymmdd/hhmm)	Sample Depth (ft, bls)	Open Hole (ft)	Temp (Deg C)	Chlorides (mg/L)	Conductivity (us/cm)
3	970123/1200	140	22	25.5	15.1	439
	970127/1326	160	42	22.5	15.3	366
	970127/1505	180	62	23	97	620
	970127/1608	200	82	22.5	378	1,445
	970128/0826	220	102	22.5	560	1,930
	970128/0937	240	122	25	1,525	4,595
	970128/1107	260	142	25	1,585	4,850
	970128/1242	280	162	25.5	1,630	4,920
	970128/1430	300	182	24.5	1,630	4,947
	970128/1600	320	202	24	1,630	4,970
	970129/0831	340	222	23	1,700	5,178
	970129/1035	360	242	24.5	1,720	5,407
3	970129/1315	380	262	24	1,730	5,975
	970212/0905	228	48	23.5	-	10,923
	970212/0915	228	48	22	-	8,272
	970212/0925	228	48	23	-	7,773
	970212/0935	228	48	23	2,400	7,615

Table 4. Downhole Samples Groundwater QualitySite: Titusville Astronaut High SchoolWell Number: BR-1572Hydrologist: A. Story

LAB 3	Date/Time (yymmdd/hhmm)	Sample Depth (ft, bls)	Open Hole (ft)	Temp (Deg C)	Chlorides (mg/L)	Conductivity (us/cm)
	970130/1230	380	262	22.5	6,100	14,635
	970130/1250	240	262	22.5	3,520	11,029
	970130/1310	200	262	22.0	2,420	7,494
	970130/1330	140	262	22.0	151	835

Table 3.**Grout Data**Site: Titusville Astronaut High SchoolWell Number: BR-1572

DATE	TAG DEPTH (ft bls)	ANNULUS/BORE (inch dia.)	VOLUME (BAGS)	GROUT/MATERIAL	COMMENTS
1/14/97	35	22-A	18 bags	Grout	Set 34-ft of 16-inch dia. PVC casing
1/15/97	N/A	22-A	19 bags	Grout	Grout through tremie pipe
1/16/97	Surface	22-A	N/A	N/A	16-inch casing grouted to surface
1/21/97	118	15-A	18 bags	Grout	Set 118-ft of 10-inch dia. PVC casing
1/22/97	44	15-A	17 bags	Grout	Grout through tremie pipe
1/23/97	4	15-A	-	-	Tag only
2/3/97	380	10-B	-	-	3-inch core sample from 380-384-ft
2/4/97	N/A	10-A	5 gal bucket 10 bags	bentonite Grout	Set 180-ft of 6-inch SCH 80 PVC casing with two 6X10-inch packers attached at bottom
2/5/97	160	10-A	41 bags	Grout	Grout through tremie pipe
2/6/97	384	10-B	38 bags	Grout	Backplug through tremie pipe
2/6/97	30	10-A	6 bags	Grout	Grout through tremie pipe
2/10/97	308	10-B	38 bags	Grout	Backplug through tremie pipe
2/11/97	247	10-B	8 bags	Grout	Backplug through tremie pipe
2/12/97	228	10-B	-	-	Back plugging complete
2/12/97	4	15-A	1.5 bags	Grout	10-inch casing grouted to surface
2/12/97	4	10-A	1.5 bags	Grout	6-inch casing grouted to surface

Lithologic Description (Field)

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Site: Titusville Astronaut High School

Well Number: BR-1572

Samples Described By: A. Story

From (ft)	To (ft)	Lithology
0	10	Sand, brown, fine
10	15	Sand, dark brown, fine, organic, clay, black
15	28	Sand, light orange, coarse, minor clay, gray
28	31	Sand, light brown, fine, specs of clay, blue
31	35	Shell, white with minor clay, blue
35	40	Shell, white
40	45	Shell, orange, some clay, light green
45	49	Shell, orange
49	51	Coquina
51	57	Shell
57	70	Shell, some clay, light green
70	80	Shell, some clay, light green
80	85	Sandstone, tan, and clay, tan
85	93	Rock, tan, semi porous
93	95	Rock, tan, semi porous
95	100	Rock, tan, semi porous, specs of shell
100	105	Sandstone, tan, semi porous and cemented shell
105	110	Sandstone, tan, semi porous
110	114	Sandstone, tan, semi porous
114	115	Rock, dark brown and medium brown, semi porous, hard
115	117	Rock, light tan and brown, semi porous
117	135	Limestone, off-white, porous
135	140	Limestone, off-white and orange, porous
140	185	Limestone, light tan, porous
185	200	Limestone, medium tan, porous
200	244	Limestone, medium tan, porous
244	247	Limestone, dark gray, porous
247	251	Limestone, gray, semi porous
251	254	Limestone, medium tan, porous
254	257	Limestone, dark tan and gray, semi porous
257	275	Limestone, medium tan, porous
275	277	Limestone, medium tan, porous with peat black
277	280	Limestone, medium tan, porous
280	292	Limestone, medium tan, porous

Lithologic Description (Field)

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Site: Titusville Astronaut High School

Well Number: BR-1572

Samples Described By: A. Story

From (ft)	To (ft)	Lithology
292	297	Limestone, dark tan, smooth
297	300	Limestone, medium tan, semi porous with clay gray
300	305	Limestone, medium tan and gray, semi porous
305	310	Limestone, dark tan, smooth
310	315	Limestone, medium tan, porous
315	320	Limestone, dark tan, semi porous
320	325	Limestone, dark tan, semi porous
325	330	Limestone, off-white, semi porous
330	350	Limestone, gray, tan, off-white, semi porous
350	353	Rock, dark brown and black, smooth
353	356	Limestone, brown and black, semi porous
356	360	Limestone, tan, porous
360	363	Limestone, tan, gray, black, semi porous
363	365	Limestone, tan, semi porous
365	375	Limestone, tan, semi porous
375	380	Rock, tan, smooth

Lithologic Logs (FGS)

LITHOLOGIC WELL LOG PRINTOUT

SOURCE - FGS

WELL NUMBER: W-17528
TOTAL DEPTH: 00380 FT.
52 SAMPLES FROM 0 TO 380 FT.

COUNTY - BREVARD
LOCATION:T.21S R.35E S.31
LAT = 28D 37M 32S
LON = 80D 51M 00S
ELEVATION: 28 FT

COMPLETION DATE: 10/09/97
OTHER TYPES OF LOGS AVAILABLE - NONE

OWNER/DRILLER:ST JOHN'S RIVER WATER MANAGEMENT DISTRICT #BR-1572

WORKED BY:C. TRIMBLE; 7/21-7/22/97
MUD ROTARY 0-140 FEET, REVERSE AIR 140-380 FEET

0.	-	30.	090UDSC	UNDIFFERENTIATED SAND AND CLAY
30.	-	120.	112CLSCR	CALOOSAHATCHEE FM.
120.	-	380.	124AVPK	AVON PARK FM.
0	-	5	SAND; VERY LIGHT ORANGE 33% POROSITY: INTERGRANULAR GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO VERY COARSE ROUNDNESS: ANGULAR TO SUB-ROUNDED; MEDIUM SPHERICITY UNCONSOLIDATED OTHER FEATURES: FROSTED FOSSILS: NO FOSSILS BIMODAL SAND:ABOUT 12% IS COARSE TO VERY COARSE GRAINED ROUNDED, FROSTED GRAINS, THE REMAINDER IS VERY FINE TO MEDIUM, SUBANGULAR TO ANGULAR, CLEAR SAND GRAINS, <1% HEAVY MINERALS <1% LIMESTONE	
5	-	10	SAND; VERY LIGHT ORANGE TO LIGHT YELLOWISH ORANGE 33% POROSITY: INTERGRANULAR GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO VERY COARSE ROUNDNESS: ANGULAR TO SUB-ROUNDED; MEDIUM SPHERICITY UNCONSOLIDATED OTHER FEATURES: FROSTED FOSSILS: NO FOSSILS AS ABOVE, <1% IRON STAIN COATINGS	
10	-	15	SAND; GRAYISH BROWN TO LIGHT BROWNISH GRAY 33% POROSITY: INTERGRANULAR GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO VERY COARSE ROUNDNESS: ANGULAR TO SUB-ROUNDED; MEDIUM SPHERICITY UNCONSOLIDATED ACCESSORY MINERALS: PLANT REMAINS-02%, ORGANICS-01% OTHER FEATURES: FROSTED FOSSILS: NO FOSSILS CONTAINS ABOUT 2-3% WOOD FRAGMENTS AND OTHER PLANT MATERIAL A FEW BITS OF CHARCOAL ARE INTERMIXED WITH THE WOOD BIMODAL SAND AS ABOVE AND ALSO INCLUDES A FEW GRANULE ROUNDED QUARTZ GRAINS HEAVY MINERALS <1%, ALSO <1% IRONSTAIN	

- 15 - 20 SAND; VERY LIGHT ORANGE TO GRAYISH BROWN
 35% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY
 POSSIBLY HIGH PERMEABILITY
 GRAIN SIZE: VERY COARSE; RANGE: MEDIUM TO GRANULE
 ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY
 UNCONSOLIDATED
 ACCESSORY MINERALS: PLANT REMAINS-01%
 OTHER FEATURES: FROSTED
 FOSSILS: NO FOSSILS
 BIMODAL BUT VERY COARSE GRAINS PREDOMINATE, <1%
 LIMESTONE AND HEAVY MINERALS; A FEW BITS OF CHARCOAL
 MIXED WITH THE WOOD
- 20 - 25 SAND; GRAYISH BROWN
 35% POROSITY: INTERGRANULAR
 GRAIN SIZE: FINE; RANGE: VERY FINE TO GRANULE
 ROUNDNESS: ANGULAR TO ROUNDED; MEDIUM SPHERICITY
 UNCONSOLIDATED
 ACCESSORY MINERALS: PLANT REMAINS-15%, LIMESTONE-03%
 OTHER FEATURES: FROSTED
 FOSSILS: FOSSIL FRAGMENTS, MOLLUSKS
 ABOUT 15% PLANT ROOTS BY VOLUME, INCREASINGLY FINER
 SAND COMPRISES MOST OF THE SAMPLE A PARTIAL FULGURITE
 (LIGHTENING FUSED SAND TUBE)
- 25 - 30 SAND; GRAYISH BROWN
 35% POROSITY: INTERGRANULAR
 GRAIN SIZE: FINE; RANGE: VERY FINE TO GRANULE
 ROUNDNESS: ANGULAR TO ROUNDED; MEDIUM SPHERICITY
 UNCONSOLIDATED
 ACCESSORY MINERALS: PLANT REMAINS-10%, LIMESTONE-02%
 OTHER FEATURES: FROSTED
 FOSSILS: NO FOSSILS
- 30 - 35 SHELL BED; WHITE TO GRAYISH BROWN
 30% POROSITY: INTERGRANULAR; UNCONSOLIDATED
 ACCESSORY MINERALS: QUARTZ SAND-05%, LIMESTONE-08%
 PLANT REMAINS-02%
 FOSSILS: FOSSIL FRAGMENTS, MOLLUSKS, BRYOZOA
- 35 - 40 SHELL BED; VERY LIGHT GRAY TO YELLOWISH GRAY
 30% POROSITY: INTERGRANULAR; UNCONSOLIDATED
 ACCESSORY MINERALS: QUARTZ SAND-05%
 FOSSILS: FOSSIL FRAGMENTS, MOLLUSKS
- 40 - 45 SHELL BED; VERY LIGHT GRAY TO YELLOWISH GRAY
 30% POROSITY: INTERGRANULAR; UNCONSOLIDATED
 ACCESSORY MINERALS: QUARTZ SAND-05%, CLAY-03%
 FOSSILS: FOSSIL FRAGMENTS, MOLLUSKS
- 45 - 50 SHELL BED; WHITE TO YELLOWISH GRAY
 35% POROSITY: INTERGRANULAR; UNCONSOLIDATED
 ACCESSORY MINERALS: QUARTZ SAND-01%
 OTHER FEATURES: LOW RECRYSTALLIZATION

- FOSSILS: FOSSIL FRAGMENTS, MOLLUSKS, BRYOZOA
- 50 - 55 SHELL BED; WHITE TO LIGHT OLIVE GRAY
 25% POROSITY: INTERGRANULAR, INTERCRYSTALLINE, MOLDIC
 MODERATE INDURATION
 CEMENT TYPE(S): SPARRY CALCITE CEMENT
 SEDIMENTARY STRUCTURES: INTERBEDDED
 ACCESSORY MINERALS: LIMESTONE-40%, QUARTZ SAND-02%
 OTHER FEATURES: MEDIUM RECRYSTALLIZATION, COQUINA
 FOSSILS: FOSSIL FRAGMENTS, MOLLUSKS, FOSSIL MOLDS
 SHELL INTERBEDDED WITH HARD, QUARTZ SANDY COQUINA WITH
 SPAR CEMENT, <1% PHOSPHATIC SAND
- 55 - 60 SHELL BED; YELLOWISH GRAY TO LIGHT OLIVE GRAY
 28% POROSITY: INTERGRANULAR, INTERCRYSTALLINE, MOLDIC
 MODERATE INDURATION
 CEMENT TYPE(S): SPARRY CALCITE CEMENT, CLAY MATRIX
 SEDIMENTARY STRUCTURES: INTERBEDDED
 ACCESSORY MINERALS: CLAY-07%, LIMESTONE-30%
 QUARTZ SAND-05%
 OTHER FEATURES: MEDIUM RECRYSTALLIZATION, COQUINA
 FOSSILS: FOSSIL FRAGMENTS, MOLLUSKS
 SHELL BED AND COQUINA LIMESTONE INTERBEDDED WITH OLIVE
 GRAY CLAY AND QUARTZ SAND, <1% PHOSPHATE
- 60 - 65 SAND; YELLOWISH GRAY TO VERY LIGHT ORANGE
 25% POROSITY: INTERGRANULAR, INTERCRYSTALLINE, MOLDIC
 GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO VERY COARSE
 ROUNDNESS: ANGULAR TO SUB-ROUNDED; MEDIUM SPHERICITY
 POOR INDURATION
 CEMENT TYPE(S): SPARRY CALCITE CEMENT, CLAY MATRIX
 ACCESSORY MINERALS: SHELL-35%, LIMESTONE-15%
 OTHER FEATURES: MEDIUM RECRYSTALLIZATION, COQUINA
 FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, MOLLUSKS
- 65 - 70 SAND; VERY LIGHT ORANGE TO YELLOWISH GRAY
 28% POROSITY: INTERGRANULAR, INTERCRYSTALLINE
 GRAIN SIZE: FINE; RANGE: VERY FINE TO GRANULE
 ROUNDNESS: ANGULAR TO SUB-ROUNDED; MEDIUM SPHERICITY
 POOR INDURATION
 CEMENT TYPE(S): SPARRY CALCITE CEMENT
 ACCESSORY MINERALS: SHELL-40%, LIMESTONE-07%
 OTHER FEATURES: MEDIUM RECRYSTALLIZATION, COQUINA
 FOSSILS: FOSSIL FRAGMENTS, MOLLUSKS
 POORLY INDURATED COQUINA OF SHELL AND QUARTZ SAND, SPAR
 CEMENT MOST SAND IS FINE TO MEDIUM GRAINED, A FEW VERY
 COARSE TO GRANULE SIZED QUARTZ GRAINS; <1% CHERT, <1%
 PHOSPHATIC SAND
- 70 - 75 SAND; VERY LIGHT ORANGE TO YELLOWISH GRAY
 28% POROSITY: INTERGRANULAR, INTERCRYSTALLINE, MOLDIC
 GRAIN SIZE: FINE; RANGE: VERY FINE TO VERY COARSE
 ROUNDNESS: ANGULAR TO SUB-ROUNDED; MEDIUM SPHERICITY
 POOR INDURATION
 CEMENT TYPE(S): SPARRY CALCITE CEMENT

- ACCESSORY MINERALS: SHELL-40%, LIMESTONE-05%
 OTHER FEATURES: MEDIUM RECRYSTALLIZATION, COQUINA
 FOSSILS: FOSSIL FRAGMENTS, MOLLUSKS, FOSSIL MOLDS
- 75 - 80 LIMESTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
 20% POROSITY: INTERGRANULAR, INTERCRYSTALLINE, MOLDIC
 GRAIN TYPE: BIOGENIC, SKELETAL, CALCILUTITE
 65% ALLOCHEMICAL CONSTITUENTS
 GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO GRAVEL
 POOR INDURATION
 CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE
 CEMENT
 SEDIMENTARY STRUCTURES: INTERBEDDED
 ACCESSORY MINERALS: QUARTZ SAND-30%, ORGANICS-20%
 OTHER FEATURES: MEDIUM RECRYSTALLIZATION, COQUINA
 FOSSILS: FOSSIL FRAGMENTS, MOLLUSKS, FOSSIL MOLDS
 MICRITE CEMENTED LIMESTONE OF QUARTZ SAND AND SHELL,
 <1% PHOSPHATIC SAND
- 80 - 85 LIMESTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
 20% POROSITY: INTERGRANULAR, INTERCRYSTALLINE, MOLDIC
 GRAIN TYPE: BIOGENIC, SKELETAL, CALCILUTITE
 60% ALLOCHEMICAL CONSTITUENTS
 GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO GRAVEL
 UNCONSOLIDATED
 CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE
 CEMENT
 ACCESSORY MINERALS: QUARTZ SAND-35%, ORGANICS-30%
 OTHER FEATURES: MEDIUM RECRYSTALLIZATION, COQUINA,
 VARVED
 FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, MOLLUSKS,
 ECHINOID AS ABOVE, POSSIBLE VERMICULARIA RECTA
- 85 - 90 LIMESTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
 12% POROSITY: INTERCRYSTALLINE, INTERGRANULAR, MOLDIC
 GRAIN TYPE: BIOGENIC, SKELETAL, CRYSTALS
 40% ALLOCHEMICAL CONSTITUENTS
 GRAIN SIZE: MICROCRYSTALLINE
 RANGE: MICROCRYSTALLINE TO GRAVEL; GOOD INDURATION
 CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE
 MATRIX
 SEDIMENTARY STRUCTURES: INTERBEDDED
 ACCESSORY MINERALS: QUARTZ SAND-10%
 OTHER FEATURES: HIGH RECRYSTALLIZATION
 FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, ECHINOID,
 MOLLUSKS ALGAE
 CRYSTALLINE LIMESTONE MIXED WITH QUARTZ SANDY MICRITIC
 LIMESTONE
- 90 - 95 LIMESTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
 12% POROSITY: INTERCRYSTALLINE, INTERGRANULAR, MOLDIC
 GRAIN TYPE: BIOGENIC, SKELETAL, CALCILUTITE
 25% ALLOCHEMICAL CONSTITUENTS
 GRAIN SIZE: MICROCRYSTALLINE
 RANGE: MICROCRYSTALLINE TO GRAVEL; GOOD INDURATION

CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
 SEDIMENTARY STRUCTURES: INTERBEDDED
 ACCESSORY MINERALS: QUARTZ SAND-15%
 OTHER FEATURES: HIGH RECRYSTALLIZATION
 FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, MOLLUSKS, ECHINOID, CORAL ALSO INCLUDES A RECRYSTALLIZED CRAB CLAW FRAGMENT

95 - 100 Limestone; yellowish gray
 12% porosity: intergranular, intercrystalline, moldic
 grain type: biogenic, skeletal, crystals
 30% allochemical constituents
 grain size: microcrystalline
 range: microcrystalline to gravel; good induration
 cement type(s): sparry calcite cement, calcilutite matrix
 accessory minerals: quartz sand-15%
 other features: high recrystallization
 fossils: fossil fragments, fossil molds, mollusks, echinoid
 more claw fragments, sandy limestone interbedded with crystalline limestone, <1% phosphatic sand

100 - 105 Limestone; white to very light orange
 12% porosity: intergranular, intercrystalline, moldic
 grain type: biogenic, skeletal, crystals
 30% allochemical constituents
 grain size: microcrystalline
 range: microcrystalline to gravel; good induration
 cement type(s): sparry calcite cement, calcilutite matrix
 accessory minerals: quartz sand-20%
 other features: high recrystallization
 fossils: fossil fragments, fossil molds, mollusks, echinoid, bryozoa as above

105 - 110 Limestone; white to very light orange
 15% porosity: intergranular, moldic, intercrystalline
 grain type: biogenic, skeletal, crystals
 30% allochemical constituents
 grain size: microcrystalline
 range: microcrystalline to gravel; good induration
 cement type(s): sparry calcite cement, calcilutite matrix
 sedimentary structures: interbedded
 accessory minerals: quartz sand-15%
 other features: high recrystallization
 fossils: fossil molds, fossil fragments, mollusks, echinoid

110 - 120 Limestone; very light orange to white
 18% porosity: intergranular, intercrystalline, moldic
 grain type: biogenic, skeletal, crystals
 30% allochemical constituents

- GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO GRAVEL; GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE
MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS:QUARTZ SAND-10%, PHOSPHATIC SAND-05%
OTHER FEATURES: HIGH RECRYSTALLIZATION
FOSSILS:FOSSIL FRAGMENTS, FOSSIL MOLDS, MOLLUSKS,
ECHINOID
- 120 - 125 LIMESTONE; WHITE TO PINKISH GRAY
25% POROSITY: INTERGRANULAR, MOLDIC
GRAIN TYPE: BIOGENIC, SKELETAL, CALCILUTITE
85% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO GRANULE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: QUARTZ SAND-05%
OTHER FEATURES: MEDIUM RECRYSTALLIZATION, CHALKY
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS
BENTHIC FORAMINIFERA, ECHINOID
INDEX FOSSILS: SPHAEROGYPSINA GLOBULA, VARIOUS LEPS AND
NUMMULITIES VANDERSTOKI
- 125 - 130 LIMESTONE; WHITE TO PINKISH GRAY
30% POROSITY: INTERGRANULAR, MOLDIC
GRAIN TYPE: BIOGENIC, SKELETAL, CALCILUTITE
95% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO GRANULE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
OTHER FEATURES: MEDIUM RECRYSTALLIZATION, CHALKY
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS
BENTHIC FORAMINIFERA, ECHINOID, BRYOZOA
FORAMINIFEROUS, MICRO-COQUINA; INDEX FOSSILS AS ABOVE
- 130 - 135 LIMESTONE; WHITE TO PINKISH GRAY
30% POROSITY: INTERGRANULAR, MOLDIC, INTERCRYSTALLINE
GRAIN TYPE: BIOGENIC, SKELETAL, CALCILUTITE
95% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO GRANULE
POOR INDURATION
CEMENT TYPE(S):CALCILUTITE MATRIX, SPARRY CALCITE
CEMENT
OTHER FEATURES: MEDIUM RECRYSTALLIZATION, CHALKY
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS
BENTHIC FORAMINIFERA, MILIOLIDS <1% IRONSTAIN
- 135 - 140 LIMESTONE; VERY LIGHT ORANGE TO LIGHT YELLOWISH ORANGE
30% POROSITY: INTERGRANULAR, MOLDIC
GRAIN TYPE: BIOGENIC, SKELETAL, CALCILUTITE
90% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO GRANULE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE

- CEMENT
ACCESSORY MINERALS: IRON STAIN-01%
OTHER FEATURES: MEDIUM RECRYSTALLIZATION, CHALKY
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS
BENTHIC FORAMINIFERA, MILIOLIDS, MOLLUSKS
ALSO BITS OF CORAL
- 140 - 150 LIMESTONE; WHITE TO VERY LIGHT ORANGE
30% POROSITY: INTERGRANULAR, MOLDIC, INTERCRYSTALLINE
GRAIN TYPE: BIOGENIC, SKELETAL, CALCILUTITE
85% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO GRAVEL
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE
CEMENT
OTHER FEATURES: MEDIUM RECRYSTALLIZATION, CHALKY
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS
BENTHIC FORAMINIFERA, MILIOLIDS, ECHINOID
PLENTIFUL GYPSINA AND N. VANDERSTOKI, ALSO AMPHISTEGINA
AND BITS OF CORAL
- 150 - 160 LIMESTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE
30% POROSITY: INTERGRANULAR, MOLDIC, INTERCRYSTALLINE
GRAIN TYPE: BIOGENIC, SKELETAL, CALCILUTITE
80% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO GRAVEL
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT
OTHER FEATURES: MEDIUM RECRYSTALLIZATION, CHALKY
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, MILIOLIDS
BENTHIC FORAMINIFERA, ECHINOID
PLENTIFUL ECHNOID FRAGMENTS AND BITS OF CORAL INDEX
FOSSILS: N. OCALANUS AND AMPHISTEGINA PINARENSIS
CODENSI
- 160 - 170 LIMESTONE; VERY LIGHT ORANGE
30% POROSITY: INTERGRANULAR, MOLDIC, INTERCRYSTALLINE
GRAIN TYPE: BIOGENIC, SKELETAL, CALCILUTITE
95% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO GRAVEL
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE
CEMENT
OTHER FEATURES: MEDIUM RECRYSTALLIZATION, CHALKY
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS
BENTHIC FORAMINIFERA, MILIOLIDS, ECHINOID
MILIOLID-RICH, MICROCOQUINA INDEX FOSSILS AS ABOVE
- 170 - 180 LIMESTONE; VERY LIGHT ORANGE TO WHITE
30% POROSITY: INTERGRANULAR, MOLDIC, INTERCRYSTALLINE
GRAIN TYPE: BIOGENIC, SKELETAL, CALCILUTITE
90% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: COARSE; RANGE: MICROCRYSTALLINE TO GRAVEL
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE

- CEMENT
 OTHER FEATURES: HIGH RECRYSTALLIZATION, CHALKY
 FOSSILS: FOSSIL MOLDS, FOSSIL FRAGMENTS
 BENTHIC FORAMINIFERA, MILIOLIDS, CORAL
 LIMESTONE IS MORE CRYSTALLINE, PLENTIFUL ECHNOID
 FRAGMENTS AND BITS OF BRYOZOA, INDEX FOSSIL FABIANA
 CUBENSIS
- 180 - 190 LIMESTONE; VERY LIGHT ORANGE
 30% POROSITY: INTERGRANULAR, MOLDIC, INTERCRYSTALLINE
 GRAIN TYPE: BIOGENIC, SKELETAL, CALCILUTITE
 85% ALLOCHEMICAL CONSTITUENTS
 GRAIN SIZE: COARSE; RANGE: MICROCRYSTALLINE TO GRAVEL
 MODERATE INDURATION
 CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE
 CEMENT
 OTHER FEATURES: HIGH RECRYSTALLIZATION, CHALKY
 FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, ECHINOID
 MILIOLIDS, BENTHIC FORAMINIFERA
 INDEX FOSSILS: AMPHISTEGINA AND GYPSINA
- 190 - 200 LIMESTONE; YELLOWISH GRAY TO VERY LIGHT ORANGE
 30% POROSITY: INTERGRANULAR, MOLDIC, INTERCRYSTALLINE
 GRAIN TYPE: BIOGENIC, SKELETAL, CALCILUTITE
 95% ALLOCHEMICAL CONSTITUENTS
 GRAIN SIZE: COARSE; RANGE: MICROCRYSTALLINE TO GRAVEL
 MODERATE INDURATION
 CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE
 CEMENT
 OTHER FEATURES: HIGH RECRYSTALLIZATION
 FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, ECHINOID
 BENTHIC FORAMINIFERA, MILIOLIDS
 INDEX AS ABOVE, ALSO FIRST APPEARANCE OF WHOLE NEOLAGUM
 DALLI
- 200 - 210 LIMESTONE; YELLOWISH GRAY
 30% POROSITY: INTERGRANULAR, MOLDIC, INTERCRYSTALLINE
 GRAIN TYPE: BIOGENIC, SKELETAL, CALCILUTITE
 80% ALLOCHEMICAL CONSTITUENTS
 GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO GRAVEL
 MODERATE INDURATION
 CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE
 CEMENT
 OTHER FEATURES: HIGH RECRYSTALLIZATION
 FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS
 BENTHIC FORAMINIFERA, ECHINOID, MILIOLIDS
 FOSSILS AS ABOVE, ALSO WORM TRACES AND BITS OF CORAL
- 210 - 220 LIMESTONE; PINKISH GRAY TO YELLOWISH GRAY
 30% POROSITY: INTERGRANULAR, MOLDIC, INTERCRYSTALLINE
 GRAIN TYPE: BIOGENIC, SKELETAL, CALCILUTITE
 90% ALLOCHEMICAL CONSTITUENTS
 GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO GRAVEL
 MODERATE INDURATION
 CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE

- CEMENT
 OTHER FEATURES: HIGH RECRYSTALLIZATION
 FOSSILS: BENTHIC FORAMINIFERA, FOSSIL FRAGMENTS,
 ECHINOID
 MORE HIGHLY RECRYSTALLIZED MICROCOQUINA
- 220 - 230 LIMESTONE; PINKISH GRAY TO YELLOWISH GRAY
 30% POROSITY: INTERGRANULAR, MOLDIC, INTERCRYSTALLINE
 GRAIN TYPE: BIOGENIC, SKELETAL, CALCILUTITE
 85% ALLOCHEMICAL CONSTITUENTS
 GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO GRAVEL
 MODERATE INDURATION
 CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE
 CEMENT
 OTHER FEATURES: HIGH RECRYSTALLIZATION
 FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, ECHINOID
 MILIOLIDS, CONES
- 230 - 240 LIMESTONE; PINKISH GRAY TO WHITE
 30% POROSITY: INTERGRANULAR, MOLDIC, INTERCRYSTALLINE
 GRAIN TYPE: BIOGENIC, SKELETAL, CALCILUTITE
 80% ALLOCHEMICAL CONSTITUENTS
 GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO GRAVEL
 MODERATE INDURATION
 CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE
 CEMENT
 OTHER FEATURES: HIGH RECRYSTALLIZATION, CHALKY
 FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, CORAL
 BENTHIC FORAMINIFERA, MILIOLIDS
- 240 - 250 LIMESTONE; YELLOWISH GRAY TO WHITE
 25% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
 GRAIN TYPE: BIOGENIC, SKELETAL, CALCILUTITE
 30% ALLOCHEMICAL CONSTITUENTS
 GRAIN SIZE: MICROCRYSTALLINE
 RANGE: MICROCRYSTALLINE TO GRAVEL; MODERATE INDURATION
 CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE
 CEMENT
 OTHER FEATURES: MEDIUM RECRYSTALLIZATION, CHALKY
 FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, CONES,
 MILIOLIDS, CORAL
 INDEX FOSSIL: D. AMERICANUS AND D. COOKEI
- 250 - 260 LIMESTONE; PINKISH GRAY TO YELLOWISH GRAY
 20% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
 GRAIN TYPE: BIOGENIC, SKELETAL, CALCILUTITE
 25% ALLOCHEMICAL CONSTITUENTS
 GRAIN SIZE: MICROCRYSTALLINE
 RANGE: MICROCRYSTALLINE TO GRAVEL; MODERATE INDURATION
 CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE
 CEMENT
 OTHER FEATURES: MEDIUM RECRYSTALLIZATION, CHALKY
 FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, CONES,
 MILIOLIDS ECHINOID

INDEX FOSSILS: D. COOKEI AND COSKINOLINA

- 260 - 270 Limestone; pinkish gray to white
20% porosity: intergranular, moldic, pin point vugs
grain type: biogenic, skeletal, calcilutite
50% allochemical constituents
grain size: coarse; range: microcrystalline to gravel
moderate induration
cement type(s): calcilutite matrix, sparry calcite cement
other features: medium recrystallization, chalky
fossils: fossil fragments, fossil molds, cones, miliolids echinoid
index fossil: *Criobulimina cushmani*, *Lituanella floridana*
- 270 - 280 Limestone; pinkish gray to white
20% porosity: intergranular, moldic, pin point vugs
grain type: biogenic, skeletal, calcilutite
85% allochemical constituents
grain size: coarse; range: microcrystalline to gravel
poor induration
cement type(s): calcilutite matrix
other features: medium recrystallization, chalky
fossils: fossil fragments, fossil molds, cones
benthic foraminifera, miliolids
index fossils as above
- 280 - 290 Limestone; very light orange
10% porosity: intergranular
grain type: biogenic, skeletal, crystals
15% allochemical constituents
grain size: microcrystalline
range: microcrystalline to coarse; good induration
cement type(s): sparry calcite cement
other features: high recrystallization, sucrosic
fossils: fossil fragments, miliolids
fine textured, sucrosic, crystalline, limestone, no
index fossils
- 290 - 300 Limestone; very light orange to white
12% porosity: intergranular, intercrystalline
grain type: biogenic, skeletal, calcilutite
25% allochemical constituents
grain size: microcrystalline
range: microcrystalline to coarse; moderate induration
cement type(s): sparry calcite cement, calcilutite matrix
dolomite cement
sedimentary structures: interbedded
accessory minerals: dolomite-15%
other features: high recrystallization, sucrosic
fossils: fossil fragments, miliolids, fossil molds
echinoid
interbedded crystalline limestone and dolostone with

CHALKY WHITE MICROCOQUINA

- 300 - 310 DOLOSTONE; VERY LIGHT ORANGE TO PINKISH GRAY
15% POROSITY: INTERCRYSTALLINE, INTERGRANULAR
PIN POINT VUGS; 50-90% ALTERED; EUHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: LIMESTONE-10%
OTHER FEATURES: HIGH RECRYSTALLIZATION, SUCROSIC
FOSSILS: FOSSIL MOLDS, ECHINOID, BENTHIC FORAMINIFERA
- 310 - 320 DOLOSTONE; VERY LIGHT ORANGE TO WHITE
20% POROSITY: INTERCRYSTALLINE, INTERGRANULAR
PIN POINT VUGS; 50-90% ALTERED; EUHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: LIMESTONE-35%
OTHER FEATURES: HIGH RECRYSTALLIZATION, SUCROSIC
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, ECHINOID
- 320 - 330 NO SAMPLES
- 330 - 340 LIMESTONE; WHITE TO YELLOWISH GRAY
25% POROSITY: INTERGRANULAR, MOLDIC
GRAIN TYPE: BIOGENIC, SKELETAL, CALCILUTITE
60% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY COARSE; MODERATE
INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: DOLOMITE-02%
OTHER FEATURES: MEDIUM RECRYSTALLIZATION, CHALKY
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS
INTERBEDDED WHITE AND YELLOWISH GRAY CALCILUTITE, MOST
FOSSILS UNRECOGNIZABLE
- 340 - 350 LIMESTONE; YELLOWISH GRAY
25% POROSITY: INTERGRANULAR, MOLDIC, INTERCRYSTALLINE
GRAIN TYPE: BIOGENIC, SKELETAL, CALCILUTITE
40% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO GRANULE; POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITCEMENT
SEDIMENTARY STRUCTURES: INTERBEDDED
OTHER FEATURES: MEDIUM RECRYSTALLIZATION, CHALKY
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, ECHINOID, CONES
BENTHIC FORAMINIFERA
CONTAINS A FEW FRAGMENTS OF FINELY LAMINATED DOLOSTONE
- 350 - 360 DOLOSTONE; VERY LIGHT ORANGE TO WHITE

20% POROSITY: INTERCRYSTALLINE, PIN POINT VUGS
INTERGRANULAR; 50-90% ALTERED; EUHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: DOLOMITE-25%
OTHER FEATURES: SUCROSIC, HIGH RECRYSTALLIZATION
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, ECHINOID, CONES
BENTHIC FORAMINIFERA

360 - 370 LIMESTONE; WHITE TO GRAYISH ORANGE
22% POROSITY: INTERGRANULAR, INTERCRYSTALLINE, MOLDIC
GRAIN TYPE: BIOGENIC, SKELETAL, CALCILUTITE
50% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO GRANULE; POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: DOLOMITE-25%
OTHER FEATURES: MEDIUM RECRYSTALLIZATION, CHALKY
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, ECHINOID, CONES
BENTHIC FORAMINIFERA

370 - 380 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE
18% POROSITY: INTERCRYSTALLINE, PIN POINT VUGS, MOLDIC
50-90% ALTERED; EUHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, IRON CEMENT
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: LIMESTONE-03%
OTHER FEATURES: HIGH RECRYSTALLIZATION, SUCROSIC
FOSSILS: FOSSIL MOLDS

380 TOTAL DEPTH

Geophysical Logs

