

Executive Summary
ROMP TR5-2 "Geronimo"
Sarasota County
S22, T38S, R19E

I. GENERAL DESCRIPTION

The TR5-2 "Geronimo" monitor wells are located approximately four miles northeast of Venice, Florida in Sarasota County. The TR5-2 site lies in the SE 1/4 of NE 1/4 of SW 1/4 of Section 22, Township 38 South, Range 19 East at latitude 27°09'19.48", longitude 82°23'42.203".

II. SITE EASEMENT

TR5-2 includes both a perpetual and temporary construction easement for the purpose of drilling, maintaining four monitor wells for hydrogeologic test purposes. The easement was granted by Nokomis Groves, Inc. A perpetual easement of 20' X 20' is contained within a temporary construction easement of 100' X 100'.

III. REASONS FOR THE MONITOR

The TR5-2 monitor wells were constructed for the purpose of defining the boundaries of the multiple aquifers and monitor the upward migration of high sulfates in the Venice area. Recently, the Plantation injection well near Venice was drilled to a depth of 1122'. TR5-2 may serve as a monitor for any upward migration of the brine injection. The wells were also drilled to define and describe the lithology, geological formational boundaries and for the acquisition of potentiometric surface level data. In cooperation with the USGS, further data was collected from geophysical logging and aquifer pump testing. The data acquired is being used to complete a hydrological computer model.

IV. Geology

The TR5-2 "Geronimo" well site is located on the Pamlico Terrace, a part of the Gulf Coastal Lowlands near Venice, Florida. The elevation at this site is approximately 14.8' above MSL. The following lithology and geologic formation boundaries were determined by description of drill cuttings and correlated with geophysical logs.

Borehole Depth
(ft. below lsd)

Name of Rock Unit

LSD - 13'

Undifferentiated Sand, Clay and Shell = Pleistocene Age-sand, grayish brown to dark brown, fine to medium grained; shell bed-very light orange to pinkish gray, (mollusks and shell fragments); high porosity and permeability.

13' - 55'

Caloosahatchee Marl Formation = Pleistocene Age-sand, light orange, high permeability; shell bed-very light orange to pinkish gray; limestone-yellowish gray to light olive gray, low permeability; calcilitic, phosphatic sand and gravel; clay (bottom of formation), olive gray to grayish olive green, light olive brown; low permeability.

FIELD OPERATIONS
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- 55' - 300' 187 200 Hawthorn Formation = Miocene Age-limestone, grayish yellow to grayish brown; clay-grayish green to greenish gray; calcilutite, grayish yellow; calcarenite-light gray, yellowish gray; dolomite-brownish gray-olive gray; occasional chert seams; some phosphatic sand; milliolidal; fossil fragments, mollusks, echinoids, bryozoa; low to high porosity and permeability.
- 300' - 500' 200 Tampa Formation = Miocene Age-calcilutite, grayish brown, light gray; calcarenite-yellowish gray to very light gray; milliolids, mollusks, echinoids, crab claw fragments, some brown to dark bluish gray chert; moderate porosity; usually low permeability.
- 500' - 812' 170 Suwannee Formation = Oligocene Age-calcilutite, yellowish gray; calcarenite-very light orange, grayish orange, milliolids, mollusks, coral, bryozoa, foraminifera (*Coskinolina floridana*); moderate-high porosity and permeability.
- 812' - 886' 170 Ocala Group = Crystal River Formation - Eocene Age-calcarenite, yellow gray-very light orange; mollusks, milliolids, bryozoa, echinoids, foraminifera (*Lepidocyclina*, *lagena*); medium recrystallization, granular; low-moderate porosity, low-high permeability.
- 896' - 906' TD Ocala Group = Williston Formation - Eocene Age - calcarenite, very light orange; foraminifera (*Operculinoides*, *Lagena*, *Lepidocyclina*); low-high permeability.

V. HYDROLOGEOLOGY AND WATER QUALITY

A deep monitor, two intermediate wells and one water table monitor well were constructed. TR5-2 "Geronimo" was drilled for the purpose of identifying and determining the extent of the water bearing units in the Floridan Aquifer. There appears to be four separate and distinct artesian zones in the TR5-2 "Geronimo" site area.

The non-artesian zone is consistent with the surficial aquifer (water table) and was found in the upper 13 feet of undifferentiated sand, clay and shell of Pleistocene Age. Most of the Caloosahatchee Marl Formation, except for upper zones of shell, appears to act as a confiner. The dense clay (Venice Clay) found in the lower Caloosahatchee Formation and the top of the Hawthorn Formation appear to be confining beds for the first artesian zone. The first artesian zone is located approximately (80'-104' below LSD - Hawthorn Formation). The second artesian zone is located in the limestone/dolomite unit of the Hawthorn Formation. According to the static flow log, the high artesian zone lies between 236' and 295' below LSD. Beds of calcilutite, calcarenite, clay and chert seams in the Hawthorn Formation (104'-236' below LSD) act as confining or semi-confining units between the first and second artesian zones. A highly permeable

zone found near the top of the Tampa Formation (328'-390' below LSD) is probably a third artesian zone or may be in fact a part of the second artesian zone. A semi-confiner appears to lie between 298' and 328' below LSD. The calcarenite and dolomite beds are low in permeability, but due to the narrow zone, the semi-confiner is probably fairly leaky in nature.

A confiner (360'-500' below LSD) consisting of calcilutite, calcarenite and seams of chert is located between the third and fourth artesian zones. This confiner is also likely to be leaky. The second pump test results appear to verify this fact because water level changes did take place in the intermediate monitor and deep monitor wells which were monitoring the first, second and third artesian zones during the pump - flowmeter test.

During the drilling of the deeper intermediate monitor well, data for the first artesian zone in regard to water levels and water quality was not collected because of mud rotary drilling techniques. Trends do indicate that water level in the first artesian zone are between LSD and (1') one foot above LSD. After a depth of 220' was reached during drilling, water levels began to rise, indicating the encountering of the second artesian zone. This rise in water level increased until drilling reached a depth of 300'. The data correlated with the flow meter results, indicating that the second artesian zone extended from approximately 236' to 298' below LSD. Water levels began to taper off and even decline slightly between the second and third artesian zones. Water levels had increased to nearly five feet above LSD in the second artesian zone, but decreased to nearly four feet before encountering the third artesian zone near 328' below LSD. Water level reached a point between 11' and 12' above LSD at a depth of 380'. Between the third and fourth artesian zones water level decreased to 8' above LSD at a depth of 485'.

Water quality was reflected by changes in water level. Fluid conductivity ranged between 1100 Umhos and 1280 Umhos until 240' below LSD. Conductivities within the second artesian zone increased and ranged between 1,880 and 1,960 Umhos. Specific conductivities dropped to 1,750 Umhos in the narrow leaky semi-confiner between the second and third artesian zones (390'-500' below LSD). Specific conductivities decreased to 1,625 Umhos at 480' from a high of 2,050 Umhos at 400' below LSD.

Chlorides varied between 43 mg/l and 68 mg/l. The chlorides appeared to be slightly higher in the artesian zones and lower in the confiners or semi-confiners between them. This could be affected by clay beds in the confiners which tend to lower chloride levels. Sulfates tended to increase with depth, ranging from 444 mg/l at 140' to 1,655 mg/l at 420' below LSD. A slight improvement in water quality began to occur below the 420' depth. Sulfates improved slightly (1,549 mg/l) at 480' below LSD.

The fourth artesian zone (500'-752') is located in the limestone beds of the Suwannee Formation. Increases in hydrostatic head occurred within this zone, ranging from approximately 10.0' to 10.9' during drilling operations. The chalky limestones and dense dolomite of the Ocala Group probably acts a semi-leaky lower confiner for a fifth artesian zone. Water levels while drilling the deep monitor increased from 9.6' at 400' to 11.7' above LSD at 900'. Elevation at the TR5-2 site is approximately 14.8' above MSL. Following drilling operations, the water level increased to approximately 18' above LSD (+32.7' MSL).

During the drilling of the deep monitor water quality ranged from 1,500 Umhos at 440' to a high of 2,150 Umhos at 640'. Chlorides remained fairly low, ranging from 38 to 42 Mg/l. Sulfates remained fairly high, ranging from a low of 1,475 mg/l to a high of 1,707 mg/l. Standard complete analyses were completed on thief samples retrieved with the geophysical logger at the following depths: 380', 620', and 900'. Conductivity ranged from 2,500 Umhos near the bottom to a high of 2,750 Umhos at 380'. Chlorides dropped from 41 mg/l to a low of 22 mg/l at 900'. Sulfates also decreased with depth, ranging from 1,726 mg/l at 380' to 1,581 mg/l at 900'. Water quality does appear to improve slightly between 825' and 900', according to the fluid conductivity log.

Temperatures ranged from a low of 24°C to a high of 29°C.

Zones of flow, according to the flowmeter log, occurred between the depth of approximately 500' and 750' below LSD in the deep monitor at TR5-2.

VI. PUMP - FLOWMETER TEST

A. Two pump tests were conducted on the intermediate single zone monitor. The first pump test was completed between 6-18-84 and 6-19-84, after the well had been drilled to a depth of 480' below LSD. A 10" diameter PVC casing had been seated at 60' below LSD and cement grouted to the surface. Open hole existed from approximately 60' to 480' below LSD for the pump test. Marvin E. Miller & Son Well Drilling, Inc. ran the pump test at a cost of \$1,000.

Measurements of artesian flow ranged from 80 gpm to 178 gpm before the pump test commenced. A ten (10') riser was placed on the well so that a flow log could be completed under static conditions. Most of the flow appeared to be located between 236' and 360' below LSD. The single greatest amount of flow existed between 328' and 360' below LSD. Over 350 gpm flow was measured at a 371' depth below LSD. Flow was also noted in the (86'-104') (236'-298') below LSD intervals. Under natural artesian flowing conditions of approximately 150 gal/min, the zones of flow were similar to the above intervals of (86'-104') (236'-298') and (328'-360') below LSD. The highly transmissive zones appeared to be distorted by the flowing conditions in the borehole. Some flow was measured at 390' below LSD. Initially the well was allowed to flow at 80 gpm. Residual drawdown(s') during this period of time ranged from 0' to 2.10'.

A step pump flowmeter test lasted for a period of 5 hours and 5 minutes. The well was first pumped at 380-400 gpm and then stepped up to a 700 gpm rate. The interval pumped in the Hawthorn and Tampa Formations extended from 60' to 480' below LSD (d=420'). Residual drawdown(s') increased to 6.98' after four hours pumping at 400 gpm(Q). The pumping rate was then stepped up to 700 gpm(Q). Residual drawdown(s') increased to 11.49' after 65 minutes pumping. At 700 gpm, the water level dropped to 19.15' below the measuring point after 65 minutes.

Water levels were recorded during a recovery period following pump shutdown. Recovery was measured from 3:05 P.M. on 6-19-84 to 8:12 A.M. on 6-20-84. Residual drawdown(s') ranged from 6.04' to 11.35' during this period of time. Water levels recovered from 19.15' below the measuring point just before pump shutdown to .95' below the measuring point the following day at 8:12 A.M. This indicated a difference of .61' from the .34'

measurement recorded before the pump test. The measuring point was 2.40' above LSD. Water levels therefore ranged from 2.06' above LSD before the pump test to 1.45' above LSD after the pump test in the 10" PVC casing. A water level change of .16' had been recorded from the day before the pump test to the initial start of the pump test.

The changes in the water levels before the pump test can probably be attributed to barometric, tidal and possibly local pumping effects. The differences after the pump test are most likely attributed to the above reasons as well as development of the well during the pump test. The data completed below indicates transmissivity in the Hawthorn-Tampa artesian zone.

Q = discharge = (400-110) (pumping conditions)
 Q = discharge = (700-400) (pumping conditions)
 's = change in the drawdown per log cycle = 0.60 ft., .62 ft.
 2.30 = units conversion factor
 T = transmissivity = gpd/ft or ft²/d
 t = minutes per day = 1,440 min.
 log₁₀t = 7.48

$$T = \frac{2.30 Q}{4.7 \Delta s / \Delta \log_{10} t}$$

$$T = \frac{2.30 \times 280 \times 1,440}{4.7 \times .60 \times 1 \times 7.48} \quad T = 16,451 \text{ ft}^2/\text{day}$$

$$T = \frac{230 Q}{4.7 \Delta s / \Delta \log_{10} t}$$

$$T = \frac{2.30 \times 300 \times 1,440}{4.7 \times .62 \times 1 \times 7.48} \quad T = 17,058 \text{ ft}^2/\text{day}$$

*Additional data relating to specific capacity, permeability, storage coefficient and leakage will be determined for the Hawthorn-Tampa Formation and placed in the TR5-2 "Geronimo" file.

B. The second pump test was completed between 8-27-84 and 8-29-84. Drilling had been resumed from the 480' depth and continued to a depth of 700' below LSD. A six (6") inch PVC casing had been seated prior to the pump test at 510' below LSD and cement grouted to the surface. For the pump test, an open hole existed between 510' and 700' below LSD.

Marvin E. Miller & Son Well Drilling Inc. ran the pump test at a cost of \$2,560.

The discharge pipe was six inches (6") diameter with a five inch (5") orifice plate opening. Discharge, drawdown and specific capacity were measured during an 18 hour period of time. Leakage coefficients from nearby wells monitoring the Tampa and Ocala Formations were determined during the pump test. Recovery was immediate because the pumped well was under

artesian conditions. The TR5-2 intermediate well was allowed to flow for a period of 18 hours before the pump test. Artesian flow ranged between 220 gpm and 250 gpm during the 18 hour period. Water level was measured at 14.9' above LSD. Elevation at the TR5-2 site is 14.8' above MSL. Static water levels were measured or determined on the wells monitoring the Tampa, Suwannee and Ocala Formations. Effects from tides and barometric pressure were recorded and estimated during the flow period. The screened interval in the Tampa Formation is from 360'-400' below LSD and is approximately 110' from the top of the Suwannee monitor zone of 510' below LSD. The screened interval in the Ocala Group is from 850'-890' below LSD and is approximately 150' from the bottom of the Suwannee monitor zone of 700' below LSD.

As mentioned above, discharge, drawdown and specific conductivity measurements were recorded during the pumping period of 18 hours. The intermediate monitor well (Suwannee Formation) was pumped at an average discharge rate of 500 gpm. Drawdown reached a maximum amount of 18.90' after 4 hours, but recovered to a depth of 17.87' below LSD after 18 hours of pumping. A change in the pumping rate was noted as the reason for the rise of 1.03' water level. It was determined that the specific capacity after 1 hour pumping at 500 gpm was equal to approximately 15.6 gpm/ft. Specific capacity indicates that a 15 gal/min change in discharge will cause a 1 foot of head change. Therefore, a decline from 16" to 15" in the manometer reading could cause hydraulic head to rise 1 foot. The manometer declined slightly, as mentioned above during the later part of the test. Coupled with tidal effects, barometric pressure, any changes due to the higher pumpage rate probably accounted for the anomalous rise in the water level. It was noted that tidal effects did account for a 0.1-0.2 ft. change in the zones above and below the Suwannee Formation.

Water quality changes did not have any measurable effect on water level measurements. Density effects from water quality changes would not be a factor because water quality ranged between 2,700 and 2,800 Umhos during the pump test.

Transmissivity is calculated below:

$$T = \frac{2.30Q}{4.7\Delta s/\Delta \log 10 t}$$

$$T = \frac{2.30 \times (500-220) \times 1440}{4.7 \times .74 \times 1 \times 7.48}$$

$$T = 13,300 \text{ ft}^2/\text{day}$$

$$T = 99,484 \text{ gpd}$$

*Additional data relating to specific capacity, permeability, storage coefficient and leakage will be determined at a later date and placed in the TR 5-2 "Geronimo" file.

VII. TYPE OF MONITORS

The deep dual zone well was constructed for the purpose of monitoring the upward migration of poor quality water (sulfates), measuring potentiometric surface levels and defining artesian zones. A deep monitor, two intermediate monitors wells and a surficial water table monitor were completed at the TR5-2 site.

VIII. WELL CONSTRUCTION AND DESIGN

- A. The deep dual zone well was completed to accurately determine the geologic formations and identify the four artesian zones. The well was drilled to 906' initially and cased to a depth of 357' below LSD.

The deep TR5-2 well was constructed in the following manner:

An 18" nominal borehole was drilled to 40 feet, using mud rotary drilling techniques. Forty feet (40') of 14" inch steel casing was then seated and cement grouted from bottom to top during the initial stages of drilling. A 12 1/4 inch drill bit was used to drill out of the steel casing to a depth of 357'. At this depth 357' of 8" PVC casing was seated and cement grouted from bottom to top. A 7 5/8" drillbit was then utilized to drill a 8 inch nominal hole from 357' to 906' TD.

The deep 3" PVC monitor tube (+21 to -850') with a 3" dia. PVC well screen No. 0.03" (850'-890') was inserted into the well and packed with 3/8" pea gravel from a depth of 906' to 833' below LSD. The borehole was sand packed, gravel packed and cement grouted at various intervals between 833' and 432' below LSD. A second shallower 2" PVC monitor tube (+21' to -360') with a 2" PVC well screen No. 0.03" (360'-400') was then inserted into the borehole and packed with 3/8" pea gravel and silica sand from 432' to 325' below LSD. A slug of cement grout (305'-325') was injected into the 8" PVC casing to block any further high artesian flow from below the bottom of the casing. The upper part of the casing was gravel packed and sand packed from 305' below LSD to 20' above LSD.

- B. The intermediate single zone monitor was constructed for the purpose of monitoring a highly transmissive artesian zone within the Suwannee Formation. A 22" nominal borehole was drilled to a depth of 20' below LSD. Twenty feet (20') of 16" steel casing was seated and cement grouted to the surface. A 15" dia. nominal borehole was then drilled to a depth 60' below LSD. Ten inch (10") dia. PVC casing was seated at 60' and cement grouted to land surface. A ten inch (10") dia. nominal borehole was then drilled to a depth of 510' below LSD. A six inch (6") diameter PVC casing was set at 510' below LSD. Following the cement grouting to the surface, a 5 5/8" bit was used to drill a six inch (6") nominal borehole to a depth of 700' below LSD. Following the pump-flowmeter testing and geophysical logging completed by the USGS and the District's logging equipment, the borehole may be backfilled with cement grout to a depth of 640'* below LSD (*not completed yet).
- C. A shallower intermediate dual zone monitor was also constructed to monitor two artesian zones from approximately (60'-120') and (235'-270') below LSD. A 22" nominal borehole was drilled from land surface to 60' below LSD. A

16" steel casing was seated and cement grouted from 60' below LSD to land surface. A 16" nominal borehole was then drilled to a depth of 270' below LSD to accommodate two monitor tubes. A four inch (4") dia. monitor tube (+20' to -245' below LSD) was coupled to a four inch (4") dia. well screen (No. 0.030") (245'-265' below LSD). The borehole's annulus was filled with 3/8" pea gravel from 270' to 240' below LSD. Type 6-20 silica sand was placed in the well from 240' to 235' below LSD. The well was then cement grouted and gravel packed from 235' to 120' below LSD. The gravel pack was used in cavities or to contain high flow which interfered with the grouting process. A second 4" dia. monitor tube (+20'-100' below LSD) was coupled to a four inch (4") dia. well screen (No. 0.030") (100'-120' below LSD). The borehole's annulus was filled with type 6-20 silica sand from 60' to 120' below LSD. Cement grout was used to fill the annulus from 60' to LSD.

- D. A surficial water table monitor was then drilled to a depth of 13' below LSD. A 10 5/8" drill bit was used in drilling a 10" dia. nominal borehole. A 4" dia. PVC monitor tube (+3' to 8' below LSD) was coupled to a 4" dia. PVC well screen (No. 0.030") (8' to 13' below LSD). Type 6-20 silica sand was poured into the well's annulus from 13' to 3' below LSD. Cement grout was used to complete the construction of the well from (-3' to LSD).

IX. GEOPHYSICAL LOGS

Suites of geophysical logs: caliper, gamma ray, electric (spontaneous potential, single point resistivity, 16" normal 64" normal, deep focused resistivity), neutron (porosity), gamma gamma (density), acoustic velocity, temperature, fluid resistivity, fluid conductivity, and flow logs were completed at the TR 5-2 site. Zones of high transmissivity, lithology, formation contacts, porosity, density, depths of temperature changes and water quality changes were some of the hydrogeological data identified from the geophysical logs.

Simplified Lithology

Borehole Depth (ft. below L.S.D.)	Name of Rock Unit
LSD - 13'	Undifferentiated Sand, Clay and Shell
13' - 55'	Caloosahatchee Marl and Tamiami Formation
55' - 300'	Hawthorn Formation
300' - 500'	Tampa Formation
500' - 812'	Suwannee Formation
812' - 896'	Ocala Group - Crystal River Formation
896' - 906' TD	Ocala Group - Williston Formation

JLD:cwpmt

LITHOLOGIC WELL LOG PRINTOUT

SOURCE - FGS

WELL NUMBER: W- 15636
TOTAL DEPTH: 00900 FT.
SAMPLES - NONE

COUNTY - SARASOTA
LOCATION: T.38S R.19E S.22BC
LAT = N 27D 09M 19
LON = W 82D 23M 42

COMPLETION DATE - 06/15/83
OTHER TYPES OF LOGS AVAILABLE - NONE

ELEVATION - 015 FT

OWNER/DRILLER: SWFMD ROMP TR-5-2 (GERONIMO); DRILLER: J.D. HOLLAND, T. TOY, W. WERTZ

WORKED BY: WORKED BY GREG HENDERSON; CUTTINGS IN GOOD CONDITION
ENTERED BY T.L. SEAL , FGS 2-14-91
HENDERSON WOULD OCCASIONALLY LIST 3-4 DIFFERENT LITHOLOGIES
FOR ONE SEPARATE INTERVAL; IN THIS SITUATION, THE FIRST
LISTED LITHOLOGY WAS USED AS THE DESCRIPTION, AND ANY ADDITIONAL
LITHOLOGIES WERE INCLUDED IN A SUBSEQUENT "Z" COMMENT

0. - 13. UNDIFFERENTIATED SAND AND CLAY
13. - 55. CALDOSAHATCHEE FM.
55. - 500. HAWTHORN GROUP
300. - 500. TAMPA MEMBER OF ARCADIA FM.
500. - 812. SUWANNEE LIMESTONE
812. - 886. CRYSTAL RIVER FM. } *Ocala*
886. - . WILLISTON FM.

0 - 5 SAND; BROWNISH GRAY TO DARK BROWN; 35% POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM; UNCONSOLIDATED;
CEMENT TYPE(S): ORGANIC MATRIX;
SEDIMENTARY STRUCTURES: INTERBEDDED,
ACCESSORY MINERALS: PLANT REMAINS-03%, PHOSPHATIC GRAVEL-02%;
OTHER FEATURES: FROSTED;
SHELL BED DESCRIBED IN THIS INTERVAL

5 - 13 SHELL BED; VERY LIGHT ORANGE TO PINKISH GRAY; 30% POROSITY, INTERGRANULAR,
POSSIBLY HIGH PERMEABILITY; UNCONSOLIDATED;
SEDIMENTARY STRUCTURES: INTERBEDDED,
FOSSILS: FOSSIL FRAGMENTS, MOLLUSKS;
INTERBEDDED SHELL BEDS AND UNCONSOLIDATED SANDS

- 13 - 15 LIMESTONE; LIGHT OLIVE GRAY TO DARK GRAYISH YELLOW; 20% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL;
MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
SEDIMENTARY STRUCTURES: INTERBEDDED,
ACCESSORY MINERALS: QUARTZ SAND-06%, PHOSPHATIC SAND-01%, PHOSPHATIC GRAVEL-03%;
OTHER FEATURES: CHALKY;
FOSSILS: FOSSIL MOLDS, FOSSIL FRAGMENTS, MOLLUSKS, CORAL, ORGANICS;
LOW LEVEL OF RECRYSTALLIZATION, SHELL BED SIMILAR TO ABOVE ALSO PRESENT IN THIS INTERVAL
- 15 - 20 LIMESTONE; YELLOWISH GRAY TO OLIVE GRAY; 20% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, BIOGENIC, SKELETAL;
MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
SEDIMENTARY STRUCTURES: INTERBEDDED,
ACCESSORY MINERALS: QUARTZ SAND-05%, CALCILUTITE-05%, PHOSPHATIC GRAVEL-04%,
PHOSPHATIC SAND-01%;
OTHER FEATURES: CHALKY;
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, CORAL, MOLLUSKS;
- 20 - 25 AS ABOVE
SAME AS ABOVE BUT NO QUARTZ SAND, AND AN INCREASE IN CLAY SHELL BEDS ALSO PRESENT IN THE INTERVAL FROM 20-25 FEET
- 25 - 35 LIMESTONE; YELLOWISH GRAY; 25% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
SEDIMENTARY STRUCTURES: INTERBEDDED,
ACCESSORY MINERALS: CALCILUTITE-07%, CLAY-02%, PHOSPHATIC SAND-01%;
OTHER FEATURES: GRANULAR, GREASY;
FOSSILS: MOLLUSKS, FOSSIL FRAGMENTS;
- 35 - 40 CLAY; LIGHT OLIVE GRAY TO GRAYISH OLIVE; 30% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
MODERATE INDURATION;
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX;
SEDIMENTARY STRUCTURES: INTERBEDDED,
ACCESSORY MINERALS: CALCILUTITE-02%, QUARTZ SAND-01%, ANHYDRITE- %;
OTHER FEATURES: CALCAREOUS;
FOSSILS: NO FOSSILS;
- 40 - 45 NO SAMPLES

- 45 - 50 CLAY; OLIVE GRAY TO LIGHT GRAYISH GREEN; 30% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
MODERATE INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
SEDIMENTARY STRUCTURES: INTERBEDDED,
ACCESSORY MINERALS: CALCILUTITE-01%;
FOSSILS: NO FOSSILS;
CLAY APPEARS "GREASY"
- 50 - 55 SAME CLAY AS ABOVE WITH MORE CALCILUTITE CEMENT PRESENT
- 55 - 65 LIMESTONE; YELLOWISH GRAY TO LIGHT GRAY; 20% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
SEDIMENTARY STRUCTURES: INTERBEDDED,
ACCESSORY MINERALS: CALCILUTITE-07%, QUARTZ SAND-01%, PHOSPHATIC SAND-01%;
OTHER FEATURES: CHALKY, SPLINTERY;
FOSSILS: MOLLUSKS, FOSSIL FRAGMENTS, FOSSIL MOLDS;
LIGHT BROWN LIMESTONE ALSO PRESENT. THIS LIMESTONE HAS SPARRY CALCITE CEMENT AND A TRACE
OF PHOSPHATIC SAND, AND HAS A SPLINTERY, SPECKLED APPEARANCE ALSO PRESENT IN THIS INTERVAL
IS AN OLIVE BROWN CALCAREOUS CLAY
- 65 - 75 LIMESTONE; YELLOWISH GRAY TO GRAYISH BROWN; 20% POROSITY, INTERGRANULAR, LOW PERMEABILITY,
MOLDIC;
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL;
MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
SEDIMENTARY STRUCTURES: INTERBEDDED,
ACCESSORY MINERALS: CALCILUTITE-09%, SPAR-01%, PHOSPHATIC SAND-01%;
OTHER FEATURES: CHALKY, SPLINTERY;
FOSSILS: MOLLUSKS, CORAL, FOSSIL FRAGMENTS, FOSSIL MOLDS;
- 75 - 80 AS ABOVE
- 80 - 85 LIMESTONE; GRAYISH BROWN TO GRAYISH BROWN; 20% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL;
MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
SEDIMENTARY STRUCTURES: INTERBEDDED,
ACCESSORY MINERALS: CALCILUTITE-10%, SHELL-ORX, PHOSPHATIC SAND-01%, CHERT-01%;
OTHER FEATURES: GRANULAR, CHALKY;
FOSSILS: MOLLUSKS, MILIOLIDS, FOSSIL FRAGMENTS, FOSSIL MOLDS;

- 85 - 95 CALCARENITE; YELLOWISH GRAY TO GRAYISH YELLOW; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
SEDIMENTARY STRUCTURES: INTERBEDDED,
ACCESSORY MINERALS: CALCILUTITE-08%, CLAY-01%, PHOSPHATIC SAND-01%, QUARTZ SAND-01%;
OTHER FEATURES: CHALKY;
FOSSILS: MILIOLIDS, FOSSIL MOLDS;
GRAY TO BLUISH GRAY CHERT (SILICIFIED LIMESTONE) ALSO PRESENT
- 95 - 105 CALCARENITE; YELLOWISH GRAY TO GRAYISH YELLOW; 20% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
SEDIMENTARY STRUCTURES: INTERBEDDED,
ACCESSORY MINERALS: CALCILUTITE-08%, CLAY-04%, PHOSPHATIC SAND-01%, QUARTZ SAND-01%;
OTHER FEATURES: CHALKY, MUDDY;
FOSSILS: MILIOLIDS, FOSSIL MOLDS;
GRAY TO BLUISH GRAY CHERT OBSERVED IN 95-100 INTERVAL
- 105 - 120 CALCARENITE; YELLOWISH GRAY TO GRAYISH YELLOW; 20% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
SEDIMENTARY STRUCTURES: INTERBEDDED,
ACCESSORY MINERALS: DOLOMITE-05%, CALCILUTITE-05%, CLAY-02%, PHOSPHATIC SAND-01%;
OTHER FEATURES: CHALKY, MUDDY, DOLOMITIC;
FOSSILS: FOSSIL MOLDS, MILIOLIDS, SPICULES;
CALCARENITE FROM 105-120, WITH DOLOMITIC INTERVAL IN THE 105-110 INTERVAL, TRACE OF QUARTZ SAND PRESENT CHERT PRESENT ALSO
- 120 - 130 CALCARENITE; GRAYISH YELLOW TO YELLOWISH GRAY; 20% POROSITY, INTERGRANULAR, MOLDIC, LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL CAST;
MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
SEDIMENTARY STRUCTURES: INTERBEDDED,
ACCESSORY MINERALS: CLAY-01%, PHOSPHATIC SAND-01%, QUARTZ SAND-01%;
OTHER FEATURES: CHALKY;
FOSSILS: MOLLUSKS, MILIOLIDS, FOSSIL MOLDS, FOSSIL FRAGMENTS;
CALCILUTITE WITH LOW PROOSITY PRESENT INTERBEDDED WITH CALCARENITE

- 130 - 140 CALCARENITE; YELLOWISH GRAY TO LIGHT GRAY; 25% POROSITY, INTERGRANULAR, MOLDIC, LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL CAST;
MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
SEDIMENTARY STRUCTURES: INTERBEDDED,
ACCESSORY MINERALS: CALCILUTITE-09%, CLAY-01%, PHOSPHATIC SAND-01%, QUARTZ SAND-01%;
OTHER FEATURES: CHALKY;
FOSSILS: MOLLUSKS, MILIOLIDS, FOSSIL MOLDS, FOSSIL FRAGMENTS;
- 140 - 145 CALCARENITE; GRAYISH YELLOW TO YELLOWISH GRAY; 20% POROSITY, INTERGRANULAR, MOLDIC, LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL CAST;
MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
SEDIMENTARY STRUCTURES: INTERBEDDED,
ACCESSORY MINERALS: CALCILUTITE-08%, CLAY-01%, PHOSPHATIC SAND-01%;
OTHER FEATURES: CHALKY;
FOSSILS: MOLLUSKS, MILIOLIDS, FOSSIL MOLDS, FOSSIL FRAGMENTS;
CALCILUTITE AND CLAY ALSO PRESENT INTERBEDDED WITH CALCARENITE
- 145 - 155 CALCARENITE; LIGHT GRAY TO YELLOWISH GRAY; 25% POROSITY, INTERGRANULAR, MOLDIC, LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL CAST;
MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
SEDIMENTARY STRUCTURES: INTERBEDDED,
ACCESSORY MINERALS: CALCILUTITE-09%, CLAY-01%, PHOSPHATIC SAND-01%;
OTHER FEATURES: CHALKY;
FOSSILS: MILIOLIDS, MOLLUSKS, FOSSIL FRAGMENTS, FOSSIL MOLDS;
CLAY AND CALCILUTITE INTERBEDDED WITH CALCARENITE
- 155 - 160 AS ABOVE
- 160 - 165 AS ABOVE
- 165 - 170 CALCARENITE; LIGHT GRAY TO YELLOWISH GRAY; 25% POROSITY, INTERGRANULAR, MOLDIC, LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL CAST;
MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: INTERBEDDED,
ACCESSORY MINERALS: CALCILUTITE-09%, CLAY-01%, PHOSPHATIC SAND-01%;
OTHER FEATURES: CHALKY;
FOSSILS: MILIOLIDS, MOLLUSKS, FOSSIL MOLDS, FOSSIL FRAGMENTS, ECHINOID;
CALCILUTITE AND CLAY INTERBEDDED WITH CALCARENITE

- 170 - 175 CALCARENITE; LIGHT GRAY TO YELLOWISH GRAY; 25% POROSITY, INTERGRANULAR, MOLDIC, LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL CAST;
MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
SEDIMENTARY STRUCTURES: INTERBEDDED,
ACCESSORY MINERALS: CALCILUTITE-09%, CLAY-01%, PHOSPHATIC SAND-01%;
OTHER FEATURES: CHALKY;
FOSSILS: MILIOLIDS, MOLLUSKS, ECHINOID, FOSSIL FRAGMENTS, FOSSIL MOLDS;
DOLOMITE, CLAY AND CALCILUTITE INTERBEDDED WITH CALCARENITE
- 175 - 180 AS ABOVE
- 180 - 190 CLAY; GREENISH GRAY TO GRAYISH GREEN; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
MODERATE INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
SEDIMENTARY STRUCTURES: INTERBEDDED,
FOSSILS: NO FOSSILS;
GREASY CLAY INTERBEDDED WITH BROWNISH GRAY DOLOMITE AND HIGH POROSITY CALCARENITE,
UNCONFORMITY PICKED AT 190'
- 190 - 195 CALCILUTITE; YELLOWISH GRAY TO LIGHT GREENISH GRAY; 35% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
SEDIMENTARY STRUCTURES: INTERBEDDED,
ACCESSORY MINERALS: CALCILUTITE-09%, CLAY- %;
OTHER FEATURES: CHALKY;
FOSSILS: MILIOLIDS, FOSSIL MOLDS;
CLAY AND DOLOMITE INTERBEDDED WITH CALCARENITE
- 195 - 200 CALCARENITE; LIGHT GRAY TO YELLOWISH GRAY; 25% POROSITY, INTERGRANULAR, MOLDIC, LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL CAST;
MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
SEDIMENTARY STRUCTURES: INTERBEDDED,
ACCESSORY MINERALS: CALCILUTITE-09%, CLAY-01%, PHOSPHATIC SAND-01%;
OTHER FEATURES: CHALKY;
FOSSILS: MOLLUSKS, MILIOLIDS, ECHINOID, FOSSIL MOLDS, FOSSIL FRAGMENTS;
CALCILUTITE AND CLAY INTERBEDDED WITH CALCARENITE
- 200 - 205 AS ABOVE
- 205 - 210 AS ABOVE
- 210 - 215 AS ABOVE

- 215 - 220 CALCILUTITE; YELLOWISH GRAY TO LIGHT GREENISH GRAY; 35% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
SEDIMENTARY STRUCTURES: INTERBEDDED,
ACCESSORY MINERALS: CLAY-02%, PHOSPHATIC SAND-01%, PHOSPHATIC GRAVEL-01%;
OTHER FEATURES: CHALKY;
FOSSILS: FOSSIL MOLDS, MILIOLIDS;
DOLOMITE AND CLAY INTERBEDDED WITH CALCILUTITE; UNCONFORMITY PICKED AT 220
- 220 - 225 NO SAMPLES
- 225 - 235 CALCARENITE; YELLOWISH GRAY TO GRAYISH YELLOW; 28% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL CAST;
MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: INTERBEDDED,
ACCESSORY MINERALS: CALCILUTITE-10%, DOLOMITE-01%, SPAR-01%, PHOSPHATIC SAND-01%;
OTHER FEATURES: DOLOMITIC;
FOSSILS: MILIOLIDS, MOLLUSKS, ECHINOID, FOSSIL FRAGMENTS, FOSSIL MOLDS;
- 235 - 245 CALCARENITE; YELLOWISH GRAY TO LIGHT GRAY; 35% POROSITY, INTERGRANULAR, PIN POINT VUGS, POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL CAST;
MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
SEDIMENTARY STRUCTURES: INTERBEDDED,
ACCESSORY MINERALS: CALCILUTITE-10%, PHOSPHATIC SAND-01%, PHOSPHATIC GRAVEL-01%;
OTHER FEATURES: CHALKY;
FOSSILS: MILIOLIDS, MOLLUSKS, ECHINOID, CRUSTACEA, FOSSIL FRAGMENTS;
245 LOWER-POROSITY CALCARENITE INTERBEDDED W/ HIGH POROSITY CALCARENITE TRACE OF BARNACLE (BALANUS) FRAGMENTS
- 245 - 250 AS ABOVE
- 250 - 255 AS ABOVE
- 255 - 265 CALCARENITE; LIGHT GRAY TO YELLOWISH GRAY; 40% POROSITY, INTERGRANULAR, PIN POINT VUGS, POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL CAST;
MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
SEDIMENTARY STRUCTURES: INTERBEDDED,
ACCESSORY MINERALS: CALCILUTITE-10%, SPAR-03%, PHOSPHATIC GRAVEL-01%, QUARTZ SAND-01%;
OTHER FEATURES: GRANULAR;
FOSSILS: MILIOLIDS, MOLLUSKS, ECHINOID, BRYOZOA, FOSSIL FRAGMENTS;
YELLOW-GRAY TO GRAYISH BROWN CALCARENITE WITH 25% POROSITY INTERBEDDED WITH ABOVE HIGH-POROSITY CALCARENITE

- 265 - 280 CALCARENITE; LIGHT GRAY TO YELLOWISH GRAY; 40% POROSITY, INTERGRANULAR, PIN POINT VUGS, POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL CAST;
MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
SEDIMENTARY STRUCTURES: INTERBEDDED,
ACCESSORY MINERALS: CALCILUTITE-10%, SPAR-03%, PHOSPHATIC GRAVEL-01%, QUARTZ SAND-01%;
OTHER FEATURES: GRANULAR;
FOSSILS: MILIOLIDS, MOLLUSKS, ECHINOID, FOSSIL FRAGMENTS;
SIMILAR YELLOW-GRAYISH BROWN CALCARENITE, PLUS SOME DOLOMITE, INTERBEDDED WITH HIGH-POROSITY CALCARENITE
- 280 - 285 CALCARENITE; YELLOWISH GRAY; 25% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CLAY MATRIX;
SEDIMENTARY STRUCTURES: INTERBEDDED,
ACCESSORY MINERALS: CLAY-03%, SPAR-01%, QUARTZ SAND-02%;
OTHER FEATURES: CHALKY, MUDDY;
FOSSILS: MILIOLIDS, ECHINOID, FOSSIL MOLDS;
- 285 - 290 CALCARENITE; YELLOWISH GRAY; 20% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
SEDIMENTARY STRUCTURES: INTERBEDDED,
ACCESSORY MINERALS: CLAY-03%, SPAR-01%, QUARTZ SAND-02%;
OTHER FEATURES: CHALKY, MUDDY;
FOSSILS: MILIOLIDS, ECHINOID, FOSSIL MOLDS;
- 290 - 295 CALCARENITE; YELLOWISH GRAY TO GRAYISH BROWN; 18% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
SEDIMENTARY STRUCTURES: INTERBEDDED,
ACCESSORY MINERALS: CLAY-05%, CALCILUTITE-03%, QUARTZ SAND-03%, SPAR-01%;
OTHER FEATURES: CHALKY;
FOSSILS: MILIOLIDS, CORAL, BRYOZOA, ECHINOID, FOSSIL MOLDS;
DOLOMITE INTERBEDDED WITH CALCARENITE IN THIS INTERVAL

- 295 - 300 CALCARENITE; GRAYISH BROWN TO YELLOWISH GRAY; 18% POROSITY, INTERGRANULAR,
LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
SEDIMENTARY STRUCTURES: INTERBEDDED,
ACCESSORY MINERALS: CLAY-05%, CALCILUTITE-03%, QUARTZ SAND-04%, SPAR-01%;
OTHER FEATURES: CHALKY;
FOSSILS: MILIOLIDS, FOSSIL MOLDS, ECHINOID, MOLLUSKS;
GRAYISH BROWN TO LIGHT OLIVE GRAY CALCILUTITE INTERBEDDED WITH CALCARENITE, TRACE CRAB
CLAWS AND OSTREA SHELL FRAGMENTS
- 300 - 305 CALCARENITE; YELLOWISH GRAY TO GRAYISH YELLOW; 16% POROSITY, INTERGRANULAR,
LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
SEDIMENTARY STRUCTURES: INTERBEDDED,
ACCESSORY MINERALS: CLAY-05%, CALCILUTITE-02%, QUARTZ SAND-04%, PHOSPHATIC SAND-01%;
OTHER FEATURES: CHALKY;
FOSSILS: MILIOLIDS, MOLLUSKS, BRYOZOA, CRUSTACEA, FOSSIL FRAGMENTS;
INTRACLASTS PRESENT, ABUNDANT CRAB CLAWS FRAGMENTS, TRACE TRACE BROWN CHERT
- 305 - 310 AS ABOVE
- 310 - 315 AS ABOVE
- 315 - 325 CALCARENITE; YELLOWISH GRAY TO GRAYISH YELLOW; 25% POROSITY, INTERGRANULAR;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
SEDIMENTARY STRUCTURES: INTERBEDDED,
ACCESSORY MINERALS: CLAY-04%, CALCILUTITE-03%, QUARTZ SAND-03%, PHOSPHATIC GRAVEL-01%;
OTHER FEATURES: CHALKY;
FOSSILS: MILIOLIDS, MOLLUSKS, ECHINOID, FOSSIL FRAGMENTS, CRUSTACEA;
TRACE CHIONE AND CRAB FRAGMENTS
- 325 - 330 AS ABOVE
- 330 - 335 AS ABOVE

- 335 - 345 CALCARENITE; YELLOWISH GRAY TO GRAYISH YELLOW; 25% POROSITY, INTERGRANULAR;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
SEDIMENTARY STRUCTURES: INTERBEDDED,
ACCESSORY MINERALS: CLAY-04%, CALCILUTITE-03%, QUARTZ SAND-03%, PHOSPHATIC GRAVEL-01%;
OTHER FEATURES: CHALKY;
FOSSILS: MILIOLIDS, MOLLUSKS, ECHINOID, FOSSIL FRAGMENTS;
LIGHT GRAY TO YELLOWISH GRAY CALCILUTITE INTERBEDDED WITH CALCARENITE
- 345 - 355 CALCARENITE; YELLOWISH GRAY; 26% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
SEDIMENTARY STRUCTURES: INTERBEDDED,
ACCESSORY MINERALS: CLAY-04%, CALCILUTITE-03%, QUARTZ SAND-03%, PHOSPHATIC GRAVEL-01%;
OTHER FEATURES: CHALKY;
FOSSILS: MILIOLIDS, MOLLUSKS, ECHINOID, FOSSIL FRAGMENTS;
TRACE OF BLUISH GRAY CHERT WITH IRON STAINING
- 355 - 360 AS ABOVE
- 360 - 370 CALCARENITE; YELLOWISH GRAY TO GRAYISH YELLOW; 22% POROSITY, INTERGRANULAR,
LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
SEDIMENTARY STRUCTURES: INTERBEDDED,
ACCESSORY MINERALS: CLAY-04%, CALCILUTITE-04%, QUARTZ SAND-02%;
OTHER FEATURES: CHALKY;
FOSSILS: MILIOLIDS, MOLLUSKS, ECHINOID, FOSSIL FRAGMENTS, FOSSIL MOLDS;

LIGHT GRAY CALCILUTITE INTERBEDDED WITH CALCARENITE
- 370 - 375 CALCARENITE; YELLOWISH GRAY; 22% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
SEDIMENTARY STRUCTURES: INTERBEDDED, BRECCIATED,
ACCESSORY MINERALS: CLAY-04%, CALCILUTITE-03%, QUARTZ SAND-02%;
OTHER FEATURES: CHALKY;
FOSSILS: MILIOLIDS, MOLLUSKS, ECHINOID, FOSSIL FRAGMENTS;
- 375 - 380 AS ABOVE

- 380 - 385 CALCARENITE; YELLOWISH GRAY TO LIGHT OLIVE GRAY; 22% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
SEDIMENTARY STRUCTURES: INTERBEDDED,
ACCESSORY MINERALS: CLAY-02%, CALCILUTITE-05%, QUARTZ SAND-01%, PHOSPHATIC GRAVEL-01%;
OTHER FEATURES: CHALKY;
FOSSILS: MILIOLIDS, MOLLUSKS, CRUSTACEA, FOSSIL FRAGMENTS;
- 385 - 395 CALCARENITE; YELLOWISH GRAY; 18% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, CLAY MATRIX;
SEDIMENTARY STRUCTURES: INTERBEDDED,
ACCESSORY MINERALS: CALCILUTITE-08%, CLAY-01%, QUARTZ SAND-01%;
FOSSILS: MILIOLIDS, MOLLUSKS, FOSSIL FRAGMENTS, FOSSIL MOLDS;
HIGH-POROSITY CALCARENITE INTERBEDDED WITH ABOVE CALCARENITE TRACE OF BARNACLES (BALANUS) AND CRAB CLAW FRAGMENTS
- 395 - 405 CALCARENITE; YELLOWISH GRAY; 30% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL CAST;
MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, CLAY MATRIX;
SEDIMENTARY STRUCTURES: INTERBEDDED, BIOTURBATED,
ACCESSORY MINERALS: CALCILUTITE-06%, SPAR-02%, CLAY-01%;
OTHER FEATURES: SUCROSIC, GRANULAR;
FOSSILS: MILIOLIDS, MOLLUSKS, BRYOZOA, ECHINOID, FOSSIL FRAGMENTS;
YELLOW-GRAY TO LIGHT GRAY CALCARENITE WITH LOWER POROSITY INTERBEDDED WITH ABOVE CALCARENITE
- 405 - 410 AS ABOVE
- 410 - 415 AS ABOVE
- 415 - 420 CALCARENITE; YELLOWISH GRAY TO LIGHT GRAY; 18% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
SEDIMENTARY STRUCTURES: INTERBEDDED,
ACCESSORY MINERALS: CALCILUTITE-04%, CLAY-01%, QUARTZ SAND-02%, PHOSPHATIC GRAVEL-01%;
OTHER FEATURES: CHALKY;
FOSSILS: MILIOLIDS, MOLLUSKS, CORAL, FOSSIL FRAGMENTS, FOSSIL MOLDS;

- 420 - 430 CALCILUTITE; YELLOWISH GRAY; 30% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
SEDIMENTARY STRUCTURES: INTERBEDDED,
ACCESSORY MINERALS: CALCILUTITE-08%, CLAY-03%, QUARTZ SAND-01%;
OTHER FEATURES: CHALKY, MUDDY;
FOSSILS: MILIOLIDS, MOLLUSKS, FOSSIL FRAGMENTS, FOSSIL MOLDS;
MODERATE POROSITY CALCARENITE INTERBEDDED WITH CALCILUTITE
- 430 - 440 AS ABOVE
- 440 - 450 AS ABOVE
- 450 - 460 AS ABOVE
- 460 - 465 CALCILUTITE; YELLOWISH GRAY; 30% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
SEDIMENTARY STRUCTURES: INTERBEDDED,
ACCESSORY MINERALS: CALCILUTITE-08%, CLAY-03%, QUARTZ SAND-01%;
OTHER FEATURES: CHALKY, MUDDY;
FOSSILS: MILIOLIDS, MOLLUSKS, CORAL, FOSSIL FRAGMENTS, FOSSIL MOLDS;
TRACE OF LIGHT GRAY CHERT FRAGMENTS
- 465 - 480 CALCILUTITE; YELLOWISH GRAY TO GRAYISH BROWN; 01% POROSITY, LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
SEDIMENTARY STRUCTURES: INTERBEDDED, MASSIVE,
ACCESSORY MINERALS: CLAY-03%, QUARTZ SAND-01%;
OTHER FEATURES: CHALKY, MUDDY;
FOSSILS: MILIOLIDS, MOLLUSKS, CORAL, FOSSIL FRAGMENTS, FOSSIL MOLDS;
LOWER-POROSITY CALCILUTITE AND CALCARENITE INTERBEDDED WITH HIGH-POROSITY CALCILUTITE,
TRACE BRYOZOANS, LOCAL SPAR CEMENT
- 480 - 500 AS ABOVE
- 500 - 505 CALCARENITE; YELLOWISH GRAY; 30% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL CAST;
GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, CLAY MATRIX;
SEDIMENTARY STRUCTURES: INTERBEDDED, MASSIVE,
ACCESSORY MINERALS: CALCILUTITE-04%, SPAR-03%, CLAY-01%, QUARTZ SAND-01%;
OTHER FEATURES: GRANULAR;
FOSSILS: MILIOLIDS, BENTHIC FORAMINIFERA, MOLLUSKS, CRUSTACEA, BRYOZOA;

- 505 - 510 CALCARENITE; LIGHT ORANGE TO YELLOWISH GRAY; 32% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL CAST;
GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, CLAY MATRIX;
SEDIMENTARY STRUCTURES: INTERBEDDED, MASSIVE,
ACCESSORY MINERALS: CALCILUTITE-04%, SPAR-03%, CLAY-01%, QUARTZ SAND-01%;
OTHER FEATURES: GRANULAR;
FOSSILS: MILIOLIDS, BENTHIC FORAMINIFERA, MOLLUSKS, CRUSTACEA, BRYOZOA;
- 510 - 520 AS ABOVE
- 520 - 540 AS ABOVE
- 540 - 550 AS ABOVE
- 550 - 560 CALCARENITE; LIGHT ORANGE TO YELLOWISH GRAY; 32% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL CAST;
GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, CLAY MATRIX;
SEDIMENTARY STRUCTURES: INTERBEDDED, MASSIVE,
ACCESSORY MINERALS: CALCILUTITE-04%, CLAY-01%, SPAR-03%, QUARTZ SAND-01%;
OTHER FEATURES: GRANULAR;
FOSSILS: MILIOLIDS, MOLLUSKS, BENTHIC FORAMINIFERA, CRUSTACEA, BRYOZOA;
ABOVE CALCARENITE INTERBEDDED WITH YELLOWISH GRAY CALCARENITE WITH A HIGHER CLAY CONTENT
- 560 - 565 CALCARENITE; YELLOWISH GRAY TO DARK YELLOWISH BROWN; 01% POROSITY, MOLDIC;
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL CAST;
GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, CLAY MATRIX;
SEDIMENTARY STRUCTURES: INTERBEDDED, MASSIVE,
ACCESSORY MINERALS: CALCILUTITE-04%, SPAR-03%, CLAY-01%, QUARTZ SAND-01%;
OTHER FEATURES: GRANULAR;
FOSSILS: MILIOLIDS, BENTHIC FORAMINIFERA, MOLLUSKS, CRUSTACEA, BRYOZOA;
TRACE DOLOMITE FRAGMENTS; SAME VARIATION IN CLAY CONTENT AS ABOVE
- 565 - 570 AS ABOVE
- 570 - 580 CALCARENITE; LIGHT ORANGE TO YELLOWISH GRAY; 30% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL CAST;
GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, CLAY MATRIX;
SEDIMENTARY STRUCTURES: INTERBEDDED, MASSIVE,
ACCESSORY MINERALS: CALCILUTITE-04%, SPAR-03%, CLAY-01%;
OTHER FEATURES: GRANULAR;
FOSSILS: MILIOLIDS, MOLLUSKS, BRYOZOA, BENTHIC FORAMINIFERA, FOSSIL FRAGMENTS;
- 580 - 590 AS ABOVE

- 590 - 595 CALCILUTITE; LIGHT ORANGE TO YELLOWISH GRAY; 20% POROSITY, INTERGRANULAR;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
SEDIMENTARY STRUCTURES: INTERBEDDED,
ACCESSORY MINERALS: CLAY-02%;
OTHER FEATURES: CHALKY, MUDDY;
FOSSILS: MILIOLIDS, MOLLUSKS, FOSSIL FRAGMENTS, FOSSIL MOLDS;
CALCILUTITE INTERBEDDED WITH YELLOW-GRAY CALCARENITE
- 595 - 605 AS ABOVE
- 605 - 610 CALCARENITE; YELLOWISH GRAY; 30% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
SEDIMENTARY STRUCTURES: INTERBEDDED, MASSIVE,
ACCESSORY MINERALS: CALCILUTITE-08%, CLAY-03%;
OTHER FEATURES: GRANULAR;
FOSSILS: MILIOLIDS, MOLLUSKS, BRYOZOA, FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA;
SAME VARIATION IN CALCARENITE POROSITY ESTIMATES (20 TO 30%)
- 610 - 615 AS ABOVE
TRACE OF HARD TAN CALCARENITE
- 615 - 625 AS ABOVE
- 625 - 630 CALCARENITE; LIGHT ORANGE TO YELLOWISH GRAY; 25% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL CAST;
MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
SEDIMENTARY STRUCTURES: INTERBEDDED,
ACCESSORY MINERALS: CALCILUTITE-09%, CLAY-01%;
OTHER FEATURES: CHALKY;
FOSSILS: MILIOLIDS, MOLLUSKS, BRYOZOA, CORAL, CRUSTACEA;
- 630 - 635 AS ABOVE
LIGHT GRAY CALCILUTITE ALSO PRESENT IN 630-640 INTERVAL
- 635 - 640 CALCARENITE; LIGHT ORANGE TO YELLOWISH GRAY; 40% POROSITY, INTERGRANULAR, MOLDIC,
POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL CAST;
MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, CLAY MATRIX;
SEDIMENTARY STRUCTURES: INTERBEDDED,
ACCESSORY MINERALS: CALCILUTITE-09%, SPAR-02%, CLAY-01%;
OTHER FEATURES: CHALKY, SUCROSIC;
FOSSILS: MILIOLIDS, MOLLUSKS, BRYOZOA, CORAL, CRUSTACEA;
SAME VARIATION IN POROSITY ESTIMATES OF CALCARENITE

- 640 - 645 AS ABOVE
- 645 - 650 AS ABOVE
- 650 - 660 CALCARENITE; LIGHT ORANGE TO YELLOWISH GRAY; 40% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL CAST;
MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, CLAY MATRIX;
SEDIMENTARY STRUCTURES: INTERBEDDED,
ACCESSORY MINERALS: CALCILUTITE-10%, SPAR-02%, CLAY-01%;
OTHER FEATURES: CHALKY, SUCROSIC;
FOSSILS: MILIOLIDS, MOLLUSKS, BRYOZOA, CORAL, CRUSTACEA;
CALCARENITE POROSITY RANGE FROM 20-40%
- 660 - 665 AS ABOVE
- 665 - 670 AS ABOVE
- 670 - 680 CALCARENITE; LIGHT ORANGE TO YELLOWISH GRAY; 30% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL CAST;
MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, CLAY MATRIX;
SEDIMENTARY STRUCTURES: INTERBEDDED,
ACCESSORY MINERALS: CALCILUTITE-06%, SPAR-04%, CLAY-01%;
OTHER FEATURES: CHALKY, SUCROSIC;
FOSSILS: MILIOLIDS, MOLLUSKS, BRYOZOA, CORAL, CRUSTACEA;
- 680 - 685 AS ABOVE
- 685 - 690 CALCARENITE; LIGHT ORANGE TO YELLOWISH GRAY; 30% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL CAST;
GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
SEDIMENTARY STRUCTURES: INTERBEDDED,
ACCESSORY MINERALS: CALCILUTITE-06%, SPAR-03%, CLAY-01%;
OTHER FEATURES: GRANULAR, SPLINTERY;
FOSSILS: MILIOLIDS, MOLLUSKS, CORAL, BRYOZOA, FOSSIL FRAGMENTS;
TRACE ECHINOID TEST FRAGMENTS
- 690 - 700 AS ABOVE

- 700 - 705 CALCARENITE; LIGHT ORANGE TO YELLOWISH GRAY; 30% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: CALCILUTITE, BIOGENIC, SKELETAL CAST;
GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
SEDIMENTARY STRUCTURES: INTERBEDDED,
ACCESSORY MINERALS: CALCILUTITE-06%, SPAR-03%, CLAY-01%;
OTHER FEATURES: GRANULAR, SPLINTERY;
FOSSILS: MILIOLIDS, MOLLUSKS, CORAL, BRYOZOA, CRUSTACEA;
CALCARENITE IS MORE CHALKY TO SUCROSIC IN PARTS OF INTERVAL
- 705 - 710 CALCARENITE; LIGHT ORANGE TO GRAYISH ORANGE; 20% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, CLAY MATRIX;
SEDIMENTARY STRUCTURES: INTERBEDDED, MASSIVE,
ACCESSORY MINERALS: CALCILUTITE-09%, CLAY-02%, SPAR-01%;
OTHER FEATURES: CHALKY, SUCROSIC;
FOSSILS: MILIOLIDS, MOLLUSKS, BRYOZOA, ECHINOID, CRUSTACEA;
TRACE OF FORAM (COSKINOLINA FLORIDANA)
- 710 - 715 AS ABOVE
- 715 - 720 CALCARENITE; LIGHT ORANGE TO YELLOWISH GRAY; 30% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL CAST;
GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
SEDIMENTARY STRUCTURES: INTERBEDDED,
ACCESSORY MINERALS: CALCILUTITE-06%, SPAR-03%, CLAY-01%;
OTHER FEATURES: GRANULAR, SPLINTERY;
FOSSILS: MILIOLIDS, MOLLUSKS, CORAL, BRYOZOA, CRUSTACEA;
SAME POROSITY VARIATION (20-30%)
- 720 - 725 CALCARENITE; LIGHT ORANGE TO YELLOWISH GRAY; 30% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: CALCILUTITE, BIOGENIC, SKELETAL CAST;
GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
SEDIMENTARY STRUCTURES: INTERBEDDED,
ACCESSORY MINERALS: CALCILUTITE-06%, SPAR-03%, CLAY-01%;
OTHER FEATURES: GRANULAR, SPLINTERY;
FOSSILS: MILIOLIDS, MOLLUSKS, CORAL, BRYOZOA, CRUSTACEA;
- 725 - 730 AS ABOVE

- 730 - 740 CALCARENITE; LIGHT ORANGE TO YELLOWISH GRAY; 30% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL CAST;
GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
SEDIMENTARY STRUCTURES: INTERBEDDED,
ACCESSORY MINERALS: CALCILUTITE-06%, SPAR-03%, CLAY-01%;
OTHER FEATURES: GRANULAR, SPLINTERY;
FOSSILS: MILIOLIDS, MOLLUSKS, CORAL, BRYOZOA, CRUSTACEA;
CALCARENITE WITH HIGH-POROSITY ZONE (40%) COMMON PELECYPODS STEINKERNS AND CRAB CLAW
FRAGMENTS
- 740 - 745 CALCARENITE; LIGHT ORANGE; 25% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL CAST;
GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
SEDIMENTARY STRUCTURES: INTERBEDDED,
ACCESSORY MINERALS: CALCILUTITE-06%, SPAR-03%;
OTHER FEATURES: SPLINTERY;
FOSSILS: MILIOLIDS, MOLLUSKS, CRUSTACEA, FOSSIL FRAGMENTS, FOSSIL MOLDS;
- 745 - 750 AS ABOVE
- 750 - 760 AS ABOVE
SAME CALCARENITE WITH SLIGHT POROSITY, SPAR VARIATIONS
- 760 - 765 CALCARENITE; LIGHT ORANGE TO YELLOWISH GRAY; 30% POROSITY, INTERGRANULAR, MOLDIC,
LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL CAST;
MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
SEDIMENTARY STRUCTURES: INTERBEDDED,
ACCESSORY MINERALS: CALCILUTITE-04%, SPAR-04%;
OTHER FEATURES: GRANULAR;
FOSSILS: MILIOLIDS, MOLLUSKS, BRYOZOA, CRUSTACEA, FOSSIL FRAGMENTS;
CALCILUTITE INTERBEDDED WITH CALCARENITE
- 765 - 770 AS ABOVE
- 770 - 775 CALCARENITE; LIGHT ORANGE TO YELLOWISH GRAY; 25% POROSITY, INTERGRANULAR, MOLDIC,
LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL CAST;
MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
SEDIMENTARY STRUCTURES: INTERBEDDED,
ACCESSORY MINERALS: CALCILUTITE-08%, SPAR-03%;
OTHER FEATURES: GRANULAR;
FOSSILS: MILIOLIDS, MOLLUSKS, BRYOZOA, ECHINOID, FOSSIL FRAGMENTS;
CALCARENITE INTERBEDDED WITH CALCILUTITE

- 775 - 780 AS ABOVE
- 780 - 785 CALCARENITE; LIGHT ORANGE; 35% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL CAST;
MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
SEDIMENTARY STRUCTURES: INTERBEDDED,
ACCESSORY MINERALS: CALCILUTITE-05%, SPAR-03%;
OTHER FEATURES: GRANULAR, CHALKY;
FOSSILS: MILIOLIDS, MOLLUSKS, ECHINOID, CRUSTACEA, FOSSIL FRAGMENTS;
CALCARENITE INTERBEDDED WITH CALCILUTITE; TRACE CRAB CLAW
- 785 - 790 AS ABOVE
- 790 - 795 AS ABOVE
- 795 - 800 CALCARENITE; YELLOWISH GRAY; 35% POROSITY, INTERGRANULAR, MOLDIC,
POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL CAST;
MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
SEDIMENTARY STRUCTURES: INTERBEDDED,
ACCESSORY MINERALS: CALCILUTITE-06%, SPAR-03%;
OTHER FEATURES: GRANULAR, CHALKY;
FOSSILS: MILIOLIDS, MOLLUSKS, BRYOZOA, ECHINOID, FOSSIL FRAGMENTS;
TRACE FORAM (LEPIDOCYCLINA CHAPERI)
- 800 - 805 AS ABOVE
- 805 - 810 CALCARENITE; YELLOWISH GRAY; 20% POROSITY, INTERGRANULAR, MOLDIC, LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
SEDIMENTARY STRUCTURES: INTERBEDDED,
ACCESSORY MINERALS: CALCILUTITE-06%, SPAR-04%;
OTHER FEATURES: GRANULAR;
FOSSILS: MILIOLIDS, MOLLUSKS, BRYOZOA, ECHINOID, FOSSIL FRAGMENTS;
POROSITY VARIATIONS AGAIN
- 810 - 812 CALCARENITE; YELLOWISH GRAY; 20% POROSITY, INTERGRANULAR, MOLDIC, LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
SEDIMENTARY STRUCTURES: INTERBEDDED,
ACCESSORY MINERALS: CALCILUTITE-06%, SPAR-04%;
OTHER FEATURES: GRANULAR;
FOSSILS: MILIOLIDS, MOLLUSKS, BRYOZOA, ECHINOID, FOSSIL FRAGMENTS;
VERY LOW POROSITY CALCARENITE AT 812; THIS LIMESTONE HAS A SPECKLED SPLINTERY APPEARANCE
UNCONFORMITY PICKED AT 812

- 812 - 820 CALCARENITE; YELLOWISH GRAY TO LIGHT GRAY; 07% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, CLAY MATRIX;
SEDIMENTARY STRUCTURES: INTERBEDDED, MASSIVE,
ACCESSORY MINERALS: CALCILUTITE-10%, SPAR-02%, CLAY-01%, HEAVY MINERALS-01%;
OTHER FEATURES: GRANULAR, SPLINTERY;
FOSSILS: MILIOLIDS, MOLLUSKS, FOSSIL MOLDS;
- 820 - 825 AS ABOVE
TRACE OF LIGHT GRAY DENSE CALCARENITE
- 825 - 830 CALCARENITE; YELLOWISH GRAY; 35% POROSITY, INTERGRANULAR, MOLDIC, LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
SEDIMENTARY STRUCTURES: INTERBEDDED,
ACCESSORY MINERALS: CALCILUTITE-06%, SPAR-03%;
OTHER FEATURES: GRANULAR, CHALKY;
FOSSILS: MILIOLIDS, MOLLUSKS, BRYOZOA, ECHINOID, FOSSIL FRAGMENTS;
LOW POROSITY CALCARENITE INTERBEDDED WITH HIGH-POROSITY CALCARENITE, TRACE FORAM
(L.CHAPERI)
- 830 - 840 CALCARENITE; LIGHT ORANGE TO YELLOWISH GRAY; 20% POROSITY, INTERGRANULAR, MOLDIC,
LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, CLAY MATRIX;
SEDIMENTARY STRUCTURES: INTERBEDDED, MASSIVE,
ACCESSORY MINERALS: CALCILUTITE-10%, SPAR-02%, CLAY-01%, HEAVY MINERALS-01%;
OTHER FEATURES: GRANULAR, SPLINTERY;
FOSSILS: MILIOLIDS, MOLLUSKS, FOSSIL MOLDS;
POROSITY VARIATION; ECHINOID SPINES COMMON, PHOSPHATIZED BARRACUDA TOOTH
- 840 - 850 CALCARENITE; LIGHT ORANGE TO YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, MOLDIC,
LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
SEDIMENTARY STRUCTURES: INTERBEDDED, MASSIVE,
ACCESSORY MINERALS: CALCILUTITE-10%, SPAR-03%, CLAY-01%;
OTHER FEATURES: GRANULAR, SPLINTERY;
FOSSILS: MILIOLIDS, FOSSIL MOLDS, FOSSIL FRAGMENTS;
TRACE FORAM (LAGENA LAEVIS) HIGH POROSITY ZONE FROM 840-845

- 850 - 860 CALCARENITE; LIGHT ORANGE TO YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR, MOLDIC, LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
SEDIMENTARY STRUCTURES: INTERBEDDED, MASSIVE,
ACCESSORY MINERALS: CALCILUTITE-10%, SPAR-02%, CLAY-01%;
OTHER FEATURES: GRANULAR;
FOSSILS: MILIOLIDS, MOLLUSKS, BENTHIC FORAMINIFERA, ECHINOID, FOSSIL FRAGMENTS;
- 860 - 865 AS ABOVE
- 865 - 870 CALCARENITE; LIGHT ORANGE TO YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
SEDIMENTARY STRUCTURES: INTERBEDDED, MASSIVE,
ACCESSORY MINERALS: CALCILUTITE-06%, SPAR-05%;
OTHER FEATURES: GRANULAR;
FOSSILS: MILIOLIDS, MOLLUSKS, BENTHIC FORAMINIFERA, ECHINOID, FOSSIL FRAGMENTS;
- 870 - 875 AS ABOVE
- 875 - 880 CALCARENITE; LIGHT ORANGE TO YELLOWISH GRAY; 20% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, CLAY MATRIX;
SEDIMENTARY STRUCTURES: INTERBEDDED, MASSIVE,
ACCESSORY MINERALS: CALCILUTITE-06%, SPAR-06%;
OTHER FEATURES: GRANULAR, CHALKY;
FOSSILS: MILIOLIDS, MOLLUSKS, BENTHIC FORAMINIFERA, ECHINOID, FOSSIL FRAGMENTS;
- 880 - 886 AS ABOVE
COMMON FORAM FRAGMENTS (LEPIDOCYCLINA OCALANA)
- 886 - 890 CALCARENITE; LIGHT ORANGE TO YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR, MOLDIC, LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
SEDIMENTARY STRUCTURES: INTERBEDDED, MASSIVE,
ACCESSORY MINERALS: CALCILUTITE-08%, SPAR-02%;
OTHER FEATURES: GRANULAR, CHALKY;
FOSSILS: MILIOLIDS, MOLLUSKS, BENTHIC FORAMINIFERA, ECHINOID, FOSSIL FRAGMENTS;
TRACE FORAM (OPERCULINOIDES)

- 890 - 895 CALCARENITE; LIGHT ORANGE; 20% POROSITY, INTERGRANULAR, MOLDIC, LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
SEDIMENTARY STRUCTURES: INTERBEDDED, MASSIVE,
ACCESSORY MINERALS: CALCILUTITE-08%, SPAR-03%;
OTHER FEATURES: GRANULAR, CHALKY;
FOSSILS: MILIOLIDS, MOLLUSKS, BENTHIC FORAMINIFERA, ECHINOID, FOSSIL FRAGMENTS;
COMMON FORAMS (LAGENA, OPERCULINOIDES, LEPIDOCYCLINA)
- 895 - 900 CALCARENITE; LIGHT ORANGE; 25% POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
SEDIMENTARY STRUCTURES: INTERBEDDED,
ACCESSORY MINERALS: CALCILUTITE-08%, SPAR-03%;
OTHER FEATURES: GRANULAR;
FOSSILS: MILIOLIDS, MOLLUSKS, BENTHIC FORAMINIFERA, ECHINOID, BENTHIC FORAMINIFERA;
ABUNDANT FORAMS AS LISTED ABOVE
- 900 TOTAL DEPTH