Executive Summary
ROMP Site TR 21-3
Core and Chloride Monitor

Location - ROMP Site TR 21-3 is located approximately 0.6 miles northeast of the intersection of the entrance to the Crystal River-Homosassa Airport and U.S. 19 in Citrus County. The site is located in Section 34, Township 18 South, Range 17 East and at latitude 28°52'30", longitude 82°34'19".

Site Easement - The site was obtained from Citrus County on January 8, 1979 for the sum of one dollar. The Perpetual Easement is 20 feet by 20 feet and is contained in the Temporary Construction Easement of 100 feet by 100 feet. The Temporary Easement was obtained on January 8, 1979 for a period of 12 months from the date that construction commences and expires on December 6, 1979.

Reason for Coring - This site was cored in order to locate and define the freshwater-saltwater interface and to design a chloride monitor well to monitor the 250 milligram per liter (mg/l) isochlor.

Geology - This site is located on the Pamlico Terrace at an elevation of approximately 10 feet above mean sea level (MSL). The geology at this site was described from analysis of core samples that were obtained to a depth of 370 feet below land surface datum (LSD). The generalized geology of this site is as follows:

0-32' Sand

32'-100' Ocala Group

100'-370' Avon Park Limestone

Hydrogeology - The water levels in this well fluctuated between 3 and 6 feet below LSD. Examination of the recorded water levels show daily fluctuations of approximately 1 to 2 feet which would strongly indicate that they are affected by the tides in the Gulf of Mexico. This is a very strong probability since the site is less than 1.5 miles east of Kings Bay.



II.A

This is further supported by geophysical logs of the core hole. Cavities that were noted during coring and substantiated by the caliper log exist at 215 and 252 feet below LSD. The temperature log shows changes in water temperature at both of these points which does indicate water flow from an external point. Since numerous small sinks opened up around the drilling rig during well construction the area is obviously quite cavernous. Although no pumping tests were conducted during the construction at this site it is felt that the aforementioned hydrologic occurrences point to high transmissivities. This is also supported by the angle of the freshwater-saltwater interface between TR 21-2 and TR 21-3 which is approximately .95 degrees which would indicate a transmissivity between 4 and 5 million gallons per day per foot. (See TR 21-2 Executive Summary).

Core Drilling - This work was completed under Contract R12171 by Davis Drilling, a subcontractor to the prime contractor Layne-Atlantic Company, at a cost of $12,563.37 or $33.95 per foot.

Core samples of 1 7/8" diameter were obtained from a depth of 32 to 370 feet below LSD. These samples were described by the Geologist on site and boxed up to be sent to the Bureau of Geology for in-depth analysis. In addition 32 water samples were analyzed on site for conductivity and chlorides. Upon completion of the core hole it was geophysically logged and then sealed with a neat cement grout.

Well Construction - The well was constructed with a cable-tool rig under Contract R12171 by Layne-Atlantic at a cost of $12,505.05 or $49.82 per foot.

The well was constructed by driving 202 feet of 12 inch steel casing in order to seal off the crumbly formations at this site. A nominal 12 inch hole was then drilled to 240 feet and 240 feet of 6 inch PVC was cemented inside the 12" steel casing from LSD to 240 feet below LSD. The hole was then drilled out to 251 feet below LSD and developed. Upon completion of

the well a 4 foot section of 18 inch diameter concrete pipe was installed around the 6 inch PVC casing in order to protect it from both chemical and physical destruction.

Geophysical Logs - Electric, caliper, gamma, fluid resistivity, and temperature logs were made on the core hole from land surface to 370 feet below LSD.

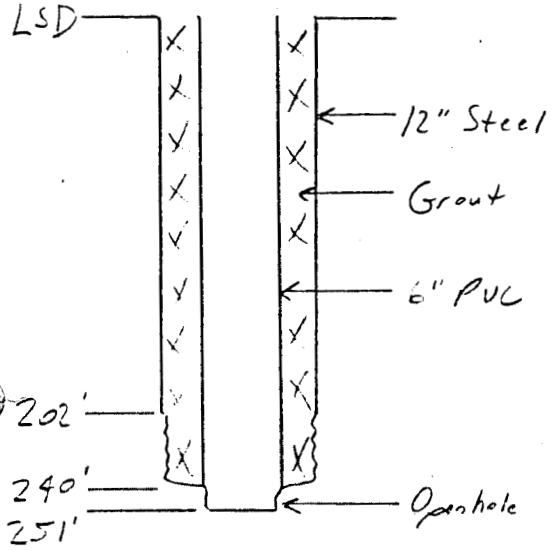
Type of Monitor - This well is designed to monitor chlorides at the 250 milligram per liter (mg/l) isochlor.

Water Quality - The potable water zone (less than 250 mg/l chlorides) extends down to around 250 feet below LSD. From this point to 370 feet below LSD the chlorides increase to 1900 mg/l. These results were determined from on site analysis.

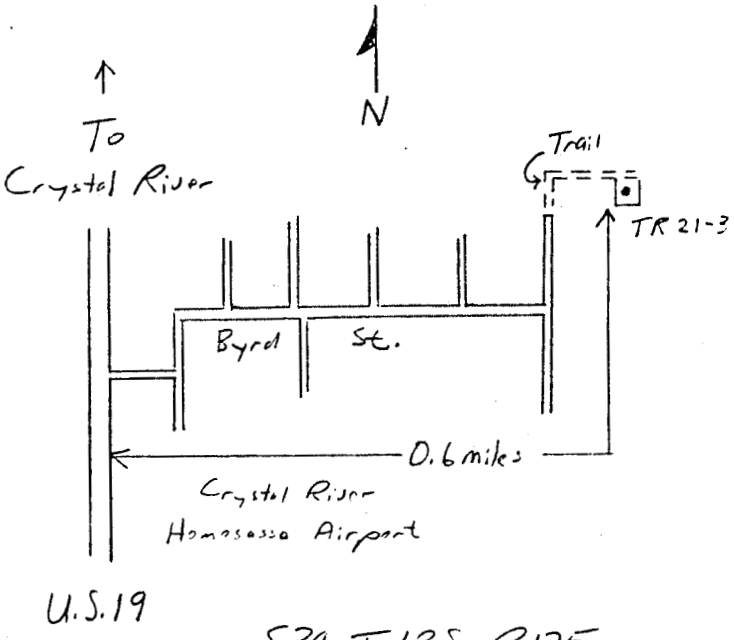
USGS Notification - SWFWMD Planning Section was notified on 5/15/79 that this well was complete and ready for monitoring.

# ROMP TR 21-3

## As Built Well Diagram




## Site Location




S34, T18S, R17E
Citrus Co.

II. B

TR 21-3

LITHOLOGIC WELL LOG PRINTOUT

SOURCE - FGS

WELL NUMBER: W- 14885
TOTAL DEPTH: 370 FT.
SAMPLES - NONE

COUNTY - CITRUS
LOCATION: T.18S R.17E S.34
LAT = N 28D 52M 30
LON = W 82D 34M 19

COMPLETION DATE - 05/15/79
ELEVATION - 010 FT
OTHER TYPES OF LOGS AVAILABLE - ELECTRIC, CALIPER, GAMMA, TEMP

OWNER/DRILLER: DRILLER - DAVIS DRILLING, A SUBCONTRACTOR TO THE PRIME CONTRACTOR
OWNER/DRILLER: LAYNE-ATLANTIC COMPANY

WORKED BY: ROMP SITE 21-3, LOCATED APPROXIMATELY 0.6 MILES NORTHEAST OF
INTERSECTION OF THE ENTRANCE TO THE CRYSTAL RIVER-HOMOSASSA AIRPORT
AND US HIGHWAY 19, THIS SITE IS LOCATED ON THE PAMLICO TERRACE.
DESCRIBED AND ENTERED BY T.L.SEAL OF THE FLORIDA GEOLOGICAL SURVEY
4/8/91; FORMATION "PICKS" BY K.CAMPBELL AND T.SCOTT
DRILLER'S DESCRIPTION ENTERED WHEN OBSERVATIONS PERTINENT

| | | |
|---|---|---|
| 0. | 32. | NO SAMPLES |
| 32. | 65. | OCALA LIMESTONE LOWER MEMBER |
| 65. | . | AVON PARK FM. |

| | | |
|---|---|---|
| 0 | 32 | NO SAMPLES |
| 32 | 35 | PACKSTONE; WHITE TO VERY LIGHT ORANGE; INTERGRANULAR, MOLDIC, VUGULAR;<br>GRAIN TYPE: BIOGENIC, SKELETAL;<br>GRAIN SIZE: COARSE; RANGE: MEDIUM TO VERY COARSE; GOOD INDURATION;<br>CEMENT TYPE(S): CALCILUTITE MATRIX;<br>ACCESSORY MINERALS: SPAR- %, QUARTZ SAND- %;<br>OTHER FEATURES: VARIEGATED;<br>FOSSILS: FOSSIL MOLDS, MOLLUSKS, BRYOZOA, MILIOLIDS, FOSSIL FRAGMENTS;<br>WELL-DEVELOPED MOLDIC POROSITY; DRUSY CALCITE FILLING VOIDS |
| 35 | 50 | PACKSTONE; WHITE TO VERY LIGHT ORANGE; INTERGRANULAR, MOLDIC;<br>GRAIN TYPE: BIOGENIC, CALCILUTITE;<br>GRAIN SIZE: COARSE; RANGE: MEDIUM TO VERY COARSE; GOOD INDURATION;<br>CEMENT TYPE(S): CALCILUTITE MATRIX;<br>FOSSILS: FOSSIL FRAGMENTS, MOLLUSKS, BRYOZOA, MILIOLIDS, FOSSIL FRAGMENTS;<br>GRADES FROM WACKESTONE TO A PACKSTONE; 20% RECOVERY 35-50, LOST CIRCULATION IN CAVITIES FROM 40-50 |

50 - 55 PACKSTONE; WHITE TO VERY LIGHT ORANGE; INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: BIOGENIC, SKELETAL;
GRAIN SIZE: MEDIUM; RANGE: MEDIUM TO VERY COARSE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: SPAR- %, QUARTZ SAND- %;
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, MILIOLIDS, MOLLUSKS;
NUMEROUS EXTERNAL MOLDS; LARGER AMOUNT OF MOLDIC POROSITY IN LOWER HALF OF RECOVERED CORE;
60% RECOVERY 50-55, VUGGY POROSITY

55 - 60 PACKSTONE; VERY LIGHT ORANGE; INTERGRANULAR;
GRAIN TYPE: BIOGENIC;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
FOSSILS: FOSSIL FRAGMENTS, MILIOLIDS;
SOME PACKSTONE ALSO PRESENT, THIS INTERVAL IS MORE "COMPACTED" THAN THE HIGHER SECTIONS,
WITH A LOWER POROSITY AND ONLY A TRACE OF MOLDIC POROSITY

60 - 65 PACKSTONE; VERY LIGHT ORANGE; INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
OTHER FEATURES: CHALKY;
FOSSILS: MILIOLIDS;
ARCHIAS IDENTIFIED, GRADES FROM WACKESTONE TO PACKSTONE, WELL-INDURATED SECTION, TRACE
CALCITE SPAR COATING SOME FOSSIL FRAGMENTS, THIS INTERVAL COULD BE DESCRIBED AS A TRUE
CALCARENITE, CHALKY ONLY IN CERTAIN INTERVALS

65 - 70 PACKSTONE; VERY LIGHT ORANGE; INTERGRANULAR, MOLDIC;
GRAIN TYPE: BIOGENIC, SKELETAL;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
OTHER FEATURES: MEDIUM RECRYSTALLIZATION;
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS;
40% RECOVERY 65-70

70 - 75 WACKESTONE; VERY LIGHT ORANGE TO WHITE; INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, CRYSTALS;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
OTHER FEATURES: HIGH RECRYSTALLIZATION, DOLOMITIC;
FOSSILS: FOSSIL FRAGMENTS, MILIOLIDS;
HIGHLY RECRYSTALLIZED, BUT STILL RETAINING A HIGHER AMOUNT OF MOLDIC POROSITY IN THE UPPER
PART OF THE SECTION, 30% RECOVERY FROM 70-75

75 - 80 WACKESTONE; VERY LIGHT ORANGE; INTERGRANULAR, LOW PERMEABILITY, VUGULAR;
GRAIN TYPE: CALCILUTITE, CRYSTALS;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: SPAR- %;
OTHER FEATURES: HIGH RECRYSTALLIZATION, DOLOMITIC;
FOSSILS: FOSSIL FRAGMENTS;
VUGULAR CRYSTALLINE LIMESTONE WITH SPAR LINING SOME OF THE VUGS, ONLY 10% RECOVERY

80 - 85 AS ABOVE
DRILL BIT EXPERIENCED SOME DIFFICULTY SAMPLING THIS VUGGY INTERVAL, AS SHOWN BY "TWISTED" CORE, PRESUMABLY INDICATING RESETTING OF THE DRILL BIT; LOST CIRCULATION IN CAVITIES

85 - 90 NO SAMPLES

90 - 95 PACKSTONE; VERY LIGHT ORANGE; INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, CRYSTALS, SKELETAL;
GRAIN SIZE: FINE; RANGE: FINE TO MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: SPAR- %;
OTHER FEATURES: HIGH RECRYSTALLIZATION, DOLOMITIC;
FOSSILS: FOSSIL FRAGMENTS, MILIOLIDS;
LESS RECRYSTALLIZATION IN 90-95 INTERVAL, PACKSTONE INTERLAYERED WITH MUDSTONE; 40% RECOVERY 90-95

95 - 100 WACKESTONE; WHITE TO VERY LIGHT ORANGE; MOLDIC, INTERGRANULAR;
GRAIN TYPE: BIOGENIC, CALCILUTITE;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: SPAR- %;
OTHER FEATURES: LOW RECRYSTALLIZATION;
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, MOLLUSKS, CONES;
DICTYOCONUS COOKEI, CAVITIES AND VOIDS FILLED WITH WHITE CHALKY LIME MUD

100 - 110 MUDSTONE; VERY LIGHT ORANGE; LOW PERMEABILITY, VUGULAR, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, CRYSTALS;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: SPAR- %;
OTHER FEATURES: MEDIUM RECRYSTALLIZATION, DOLOMITIC;
"VUGGY" SECONDARY POROSITY IN MICRITE, SOME OF THE MICRITE IN THIS INTERVAL DISPLAYS GOOD CONCHOIDAL FRACTURE; SOME VUGS LINED WITH SPAR, 20% RECOVERY 100-110, DOLOMITIC RECRYSTALLIZED LIMESTONE

110 - 120 WACKESTONE; VERY LIGHT ORANGE; INTERGRANULAR, LOW PERMEABILITY, VUGULAR;
GRAIN TYPE: CALCILUTITE, CRYSTALS;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: SPAR- %;
OTHER FEATURES: MEDIUM RECRYSTALLIZATION, DOLOMITIC;
FOSSILS: FOSSIL MOLDS;
DOLOMITE AND LIMESTONE MIXED, 4-6 INCH ZONE OF DOLOMITE AT A DEPTH OF 118 FEET; 35% RECOVERY 110-120, MUCH LESS VUGULAR POROSITY DEVELOPMENT IN THIS INTERVAL,

120 - 125 NO SAMPLES
LOST CIRCULATION FROM 120-125

125 - 130 WACKESTONE; VERY LIGHT ORANGE TO WHITE; INTERGRANULAR;
GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: SPAR- %;
OTHER FEATURES: GRANULAR, HIGH RECRYSTALLIZATION;
FOSSILS: MOLLUSKS;
GOOD EXAMPLE OF RECRYSTALLIZED "CALCARENITE", GRANULAR TEXTURE WELL-DEVELOPED LOWER IN SECTION, BUT MORE MICRITIC TOWARDS THE TOP OF THE SECTION

130 - 135 AS ABOVE

135 - 140 WACKESTONE; VERY LIGHT ORANGE TO WHITE; INTERGRANULAR, MOLDIC;
GRAIN TYPE: CALCILUTITE, CRYSTALS, BIOGENIC;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: SPAR- %;
OTHER FEATURES: GRANULAR, HIGH RECRYSTALLIZATION;
FOSSILS: ECHINOID, FOSSIL MOLDS, MOLLUSKS;
TRACE OF MOLDIC POROSITY IN THIS INTERVAL, NEOLAGANUM DAHLI PRESENT

140 - 145 WACKESTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY; INTERGRANULAR, MOLDIC, PIN POINT VUGS;
GRAIN TYPE: CALCILUTITE, BIOGENIC;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: SPAR- %;
OTHER FEATURES: GRANULAR, HIGH RECRYSTALLIZATION;
FOSSILS: FOSSIL MOLDS, FOSSIL FRAGMENTS, MOLLUSKS;
TRACE OF MOLDIC POROSITY

145 - 150 PACKSTONE; VERY LIGHT ORANGE; INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, BIOGENIC;
GRAIN SIZE: FINE; RANGE: FINE TO MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: SPAR- %;
OTHER FEATURES: MEDIUM RECRYSTALLIZATION;
FOSSILS: FOSSIL MOLDS, MILIOLIDS, FOSSIL FRAGMENTS;
40% RECOVERY 145-150, TRACE MILIOLID

150 - 155 PACKSTONE; VERY LIGHT ORANGE TO WHITE; INTERGRANULAR, MOLDIC, VUGULAR;
GRAIN TYPE: CALCILUTITE, BIOGENIC;
GRAIN SIZE: FINE; RANGE: FINE TO MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
SEDIMENTARY STRUCTURES: BIOTURBATED,
OTHER FEATURES: GRANULAR;
FOSSILS: FOSSIL MOLDS, MOLLUSKS;
EVIDENCE FOR BURROWING ACTIVITY, BURROWS INFILLED WITH MUCH LOWER POROSITY GRAINSTONE, THESE STRUCTURES MAY ALSO BE VUGS, BUT THEY APPEAR TO BE CYLINDRICAL, HOWEVER, A VUGGY POROSITY FOLLOWS THESE "BURROWS"

155 - 160 AS ABOVE
SAME LIMESTONE AS ABOVE BUT NO EVIDENCE OF VUGGY POROSITY

160 - 165 WACKESTONE; VERY LIGHT ORANGE TO WHITE; INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, BIOGENIC;
GRAIN SIZE: FINE; RANGE: FINE TO MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
OTHER FEATURES: MEDIUM RECRYSTALLIZATION, HIGH RECRYSTALLIZATION;
FOSSILS: FOSSIL MOLDS, FOSSIL FRAGMENTS;

165 - 170 PACKSTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY; INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: BIOGENIC, SKELETAL, CALCILUTITE;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
OTHER FEATURES: MEDIUM RECRYSTALLIZATION, HIGH RECRYSTALLIZATION;
FOSSILS: FOSSIL MOLDS, MOLLUSKS, FOSSIL FRAGMENTS, BRACHIOPOD, BRYOZOA;
STRIKING MOLDIC POROSITY DEVELOPMENT, NEOLAGANUM DAHLI

170 - 175 WACKESTONE; VERY LIGHT ORANGE; INTERGRANULAR, POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: BIOGENIC, SKELETAL, CALCILUTITE;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
OTHER FEATURES: HIGH RECRYSTALLIZATION;
FOSSILS: FOSSIL MOLDS, FOSSIL FRAGMENTS;
WACKESTONE GRADING TO A MUDSTONE, CONCHOIDAL FRACTURE WELL-DEVELOPED IN MUDSTONE, 30% RECOVERY 170-175, RUBBLY RECOVERY

175 - 180 AS ABOVE
VOIDS, RUBBLY RECOVERY

180 - 185 MUDSTONE; VERY LIGHT ORANGE; LOW PERMEABILITY, PIN POINT VUGS;
GRAIN TYPE: CALCILUTITE;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: SPAR- %;
OTHER FEATURES: HIGH RECRYSTALLIZATION, DOLOMITIC;
VUGGY MUDSTONE WITH SPAR OCCASIONALLY LINING VUGS, THE DRILL BIT HAD DIFFICULTY WITH THIS LITHOLOGY AS SHOWN BY THE "TWISTED" CORES, 40% RECOVERY 175-185, NO FOSSILS OBSERVED

185 - 195 MUDSTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY; LOW PERMEABILITY, PIN POINT VUGS;
GRAIN TYPE: CALCILUTITE;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: SPAR- %;
OTHER FEATURES: HIGH RECRYSTALLIZATION, SUCROSIC, DOLOMITIC;
MINOR ORGANIC STAINS BETWEEN 185-190; LOST CIRCULATION IN CAVITIES FROM 190-195

195 - 200 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE; INTERGRANULAR, POSSIBLY HIGH PERMEABILITY, MOLDIC; 50-90% ALTERED; ANHEDRAL;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE- %;
OTHER FEATURES: SUCROSIC, HIGH RECRYSTALLIZATION;
EXTREMELY HIGH POROSITY AND PERMEABILITY IN ZONES WHERE MOLDIC POROSITY OCCURS, AS WELL AS IN THE INTERVALS WHERE THE DOLOMITE IS MUCH FINER GRAINED, RUBBLY RECOVERY, CALCILUTITE INCREASES WITH DEPTH IN THIS INTERVAL

200 - 205 WACKESTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE; INTERGRANULAR, POSSIBLY HIGH PERMEABILITY, MOLDIC;
GRAIN TYPE: CALCILUTITE;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
OTHER FEATURES: HIGH RECRYSTALLIZATION;
FOSSILS: FOSSIL MOLDS, FOSSIL FRAGMENTS, MOLLUSKS;
AMOUNT OF MOLDIC POROSITY HIGHER IN THE LOWER PART OF SECTION, DOLO-MUDSTONE PRESENT AT THE TOP OF THE INTERVAL, 80% RECOVERY 200-205, MINOR ORANGE STAINING

205 - 210 DOLOSTONE; GRAYISH ORANGE TO DARK YELLOWISH ORANGE; INTERGRANULAR, POSSIBLY HIGH PERMEABILITY, MOLDIC; 10-50% ALTERED; ANHEDRAL;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE- %, SPAR- %;
OTHER FEATURES: CHALKY, WEATHERED, DOLOMITIC;
FOSSILS: FOSSIL MOLDS, MOLLUSKS;
MINOR CALCILUTITE MIXED IN WITH DOLOMITE IN TOP PART OF INTERVAL, CORE IN THIS PART OF THE INTERVAL CONSISTS OF GRAVEL-SIZED FRAGMENTS, BUT THESE SAME FRAGMENTS ARE ENTIRELY DOLOMITE LOWER IN THE SECTION, RUBBLY RECOVERY, APPROXIMATELY 50-60% RECOVERY FROM 205-210

210 - 215 AS ABOVE
RUBBLY RECOVERY IN PART

215 - 220 DOLOSTONE; YELLOWISH GRAY TO YELLOWISH GRAY; INTERGRANULAR, POSSIBLY HIGH PERMEABILITY, PIN POINT VUGS; 0-10% ALTERED; ANHEDRAL;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
OTHER FEATURES: CHALKY;
FOSSILS: FOSSIL MOLDS, MOLLUSKS, ORGANICS;
LENSES OF CASE-HARDENED LIMESTONE, RUBBLY RECOVERY IN PART

220 - 225 DOLOSTONE; YELLOWISH GRAY TO MODERATE GRAY; INTERGRANULAR, POSSIBLY HIGH PERMEABILITY, MOLDIC; 0-10% ALTERED; ANHEDRAL;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
OTHER FEATURES: CHALKY;
FOSSILS: FOSSIL MOLDS, MOLLUSKS;
MOLDIC POROSITY NOT WELL-DEVELOPED FROM 221.5-225, BUT VERY WELL-DEVELOPED FROM 221.5-225, LENSES OF LIMEY STICKY DOLOMITIC MUD

225 - 230 DOLOSTONE; YELLOWISH GRAY TO YELLOWISH GRAY; INTERGRANULAR, MOLDIC;
0-10% ALTERED; ANHEDRAL;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
FOSSILS: FOSSIL MOLDS;
MOLDIC POROSITY MUCH LESS WELL-DEVELOPED IN THIS INTERVAL, DOLOMITE APPEARS TO BE MORE COMPACT LOWER IN THE SECTION 40% RECOVERY 225-230

230 - 235 DOLOSTONE; YELLOWISH GRAY TO YELLOWISH GRAY; INTERGRANULAR, MOLDIC;
10-50% ALTERED; ANHEDRAL;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE- %;
FOSSILS: FOSSIL MOLDS, FOSSIL FRAGMENTS, MOLLUSKS;
MORE CALCILUTITE "LOWER" IN THE SECTION, 15% RECOVERY 230-235

235 - 240 DOLOSTONE; YELLOWISH GRAY TO YELLOWISH GRAY; INTERGRANULAR, PIN POINT VUGS;
10-50% ALTERED; ANHEDRAL;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
OTHER FEATURES: HIGH RECRYSTALLIZATION;
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BRYOZOA;
EXTREMELY FINE-GRAINED DOLOSTONE HIGHER IN SECTION, 30% RECOVERY, LIMEY DOLOMITE MUD TO INTRACLASTIC DOLOMITIC MUD BECOMING PASTY AND POORLY INDURATED WITH DEPTH, RUBBLY RECOVERY IN PART

240 - 250 DOLOSTONE; YELLOWISH GRAY TO YELLOWISH GRAY; INTERGRANULAR; 10-50% ALTERED;
ANHEDRAL;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
ACCESSORY MINERALS: CALCILUTITE- %;
FOSSILS: FOSSIL MOLDS;
30% RECOVERY 240-250, LOST CIRCULATION IN LIMEY MUD ZONES

250 - 260 DOLOSTONE; YELLOWISH GRAY TO YELLOWISH GRAY; INTERGRANULAR, MOLDIC;
50-90% ALTERED; ANHEDRAL;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
ACCESSORY MINERALS: CALCILUTITE- %;
FOSSILS: FOSSIL MOLDS;
30% RECOVERY 250-260, ABUNDANT LENSES OF SOFT PASTY BROWN LIMEY CHALKY MUD

260 - 270 DOLOSTONE; YELLOWISH GRAY TO YELLOWISH GRAY; INTERGRANULAR; 50-90% ALTERED;
ANHEDRAL;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
ACCESSORY MINERALS: CALCILUTITE- %;
FOSSILS: FOSSIL MOLDS, MOLLUSKS;
SIGNIFICANT SECONDARY POROSITY DEVELOPMENT, 55% RECOVERY 260-270, POOR TO MODERATE INDURATION

270 - 280 DOLOSTONE; YELLOWISH GRAY TO YELLOWISH GRAY; INTERGRANULAR, MOLDIC;
10-50% ALTERED; ANHEDRAL;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: BEDDED,
ACCESSORY MINERALS: CALCILUTITE- %;
FOSSILS: FOSSIL MOLDS, MOLLUSKS;

280 - 285 NO SAMPLES
LOST CIRCULATION IN CAVITIES

285 - 290 DOLOSTONE; YELLOWISH GRAY TO YELLOWISH GRAY; INTERGRANULAR,
LOW PERMEABILITY; 50-90% ALTERED; ANHEDRAL;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
FOSSILS: FOSSIL MOLDS, MOLLUSKS;
LENSES OF ORGANICS BECOMING GREATER WITH DEPTH

290 - 295 DOLOSTONE; YELLOWISH GRAY; INTERGRANULAR, LOW PERMEABILITY; 50-90% ALTERED;
ANHEDRAL;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
OTHER FEATURES: CHALKY, WEATHERED;
FOSSILS: ORGANICS;
55% RECOVERY 290-295, MANY LENSES OF ORGANICS, MOSTLY LIMEY MUD FROM 293-295

295 - 300 DOLOSTONE; YELLOWISH GRAY; INTERGRANULAR, LOW PERMEABILITY; 50-90% ALTERED;
ANHEDRAL;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
FOSSILS: MOLLUSKS, FOSSIL FRAGMENTS;
NUMEROUS ZONES WITH WELL-DEVELOPED SECONDARY POROSITY, 60% RECOVERY 295-300

300 - 305 AS ABOVE
20% RECOVERY 300-305, LOST CIRCULATION IN CAVITIES, MOTTLED APPEARANCE IN PARTS OF CORE,
RUBBLY RECOVERY

305 - 310 DOLOSTONE; YELLOWISH GRAY TO LIGHT GRAY; INTERGRANULAR; 50-90% ALTERED;
ANHEDRAL;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS;
WELL PRESERVED GASTROPOD AND MOLLUSK FRAGMENTS

310 - 315 DOLOSTONE; YELLOWISH GRAY TO WHITE; INTERGRANULAR, LOW PERMEABILITY;
50-90% ALTERED; ANHEDRAL;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE- %;
FOSSILS: FOSSIL MOLDS, MOLLUSKS;
INCREASE IN CALCILUTITE MUD LOWER IN SECTION, FINE-GRAINED ALMOST WHITE DOLOSTONE LAYERS
INTERBEDDED WITH INTERVALS OF HIGHER SECONDARY POROSITY, 30% RECOVERY 310-315

315 - 318 AS ABOVE

318 - 320 DOLOSTONE; LIGHT OLIVE GRAY TO MODERATE GRAY; MOLDIC, PIN POINT VUGS;
50-90% ALTERED; ANHEDRAL;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: INTERBEDDED,
ACCESSORY MINERALS: CALCILUTITE- %;
FOSSILS: ORGANICS;
WAXY ORGANIC-RICH INTERVAL INTERBEDDED WITH DOLOMITE

320 - 325 DOLOSTONE; LIGHT GRAY TO YELLOWISH GRAY; MOLDIC, VUGULAR; 50-90% ALTERED;
ANHEDRAL;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
40% RECOVERY 320-325

325 - 335 DOLOSTONE; YELLOWISH GRAY; PIN POINT VUGS, INTERGRANULAR,
POSSIBLY HIGH PERMEABILITY; 50-90% ALTERED; ANHEDRAL;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;

20% RECOVERY 325-335

335 - 339 DOLOSTONE; YELLOWISH GRAY; INTERGRANULAR, LOW PERMEABILITY; 50-90% ALTERED;
ANHEDRAL;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
OTHER FEATURES: WEATHERED, CHALKY;
FOSSILS: FOSSIL MOLDS, MOLLUSKS;

339 - 345 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN; INTERGRANULAR,
LOW PERMEABILITY; 50-90% ALTERED; ANHEDRAL;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
SOME HEAVILY WEATHERED FOSSIL (MOLLUSK) MOLDS, BIOTURBATED AT 346, LARGE RECRYSTALLIZED
GRAINS OF CLEAR TO OFF-WHITE CHERT, INCREASING ORGANICS WITH DEPTH, GYPSUM CRYSTALS
ASSOCIATED WITH ORGANIC-RICH ZONES

345 - 350 DOLOSTONE; YELLOWISH GRAY TO VERY LIGHT ORANGE; INTERGRANULAR,
LOW PERMEABILITY; 50-90% ALTERED; ANHEDRAL;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: INTERBEDDED,
FOSSILS: ORGANICS, FOSSIL MOLDS, MOLLUSKS;
OBSERVABLE GRAIN SIZE VARIATION EVIDENT, SOME DOLOMUD LAYERS INTERBEDDED WITH DOLOMITE
LAYERS WHICH HAVE MORE SECONDARY POROSITY DEVELOPMENT

350 - 355 DOLOSTONE; YELLOWISH GRAY TO VERY LIGHT ORANGE; PIN POINT VUGS, LOW PERMEABILITY, VUGULAR;
50-90% ALTERED; ANHEDRAL;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
FOSSILS: FOSSIL MOLDS, MOLLUSKS;
SOME HEAVILY WEATHERED FOSSIL (MOLLUSK) MOLDS

355 - 356.5 DOLOSTONE; YELLOWISH GRAY TO VERY LIGHT ORANGE; INTERGRANULAR,
LOW PERMEABILITY; 50-90% ALTERED; ANHEDRAL;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
EXTREMELY FINE-GRAINED DOLOSTONE

356.5- 357.5 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN; INTERGRANULAR,
LOW PERMEABILITY; 50-90% ALTERED; ANHEDRAL;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
OTHER FEATURES: WEATHERED;
FOSSILS: ORGANICS;
ABUNDANT ORGANIC-RICH LAYERS

357.5- 360 AS ABOVE
LESS ORGANIC LAYERS THAN ABOVE INTERVAL

360 - 367 DOLOSTONE; VERY LIGHT ORANGE; INTERGRANULAR, LOW PERMEABILITY;
10-50% ALTERED; ANHEDRAL;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
OTHER FEATURES: WEATHERED, CHALKY, SUCROSIC;
FOSSILS: FOSSIL FRAGMENTS;
FINE-GRAINED DOLOMUD WITH SOME ZONES OF SECONDARY VUGGY POROSITY DUE TO WEATHERED-OUT
BURROWS

367 TOTAL DEPTH