

Georgia Geological Survey well no. 3120

Lowndes County, Georgia

Hunt Petroleum Company, Langsdale no. 1

TD5053

Geophysical datum: Kelly bushing, 181.80 feet above sea level

logged by Howard R. Cramer, September and October, 1976

an asterisk* after a depth indicates a microfossil slide
selected and included in the sample envelope.

- 0-1300 no samples
- 1300-1310 microcrystalline, very dolomitic limestone; some is 30% sandy, up to 1/2 mm grains
- 1310-1320 95% gray limestone as above, pyritic
5% gray cherty dolomite
- 1320-1330 1-2% limestone as above
1-2% cherty dolomite as above
balance, limestone, recrystallized fossils and dolomite; fossils in the limestone are echinoids and bryozoa
- 1330-1340 Same as above
- 1340-1350 As above, but 30-40% dolomite; some of the limestone is the bluish gray speckled stuff, cave?
- 1350-1360 As above
60% fossiliferous limestone
25% gray cherty dolomite
15% gray, speckled limestone
- 1360-1370 95% fossiliferous limestone
5% cherty dolomite
- 1370-1380 85% limestone as above
15% chert- no dolomite
trace of glauconite as botroids--probably in limestone
- 1380-1390 As above; chert is brownish. limestone, when not recrystallized fossils, is microcrystalline
- 1390-1400 As above
- 1400-1410 As above
- 1410-1420 As above, no glauconite
- 1420-1430 As above--cherty limestone
- 1430-1440 As above. Cherty (10%) limestone and a trace of glauconite
- 1440-1450 Limestone as above; a trace of chert; also a new fine grained light gray calcarenite 10-15%; trace of glauconite in the calcarenite
- 1450-1460 95% recrystallized fossiliferous cherty limestone; 5% abot calcarenite; trace of glauconite
- 1460-1470 As above, but no calcarenite
trace of glauconite
porosity evident

- 1470-1480 Cherty limestone as above; recrystallized fossils in a matrix of very fine grained calcarenite; glauconite is in the limestone here; chert about 5%; porous
- 1480-1490 Limestone as above
40% chert
10-15% calcarenite
trace of anhydrite
- 1490-1500* As above, forams
- 1500-1510 As above, no anhydrite; very fossiliferous micrite
30% chert
- 1520-1530 As above; trace of gypsum
- 1530-1540 As above; 30% chert; trace of gypsum
- 1540-1550 As above
- 1550-1560 As above; 40% chert; 1-2% gypsum and anhydrite
- 1560-1570 Limestone as above (finely crystalline, fossiliferous);
25% chert; trace anhydrite
- 1570-1580 As above; 25% chert; trace of anhydrite
- 1580-1590 As above; trace of dark colored, calcareous fine grained sandstone; lots of bit fragments
- 1590-1600 Limestone and chert as above; no sandstone; trace of evaporite
- 1600-1610 Chert and limestone as above; trace of glauconite in the limestone; chert in the limestone
- 1610-1620 Limestone; brown chert 15-20% ; few large quartz grains
- 1620-1630 As above, limestone with 30% chert; trace of glauconite;
4-5% very fine grained sandstone
- 1630-1640 Limestone as above, microcrystalline, very microfossiliferous, white N9. 10-15% chert (or opaline claystone?); trace of glauconite in limestone; trace of anhydrite and gypsum
- 1640-1650 Same limestone as above; brown chert 30%; chert fragments are in the limestone; trace of glauconite
- 1650-1660 As above; trace of dark hematitic sandstone
- 1660-1670 As above; chert 25%; trace of 2mm quartz grains
- 1670-1680* Limestone, glauconitic, fossiliferous; chert 10%; gray chert more than brown chert; trace of gypsum and anhydrite

- 1680-1690 Limestone as above; 5% glauconite; chert 30%, more gray than brown; trace of anhydrite. Limestones are fossil fragmental and microcrystalline, glauconite in the bioclastic only; forams, ostracods
- 1690-1700 Glauconitic limestone as above; 15% gray chert; trace of anhydrite; brachiopods, forams, echinoids
- 1700-1710 Bioclastic limestone as above; glauconite 10%; 25-30% gray chert; 5-10% microcrystalline limestone trace of anhydrite and trace of hematite
- 1710-1720 Cherty limestone as above; much less glauconite; trace of anhydrite
- 1720-1730 As above, cherty, glauconitic limestone; trace of anhydrite
- 1730-1740 As above, and a trace of very fine grained hematitic sandstone
- 1740-1750 Cherty, glauconitic bioclastic limestone as above; trace of anhydrite
- 1750-1760 As above, trace of anhydrite; fossil fragments and forams
- 1760-1770* Light gray cherty limestone as above; chert 50%; 1-2% glauconite; one large flake of gypsum with limestone attached; trace of anhydrite; forams
- 1770-1780 Bioclastic limestone as above; 10-15% gray chert; glauconite 5%
- 1780-1790* Glauconitic, cherty limestone as above
- 1790-1800 Glauconitic, cherty, bioclastic limestone as above; also 10% microcrystalline, gray limestone; chert 10-15% (of which 10% is brown and 90% gray); trace of chalk
- 1800-1810 Limestone as above, less than 10% chert, all gray; trace of anhydrite
- 1810-1820 Limestones as above, about 30% is microcrystalline type; chert 10%; trace of anhydrite
- 1820-1830 Limestones as above--about 5% microcrystalline; less than 10% chert; trace of anhydrite
- 1830-1840 70% limestones as above
10% chert
20% gray shale

- 1840-1850 50% light gray microcrystalline limestone
40% gray shale
5% dark, lignitic limestone
5% chert
- 1850-1860 50% limestone
48% calcareous gray shale
trace of glauconite; trace of dark, lignitic limestone
- 1860-1870 50% gray calcareous shale, with glauconite in the shale
50% microcrystalline limestone with a trace of chert
trace of dark lignitic limestone
- 1870-1880 50% limestone, light gray, 1-2% silty
20-25% glauconitic limestone
1-2% brown chert
15% gray shale
- 1880-1890 As above
- 1890-1900 80% limestones as above
20% calcareous gray shale
- 1900-1910 99% sandy limestone, of which 10% is very fine sand very pale green 10G8/2
balance from above; fresh cuttings appear more sandy, probably from calcarenite
- 1910-1920 As above
- 1920-1930 As above
- 1930-1940 90% very light gray N8, sandy calcarenite as above
10% miscellaneous from above; a few very coarse sand quartz grains; trace of chert
- 1940-1950 As above; trace of chert in the limestone; trace of glauconite in the limestone; less than 5% gray shale
- 1950-1960 50% calcareous siltstone
40% brown chert
5% glauconite
5% microcrystalline limestone
- 1960-1970 As above
- 1970-1980 50% chert; 50% limestone and calcareous siltstone 50/50 more glauconite
- 1980-1990 90% sandy (10%) calcarenite as above
10% traces of miscellaneous
1-2% glauconite in the limestone
- 1990-2000 Sandy calcarenite as above, gastropods; 5-10% chert; 1-2% gray shale

- 2000-2010 95% very fine grained sandy limestone as above,
about 20% of which is sand
5% chert in the limestone
trace of very fine grained hematitic sandstone
- 2010-2020* same very fine grained sandy calcarenite; forams,
trace of chert; trace of shale; few large
quartz sand grains
- 2020-2030 As above
- 2030-2040* calcareous siltstone or silty limestone, can't decide;
trace of pyrite and large quartz grains; trace of
limonite; looks like shale, N7
- 2040-2050 light gray N6, finely micaceous, very fine grained
sandy limestone or limy sandstone; few large frosted
quartz grains
- 2050-2060 As above
- 2060-2070* As above, forams
- 2070-2080 Same, but 5-10% gray shale
- 2080-2090 Same, no shale; gray calcareous fine grained sand-
stone or very fine grained sandy limestone
- 2090-2100* 100 limestone, white, N9; fossiliferous, very finely
crystalline, powdery, bryozoa, forams
- 2100-2110 As above
- 2110-2120 As above
- 2120-2130 As above
- 2130-2140 sample missing
- 2140-2150 very fossiliferous limestone, microcrystalline matrix;
trace of chert
- 2150-2160 As above; trace of gray shale (from the interval of
the missing sample?); trace of chert
- 2160-2170 As above
- 2170-2180 As above; as microcoquina with micrite matrix;
trace of glauconite and trace of chert
- 2180-2190 Same, brachiopod
- 2190-2200 sample missing

- 2200-2210 Same white, very fossiliferous, microcrystalline limestone; trace of chert; cement
- 2210-2220 same
- 2220-2230 same, less than 5% chert; trace of glauconite
- 2230-2240 same
- 2240-2250 same
- 2250-2260* same, but more matrix and less fossils; less chert
- 2260-2270 same as above; trace of chert
- 2270-2280 same light microcrystalline limestone; trace of glauconite; forams; also some calcarenite with fossils
- 2280-2290* N7, very fine grained sandy limestone, calcarenite, with 20% sand; micaceous; few very coarse grains of quartz in a sandy limestone matrix; 5-10% limestones as above; about 5% gray shale, non calcareous 5% medium grained hematitic sandstone; shell fragments in the gray limestone and also mica
- 2290-2300 90% sandy, gray, micaceous limestone as above
10% gray micaceous, calcareous clay; trace of chert;
trace of microcrystalline limestone; trace pyrite
- 2300-2310 85% gray N7 sandy limestone as above
5% gray shale as above
10% cryptocrystalline limestone fragments
trace of phosphatized fossil fragment; forams
- 2310-2320 gray, sandy limestone and gray shale as above;
tooth fragment; trace of glauconite in the sandy limestone; trace of fine grained sandstone, angular
- 2320-2330 50-60% sandy (10-15%) limestone as above
10-25% gray shale
5% calcareous siltstone
trace pyrite in limestone and trace glauconite in limestone also; forams
- 2330-2340 Sandy limestone and shale as above; trace of light tan, dense limestone
- 2340-2350 As above 95% sandy gray limestone; 5% gray shale; trace others; forams

- 2350-2360 As above
- 2360-2370 trash, fibres and what looks like gray calcarenite; grains stuck by mud.
- 2370-2380 funny sample. looks like calcarenite grains stuck together with mud and other fragments included also
- 2380-2390 pale green 10G6/2 calcarenite with 1-2% clay. trace of glauconite; trace of chert; limestone fragments (shell parts?) in the arenite; trace mica in the arenite; a few subrounded quartz grains; 1-2% gray shale; 1 foram
- 2390-2400 As above
- 2400-2410 As above; trace of shale; no glauconite
- 2410-2420 Same calcarenite; a few limestone fragments; trace of glauconite and mica
- 2420-2430 Calcarenite as above; 5% gray shale; 5% shell fragments in the arenite; trace of gray chert; forams
- 2430-2440 As above
- 2440-2450 Same
- 2450-2460 Same, shell fragments 1% in arenite
- 2460-2470 Same, trace of chert and mica
- 2470-2480 Same calcarenite; no chert; trace of mica
- 2480-2490 Same
- 2490-2500 same
- 2500-2510 Calcarenite as above 80%; gray and tan chert 5%; 15% very pale green 10G8/2 dolomitic limestone, dolomite as fine clastic crystals, limestone is microcrystalline; trace of glauconite in gray calcarenite trace of chert
- 2510-2520 2 types of limestone as above, dolomitic only 10%; forams; 1-2% gray shale; trace of limonite and pyrite
- 2520-2530 50% gray calcarenite as above and 50% microcrystalline gray limestone with 5% clay; trace of chert
- 2530-2540 same; no chert
- 2540-2550 as above; trace of glauconite

- 2550-2560 Same 2 limestones, but more of the microcrystalline type-60-70%; 25% calcarenite; balance light tan cryptocrystalline type; trace of glauconite and pyrite in the calcarenite; trace of limonite
- 2560-2570 limestones as above, same percentages
- 2570-2580 3 limestones as above; same percentages and 5% calcareous shale
- 2580-2590 same limestones; trace of chert and limonite; no shale
- 2590-2600 2 limestones--calcarenite 20%, gray microcrystalline, very shaley, 80%
- 2600-2610 90% gray microcrystalline limestone
5% calcarenite
5% gray shale
- 2610-2620 as above, with 5% gumbo clay
- 2620-2630 same; trace of glauconite
- 2630-2640 same, no glauconite; limestone finely micaceous
- 2640-2650 50% very calcareous (30%) clayey (10%) very fine grained sandstone, light gray N7
40% gumbo clay
10% gray, shaly, fine grained sandy microcrystalline limestone
- 2650-2660 same; trace of glauconite, mica, and large coarse quartz grains
- 2660-2670 Same, seems like most of the residue to fine grained sandstone; trace of fossil fragments in the sandstone
- 2670-2680 Same; trace of pyrite and large quartz grains in the sandstone; distinctly more clayey; the light gray very fine sandy shaly limestone could be fine grained calcareous sandstone, hard to tell
- 2680-2690 same, trace of glauconite
- 2690-2700 same; much less gray, very fine sandy limestone
- 2700-2710 same; 50% gumbo clay. Most seems to be very fine grained calcareous sandstone fragments held together by clay, but clay not overwhelming, maybe 20%

- 2710-2720* 90% very fine grained clayey, calcareous sandstone
10% light tan limestone
coral fragment; trace of pyrite, sulfur, hematite,
glauconite, and a few large quartz grains
- 2720-2730 same. trace of tan limestone, pyrite, limonite.
echinoid plate
- 2730-2740 same as above. gray calcareous shaly siltstone,
or very fine grained sandstone, hard to tell; trace
of tan limestone, shell fragments, sulfur, and limo-
nite
- 2740-2750 As above. gray, shaly, calcareous siltstone; oyster
parts. trace of pyrite, trace of chert
- 2750-2760 same gray, clayey calcareous siltstone; trace of
pyrite, tan limestone and oyster parts
- 2760-2770* gumbo, with lots of carbonate fragments, other-
wise as above. still just a trace of the tan lime-
stone with glauconite
- 2770-2780 gray siltstone as above; also 5% gray calcareous
shale; oysters
- 2780-2790* forams, oysters, gastropods; trace of limonite,
pyrite, sulfur, hematite, glauconite and a few
large quartz grains.
5% shale
15% gumbo clay
80% gray calcareous siltstone as above, about 30%
carbonate cement
- 2790-2800 15% gumbo clay with carbonate fragments, mostly car-
bonate powder; trace of glauconite; oysters About
10% of the gumbo is clay; therefore the material is
clayey limestone, very pale green 10G8/2; trace of
large quartz grains
- 2800-2810 same; trace of hematite; powdery stuff is chalk? not
white
- 2810-2820 same; trace of sulfur; forams
- 2820-2830 same; trace of pyrite; much more clayey (25%)
seem like kaolin clasts
- 2830-2840 same
- 2840-2850 Same; clay 50%, carbonate 50%
- 2850-2860 same; trace of mica
- 2860-2870 same; trace of pyrite; some distinct shale pebbles

- 2870-2880 Same; some finely micaceous, gray shale fragments; oysters
- 2880-2890 Seems the same, but a distinct piece of shale breaks down easily and is 75% clay, 25% carbonate
- 2890-2900 calcareous clay as above
- 2900-2910 same
- 2910-2920 same; oyster fragments
- 2920-2930 same; trace of pyrite
- 2930-2940 same; chalk in blebs in the clay
- 2940-2950 same; chalk is 5%
- 2950-2960 as above
- 2960-2970 calcareous clay as above; less chalk
- 2970-2980 chalky calcareous clay as above
- 2980-2990 as above; oysters
- 2990-3000 as above; less chalk
- 3000-3010 same
- 3010-3020* same; oysters; ostracodes, forams
- 3020-3030 same
- 3030-3040 same; finely micaceous clay with chalk blebs
- 3040-3050 clay or shale, light olive green 5Y5/2; much less chalk and gumbo but still calcareous by 20-30%; oyster fragments
- 3050-3060 same; chalk 5%
- 3060-3070* same; oysters; forams; trace of pyrite; less than 5% chalk
- 3070-3080 99% clay/shale; 1% chalk
- 3080-3090 same; much more gumbo; 1-2% chalk; oysters; trace of pyrite
- 3090-3100 same gray shale; chalk 5%
- 3100-3110 same; oyster parts

- 3110-3120 same; slightly chalky gray shale; trace of glauconite. chalk occurs as rounded clasts in the gumbo and in the shale; oysters
- 3120-3130 same; trace of shaly limestone, not chalk; trace of limonite; trace of fibres--wood?
- 3130-3140 same; ostracodes; no fibres
- 3140-3150 same gray clay with a trace of chalk and a trace of shaly limestone
- 3150-3160 same gray clay; trace of chalk, limonite, shaly limestone; oysters
- 3160-3170 As above; no limonite
- 3170-3180 same
- 3180-3190 same slightly chalky clay/shale with much more gumbo
- 3190-3200 same; oysters
- 3200-3210 same; less gumbo; a few large quartz grains; trace of hematite; much shell fragments
- 3210-3220 same
- 3220-3230 same, with the gray shale/clay with 5% chalk in blebs; fossil fragments; trace of sandy (10%) limestone
- 3230-3240 10% shale as above
30% calcareous (30%) fine grained sandstone
30% tan limestone
30% quartz grains, 1-2 mm
trace of pyrite, shell fragments, phosphate in the calcareous sandstone
- 3240-3250 Same as above; perhaps more shell fragments as pelecypod laminar layer fragments; shale seems reddish; more calcareous sandstone and less limestone, maybe 5% quartz, 30% shale, 60% calcareous sandstone
- 3250-3260 40% shale; 30% calcareous sandstone; 20% shell fragments; 10% tan limestone; trace of pyrite and quartz grains; some of the tan limestone is layered in the calcareous sandstone; loose quartz grains 1-2mm and much larger than the grains in the sandstone.
- 3260-3270 as above; 20% shale 50% calcareous sandstone; 25% shell fragments; 5% limestone; trace of pyrite and quartz grains

- 3270-3280 15% shale, moderate red 5R4/6; 75% calcareous sandstone; 10% shell fragments; trace of lignite and pyrite; some of the fine grained calcareous sandstone is tan, some gray; trace of quartz grains, 1-2 mms
- 3280-3290 same; less shale 5%; more calcareous sandstone (less of the gray type); trace of lignite, pyrite; quartz grains, shell fragments; trace of phosphate in the sandstone and also glauconite
- 3290-3300 same; shale 30%; calcareous sandstone 50%; shells 20%; trace of pyrite, gray calcareous sandstone, lignite, quartz grains
- 3300-3310 20% red shale
70% tan calcareous sandstone
10% shell fragments
trace of gray calcareous sandstone, lignite, pyrite, limonite, phosphatized shells; trace of glauconite in the sandstone
- 3310-3320 same. red shale 40%; calcareous sandstone 50%; shells 10%; trace of glauconite in the sandstone; trace of lignite, sulfur, quartz grains
- 3320-3330 same, red shale 30%; calcareous sandstone 60%; shell fragments 10%; trace of pyrite, lignite, mica
- 3330-3340 same
- 3340-3350 same, red shale 50%; calcareous sandstone 45%; shell fragments 5%, oysters; trace of lignite and pyrite; trace of glauconite in the sandstone
- 3350-3360 40% red shale; 25% calcareous sandstone; 30% silty (20%) limestone, very light gray N8; 5% chert; trace of shell fragments, limonite, quartz grains; trace of glauconite in the sandstone
- 3360-3370 same; a bit more chert and lignite; also mica in the sandstone
- 3370-3380 red shale 60%; calcareous sandstone 35%; dense clayey limestone 5% (5% clay); trace of lignite and pyrite.
- 3380-3390* red shale 50%; 40% calcareous sandstone; 5% shell fragments, balance clayey limestone; trace of lignite; trace of glauconite in the sandstone; bryozoa

- 3390-3400 Red shale 40%; calcareous sandstone 50%; clayey limestone 5%; shell fragments 5%; trace of lignite mica, glauconite and phosphate, pyrite.
- 3400-3410 red shale 70%; 25% calcareous sandstone; 5% shell fragments; trace of pyrite and clayey limestone
- 3410-3420 35% red shale; 30% calcareous sandstone; 35% shell fragments; trace of pyrite, glauconite, quartz grains, lignite
- 3420-3430 70% red shale; 25% calcareous sandstone; 5% shell fragments; trace of glauconite in the sandstone, trace of quartz grains, chert, clayey limestone
- 3430-3440 70% red shale; 25% shell fragments; 5% calcareous sandstone. trace of mica in the sandstone, also glauconite
- 3440-3450 as above; trace of pyrite
- 3450-3460 As above
- 3460-3470 red shale 70%; calcareous sandstone 25%; shell fragments 5%; trace of pyrite
- 3470-3480 30% shale; 30% lignite; 35% calcareous sandstone; trace of pyrite, quartz grains; 5% oyster shells
- 3480-3490 50% lignite; 25% shale; 20% calcareous sandstone; 5% shell fragments. trace pyrite and a trace of N8 dolomitic limestone, dolomite as rhombs in the limestone.
- 3490-3500 90% red shale; 5% calcareous sandstone; 5% dolomitic limestone; trace of lignite and quartz grains
- 3500-3510 As above; trace of glauconite in the sandstone, trace of lignite and limonite
- 3510-3520 As above
- 3520-3530 30% red shale; 30% dolomitic limestone; 30% gray, very calcareous sandstone; 5% shell fragments; trace of pyrite
- 3530-3540 95% red shale; 5% calcareous sandstone; trace of hematite, glauconite in sandstone, oyster parts.
- 3540-3550 90% shale, medium gray N5, micaceous; 6% white dolomitic limestone; balance miscellaneous sandstones from above; trace of lignite and oyster fragments

- 3550-3560 Same; bryozoa, oyster fragments; trace of lignite
- 3560-3570 99% shale; 1% micaceous sandstone and limestone; trace of lignite, oyster fragments; gastropod
- 3570-3580 Same; trace of pyrite; oysters
- 3580-3590 90% gray shale; 5% limestone; 5% miscellaneous sandstones; trace of pyrite, lignite, oysters, bryozoa
- 3590-3600 98% shale; 2% limestone and sandstones; trace of lignite
- 3600-3610 same
- 3610-3620 90% shale; 8% miscellaneous sandstones; 2% limestone; trace of pyrite, lignite, sulfur
- 3620-3630 98% shale; 2% miscellaneous sandstones
- 3630-3640 same; trace of lignite and oysters
- 3640-3650 90% shale; 10% sandstones; some glauconite and calcareous sandstone, all fine grained; trace of lignite, pyrite, limestone
- 3650-3660* 60% shale; 15% white limestone; 15% sandy limestone, sand is very fine grained and 30%, includes mica and glauconite; 10% sandstones; trace of pyrite, lignite, oysters,; forams
- 3660-3670* 70% shale; 20% very fine grained sandy limestone; 5% miscellaneous sandstones; 5% white limestone; trace of lignite, bryozoa, oysters, large quartz grains; forams
- 3670=3680 50% shale; 15% very fine grained calcareous limestone; 10% sandy limestone; 25% very coarse grained 1-2mm loose quartz grains; trace pyrite and limonite; oysters
- 3680-3690 50% very coarse grained quartz sand; 25% shale; 15% miscellaneous sandstones which are fine grained; trace of limonite and pyrite
- 3690-3700 50% shale; 35% quartz grains; 15% miscellaneous sandstones; trace pyrite; limonite 1-2%; forams trace of lignite; shell fragments are in the very fine grained calcareous sandstone.

- 3700-3710 40% shale; 30% miscellaneous sandstones; 30% very coarse grained sand; trace of sulfur, lignite, limonite; oysters; trace of feldspar in the sand
- 3710-3720 80% quartz sand grains, very coarse, clean; 20% shale; trace of miscellaneous sandstones; most of the quartz is clear, some is pale yellow
- 3720-3730 same; trace of limonite and feldspar
- 3730-3740 same; 80% sand grains; 20% shale; trace of limonite, miscellaneous sandstones, pyrite, obsidian, feldspar
- 3740-3750 70% sand; 25% shale; trace of miscellaneous sandstones; 5% very calcareous, gray siltstone; trace of limonite
- 3750-3760 80% very coarse grained sand as above
15% shale; 1% very fine grained sandstone and siltstone; fibres; trace of shells, miscellaneous sandstones, garnet, limonite, feldspar, gray waxy clay
- 3760-3770 80% very coarse grained quartz sand; 20% gray shale; trace of limonite and obsidian
- 3770-3780 same, no obsidian
- 3780-3790 95% very coarse grained and coarse grained quartz sand; 5% shale; trace of miscellaneous sandstones, hematite, feldspar, pyrite, mica
- 3790-3800 As above; sand is better sorted; coarse grained is about 1mm; angular to rounde; trace of mica
- 3800-3810 99% quartz sand; well sorted, about 1mm, 1% shale; trace of feldspar and mica
- 3810-3820 same
- 3820-3830 95% quartz sand; 5% shale. A couple of pieces of gumbo with sand grains inside. Might this be the cementing material which is otherwise washed away.
- 3830-3840 99% quartz sand as above, about 1mm; 1% shale; trace of mica, no gumbo
- 3840-3850 As above; some very coarse grains, mostly about 1mm; trace of mica

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- 3850-3860 As above; tar
- 3860-3870 Same; no tar; trace of limonite and lignite; 1 piece of very glauconitic fine grained calcareous sandstone--cave?
- 3870-3880 Same, no sandstone; 99% quartz sand; 1% shale; trace of mica
- 3880-3890 90% sand as above; 10% shale; trace of mica; calcareous cement stuck to some of the sand grains
- 3890-3900 98% quartz sand; 2% shale; trace of feldspar and mica; some sand grains with calcite cement--about 5%; sand is fine grained, about 1mm, cleaner; sample much lighter in color.
- 3900-3910 98% quartz sand as above; trace of lignite and mica and feldspar and hematite and calcareous cement; about 2% of the sample is calcareous cemented sand grains--the cement is about 10%; probably very friable calcareous sandstone originally.
- 3910-3920 85% feldspathic, micaceous quartz sand; trace of lignite; some of the sand seems to have been calcareous cemented; 15% gray shale and some red.
- 3920-3930 90% quartz sand with feldspar and mica; trace of lignite; trace of the cemented grains; 1-2mm, most are about 1mm
- 3930-3940 more shale and much coarser sand than above; 80% sand and sandstone; 20% shale; more of the sand is calcareous cemented, calcareous about 10%, most of the sand seems to have been cemented; trace of mica, feldspar, lignite; some of the fragments are 25-30% calcareous cement; a few calcareous fine grained sandstone fragments; trace of pyrite.
- 3940-3950 Coarser grained, a bit more shale, otherwise as above; trace of lignite, limonite, micaceous, feldspar, chert; fine grained calcareous sandstone as above.
- 3950-3960 As above, more shale and a bit more limonitic and coarser; trace of fine grained sandy limestone; limonitic sandstone about 10%; limonite staining on the calcite cement evident; trace of mica, obsidian, feldspar, lignite; actually 10% shale and 90% sand and sandstone.

- 3960-3970 very feldspathic (10%) quartz sand; 5% shale; not as coarse as above; trace of fine grained sandstone; fine grained red sandstone 5-10%; trace only of limonite; trace of lignite; not as much evidence for the calcite cement for the sand grains; trace of mica
- 3970-3980 shale 5%, and sand as sandstone as above, but only a trace of the red sandstone; trace of lignite; sand is very angular.
- 3980-3990 shale 5%, gray and red; sand 95%, calcareous cement; trace of feldspar and mica, limonite, lignite; no very fine grained sandstone of any kind now.
- 3990-4000 As above, but 1-2% red, fine grained sandstone.
- 4000-4010 80% very coarse grained, 1-2mm; appears to have been calcareous cemented (5-10%); feldspar 5%; trace mica, lignite, limonite cement, shell fragments, phosphate
15% gray shale
5% red clay with much sand (40%) and a trace of lignite.
- 4010-4020 90% sand, feldspar, much limonite cementing and much more calcite cement; trace of lignite
10% gray shale; no red shale
- 4020-4030 80% very coarse grained sand with much limonite; 20% shale, gray and red, seems gumbo; trace of lignite, mica, calcareous, gray, very fine grained sandstone
- 4030-4040 90% very coarse grained sand,
10% red and gray shales; much less limonite;
trace of glauconite and calcareous (10%) gray
very fine grained sandstone
- 4040-4050 80% sand, very coarse grained, very limonitic,
feldspathic
20% shale, gray and red
trace of light gray, very fine grained calcareous
sandstone; shark tooth
- 4050-4060 95% coarse grained sand, feldspar, no limonite; trace
of lignite
5% shale, gray and red, more red than gray
- 4060-4070 98% sand, feldspar, very clean, very coarse
grained
2% red shale; trace of gray shale

- 4070-4080 95% quartz sand and feldspar, very clean
5% red shale; trace of gray shale
- 4080-4090 50% sand as above
50% shale, gray and red, mostly red, moderate red
5R4/6
10% limonitic, yellow siltstone
25% moderate red shale
5% gray shale
10% very fine grained sandstone; some red and
some very calcareous or even sandy limestone,
hard to tell
trace of quartzite and basalt. pebbles? or basement
- 4090-4100 30% sand grains as above
60% shales
40% red and yellow siltstone
10% gray
10% very fine grained sandstone
10% quartzite pebbles and fragments; dense red
aphanitic rock with clear quartz grains in it.
- 4110-4120 50% gray, micaceous shale
note depth 10% red shale
figures 15% quartzites, red and white
10% clear, fine grained sandstone (1/8mm)
10% very coarse grained quartz sand
trace of pyrite, sandy limestone, lignite in gray
shale, iron staining.
basement or pebbles?
- 4100-4110 same components. 60% gray shale; 15% red shale;
note depth 20% sand grains; 5% calcareous fine grained sand-
stone, red/yellow sandy clay, quartzite
- 4120-4130 same components. 25% gray shale; 25% red shale;
10% very coarse sand grains; 40% clear quartzite and
reddish quartzite; trace of gneiss, shell fragments,
light gray sandy limestone
- 4130-4140 50% gray shale; 25% red shale; 10% quartzite;
10% quartz grains; 5% very fine grained calcareous
(10%) sandstone, lignite; bryozoa, trace of
limonite
- 4140-4150 50% gray shale; 40% very coarse sand grains, many
frosted, and feldspar; 8% quartzite; 2% very fine
grained sandstone; trace of shells, phosphate,
- 4150-4160* 70% shale; 25% very fine grained sandstone, non
calcareous; 5% coarse grained sand; trace limonite,
phosphate.

- 4160-4170 55% gray shale; 5% red shale; 35% clear, very fine grained quartz sandstone; 5% coarse quartz grains; 5% red quartzite; trace of limonite and mica
- 4170-4180 65% gray shale; 5% red shale; 20% very fine grained sandstone with clay cement; 5% quartz grains with clay cement; feldspar; 5% red quartzite; soft, tubular fossils; trace of limonite, oysters, pyrite, shell impressions in shale.
- 4180-4190 60% gray shale; 10% red shale; 25% very fine grained clear quartz sandstone with clay cement; 5% quartz sand grains; soft tubular fossils; trace of limonite, shells, red quartzite, chert, mica.
- 4190-4200* 50% gray shale; 5% red shale; 40% very fine grained clear sandstone; 5% quartz grains; Globigerina; trace of lignite, red chert, mica
- 4200-4210 80% gray shale; 5% red shale; 10% very fine grained sandstone; 5% quartzite; 5% very coarse grains of quartz sand; trace of limonite, lignite, chert
- 4210-4220 55% gray shale; 25% red shale; 10% clear, very fine grained sandstone; 5% gray, fine grained sandstone; 5% quartz grains; trace of quartzite, some clearly as pebbles, lignite, mica, limonite
- 4220-4230 same
- 4230-4240* 75% gray shale; 5% red shale; 15% sandstones; 5% quartz grains; trace of lignite, quartzite, mica, here and in many of the samples above is wood, some lignitized
- 4240-4250 70% dark reddish brown 10R3/4 material, clay and very fine grained sandstone, mostly clay/shale with much staining of the light tan shale to dark brown. 15% sandstones, some red, some gray, some clear, some calcareous; 5% quartz grains and quartzite; trace of pyrite, oyster fragments; 10% gray micaceous shale.
Triassic???